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Apple's Visionary Redefined Digital Age

By JOHN MARKOFF

Steven P. Jobs, the visionary co-founder of Apple who helped usher in the era of personal computers and then led a cultural transformation in the way music, movies and mobile communications were experienced in the digital age, died Wednesday. He was 56.

The death was announced by Apple, the company Mr. Jobs and his high school friend Stephen Wozniak started in 1976 in a suburban California garage.

A friend of the family said that Mr. Jobs died of complications from pancreatic cancer, with which he waged a long and public struggle, remaining the face of the company even as he underwent treatment. He continued to introduce new products for a global market in his trademark blue jeans even as he grew gaunt and frail.

He underwent surgery in 2004, received a liver transplant in 2009 and took three medical leaves of absence as Apple's chief executive before stepping down in August and turning over the helm to Timothy D. Cook, the chief operating officer. When he left, he was still engaged in the company's affairs, negotiating with another Silicon Valley executive only weeks earlier.

"I have always said that if there ever came a day when I could no longer meet my duties and expectations as Apple's C.E.O., I would be the first to let you know," Mr. Jobs said in a letter released by the company. "Unfortunately, that day has come."

By then, having mastered digital technology and capitalized on his intuitive marketing sense, Mr. Jobs had largely come to define the personal computer industry and an array of digital consumer and entertainment businesses centered on the Internet. He had also become a very rich man, worth an estimated $8.3 billion.

Tributes to Mr. Jobs flowed quickly on Wednesday evening, in formal statements and in the flow of social networks, with President Obama, technology industry leaders and legions of Apple fans weighing in.

A Twitter user named Matt Galligan wrote: “R.I.P. Steve Jobs. You touched an ugly world of technology and made it beautiful.”

Mr. Jobs, left, and John Sculley, Apple's president, introduced the Macintosh personal computer in January 1984.

Eight years after founding Apple, Mr. Jobs led the team that designed the Macintosh computer, a breakthrough in making personal computers easier to use. After a 12-year separation from the company, prompted by a bitter falling-out with his chief executive, John Sculley, he returned in 1997 to oversee the creation of one innovative digital device after another — the iPod, the iPhone and the iPad. These transformed not only product categories like music players and cellphones but also entire industries, like music and mobile communications.

During his years outside Apple, he bought a tiny computer graphics spinoff from the director George Lucas and built a team of computer scientists, artists and animators that became Pixar Animation Studios.

Starting with “Toy Story” in 1995, Pixar produced a string of hit movies, won several Academy Awards for artistic and technological excellence, and made the full-length computer-animated film a mainstream art form enjoyed by children and adults worldwide.

Mr. Jobs was neither a hardware engineer nor a software programmer, nor did he think of himself as a manager. He considered himself a technology leader, choosing the best people possible, encouraging and prodding them, and making the final call on product design.

It was an executive style that had evolved. In his early years at Apple, his meddling in tiny details maddened colleagues, and his criticism could be caustic and even humiliating. But he grew to elicit extraordinary loyalty.

"He was the most passionate leader one could hope for, a motivating force without parallel," wrote Steven Levy, author of the 1994 book "Insanely Great," which chronicles the creation of the Mac. "Tom Sawyer could have picked up tricks from Steve Jobs."

"Toy Story," for example, took four years to make while Pixar struggled, yet Mr. Jobs never let up on his colleagues. "'You need a lot more than vision — you need a stubbornness, tenacity, belief and patience to stay the course," said Edwin Catmull, a computer scientist and a co-founder of Pixar. "In Steve's case, he pushes right to the edge, to try to make the next big step forward."

Mr. Jobs was the ultimate arbiter of Apple products, and his standards were exacting. Over the course of a year he tossed out two iPhone prototypes, for example, before approving the third, and began shipping it in June 2007.

To his understanding of technology he brought an immersion in popular culture. In his 20s, he dated Joan Baez; Ella Fitzgerald sang at his 30th birthday party. His worldview was shaped by the '60s counterculture in the San Francisco Bay Area, where he had grown up, the adopted son of a Silicon Valley machinist. When he graduated from high school in Cupertino in 1972, he said, "the very strong scent of the 1960s was still there."

After dropping out of Reed College, a stronghold of liberal thought in Portland, Ore., in 1972, Mr. Jobs led a countercultural lifestyle himself. He told a reporter that taking LSD was one of the two or three most important things he had done in his life. He said there were things about him that people who had not tried psychedelics — even people who knew him well, including his wife — could never understand.

Decades later he flew around the world in his own corporate jet, but he maintained emotional ties to the period in which he grew up. He often felt like an outsider in the corporate world, he said. When discussing the Silicon Valley's lasting contributions to humanity, he mentioned in the same breath the invention of the microchip and "The Whole Earth Catalog," a 1960s counterculture publication.

Apple's very name reflected his unconventionality. In an era when engineers and hobbyists tended to describe their machines with model numbers, he chose the name of a fruit, supposedly because of his dietary habits at the time.

Coming on the scene just as computing began to move beyond the walls of research laboratories and corporations in the 1970s, Mr. Jobs saw that computing was becoming personal — that it could do more than crunch numbers and solve scientific and business problems — and that it could even be a force for social and economic change. And at a time when hobbyist computers were boxy wooden affairs with metal chassis, he designed the Apple II as a sleek, low-slung plastic package intended for the den or the kitchen. He was offering not just products but a digital lifestyle.

He put much stock in the notion of "taste," a word he used frequently. It was a sensibility that shone in products that looked like works of art and delighted users. Great products, he said, were a triumph of taste, of "trying to expose yourself to the best things humans have done and then trying to bring those things into what you are doing."

Regis McKenna, a longtime Silicon Valley marketing executive to whom Mr. Jobs turned in the late 1970s to help shape the Apple brand, said Mr. Jobs's genius lay in his ability to simplify complex, highly engineered products, "to strip away the excess layers of business, design and innovation until only the simple, elegant reality remained."

Mr. Jobs's own research and intuition, not focus groups, were his guide. When asked what market research went into the iPad, Mr. Jobs replied: "None. It's not the consumers' job to know what they want."

Early Interests

Steven Paul Jobs was born in San Francisco on Feb. 24, 1955, and surrendered for adoption by his biological parents, Joanne Carole Schieble and Abdulfattah Jandali, a graduate student from Syria who became a political science professor. He was adopted by Paul and Clara Jobs.

The elder Mr. Jobs, who worked in finance and real estate before returning to his original trade as a machinist, moved his family down the San Francisco Peninsula to Mountain View and then to Los Altos in the 1960s.

Mr. Jobs developed an early interest in electronics. He was mentored by a neighbor, an electronics hobbyist, who built Heathkit do-it-yourself electronics projects. He was brash from an early age. As an eighth grader, after discovering that a crucial part was missing from a frequency counter he was assembling, he telephoned William Hewlett, the co-founder of Hewlett-Packard. Mr. Hewlett spoke with the boy for 20 minutes, prepared a bag of parts for him to pick up and offered him a job as a summer intern.

Mr. Jobs met Mr. Wozniak while attending Homestead High School in neighboring Cupertino. The two took an introductory electronics class there.

The spark that ignited their partnership was provided by Mr. Wozniak's mother. Mr. Wozniak had graduated from high school and enrolled at the University of California, Berkeley, when she sent him an article from the October 1971 issue of Esquire magazine. The article, "Secrets of the Little Blue Box," by Ron Rosenbaum, detailed an underground hobbyist culture of young men known as phone phreaks who were illicitly exploring the nation's phone system.

Mr. Wozniak shared the article with Mr. Jobs, and the two set out to track down an elusive figure identified in the article as Captain Crunch. The man had taken the name from his discovery that a whistle that came in boxes of Cap'n Crunch cereal was tuned to a frequency that made it possible to make free long-distance calls simply by blowing the whistle next to a phone handset.

Captain Crunch was John Draper, a former Air Force electronic technician, and finding him took several weeks. Learning that the two young hobbyists were searching for him, Mr. Draper had arranged to come to Mr. Wozniak's Berkeley dormitory room. Mr. Jobs, who was still in high school, had traveled to Berkeley for the meeting. When Mr. Draper arrived, he entered the room saying simply, "It is I!"

Based on information they gleaned from Mr. Draper, Mr. Wozniak and Mr. Jobs later collaborated on building and selling blue boxes, devices that were widely used for making free — and illegal — phone calls. They raised a total of $6,000 from the effort.

After enrolling at Reed College in 1972, Mr. Jobs left after one semester, but remained in Portland for another 18 months auditing classes. In a commencement address given at Stanford in 2005, he said he had decided to leave college because it was consuming all of his parents' savings.

Leaving school, however, also freed his curiosity to follow his interests. "I didn't have a dorm room," he said in his Stanford speech, "so I slept on the floor in friends' rooms, I returned Coke bottles for the 5-cent deposits to buy food with, and I would walk the seven miles across town every Sunday night to get one good meal a week at the Hare Krishna temple. I loved it. And much of what I stumbled into by following my curiosity and intuition turned out to be priceless later on."

He returned to Silicon Valley in 1974 and took a job there as a technician at Atari, the video game manufacturer. Still searching for his calling, he left after several months and traveled to India with a college friend, Daniel Kottke, who would later become an early Apple employee. Mr. Jobs returned to Atari that fall.

In 1975, he and Mr. Wozniak, then working as an engineer at H.P., began attending meetings of the Homebrew Computer Club, a hobbyist group that met at the Stanford Linear Accelerator Center in Menlo Park, Calif. Personal computing had been pioneered at research laboratories adjacent to Stanford, and it was spreading to the outside world.

"What I remember is how intense he looked," said Lee Felsenstein, a computer designer who was a Homebrew member. "He was everywhere, and he seemed to be trying to hear everything people had to say."

Mr. Wozniak designed the original Apple I computer simply to show it off to his friends at the Homebrew. It was Mr. Jobs who had the inspiration that it could be a commercial product.

In early 1976, he and Mr. Wozniak, using their own money, began Apple with an initial investment of $1,300; they later gained the backing of a former Intel executive, A. C. Markkula, who lent them $250,000. Mr. Wozniak would be the technical half and Mr. Jobs the marketing half of the original Apple I Computer. Starting out in the Jobs family garage in Los Altos, they moved the company to a small office in Cupertino shortly thereafter.

In April 1977, Mr. Jobs and Mr. Wozniak introduced Apple II at the West Coast Computer Faire in San Francisco. It created a sensation. Faced with a gaggle of small and large competitors in the emerging computer market, Apple, with its Apple II, had figured out a way to straddle the business and consumer markets by building a computer that could be customized for specific applications.

Sales skyrocketed, from $2 million in 1977 to $600 million in 1981, the year the company went public. By 1983 Apple was in the Fortune 500. No company had ever joined the list so quickly.

The Apple III, introduced in May 1980, was intended to dominate the desktop computer market. I.B.M. would not introduce its original personal computer until 1981. But the Apple III had a host of technical problems, and Mr. Jobs shifted his focus to a new and ultimately short-lived project, an office workstation computer code-named Lisa.

An Apocalyptic Moment

By then Mr. Jobs had made his much-chronicled 1979 visit to Xerox's research center in Palo Alto, where he saw the Alto, an experimental personal computer system that foreshadowed modern desktop computing. The Alto, controlled by a mouse pointing device, was one of the first computers to employ a graphical video display, which presented the user with a view of documents and programs, adopting the metaphor of an office desktop.

"It was one of those sort of apocalyptic moments," Mr. Jobs said of his visit in a 1995 oral history interview for the Smithsonian Institution. "I remember within 10 minutes of seeing the graphical user interface stuff, just knowing that every computer would work this way someday. It was so obvious once you saw it. It didn't require tremendous intellect. It was so clear."

In 1981 he joined a small group of Apple engineers pursuing a separate project, a lower-cost system code-named Macintosh. The machine was introduced in January 1984 and trumpeted during the Super Bowl telecast by a 60-second commercial, directed by Ridley Scott, that linked I.B.M., then the dominant PC maker, with Orwell's Big Brother.

A year earlier Mr. Jobs had lured Mr. Sculley to Apple to be its chief executive. A former Pepsi-Cola chief executive, Mr. Sculley was impressed by Mr. Jobs's pitch: "Do you want to spend the rest of your life selling sugared water, or do you want a chance to change the world?"

He went on to help Mr. Jobs introduce a number of new computer models, including an advanced version of the Apple II and later the Lisa and Macintosh desktop computers. Through them Mr. Jobs popularized the graphical user interface, which, based on a mouse pointing device, would become the standard way to control computers.

But when the Lisa failed commercially and early Macintosh sales proved disappointing, the two men became estranged and a power struggle ensued, and Mr. Jobs lost control of the Lisa project. The board ultimately stripped him of his operational role, taking control of the Lisa project away from him, and 1,200 Apple employees were laid off. He left Apple in 1985.

"I don't wear the right kind of pants to run this company," he told a small gathering of Apple employees before he left, according to a member of the original Macintosh development team. He was barefoot as he spoke, and wearing blue jeans.

That September he announced a new venture, NeXT Inc. The aim was to build a workstation computer for the higher-education market. The next year, the Texas industrialist H. Ross Perot invested $20 million in the effort. But it did not achieve Mr. Jobs's goals.

Mr. Jobs also established a personal philanthropic foundation after leaving Apple but soon had a change of heart, deciding instead to spend much of his fortune — $10 million — on acquiring Pixar, a struggling graphics supercomputing company owned by the filmmaker George Lucas.

The purchase was a significant gamble; there was little market at the time for computer-animated movies. But that changed in 1995, when the company, with Walt Disney Pictures, released "Toy Story." That film's box-office receipts ultimately reached $362 million, and when Pixar went public in a record-breaking offering, Mr. Jobs emerged a billionaire. In 2006, the Walt Disney Company agreed to purchase Pixar for $7.4 billion. The sale made Mr. Jobs Disney's largest single shareholder, with about 7 percent of the company's stock.

His personal life also became more public. He had a number of well-publicized romantic relationships, including one with the folk singer Joan Baez, before marrying Laurene Powell. In 1996, a sister, the novelist Mona Simpson, threw a spotlight on her relationship with Mr. Jobs in the novel "A Regular Guy." The two did not meet until they were adults. The novel centered on a Silicon Valley entrepreneur who bore a close resemblance to Mr. Jobs. It was not an entirely flattering portrait. Mr. Jobs said about a quarter of it was accurate.

"We're family," he said of Ms. Simpson in an interview with The New York Times Magazine. "She's one of my best friends in the world. I call her and talk to her every couple of days."

His wife and Ms. Simpson survive him, as do his three children with Ms. Powell, his daughters Eve Jobs and Erin Sienna Jobs and a son, Reed; another daughter, Lisa Brennan-Jobs, from a relationship with Chrisann Brennan; and another sister, Patti Jobs.

Return to Apple

Eventually, Mr. Jobs refocused NeXT from the education to the business market and dropped the hardware part of the company, deciding to sell just an operating system. Although NeXT never became a significant computer industry player, it had a huge impact: a young programmer, Tim Berners-Lee, used a NeXT machine to develop the first version of the World Wide Web at the Swiss physics research center CERN in 1990.

In 1996, after unsuccessful efforts to develop next-generation operating systems, Apple, with Gilbert Amelio now in command, acquired NeXT for $430 million. The next year, Mr. Jobs returned to Apple as an adviser. He became chief executive again in 2000.

Shortly after returning, Mr. Jobs publicly ended Apple's long feud with its archrival Microsoft, which agreed to continue developing its Office software for the Macintosh and invested $150 million in Apple.

Once in control of Apple again, Mr. Jobs set out to reshape the consumer electronics industry. He pushed the company into the digital music business, introducing first iTunes and then the iPod MP3 player. The music arm grew rapidly, reaching almost 50 percent of the company's revenue by June 2008.

In 2005, Mr. Jobs announced that he would end Apple's business relationship with I.B.M. and Motorola and build Macintosh computers based on Intel microprocessors.

His fight with cancer was now publicly known. Apple had announced in 2004 that Mr. Jobs had a rare but curable form of pancreatic cancer and that he had undergone successful surgery. Four years later, questions about his health returned when he appeared at a company event looking gaunt. Afterward, he said he had suffered from a "common bug." Privately, he said his cancer surgery had created digestive problems but insisted they were not life-threatening.

Apple began selling the iPhone in June 2007. Mr. Jobs's goal was to sell 10 million of the handsets in 2008, equivalent to 1 percent of the global cellphone market. The company sold 11.6 million.

Although smartphones were already commonplace, the iPhone dispensed with a stylus and pioneered a touch-screen interface that quickly set the standard for the mobile computing market. Rolled out with much anticipation and fanfare, iPhone rocketed to popularity; by the end of 2010 the company had sold almost 90 million units.

Although Mr. Jobs took just a nominal $1 salary when he returned to Apple, his compensation became the source of a Silicon Valley scandal in 2006 over the backdating of millions of shares of stock options. But after

a company investigation and one by the Securities and Exchange Commission, he was found not to have benefited financially from the backdating and no charges were brought.

The episode did little to taint Mr. Jobs's standing in the business and technology world. As the gravity of his illness became known, and particularly after he announced he was stepping down, he was increasingly hailed for his genius and true achievement: his ability to blend product design and business market innovation by integrating consumer-oriented software, microelectronic components, industrial design and new business strategies in a way that has not been matched.

If he had a motto, it may have come from "The Whole Earth Catalog," which he said had deeply influenced him as a young man. The book, he said in his commencement address at Stanford in 2005, ends with the admonition "Stay Hungry. Stay Foolish."

"I have always wished that for myself," he said.

Steve Lohr contributed reporting.

http://www.nytimes.com/2011/10/06/business/steve-jobs-of-apple-dies-at-56.html?hp

Celebrating Frugality

September 30, 2011

While the job of college or university president requires constant cost-cutting, several new presidents have decided that the obligation to be frugal comes even before they've officially been given their titles.

During the past few years, a number of newly appointed higher education leaders have decided to forgo large inauguration festivities -- an academic tradition on many campuses -- in favor of pared-down or nonexistent events, citing a need to make the best use of university money in a tight economy. Without the traditional platform to outline their visions and win support from the university community, these presidents are considering new methods of outreach to get constituent groups excited about their plans.

Ann Duffield, the founding principal at Ann Duffield & Colleagues, a consulting firm for presidents and boards, said she has noticed a trend toward fewer and less extensive inaugural celebrations. "People are much more aware of the fiscal implications of this type of activity," she said. "They don't want to come across as spending needed resources on a big party."

Historically, most higher education institutions have spent big on celebrations to honor new presidents. These celebrations tend to include a week of academic seminars with outside speakers, an investiture ceremony where the president speaks and is given the regalia that comes with the position, black-tie galas for faculty and alumni, and (at religious institutions) religious services. At some institutions, these weeklong celebrations have ended up costing several hundred thousand dollars.

The events often give new presidents an opportunity to interact with multiple constituent groups at once and lay out new visions or plans for the university in front of diverse audiences.

But several presidents have noted that such celebrations are no way to win friends at a time when their first acts in office may include budget cuts, layoffs, furloughs, and pay freezes. They have also recognized that cutting costs from inauguration ceremonies, or even the ceremonies altogether, can help win them support.

Matthew D. Shank, the new president of Marymount University in Virginia, is one of the presidents who decided to forgo the traditional celebration. While the university's finances haven't been hit too hard by the economic downturn, he said having a large celebration still might send the wrong message. "When we're asking everyone at the university to really consider how they're spending money, it seemed hypocritical to have a huge celebration that results in money just becoming vapor," he said.

When Marymount inaugurated Shank's predecessor, James E. Bundschuh, the college's first lay president, the institution had a more traditional inauguration, including an investiture ceremony with local dignitaries and representatives from various colleges, universities, and learned societies; a luncheon for about 70 people; a reception for about 250 people; a small dinner party; and a mass the next day.

Shank will be inaugurated on Oct. 7 as part of a Friday-evening mass, for which he does not expect a huge turnout. The mass will be followed by an annual dinner with university donors that would have taken place anyway.

Shank said some of the money that would have been earmarked for inaugural festivities will instead be put into a scholarship fund. About $30,000 will go into the fund, but Shank predicted that the institution probably would have spent between $60,000 and $75,000 on a traditional ceremony.

Without the traditional platform, Shank, who has been in office since July 1, said he's been working to develop better methods of communicating his vision to campus. "We, just like a lot of other universities, have a lot of work to do on communications in general," he said.

Shank said he plans to meet with the Faculty Council regularly, as well as use digital communication tools better, to inform the campus community about his plans. He said smaller forms of communication might actually be more effective. "Sometimes the event itself can overwhelm the message."

Marymount isn't unique in paring down its inauguration. The University of Connecticut, which inaugurated its new president, Susan Herbst, on Sept. 16, spent about $13,600 on the festivities, which included a lunch, a ceremony, and a reception. When the university inaugurated her predecessor, Michael Hogan, in 2007, the three-day event included a black-tie gala and fireworks, and cost the university about $175,000. The university's board of trustees recently approved a budget 2.2 percent lower than last year's. Michael Kirk, a spokesman for the university, said it was Herbst's decision to have a smaller ceremony. “Even in good economic times she wouldn’t be interested in having an elaborate inauguration,” he said .

When Hogan assumed leadership of the University of Illinois system after leaving Connecticut, the system did not hold any kind of ceremony. The system rarely conducts inaugural ceremonies for its president, and inaugural festivities for chancellors of the three campuses tend to be minimal.

While many institutions minimized festivities, several colleges decided to merge inaugurations with campus events that were going to take place anyway, such as homecoming or parents' weekend, to ensure that there was still a lot happening on campus without significant additional funding.

Franklin and Marshall College, a private liberal arts college in Pennsylvania, is one such institution. Administrators were already planning to hold parents' weekend and homecoming simultaneously, said Deborah M. Martin, director of special events. When the university announced in November that Daniel Porterfield would be the next president, planners decide to incorporate the inauguration as well. The weekend took place Sept. 22-25.

In addition to such traditional inauguration events as an investiture ceremony and academic colloquiums, the weekend included events for students, such as a concert, because of homecoming. Martin said the structure of the weekend gave Porterfield a chance to interact with several groups of people who might not have attended a traditional inauguration weekend and engage a wider audience in service activities that made up the heart of his inauguration.

For several institutions, it was still important to have some sort of celebration. “At these places that have been struggling financially, cutting can be tiring and sometimes depressing work,” Duffield said. “You need a celebration every now and then to get the people in the community inspired again. An inauguration can do that if it’s done within the context of present as well as the future.”

Catholic University still decided to hold a week of festivities when it inaugurated John Garvey in January, though the university tried to cut costs where possible, said Frank Persico, vice president for university relations and chief of staff. In the past, the university’s inaugural ceremony lasted a full day, with a mass in the morning, a lunch break, an inauguration ceremony in the afternoon, and then a dinner. This year the institution combined the mass and the ceremony, with individuals who would normally represent the campus in the investiture ceremony instead filling roles in the mass.

Richard V. Hurley, the new president of the University of Mary Washington, a public university in Virginia, whose inauguration is today, wanted to make an event out of his celebration. After several years of bad news,

he said, the campus deserved some excitement. “We wanted to create some sense of stability,” he said. “We wanted to give the campus something that would be fun for people."

Unlike many of the institutions mentioned above, Mary Washington will host a ball to accompany the inauguration, which also includes an investiture ceremony and several service projects. Hurley said 800 individuals, including students, alumni, community members, and faculty, have signed up for the event. Hurley said he didn't want money for the ball coming out of tuition revenue or state appropriations, so the campus paid for it through fund-raising. In total, the university raised $80,000 for the event, some of which will go to funding the ball. The rest will be placed in a discretionary fund that will support various initiatives on campus.

Hurley, who has been at Mary Washington as executive vice president and chief financial officer since 2000 and has been serving as president since July 2010, said the fact that he has already been running the university for a year makes his situation slightly different from that of many other presidents who are being inaugurated this fall. He outlined his vision for the institution in speeches last fall, so that's not the central argument for having an inauguration.

Shank said that sometimes too much focus on the future and a president’s potential can distract from actually getting things done. “Five years from now if we’ve achieved the goals that I’ve set out, then it’s time for a big celebration,” he said. “I’ve always been somewhat wary of celebrating a new president who has done nothing to that point.”

— Kevin Kiley

http://www.insidehighered.com/news/2011/09/30/marymount_catholic_and_others_pare_down_inaugurations_to_save_money

Google Books as index

This is going to be blindingly obvious to probably about 90% of my readers, but to the 10%[1] for whom it isn't, it might be a bit of useful knowledge.

I was teaching a class last week that focused primarily on print sources, and I was showing the students a selection of the books that had been put on reserve for their course. One of the students asked, "are any of these books, or the other resources for this class, available online?"

Good question!

So I popped over to Google Books and showed them how many of the reserve books were online, but in "limited preview" or "snippet view" only. One book, published in 1926, was out of copyright and therefore available in all its cover-to-cover glory. So this was an enlightening diversion into the legal and economic ramifications of Google Books.

But one of the features (er, bugs, really) of some of the mid-20th-century books that this particular professor had put on reserve was their abysmal, or nonexistent, indexes. Since the students would be combing through them looking for references to very specific items and issues, the lack of indexes was going to be a significant stumbling block for them.[2]

Enter Google Books as index. Side-by-side with the print edition, search Google Books for the term you're interested in, and even if the book is only available in snippet view, you still get the page references for where that term is mentioned. And, even better than a back-of-the-book index, you can see the immediate context for the term, which will help you sort through all the references and see which ones are most relevant to your needs.

Like I said, this is probably blindingly obvious to most, but it was the first time I'd put two and two together to articulate this use of Google Books, and it was clearly news to the faculty member I was working with, as well.

http://www.spurioustuples.net/?p=670

The Revolution Arrived, Then It Was Drawn

By HOLLAND COTTER

Réunion des Musées Nationaux/Art Resource, NY

Pierre-Paul Prud'hon created this likeness of his lover, "Portrait of Constance Mayer," with chalk on paper. The work is in a new exhibition at the Morgan Library & Museum

A powerful country is a bloody, chaotic mess. Its public coffers have been drained dry by useless wars and wanton misspending. Private wealth is locked in the hands of a grasping few.

A large, resentful slice of the population is poor and getting poorer.

National bankruptcy looms and last-ditch attempts to avert it are stalled by partisan infighting.

Revolution explodes. Old rulers are seized and executed. A new government of the people forms, but led by a crazed ideologue who goes on a head-hunting spree until political rivals kill him off. More uprisings and repressions follow, then another dictator, this one backed by an army. No more power-to-the-people. He declares himself emperor, re-establishing the top-down rule that had provoked the chaos and killing to begin with, and which, it turns out, is not at an end.

We're not talking here about instability in a so-called developing nation, or about some Armageddon vision of the United States in the "don't tread on me" future. We're talking about France, home of Chartres, Couperin and Camembert, in the late 18th and early 19th centuries. And that country, at that time, is the theme of a strangely manic masterpiece show at the Morgan Library & Museum called "David, Delacroix, and Revolutionary France: Drawings From the Louvre."

The masterpiece status is clear from the title.

Several years ago the Morgan lent some 200 of its choice French drawings, from the 15th to the 20th century, to the Louvre.

Now that museum is returning the favor with a smaller, historically narrower but superlative selection from its holdings of work by artists associated with Neo-Classicism and Romanticism. Jacques-Louis David and Eugène Delacroix form the poles of the spectrum, with luminaries like Ingres, Géricault and Daumier lined up between them.

The strangeness lies, at least partly, in the era itself, beginning in the 1780s, when the French monarchy was already on the slide, continuing into the fever-dream of the Revolution, and seesawing on through a string of republican eruptions and monarchical restorations. This jerky rhythm produced an art of extremes, wildly stressed-out and catatonically calm.

The show starts with David (1748-1825) and puts us firmly in the Revolutionary picture. As a young painter he pioneered a radically anti-establishment Neo-Classicism that substituted morally edifying scenes from ancient Roman history for Rococo images of courtly life. He didn't kid around about his politics. During the Revolution he signed off on Louis XVI's execution, supported the murderous Maximilien Robespierre, and made his art a recording device for the Reign of Terror.

In 1795, after Robespierre's fall, he was jailed with other radicals under threat of execution, and kept making art.

One of the first pieces in the Morgan show is an ink portrait he drew of an unnamed fellow prisoner. The man's good-natured smile gives no hint of his regicidal passions or of any fear he might have about a date with the guillotine.

By a stroke of luck, the prisoners were all released unharmed. And, perhaps chastened by the near-death experience, David decided that his firebrand days were over. His 1799 painting "The Intervention of the Sabine Women" — there's a study for it in the show — is about preventing rather than fomenting violence. And he took a job as painter-propagandist for Napoleon Bonaparte, an absolutist ruler of the kind he once opposed.

In under a decade David went from immortalizing the 18th-century version of the Weathermen to sketching promotional images of a military dictator in the act of crowning himself Emperor of France.

David had many students and followers. Some, like François Gérard, were with him on the Revolution's front lines.

Gérard's grim drawing of "Marius Entering Rome," with its image of severed heads on pikes, is more gruesome than anything by his teacher.

In the hands of an artist like Pierre-Narcisse Guérin, on the other hand, Neo-Classicism became a flaccid period style: his illustration of a scene from Racine's "Phaedra" turns classical tragedy into bad opera.

Then there was Anne-Louis Girodet de Roucy-Trioson, a Romantic in the making. Like David, he churned out Napoleonic publicity fodder, as in the 1810 painting "Revolt at Cairo," which exalts the colonial conquest of Islamic Egypt. But his appetite for sensuous exoticism, evident in a vivid pastel study of a toppling-back turbaned figure, departed from the David model.

David, for his part, dismissed Girodet as a crank, and there really is something loony about the drawing called "The Judgment of Midas," with its snarl of writhing nudes and emoting animals and its ferociously micromanaged detail. Still, confusion has fascinations of its own, and Girodet's vision of the classical ideal as a savage erotic state represents something more than a wavelet of the future.

In Jean-Auguste-Dominique Ingres, who is the subject of another, concurrent Morgan show, we do find a loyal David disciple, but one with a mind and talent entirely his own. Ingres inherited his teacher's fixation on idealism and the controlling logic of the drawn line, but added an instinct for naturalism so acute and idiosyncratic as to bend everything else to it.

Also like David, he considered his paintings of historical subjects his real art, and portraits mere money-earners, though now the reverse valuation seems obvious. A drawn illustration from Plutarch, "Antiochus and Stratonice," is a bland bit of overworked fluff, whereas even the least of the show's graphite portraits are knockouts.

His 1832 graphite portrait of Madame Louis-Francois Bertin is one of the great truth-telling images in the genre. Ingres presents his subject, the wife of a powerful Parisian newspaper editor, as she probably looked: homely, overweight, middle-aged and mustached. But he turns candor into an asset: he makes her look like someone you'd really like to meet.

He created untruthful images too. In 1835, when in his mid-50s, tired and depressed, and about to leave Paris for Italy after critics slammed one of his big religious paintings, he drew a portrait of himself as a fresh-faced young cutie with a soulful gaze and a confidently poised drawing hand. He did the portrait to sell himself to a new clientele.

Portraiture, as a private art, is the exhibition's strength. A suave fraternal double self-portrait by Hippolyte and Paul Flandrin is more affecting than anything either artist ever did on his own. No image by Théodore Géricault is more personally revealing than the drawing he made, on his deathbed, of his own left hand.

Nor did Pierre-Paul Prud'hon, a favorite artist of Josephine Bonaparte, ever surpass, in intimacy, his chalk portrait of his lover Constance Mayer, who eventually killed herself out of fear he would leave her. After her death he gave the image of her tense, fiercely smiling face to a friend to keep. He couldn't bear to look at it.

The show has more work by Delacroix (1798-1863) than by anyone else, but he's a puzzler, veering between sketches for splashy B-picture potboilers like the "Death of Sardanapalus" and closely observed portraits of people in Morocco, where he traveled as part of the French colonialist enterprise.

There's a lot of radical noise in his paintings and ink drawings, but not the committed, irritated, do-or-die spirit that can make work by artists in traumatized earlier times so perturbing. With rare exceptions, for Delacroix politics was strictly a commissioned affair, which is one reason his art, for all of its flash and influence, generates surprisingly little heat.

But the exhibition — organized by Louis-Antoine Prat, a Louvre curator, and Jennifer Tonkovich and Esther Bell from the Morgan — does end with a surprise, if a modest one, in a tender, portraitlike sketch of a young woman. Probably working-class, she looks down as if absorbed in handwork, her face cast in shadow, light shimmering on her hair.

The surprise? The likeness is by Honoré Daumier (1808-1879), best known as a biting caricaturist. The catalog suggests that it's a souvenir of an academic career route not taken by the artist, who opted for journalism instead. And just as well. By choosing to go with his instinct for dramatizing social injustice,

puncturing gassy ideals and capturing a culture locked in breakdown mode, he made the right, modern, revolution-without-end choice.

"David, Delacroix, and Revolutionary France: Drawings From the Louvre" runs through Dec. 31 at the Morgan Library & Museum, 225 Madison Avenue, at 36th Street; (212) 685-0008, themorgan.org.

http://www.nytimes.com/2011/09/30/arts/design/drawings-from-the-louvre-at-the-morgan-library-review.html

'A Good Investment'

October 6, 2011

Every university thinks its researchers' ideas are good ones. The University of Michigan is putting its money behind its claim.

On Wednesday, President Mary Sue Coleman announced that Michigan is launching an initiative to invest some of the university's endowment money directly in start-up companies developed through university research when they seek venture capital funding.

While other institutions have sought on a limited basis to invest in (and reap rewards from) promising companies created as a result of faculty members' or students' ideas, and many higher education leaders have argued that taking a greater stake in companies' futures can help spur local development and ensure companies' success, Michigan's new policy is an unconventional bet on the future of its ideas. The norm in endowment management is to focus strictly on the best possible investment from a financial perspective, without going out of one's way to favor one category of business over another. And that can mean wealthy institutions do very little local investing.

The initiative will not only support fledgling companies, but it could also provide financial returns for the university's endowment. The effort also shows that the university is serious about entrepreneurial initiatives and supporting start-ups, which could help attract top talent, officials said.

"Simply put, University of Michigan start-ups are a good financial opportunity," Coleman said Wednesday. "And the historical data have convinced us now to invest a small portion of the endowment in start-ups from all three campuses."

The data to which Coleman is referring is a study the university commissioned of the success of its start-ups. The study found that if the university had invested in spin-off companies during the past 20 years, the returns would have been comparable to the returns the university's venture capital portfolio has actually seen during that period.

Under the new policy, a start-up company created through university research would be eligible for university financing once it secures an initial round of funding from an independent, professional venture capital firm. At that point, the university will invest up to $500,000 in the company through successive rounds of financing. In total, Coleman predicted that Michigan could invest up to $25 million in venture capital funding.

Details about university involvement in the start-up, such as its stake, how much it will invest, and what type of oversight it will exert, will vary depending on the company. Rafael Castilla, director of investment risk management at Michigan, noted that there will be times when venture capital firms will not want to partner with the university on the company. In those cases, he said, the university will defer.

As in other venture capital deals, the investors, in this case the university, would receive a payout when the company is either acquired or goes public. Sometimes that happens within a few years; other times it may take 10 or more years, or may not happen at all.

In recent years, the University of Michigan has placed an increased emphasis on helping university ideas make it to market. In 2009 the university acquired a former Pfizer plant adjacent to the Ann Arbor campus, and it now rents out part of the plant's office and laboratory space to start-ups. The emphasis on economic development is partially a result of the state's economy, which has been hard hit in the past few years by

problems in the automotive industry. Higher education leaders argue that the universities can help diversify the state's economy.

The University of Michigan tends to be on the high end of colleges and universities when it comes to churning out commercial ideas. In fiscal year 2011, which ended in June, university researchers filed 122 patents and recorded 101 licenses. While most universities produce one or zero companies a year on average, Michigan launched 11 last year and an average of 10 a year over the past decade.

Not all are successful, however, which is a risk Michigan is taking through the investment initiative. If the companies end up not being successful, the university will lose much of what it invested. Castilla said the university's policy to only invest once other venture capitalists have signed on to the company helps ensure that the company is a good bet. Even then, nothing's guaranteed.

Castilla said the amount that the university would be investing in these start-ups is negligible as a share of the university's $7.8 billion endowment, and won't hinder its ability to invest in other options, including other venture capital initiatives not derived from university work.

Having a blanket policy to attempt investing in any company that secures venture-capital funding also helps insulate the university against real or perceived conflicts of interest, he said.

Robin L. Rasor, director of licensing at Michigan and president of the board of the Association of University Technology Managers, said she hopes the Michigan initiative will spur other universities to do more to support their own start-ups.

“We live in a different world," she said. "It is a lot harder to get venture funding nowadays. Any avenues that the university can use to help support tech start-ups are going to be to the betterment of the public.”

The Massachusetts Institute of Technology, which regularly tops charts for the number of research products it licenses, the number of companies started by students, faculty, and alumni, and the amount it brings in as a result, has a policy against directly investing in spinoffs and start-ups.

In an interview in August, Edward Roberts, a professor of technological innovation, entrepreneurship, and strategic management, and chair of MIT’s entrepreneurship center, cited several reasons for the institute’s decision not to play that role. For one, the university does not have the experience or expertise to successfully engage in venture capital initiatives.

Rasor echoed that concern on Tuesday. "We're not investment funds," she said. "We’re not venture funds. We don't always know the criteria that should go into deciding to be involved in something like this." She also noted that the venture capital world moves much more quickly than the world of higher education, which can sometimes complicate universities' involvement in the field. But she said Michigan's investment structure helps avoid some of these complications, particularly the fact that the university will only join initiatives that have already secured venture capital funding.

Roberts also noted that, in the case of MIT, the Boston area already has a fairly robust venture capital infrastructure, and there are lots of individuals vying to meet MIT innovators and get in on the ground level of start-ups. If the university started playing the role of the venture capitalist, it could scare away other potential investors, which wouldn't be fair to students.

Roberts said he could envision a situation in which there is little venture capital infrastructure in a region, in which case a university might be able to step in and provide that.

In addition to announcing the investment initiative, Coleman also laid out a "Third Century Initiative" through which the university will invest $50 million in new interdisciplinary research and teaching programs and immersive educational experiences for students such as study abroad, undergraduate research, and entrepreneurial activities. Details on exactly what the Third Century Initiative will entail are sparse, but administrators expect a "robust and collaborative review process" to determine how they spend the money.

— Kevin Kiley

http://www.insidehighered.com/news/2011/10/06/university_of_michigan_to_invest_endowment_money_in_university_start_ups

Autistic Mice Act a Lot Like Human Patients: Geneticists Develop Promising Mouse Model for Testing New Autism Therapies

Laboratory mouse. (Credit: © Vasiliy Koval / Fotolia)

ScienceDaily (Sep. 30, 2011) — UCLA scientists have created a mouse model for autism that opens a window into the biological mechanisms that underlie the disease and offers a promising way to test new treatment approaches.

Published in the Sept. 30 edition of *Cell*, the research found that autistic mice display remarkably similar symptoms and behavior as children and adults on the autism spectrum. The animals also responded well to an FDA-approved drug prescribed to autism patients to treat repetitive behaviors often associated with the disease.

"Though many genes have been linked to autism, it remains unclear what goes awry to increase a person's susceptibility to the disorder," explained Dr. Daniel Geschwind, who holds the Gordon and Virginia MacDonald Distinguished Chair in Human Genetics and is a professor of neurology at the David Geffen School of Medicine at UCLA and director of the Center for Autism Research and Treatment at the Semel Institute for Neuroscience and Human Behavior at UCLA. "We developed a mouse model to observe how a gene variant commonly linked to human autism reveals itself in mice."

The UCLA team focused on a gene called CNTNAP2 (contactin associated protein-like 2), which scientists believe plays an important role in brain circuits responsible for language and speech. Previous research has linked common CNTNAP2 variants to heightened autism risk in the general population, while rare variants can lead to an inherited form of autism called cortical dysplasia-focal epilepsy syndrome (CDFE).

UCLA researchers studied mice lacking CNTNAP2 and found that the animals demonstrated many features of human autism, including abnormal vocal communication, irregular social interaction and repetitive behaviors. The animals were hyperactive and suffered epileptic seizures like patients with CDFE.

A closer look at the animals' brains before their seizures set in revealed abnormal development of brain-cell circuitry. The problems included irregularities in how neurons travel from their site of origin to their final position in the brain and in how groups of neurons communicate with each other.

The animals also possessed fewer nerve cells that connect the neurons that carry impulses into the central nervous system with those that transmit impulses out to the rest of the body.

This finding dovetails with Geschwind's earlier research, which found that children carrying the CNTNAP2 variant possess a disjointed brain. Their frontal lobe is over-connected to itself and poorly connected to the rest of the brain. Communication with the back of the brain was particularly diminished.

"Our observations are consistent with theories suggesting that autism rewires the brain to reduce long-range connections and boost short-range connections," said Geschwind. "The front of the brain talks mostly with itself. It doesn't communicate as much with other parts of the brain and lacks long-range connections to the back of the brain."

Geschwind admits that he initially had low expectations of the mouse model and was surprised by its findings. He never expected the behaviors of autistic mice and autistic persons to so closely resemble each other.

"I did not expect to see the same behaviors in mice as in humans because we don't know how many neural pathways are shared between the two species," said Geschwind. "This suggests the pathways are very similar -- surprisingly so."

The mice also responded well to treatment with risperidone, an antipsychotic drug that was the first to win FDA approval for treating symptoms of autism spectrum disorder.

Animals given the drug grew less hyperactive, showed less repetitive grooming behavior and were better at building nests. Consistent with previous observations in human patients, however, the mice did not show improvement in social interactions.

"Our findings suggest that evolution has maintained the repetitive behaviors related to autism across species," Geschwind said. "If the same is true of social behaviors, we will use the mouse model to study potential therapies that may one day help people with autism."

His lab next aims to develop drug treatments to improve social skills and use the mouse model to explore the different brain-cell pathways that influence core autistic behaviors.

Geschwind's coauthors included Olga Penagarikano, Kellen Winden, Amos Gdalyahu, Hongmei Dong, Lisa Sonnenblick, Robin Gruver, Joel Almajano, Anatol Bragin, Peyman Golshani and Joshua Trachtenberg, all of UCLA; Brett Abrahams, formerly of UCLA and now at Albert Einstein College of Medicine; Edward Herman, formerly of UCLA and now at Yale School of Medicine; and Elior Peles of Israel's Weizmann Institute of Science.

The research was supported by grants from the National Institute of Mental Health, the Dr. Miriam and Sheldon G. Adelson Medical Research Foundation and the UCLA Center for Autism Research & Treatment/Autism Center of Excellence.

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http://www.sciencedaily.com/releases/2011/09/110929122749.htm

New Scrutiny on Law School Data

October 6, 2011

A legal team on Wednesday announced plans to sue 15 law schools, charging them with misleading applicants about their job prospects upon graduation. These suits, building on a suit filed in August against two other law schools, signal a rapid expansion of a push to draw attention to the tough job market facing new lawyers, and to allegations that law schools aren't being honest about how their graduates are faring in that job market.

The lawyers released only some of the information they have gathered about the law schools. But the allegations center on the idea that law schools have reported high employment rates by including part-time work, non-permanent work and jobs that do not require a J.D. The people behind the suit say that, by counting these graduates as employed, the law schools gave prospective students an unfairly rosy picture of their potential for lucrative, post-graduation employment.

Officials of many of the law schools named Wednesday said that they didn't know anything about the potential suit, and so could not comment. But officials in several legal education organizations said that the planned suits added to the considerable pressure law schools are facing over admitting students who must borrow significant sums to attend -- only to find limited job opportunities when they graduate.

Even top law schools (not named as targets of this suit) are facing scrutiny on this issue -- this week *U.S. News & World Report* wrote about how some law graduates of the University of Texas at Austin are working in jobs such as cartoonist, service dog walker and wind farm employee.

At a news conference to announce the new suit, lawyers said that the 15 law schools were selected on the basis of alumni complaints, press reports and their locations in parts of the country reporting saturated legal markets. All have also reported placement rates in the 90s in recent years, even amid a tight economy.

Among the law schools are Albany Law School, Chicago-Kent College of Law, DePaul University, Pace University, Southwestern Law School and Villanova University. (The full list may be found here.)

David Anziska, one of the lawyers suing, used Pace Law as an example. He showed documents from Pace saying that it had a 94 percent placement rate. But in reporting data for the Class of 2010 -- data reported after law schools started getting sued over job placement, and some are believed to have started releasing more data -- Anziska noted that Pace started including significant details that he said were previously lacking. While the percentage employed remained high, once Pace started reporting those employed in full-time vs. part-time work, he said that it was clear that only just over half were employed full-time. Likewise, a good share of those employed appeared to be in positions for which a J.D. is not needed.

Law schools, he said, are now afraid of being sued, so they are becoming more forthcoming about their data. But these data show, Anziska said, that the law schools were not being forthcoming before. "I believe nearly every law school in the country will be sued before long," he said.

A spokeswoman for Pace first said she did not know of the suit. After being sent the news release, she did not respond to further questions.

The ever-growing blog world devoted to tracking law school placement rates (and raising questions about them) responded with barbs to the data released by the group preparing the lawsuits. At law school after law school, large percentages of students in recent classes have reported being unemployed or underemployed,

leaving many people stunned that these law schools (not generally considered top-tier) were reporting 90-plus percent placement rates.

"Can you believe the employment numbers on that list of defendants? I know that this is nothing we didn't already know, but seeing that list of lower ranked schools all reporting 90 percent or more employment just rams home what a farce the legal academy has become," said one comment on the blog Inside the Law School Scam.

A young nonprofit group founded by recent law graduates -- Law School Transparency -- is using the threatened lawsuit to bolster its argument that law schools regularly fail to provide an accurate picture of the job market. The group has been urging (with only limited success to date) all law schools to release highly detailed information on what happens to graduates, so prospective students can make informed decisions.

James G. Leipold, executive director of NALP: The Association for Legal Career Professionals (which gathers law placement data for law schools), said he couldn't comment on the specifics of the case. But he said it was possible that law schools were (accurately) reporting generally high placement rates in some cases where many law graduates are not working in the jobs for which they were trained.

"Employment is a very binary thing. One is employed or not. An employment rate measures just that," he said. While NALP collects detailed information on where graduates are employed, it releases that information only in aggregate, giving institutions confidential reports on their graduates. As a membership organization, Leipold said that was all his organization was authorized to do.

He said that employment rates "are not fraudulent," but are "not enough" to tell if graduates are in jobs for which they needed to go to law school.

Similarly, he said that average salary figures for many law schools are misleading -- even if they are accurate. He said that most law schools have one cluster of graduates who work in large, prominent law firms at high salaries. Then there is everyone else. "You have two peaks [of salary clumps] and a great valley between them," he said.

Asked whether it is ethical for law schools to report average salaries, and total employment rates, rather than the nuanced figures that he said would be needed to understand job placement records, Leipold said, "I'm not going to comment on that." But he said that, "in general, consumers of legal education have been way underinformed on the decisions they are making."

The various issues raised by Leipold are similar to those cited by the Law School Transparency project in support of seeking to have law schools report much more granular information than they do now. By reporting on what happens to each graduate (without naming specific graduates), law schools would give a full picture.

Law schools, however, have not rushed to embrace the request for more detail.

Susan Westerberg Prager, executive director of the Association of American Law Schools, said in an interview Wednesday that she had not studied the proposal of the Law School Transparency group enough to know whether it was a good one.

"It certainly is important that we try to work toward having fairly reported information out there," she said. "I think that one of the big issues here is how do we build frameworks that people can rely on and that are fair ones."

Prager said that much of the anger that is prompting the lawsuits is a result of the bad economy. "We are in a very dramatic and sustained downturn," she said.

While Prager said she can understand the frustration of some recent graduates, she said that she worried that the criticisms being made imply that only full-time work for a law firm was being viewed as an appropriate outcome of a law school education.

"Some people employed part-time may have personal circumstances, such as having a child," she said. Others may find a law degree an asset for careers in government, business or elsewhere, she said. Prager said she objected to the idea that "unless your job is in a law practice, it's not valuable."

Prager stressed that law school leaders want their institutions to be honest with potential applicants about the job market and about all aspects of legal education. "We are very concerned about the need for institutions like ours to reinforce the ethical frameworks that are involved here," she said.

— Scott Jaschik

http://www.insidehighered.com/news/2011/10/06/plans_announced_to_sue_15_law_schools_over_placement_data

When Life Becomes Art

By KEN JOHNSON

Damon Winter/The New York Times

Living as Form "Palas por Pistolas," Pedro Reyes's collection of shovels that were made from recycled weapons, is among the socially engaged art installations at the Historic Essex Street Market.

At the Olympic Restaurant on the Lower East Side of Manhattan, customers who heed the call of nature are in for a pleasant surprise. The grungy stairway leading to the second floor is ominous, but on opening the door to the unisex lavatory, they will discover a clean, well-lighted bathroom with the black tile floor, sleek stainless steel fixtures, dark wood wainscoting and gleaming white sink of a high-end corporate washroom. It is a work of art — not just figuratively, but literally. Called "Power Toilet / J.P. Morgan Chase," it is a fully functional copy of an executive bathroom at that investment bank's offices, created by the collaborative art-making group Superflex.

The Superflex bathroom was unveiled last Friday as part of "Living as Form," an enthralling, philosophically provocative round-up of 20 years' worth of socially engaged art. Organized by Creative Time's curator Nato Thompson, the show is mostly housed in the raw, cavernous interior of the Historic Essex Street Market; the Olympic occupies a corner of the same building.

It represents efforts by more than 100 artists to expand definitions of art and change social conditions by inventive, nontraditional means. Low, temporary walls of stacked concrete blocks and gray metal shelving units divide the space, creating an ambience that suggests a revolutionary militia's headquarters. (The layout was designed by the architectural firm Common Room.)

Some of the artists veer toward symbolism. For "Palas por Pistolas," a project orchestrated by Pedro Reyes, 1,527 guns were collected in a Mexican town racked by drug-related violence. The weapons were melted down and turned into shovels that were then used to plant trees on public-school grounds. Some of the spades are on display at the start of the exhibition, along with a young tree, which will be planted in a community garden after the show ends.

Ambiguity is not commonly a feature of social-practice art, but "Golden Ghost," an installation by Surasi Kusolwong resembling a piece of 1960s-style scatter art is an exception. It is a two-foot-deep field of colorful factory-thread waste, in the depths of which are hidden six pieces of gold jewelry. Visitors who dive in and find one can keep it. It could be argued either way whether this is a satire about grubbing for material wealth or a metaphor about searching for spiritual meaning.

But most of the projects aim without ambivalence for pragmatic, real-world results. For "Operation Paydirt/Fundred Dollar Bill Project," Mel Chin has invited people here and all over the United States to fill in the outlines of printed cartoons of hundred dollar bills. An armored car will deliver almost 400,000 of these bills to Congress in a bid to prompt legislation and financing to cleanse lead-contaminated soil in New Orleans.

Some enterprises are hard to distinguish from social outreach programs. Since 2001, a group called Women on Waves has traveled in boats around the world providing women's health and reproductive care, including abortions. Their vessels have been included in international art exhibitions, but to call what the organization does art, in however expanded a sense of the term, is to invite a question: What is gained by viewing certain programs as art rather than social work?

This is a point to which huge quantities of learned and often theoretically abstruse verbiage have been devoted in journals, art magazines and conferences. The most persuasive argument is that breaking down the usual divisions between categories like art and social activism is liberating, energizing and consciousness-raising for both: art can escape its ivory tower, and activism can be more creative. Utopia rises in the visionary distance.

It is typical of many a social-practice action, however, that the whole experience can only be had by those directly involved from beginning to end. The rest of us must imagine a project like Mr. Chin's by reading descriptions of it and studying photographic and video documentation, ephemera and publications. How are we to form opinions about this kind of work if we know about them so indirectly? The problem is compounded by descriptions that often sound as if they were written by and for bureaucrats, which frequently is the case, given the genre's dependence on institutional financing.

Some descriptions are more imaginatively appealing than others. Speaking at a conference held at the Skirball Center at New York University on the day of the opening, the Czech artist Katerina Seda described a project that sounded like a Monty Python sketch. In 2003 she went to a town of about 350 people and did a survey to find out how they spent their time. She learned that they all did pretty much the same things — shopping, cleaning, cooking, eating, watching television and so on — but that they did them at different times.

So, with the mayor's blessing, she organized a day when everyone was to do the same thing at the same time. At the end of the day, there was a beer party for the whole town, and at 10 o'clock it was lights out. It would be nice to think that the townspeople experienced some enlightenment about, say, the possibility of creating alternate realities. Conventionally categorized forms of life may not be as fixed as we tend to believe.

In any case, Olympic Restaurant regulars will be pleased to know that the new bathroom will remain a permanent, usable fixture, an enduring testament to modern art's refusal to be fenced in.

"Living as Form" runs through Oct. 16 at Historic Essex Street Market, 80 Essex Street, south of Delancey Street, Lower East Side; (212) 206-6674, Ext. 222, creativetime.org.

http://www.nytimes.com/2011/09/30/arts/design/living-as-form-at-essex-street-market-review.html?ref=design

Occupied, Dissatisfied

October 6, 2011

They may have had varying levels of success, but they got their point across.

A largely thrown-together national network of campus walk-outs and rallies, meant to show student solidarity with the anti-wealth-divide message of the weeks-old Occupy Wall Street movement, generated major media buzz Wednesday. The excitement from students in all corners of the country was clear all day long on Twitter and Facebook, where much of the recruiting and rallying took place.

But when the time finally came on each of the 75 campuses that declared they would participate, and the many others that acted at the last minute, the number of students who left their classes varied from none to hundreds.

Yet participants and organizers say it doesn't really matter.

Students on campuses across New York had been planning walk-outs and rallies for more than a month, which is how they wound up with 4,000 people marching down the streets of lower Manhattan on Wednesday. It also doesn't hurt that Wall Street is actually in New York, so the students could join the larger protest. (The national event, "Occupy Colleges," was set for Wednesday to coordinate with those throughout New York campuses.)

St. Lawrence University's protest was organized spur-of-the-moment at 10 p.m. the night before, and 150 people -- on a 2,300-student campus -- still showed up.

One student said on Facebook that he alone walked out of class at Santa Monica College, and was proud to do it.

And at San Francisco State University, there was no evidence that anyone at all participated.

"I think it's easy to overestimate how plugged in to news students are," said Justin Beck, a journalism lecturer at San Francisco State who tweeted Wednesday morning that, given the grim budget picture for California universities, he'd support students who walked out. "There's this unfortunate assumption that they're totally wired and have their finger on the pulse through electronic communication. I don't find that to be the case, really."

But the level of turnout wasn't the point anyway, said Angus Johnston, the adjunct assistant history professor at City University of New York's Hostos Community College who also covered Occupy Colleges on his student activism blog. Despite the Facebook "flakeout rate" -- that is, those who say they'll do something but don't show up -- the event was a success simply because of the excitement it created.

"[Some students] heard about this, they wanted to get involved but they didn't have time to organize with other people, so they just did it on their own. That really suggests to me that this is a broad-based thing – it's not just, 'I'm protesting because my friends are protesting.' There is an eagerness to get involved, an eagerness to be engaged, an eagerness to be participating," Johnston said. "They are part of something bigger, which is not just everybody protesting at the same time, but the sense that they are part of a national movement."

Photo: Juliet Shen

Students gather outside the State University of New York at Albany administration building.

The most successful protests were in the New York area, and those on the East Coast tended to fare better than others. While they ranged in size, most protests were on the smaller end, in the double digits or low hundreds. And not all were actually occupations -- while some held sit-ins on student quads or in administrative buildings, others rallied or marched.

In true Occupy Wall Street fashion, the campus protesters didn't have any specific demands. Instead, they spoke out against the general issues that have long plagued students: high debt, rising tuition, the privatization of public education and uneven distribution of wealth.

At the State University of New York at Albany walkout, about half of the 300 or so protesters managed to secure an hour to express their concerns to President George Philip in an open forum in the administration building. He reportedly agreed with some of their qualms, but upset many when he told them, "I'm not giving you back my pension." The president of the New School, David E. Van Zandt, meanwhile, issued a supportive statement that encouraged students "to devise peaceful, practical solutions to longstanding problems of inequality."

Several high profile professors also have been backing the protest movement.

"I think that if you speak to the protesters, they have solutions to the problems that they're addressing," said Roberto Bianco, a junior at the State University of New York at New Paltz who participated in the 80-person occupation there. For example, redistricting reform could get more politicians into the state legislature who actually represent communities fairly, addressing a major issue in New York and putting student voices out there. (Students at the University of California at Berkeley feel that way, too – they're trying to create a student-majority district.)

"What's actually happening is, there are structural problems, which means we need to restructure to solve those problems," Bianco said. "They're not very tangible for the average person, but if you go into what's causing these economic woes, there are solutions."

For SUNY Albany student Jessica Stapf, the protests are a matter of damage control. Just over a year ago, she received an e-mail saying that her major, French, would be eliminated come spring 2012. This semester she's taking four French classes -- 21 credits total -- so she doesn't fall behind and waste all the money she's paid.

"I don't want to see my favorite professors of the French department forced to leave and find other ways of making a living, I don't want other students to have to do what I do to finish their degrees before the programs completely disappear," Stapf said via e-mail. "[Occupy Colleges] will probably last all year and become bigger and bigger movements."

Even on the campuses with lower turnouts, students were talking after the protests of continuing their activism with meetings, rallies or clubs. And it wasn't just late notice contributing to low participation, Johnston said: coordinated national student events have historically taken place in March, when the year is winding down -- not in the middle of fall semester when students are just settling back into school.

"I think it's safe to say that this is the beginning -- I don't know how big it's going to be -- of a new wave of coordinated protests," Johnston said. "This feels like a kickoff event rather than a culmination."

Photo: Lettie Stratton

Students occupy a common area on the St. Lawrence University campus.

Natalia, who is among the coordinators of the national Occupy Colleges movement who don't want to identify themselves fully so as to not detract attention from the participating campuses, didn't expect the campaign to go perfectly.

"Not all movements start out as fully bloomed trees," she said -- they often take a little while to grow.

Lettie Stratton, a St. Lawrence senior, said that regardless of who turned out to protest, many could relate.

“Our overall goal was really just to create a dialogue and get people talking about what matters to them,” Stratton said. “As students, we’re part of the 99 percent," she said, referring to the Occupy Wall Street slogan describing the vast majority of the American population who aren’t super-rich. "Crippled with student loans, we’re already behind before we even have a chance to set foot in the real world.

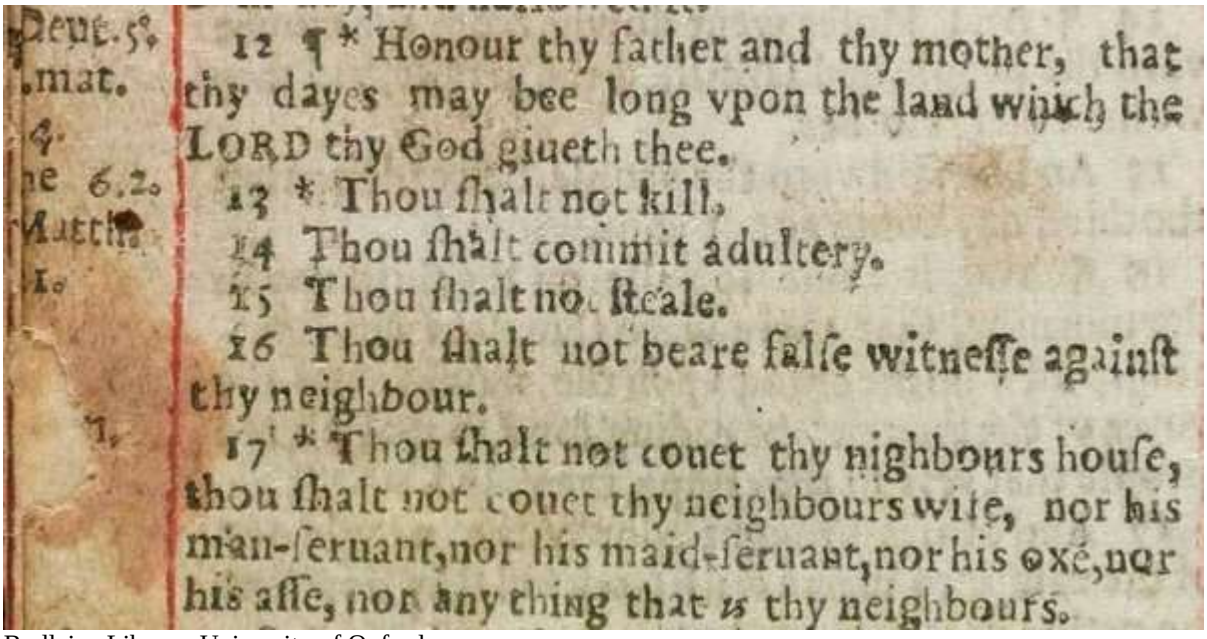
“I think a big part of this is speaking out against ignorance and realizing that 99 percent can make a change. We also want to make sure that it doesn’t stop today – we want people to keep talking about it. It’s not just like, ‘Oh, the protest is over, so let’s go back to doing nothing.' ”

— Allie Grasgreen

http://www.insidehighered.com/news/2011/10/06/occupy_colleges_protests_prompt_students_on_campuses_to_stand_by_wall_street_rallies

400 Years Old and Ageless

By EDWARD ROTHSTEIN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12 ¶ * Honour thy father and thy mother, that thy dayes may bee long vpon the land which the LORD thy God giueth thee.
13 * Thou ſhalt not kill.
14 Thou ſhalt commit adultery.
15 Thou ſhalt not ſteale.
16 Thou ſhalt not beare falſe witneſſe againſt thy neighbour.
17 * Thou ſhalt not couet thy nighbours houſe, thou ſhalt not couet thy neighbours wife, nor his man-ſeruant, nor his maid-ſeruant, nor his oxe, nor his aſſe, nor any thing that is thy neighbours.

Bodleian Library, University of Oxford

Detail from the "Wicked Bible," a version of the King James that contained an unfortunate error in the commandment against committing adultery.

WASHINGTON — The race, we know, is not to the swift. And we are well acquainted with the fate of a kingdom divided against itself. We may tell it not in Gath, and publish it not in the streets of Ashkelon, yet that still, small voice will be clearly heard. We reap far more than a whirlwind from the phrases and rhythms left to us by the King James translation of the Bible, whose 400th anniversary is being commemorated this year.

Pay close attention to the major new exhibition at the Folger Shakespeare Library here, "Manifold Greatness: The Creation and Afterlife of the King James Bible," and you will see not only manuscripts going back to the year 1000, an early translation from the 14th century, Queen Elizabeth I's copy of the Bible, and imposingly bound versions of the King James; you will also sense the gradual birth of the modern English language and the subtle framing of a culture's patterns of thought.

In honor of the occasion, the Folger joined forces with the Bodleian Library at the University of Oxford, which mounted its own exhibition earlier this year before lending the Folger important artifacts, and also published an impressive catalog that chronicles the evolution of early Bible translations. The subject also inspired the National Endowment for the Humanities, which became a major sponsor of the enterprise, including a smaller traveling exhibition mounted on 14 textual panels that will be seen at 40 locations in the United States during the next two years.

The Folger show's curators — Steve Galbraith, the library's curator of rare books, and Hannibal Hamlin, who teaches English at Ohio State University — have added a slightly American twist, paying attention to the text's migration to the New World. They even display what is probably the first King James translation to make its way here, in 1620, brought by a carpenter, John Alden, on the Mayflower.

The consequences, the exhibition recalls, are all around us: "One can hear the language of the King James Bible echoing from English cathedrals to rural American churches, from traditional Anglican hymns to Jamaican reggae music, from the poems of John Milton to the novels of Toni Morrison." Displays also allude to the Rev. Dr. Martin Luther King Jr.'s "I Have a Dream" speech, to R. Crumb's recent graphic version of Genesis, and to the 2010 film "The Book of Eli," in which Denzel Washington's postapocalyptic character must protect the world's last copy of the King James Bible.

The ones shown here would have sufficed. Folger owns a first edition of the King James version; the Washington National Cathedral has lent a Bible that once belonged to King James I's son, Henry. Frederick Douglass's copy is on display. So is Elvis Presley's.

The Bodleian has supplied the only surviving annotated copy of the earlier Bishops' Bible, whose translation was used as a foundation for the King James. It has also lent the 1631 "Wicked Bible" — a version of the King James, in which the unfortunate printer Robert Barker and his associate, Martin Lucas, left a "not" out of the commandment against committing adultery; both were fined. Barker was later put into debtors' prison, where he ultimately died. The Folger is also showing another example of his typographical mayhem in a 1613 printing: "Jesus" in Matthew, Chapter 26, was set as "Judas," an error fixed, we see here, by pasting Jesus' name over that of his betrayer.

Not all was smooth with the translation's reception, either. One brilliant Hebrew scholar of the day, Hugh Broughton, had seen that a new translation was needed, but his abrasive manner apparently kept him off the six committees of scholars to whom the work was assigned. He took his revenge in a pamphlet in 1611. The work was "so ill done," he wrote, that "I had rather be rent in pieces with wilde horses, then any such translation by my consent should bee urged upon poore Churches." He added, "I require it be burnt."

Later generations clearly thought otherwise. Because Shakespeare was still alive when the translation was published, many came to believe (without any basis in fact) that he was one of its creators. The show even displays publications arguing for his authorship using arcane analyses of secret allusions to his name in the King James text. (In Psalm 46, for example, the word "shake" is 46 words from the beginning and "speare" 46 from the end; Shakespeare was 46 in 1610 as the translation was being completed.)

There is, though, something more profound in the translation's influence. In many ways its impact resembles the effect of the First Folio of Shakespeare, published just a dozen years later, and the subject of a recent exhibition mounted by the Folger. Both volumes transformed the English language, but also shaped ideas about human nature, freedom and responsibility.

The translators were also aware of their project's ramifications. "Manifold Greatness," like some recent books, traces how the very act of translating the Bible was controversial. We see here a 14th-century English version of the Old Testament produced by followers of one of the first translators, John Wyclif; like Wyclif's own work, it was considered heretical and copies were burned. An image here from a late-16th-century "Book of Martyrs" shows Wyclif's bones disinterred in 1427 and then burned just to emphasize the point.

A 16th-century translator, William Tyndale, many of whose phrases evolved into the familiar ones of the King James, recognized that "there was no place in all England" for Bible translation, so he worked in Worms, Germany, and smuggled copies into England. In 1532 Thomas More said Tyndale had discharged a "filthy foam of blasphemies out of his brutish beastly mouth." In 1536 Tyndale was executed.

So much was (literally) at stake because once detached from its origins in a translation, a sacred text, it was believed, could be misunderstood, and break away from authoritative control. Of course, Latin Bibles were already translations, but at least they left interpretations in the hands of the Church rather than with a lay reader.

The Reformation, though, shifted emphasis from the religious institution toward the religious text. Translation shifted authority further, leading to dissension, disagreement and a democratization of debate. Differing translations even took opposing positions. The impact of the King James version was partly unintentional: its success helped strengthen a new culture of the book and weakened the power of the priesthood.

But part of that impact may have also come from the nature of the translation. Despite its deliberate archaic sound and its attempt to echo the original text's peculiarities, the King James version was accessible. It told stories; it enticed readers; its rhythms encouraged memory and repetition. (Consider the change from an earlier translation — "God is my shepherd, therefore I can lose nothing" — to the King James version: "The Lord is my shepherd; I shall not want.") Narratives once heard formally declaimed from pulpits were turned into chronicles of individual lives facing moral decisions.

Could this have laid the foundation for the triumphs of the English novel, from Daniel Defoe through George Eliot and Thomas Hardy? Not only did these writers often invoke the biblical text or find inspiration in it; they also embraced its perspective, judging the behavior of their characters and meting out their fates. The writer Cynthia Ozick once referred to 19th-century English fiction as "Judaized," and this is what she meant. Writers were concerned with conduct and its consequences. Characters were taught how to assess one another and judge themselves.

During World War II Winston Churchill wrote about "English-speaking peoples," and their distinctive perspective on the world. Could some of that be traced to the heritage of the King James Bible, including an emphasis on individual liberty and responsibility? Perhaps, but you cannot survey the riches at the Folger without realizing that you are being given a glimpse of a culture's birth.

"Manifold Greatness" runs through Jan. 15 at the Folger Shakespeare Library, on Capitol Hill in Washington; folger.edu.

http://www.nytimes.com/2011/09/30/arts/design/manifold-greatness-and-king-james-bible-at-folger-review.html?ref=design

Reverse Brain Drain

October 6, 2011

WASHINGTON -- A "reverse brain drain" is occurring in the American science, technology, engineering and mathematics (STEM) fields, but ideas to ease immigration laws are all over the map -- and a passable consensus from Congress seems unlikely to emerge soon in a deeply divided capital.

At a hearing Wednesday of a U.S. House of Representatives Judiciary subcommittee, legislators, academics and private sector leaders debated how to overhaul the immigration system to get qualified foreign nationals who earn advanced degrees at American universities to stay in the country to help the United States remain competitive globally.

It's not an unfamiliar topic of discussion, as data show that foreign students are dramatically outpacing their American counterparts in the STEM fields. In 2009, half to two-thirds of all Ph.D.s in related fields and almost half of all engineering and computer science master's degrees awarded by American colleges were earned by foreign students, according to Zoe Lofgren, a California Democrat and ranking member of the Judiciary Subcommittee on Immigration and Policy Enforcement.

At present, 140,000 employment visas can be awarded annually to foreigners seeking careers in the United States. Of that, each country can attain no more than 7 percent of the total number of visa holders.

Ideas for keeping more foreign nationals in the United States ranged from attaching green cards to advanced STEM degrees, increasing the number of employment visas available, and eliminating the annual visa cap. These loosened immigration ideas are similar to laws already in place in countries such as Canada, Australia and the United Kingdom.

According to research by the National Foundation for American Policy, based in Arlington, Va., a skilled Indian immigrant seeking a green card in the United States could wait up to 70 years to actually receive one. Indian and Chinese immigrants are far likelier than are their peers from other countries to earn advanced degrees in STEM fields in the United States. This disparity makes it incredibly difficult for students from those countries to stay in the United States to live and work. Instead, Lofgren said, they are forced back to their home countries, where they end up competing with American companies.

"Iceland -- a great country I'm sure -- has a population of about 300,000 people," she said. "We have the same number of visas [available] for India with a population of 1.1 billion. So it's no wonder this doesn't work."

Some of the more unusual ideas came from Vivek Wadhwa, executive-in-residence and adjunct professor at Duke University. Wadhwa, who testified before the committee, said he came to the United States in 1980 as a student and has been able to flourish in his adopted home, founding two software companies that created jobs for hundreds of American workers.

"We are out of touch," Wadhwa said. "We are going to become a third-world country and they are going to become us."

Wadhwa recommended offering temporary visas to foreigners who have bought homes meeting a certain price threshold, for example. He also talked about offering green cards to those who start companies that employ Americans, challenging the notion that immigrants force Americans out of jobs in their own country. "We need to do this for America, not the world," he said.

The question remains whether Congress might take tangible action on such immigration reforms any time soon. A few pieces of legislation introduced this year might kick-start the discussion.

Representative Lamar Smith, a Texas Republican who heads the Judiciary Committee, is a co-sponsor of House Bill 3012, the "Fairness for High-Skilled Immigrants Act," which would eliminate the employment visa cap over a four-year period.

Also on the table is House Bill 2161, or the "IDEA Act of 2011," sponsored by Lofgren, which includes a slew of visa changes, including making it easier for immigrants who create businesses and employ Americans to stay in the country. It would also change existing language for those applying for a visa, which, as it stands, requires immigrants to pledge they do not intend to stay in the United States for a protracted period of time. This language is a small move in opening the discussion on immigration reform for STEM degree earners, she said.

In her testimony to the subcommittee, Darla Whitaker, senior vice president for worldwide human resources at Texas Instruments, said her company employs a huge number of foreign nationals, partially because the number of qualified American graduates in STEM fields is insufficient.

At TI, 55 percent of electrical engineers who graduated from American colleges or universities with a master's degree, and 63 percent with a Ph.D., are foreign nationals.

"TI didn't choose the pool of graduates; we recruit from it," she said.

But Lindsay Lowell, director of policy studies at the Institute for the Study of International Migration, told the subcommittee that there is little evidence that America's educational pipeline produces too few domestic students able and willing to pursue a STEM career.

He also said that offering green cards as part of an advanced degree package is setting America up for disaster.

"We need to set up a selectivity mechanism," he said. "Just bringing in more immigrants isn't going to necessarily produce great results."

Barmak Nassirian, associate executive director of the American Association of Collegiate Registrars and Admissions Officers, said that he couldn't recommend specific policy, but that certain rules for eligibility had to be put in place to avoid major abuses by colleges and universities.

He advocated for strict rules, including barring institutions from hiring commissioned agencies to recruit foreign students, and limiting how much institutions can force foreign students to pay in tuition.

Representative Ted Poe, a Texas Republican, also raised concerns to the committee about overlooking American students in the process of easing immigration for foreign nationals benefiting from an American education. "Are we doing enough to make sure qualified Americans are being considered for jobs as a country?" he said.

Smith voiced similar concerns. He cautioned against creating a "visa pot of gold" for colleges and universities whose sole motivation is to attract students just to rake in tuition money.

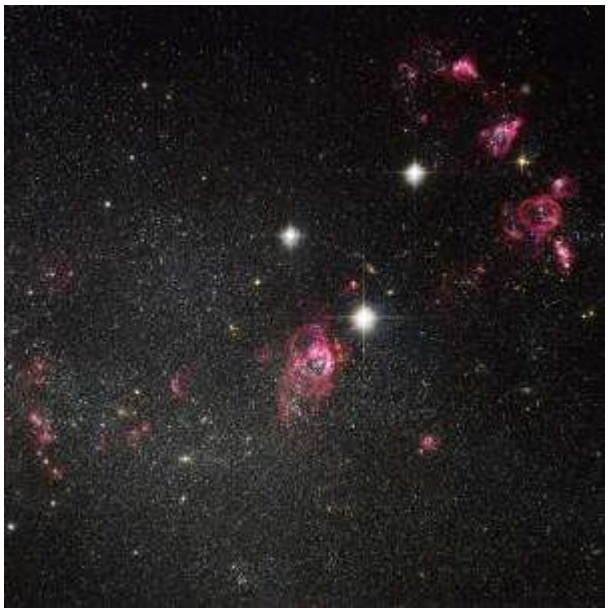
But Lofgren said that the system is broken, and that it's time to do something to bring about substantive change.

"Our system is out of green cards for the next 10 to 70 years," she said. "You will have to wait a long time if you want to make a life here. The result has been a reverse brain drain. And we have reason to fear it."

— Elizabeth Murphy

http://www.insidehighered.com/news/2011/10/06/house_panel_considers_loosening_immigration_laws_for_foreign_students_with_stem_degrees

Galaxy Caught Blowing Bubbles



The NASA/ESA Hubble Space Telescope has captured this image of dwarf irregular galaxy Holmberg II. The galaxy is dominated by huge bubbles of glowing gas, which are sites of ongoing star formation. As high-mass stars form in dense regions of gas and dust they expel strong stellar winds that blow away the surrounding material. The cavities are also blown clear of gas by the shock waves produced in supernovae, the violent explosions that mark the end of the lives of massive stars. (Credit: NASA & ESA)

ScienceDaily (Oct. 1, 2011) — Hubble's famous images of galaxies typically show elegant spirals or soft-edged ellipses. But these neat forms are only representative of large galaxies. Smaller galaxies like the dwarf irregular galaxy Holmberg II come in many shapes and types that are harder to classify. This galaxy's indistinct shape is punctuated by huge glowing bubbles of gas, captured in a new image from the NASA/ESA Hubble Space Telescope.

The intricate glowing shells of gas in Holmberg II were created by the energetic lifecycles of many generations of stars. High-mass stars form in dense regions of gas, and later in life expel strong stellar winds that blow away the surrounding material. At the very end of their lives, they explode in as a supernova. Shock waves rip through these less dense regions blowing out and heating the gas, forming the delicate shells we see today.

Holmberg II is a patchwork of dense star-forming regions and extensive barren areas with less material, which can stretch across thousands of light-years. As a dwarf galaxy, it has neither the spiral arms typical of galaxies like the Milky Way nor the dense nucleus of an elliptical galaxy. This makes Holmberg II, gravitationally speaking, a gentle haven where fragile structures such as these bubbles can hold their shape.

While the galaxy is unremarkable in size, Holmberg II does have some intriguing features. As well as its unusual appearance -- which earned it a place in Halton Arp's Atlas of Peculiar Galaxies, a treasure trove of weird and wonderful objects -- the galaxy hosts an ultraluminous X-ray source in the middle of three gas bubbles in the top right of the image. There are competing theories as to what causes this powerful radiation -- one intriguing possibility is an intermediate-mass black hole which is pulling in material from its surroundings.

This colourful image is a composite of visible and near-infrared exposures taken using the Wide Field Channel of Hubble's Advanced Camera for Surveys.

The Hubble Space Telescope is a project of international cooperation between ESA and NASA.

Story Source:

The above story is reprinted (with editorial adaptations by Science*Daily* staff) from materials provided by **ESA/Hubble Information Centre**.

http://www.sciencedaily.com/releases/2011/09/110929103053.htm

New Higher Education Model

October 6, 2011
By Jeb Bush and Jim Hunt

Today, our public colleges and universities are facing some of the toughest challenges they have ever encountered. The choices they make about how they deliver quality education to the millions of students who depend on them will determine whether our country will continue to be a global economic leader, or whether other countries will surpass us in postsecondary achievement.

Rising costs and reduced government funding in the wake of an economic recession have resulted in financial burdens that our state universities have never known before, and it is clear that funding is unlikely to return to pre-recession levels. These financial realities are compounded by tech-savvy students demanding a high-quality education when, where and how they want it. Today's students live lives that are divorced from the static, brick-and-mortar reality of institutions built for 19thcentury economic circumstances, leading Ralph Wolff, president of the Western Association of Schools and Colleges, to conclude, "Our business model is broken."

Addressing these issues in their entirety will take time, but today -- right now -- colleges and universities must embrace new digital and online delivery tools to make educational content available to degree-seeking students wherever they are, whenever they need it. Doing so will allow colleges and universities to raise revenue, increase access and contribute to America's long-term competitiveness.

The 2010 U.S. Department of Education's "Review of Online Learning Studies" found that students who took all or part of a course online perform better, on average, than those taking the same course through traditional face-to-face instruction. Similarly, a study conducted in the same year by the internationally known scholars Mickey Shachar and Yoram Neumann that analyzed 20 years of research on the topic showed that in 70 percent of the cases, students who took distance-learning courses outperformed their counterparts who took courses in a traditional environment.

Evidence like this cannot be ignored.

This new technology-powered business model meets the needs of tech-savvy, far-flung, diverse student populations with minimal investment in infrastructure, since dormitories, laboratories and classrooms are not needed for this model to deliver real results.

Most degree-seeking individuals today no longer fit the traditional image of a college student who goes directly from high school to a four-year college or university, lives in a dormitory, eats in a dining hall, and walks from building to building for instruction.

In fact, the vast majority of today's students fall outside of that paradigm. According to a 2008 U.S. Department of Education study, nontraditional students make up 70 percent of the undergraduate population. Nearly half of them are financially independent; 34 percent work full-time; and 25 percent have dependents of their own. Online degree programs would allow these students, and countless others, to take classes at their convenience while earning a degree from a program with the same admission and graduation requirements as their on-campus counterparts.

The technology is available to make this vision a reality now, and it should be adopted by public colleges and universities so that they can survive and thrive in the short term, while increasing access and revenue, as they take steps to address the other issues they face.

Michael Crow, the innovative president of Arizona State University, is already taking action to ensure that the university will continue to flourish in this digital future. In response to the "new normal," Crow has called for a "new American university" where access trumps elitism and universities are measured by whom they include rather than by whom they exclude. He is also pushing his institution to reach large, diverse populations by offering online degree programs to those who are unable to attend on-campus classes.

Increasing the utilization of technology and online learning, Crow argues, brings down costs, increases access and leads to successful student outcomes. Arizona State's goal is to incorporate 30,000 fully online students by 2020, a tenfold increase from today. In addition, thousands of on-campus students would supplement and expand their options by taking some of their courses online.

Arizona State is not alone.

In August, University of Texas System Chancellor Francisco Cigarroa laid out a broad framework that focused in large part on increasing access and accountability. The "Framework for Advancing Excellence throughout the University of Texas System" was unanimously approved by the board of regents, receiving praise from both inside and outside the system, as well as a $243.6 million funding commitment for projects within the framework targeted at enhancing student outcomes and excellence across the system. We hope this is only the beginning of our public colleges and universities acknowledging, as Cigarroa did, that "We must change how we teach future generations of students."

Setting up the technology needed to deliver high-quality instruction is daunting, but it is a challenge that can be easily managed using the right resources. We believe the answer is public/private partnerships, which was the approach taken by the University of Texas System when many of its campuses decided to start moving courses online. Partnerships like theirs allow the university to maintain control of the content, instructional materials, and admissions standards, while leaving the implementation to the experts.

While state institutions have been analyzing the situation, for-profit universities have seemingly exploded onto the education scene. They have appeared in markets underserved by our public colleges and universities and have launched technology solutions with only other for-profit universities as competition. The time is now for our state universities to capitalize on their proud histories and strong brands and reclaim a portion of that market share by providing broader access to high-quality instruction delivered by the same faculty members who teach on-campus classes.

Our public universities must adopt a new business model that will allow them to return to sound financial footing while addressing the variety of other challenges they now face. Online education may not remedy all that ails the system, but we are convinced that a good dose of it would go a long way.

Jeb Bush, governor of Florida from 1999-2007, is president of Jeb Bush and Associates, LLC. Jim Hunt, who served four terms as governor of North Carolina, from 1977 to 1985 and from 1993 to 2001, is a member of the law firm of Womble Carlyle Sandridge & Rice PLLC. They are hosting a conference this week on the "Future of State Universities" in Dallas. Both governors work with the sponsor of the conference, Academic Partnerships, which contracts with universities to take their academic programs online, on issues related to making higher education more broadly available and affordable.

http://www.insidehighered.com/views/2011/10/06/bush_hunt_essay_on_why_public_universities_need_to_embrace_online_education

Modernist Landmark Behind a Court Battle

By ROBIN POGREBIN

The thorny dilemmas that can be posed by efforts at architectural preservation are rearing their heads again in New York City in the case of a landmark building on Fifth Avenue that is considered to be the very model of Modernism.

Almost 60 years ago, when the glass corner structure at 43rd Street was designed for the Manufacturers Hanover Trust, it broke all molds for bank architecture. No more shuttered fortresses with tight doorways and pillars of formidable stone.

It would be an airy, transparent building. A wisp. A luminous box with an unbroken glass facade that positioned its escalators and its impressive steel vault so that they would be prominent and visible through the windows.

Designed by Gordon Bunshaft of Skidmore, Owings & Merrill and completed in 1954, 510 Fifth Avenue came to be seen as an important, historic building in the same league as modern architectural legends like Lever House and the Seagram Building.

But now preservationists and the city are battling in court over the building's future. Preservationists say the New York City Landmarks Preservation Commission has abandoned its role as a protector of history and aesthetics to accommodate a powerful real estate interest. The commission says it has made reasonable accommodations for a new owner who wants to renovate the building.

The owner, Vornado Realty Trust, has, among other things, received permission to cut new doorways into the Fifth Avenue facade, to rotate the prized escalators and move them farther away from the windows and to reduce the vault wall. The plan is to create a space that can accommodate two new stores on Fifth Avenue.

"The resulting alteration totally obliterates the quality of this iconic structure," said Roberta Brandes Gratz, a former landmarks commissioner who said she was asked to leave the panel last year to serve on a mayoral sustainability panel. "The interior is totally one piece with the exterior, both visually from the street and architecturally within. That has been totally compromised."

Landmarks panels across the country have long wrestled with the delicate balance between preserving architectural history and fostering economic development, particularly during financial downturns when new projects can mean jobs. In New York, preservation groups have continually criticized the Bloomberg administration as favoring developers.

But in the case of this Fifth Avenue landmark, some say the building must be allowed to evolve.

The landmarks commission's role is not to lock New York's architectural history in aspic, said Stephen F. Byrns, an architect who left the commission last year after completing his term. Rather, he said, "It's trying to be reasonable and flexible in allowing a property to adapt.

"This is no longer a bank and there's no longer a vault there," he continued. "You can make doors out of glass that are almost seamless."

Though renovation has begun, preservationists have secured a stop-work order from the Manhattan Supreme Court judge who is hearing the case. They charge in the suit that the developer, abetted by the landmarks commission, has ignored restrictions set by the city to preserve the building's interior character. Work is continuing, however, on the condition that any change must be reversible should the preservationists prevail in court.

Feeding the dispute are the preservationists' concerns that the commission's dealings with Vornado, whose many tenants in buildings across the city include Bloomberg L.P., the mayor's company, have been too cozy.

Vornado hired a former landmarks commissioner, Meredith Kane, to be its lawyer before the commission. She was allowed to see and suggest changes to the report that the commission used to give the interior of the building landmark status earlier this year. And in a round of e-mails that the preservationists secured as part of their lawsuit, filed in July, they found one in which Ms. Kane asked that a hearing on designating the interior "be deferred until Vornado had its tenants in place" and another in which she asked the commission's chairman, Robert B. Tierney, to reassure Vornado's chairman, Steven Roth, that the commission would not block efforts to convert the property into retail space.

"I just had a call from Steve Roth, who is facing a drop-dead deadline of next week in his deal to buy the property," Ms. Kane said in an e-mail in April 2010. "What I think he'd most like is a little bit of hand-holding directly from you — he won't believe it when it comes from me! — that even though we have a lot of detail to work through, and you will need staff and the commissioners to be satisfied with the proposals, that we are going to 'get through' this project."

Theodore Grunewald, the founder of the Coalition to Save Manufacturers Hanover Trust and a plaintiff in the lawsuit, said: "The ability for a real-estate industry to reach inside the operations of our city government to suit their own purposes is appalling. It brings up a larger question of why a large corporation like Vornado is given special treatment above the law and behind the scenes."

But the landmarks commission said building owners are routinely allowed to see draft landmark-designation reports and to confer with staff members on how to submit an application that will meet the commission's restrictions. These contacts, Mr. Tierney said, are designed to provide insight into the process, not to offer any guarantees. "Since the commissioners, not the staff, make the ultimate decisions, staff cannot give any such assurances," he said. And he said he never made the requested call to Mr. Roth.

"The proposed changes were consistent with and showed immense respect for the interior and exterior of this building," Mr. Tierney said. "They not only complement the beauty of the building but are also almost fully reversible for future potential owners."

The building's exterior was made a landmark in 1997. The interior, which had come to public attention after a signature metal screen by the sculptor Harry Bertoia was removed, was not given landmark status until February. Two months after the interior landmark designation, the commission granted the new owner, Vornado, permission to make changes to the building.

The preservationists contend these changes are significant reconfigurations that violate the protections that had been put in place. But Vornado hired the original architects, Skidmore, Owings & Merrill (S.O.M.), to make the changes and it has argued that the renovation is in keeping with the original design.

"This is one of the great projects in our portfolio that helped contribute to the reputation of S.O.M.," said Roger Duffy, a design partner at Skidmore, Owings. "So we wanted to make sure we would do this in the right way and to the highest level of quality."

When the bank president originally approached Skidmore, Owings in the 1950s, Mr. Duffy said, he had asked that the building be adaptable in case it failed as a bank. "That was always a part of the building," Mr. Duffy said, "the adaptability of the project."

Mr. Tierney agreed. "Ultimately, the building was originally designed for a specific use — banking — which was no longer practical," he said.

Given that the building's previous owners had made some alterations to the interior, the architects also made the point that they would be restoring a few original elements, like the luminous ceiling.

Perhaps the most noticeable change in the interior is the reconfiguration of the escalators. In public hearings, commissioners had objected to the idea of changing the escalators, which were positioned about 15 feet from the street and ran north-south. In designating the interior as a landmark, the commission spoke of how the escalators had been "positioned to maximize visibility from Fifth Avenue" but noted that in recent years, before Vornado's purchase, A.T.M.'s had blocked the sightlines from the street.

Under the approved changes, new escalators will be installed that will be set back farther from the street and run east-west. "It was an important diagonal element in the composition," Mr. Grunewald, an architect and archivist, said. Other architects say such changes represent a slippery slope; allow escalators to be moved and eventually a landmark isn't a landmark anymore.

"Since the building is one of the most transparent in New York and it's an iconic structure, it's almost as if the interior is more significant than the facade," the architect Richard Gluckman said. "If things are designated, they should be rigorously protected."

http://www.nytimes.com/2011/09/29/arts/design/manufacturers-hanover-trust-landmark-battle.html?ref=design

Online Higher Education's Individualist Fallacy

October 6, 2011
By Johann N. Neem

There has been much talk of the "online revolution" in higher education. While there is a place for online education, some of its boosters anticipate displacing the traditional campus altogether. A close reading of their arguments, however, makes clear that many share what might be called the "individualist fallacy," both in their understanding of how students learn and how professors teach.

Of course, individualism has a long, noble heritage in American history. From the "age of the self-made man" onward**,** we have valued those who pull themselves up by their own bootstraps. But, as Warren Buffett has made clear, even the most successful individuals depend heavily on the cultural, economic, legal, political, and social contexts in which they act. This is as true for Buffett as it is for other so-called self-made men as Bill Gates. And it is certainly true for students.

But many advocates of online learning ignore this simple point. The economist Richard Vedder, for example, believes that being on campus is only useful for "making friends, partying, drinking, and having sex." Anya Kamenetz, in her book DIY U, celebrates the day when individuals are liberated from the constraints of physical campuses, while Gates anticipates that "five years from now on the Web for free you'll be able to find the best lectures in the world. It will be better than any single university."

These advocates of online higher education forget the importance of *institutional culture* in shaping how people learn. College is about more than accessing information; it's about developing an attitude toward knowledge.

There is a difference between being on a campus with other students and teachers committed to learning and sitting at home. Learning, like religion, is a social experience. Context matters. No matter how much we might learn about God and our obligations from the Web, it is by going to church and being surrounded by other congregants engaged in similar questions, under the guidance of a thoughtful, caring pastor, that we really change. Conversion is social, and so is learning.

Like all adults, students will pursue many activities during their time on campus, but what distinguishes a college is that it embodies ideals distinct from the rest of students' lives. If we take college seriously, we need people to spend time in such places so that they will leave different than when they entered.

Some argue that large lecture courses make a mockery of the above claims. Admittedly, in a better world, there would be no large lecture courses. Still, this argument misleads for several reasons. First, it generalizes from one kind of course, ignoring the smaller class sizes at community colleges and the upper-division courses in which students interact closely with each other and their professors. Second, it dismisses the energy of being in a classroom, even a large one, with real people when compared to being on our own. Even in large classes, good teachers push their students to think by asking probing questions, modeling curiosity, and adapting to the class's needs. Finally, it disregards the importance of the broader campus context in which all classes, large and small, take place.

The goal of bringing students to campus for several years is to immerse them in an environment in which learning is the highest value, something online environments, no matter how interactive, cannot simulate. Real learning is hard; it requires students to trust each other and their teachers. In other words, it depends on relationships. This is particularly important for the liberal arts.

Of course, as Richard Arum and Josipa Roksa's recent study *Academically Adrift* makes clear, there are great variations in what college students are learning. All too often, higher education does not fulfill our aspirations. But none of the problems Arum and Roksa identify are ones that online higher education would solve. As Arum and Roksa make clear, students learn more on campuses where learning is valued and expectations are high. If anything, we need to pay more attention to institutional culture because it matters so much.

This does not mean that we should reject technology when it can further learning, as in new computer programs that help diagnose students' specific stumbling blocks. But computers will never replace the inspiring, often unexpected, conversations that happen among students and between students and teachers on campuses. Because computers are not interpretive moral beings, they cannot evaluate assignments in which students are asked to reflect on complicated ideas or come up with new ones, especially concerning moral questions. Fundamentally, computers cannot cultivate curiosity because machines are not curious.

Technology is a tool, not an end in itself. As the computer scientist Jaron Lanier has written in his book *You Are Not A Gadget*, computers exist to support human endeavors, not the other way around. Many techno-utopists proclaim that computers are becoming smarter, more human, but Lanier wonders whether that is because we tend to reduce our human horizons to interact with our machines. This certainly is one of the dangers of online higher education.

The individualist fallacy applies not just to online advocates' understandings of students, but also their conception of what makes great teachers and scholars. Vedder, for example, echoes Gates in his hope that someday there will be a Wikipedia University, or that the Gates Foundation will start a university in which a few "star professors" are paid to teach thousands of students across the nation and world. Of course, this has been happening since the invention of cassette tapes that offer "the great courses." This is hardly innovative, nor does it a college education make.

Vedder ignores how star professors become great. How do they know what to teach and to write? Their success, like Buffett's, is social: they converse with and read and rely on the work of hundreds, even thousands, of other scholars. Read their articles and books, listen to their lectures, and you can discern how deeply influenced and how dependent they are on the work of their peers. In short, there would be no star professors absent an academy of scholars committed to research.

Schools like the online, Gates Foundation-funded Western Governors University free-ride off the expensive, quality research completed by traditional professors when they rely on open course ware and curriculums. Take away the professors, and many online schools will teach material that is out of date or inaccurate or, worse, hand control over to other entities who are not interested in promoting the truth -- from textbook companies seeking to maximize sales to coal and pharmaceutical companies offering their own curriculums for "free."

The Web and new technologies are great tools; they have made more information more accessible to more people. This is to be celebrated. Citizens in a democracy should be able to access as much information as freely as possible. A democratic society cannot allow scholars, or anyone else, to be the gatekeepers to knowledge.

Certainly, we will expand online higher education, if for no other reason than because wealthy foundations like Gates and ambitious for-profit entities are putting their money and power behind it. For certain students, especially working adults pursuing clearly defined vocational programs rather than a liberal arts education, online programs may allow opportunities that they would have otherwise foregone. But online higher education will never replace, much less replicate, what happens on college campuses.

Even as we expand online, therefore, we must deepen our commitment to those institutions that cultivate a love of learning in their students, focus on the liberal arts, and produce the knowledge that online and offline teaching requires.

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http://www.insidehighered.com/views/2011/10/06/neem_essay_on_limits_of_online_education_in_replicating_classroom_culture

Measuring Global Photosynthesis Rate: Earth's Plant Life 'Recycles' Carbon Dioxide Faster Than Previously Estimated

Researchers followed the path of oxygen atoms on carbon dioxide molecules during photosynthesis to create a new way of measuring the efficiency of Earth's plant life. (Credit: © Dmitrijs Dmitrijevs / Fotolia)

ScienceDaily (Sep. 28, 2011) — A Scripps Institution of Oceanography at UC San Diego-led research team followed the path of oxygen atoms on carbon dioxide molecules during photosynthesis to create a new way of measuring the efficiency of the world's plant life.

A team led by postdoctoral researcher Lisa Welp considered the oxygen atoms contained in the carbon dioxide taken up by plants during photosynthesis. The ratio of two oxygen isotopes in carbon dioxide told researchers how long the CO_2 had been in the atmosphere and how fast it had passed through plants. From this, they estimated that the global rate of photosynthesis is about 25 percent faster than thought.

"It's really hard to measure rates of photosynthesis for forests, let alone the entire globe. For a single leaf it's not so hard, you just put it in an instrument chamber and measure the CO_2 decreasing in the chamber air," said Welp. "But you can't do that for an entire forest. What we have done is to use a naturally occurring marker in atmospheric CO_2 that let us track how often it ended up inside a plant leaf, and from that we estimated the mean global rate of photosynthesis over the last few decades."

The authors of the study, published in the journal *Nature*, said the new estimate of the rate of global photosynthesis enabled by their method will in turn help guide other estimates of plant activity such as the capacity of forests and crops to grow. Understanding such variables is becoming increasingly important to scientists and policymakers attempting to understand the potential changes to ecosystems that can be expected from global warming.

"It speaks to the question, how alive is the Earth? We answer that it is a little more alive than previously believed," said study co-author and director of the Scripps CO_2 Research Group, Ralph Keeling.

The key to this new approach was establishing a means of linking the changes in oxygen isotopes to El Niño, the global climate phenomenon that is associated with a variety of unusual weather patterns including low amounts rainfall in tropical regions of Asia and South America. The naturally occurring forms of oxygen known as 18O and 16O are present in different proportions to each other in water inside leaves during dry periods in the tropics. This signal in leaf waters is passed along to CO_2 when CO_2 mingles with the water inside leaves. This exchange of oxygen between CO_2 and plant water also occurs in regions outside of the tropics that aren't as affected by El Niño and eventually returns this 18O/16O ratio to its norm. Welp's team used the time it took for this return to normal to infer the speed at which photosynthesis is taking place. They discovered that the ratio returned to normal faster than previously expected.

From this, the team revised the rate of global photosynthesis upward. The rate is expressed in terms of how much carbon is processed by plants in a year. From the previous estimate of 120 petagrams of carbon a year, the team set the annual rate between 150 and 175 petagrams. One petagram equals one trillion kilograms.

Keeling added that part of the value of the study is its validation of the importance of long-term measurement series and of making multiple independent measurements of the same phenomena. The researchers conducted isotope analyses of air that has been collected by the Scripps CO_2 group at several locations around the world since 1977. It was only after decades of measurements that the researchers saw that the several bumps in the isotope record matched the timing of El Niño events. They compared their data to samples collected by Australia's Commonwealth Science and Industrial Research Organization (CSIRO). The redundancy was needed to make sure the data from Scripps' own samples weren't the result of measurement errors, said Keeling, whose research group maintains the famous record of atmospheric carbon dioxide concentration known as the Keeling Curve. Keeling's father, Charles David Keeling, established the CO_2 measurements in 1958.

"Supporting long-term measurements is not easy through the normal funding mechanisms, which expect to see results on time scales of typically four years or less," said Keeling. "Few science agencies are happy to commit to measuring variables over longer periods but the value of tracking changes in the atmosphere doesn't stop after four years. Decades of measurements were required to unravel the features highlighted in this paper."

Other co-authors of the report were Harro A.J. Meijer from the University of Groningen in the Netherlands; Roger Francey and Colin Allison from CSIRO; and Alane Bollenbacher, Stephen Piper, and Martin Wahlen from Scripps and Kei Yoshimura of University of Tokyo. The National Science Foundation and the federal Department of Energy have provided long-term support for collection of the data used in the study.

Story Source:

The above story is reprinted (with editorial adaptations by Science*Daily* staff) from materials provided by **Scripps Institution of Oceanography**.

Journal Reference:

1. Lisa R. Welp, Ralph F. Keeling, Harro A. J. Meijer, Alane F. Bollenbacher, Stephen C. Piper, Kei Yoshimura, Roger J. Francey, Colin E. Allison, Martin Wahlen. **Interannual variability in the oxygen isotopes of atmospheric CO2 driven by El Niño**. *Nature*, 2011; 477 (7366): 579 DOI: 10.1038/nature10421

http://www.sciencedaily.com/releases/2011/09/110928222003.htm

A Little History of Philosophy

October 5, 2011
By Scott McLemee

Six years ago, Yale University Press published *A Little History of the World* by E.H. Gombrich, which appeared to much acclaim and has by now sold 500,000 copies -- impressive for a trade publisher, and epochal for a university press. The great art historian had written it, his first book, in Austria during the Depression, mainly to pay the bills. It enjoyed some popularity in Europe over the years, though nothing like the success of his classic *The Story of Art* (1950). While "ostensibly written for teenagers," says the entry on Gombrich in *The Dictionary of Art Historians*, it had "a huge impact on the general post-war populace." According to an article in *ArtNews*, it had by 2006 sold more than 8 million copies in at least 30 languages. *The Story of Art* is one of the rare examples of a textbook that not only outlives its author but proves genuinely beloved by readers. "I never believed that books for young people should differ from books for adults," Gombrich wrote in its preface, "except for the fact that they must reckon with the most exacting class of critics, critics who are quick to detect and resent any trace of jargon or bogus sentiment."

A Little History of the World is, in anything, an even more deft feat of popularization, since its target audience is about 10 years old. Exact data are not at hand, but quite a few of the half-million copies it's sold so far were almost certainly purchased for adult consumption. And no shame in that. Better to know *A Little History* than to know none at all. At least Gombrich respects his public enough not to call them dummies.

Later this month, Yale is bringing out *A Little History of Philosophy* by Nigel Warburton -- published in a format that mimics the earlier volume in every particular, from cover design and length to the woodblock-like artwork appearing at the head of each chapter.

The word for this sort of thing is "branding." My initial response to it was something less than joyous. In 2005, I reviewed Gombrich's book for a newspaper, and put down additional thoughts on it for this column; and a few people have indicated they were encouraged to look for the book on the basis of my ardent tub-thumping on its behalf, which was as heartfelt as it could possibly be. But that was based on admiration for the singular generosity of Gombrich's style. (The author was translating and revising the book himself when he died in 2001, and it reflects decades of finesse in his adopted language.) The odds of lightning striking twice did not seem good.

The dust jacket says that the author, Nigel Warburton, lectures on philosophy at The Open University and the Tate Modern, both in England, and "hosts a weekly podcast and an integrated philosophy website." Writing for *The Guardian,* Julian Baggini, editor of *The Philosopher's Magazine,* says that Warburton "has quietly become quite one of the most-read popular philosophers of our time. Over nearly two decades his *Philosophy: The Basics* has sold in excess of 100,000 copies, with no gimmicks, no literary flourishes, just admirable clarity, concision and accuracy."

That said, I must admit that name rang no bells. My initial, spontaneous response to *A Little History of Philosoph*y was simply that the the author faced an impossible task. And in Gombrich, he also had an impossible act to follow.

And yet, the book is pretty good. Warburton has many of the Gombrichian virtues. While reading *A Little History of Philosophy*, I jotted down notes in an effort to characterize it -- only to realize that they were, point for point, things I'd said about *A Little History of the World*, six years ago. For example: "Concise but substantial, without condescension, somewhat limited in its purview (focus is on the West) but written with just enough wryness to be charming."

That about covers it. Each book surveys a vast array of vast topics while presupposing as little as possible about the background of the audience. That would be no small trick even with long chapters. As it is, each is roughly six pages long. Not 60, but six. Aristotle gets six pages. Hegel gets six pages. Karl Popper and Thomas Kuhn are roommates in a single chapter, which runs to the exceptional length of eight pages. Immanuel Kant, clearly the guest of honor, is permitted two chapters adding up to a total of 11 pages. All of French existentialism is covered by having Sartre, Beauvoir, and Camus set up a philosophical ménage à trois in the usual six pages. (Not that Warburton puts it that way, as I should make clear to children's librarians everywhere.)

Machiavelli, Darwin, Freud, and Alan Turing are all covered, although none of them was a philosopher, exactly. At the same time, Martin Heidegger makes only a very brief appearance, in a chapter on his one-time girlfriend Hannah Arendt. This would undoubtedly have bothered both of them.

Warburton's survey covers strictly European and (to a smaller extent) American philosophy. A handful of thinkers from elsewhere do turn up, but very much in passing. The Buddha gets a nod in the chapter on Schopenhauer, for example. Jewish and Arabic philosophy flourished during centuries when Christendom was anything but reflective. But the only trace of them here is the names (and only the names) of Maimonides and Avicenna.

The selection, then, is debatable, and the task itself almost unimaginable (at least by the standards of academe, where it is permissible to write a 500-page monograph containing the phrase "space does not permit me to consider…." in each chapter); but the book has a certain quality that comes from accepting a challenge under severe conditions, then taking it on without making a big deal of the whole thing. And the word for that quality is grace.

It requires more than a knack for brevity. The question of what role biography ought to play in writing the history of philosophy is not a simple one. Heidegger's treatment of the life and times of Aristotle at the start of a lecture ("He was born. He thought. He died.") is legendary, but not, perhaps, the final word on the matter. At the same time, reducing complex ideas to personal or social factors – as with sensationalistic treatments of Heidegger himself – is no real service to anyone trying to get some bearings on the history of philosophy.

A Little History untangles that Gordian knot in tried and true manner, because saying anything in six pages means cutting through things without hesitation. To stick with the example of Aristotle, this means discussing a single text (in this case, the Nichomachean Ethics) and just enough context to connect him with the previous chapter (on Socrates and Plato) while setting up the next (on Pyrrho, the extreme skeptic, whose work stands in a nice contrast to the authoritarian dogmatism around Aristotle in later centuries).

Warburton zeroes in on the concept of *eudaimonia* -- meaning "happiness" or, better, "flourishing" -- and explains that it is "pronounced 'you-die-monia' but mean[s] the opposite" (a fitting and even helpful play on words). He sketches the psychological, moral, and social implications of *eudaimonia.*

And that's that – time to move along. Of course, it means reducing the Peripatetic's thought to the size of postage stamp. But no better approach seems obvious, given the circumstances. (It's not as if covering the logical or metaphysical writings in six pages is an option.) The focus on *eudaimonia* also helps to set up the later chapter on Kant's very different understanding of ethics. When exhaustiveness is not an option, efficiency counts for something.

Yale University Press has more Little History titles on the way. (So I am told by a publicist, who kept their titles close to the vest.) The public should hold them to the standard set by the first two volumes. In the preface to *The Story of Art*, Gombrich spelled out the duties and the benefits of this kind of work: "It may serve to show newcomers the lay of the land without confusing them with details; to enable them to bring some intelligible order into the wealth of names, periods, and styles which crowd the pages of more ambitious

works, and so equip them for consulting more specialized books." A creditable ambition, and a demanding one. The only easy thing about it is how it looks.

http://www.insidehighered.com/views/mclemee/mclemee_on_little_history_of_philosophy

Placing Islamic Art on a New Pedestal

By RANDY KENNEDY

Piotr Redlinski for The New York Times

IN one of Washington Irving's tales from "The Alhambra," the short-story collection that rooted the great 14th-century Moorish landmark in the American imagination, a poor Spaniard and his daughter discover a hidden chamber deep within the abandoned palace's crumbling walls and spirit away the treasure inside.

Over the last three years in a suite of galleries concealed from public view on the second floor of the Metropolitan Museum of Art, it is as if Irving's fable of Islam's rich past has been unfolding in reverse. Treasures, in this case more than a thousand pieces from the museum's extensive holdings of Islamic art, have been slowly populating newly constructed rooms, taking their places in gleaming new vitrines with Egyptian marble underfoot and mosque lamps overhead, amid burbling fountains and peaked arches framing views of 13 centuries of art history.

When this 19,000-square-foot hidden chamber is finally opened to the public on Nov. 1 with the unwieldy but academically precise new name of the Galleries for the Art of the Arab Lands, Turkey, Iran, Central Asia and Later South Asia, it will not only represent the culmination of eight years of planning and work. The reinstallation and enlargement of the collection — one of the most important outside the Middle East — also promises to stand as a watershed moment in America's awareness of the visual culture of the Islamic world, at a time when that world looms as large as ever on the international stage and in the American psyche.

Over the last year and a half the museum allowed a reporter to watch the galleries come into being, as bare brick walls were slowly transformed into visions of ninth-century Baghdad, medieval Iran and early Islamic India, and as the museum found itself in a transformed position. It had long harbored ambitions to put its Islamic holdings in a bigger spotlight. But it had little idea when it began rethinking the galleries almost a decade ago that it would be doing so against such a culturally loaded backdrop: the American military presence in Afghanistan and Iraq, the escalating tensions with Iran and the outbreak of the Arab Spring. For an institution that seems to exist as a sanctuary from geopolitics, and often operates in isolation from them, the project became a delicate diplomatic as well as curatorial undertaking.

With advice from the State Department, the museum has reached out to more than 20 countries whose regions are represented by artifacts in the overall collection, including ones in the throes of regime change or revolt, like Libya, Egypt and Syria. It has sought advice from more than 40 Islamic-art scholars from around the world throughout the course of the project. It has worked with New York City officials to make contacts in New York Muslim organizations and has given early peeks of the project to groups as multifarious as the Arab Bankers Association of North America and the regional offices of the Anti-Defamation League.

“Thirty years ago there was just a small group of specialists interested in this material and a few people who collected rugs and objects,” said Sheila Canby, who was recruited from the British Museum to lead the Met’s Islamic department and oversee the completion of the reinstallation. “Now there’s much more attention and anticipation, though I think it’s driven by news events that are focused mostly on war. The history and culture represented by the objects in these galleries is still not known nearly as much as it should be, and the goal here is to change that.”

The museum has also had to confront the question — much more in the public eye now than it was when the original Islamic galleries opened in 1975 — of whether to display art that depicts the Prophet Muhammad. (It will, though the rare pieces on paper that do, like a folio from a 16th-century illuminated manuscript showing Muhammad on his winged steed Buraq, cannot be shown continuously because of their sensitivity to light.)

“We hope that it does not become a lightning-rod issue,” Thomas P. Campbell, the museum’s director, said in June, as the galleries began to take final shape. “These are not 20th-century cartoons setting out to be confrontational. They’re representative of a great tradition of art.” He added, of the issue: “We could duck it, but I don’t think it would be the responsible thing to do. Then we’d just be accused of ducking it.”

The closing of the original Islamic galleries in 2003 to make way for the enlargement of the Greek and Roman galleries below them on the first floor came at an awkward time, an almost symbolic displacement of Islamic by Western art in the wake of Sept. 11. But many experts inside and outside the museum had felt for years that the 1975 galleries — opened with great fanfare, by far the largest such permanent display in America — were showing their age. Two pre-eminent American scholars described the rooms as “somewhat dim and mysterious.” The mostly chronological arrangement, many felt, presented too narrow a picture of the Met’s overall collection, and scholars had long complained that too much of that collection — some 12,000 objects — was not sufficiently cataloged, making study difficult.

One of the first objects to greet visitors to the new galleries will be a 1,000-year-old Iranian earthenware bowl whose edge is circled with elegantly elongated Kufic script spelling out a kind of Poor Richard’s Almanac maxim of its day: “Planning before work protects you from regret.” The saying might as well have been taken to heart by the museum, which originally projected that the galleries would reopen within four years. But with the rare blank slate that the renovation provided, curators’ and designers’ ambitions grew, as did the project’s timeline and cost, which now stands at $50 million, money that also covers a new endowment for the collection along with a new, expanded catalog and educational programming.

The project did not even move from the drawing board to the construction phase until late winter of 2009. But despite taking place during a period when the museum has been forced to lay off staff members and tighten its belt because of the economic downturn, the renovation has been notable for pulling out most of the stops.

It imported a group of highly respected artisans from Fez, Morocco, to build a Maghrebi-Andalusian-style courtyard from scratch, a painstaking project that took several months. It recruited woodworkers in Cairo for special doors (delivered on time despite the upheaval there) and glass blowers in Red Hook, Brooklyn, to make new mosque lamps based on ancient designs. It put textile conservators to work for more than three years for an inch-by-inch restoration of "The Emperor's Carpet," a renowned 16th-century Iranian rug believed to have belonged to Peter the Great and then to Leopold I, which has been displayed briefly only twice since the Met acquired it in 1943 because of its worn condition.

("With most 16th-century Western tapestries, the yellows are almost gone," said Florica Zaharia, the conservator in charge of the textile department, surveying the carpet in a lab in the summer of 2010. "But here you still somehow have these wonderful, bright yellows. I think it's going to be a revelation to a lot of people.")

The new galleries have gained 5,000 more square feet through deft architectural annexing of former offices and restrooms. As their title suggests, the 15 rooms will now present the works more by the map than the calendar, showing the catchall term "Islamic art" to mean little because it means so many things depending on how and where it is applied: art made in regions where Islam might have been the dominant but by no means the only religious culture; art made by Muslims for religious purposes but more often for secular, luxury ones, sometimes for non-Muslim patrons; art made by Muslims that so absorbed non-Muslim influences as to be almost indistinguishable from its Chinese or European cousins.

The galleries will triple the space given over to the Ottoman Empire. They will give a more central stage to one of the collection's blockbusters — a brilliantly colored prayer niche from a theological school in the Iranian city of Isfahan — previously installed in a small side gallery. An entryway leading from the Islamic galleries into an adjoining European paintings gallery will provide a new, unusually literal West-meets-Near-East vista, allowing viewers looking at Orientalist fantasias like Gérôme's 1871 "Prayer in the Mosque" to see all the way across to the deep blue and turquoise of the prayer niche, a genuine devotional article.

The new setup will also emphasize more strongly how the visual trademarks of Islamic art — geometric abstraction and calligraphy, as both language and decoration — have co-existed over the centuries with lively figuration, from the form of a leaping hare on an 11th-century Egyptian lusterware bowl to painted scenes of bourgeois splendor in 17th-century Iran that look as if Manet could have dreamed them up.

On some days over the last several months the galleries have seemed like a surreal conflation of the ancient and the postmodern: the Moroccan workers microwaving their lunch kebabs on a break from incising intricate stucco patterning that reaches back centuries; a radio pumping out Sly and the Family Stone as conservators put finishing touches on another of the collection's masterpieces, the Damascus room, a nearly intact 18th-century wood-paneled reception chamber from a wealthy Syrian residence. (Some small pieces of this room remain in Hawaii, where Doris Duke acquired them for her Islam-theme Honolulu mansion, Shangri-La.)

One day last May a New York City imam, Abdallah Adhami, an American-born cleric who runs a nonprofit educational center, came to visit the galleries with his staff. And while standing with Ms. Canby, the curator in charge of the Islamic department, Mr. Adhami looked at the inscriptions on the Damascus room's walls, recognized them as being inspired by the 13th-century Egyptian poet al-Busiri and showed her how to read them in their proper sequence. "It was a wonderful surprise," she recalled.

Mr. Adhami — who was for a brief period chosen to direct religious programming for the proposed cultural center and mosque near ground zero — said he hoped the new Met galleries would not only help bridge

cultural differences between America and the Muslim world but serve as a nucleus for American Muslims, whom he sees as woefully unaware of the riches of their cultural past. (On the question of works from that past presenting representations of Muhammad, Mr. Adhami holds a nuanced view. “Theologically it’s unacceptable, and that’s pretty straightforward.” But he added that he believed the images should be seen in context, as pieces of centuries-old history. “Let’s say that I would leave the room on a vote on this kind of question, figuratively speaking,” he said.)

To ask art and artifacts — even magisterial examples from a sweep of more than a millennium — to make a difference, or even a dent, in American anti-Muslim sentiment might be expecting too much. But the opening of the new galleries, less than two months after the 10th anniversary of Sept. 11, comes at a time as propitious as the 2003 closing was unfortunate and holds the possibility at least of reshaping many Americans’ views about the deep affinities between Western and Islamic art.

And maybe it could do more, Ms. Canby said. Over half of the collection comes from Iran — in part because of Met excavations there in the 1930s — and those objects will now stand as a powerful counterpoint to preconceptions about a country that has come to symbolize Islamic antagonism.

“There is always a tendency to vilify a people as if they have come out of nothing,” she said in an interview in the galleries in August, with more than a third of the objects installed. “But these things are humanizing. They show the beauty and achievement and even the sense of humor of a great culture. Whether people apply that to their view of public affairs is their own business. But at least they will be able to use their eyes and draw their own conclusions.”

http://www.nytimes.com/2011/09/25/arts/design/islamic-art-treasures-at-the-metropolitan-museum.html?ref=design

Hofstadter's 'Lost' Book

October 4, 2011
By Ben Hufbauer

Can one of the most honored historians of the 20th century, the oft-quoted two-time Pulitzer Prize winner who wrote such iconic books as *Anti-Intellectualism in American Life* and *The Paranoid Style of American Politics*, actually have a "lost" book? I think so, for I don't imagine there are more than a handful of *Inside Higher Ed* readers who can recall the title of Richard Hofstadter's longest book, and the one that he worked on for the greatest number of years. This is a book that from the late 1950s to the mid-1970s had a huge readership, and yet today is so little-known that David S. Brown's critically acclaimed intellectual biography of Hofstadter (University of Chicago Press) got the title wrong. Hofstadter's lost book is *The American Republic*, a 1,396-page history that he worked on for many years with two talented co-authors, William Miller and Daniel Aaron.

The reason *The American Republic* is almost unknown today is that it was a college textbook. But it doesn't deserve oblivion, and should have a place somewhere alongside Hofstadter's other books.

Hofstadter was, as many know, an academic prodigy. He had articles published in premiere journals during his graduate studies at Columbia University, finished his doctorate at age 26, had it published with the University of Pennsylvania Press two years later, and in 1948, at the age of 32, had his second book published with Alfred A. Knopf. That book, *The American Political Tradition*, was a surprise success of huge proportions, garnering rave reviews as well as strong sales to the general public. It eventually became a staple for decades in U.S. history courses. The book has sold over one million copies in its 63-year life, an extraordinary record for any academic book.

Why? As historian Jon Wiener has written, even in the 21st century *The American Political Tradition* remains relevant: "It opens with a description of an 'increasingly passive and spectatorial' state of mind in postwar America, a country dominated by 'corporate monopoly,' its citizens 'bereft of a coherent and plausible body of belief' and adrift in a 'rudderless and demoralized state.' " We've arguably gone downhill since that unvarnished analysis, but you can see why people still read Hofstadter to try to understand the United States.

The body of *The American Political Tradition* is mostly made up of a series of ironic and critical portraits of figures that most Americans — then and now — tend to look on as heroes: Jefferson, Lincoln, both Roosevelts, and others. The very titles of the chapters give you a sense of how Hofstadter did not sell myths but, as David Brown writes, "dissected" them. Consider, for instance, "Abraham Lincoln and the Self-Made Myth," or "Franklin Roosevelt: The Patrician as Opportunist."

In 1953, textbook publisher Prentice-Hall accurately perceived from the success of this book that the young Hofstadter was going to be one of the most significant historians of his generation, and made him an offer that he seemingly couldn't refuse. It probably went something like this: write a big textbook on American history for us with co-authors of your choice, and you'll not only influence young minds, you'll earn royalties beyond even what Knopf is paying you (and by this point Hofstadter was probably earning about as much from book royalties as he was from his salary at Columbia).

The American Republic was first published in 1959. Although initially Hofstadter tried to reassure his regular publisher Knopf that the books for Prentice-Hall wouldn't pull him away from his regular work for long, he was mistaken. In a letter recently uncovered in the Columbia Library archives, Hofstadter wrote, "From 1955 to 59, when I was working on the one & 2-vol. versions, I got little else done." Hofstadter won his first Pulitzer for *The Age of Reform* (Knopf, 1955), but for a prolific author who usually only took about three years to write a book, it turned out to be a long drought for Knopf until 1963's *Anti-Intellectualism in American Life*, which also won a Pulitzer.

For the Prentice-Hall books Hofstadter got to work with two handpicked colleagues, who were also friends, whose areas of expertise nicely balanced his own. One of his co-authors was the pioneering American studies professor Daniel Aaron, who taught at Smith College. In his recent memoir, *The Americanist* (Aaron is 99 years old this year), he wrote: "One hot New York summer night in 1955, Richard Hofstadter and I, working in his Upper West Side apartment on our American history textbook — both of us too tired to sleep — read aloud Harding's inaugural address and couldn't stop laughing." The fact that the authors laughed uncontrollably at the rhetorical idiocy of an American president is a clue that this book would be different from the patriotic puffery of other textbooks of the time.

The third of the trio was freelance historian William Miller, described by Aaron as "a tough-minded economic and business historian." But, as Aaron admits, "without Hofstadter's name, I doubt our book would have sold as well as it did." Prentice-Hall made explicit in the breakdown of royalties the importance of the name they knew would sell the books: Hofstadter got 60 percent, while Aaron and Miller each got a comparatively paltry 20 percent. Because of a "flood of adoptions," as Aaron describes it, even that 20 percent "paid for the college educations of my three sons." Hofstadter, who was accustomed to large checks from Knopf, still seemed impressed with the royalties generated by the Prentice-Hall books, which he called "very profitable."

The American Republic revolutionized what an American history text could do. The first edition of *Republic* was a huge success in spite of its length and high price, and it won publishing industry awards. The second edition was thoroughly revised and in many places completely rewritten from 1968 to 1970, but in the middle of this process Hofstadter was struck with his ultimately fatal illness. Letters between Hofstadter and his co-authors detail how despite the debilitating effects of leukemia and treatment Hofstadter remained as engaged as he could be on the second edition.

Just months before his death Hofstadter wrote to Miller: "I began the summer quite well, and did a good deal of work toward the beginning, much of which I still have been revising these past few weeks. However, I have been running a daily fever of slight dimensions for the better part of the last three weeks." As it turned out, the second edition of *Republic* was the last book Hofstadter saw through to publication. Copies of the two volumes, bound in blue and emblazoned with a gold outline of the Great Seal of the United States, arrived just weeks before Hofstadter's death in late 1970.

I came across *The American Republic* almost by chance 24 years later, in the library of the Enugu campus of the University of Nigeria. I was in Nigeria for five months with my wife as her research assistant as she studied Igbo masquerades for her doctorate. We lived in a small apartment a short distance from campus in a city that was at times hot almost beyond belief. We often only had power for a few hours a day, and in that un-air-conditioned state — when we weren't doing ethnographic research — we read a lot to each other, often by candlelight.

Given the poverty and corruption of the country, and the fact that Nigeria suffered a military coup while we were there, it is perhaps not surprising that most of our reading was comfort fare — Jane Austen, Agatha Christie, Charles Dickens. But one day as I was wandering the quiet stacks of the library with no lights and no air conditioning, I dimly saw on a bottom shelf two volumes by a historian I remembered liking for *The American Political Tradition*, which I'd read as an undergraduate.

I started reading and was surprised. My American history text in high school had been Hofstadter's biggest competitor, *The American Pageant*, by a Stanford University professor, Thomas Bailey. "Old American flag Bailey," as some called him, rarely liked to admit to anything truly unpleasant in American history, and often resorted to whitewashing patriotism to paper things over. *Pageant* was meant to be "feel good history" — the kind that even today is popular with the public. What is amazing then and now about Hofstadter is that he was critical and yet popular at the same time.

A passage from the 1966 edition of Bailey's *Pageant* on Columbus highlights the profound differences between these books:

Christopher Columbus, a skilled Italian seaman, now stepped upon the stage of history. A man of vision, energy, resourcefulness, and courage…. Success finally rewarded the persistence of Columbus…. A new world thus swam within the vision of civilized man.

Bailey sums up that the "discovery" of America was a "sensational achievement, "but states that "The American continents were slow to yield their virginity."

Hofstadter's approach with his co-authors was poles apart:

When we say, "Columbus discovered America," we mean only that his voyage across the Atlantic Ocean in 1492 first opened the New World to permanent occupation by people from Europe [….] When Ferdinand and Isabella succeeded at last, in January 1492, in expelling Islam from Granada, they moved immediately to wipe out all other non-Catholic elements in the Spanish population, including the Jews who had helped immensely in financing the long wars. The rulers' instrument was the Spanish Inquisition: its penalties, execution or expulsion. Driven thus to dissolve in blood and misery the source of their wealth and power at home, Ferdinand and Isabella were now prepared to view more favorably Columbus's project…. [T]he same tide that carried Niña, Pinta, and Santa Maria so hopefully toward such golden isles … also bore the last of some hundreds of thousands of Spanish Jews toward Italy and other hostile refuges.

Today "permanent occupation" probably won't raise many eyebrows, but at the time that — as well as the larger context of religious persecution for the voyage — was a paradigm shift for an American history textbook. In fact, *Republic's* one-word assessment was that European contact was, for native populations, "catastrophic."

At the beginning of this exceptionally long narrative, and one quite sophisticated for a textbook, that devastating one word assessment mentally stopped me in my tracks. Although I was in Nigeria, I was still trying to earn my doctorate in art history at the University of California at Santa Barbara. The problem, however, was that I had plunged into a miasma of theory, largely with "the Jacques," as I came to think of them — Derrida and Lacan. Amidst deep thoughts about language and psychology, some of them perhaps valuable, I had lost my intellectual moorings. I was not only in something of a haze when it came to academic work, but even when it came to real life, practically lived, especially in a place like Nigeria. Experiencing viscerally the terrible effects of a repressive and corrupt military dictatorship stripped away some of my intellectual baggage that seemed less relevant. Some of the things I experienced in Nigeria had also seemed close to catastrophic, and so I understood that word in a way I had not before. *Republic's* unsentimental and crisp text communicated how not just individuals but whole nations could fall headlong into folly, with devastating consequences. In retrospect, I was learning lessons not only in writing but in reality from this book.

The American Republic used its vastly larger canvas to cover things barely found in competing books, such as intellectual and cultural history. For instance, there's an essay-length account of how the idea of a land of riches beyond the known seas had transfixed minds in Europe for many generations before landfall. Setting this up is a firsthand account from Bernal Diaz del Castillo, who fought with Cortez and left his description of Tenochtitlan:

[W]e were amazed, and said it was like the enchantments they tell in the legend of Amadis on account of the great towers and temples and buildings rising from the water, and all built of masonry. And some of our soldiers even asked whether the things that we saw were not a dream…. Of all these wonders that I then beheld today all is overthrown and lost, nothing left standing.

The book explains that *Amadis* was a popular fantastic tale of the period, but only one in a long line found in Homer, Plato, and many tales in the middle ages. Some of these tales became obsessions for men like Columbus. As *Republic* sums up, "successive Mediterranean civilizations took heart from visions of new Edens across the western ocean, visions that materialized at last." This analysis of how myths can combine with ideology to influence history is typical of the sophisticated approach of the book.

In a book with three authors, it's difficult to be completely certain which passages are mainly Hofstadter's. But some good guesses can be made. Hofstadter was, as Aaron wrote, "a political and cultural historian" — and those two broad overlapping areas are the long spine of *The American Republic*. The sections of economic analysis are, of course, primarily by Miller, and the sections on cultural topics, like Edgar Allen Poe and American art, are mostly by Aaron. But each gave suggestions to the others, and at times didn't just edit but seem to have written passages in the areas of the other authors. As the freelance author, Miller seems to have had more time to write than the others, and seems to have contributed a good deal in Hofstadter's areas.

Hofstadter was a master of the short analytical sketch, bristling with telling details. In *Republic* these short sketches are woven into a larger narrative whole. In Brown's intellectual biography he calls *The American Political Tradition* Hofstadter's best book, not because it's an original piece of archival research (which was not Hofstadter's strength), but because it's "a striking example of revisionist history in the best sense," marked by an "aphoristic style," "expressive sense of humor" and "clear and unsentimental thinking." Brown also demonstrates that *Tradition* has a compelling analysis of how "national identity is frequently the offspring of historical mythology." For some passages of *The American Republic*, I would argue that similar assessments can be made.

More examples of likely Hofstadter passages from *Republic* make the case that the book was not only superior to its competitors at the time, but in some cases superior — or at least more vivid — than many textbooks covering the same material today. On Calvinism and predestination:

It may seem odd that a faith so paralyzing in its implications, a faith that saved the few and forever damned the rest, making eternal bliss dependent upon the arbitrary act of God, should prove so satisfying to so many. Yet this stern Protestant creed unleashed a special kind of energy.

On the unintended consequences of the Declaration of Independence:

Like all great political documents, the Declaration of Independence instantly took on a life of its own, consistent with the hopes and aspiration of all men under fetters, not merely white men in the America of 1776…. In our own time, among colonial peoples abroad and the repressed at home, the Declaration continues to serve the cause of revolution as well as social and political equality.

On the tensions between the rise of democracy and the rise of higher education in the 19th century:

Nondenominational colleges in particular were assailed as seats of atheism and aristocracy. Clearly, the "rise of the common man" by no means assured a more liberal education; indeed, it often bred intolerance and anti-intellectualism.

On Manifest Destiny:

American bombast in the capital, brashness in Texas, and bumptiousness in the Pacific Coast naturally made expansion the leading issue in the impending national elections.

And *Republic* uses President Harding's own words to show how dim some occupants of the White House have been:

I can't make a damn thing out of this tax problem. I listen to one side and they seem right, and then — God! — I talk to the other side and they seem just as right…. I know somewhere there is a book that will give me the truth, but, hell, I couldn't read the book.

Hofstadter was called for most of his career a "consensus historian," which was imprecise because he didn't often celebrate consensus, he usually critiqued it. In any case, by the time the final paragraphs of *Republic* were being written the United States was torn by anti-Vietnam War protests and urban riots, countered by crackdowns by the police and armed forces. It seemed not only as if consensus might be breaking up, but as if a national disaster might be in the making. According to *The American Republic*, "the deepening mood of desperation in the United States had suffused the awareness even of the coldest conservative minds." But during all of this the television played on endlessly, as analyzed in this passage that was likely the last that Hofstadter wrote for the book, on its final page, perhaps from his hospital bed:

Television, indeed, brought all of life into focused images, turning individual persons and groups into media performers: combat teams in Vietnam, starving children in Biafra, Chicago rioters, college students and presidents, Cabinet officers and local officials. The poet as well as the politician grew solicitous of his "image" and (the cynical might say) was sometimes captured by it. Radicals threatened with imprisonment, alleged murderers, celebrities from the world of sport and entertainment competed for "prime time" on the "boob tube." On late-hour talk shows, a famous Senator, novelist, or scholar might appear with a prize-fighter, pop-singer, quarterback, and movie actress. The vast unseen audience wanted simultaneously to be amused, thrilled, informed, and edified.

The very ease with which any opinion from the most shocking and heterodox to the most reactionary could receive a hearing in some branch of the communications media might have indicated to radicals left and right that the "Establishment" was not exactly tottering. The threats and warnings, and the strategies for upheaval or repression, produced no permanent "armies of the night" or guerrillas in the hills. But mounting episodes of violence throughout the '60s, and the conviction increasingly voiced by black and white rebels that America could only be cleansed by a holocaust alarmed the nation. Sporadic riots and bombings did not constitute a revolution, but the indeterminate size and representativeness of the alienated gave no assurance that a revolution was an impossibility.

Many textbooks would have settled for concluding bromides, but Hofstadter instead undertook an analysis of the mass media that still stands up. And if the rest of it didn't predict the future, it expressed with intensity and cogency where the nation was in the year it was written.

For me, because of the combined shocks of Nigeria and Hofstadter, I switched my dissertation topic from a painfully vague theoretical epic on the sublime in art to a more focused analysis of the pretensions of presidential commemoration in the United States, which was eventually published as a book. Impressed by *The American Republic,* on my return I bought a new American history textbook, because it was clear that as advanced as *Republic* was for 1970 there were some areas where it was out of date.

I naïvely anticipated that it would be as gripping to read as Hofstadter, and when I was disappointed on that score came to appreciate what he had contributed to the textbook genre — an edge and grim wit that other books usually lacked. But although *Republic* did more than competitors of the time to focus on the lives of ordinary people in addition to elites, the new history texts in useful ways gave even more space to the experiences of Americans of different walks of life.

It was clear that the "old American flag Bailey" approach of sometimes close to blind patriotism was no more. Even though Bailey's book title still lives on even today, decades after *The American Republic* died, it has been almost completely rewritten by Pulitzer-Prize winning historian David Kennedy and others to reflect contemporary scholarship — and an approach that is much closer to Hofstadter's. Almost all American

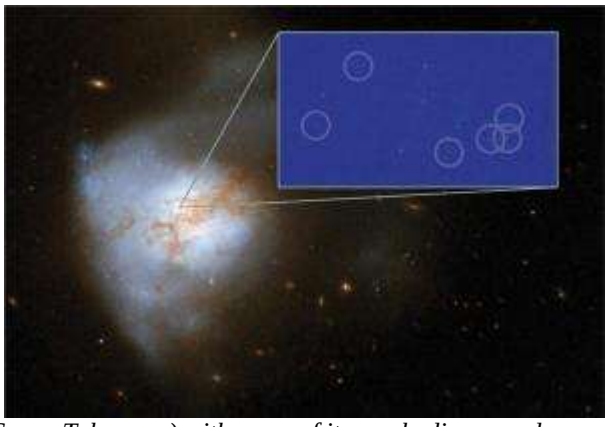
history textbooks today were probably indirectly influenced to some degree by his approach — although Hofstadter himself would certainly say that larger trends in the field were more responsible.

Co-author Daniel Aaron visited Hofstadter in the hospital a week before he died in late October of 1970, and wrote, "Propped in a chair beside his bed and fearfully emaciated … he had the look of a deserted man who was already seeing what we couldn't see." In a larger sense, that had been true for many years when it came to Hofstadter and American history. I'm not the only one who believes that in the future we will be turning to Hofstadter's books more rather than less to try to understand where we are, and where we're going. And I'll still be getting out, along with Hofstadter's other books, the old volumes of *The American Republic* that I got from a used bookstore after I returned from Nigeria, browsing through them to see what I might learn about the present from Hofstadter's clear view of the past.

Ben Hufbauer is an associate professor of art history at the University of Louisville. He thanks Columbia Library archivist Tara C. Craig for tracking down letters in their collections by Daniel Aaron, William Miller and Richard Hofstadter. He is the author of Presidential Temples *(University Press of Kansas).*

http://www.insidehighered.com/views/2011/10/04/essay_on_a_lost_book_that_illustrates_evolution_of_history_and_of_the_textbook

Astronomers Reveal Supernova Factory



Galaxy Arp 220 (main image, taken with the Hubble Space Telescope) with some of its newly discovered supernovae (inset, taken with Global VLBI). The inset image is 250 light years across. (Credit: NASA, ESA, Hubble Heritage Team, Chalmers)

ScienceDaily (Sep. 30, 2011) — A team led by astronomers at Chalmers and Onsala Space Observatory has detected seven previously unknown supernovae in a galaxy 250 million light years away. Never before have so many supernovae been discovered at the same time in the same galaxy. The discovery proves what astronomers have long believed: that the galaxies which are the universe's most efficient star-factories are also supernova factories.

The astronomers used a worldwide network of radio telescopes in five countries, including Sweden, to be able to create extremely sharp images of the galaxy Arp 220. The scientists observed around 40 radio sources in the center of the galaxy Arp 220. These radio sources are hidden behind thick layers of dust and gas and invisible in ordinary telescopes. To discover the nature of these radio sources, they made measurements at different radio wavelengths and watched how they changed over several years.

"With all the data in place, we can now be certain that all seven of these sources are supernovae: stars that exploded in the last 60 years," says Fabien Batejat, main author of the article about the discovery.

So many supernovae have never before been detected in the same galaxy. The number is nevertheless consistent with how fast stars are forming in Arp 220.

"In Arp 220, we see far more supernovae than in our galaxy. We estimate that a star explodes in Arp 220 once every quarter. In the Milky Way, there is only one supernova per century," says Rodrigo Parra, astronomer at the European Southern Observatory in Chile and member of the team.

John Conway is professor of observational radio astronomy at Chalmers and deputy director of Onsala Space Observatory.

"Arp 220 is well-known as a place where star formation is very efficient. Now we have been able to show that star factories like this are also supernova factories," he says.

The radio measurements have also given researchers insight into how radio waves are generated in supernovae and their remnants.

"Our measurements show that a supernova's own magnetic field is what gives rise to its radio emission, not the magnetic fields in the galaxy around it," says Fabien Batejat.

The results will be published in the October 20 issue of the journal Astrophysical Journal.

The team is composed of Fabien Batejat, John Conway and Rossa Hurley from Onsala Space Observatory at Chalmers, Rodrigo Parra (European Southern Observatory, ESO, Santiago, Chile), Philip Diamond (CSIRO, Sydney, Australia), Colin J. Lonsdale (MIT Haystack Observatory, USA) and Carol J. Lonsdale (North American Alma Science Center, NRAO, Charlottesville, USA).

The observations were carried out using telescopes which belong to the European VLBI Network (EVN) together with the Very Long Baseline Array (VLBA). The VLBA is a set of ten radio telescopes located from Hawaii to St. Croix in the U.S. Virgin Islands and operated by the National Radio Astronomy Observatory.

Story Source:

The above story is reprinted (with editorial adaptations by Science*Daily* staff) from materials provided by **Chalmers University of Technology**.

Journal Reference:

1. Fabien Batejat, John E. Conway, Rossa Hurley, Rodrigo Parra, Philip J. Diamond, Colin J. Lonsdale, Carol J. Lonsdale. **Resolution of the Compact Radio Continuum Sources in Arp220**. *Astrophysical Journal*, 2011; (in press) [link]

http://www.sciencedaily.com/releases/2011/09/110930071705.htm

Family-Friendly Science

September 27, 2011

Just last month, researchers at Rice and Southern Methodist Universities released a study showing that female scientists were twice as likely as their male counterparts to regret not having more children. Further, these regrets were seen as prompting some female grad students and postdocs to consider leaving academic science.

On Monday, the National Science Foundation announced a series of new policies designed to make the agency's grant-making policies reflect support for those trying to balance parenthood with research careers. White House officials said that the goal of the effort was to promote change not only at the NSF, but throughout research universities, with the aim over 10 years of raising the percentage of tenure-track faculty in STEM fields who are women (about 28 percent) to their representation among new STEM Ph.D.s (about 40 percent).

John P. Holdren, director of the White House Office of Science and Technology Policy, said at a news briefing that the policy changes will help both fathers and mothers, but that "it is much more common for women to give up STEM careers" than it is for men, and that the shifts are designed to prevent those departures.

Specifically, the NSF will:

- Allow postponement for one year of grants because of childbirth or adoption.
- Allow grant suspension for parental leave.
- Provide supplementary funds to cover the cost of hiring research technicians to maintain laboratories when grant recipients are on family leave.
- Permit those serving on peer review panels to meet with their colleagues virtually, rather than in person, to reduce child-care needs created by travel.
- Fund more research on the effectiveness of policies that are designed to keep women in the science pipeline.

At the same time, the White House announced a series of related efforts by non-governmental groups. The Association for Women in Science is starting a new campaign to bring representatives of government, industry and academe together to discuss ways that work places can promote training, re-entry and retraining of women for science jobs. The Association of American Universities and the Association of Public and Land-grant Universities pledged to find ways to "promote more flexible work and learning environments for those in STEM and other disciplines."

Subra Suresh, director of the National Science Foundation, stressed that most of these efforts required policy changes, not new money. He said he hoped that these "seemingly simple" ideas would inspire universities to review their own policies and look for ways to assure "more flexible" career paths for academic scientists.

At the NSF, he said, many of the policies are based on the actions taken "in pockets of the foundation" that will now be official policy for the entire agency. The same expansion of good efforts is needed in universities, he said.

Elaine Ecklund, associate professor of sociology at Rice University, co-author of last month's study on science and parenthood, and author of several other studies of women and science, called Monday's announcement "huge news."

Ecklund said that a university may have enlightened policies such as, for example, allowing new parents to stop the tenure clock following the arrival of a new child. But an NSF grant recipient might be reluctant to take advantage of that policy if it would endanger a grant that might be key to a tenure bid. "University policies are one thing, but there are all these other pieces of the job of a scientist that are not covered by university policies," she said.

The NSF has enough prestige, she said, that she hopes all other funders will follow its lead, and that universities without good policies would adopt them as well.

Ecklund said she was particularly impressed with the decision of the NSF to allow additional funds to be used to hire technicians to keep labs running during family leaves. In many fields of science, "you may want to stop the clock, but you may be in a phase of the research where you can't stop, so this would keep things going."

— Scott Jaschik

http://www.insidehighered.com/news/2011/09/27/nsf_announces_changes_in_grant_rules_to_encourage_women_in_stem_fields

Sharks Are in Trouble, New Analysis Confirms

A finned reef shark in the Great Barrier Reef World Heritage Area. This carcass was one of several found illegally dumped at Wreck Beach on Great Keppel Island. (Credit: Photo taken by R. Berkelmans on 17 November 2006)

ScienceDaily (Sep. 30, 2011) — Sharks are in big trouble on the Great Barrier Reef and worldwide, according to an Australian-based team who have developed a world-first way to measure rates of decline in shark populations.

"There is mounting evidence of widespread, substantial, and ongoing declines in the abundance of shark populations worldwide, coincident with marked rises in global shark catches in the last half-century," say Mizue Hisano, Professor Sean Connolly and Dr William Robbins from the ARC Centre of Excellence for Coral Reef Studies and James Cook University.

"Overfishing of sharks is now recognized as a major global conservation concern, with increasing numbers of shark species added to the International Union for the Conservation of Nature's list of threatened species," they say in the latest issue of the international science journal *PLos ONE*.

"Evaluating population trends for sharks is complicated," explains Professor Connolly. "The simplest approach of looking at trends in fisheries catches doesn't work well for sharks. First, many countries with coral reefs don't keep reliable records of catches or fishing effort. Second, around 75 per cent of the world shark catch consists of illegal and unreported finning. Third, sharks may be caught, discarded, and not reported when fishers are targeting other species."

"An alternative is to take estimates of shark growth, birth, and mortality rates, and use these to calculate population growth rates. Estimates of growth and birth rates are easy to get, but it is very hard to get good estimates of mortality in sharks and other large animals," he says.

To deal with this problem, the team developed several alternative models, which combined birth rates and growth rates for sharks with a variety of different methods for estimating mortality. They then used state-of-the art statistical methods to combine the uncertainty associated with each of these methods and arrive at a more robust long-term population prediction for two GBR shark species -- the grey reef shark and the whitetip reef shark.

As a further check on their results, the researchers used their population projections to see how well their models could explain differences in shark abundances on fished and unfished reefs, based on how long the unfished reefs had been protected.

The team found that results obtained by all methods of assessing shark populations were in close agreement that sharks are declining rapidly due to fishing.

"Our different approaches all painted a surprisingly consistent picture of the current state of population decline, but also of the potential recovery of these species if they are adequately protected," says Mizue Hisano, the study's lead author.

For the Great Barrier Reef shark populations, the close agreement between the different methods appears to justify management actions to substantially reduce the fishing mortality of reef sharks.

"More broadly, we believe that our study demonstrates that this approach may be applied to a broad range of exploited species for which direct estimates of mortality are ambiguous or lacking, leading to improved estimates of population growth."

Story Source:

The above story is reprinted (with editorial adaptations by Science*Daily* staff) from materials provided by **ARC Centre of Excellence in Coral Reef Studies**.

Journal Reference:

1. Mizue Hisano, Sean R. Connolly, William D. Robbins. **Population Growth Rates of Reef Sharks with and without Fishing on the Great Barrier Reef: Robust Estimation with Multiple Models**. *PLoS ONE*, 2011; 6 (9): e25028 DOI: 10.1371/journal.pone.0025028

http://www.sciencedaily.com/releases/2011/09/110929103057.htm

A Multi-Part Question

September 23, 2011

NEW ORLEANS -- For many college applicants with multiracial backgrounds, college counselors and admissions officers say, the hardest part of applying to college isn't identifying the right colleges to apply to or crafting essays. It's figuring out which box to check when it comes to race.

With more students coming from multiracial backgrounds and colleges and universities becoming increasingly nuanced in how they ask about and measure diversity, students and institutions alike are trying to figure out how to adequately account for diversity in the application process. The issues faced by multiracial college applicants were a major topic of discussion here Thursday as college counselors convened for the annual meeting of the National Association for College Admission Counseling.

In particular, counselors said, recent changes in the structure of application questions about racial and ethnic background have led to confusion among students -- particularly Latino students -- about how they should identify themselves in the process. The questions are causing stress for students, and institutions are finding the data more convoluted, and sometimes less useful, than before.

Much of the admissions officers' concern centered on how the Common Application, which is used by 460 colleges, asks students about their ethnic and racial identity. Since 2009, in response to changes in federal reporting requirements, ethnicity has been a two-part question on the application, and other institutions' applications have similar language.

The first part asks students to say whether they identify as Latino or Hispanic. The second part of the question asks them -- regardless of how they answered the previous question -- to identify as American Indian or Alaska Native, Asian, black or African American, Native Hawaiian or other Pacific Islander, or white. Students can check as many boxes as they'd like in the second question, and both questions are optional.

Before the change, universities were just required to ask and report whether students identified themselves as African American/Black, Hispanic, Asian/Pacific Islander, American Indian/Alaskan Native, or White, though many institutions also allowed students to choose multiracial. In most instances, students could only select one category. The change in the wording was motivated by a change to what the federal government required colleges to report when it came to data, and the same language was used in the 2010 census.

When the Common Application and other institutions implemented the wording change, many colleges saw an increase in the number of students identifying as multiracial. Admissions officers said Latino or Hispanic students, many of whom didn't traditionally identify as any other ethnicity but felt obligated to answer the second question, drove the increase. Several counselors said the new wording also motivated students who previously would have identified as only one race -- such as a black student whose great-grandfather was white -- to identify as more than one race.

Rob Killion, executive director of the Common Application, said that he regularly hears about issues with the questions in the application but that, because of the federal reporting requirements, there isn't much leeway for changing the questions. "If there was some way that we could make these questions more understandable to kids, we would do it," he said.

Several admissions counselors at Thursday's session said they have seen an increase in the number of students asking them how to answer such questions.

Admissions officials said the new wording creates problems not only for students, but also for colleges and universities. Institutions want to be able to provide the right resources for students from different backgrounds once they're on a campus, counselors said. Different resources might be needed for a multiracial student than for one who identifies as having a single ethnicity.

“What you collect for the feds and what you want to present internally might be different,” said Jarrid Whitney, executive director of admissions and financial aid at the California Institute of Technology. “We can’t always break out the multiracial data in ways that we want to.”

Jim Rawlins, executive director of admissions at Colorado State University, said his institution added a supplemental question about whether students identify as multiracial. That only added more layers of complexity. “We have students who check that box who only checked one of the above boxes, and students who checked more than one of the above boxes who don’t check that box.”

There is also a concern that students might not be authentic in how they answer questions about race and ethnicity, seeking an edge in the application process by identifying as multiracial when they really consider themselves to be only one race.

Asking about racial and ethnic identity in applications is complicated by the fact that many multiracial students have not confronted the question of identity, and most have not made solid determinations about it, by the time they’re applying to college, said Kendall Reid-Webster, a counselor at the Marist School, in Atlanta, who regularly works with students and adults who are struggling with the issue of racial identity.

Bonnie Hall, associate director of admissions at Worcester Polytechnic Institute, said institutions should take time to examine what they are using the data for. If an institution is just using the questions to fill quotas of different races on campus, then they're not really pursuing diversity. If they're using it to try create a variety of perspectives on campus, then the new questions might help them better identify what students can bring. “What is the ultimate goal?” she asked the crowd at the session Thursday. “I would hope that everyone’s answer is real diversity on campus.”

— Kevin Kiley

http://www.insidehighered.com/news/2011/09/23/admissions_counselors_struggle_to_measure_multiracial_students_using_common_application_questions

How to Procrastinate and Still Get Things Done

By John Perry

I have been intending to write this essay for months. Why am I finally doing it? Because I finally found some uncommitted time? Wrong. I have papers to grade, a grant proposal to review, drafts of dissertations to read.

I am working on this essay as a way of *not* doing all of those things. This is the essence of what I call *structured procrastination*, an amazing strategy I have discovered that converts procrastinators into effective human beings, respected and admired for all that they can accomplish and the good use they make of time.

All procrastinators put off things they have to do. Structured procrastination is the art of making this bad trait work for you. The key idea is that procrastinating does not mean *doing absolutely nothing.* Procrastinators seldom do absolutely nothing; they do marginally useful things, such as gardening or sharpening pencils or making a diagram of how they will reorganize their files when they find the time. Why does the procrastinator do these things? Because accomplishing these tasks is a way of *not* doing something more important.

If all the procrastinator had left to do was to sharpen some pencils, no force on earth could get him to do it. However, the procrastinator can be motivated to do difficult, timely, and important tasks, as long as these tasks are a way of *not* doing something more important.

To make structured procrastination work for you, begin by establishing a hierarchy of the tasks you have to do, in order of importance from the most urgent to the least important. Even though the most-important tasks are on top, you have worthwhile tasks to perform lower on the list. Doing *those* tasks becomes a way of not doing the things higher on the list. With this sort of appropriate task structure, you can become a useful citizen. Indeed, the procrastinator can even acquire, as I have, a reputation for getting a lot done.

The most perfect situation for structured procrastination that I have encountered occurred when my wife and I served as resident fellows in Soto House, a Stanford University dormitory. In the evening, faced with papers to grade, lectures to prepare, and committee work to do, I would leave our cottage next to the dorm and go over to the lounge and play Ping-Pong with the residents or talk things over with them in their rooms -- or even just sit in the lounge and read the paper. I got a reputation for being a *terrific* resident fellow, one of the rare profs on campus who spent time with undergraduates and got to know them. What a setup: Play Ping-Pong as a way of not doing more important things, and get a reputation as Mr. Chips.

Procrastinators often follow exactly the wrong tack. They try to minimize their commitments, assuming that if they have only a few things to do, they will quit procrastinating and get them done. But this approach ignores the basic nature of the procrastinator and destroys his most important source of motivation. The few tasks on his list will be, by definition, the most important. And the only way to avoid doing them will be to do nothing. This is the way to become a couch potato, not an effective human being.

At this point you may be asking, "How about the important tasks at the top of the list?" Admittedly, they pose a potential problem.

The second step in the art of structured procrastination is to pick the right sorts of projects for the top of the list. The ideal projects have two characteristics -- they seem to have clear deadlines (but really don't), and they seem awfully important (but really aren't). Luckily, life abounds with such tasks. At universities, the vast majority of tasks fall into those two categories, and I'm sure the same is true for most other institutions.

Take, for example, the item at the top of my list right now -- finishing an essay for a volume on the philosophy of language. It was supposed to be done 11 months ago. I have accomplished an enormous

number of important things as a way of not working on it. A couple of months ago, nagged by guilt, I wrote a letter to the editor saying how sorry I was to be so late and expressing my good intentions to get to work. Writing the letter was, of course, a way of not working on the article. It turned out that I really wasn't much further behind schedule than anyone else. And how important is this article, anyway? Not so important that at some point something that I view as more important won't come along. *Then* I'll get to work on it.

Let me describe how I handled a familiar situation last summer. The book-order forms for a class scheduled for fall were overdue by early June. By July, it was easy to consider this an important task with a pressing deadline. (For procrastinators, deadlines start to press a week or two after they pass.) I got almost daily reminders from the department secretary; students sometimes asked me what we would be reading; and the unfilled order form sat right in the middle of my desk for weeks. This task was near the top of my list; it bothered me -- and motivated me to do other useful, but superficially less important, things. In fact, I knew that the bookstore was already plenty busy with forms filed by non-procrastinators. I knew that I could submit mine in midsummer and things would be fine. I just needed to order popular books from efficient publishers. I accepted another, apparently more important, task in early August, and my psyche finally felt comfortable about filling out the order form as a way of not doing this new task.

At this point, the observant reader may feel that structured procrastination requires a certain amount of self-deception, since one is, in effect, constantly perpetrating a pyramid scheme on oneself. Exactly. One needs to be able to recognize and commit oneself to tasks with inflated importance and unreal deadlines, while making oneself feel that they are important and urgent. This clears the way to accomplish several apparently less urgent, but eminently achievable, tasks. And virtually all procrastinators also have excellent skills at self-deception -- so what could be more noble than using one character flaw to offset the effects of another?

John Perry is a professor of philosophy at Stanford University.

http://chronicle.com/article/How-to-ProcrastinateStill/93959/

Academic Publishing and Zombies

September 30, 2011

Zombies are a good way to get people's attention.

Just ask Seth Grahame-Smith, author of *Pride and Prejudice and Zombies*. His mash-up of the 19th-century Jane Austen classic with the 20th-century pulp-horror trope became an unlikely bestseller in 2009.

So it is strategic that Kathleen Fitzpatrick, director of scholarly communication at the Modern Language Association and a professor of media studies at Pomona College, invokes the living dead early to illustrate her argument in *Planned Obsolescence: Publishing, Technology, and the Future of the Academy* (NYU Press). The scholarly press book, she writes, "is no longer a viable mode of communication … [yet] it is, in many fields, still required in order to get tenure. If anything, the scholarly monograph isn't dead; it is undead."

No doubt Fitzpatrick is not the first reader, or author, to imagine a scholarly monograph as a bogeyman that devours human brains. But while the zombie metaphor provides a nice hook, Fitzpatrick makes her point more subtly by citing Grahame-Smith's satirical reimagining of Jane Austen. For as much as the current debate over the future of scholarly communications has to do with the preponderance of zombie monographs, it has more to do with the potential of authorial mash-ups and the pride and prejudice of stodgy academics.

Here are two ideas Fitzpatrick proposes to kill for good: Peer review is necessary to maintaining the credibility of scholarly research and the institutions that support it; and publishing activity in peer-reviewed journals is the best gauge of a junior professor's contribution to knowledge in her field.

Although peer review is often portrayed as an institution that arose with the scientific method, Fitzpatrick suggests the roots of peer review were "more related to censorship than to quality control," serving mainly to concentrate academic authority in the hands of journal editors and, later, their expert reviewers.

While this system created an effective supply-side filter, it was also susceptible to bias, as Douglas Peters and Stephen Ceci demonstrated in a 1982 experiment. Peters, of the University of North Dakota, and Ceci, of Cornell University, took already-published articles in 12 esteemed psychology journals and resubmitted them, changing only the authors' names and affiliations and the phrasing of the opening paragraphs. Three of the 12 articles were caught by journal editors as duplicates. Of the nine that were not, one was published. The other eight were rejected, most on methodological grounds.

In the days when ink was permanent, printing was expensive, and redressing the flaws of a shoddy published article was tedious, prepublication vetting by a cloister of gatekeepers made more sense, Fitzpatrick argues. These days, technology makes it possible to tap a larger crowd of academics to assess the merits of individual articles. Instead of assigning a few cops to guard the door, Fitzpatrick argues that journals should throw the door open to all comers, then deputize their readers to usher sound articles to a pedestal and banish bad ones to the margins. Scholarly journals would serve their constituencies better "by allowing everything through the gate, and by designing a post-publication peer review process that focuses on how a scholarly text should be received," she writes, "rather than whether it should be out there in the first place."

Today's technology also enables more dynamic forms of annotation, Fitzpatrick says. Authors and readers need not parry over ideas in a string of static, disjointed essays when they can do so in the digital margins of the original text, she writes. Instead of ideas evolving over the course of dozens of discrete texts from multiple authors, multiple authors could converge on a single text, which would evolve in stride with the ideas the original writer had set down — a text that is "living," as it were, rather than entombed in ink.

The way to make this work, Fitzpatrick says, is to change the currency of scholarly communications from paper to credit. Instead of rewarding faculty for getting a lot of paper published, universities should consider how helpful tenure candidates have been in parsing other people's articles written and helping others refine their ideas, she says. Journals could help out with this by creating "trust metrics" that cede more weight to academics who consistently give constructive feedback. They could also encourage frequent, thoughtful reviews by making them prerequisites for publishing one's own work — thus attracting the sort of critical mass of reviewers that Fitzpatrick argues is necessary for successful peer-to-peer review (and which some previous high-profile experiments with the model failed to get).

Under such a system, faculty members could glide to tenure on the wings of their reputations as positive contributors to the advancement of knowledge in their field — a metric the current "publish-or-perish" model does not adequately represent, Fitzpatrick says. "Little in graduate school or on the tenure track inculcates helpfulness," she writes, "and in fact much militates against it."

Accordingly, professorial culture is infected by pride in individual achievements and prejudice against publishing models that would de-emphasize them. But to the extent that individual academics continue in their lust for "power and prestige" by vying for exclusive spots in elite journals, they should not be surprised to find themselves as irrelevant and moribund — indeed, zombie-like — as print monographs have already become, warns Fitzpatrick.

"If we enjoy the privileges that obtain from upholding a closed system of discourse sufficiently that we're unwilling to subject it to critical scrutiny, we may also need to accept the fact that the mainstream of public intellectual life will continue, in the main, to ignore our work," she says. "Public funds will, in that case, be put to uses that seem more immediately pressing than our support."

Inside Higher Ed caught up with Fitzpatrick to discuss *Planned Obsolescence*, which is available online (with reviewer annotations) and is scheduled for release in zombie-book form in November. Helpful critiques in the comments section are welcomed and make an eye-catching addition to any tenure portfolio:

Q: One of the most striking messages of this book is that in order for academe to truly realize the opportunities presented by modern channels of scholarly communications, academics will have to humble themselves. You say a publishing process that focuses on developing ideas and texts collaboratively, rather than flattering individuals with solitary bylines, would (a) be more honest, and (b) dovetail nicely with Web 2.0 platforms that enable distributed authorship. But humbling academics is no simple task. There are a handful of entrenched systems of thought and practice that stand in the way of this – not just in the academy, but in the broader culture. Is there a hierarchy of obstacles here? Which needs to fall first?

A: I don't think academics need to be "humbled," but would instead say that we need to reconfigure our priorities and understand that insofar as we have operated as individuals, it has always been by building on the work of others, and by putting our work into circulation such that it can be built upon. Some fields of course already operate in predominantly collaborative ways, as do most successful online projects, but the humanities in general have a deeply ingrained belief in the primacy of the individual voice. If we are going to take full advantage of the new ways of working that digital technologies make available, scholars will have to consider the possibility that we can accomplish more collectively than we can alone. This is not to say that the individual voice will be wholly subsumed within that of the Borg. Instead, it is meant to suggest that that voice will very often be found in more direct dialogue with other scholars, an interconnectedness that will make clear that, in fact, the individual voice that we so value has *never* been alone.

As you note, shifting our focus from the individual to the collaborative will require us to get past some fairly entrenched assumptions. We in the humanities will need to think differently about "credit," so that collaborative work will count in hiring, tenure, and promotion processes. We'll also need to develop new

means of citing the contributions that our colleagues make to our work as it develops. But even more than our processes, we need to change our mindset: we need to understand ourselves as working toward collective goals; we need to value work done on behalf of a community as much as we do work that serves ourselves.

Q: You argue for an open, post-publication review process, where every paper is allowed through the gate and the academic vanguard – acting as a crowd, not a cloister – focuses on "how a scholarly text should be received rather than whether it should be out there in the first place." Whenever this sort of thing is proposed, doomsday prophets warn against a bum rush from pseudoscientists and historical revisionists who would blight the scholarly garden with "voodoo and quackery." Why are they wrong?

A: They're wrong in large part because, as they say in open-source software circles, many eyes make all bugs shallow: the more people reviewing scholarly work, the stronger that work is likely to become. Understand of course that I'm not talking about crowd-sourcing of the model used by, say, Wikipedia, in which "just anyone" can contribute to and edit the project. (Though I note that participation by "just anyone" has resulted in an encyclopedia that is not only far vaster than could ever have been produced within a closed system of expert authoring and review, but also one that studies have shown to be of the same or better quality as traditionally-produced projects.) Instead, what I'm talking about in such an open, post-publication review process is non-anonymous discussion by a community of scholars working together on collective issues. In a system like this one – what Katherine Rowe has referred to as "our-crowd sourcing" – participants are able to assess not just the publications that scholars in the community produce but also the comments on those publications, according to standards that the community itself sets and maintains.

Q: You sharply criticize the current tenure system, in which faculty are evaluated on their productivity by the reductive metrics of how many papers they have managed to get published, and in what journals. You advocate for a system that instead assesses scholars based on how helpful they have been in reviewing and refining ideas that have been set down by others. Because those discussions are now preserved in the amber of the Web, the raw data describing a candidate's activities as an "academic citizen" might be increasingly available to tenure committees. Does the sort of computational analysis being developed in the digital humanities offer any hope for "scoring" a professor's civic contributions? What might be the limitations and potential hazards of such a system?

A: I'd like us to think about assessment of a scholar's participation in his or her community of practice as being *as important* as the production of his or her own work – not replacing publication with reviewing as the core locus of scholarly engagement, but instead understanding the two as in close relationship with each other. If tenure and promotion reviews are supposed to evaluate not the quantity of work a scholar has done but rather the impact that the scholar is having on the field, we need to understand that impact often comes in our responses to the work that others do, not just in our own original contributions.

That said, I do think that some forms of computational analysis might be useful in helping us to think about how a scholar engages with his or her community. Obviously, we don't want just to count things like hits or downloads or comments. Popularity is not the point, and simple metrics like these are easily manipulable. On the other hand, a number of scholars in fields like digital humanities and internet research have done significant work on network analysis; surely we can put the kinds of robust data gathering, analysis, and – most important – *interpretation* into practice in thinking about how our own discourse networks operate, how ideas move, how influence functions. These would not be simple measurements, but instead frameworks for understanding how a scholar is influencing the development of a field.

Beyond such computational measures, however, we still of course need to *read the work*. In fact, I suggest that we need to place more emphasis on such reading, in no small part because, in a post-publication review environment, we need not only to read the work being evaluated, but also to read the responses other scholars have had to the work. We have to stop displacing our judgment onto other entities, like journals and presses, and instead do the difficult work of evaluation ourselves.

Q: There are several points in the book where you talk about why, viewed through a historical lens, some of the shifts you are advocating are in fact less radical than they might sound. Can you talk about how your proposed overhauls fit into the long arc of scholarly publishing?

A: I was once on a conference panel with Bob Stein, the founder of the Institute for the Future of the Book, and in response to a question about the radical changes coming in a post-Gutenberg universe, he said "you have to understand: the last 500 years have been very unusual." And it's true: the conventions that have developed alongside print have not been there all along, and they color our assumptions about academic publishing – that the author is an individual solely responsible for the text; that the text is original, unique, and stable; that the publisher grants the text's imprimatur. Historians of the book have explored the degree to which these assumptions are not the inevitable result of the technologies of printing and binding, but are instead the product of social, economic, and intellectual institutions that have helped to maintain the ideologies that govern contemporary culture and its assumptions about knowledge. Needless to say, one of those institutions is the university.

These ideologies aren't universal, and they aren't without histories. There have been moments in western culture when "originality," which is now highly prized, was instead seen as suspect, just as there have been moments when the collective voice was valued over the individual's. If we instead assume that our work makes a contribution to the collective advancement of knowledge, we might begin to recognize a fundamental mismatch. And we might start to think about whether there's something to be learned from the models of communication that we've left behind.

Q: As part of your process for publishing *Planned Obsolescence*, you put your advocacy to the test, posting early drafts of at least one chapter, and then the entire book, for discussion on CommentPress, and then incorporating the feedback into the finished work. How did this experiment affect the final version and your thinking about open review and collaborative authorship in general?

A: The experiment had a profound impact on the final version of the text. I had two excellent traditional peer reviews of the manuscript, which gave me very engaged advice about rethinking certain aspects of the text. But because of the dialogic nature of the online review, I was able to ask commenters to expand on some of their thoughts, to respond directly to their concerns, and – perhaps most important – to see commenters discuss the text with one another, at times hashing out different interpretations of the ideas in question. And since I knew who those reviewers were, I had a social context for their comments, leading me to take them that much more seriously.

But the open review process wasn't perfect; I also discovered several things about it that need revision. For instance, we need to develop a way of interpreting silence in open reviews. The absence of comments could mean that everybody agrees with you; it could mean that nobody read the piece; and it could mean that the piece is so insanely wrong that no one wants to embarrass you (or create problems for themselves) by saying so. Figuring out what silence means, or how to get past those silences, will be key for open review.

Q: As the director of scholarly communication for the Modern Language Association, you would appear to wield more clout in the academic publishing world than others who have proposed a shock to the system. Yet the association still uses the peer-review model for its journal, *PMLA*. Are there any plans at MLA to put your suggestions into action there?

A: I was hired by the MLA in part because of the arguments I've been making – because of the executive council's desire for the organization to develop in new directions while remaining aware of the history and importance of the systems that are currently in place. We're exploring a range of options that will facilitate communication among our members in both innovative and traditional ways, and I'm honored to be able to assist in the process.

Q: Imagine three people who read this work and agree with you. One is a junior faculty member, one is a provost, and one is a university librarian. What can each do, beginning today, to help turn the barge in a more enlightened direction?

A: Good question! To the junior faculty member: don't wait until after you have achieved the safety of tenure to take a chance on a new way of working; it might not be easy, but effort spent educating your senior colleagues about innovative modes of scholarly production will be effort well-spent. Seek out mentors and supporters, both within your institution and outside it, build a strong community of practice, get your work into open circulation, document the effects that work is having – and then teach the folks who are going to evaluate your work how to read it, and how to read the evidence of its effectiveness.

To the university librarian: help fight for the acceptance of new modes of scholarly communication by collaborating on new digital publishing projects with the university press, by creating structures to support faculty experimentation with new modes of production and dissemination, and by helping gather the data about usage and response that will help faculty members demonstrate the influence of their work. Getting involved with faculty projects at the outset will also help you to create a plan for their preservation. I'd also encourage the university librarian to open a frank conversation with faculty about the costs of resources and the limitations placed on their access; getting scholars engaged with questions about the sustainability of scholarly communication will require building awareness about the difficult choices facing libraries in an era of budget constriction and escalating journal costs.

Finally, to the provost: understand that scholarly communication is a core responsibility of the university – so fundamental to the university mission, in fact, that it must be thought of as part of the institution's infrastructure, not as a revenue center. And every university must develop some kind of plan for scholarly communication. If you leave disseminating the work of your faculty exclusively to corporate publishers, corporations will profit from it at your institution's expense. Instead, invest in the structures that will get your faculty's work into broader circulation – not least because those structures will help you make clear to the concerned public why the university continues to matter today.

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— Steve Kolowich

http://www.insidehighered.com/news/2011/09/30/planned_obsolescence_by_kathleen_fitzpatrick_proposes_alternatives_to_outmoded_academic_journals

Single Dose of 'Magic Mushrooms' Hallucinogen May Create Lasting Personality Change, Study Suggests

Psilocybin, a hallucinogen produced by 'magic mushrooms', has been linked to long-lasting personality changes, according to new research. (Credit: © cbaloga / Fotolia)

ScienceDaily (Sep. 29, 2011) — A single high dose of the hallucinogen psilocybin, the active ingredient in so-called "magic mushrooms," was enough to bring about a measurable personality change lasting at least a year in nearly 60 percent of the 51 participants in a new study, according to the Johns Hopkins researchers who conducted it.

Lasting change was found in the part of the personality known as openness, which includes traits related to imagination, aesthetics, feelings, abstract ideas and general broad-mindedness. Changes in these traits, measured on a widely used and scientifically validated personality inventory, were larger in magnitude than changes typically observed in healthy adults over decades of life experiences, the scientists say. Researchers in the field say that after the age of 30, personality doesn't usually change significantly.

"Normally, if anything, openness tends to decrease as people get older," says study leader Roland R. Griffiths, a professor of psychiatry and behavioral sciences at the Johns Hopkins University School of Medicine.

The research, approved by Johns Hopkins' Institutional Review Board, was funded in part by the National Institute on Drug Abuse and published in the *Journal of Psychopharmacology*.

The study participants completed two to five eight-hour drug sessions, with consecutive sessions separated by at least three weeks. Participants were informed they would receive a "moderate or high dose" of psilocybin during one of their drug sessions, but neither they nor the session monitors knew when.

During each session, participants were encouraged to lie down on a couch, use an eye mask to block external visual distraction, wear headphones through which music was played and focus their attention on their inner experiences.

Personality was assessed at screening, one to two months after each drug session and approximately 14 months after the last drug session. Griffiths says he believes the personality changes found in this study are likely permanent since they were sustained for over a year by many.

Nearly all of the participants in the new study considered themselves spiritually active (participating regularly in religious services, prayer or meditation). More than half had postgraduate degrees. The sessions with the otherwise illegal hallucinogen were closely monitored and volunteers were considered to be psychologically healthy

"We don't know whether the findings can be generalized to the larger population," Griffiths says.

As a word of caution, Griffiths also notes that some of the study participants reported strong fear or anxiety for a portion of their daylong psilocybin sessions, although none reported any lingering harmful effects. He cautions, however, that if hallucinogens are used in less well supervised settings, the possible fear or anxiety responses could lead to harmful behaviors.

Griffiths says lasting personality change is rarely looked at as a function of a single discrete experience in the laboratory. In the study, the change occurred specifically in those volunteers who had undergone a "mystical experience," as validated on a questionnaire developed by early hallucinogen researchers and refined by Griffiths for use at Hopkins. He defines "mystical experience" as among other things, "a sense of interconnectedness with all people and things accompanied by a sense of sacredness and reverence."

Personality was measured on a widely used and scientifically validated personality inventory, which covers openness and the other four broad domains that psychologists consider the makeup of personality: neuroticism, extroversion, agreeableness and conscientiousness. Only openness changed during the course of the study.

Griffiths says he believes psilocybin may have therapeutic uses. He is currently studying whether the hallucinogen has a use in helping cancer patients handle the depression and anxiety that comes along with a diagnosis, and whether it can help longtime cigarette smokers overcome their addiction.

"There may be applications for this we can't even imagine at this point," he says. "It certainly deserves to be systematically studied."

Along with the National Institute on Drug Abuse, this study was funded by the Council on Spiritual Practices, Heffter Research Institute and the Betsy Gordon Foundation.

Other Hopkins authors of the research include Matthew W. Johnson, Ph.D, and Katherine A. MacLean, Ph.D.

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1. K. A. MacLean, M. W. Johnson, R. R. Griffiths. **Mystical Experiences Occasioned by the Hallucinogen Psilocybin Lead to Increases in the Personality Domain of Openness**. *Journal of Psychopharmacology*, 2011; DOI: 10.1177/0269881111420188

http://www.sciencedaily.com/releases/2011/09/110929074205.htm

Mining Student Data Could Save Lives

Michael Morgenstern for The Chronicle

By Michael Morris

He hadn't taken his medication in weeks—didn't need it. His clarity and focus over the past couple of months were sharper than they had ever been. As he stood in the hallway preparing to enter the campus library through a side door, his sweating hands firmly clutched the grips of the twin Glock 22 pistols he had ordered online.

If only there had been a way to look into a crystal ball and see that this horrific confrontation was about to occur, it could have been prevented. In the aftermath of nearly every large-scale act of campus violence in the United States, investigation has revealed that early-warning signs had been present but not recognized or acted upon. As a response, nearly all college and university campuses have developed threat-assessment teams, whereby key members of various campus groups come together regularly to share information and discuss troubling student behavior.

Unfortunately, these teams are only able to assess students whose issues have already led to problematic behaviors noticed by people on campus. Existing technology, though, offers universities an opportunity to gaze into their own crystal balls in an effort to prevent large-scale acts of violence on campus. To that end, universities must be prepared to use data mining to identify and mitigate the potential for tragedy.

Many campuses across the country and most in California provide each student with an e-mail address, personal access to the university's network, free use of campus computers, and wired and wireless Internet access for their Web-connected devices. Students use these campus resources for conducting research, communicating with others, and for other personal activities on the Internet, including social networking. University officials could potentially mine data from their students and analyze them, since the data are already under their control. The analysis could then be screened to predict behavior to identify when a student's online activities tend to indicate a threat to the campus.

If university officials were to learn that a student had conducted extensive online research about the personal life and daily activities of a particular faculty member, posted angry and threatening comments on his Facebook wall about that professor, shopped online for high-powered firearms and ammunition, and saved a draft version of a suicide note on his personal network drive, would those officials want to have a conversation with that student, even though he hadn't engaged in any significant outward behavior? Certainly.

This information, which may reside in the university's IT system, would allow the campus to strategize a swift and effective intervention, and take steps to prevent violent behavior from ever occurring. In such cases, an important distinction would have to be made between violations of the law and violations of campus policy, and established guidelines would have to be followed to ensure the student's rights to due process.

Interestingly, the technology exists to allow university officials to take such actions. Data mining involves applying specifically designed algorithms to electronic

data to identify patterns and transform the data into usable information. It is a form of behavioral surveillance, and it can be used to predict, with amazing accuracy, the propensity for a person's future behavior. Computer engineers design data-mining algorithms to search for specific patterns that, when analyzed collectively, tend to indicate the likelihood of a particular outcome.

Have you ever had a credit-card transaction declined because the bank noticed an unusual pattern of spending on your account? Through data mining, the bank drew the conclusion that your credit card had been stolen. It would logically follow that mining algorithms could be easily designed to predict the potential for planned or considered campus violence as well.

Although university administrators may resist the idea of passive behavioral surveillance of the campus community because of privacy considerations, the truth is that society has been systematically forfeiting its rights to online privacy over the past several years through the continued and increased use of services on the Internet. Social-networking sites and search engines store and divulge personal information accessible to the world each day, yet people continue to use them in increasing numbers.

Indeed, our online activities are already under constant surveillance—by companies eager to learn about our individual interests. Their findings are used for marketing purposes to single out consumers with goods and services based on our specific interests. How does Amazon.com know what types of books I'm interested in reading? How did my Gmail account find out I'm an Oakland Raiders fan? These examples are instances of data mining.

Some people might think this concept will face harsh challenges on the basis of the Family Educational Rights and Privacy Act (Ferpa), which prohibits the release of any information from a student's education record without written permission from the student. Following the killings at Virginia Tech in April of 2007, though, universities sought clarification from the Department of Education regarding exceptions to the Ferpa regulations. That shooter had demonstrated mental instability to a number of faculty members on the campus, but information was not shared effectively because of potential Ferpa implications. To resolve this, the department revised and clarified acceptable exceptions to Ferpa requirements.

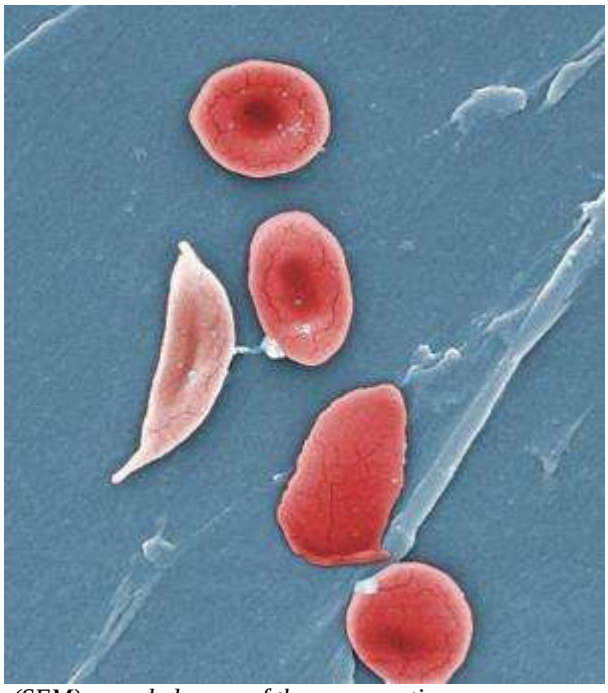
Under the new regulations, campuses may disclose information from a student's record, without consent, "to appropriate parties in connection with an emergency if knowledge of the information is necessary to protect the health and safety of the student or other individuals." Ferpa also allows for "information concerning disciplinary action taken against a student for conduct that posed a significant risk to the safety or well-being of that student, other students, or other members of the school community" to be included in the student's educational record and to be disclosed to teachers and school officials inside and outside the institution. Enhancing the capacity of threat-assessment teams through data mining is the next natural step using what would ordinarily be private information to prevent on-campus violence.

Because campuses can be prime targets for large-scale acts of violence, have their own full-service computer networks, and operate comprehensive threat-assessment teams, the use of data-mining technology to prevent violence should begin there. Certainly, no single crime-prevention program can be 100-percent effective, 100 percent of the time. But if colleges use the crystal ball that's available to them, they will surely come much closer to that goal.

Michael Morris is a lieutenant with the University Police at California State University-Channel Islands.

http://chronicle.com/article/Mining-Student-Data-Could-Save/129231/

Correcting Sickle Cell Disease With Stem Cells



This digitally-colorized scanning electron micrograph (SEM) revealed some of the comparative ultrastructural morphology between normal red blood cells (RBCs), and a sickle cell RBC (left). (Credit: CDC / Janice Haney Carr)

ScienceDaily (Sep. 29, 2011) — Using a patient's own stem cells, researchers at Johns Hopkins have corrected the genetic alteration that causes sickle cell disease (SCD), a painful, disabling inherited blood disorder that affects mostly African-Americans. The corrected stem cells were coaxed into immature red blood cells in a test tube that then turned on a normal version of the gene.

The research team cautions that the work, done only in the laboratory, is years away from clinical use in patients, but should provide tools for developing gene therapies for SCD and a variety of other blood disorders.

In an article published online August 31 in *Blood*, the researchers say they are one step closer to developing a feasible cure or long-term treatment option for patients with SCD, which is caused by a single DNA letter change in the gene for adult hemoglobin, the principle protein in red blood cells needed to carry oxygen. People who inherited two copies -- one from each parent -- of the genetic alteration, the red blood cells are sickle-shaped, rather than round. The misshapen red blood cells clog blood vessels, leading to pain, fatigue, infections, organ damage and premature death.

Although there are drugs and painkillers that control SCD symptoms, the only known cure -- achieved rarely -- has been bone marrow transplant. But because the vast majority of SCD patients are African-American and few African-Americans have registered in the bone marrow registry, it has been difficult to find compatible donors, says Linzhao Cheng, Ph.D., a professor of medicine and associate director for basic research in the Division of Hematology and also a member of the Johns HopkinsInstitute for Cell Engineering. "We're now one step closer to developing a combination cell and gene therapy method that will allow us to use patients' own cells to treat them."

Using one adult patient at The Johns Hopkins Hospital as their first case, the researchers first isolated the patient's bone marrow cells. After generating induced pluripotent stem (iPS) cells -- adult cells that have been reprogrammed to behave like embryonic stem cells -- from the bone marrow cells, they put one normal copy of the hemoglobin gene in place of the defective one using genetic engineering techniques.

The researchers sequenced the DNA from 300 different samples of iPS cells to identify those that contained correct copies of the hemoglobin gene and found four. Three of these iPS cell lines didn't pass muster in subsequent tests.

"The beauty of iPS cells is that we can grow a lot of them and then coax them into becoming cells of any kind, including red blood cells," Cheng said.

In their process, his team converted the corrected iPS cells into immature red blood cells by giving them growth factors. Further testing showed that the normal hemoglobin gene was turned on properly in these cells, although at less than half of normal levels. "We think these immature red blood cells still behave like embryonic cells and as a result are unable to turn on high enough levels of the adult hemoglobin gene," explains Cheng. "We next have to learn how to properly convert these cells into mature red blood cells."

Only one drug treatment has been approved by the FDA for treatment of SCD, hydroxyurea, whose use was pioneered by George Dover, M.D., the chief of pediatrics at the Johns Hopkins Children's Center. Outside of bone marrow transplants, frequent blood transfusions and narcotics can control acute episodes.

The research was funded by grants from the Maryland Stem Cell Fund and the National Institutes of Health, and a fellowship from the Siebel Foundation.

Story Source:

The above story is reprinted (with editorial adaptations by Science*Daily* staff) from materials provided by **Johns Hopkins Medical Institutions**.

Journal Reference:

1. J. Zou, P. Mali, X. Huang, S. N. Dowey, L. Cheng. **Site-specific gene correction of a point mutation in human iPS cells derived from an adult patient with sickle cell disease**. *Blood*, 2011; DOI: 10.1182/blood-2011-02-335554

http://www.sciencedaily.com/releases/2011/09/110928180416.htm

Saving the 'Lost Boys' of Higher Education

Mark Shaver for The Chronicle

By Robert B. Smith

In J.M. Barrie's novel *Peter Pan*, Peter explains to Wendy that the "lost boys" are toddlers who fell out of their prams at Kensington Gardens and were whisked away to Neverland.

"Are none of the others girls?" asks Wendy.

"Oh, no," Peter says. "Girls, you know, are much too clever to fall out of their prams."

Literary scholars can debate whether Peter was simply currying favor with Wendy or making a wry observation about the differences between the sexes. But there is no doubt that today, Barrie's clever phrase for those wayward youths has become a synonym for a very 21st-century phenomenon: underachieving males.

Higher-education officials have been wringing their hands about our own "lost boys" for years. And yet the flip-flopped gender gap continues to widen: In April 2011, the U.S. Census Bureau released data showing that, for the first time, women have sailed past men in obtaining both bachelor's degrees and advanced college degrees. The report sparked some discussion about today's shifting gender roles and the burgeoning ranks of stay-at-home dads, but over all, much of the commentary has had a matter-of-fact tone. Thanks to the likes of Richard Whitmire's 2010 book *Why Boys Fail* and *The Atlantic*'s exhaustive cover story "The End of Men," Americans, it seems, are getting used to the idea that men are on the decline.

If the United States simply accepts that males will continue to lag behind their female counterparts in academic interest and performance, the consequences will be profound. This is no abstract issue: Ultimately, it could lead to a country in which millions of young men live with their parents and work lousy jobs with few or no benefits, and in which a class of highly educated, professionally engaged women is expected to support underemployed husbands.

The issue is not whether well-educated males should stay at home and take care of the kids. Today's "modern family" can work when it is a function of new opportunities, rather than a forced adjustment to limited horizons. If a husband can stay at home and run a successful online business while his wife practices medicine, great. But if he struggled in academics, dropped out of high school, and resents his wife's power and prestige, it will be a raw deal for all involved.

So why the inaction on the so-called lost boys? One effort seems to have stalled amid apparent lack of interest: a proposal to establish a White House Council on Boys to Men, spearheaded by the author Warren Farrell, who has published several books about gender relations and what he views as the myth of male social advantage.

The lack of progress may stem from our sense that males hold all the cards—an impression undiminished by the abundant research documenting their struggles, which affect boys and men regardless of race or socioeconomic status. Contemplated in the abstract, the image of hard-working women giving a bunch of masculine underachievers their comeuppance after eons of patriarchy might seem just. But the realities of the new gender gap are nothing to celebrate.

Admissions officials are among those who need no convincing on this score. Nationally, the female-to-male ratio in higher education is roughly 60 to 40 percent. Such gender imbalances can put colleges at a competitive disadvantage because boys and girls alike tend to look for campuses with even gender distributions. Not surprisingly, admissions officials have been accused of favoring male applicants in a desperate bid for balance—a practice that caught the attention of federal civil-rights investigators, who subpoenaed admissions data from 19 institutions in 2009 but suspended the probe this spring amid disputes over the data.

Meanwhile, the federal stimulus programs that helped colleges and universities make ends meet at the height of the recession are fading fast, even as states grapple with plummeting tax revenues and daunting deficits. For cash-strapped colleges and universities, the notion that roughly half of their potential "customers" are more likely to quit school early or skip higher education altogether is troubling indeed.

All of us ought to find it troubling as well, regardless of our gender or political persuasion. Amid a global marketplace brimming with hungry competitors, can we afford to foot the bill for generations of lost boys?

Establishing a White House Council on Boys to Men could be a good first step toward translating some of the widespread concerns about lost boys into concrete action. The commission that put forth the now-stalled proposal has identified five "crisis level" factors: education, emotional health, physical health, father involvement, and work. By combining the perspectives and findings of various experts, a White House council could provide a multidisciplinary, integral approach to a difficult social issue.

Meaningful action, however, will be impossible unless educators at all levels summon the courage to take a stand against the forces of political correctness and either/or thinking ("Either women or men can succeed, but not both"). The underlying causes of the problem of lost boys might still be matters of debate and require further research, but when it comes to how American boys are doing these days, the research is in—they are lost, and they need help.

Robert B. Smith is a partner in the Boston office of the law firm LeClairRyan. He focuses his practice on defending claims against colleges and universities.

http://chronicle.com/article/Saving-the-Lost-Boys-of/129243/

Fish Uses Tool to Dig Up and Crush Clams

In this frame from the video, an orange-dotted tuskfish carries a clam in its mouth. (Credit: Image courtesy of University of California - Santa Cruz)

ScienceDaily (Sep. 29, 2011) — The first video of tool use by a fish has been published in the journal *Coral Reefs* by Giacomo Bernardi, professor of ecology and evolutionary biology at the University of California, Santa Cruz.

In the video, an orange-dotted tuskfish digs a clam out of the sand, carries it over to a rock, and repeatedly throws the clam against the rock to crush it. Bernardi shot the video in Palau in 2009.

"What the movie shows is very interesting. The animal excavates sand to get the shell out, then swims for a long time to find an appropriate area where it can crack the shell," Bernardi said. "It requires a lot of forward thinking, because there are a number of steps involved. For a fish, it's a pretty big deal."

The actions recorded in the video are remarkably similar to previous reports of tool use by fish. Every case has involved a species of wrasse using a rock as an anvil to crush shellfish. A report published in June in *Coral Reefs* included photos of this behavior in a blackspot tuskfish on Australia's Great Barrier Reef. Bernardi said he first heard of the phenomenon in 1994, when a colleague (James Coyer) observed a yellowhead wrasse in Florida doing the same thing. Similar behavior was also reported in a sixbar wrasse in an aquarium setting.

"Wrasses are very inquisitive animals," Bernardi said. "They are all carnivorous, and they are very sensitive to smell and vision."

Wrasses are one of the largest and most diverse families of marine fishes. Bernardi noted that several of the species observed using tools are not closely related, but cover a broad range of evolutionary history within the wrasse family. "They are at opposite ends of the phylogenetic tree, so this may be a deep-seated behavioral trait in all wrasses," he said.

Tool use was once considered an exclusively human trait, and Jane Goodall's reports of tool use in chimpanzees in the 1960s came as a stunning revelation. Since then, many other animals have been observed using tools, including various primates, several kinds of birds, dolphins, elephants, and other animals.

Bernardi, who studies fish genetics, said there may be other examples of tool use in fish that have not yet been observed. "We don't spend that much time underwater observing fishes," he said. "It may be that all wrasses do this. It happens really quickly, so it would be easy to miss."

The paper was published online on September 20.

Story Source:

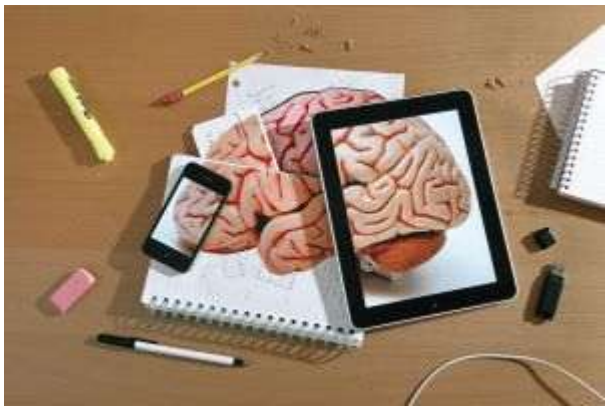
The above story is reprinted (with editorial adaptations by Science*Daily* staff) from materials provided by **University of California - Santa Cruz**. The original article was written by Tim Stephens.

Journal Reference:

1. G. Bernardi. **The use of tools by wrasses (Labridae)**. *Coral Reefs*, 2011; DOI: 10.1007/s00338-011-0823-6

http://www.sciencedaily.com/releases/2011/09/110928125412.htm

Collaborative Learning for the Digital Age



Kevin Van Aelst for The Chronicle Review

By Cathy N. Davidson

Five or six years ago, I attended a lecture on the science of attention. A philosopher who conducts research over in the medical school was talking about attention blindness, the basic feature of the human brain that, when we concentrate intensely on one task, causes us to miss just about everything else. Because we can't see what we can't see, our lecturer was determined to catch us in the act. He had us watch a video of six people tossing basketballs back and forth, three in white shirts and three in black, and our task was to keep track only of the tosses among the people in white. I hadn't seen the video back then, although it's now a classic, featured on punk-style TV shows or YouTube versions enacted at frat houses under less than lucid conditions. The tape rolled, and everyone began counting.

Everyone except me. I'm dyslexic, and the moment I saw that grainy tape with the confusing basketball tossers, I knew I wouldn't be able to keep track of their movements, so I let my mind wander. My curiosity was piqued, though, when about 30 seconds into the tape, a gorilla sauntered in among the players. She (we later learned a female student was in the gorilla suit) stared at the camera, thumped her chest, and then strode away while they continued passing the balls.

When the tape stopped, the philosopher asked how many people had counted at least a dozen basketball tosses. Hands went up all over. He then asked who had counted 13, 14, and congratulated those who'd scored the perfect 15. Then he asked, "And who saw the gorilla?"

I raised my hand and was surprised to discover I was the only person at my table and one of only three or four in the large room to do so. He'd set us up, trapping us in our own attention blindness. Yes, there had been a trick, but he wasn't the one who had played it on us. By concentrating so hard on counting, we had managed to miss the gorilla in the midst.

Attention blindness is the fundamental structuring principle of the brain, and I believe that it presents us with a tremendous opportunity. My take is different from that of many neuroscientists: Where they perceive the shortcomings of the individual, I sense an opportunity for collaboration. Fortunately, given the interactive nature of most of our lives in the digital age, we have the tools to harness our different forms of attention and take advantage of them.

It's not easy to acknowledge that everything we've learned about how to pay attention means that we've been missing everything else. It's not easy for us rational, competent, confident types to admit that the very key to

our success—our ability to pinpoint a problem and solve it, an achievement honed in all those years in school and beyond—may be exactly what limits us. For more than a hundred years, we've been training people to see in a particularly individual, deliberative way. No one ever told us that our way of seeing excluded everything else.

I want to suggest a different way of seeing, one that's based on multitasking our attention—not by seeing it all alone but by distributing various parts of the task among others dedicated to the same end. For most of us, this is a new pattern of attention. Multitasking is the ideal mode of the 21st century, not just because of information overload but also because our digital age was structured without anything like a central node broadcasting one stream of information that we pay attention to at a given moment. On the Internet, everything links to everything, and all of it is available all the time.

Unfortunately, current practices of our educational institutions—and workplaces—are a mismatch between the age we live in and the institutions we have built over the last 100-plus years. The 20th century taught us that completing one task before starting another one was the route to success. Everything about 20th-century education, like the 20th-century workplace, has been designed to reinforce our attention to regular, systematic tasks that we take to completion. Attention to task is at the heart of industrial labor management, from the assembly line to the modern office, and of educational philosophy, from grade school to graduate school.

The *Newsweek* cover story proclaimed, "iPod, Therefore I Am."

On MTV News, it was "Dude, I just got a free iPod!"

Peter Jennings smirked at the ABC-TV news audience, "Shakespeare on the iPod? Calculus on the iPod?"

And the staff of the Duke *Chronicle* was apoplectic: "The University seems intent on transforming the iPod into an academic device, when the simple fact of the matter is that iPods are made to listen to music. It is an unnecessarily expensive toy that does not become an academic tool simply because it is thrown into a classroom."

What had those pundits so riled up? In 2003, we at Duke were approached by Apple about becoming one of six Apple Digital Campuses. Each college would choose a technology that Apple was developing and propose

a campus use for it. It would be a partnership of business and education, exploratory in all ways. We chose a flashy new music-listening gadget that young people loved but that baffled most adults.

When we gave a free iPod to every member of the entering first-year class, there were no conditions. We simply asked students to dream up learning applications for this cool little white device with the adorable earbuds, and we invited them to pitch their ideas to the faculty. If one of their professors decided to use iPods in a course, the professor, too, would receive a free Duke-branded iPod, and so would all the students in the class (whether they were first-years or not).

This was an educational experiment without a syllabus. No lesson plan. No assessment matrix rigged to show that our investment had been a wise one. No assignment to count the basketballs. After all, as we knew from the science of attention, to direct attention in one way precluded all the other ways. If it were a reality show, we might have called it *Project Classroom Makeover.*

At the time, I was vice provost for interdisciplinary studies at Duke, a position equivalent to what in industry would be the R&D person, and I was among those responsible for cooking up the iPod experiment. In the world of technology, "crowdsourcing" means inviting a group to collaborate on a solution to a problem, but that term didn't yet exist in 2003. It was coined by Jeff Howe of *Wired* magazine in 2006 to refer to the widespread Internet practice of posting an open call requesting help in completing some task, whether writing code (that's how much of the open-source code that powers the Mozilla browser was written) or creating a winning logo (like the "Birdie" design of Twitter, which cost a total of six bucks).

In the iPod experiment, we were crowdsourcing educational innovation for a digital age. Crowdsourced thinking is very different from "credentialing," or relying on top-down expertise. If anything, crowdsourcing is suspicious of expertise, because the more expert we are, the more likely we are to be limited in what we conceive to be the problem, let alone the answer.

Once the pieces were in place, we decided to take our educational experiment one step further. By giving the iPods to first-year students, we ended up with a lot of angry sophomores, juniors, and seniors. They'd paid hefty private-university tuition, too! So we relented and said any student could have a free iPod—just so long as she persuaded a professor to require one for a course and came up with a learning app in that course. Does that sound sneaky? Far be it from me to say that we *planned* it.

The real treasure trove was to be found in the students' innovations. Working together, and often alongside their professors, they came up with far more learning apps for their iPods than anyone—even at Apple—had dreamed possible. Most predictable were uses whereby students downloaded audio archives relevant to their courses—Nobel Prize acceptance speeches by physicists and poets, the McCarthy hearings, famous trials. Almost instantly, students figured out that they could record lectures on their iPods and listen at their leisure.

Interconnection was the part the students grasped before any of us did. Students who had grown up connected digitally gravitated to ways that the iPod could be used for collective learning. They turned iPods into social media and networked their learning in ways we did not anticipate. In the School of the Environment, one class interviewed families in a North Carolina community concerned with lead paint in their homes and schools, commented on one another's interviews, and together created an audio documentary that aired on local and regional radio stations and all over the Web. In the music department, students uploaded their own compositions to their iPods so their fellow students could listen and critique.

After eight years in Duke's central administration, I was excited to take the methods we had gleaned from the iPod experiment back into the classroom. I decided to offer a new course called "This Is Your Brain on the Internet," a title that pays homage to Daniel J. Levitin's inspiring book *This Is Your Brain on Music (Dutton, 2006),* a kind of music-lover's guide to the brain. Levitin argues that music makes complex circuits throughout the brain, requiring different kinds of brain function for listening, processing, and producing, and

thus makes us think differently. Substitute the word "Internet" for "music," and you've got the gist of my course.

I advertised the class widely, and I was delighted to look over the roster of the 18 students in the seminar and find more than 18 majors, minors, and certificates represented. I created a bare-bones suggested reading list that included, for example, articles in specialized journals like *Cognition* and *Developmental Neuropsychology*, pieces in popular magazines like *Wired* and *Science*, novels, and memoirs. There were lots of Web sites, too, of course, but I left the rest loose. This class was structured to be peer-led, with student interest and student research driving the design. "Participatory learning" is one term used to describe how we can learn together from one another's skills. "Cognitive surplus" is another used in the digital world for that "more than the sum of the parts" form of collaborative thinking that happens when groups think together online.

We used a method that I call "collaboration by difference." Collaboration by difference is an antidote to attention blindness. It signifies that the complex and interconnected problems of our time cannot be solved by anyone alone, and that those who think they can act in an entirely focused, solitary fashion are undoubtedly missing the main point that is right there in front of them, thumping its chest and staring them in the face. Collaboration by difference respects and rewards different forms and levels of expertise, perspective, culture, age, ability, and insight, treating difference not as a deficit but as a point of distinction. It always seems more cumbersome in the short run to seek out divergent and even quirky opinions, but it turns out to be efficient in the end and necessary for success if one seeks an outcome that is unexpected and sustainable. That's what I was aiming for.

I had the students each contribute a new entry or amend an existing entry on Wikipedia, or find another public forum where they could contribute to public discourse. There was still a lot of criticism about the lack of peer review in Wikipedia entries, and some professors were banning Wikipedia use in the classroom. I didn't understand that. Wikipedia is an educator's fantasy, all the world's knowledge shared voluntarily and free in a format theoretically available to all, and which anyone can edit. Instead of banning it, I challenged my students to use their knowledge to make Wikipedia better. All conceded that it had turned out to be much harder to get their work to "stick" on Wikipedia than it was to write a traditional term paper.

Given that I was teaching a class based on learning and the Internet, having my students blog was a no-brainer. I supplemented that with more traditionally structured academic writing, a term paper. When I had both samples in front of me, I discovered something curious. Their writing online, at least in their blogs, was incomparably better than in the traditional papers. In fact, given all the tripe one hears from pundits about how the Internet dumbs our kids down, I was shocked that elegant bloggers often turned out to be the clunkiest and most pretentious of research-paper writers. Term papers rolled in that were shot through with jargon, stilted diction, poor word choice, rambling thoughts, and even pretentious grammatical errors (such as the ungrammatical but proper-sounding use of "I" instead of "me" as an object of a preposition).

But it got me thinking: What if bad writing is a product of the form of writing required in college—the term paper—and not necessarily intrinsic to a student's natural writing style or thought process? I hadn't thought of that until I read my students' lengthy, weekly blogs and saw the difference in quality. If students are trying to figure out what kind of writing we want in order to get a good grade, communication is secondary. What if "research paper" is a category that invites, even requires, linguistic and syntactic gobbledygook?

Research indicates that, at every age level, people take their writing more seriously when it will be evaluated by peers than when it is to be judged by teachers. Online blogs directed at peers exhibit fewer typographical and factual errors, less plagiarism, and generally better, more elegant and persuasive prose than classroom assignments by the same writers. Longitudinal studies of student writers conducted by Stanford University's Andrea Lunsford, a professor of English, assessed student writing at Stanford year after year. Lunsford

surprised everyone with her findings that students were becoming more literate, rhetorically dexterous, and fluent—not less, as many feared. The Internet, she discovered, had allowed them to develop their writing.

The semester flew by, and we went wherever it took us. The objective was to get rid of a lot of the truisms about "the dumbest generation" and actually look at how new theories of the brain and of attention might help us understand how forms of thinking and collaborating online maximize brain activity. We spent a good deal of time thinking about how accident, disruption, distraction, and difference increase the motivation to learn and to solve problems, both individually and collectively. To find examples, we spent time with a dance ensemble rehearsing a new piece, a jazz band improvising together, and teams of surgeons and computer programmers performing robotic surgery. We walked inside a monkey's brain in a virtual-reality cave. In another virtual-reality environment, we found ourselves trembling, unable to step off what we knew was a two-inch drop, because it looked as if we were on a ledge over a deep canyon.

One of our readings was *On Intelligence* (Times Books, 2004), a unified theory of the brain written by Jeff Hawkins (the neuroscientist who invented the Palm Pilot) with Sandra Blakeslee. I agree with many of Hawkins's ideas about the brain's "memory-prediction framework." My own interest is in how memories—reinforced behaviors from the past—predict future learning, and in how we can intentionally disrupt that pattern to spark innovation and creativity. Hawkins is interested in how we can use the pattern to create next-generation artificial intelligence that will enhance the performance, and profitability, of computerized gadgets like the Palm Pilot. The students and I had been having a heated debate about his theories when a student discovered that Hawkins happened to be in our area to give a lecture. I was away at a meeting, when suddenly my BlackBerry was vibrating with e-mails and IM's from my students, who had convened the class without me to present a special guest on a special topic: Jeff Hawkins debating the ideas of Jeff Hawkins. It felt a bit like the gag in the classic Woody Allen movie *Annie Hall*, when someone in the line to purchase movie tickets is expounding pompously on the ideas of Marshall McLuhan and then McLuhan himself steps into the conversation.

It was that kind of class.

"Jeff Hawkins thought it was odd that we decided to hold class when you weren't there," one student texted me. "Why wouldn't we? That's how it works in 'This Is Your Brain on the Internet.'"

Project Classroom Makeover. I heard the pride. "Step aside, Prof Davidson: This is a *university!"*

"Nonsense!"

"Absurd!"

"A wacko holding forth on a soapbox. If Prof Davidson just wants to yammer and lead discussions, she should resign her position and head for a park or subway platform, and pass a hat for donations."

Some days, it's not easy being Prof Davidson.

What caused the ruckus in the blogosphere this time was a blog I posted on the Hastac, an online network, which I co-founded in 2002, dedicated to new forms of learning for a digital age. The post, "How to Crowdsource Grading," proposed a form of assessment that I planned to use the next time I taught "This Is Your Brain on the Internet."

It was my students' fault, really. By the end of the course, I felt confident. I settled in with their evaluations, waiting for the accolades to flow, a pedagogical shower of appreciation. And mostly that's what I read,

thankfully. But there was one group of students who had some candid feedback, and it took me by surprise. They said everything about the course had been bold, new, and exciting.

Everything, that is, except the grading.

They pointed out that I had used entirely conventional methods for testing and evaluating their work. We had talked as a class about the new modes of assessment on the Internet—like public commenting on products and services and leaderboards (peer evaluations adapted from sports sites)—where the consumer of content could also evaluate that content. These students said they loved the class but were perplexed that my assessment method had been so 20th century: Midterm. Final. Research paper. Graded A, B, C, D. The students were right. You couldn't get more 20th century than that.

The students signed their names to the course evaluations. It turned out the critics were A+ students. That stopped me in my tracks. If you're a teacher worth your salt, you pay attention when the A+ students say something is wrong.

I was embarrassed that I had overlooked such a crucial part of our brain on the Internet. I contacted my students and said they'd made me rethink some very old habits. Unlearning. I promised I would rectify my mistake the next time I taught the course. I thought about my promise, came up with what seemed like a good system, then wrote about it in my blog.

My new grading method, which set off such waves of vitriol, combined old-fashioned contract grading with peer review. Contract grading goes back at least to the 1960s. In it, the requirements of a course are laid out in advance, and students contract to do all of the assignments or only some of them. A student with a heavy course or workload who doesn't need an A, for example, might contract to do everything but the final project and then, according to the contract, she might earn a B. It's all very adult.

But I also wanted some quality control. So I added the crowdsourcing component based on the way I had already structured the course. I thought that since pairs of students were leading each class session and also responding to their peers' required weekly reading blogs, why not have them determine whether the blogs were good enough to count as fulfilling the terms of the contract? If a blog didn't pass muster, it would be the task of the student leaders that week to tell the blogger and offer feedback on what would be required for it to count. Student leaders for a class period would have to do that carefully, for next week a classmate would be evaluating their work.

I also liked the idea of students' each having a turn at being the one giving the grades. That's not a role most students experience, even though every study of learning shows that you learn best by teaching someone else. Besides, if constant public self-presentation and constant public feedback are characteristics of a digital age, why aren't we rethinking how we evaluate, measure, test, assess, and create standards? Isn't that another aspect of our brain on the Internet?

There are many ways of crowdsourcing, and mine was simply to extend the concept of peer leadership to grading. The blogosphere was convinced that either I or my students would be pulling a fast one if the grading were crowdsourced and students had a role in it. That says to me that we don't believe people can learn unless they are forced to, unless they know it will "count on the test." As an educator, I find that very depressing. As a student of the Internet, I also find it implausible. If you give people the means to self-publish—whether it's a photo from their iPhone or a blog—they do so. They seem to love learning and sharing what they know with others. But much of our emphasis on grading is based on the assumption that learning is like cod-liver oil: It is good for you, even though it tastes horrible going down. And much of our educational emphasis is on getting one answer right on one test—as if that says something about the quality of what you have learned or the likelihood that you will remember it after the test is over.

Grading, in a curious way, exemplifies our deepest convictions about excellence and authority, and specifically about the right of those with authority to define what constitutes excellence. If we crowdsource grading, we are suggesting that young people without credentials are fit to judge quality and value. Welcome to the Internet, where everyone's a critic and anyone can express a view about the new iPhone, restaurant, or quarterback. That democratizing of who can pass judgment is digital thinking. As I found out, it is quite unsettling to people stuck in top-down models of formal education and authority.

Learn. Unlearn. Relearn. In addition to the content of our course—which ranged across cognitive psychology, neuroscience, management theory, literature and the arts, and the various fields that compose science-and-technology studies—"This Is Your Brain on the Internet" was intended to model a different way of knowing the world, one that encompasses new and different forms of collaboration and attention. More than anything, it courted failure. Unlearning.

"I smell a reality TV show," one critic sniffed.

That's not such a bad idea, actually. Maybe I'll try that next time I teach "This Is Your Brain on the Internet." They can air it right after *Project Classroom Makeover*.

Cathy N. Davidson is a professor of interdisciplinary studies at Duke University. She served as the first vice provost for interdisciplinary studies at the university from 1998 until 2006, when she helped create the Center for Cognitive Neuroscience. This essay is adapted from her book Now You See It: How the Brain Science of Attention Will Transform the Way We Live, Work, and Learn, just published by Viking.

http://chronicle.com/article/Collaborative-Learning-for-the/128789/

Easily Embarrassed? Study Finds People Will Trust You More

Psychologist Dacher Keltner, a coauthor of the study, demonstrates a typical gesture of embarrassment. (Credit: Image courtesy of University of California - Berkeley)

ScienceDaily (Sep. 29, 2011) — If tripping in public or mistaking an overweight woman for a mother-to-be leaves you red-faced, don't feel bad. A new study from the University of California, Berkeley, suggests that people who are easily embarrassed are also more trustworthy, and more generous.

In short, embarrassment can be a good thing.

"Embarrassment is one emotional signature of a person to whom you can entrust valuable resources. It's part of the social glue that fosters trust and cooperation in everyday life," said UC Berkeley social psychologist Robb Willer, a coauthor of the study published in this month's online issue of the *Journal of Personality and Social Psychology*.

Not only are the UC Berkeley findings useful for people seeking cooperative and reliable team members and business partners, but they also make for helpful dating advice. Subjects who were more easily embarrassed reported higher levels of monogamy, according to the study.

"Moderate levels of embarrassment are signs of virtue," said Matthew Feinberg, a doctoral student in psychology at UC Berkeley and lead author of the paper. "Our data suggests embarrassment is a good thing, not something you should fight." The paper's third author is UC Berkeley psychologist Dacher Keltner, an expert on pro-social emotions.

Researchers point out that the moderate type of embarrassment they examined should not be confused with debilitating social anxiety or with "shame," which is associated in the psychology literature with such moral transgressions as being caught cheating.

While the most typical gesture of embarrassment is a downward gaze to one side while partially covering the face and either smirking or grimacing, a person who feels shame, as distinguished from embarrassment, will typically cover the whole face, Feinberg said.

The results were gleaned from a series of experiments that used video testimonials, economic trust games and surveys to gauge the relationship between embarrassment and pro-sociality.

In the first experiment, 60 college students were videotaped recounting embarrassing moments such as public flatulence or making incorrect assumptions based on appearances. Typical sources of embarrassment included mistaking an overweight woman for being pregnant or a disheveled person for being a panhandler. Research assistants coded each video testimonial based on the level of embarrassment the subjects showed.

The college students also participated in the "Dictator Game," which is used in economics research to measure altruism. For example, each was given 10 raffle tickets and asked to keep a share of the tickets and give the remainder to a partner. Results showed that those who showed greater levels of embarrassment tended to give away more of their raffle tickets, indicating greater generosity.

Researchers also surveyed 38 Americans whom they recruited through Craigslist. Survey participants were asked how often they feel embarrassed. They were also gauged for their general cooperativeness and generosity through such exercises as the aforementioned dictator game.

In another experiment, participants watched a trained actor being told he received a perfect score on a test. The actor responded with either embarrassment or pride. They then played games with the actor that measured their trust in him based on whether he had shown pride or embarrassment.

Time and again, the results showed that embarrassment signals people's tendency to be pro-social, Feinberg said. "You want to affiliate with them more," he said, "you feel comfortable trusting them."

So, can one infer from the results that overly confident people aren't trustworthy? While the study didn't delve into that question, researchers say they may look into that in the future.

Story Source:

The above story is reprinted (with editorial adaptations by Science*Daily* staff) from materials provided by **University of California - Berkeley**. The original article was written by Yasmin Anwar.

Journal Reference:

1. Matthew Feinberg, Robb Willer, Dacher Keltner. **Flustered and faithful: Embarrassment as a signal of prosociality.**. *Journal of Personality and Social Psychology*, 2011; DOI: 10.1037/a0025403

http://www.sciencedaily.com/releases/2011/09/110928180418.htm

Cultural Divide Persists as Musical Tastes Shift

New research from Britain finds music lovers are increasingly crossing genres, but they remain divided in their tastes.

By Tom Jacobs

Who will fill this theater and who will perform in a time when most audiences are omnivores — people who enjoy a wide variety of offerings? New research suggests those cross-genre audiences could be beneficial for performers and presenters. (AbleStock.com/Getty Images)

In cultural circles, the highbrow/lowbrow distinction has gone out of fashion in recent years, as attention has turned to omnivores. These concert- and gallery-goers enjoy a wide range of cultural offerings, and make up a large percentage of ticket-buyers.

When the National Endowment for the Arts issued a report earlier this year suggesting the omnivore is in decline, many in the arts community found the news deeply unsettling. But newly published research from Britain, which focuses on taste in music, analyzes audiences from a different perspective — one that could be useful to both performers and presenters.

"In contemporary Britain, at least, the debate on the omnivore has distracted us from examining the profoundly divided nature of musical taste, one that predominantly pitches younger respondents — passionately committed to new and emerging musical forms — against older ones, whose musical tastes are much less inventive," write sociologist Mike Savage of the University of York and Modesto Gayo of Chile's Universidad Diego Portales. "This division cross cuts those of class and educational inequality."

Savage and Gayo argue that cultural omnivores (a category first identified in the 1990s) aren't as open and inclusive as their name implies. While they share a willingness to jump from one genre to another — which is increasingly easy in an iPod world — they vary enormously in terms of enthusiasm and expertise, and are indifferent or hostile to many forms of music.

Far from homogeneous, omnivores differ about what they want out of the listening experience. Some long for innovation and adventure, while others prefer sedate, soothing sounds. While that's a familiar divide, the researchers argue it now cuts across genres. A Duke Ellington fan is more likely to appreciate J.S. Bach than Kenny G.

A half-century ago, someone looking for challenging music would gravitate toward the classical repertory, while those looking for simpler, more visceral thrills would go for pop. But today, some rock music is quite complex, while certain classical pieces have become so familiar, they can be classified as easy-listening music.

"Rather than people [becoming open to] more musical genres, we are seeing the reworking of the boundaries of musical genres themselves," Savage and Gayo write. "What we are seeing today could be a fundamental remaking of the musical canon."

The researchers reached this conclusion by doing a cluster analysis of data from the U.K.'s Cultural Capital and Social Exclusion Project. It asked participants their opinions of a range of musical genres and eight specific works, including "Stan" by Eminem, "Kind of Blue" by Miles Davis and Philip Glass' contemporary opera *Einstein on the Beach.* Responses to those pieces make it "possible to tease out the complex patterning of likes and dislikes in more detail than in many studies," they write.

They found respondents could be categorized into six clusters, two of which reflect a fundamental disinterest in music — the "aversive" and the "uninformed." Other clusters include "pop-oriented," the more enthusiastic "pop-voracious," and classical-music lovers.

The final cluster "consists of those who might be deemed, on superficial reading, to be omnivores," they write. They expressed favorable opinions of six of the eight specific pieces — all but those by Eminem and Britney Spears. Enthusiastic about classical music and jazz, they appreciate some forms of rock, but have no interest in most pop music.

While Savage and Gayo avoid the term, these listeners could be considered eclectic highbrows — open to many types of music but usually searching for something new and interesting. They have little in common with fellow concertgoers thrilled by the prospect of hearing yet another rendition of Handel's *Hallelujah Chorus*.

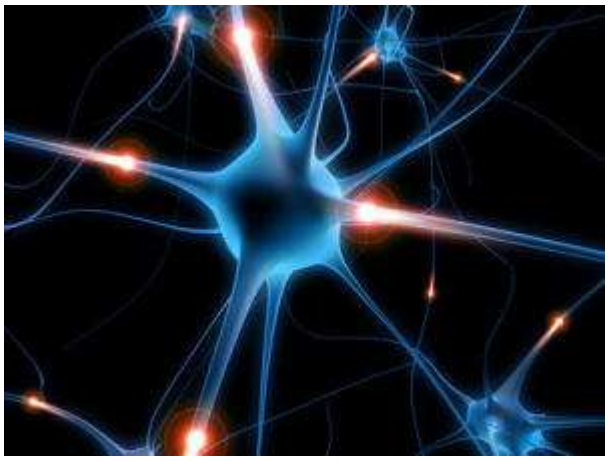
This suggests forward-thinking arts organizations need to think beyond such traditional offerings as a classical series and a pop series. To better reflect the tastes of a divided public, they might want to present an "innovation" series, featuring music of, say, John Coltrane and Bela Bartok (plus a healthy dose of world premieres), and a "comfort sounds" series, with familiar tunes of Tchaikovsky along with standards from the great American songbook.

No doubt the latter series would sell better, in part because older audiences prefer familiar sounds, according to Savage and Gayo's analysis. But if concert halls don't offer anything of interest to younger audiences with edgier tastes, those people may never develop the habit of visiting these venues. (Beethoven, Wagner and Mahler were, of course, radical innovators. Perhaps pairing their now-familiar works with new pieces reflecting a 21st-century sensibility — as the Los Angeles Philharmonic does regularly — can restore their cutting-edge cred.)

It will be fascinating to see if these findings can be duplicated in an American sample and whether the study's conclusions also apply to other art forms. In the aforementioned NEA report, Mark Stern speculates that the omnivore may represent "a transitional stage in our cultural development." Savage and Gayo may be giving us an idea of what that next stage looks and sounds like.

http://www.miller-mccune.com/culture/cultural-divide-persists-as-musical-tastes-shift-36288/

Scientists Reveal Molecular Sculptor of Memories



Artist's rendering of neurons. (Credit: © Sebastian Kaulitzki / Fotolia)

ScienceDaily (Sep. 29, 2011) — Researchers working with adult mice have discovered that learning and memory were profoundly affected when they altered the amounts of a certain protein in specific parts of the mammals' brains.

The protein, called kibra, was linked in previous studies in humans to memory and protection against late-onset Alzheimer's disease. The new work in mice, reported in the Sept. 22 issue of *Neuron*, shows that kibra is an essential part of a complex of proteins that control the sculpting of brain circuitry, a process that encodes memory.

"There are populations of humans who are slightly smarter and have better memory recall than others, and these traits have been mapped to the gene that codes for the kibra protein" says Richard L. Huganir, Ph.D., professor and director of the Solomon H. Snyder Department of Neuroscience at the Johns Hopkins University School of Medicine, and a Howard Hughes Medical Institute investigator. "Our studies in mice show that this same gene is involved in the operation of synapses, through which neurons communicate, and in brain plasticity, suggesting that's what its role might be in humans too."

In their lab, Huganir and neuroscience graduate student Lauren Makuch isolated kibra from mouse brain cells and confirmed by standard biochemical tests that it interacted with a neurotransmitter receptor in the brain known as the AMPA receptor.

They then determined that kibra regulated the delivery of AMPA receptors from inside the brain's nerve cells out to the synapses by first growing live brain cells from embryonic mice in a dish for two weeks and then genetically altering some of those cells to produce less kibra protein. Next, they placed the live neurons in an imaging chamber and recorded the activity of the AMPA receptors once a minute for 60 minutes. Results showed that AMPA receptors moved faster in the cells with less kibra than in control cells with normal amounts of the protein demonstrating that kibra regulates how receptors are delivered to the surface of brain cells.

The work affirms that the addition of AMPA receptors to synapses serves to strengthen connections in the brain, Huganir says, noting that most forms of learning involve the strengthening of some synapses and the weakening of others, a phenomenon known as plasticity, which is responsible for sculpting circuits in the brain that encode memory. Without kibra, this process doesn't function properly; as a result, learning and

memory are compromised. Huganir hypothesizes that kibra specifically helps create a pool of receptors that is used to add receptors to synapses during learning.

Later in their study, using slices of brain from mice with or without kibra, postdoctoral fellow Lenora Volk recorded and measured electrical activity and synaptic plasticity in nerve cells, noting that mice lacking kibra showed less plasticity, a phenomenon that translates into a reduced ability to learn and recall new information, Makuch explains.

Finally, the Hopkins researchers conducted a series of behavioral studies using adult mice to compare the learning and memory of normal mice with those that made much less kibra protein. They used a well-established fear-conditioning task by placing the mice in a training chamber and exposing them to a tone and subsequent shock. After two days of training, the animals' rates of "freezing" in place -- a normal rodent response to fear -- were measured. Kibra-deficient mice took longer to learn to associate the tone with the shock than it did the others. On day three of the experiment, upon simply being placed back into the training chamber, the normal mice had a high rate of freezing, while the kibra-deficient mice had a very low rate, indicating impairments in contextual fear response and therefore, memory.

"Our work in the mammalian brain shows that kibra, required for normal brain function and associated with learning and memory, is important for regulating the trafficking of AMPA receptors," Huganir says. "In addition, as kibra has been associated with protection against early onset Alzheimer's disease, these studies may help define novel therapeutic targets for the treatment of age-related memory disorders."

This study was funded by the National Institutes of Health and the Howard Hughes Medical Institute.

Authors on the paper, in addition to Huganir, Makuch and Volk are Victor Anggono, Richard C. Johnson, and Yilin Yu, all of Johns Hopkins.

Other authors are Kerstin Duning and Joachim Kremerskothen, University Hospital Münster, Germany; Jun Xia, The Hong Kong University of Science and Technology, China; and Kogo Takamiya, University of Miyazaki, Japan.

Story Source:

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Journal Reference:

1. Lauren Makuch, Lenora Volk, Victor Anggono, Richard C. Johnson, Yilin Yu, Kerstin Duning, Joachim Kremerskothen, Jun Xia, Kogo Takamiya, Richard L. Huganir. **Regulation of AMPA Receptor Function by the Human Memory-Associated Gene KIBRA**. *Neuron*, 2011; 71 (6): 1022 DOI: 10.1016/j.neuron.2011.08.017

http://www.sciencedaily.com/releases/2011/09/110928110047.htm

Conversion Therapy Fails to 'Pray Away the Gay'

Reparative or conversion therapy's efforts to "pray away the gay" come a cropper when examined with a skeptical eye.

By Peter M. Nardi

A man reveals his experience with reparative therapy in 2008. "Praying the gay away" doesn't work, and we must use our critical thinking skills when confronting so-called therapies designed to change a person's sexual orientation. (Daniel Gonzalez/Flickr.com).

"Pray away the gay" joins other notable catchphrases in our popular culture and comedians' repertoires, (perhaps like "wide stance" did just a few years ago.) This time it's due to the efforts of Michele and Marcus Bachmann, who run a Christian counseling center practicing what is called "reparative therapy."

Skeptical thinkers may ask how a simple prayer could change people's core sexual orientation. Could heterosexual-oriented people "pray *to* be gay"? More seriously, why is there a treatment for something that is not an illness? A critical investigation into the practice of conversion therapy requires more serious scientific evidence than belief in the power of prayer alone.

Historically, some psychiatrists who viewed homosexuality as a mental illness tried electroshock aversion therapy as a cure. In more recent years, behavior modification became a less barbaric alternative. Endorsed mostly by religiously driven therapists to change sexual orientation, reparative or conversion therapy assumes that what needs to be repaired is an individual's homosexuality, not the social stigma contributing to that individual's negative feelings and behaviors. These ideas now are almost 40 years out-of-date.

In 1973, the American Psychiatric Association removed homosexuality as a disorder in its "bible," the *Diagnostic and Statistical Manual of Mental Disorders*. Two years later the American Psychological Association, and later many other counseling, social work, and medical organizations, endorsed this revised view, leading almost all mental health organizations to oppose reparative therapy.

The American Psychological Association currently states "there is insufficient evidence to support the use of psychological interventions to change sexual orientation."

Basing its position on scientific research and not anecdotal data, the American Psychological Association uncovered evidence demonstrating both harmful outcomes of conversion therapy and some helpful ones: "The benefits include social and spiritual support, a lessening of isolation, an understanding of values and faith and sexual orientation identity reconstruction. The perceived harms include negative mental health effects (depression and suicidality), decreased self-esteem and authenticity to others, increased self-hatred and negative perceptions of homosexuality; a loss of faith, and a sense of having wasted time and resources."

Yet, the association's conclusion stressed that these same benefits are equally achievable in affirmative psychotherapy models that avoid the harm attributed to attempts at changing sexual orientation.

Despite the conclusions of these scientific reports and statements by powerful professional organizations, repairing sexual orientation continues, and not just at Marcus Bachmann's counseling center. Joseph Nicolosi's National Association for Research & Therapy of Homosexuality is the most visible and controversial group. This organization argues "it does far more *harm* than *good* to tell a teenager that his or her attractions toward members of the same sex are normal and desirable. Teens in this position need understanding and counseling, not a push in the direction of a potentially deadly lifestyle."

Critical thinkers may focus on words such as "normal," "deadly" and "lifestyle" to spot the biases and orientation of the treatment.

Although there aren't many recent scientifically rigorous studies demonstrating whether conversion therapy does or does not change sexual orientation, many studies from the 1970s showed that some individuals who were more bisexually oriented were able to ignore or limit their same-sex attraction. Remember that changing sexual attraction is not the same as changing sexual behavior, or vice versa. Consider prisoners who engage in same-sex sexual behavior while maintaining their heterosexual identity and opposite-sex attraction. Similarly, we can easily point to many homosexually oriented people who marry someone of the opposite sex to conceal their same-sex attractions, until they can no longer repress their behavior and get caught in a compromising public situation.

Close critical reading of reparative therapy treatment programs uncovers a confusion between gender and sexual orientation. Early attempts at reputable institutions endorsed the idea that homosexuality could be cured by reducing feminine traits and emphasizing masculine ones, often under the belief that an "absent father" was a central problem. This approach assumes gay men are feminine and lesbians are masculine, and ignores the many gays and lesbians who bonded with positive same-gender role models and engaged in gender-stereotyped behaviors. Interestingly, one of the key researchers in these gender-based studies was George Rekers, who was photographed in 2010 with a male escort. Rekers was one of the first researchers to investigate feminine and masculine traits among "sissy boys" and later became active in NARTH and the anti-gay Family Research Council (which the Southern Poverty Law Center labeled a "hate group").

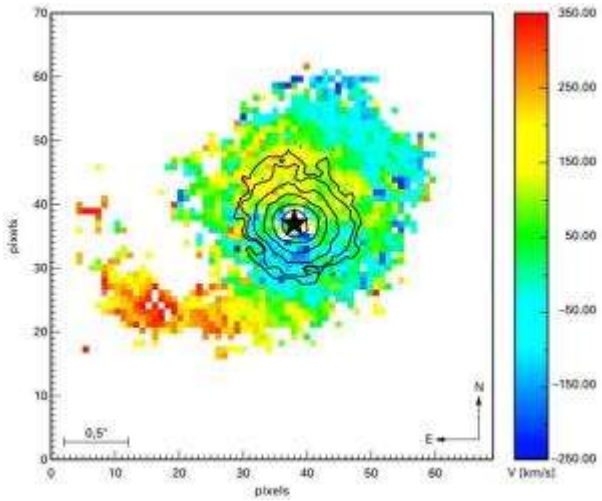
Some recent media reports illustrate the damages it can take on individuals. Although not scientific studies, they make interesting reading for skeptics concerned about the efficacy of conversion therapy. A CNN investigation focused on the suicide of one of the reformed "sissy" boys in Rekers' published work, weakening one of the key claims of his research that such conversion is successful. And in May 2011 the British Association for Counselling and Psychotherapy unanimously found a psychotherapist guilty of professional malpractice for treating a patient for his homosexuality. The Christian Legal Centre defended the therapist, highlighting again the strong connection between reparative therapy and conservative religious beliefs.

Given that the majority of individuals seeking conversion today are, according to the American Psychological Association report, religious white males, there is reasonable concern among mental health advocates to seek affirmative integration of religious, psychological, cultural and sexual issues. But treating people who are religiously conflicted about their sexuality is not a license to practice possibly unethical and scientifically questionable therapy.

As we approach National Coming Out Day on Oct. 11, join me in taking a critical stance on reparative therapies. Let's use our skeptical skills to ask the right questions about these negative practices and convert them into affirmative ones. Let's "pray away the homophobia."

http://www.miller-mccune.com/culture/conversion-therapy-fails-to-pray-away-the-gay-36569/

Cosmic Weight Watching Reveals Black Hole-Galaxy History



Colors in this image of the galaxy J090543.56+043347.3 indicate whether there is gas moving towards us or away from us, and at what speed. Using this information, the researchers reconstructed the galaxy's dynamical mass. The star shape indicates the position of the galaxy's active nucleus; the surrounding contour lines indicate brightness levels or light emitted by the nucleus. Dark blue pixels indicate gas moving towards us at a speed of 250 km/s, dark red pixels gas moving away from us at 350 km/s. (Credit: © K. J. Inskip/MPIA)

ScienceDaily (Sep. 29, 2011) — Using state-of-the-art technology and sophisticated data analysis tools, a team of astronomers from the Max Planck Institute for Astronomy has developed a new and powerful technique to directly determine the mass of an active galaxy at a distance of nearly 9 billion light-years from Earth. This pioneering method promises a new approach for studying the co-evolution of galaxies and their central black holes. First results indicate that for galaxies, the best part of cosmic history was not a time of sweeping changes.

One of the most intriguing developments in astronomy over the last few decades is the realization that not only do most galaxies contain central black holes of gigantic size, but also that the mass of these central black holes are directly related to the mass of their host galaxies. This correlation is predicted by the current standard model of galaxy evolution, the so-called hierarchical model, as astronomers from the Max Planck Institute for Astronomy have recently shown.

When astronomers look out to greater and greater distances, they look further and further into the past. Investigating this black hole-galaxy mass correlation at different distances, and thus at different times in cosmic history, allows astronomers to study galaxy and black hole evolution in action.

For galaxies further away than 5 billion light-years (corresponding to a redshift of $z > 0.5$), such studies face considerable difficulties. The typical objects of study are so-called active galaxies, and there are well-established methods to estimate the mass of such a galaxy's central black hole. It is the galaxy's mass itself that is the challenge: At such distances, standard methods of estimating a galaxy's mass become exceedingly uncertain or fail altogether.

Now, a team of astronomers from the Max Planck Institute for Astronomy, led by Dr Katherine Inskip, has, for the first time, succeeded in directly "weighing" both a galaxy and its central black hole at such a great distance using a sophisticated and novel method. The galaxy, known to astronomers by the number

J090543.56+043347.3 (which encodes the galaxy's position in the sky) has a distance of 8.8 billion light-years from Earth (redshift $z = 1.3$).

The astronomers succeeded in measuring directly the so-called dynamical mass of this active galaxy. The key idea is the following: A galaxy's stars and gas clouds orbit the galactic centre; for instance, our Sun orbits the centre of the Milky Way galaxy once every 250 million years. The stars' different orbital speeds are a direct function of the galaxy's mass distribution. Determine orbital speeds and you can determine the galaxy's total mass.

Story Source:

The above story is reprinted (with editorial adaptations by Science*Daily* staff) from materials provided by **Max-Planck-Gesellschaft**.

Journal Reference:

1. K. J. Inskip, K. Jahnke, H.-W. Rix, G. van de Ven. **Resolving the Dynamical Mass of a z ~ 1.3 Quasi-stellar Object Host Galaxy Using SINFONI and Laser Guide Star Assisted Adaptive Optics**. *The Astrophysical Journal*, 2011; 739 (2): 90 DOI: 10.1088/0004-637X/739/2/90

http://www.sciencedaily.com/releases/2011/09/110930071708.htm

Among Antibiotics, Resistance Knows No Bounds

A microbiologist on the front lines of antibiotic resistance sees a lot of ways to improve the search and development of new antimicrobials.

By David Richardson

While the idea that we are losing some potent antibiotic weapons is widely known, that's not the same as it being widely understood. (John Foxx)

Since penicillin was isolated from a fungus in 1929, mankind's stockpile of antibiotics has expanded to include a diversity of life-saving compounds. However, from streptomycin in the 1940s to synthetics such as ciprofloxacin in the late 1980s, they are losing their effectiveness.

While the idea that we are losing some potent antibiotic weapons is widely known, that's not the same as it being widely understood, says Jo Handelsman, Howard Hughes Medical Institute professor of microbiology at Yale University.

She cautions that what researchers know and what the public knows are not the same, noting that from a list of questions in a survey of scientific knowledge among the general public, not a single person could describe the how antibiotic resistance comes about.

Muddying the waters further is the difference between resistance in the wild and resistance in the hospital. "We have surprisingly little data about antibiotic resistance in natural environments. It hasn't been the strongest area of research," Handelsman says. "What has been focused on is antibiotic resistance in clinical settings — and from patients, and from that we know an awful lot about the genes and mechanisms of resistance."

For bacteria, defeating antibiotics in the clinical setting is just a matter of carrying a ton of weaponry and letting natural selection do the rest. The process that results in the fearsome superbugs that threaten modern health systems is driven by "pre-existing variation" in a population of bacterial cells.

"You have all sorts of mutations — genes in one organism that aren't in another, and when a selection pressure comes along, it determines which ones survive," Handelsman says.

In any bacteria population, she says, "about 1 in 1 million to about 1 in 10 million cells will have a mutation that makes it resistant to a particular antibiotic. That is not that frequent, but if you imagine that you then apply antibiotics to it, and every single organism among that million will die except for the one that is resistant — that is what we call a powerful selection."

Those that survive duplicate themselves and dominate in the next generation, and characteristic of bacteria, they often have more than one way to propagate their resistance traits.

"The way that antibiotic resistance genes are carried makes them very easy to transfer," she says. Aside from passing them along to their offspring when the cells divide through mitosis, resistance genes can be passed around among bacteria very handily in small bundles of highly mobile packets of DNA known as plasmids. Like freelance arms traders, these bubbles of genetic material can move among neighboring bacterial cells conferring the ability "to destroy antibiotics, or pump them out of the cell," or depending on the genetic coding, providing instructions that "allow the cells to survive when the antibiotics are around."

And in this way, "bacteria that are very distantly related can share antibiotic resistance."

By example, a recent study in *Nature Communications* reported that a gene called IncP-1, carried by plasmids, and which is known to convey antibiotic resistance, can readily take up residence and adapt to function in unrelated species of bacteria.

Meanwhile, as drug-resistant pathogens multiply, and their defenses become more effective, the pipeline of new antibiotics is drying up.

Research has uncovered "a multitude of antibiotic compounds" produced by naturally occurring bacteria in the soil (the path followed in developing streptomycin), but only a select number of these reach the market. Some are rejected because they're not potent enough, others because they are too toxic for human use. But with the emergence of antibiotic resistance genes, some of which make infectious bacteria invulnerable to all known antibiotic medications, Handelsman says it's time to dig up some new cures.

The prevailing metaphor used to explain the diversity of antibiotics found in the soil has been that the bacteria use their complement of antibiotics and resistance strategies in a microscopic battle for survival.

But Handelsman says close observation doesn't fully back up the warfare analogy. Although numerous antibiotic compounds can be found among various types of bacteria in the soil, they are seldom found in caches heavy enough to suggest they could be used to subdue competitors.

UNPREPARED

While digging in the dirt may yield real benefits in this fight, few pharmaceutical companies seem likely to pick up their spades.

Antibiotic treatments for infection are usually inexpensive and quick, completed in most cases within seven to 10 days. By contrast, Handelsman says, when drug companies develop a drug to lower blood pressure or cholesterol, for example, "patients usually take it for the rest of their lives." Such repeat use — requiring repeat purchases — is much more attractive in determining what gets research and development funding within the pharmaceutical industry, especially since bringing a new antibiotic to market can cost from $100 million to $1 billion.

Meanwhile, say industry analysts, a drug approval process that mandates exhaustive testing and can span a decade has left some manufacturers disillusioned about antibiotic research.

Handelsman cites a recent pullback at Pfizer from antibiotic research and development, leaving "just four major companies worldwide, carrying the entire antibiotic industry, and in most cases they don't have a massive effort going on either.

"Because of this lack of profitability we've lost this vast amount of research that used to go on in the private sector.

"It's a very frightening time because we have all the resistance developing to the antibiotics we're using. The probability that an infection can be treated with one of the known antibiotics is going down daily, and we don't have the replacements coming down the pipeline."

Antibiotic resistance genes have appeared in meat products on U.S. grocery shelves, in hospitals complicating patient care worldwide, and this spring they've been reported in the water supply in New Delhi, India, associated with the germs that cause cholera.

However, not all bacterial infections should be treated with antibiotics. E. coli, for example, seems to respond to medication by producing a toxin that can kill.

In the case of deadly cholera, while antibiotics can shorten the disease's duration, whether the bacterium is or isn't resistant makes little or no therapeutic difference. In this case, the corrective for cholera remains rehydration, without resort to antibiotics. Likewise, the preventative measure remains clean water and good hygiene. The finding, nonetheless, does hint at the potential mobility of antibiotic resistance genes beyond the health care setting.

ARMING OUR ADVERSARIES

One major issue assisting resistance genes in the United States, Handelsman says, is the routine use of antibiotics in livestock. More than half of the antibiotics administered in the United States are delivered in animal feed, not to fight any specific disease.

She argues the practice is as worrisome as it is unnecessary.

The antibiotics apply an ongoing selection pressure, cultivating resistance among the bacteria in the livestock. And, studies have shown that farm workers, have acquired resistance genes identical to those detected in the animals that they tend. Handelsman adds that, since antibiotics pass through the animals' digestive systems unchanged and come out in their urine, the selection pressure can spread downstream.

Handelsman is not alone in her concern. A decade ago groups like the Union of Concerned Scientists and the Environmental Defense Fund were warning about farm-related antibiotic resistance, and the Pew Charitable Trust started a "Human Health and Industrial Farming" campaign to draw attention to it.

By last year, the U.S. Food and Drug Administration drafted regulations on "the judicious use of medically important antimicrobials in food-producing animals," but the pace and direction wasn't fast enough for some antibiotic advocates. Citing the hazard of emergent superbugs from the agricultural sector, in May the Natural Resources Defense Council and several co-plaintiffs sued the FDA to make it ban the use of antibiotics in livestock for purposes other than treating illness.

The plaintiffs note that a similar ban in Denmark, in effect since 1995, has tamped down on antibiotic resistance genes throughout the society, without compromising animal health or agricultural production.

REGAINING THE INITIATIVE

While the debate over antibiotics on the farm heads to court, people from U.N. Secretary General Ban Ki Moon to health officials in the Obama Administration have called for increased government involvement in new drug discovery and development, with the National Institute of Health taking a leading role.

A former CEO of Merck, a company whose track record includes conquering river blindness in the developing world, and that maintains a major commitment to infectious disease control and antibiotic research, holds a contrary view. Quoted in *The Wall Street Journal*, Ray Vagelos said the NIH in particular should refrain from getting involved in drug development, and should focus on basic research and supporting the work of up-and-coming scientists, leaving the search for specific cures to the private sector.

Handelsman however, believes tackling resistance calls for combining government and industry efforts. She suggests, economics being what they are, there may be a case for government incentives to encourage greater private sector investment, but that government policy should also give the subject top priority for academic research.

She offers another dose of realism.

"There is no question that we will need new antibiotics as long as humans are on the Earth, because the bacteria aren't going anywhere. They will outlive us for a long time and they will always cause infection in some shape or form."

http://www.miller-mccune.com/health/among-antibiotics-resistance-knows-no-bounds-36126/

Novel Energy-Storage Membrane: Performance Surpasses Existing Rechargeable Batteries and Supercapacitors

High energy storage membrane. (Credit: Image courtesy of National University of Singapore)

ScienceDaily (Sep. 29, 2011) — A team from the National University of Singapore's Nanoscience and Nanotechnology Initiative (NUSNNI), led by principle investigator Dr Xie Xian Ning, has developed a novel energy-storage membrane.

Electrical energy storage and its management are becoming urgent issues due to climate change and energy shortage. Existing technologies such as rechargeable batteries and supercapacitors are based on complicated configurations including liquid electrolytes, and suffer from difficulties in scaling-up and high fabrication costs. There is also growing public concern and awareness of the impact of traditional energy sources on the environment, spurring a continued search for alternative, green, sustainable energy sources.

Cost-effective and environmentally-friendly

Recognising the issue, Dr Xie and his team have developed a membrane that not only promises greater cost-effectiveness in delivering energy, but also an environmentally-friendly solution. The researchers used a polystyrene-based polymer to deposit the soft, foldable membrane that, when sandwiched between and charged by two metal plates, could store charge at 0.2 farads per square centimeter. This is well above the typical upper limit of 1 microfarad per square centimetre for a standard capacitor.

The cost involved in energy storage is also drastically reduced. With existing technologies based on liquid electrolytes, it costs about US$7 to store each farad. With the advanced energy storage membrane, the cost to store each farad falls to an impressive US$0.62. This translates to an energy cost of 10-20 watt-hour per US dollar for the membrane, as compared to just 2.5 watt-hour per US dollar for lithium ion batteries.

Dr Xie said: "Compared to rechargeable batteries and supercapacitors, the proprietary membrane allows for very simple device configuration and low fabrication cost. Moreover, the performance of the membrane surpasses those of rechargeable batteries, such as lithium ion and lead-acid batteries, and supercapacitors."

The research is supported by grants from the Singapore-MIT Alliance for Research & Technology (SMART), and National Research Foundation. Dr Xie and his team started work on the membrane early last year and took about 1.5 years to reach their current status, and have successfully filed a US patent for this novel invention.

The discovery was featured in *Energy & Environmental Science* and highlighted by the international journal *Nature.*

Potential applications: From hybrid vehicles to solar panels and wind turbines

The membrane could be used in hybrid vehicles for instant power storage and delivery, thus improving energy efficiency and reducing carbon emission. Potentially, hybrid cars with the membrane technology could be powered by the energy stored in the membranes in conjunction with the energy provided by fuel combustion, increasing the lifespan of car batteries and cutting down on waste.

The membrane could also be integrated into solar panels and wind turbines to store and manage the electricity generated. Energy provided through these sources is prone to instability due to their dependence on natural factors. By augmenting these energy sources with the membrane, the issue of instability could potentially be negated, as surplus energy generated can be instantly stored in the membranes, and delivered for use at a stable rate at times when natural factors are insufficient, such as a lack of solar power during night-time.

Next Step

The research team has demonstrated the membrane's superior performance in energy storage using prototype devices. The team is currently exploring opportunities to work with venture capitalists to commercialise the membrane. To date, several venture capitalists have expressed strong interest in the technology.

"With the advent of our novel membrane, energy storage technology will be more accessible, affordable, and producible on a large scale. It is also environmentally-friendly and could change the current status of energy technology," Dr Xie said.

Story Source:

The above story is reprinted (with editorial adaptations by Science*Daily* staff) from materials provided by **National University of Singapore**, via AlphaGalileo.

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Sweetener Death Match: Sugar vs. Syrup

The corn industry goes toe-to-toe with the sugar industry, for the use of the word "sugar."

By Dan Watson

Corn syrup has taken its lumps in public, and companies are taking notice: Hunt's Ketchup and Pepsi, for example, have dropped the additive and are marketing the change, promoting "real sugar" or "no high-fructose corn syrup" on their packaging. (natesmobile/Flickr)

The idea that high-fructose corn syrup infuses lots of our food has left a bitter taste in many consumers' mouths. So the corn industry has started a public relations campaign on behalf of its beleaguered syrup in an attempt to rename the additive as "corn sugar."

But a civil lawsuit in federal court seeks to stop the renaming. An effort from public health advocates to try to keep the corn industry honest? Nope, the suit was filed by the giants of the sugar industry to protect their brand. The squabble has pitted sugar producers and processors like American Sugar Refining and Imperial Sugar versus corn refining giants like Archer Daniels Midland and Cargill.

Taylor Orr wrote in January ("High-Fructose Corn Syrup's Health Risks Remain Sticky") about the facts and myths of high-fructose corn syrup. The additive has been blamed for obesity and other health problems, but Orr found that studies have been inconclusive.

Nevertheless, corn syrup has taken its lumps in public, and companies are taking notice: Hunt's Ketchup and Pepsi, for example, have dropped the additive and are marketing the change, promoting "real sugar" or "no high-fructose corn syrup" on their packaging.

The federal Food and Drug Administration hasn't made a decision on whether to approve the name change. Still, it scolded the industry for using "corn sugar" in its advertising. The FDA can take action if food companies were to use a new name on a product, but they can only scold when it comes to the industry's ads.

Judge Consuelo Marshall of the United States District Court, Central District of California is currently responding to a motion from the defendants to dismiss the case. (Read the plaintiffs' complaint here, and the defendants' motion to dismiss here.)

"The only sweetener that may be labeled simply as 'sugar' is the natural sucrose found in sugar cane and sugar beet plants," the sugar companies' lawyers argue in their filing. "Humans have used sugar for millennia to sweeten food and drink. … High-fructose corn syrup, on the other hand, is a processed syrup mixture created by enzymatically converting dextrose into varying amounts of fructose, the percentage of which can be controlled according to the preferred industrial use."

In order to make the distinction between sugar and the additive, plaintiffs point to the studies that "demonstrate a likely causal link between high-fructose corn syrup consumption and obesity, hyperlipidemia (high cholesterol), hypertension, and other health problems that is not equally presented by the consumption of sucrose."

The sugar lawyers continue, "Seeking to co-opt the goodwill of 'sugar' and even changing the high-fructose corn syrup name by calling it a kind of sugar to sidestep growing consumer sentiment is paradigmatically false and misleading advertising for several reasons."

Besides wanting the new name nixed, the sugar industry seeks various damages, including compensation for "monetary expenditures … that plaintiffs have made and will be required to make on corrective advertising and education to inform the consuming public of the truth."

The corn industry portrays the sugar industry's suit as "an attempted end run around a pre-existing FDA proceeding" and have asked for dismissal.

As to the claim that their product has contributed to obesity, they say "use of high-fructose corn syrup has remained flat or decreased since 2000, while U.S. obesity levels have continued to rise."

The defendants stress the similarities between the syrup and "the processed sugar [the plaintiffs] produce and sell," which is no more natural or healthy. In a twist, they admit that the healthy choice would be to consume less of both products. The corn industry portrays its public relations campaign as a disinterested, educational public service to correct "the myth that high-fructose corn syrup somehow poses dietary concerns not also present with sugar."

The corn industry's cunning legal argument is that both their campaign and the name change to "corn sugar" cannot be false advertising because it's just a public education effort and not aimed at improving sales of high-fructose corn syrup. Since only "sophisticated food and beverage companies" buy corn syrup directly, they reason, it is "not plausible" that they could be "deceived or influenced in any purchasing decision" by either the campaign or the new name. About the rubes who stock their larders with products from these sophisticates the filing is silent.

http://www.miller-mccune.com/health/sweetener-death-match-sugar-vs-syrup-36624/

Diary

Jenny Diski

In 1959, Dr Milton Rokeach, a social psychologist, received a research grant to bring together three psychotic, institutionalised patients at Ypsilanti State Hospital in Michigan, in order to make a two and a half year study of them. Rokeach specialised in belief systems: how it is that people develop and keep (or change) their beliefs according to their needs and the requirements of the social world they inhabit. A matter of the inside coming to terms with the outside in order to rub along well enough to get through a life. As a rule people look for positive authority or referents to back up their essential beliefs about themselves in relation to the world: the priest, imam, Delia Smith, the politburo, gang leader, Milton Friedman, your mother, my favourite novelist. It works well enough, and when it does, we call ourselves and others like us sane. When it goes awry, when people lose and/or reject all positive referents in the real world for the self inside, we call them delusional, psychotic, mad. In order to count as sane, you don't necessarily have to conform to the norms of the world, but you do have to be nonconformist in a generally acceptable way. One of the basic beliefs we all have, according to Rokeach, is that we are who we are because we know that by definition there can be only one of us. I'm Jenny Diski. You therefore aren't. The converse is also true: you are the sole example of whoever you say you are. Therefore I can't be you. It keeps things simple and sane for both you and me, and it's easy to check the basic facts with each other, as well as with such socially sanctioned authorities as the passport office or the registrar of births and deaths. According to Rokeach that is a fundamental requirement of living coherently in the world of other people, the only world he believed we can effectively live in. He tested it one evening on his two young daughters by calling each of them by the other's name over the dinner table. At first it was a good game, but within minutes it became so distressing to the girls ('Daddy, this *is* a game, isn't it?' 'No, it's for real') that they were starting to cry. If you're thinking Rokeach is a bit of a sadistic daddy, I got the same impression reading *The Three Christs of Ypsilanti* when it was first published in 1964.[*] But what researcher doesn't use the materials to hand – usually family – to begin to investigate a theory? Darwin observed and wrote about his children, as did Freud. And so did that particularly unpleasant behaviourist father in the movie *Peeping Tom*, made around the same time as Rokeach's dinner table experiment. Rokeach did at least stop once the girls became tearful. But what would happen, he wondered, if he made three men meet and live closely side by side over a period of time, each of whom believed himself to be the one and only Jesus Christ?

The men chosen were Clyde aged 70, Joseph 58, and Leon not yet 40 when they were brought together. They were all long-term asylum inmates: Clyde and Joseph had been incarcerated for decades, Leon for five years. They had daily meetings with Rokeach and a research assistant, and after the first few months were given their own private sitting room, where they ate and could spend the day in each other's company instead of having to use the day room. They were also given simple tasks which they were required to do together. (This may be the much more gripping prototype of *Big Brother*, although in the modern version everyone in the house deludedly believes themselves to be celebrities or interesting.) At the first meeting Rokeach asked the three men their names. Joseph said: 'My name is Joseph Cassel.' *Was there anything else he had to tell the meeting?* 'Yes, I'm God.' Clyde introduced himself: 'My name is Clyde Benson. That's my name straight.' *Did he have any other names?* 'Well, I have other names, but that's my vital side and I made God five and Jesus six.' *Did that mean he was God?* 'I made God, yes. I made it 70 years old a year ago. Hell! I passed 70 years old.' Leon, who demanded that everyone call him Rex, as Leon was his 'dupe' name, replied: 'Sir, it so happens that my birth certificate says that I am Dr Domino Dominorum et Rex Rexarum, Simplis Christianus Pueris Mentalis Doktor.' (This, Rokeach explains, included all the Latin Leon knew: Lord of Lords, King of Kings, Simple Christian Boy Psychiatrist.)

They all agreed with Rokeach that there could only be one Jesus Christ. Joseph was the first to take up the contradiction. 'He says he's the reincarnation of Jesus Christ. I can't get it. I know who I am. I'm God, Christ, the Holy Ghost, and if I wasn't, by gosh, I wouldn't lay claim to anything of the sort … I know this is an insane house and you have to be very careful.' Very quickly he decided that the other two were insane, the

proof being that they were in a mental hospital, weren't they? Therefore Clyde and Leon were merely to be 'laughed off'. Clyde concluded that the other two were 'rerises', lower beings, and anyway dead. He took, perhaps, the most godlike tone: 'I am him. See? Now understand that!' Leon, who became adept at ducking and diving in order to maintain his position without causing the social disruption they all found threatening, explained that the other two were 'hollowed-out instrumental gods'. When Rokeach pushed Leon to say that Joseph wasn't God, he replied:

'He's an instrumental god, now please don't try to antagonise him. [To Joseph] My salute to you, sir, is as many times as you are a hollowed-out instrumental god … My belief is my belief and I don't want your belief, and I'm just stating what I believe.'

'I know who I am,' Joseph said.

'I don't want to take it away from you,' Leon said. 'You can have it. I don't want it.'

Leon's standard response to any claim from the others that went against his delusions was 'That's your belief, sir,' and then to change the subject.

As to their understanding of why they had been brought together, Clyde, often baffled, took what was to be his habitual stance and remained silent on the subject, while Joseph was clear that they were there 'to iron out that I'm the one and only God' and for Rokeach to help him convince the other two that they were crazy, so that Joseph could do his work 'with greater tranquillity'. Leon, right from the start quite aware of the agenda and able to articulate his opinion of it, had another answer:

I understand that you would like us three gentlemen to be a melting pot pertaining to our morals, but as far as I'm concerned I am myself, he is him, and he is him. Using one patient against another, trying to brainwash and also through the backseat driving of electronic voodooism. That has an implication of two against one or one against two … I know what's going on here. You're using one patient against another, and this is warped psychology.

A great problem for the mad in the mid-20th century was that the sane were always trying to get in on their act. Sincere people who were not mad wanted to interfere with the mad in various ways in order to relieve them of their suffering and isolation, while others, equally sincere, wanted to get down with them and reinterpret their crazy ramblings as meta-sanity. What was no longer an option for the mad was to be left alone in asylums to get on with their deluded lives in their own way. There had been some historical pockets of interference and understanding. In 1563, more than two centuries before Philippe Pinel and Jean-Baptiste Pussin released the patients in Bicêtre from their chains and announced they needed treating not punishing, Johann Weyer reported to the Inquisition that the so-called witches everyone was so keen on strangling and burning were in fact delusional and mentally ill, as indeed was anyone who thought themselves a victim of their spells. Nevertheless, for the most part, until the middle of the 20th century, raving, delusional and pathologically withdrawn men and women were got out of society's way by being incarcerated for much of their lives in formidable asylums, where their keepers had little thought beyond keeping them still, in one place, allowed out only when they died.

By the 1960s and 1970s a coalition of right-wing libertarians, left-wing radicals and the kind-hearted set their faces against such a fate, and, without the left and kind-hearted quite getting the agenda of the libertarians, collaborated to shut down the fortresses and free the mad to roam, not so much cared for in the community as dosed into a palsied stupor or undosed in manic terror, up and down our high streets to participate in the real world. R.D. Laing, along with others in the anti-psychiatry movement, started well by living with and listening to the speech of the mad, but ended up imposing on them his belief that he too had the gift of tongues and took charge of speaking truth to normality. He began as their interpreter but finally lost interest in the middle-mad-man (who kept behaving badly and had to be carted off back to the loony bin) and became

the source of his own wisdom. Before and after the time of the anti-psychiatrists, the pro-psychiatrists did everything in their ever increasing 'scientific' power to liberate the mad from the bin and bring them back to the world of normality with cold showers, electric shocks, insulin shock, brain cutting and anti-psychotic medication. The libertarians, for their part, simply announced that there was no such thing as madness and therefore the state was not required to oversee and pay for the care of those who were making themselves socially unwelcome (see Thomas Szasz). The so-called mad were to be turned out of the asylums and become part of the general population. If any individual's behaviour was intolerable to society, they were to be imprisoned, not given sick notes.

Milton Rokeach came in as these diverse voices began to be heard. His interest was not so much in psychopathology as with 'the general nature of systems of belief and the conditions under which they can be modified'. In the book Rokeach acknowledges that his experiment with his children had to stop where the trial of the three Christs started, with signs of distress: 'Because it is not feasible to study such phenomena with normal people, it seemed reasonable to focus on delusional systems of belief in the hope that, in subjecting them to strain, there would be little to lose and, hopefully, a great deal to gain.' This is a very magisterial 'non-deluded' view of who in the world has or has not little to lose. Evidently, the mad, having no lives worth speaking of, might benefit from interference, but if they didn't, if indeed their lives were made worse, it hardly mattered, since such lives were already worthless non-lives. It also incorporated the bang-up-to-the-moment idea that if you want to know about normality you could do worse than watch and manipulate the mad. The three Christs themselves, however, were of the certain opinion that they had something valuable to lose and made truly heroic efforts, each in his own way, to resist, as well as to explain to Rokeach and his team that their lives had considerable meaning for them. All of them, though Leon in particular, had a very clear understanding of what it was to be deluded, why it might be a useful option to choose over normality, and who did and didn't have the right to interfere in their self-selected delusions. Over the course of the research, each man indicated how far he was prepared to go along with Rokeach, how much he valued what was on offer, and when his boundary had been reached. And they did it with more than ordinary grace and dignity.

There was indeed something on offer. Rokeach describes Clyde, Joseph and Leon as long-term inmates of overcrowded wards of custodial mental hospitals with inadequate staffing who might expect to see a doctor maybe once a year. Suddenly they were receiving a deluge of attention: daily meetings which began and ended with a song of their choice, nurses and a research assistant attending to them, watching and noting their activities all through the day, and special demands made and allowances given that they had never experienced as regular inmates. Even when they expressed anger at being manipulated, they tended to turn up every day to the voluntary meetings, and took their turn as rotating chairmen, writing up the minutes and choosing their favourite song and book. These most psychologically isolated of men were given (enforced) company, novelty in place of rigid daily routine, special privileges and (apparently) the attentive ear of the highest and mightiest in their world (each of them being God notwithstanding). In return they were required consciously to consider their delusions and challenged to alter their particular grasp on reality. The problem that faced them initially was: how can there be another one of me? Rokeach hoped they couldn't help but conclude, as they looked from one to the other Christ, that logically they were not therefore who they thought they were, though he says nothing about what assistance was available in the overstretched state mental hospital in the event of their suddenly losing their delusions and having to confront themselves with their lost years as plain Clyde, Joseph and Leon. In fact, all three men resolved the logical trap set for them by sinuously changing the nature of the problem. The others were deluded, dead or lesser kinds of god. A kind of positive stability emerged, they associated with each other, sang together, read to each other and, apart from occasional bust-ups usually triggered by the researchers, generally refused to be drawn on the matter of who exactly was or wasn't the one true Christ.

Leon was the most deft, perhaps because he had the clearest understanding of the invidious situation he was being put in, and found it harder to suppress the logic. He announced one day that he was no longer Rex, but had transformed into Dr Righteous Idealed Dung. One in the eye for his tormenters, you feel, cheering him on. Henceforth he would only answer to the name Dung or, as a concession to the head nurse, who attended a

meeting to say that she couldn't bring herself to call him Dung, simply R.I. He directed the meeting to Philippians 3:8: *Yea, doubtless, and I count all things but loss for the excellency of knowledge of Jesus Christ my Lord: for whom I have suffered the loss of all things and do count them but dung, that I may win Christ.* Rokeach knew that, covertly, Leon hadn't renounced his belief that he was Christ, but had instead shape-shifted, gone underground to the abject opposite. As he said before his transformation, 'I believe that God is in this chair. He is in my dung and urine and farts and burps and everything.' ('That's crazy,' Joseph replied. 'You don't believe that God can be a patient in this hospital … I'm the real God and I know I can be in many forms.') Now Dr R.I. Dung was going to be 'the humblest creature on the face of the earth – so lowly as not to be worth bothering with', Rokeach explains. His brilliant plan allowed him to be a secret Christ, who no longer had to confront and defend himself against the claims of the other two, and who in this way could continue to enjoy the companionship and privileges on offer.

Since the researchers had been unable to shift the delusions of the three Christs, they decided to confront the men's fantasies in other ways. They were shown a newspaper article about a speech Rokeach had given on three psychotic men who thought they were Christ. Clyde read it and fell asleep. Joseph claimed to have no idea who these men were. 'Why should a man try to be s-somebody [*sic*] else when he's not even himself? … He should be sent to a hospital – not to be gotten out, not to be dismissed until he has gotten well … when he claims he's not Jesus Christ any more.' Leon, lucid as ever, knew exactly who the three men were and expressed his anger: 'When psychology is used to agitate, it's not sound psychology any more. You're not helping the person. You're agitating. When you agitate you belittle your intelligence.' Joseph, too, made himself clear: 'I look forward to quietness. We can win over negativism. By "we" I mean the five of us having the meeting. It's not going to do us any good. Then the meetings might be dissolved.'

Next the men were asked if it was all right for the researchers and the staff in the hospital publicly to refer to Rex as Dung, Joseph as Mr God, and Clyde as Mr Christ. All three joined forces (a psychologist's triumph in itself) against Rokeach. 'Now, don't be funny,' Clyde said. 'You must understand, it's too heavy for an individual to participate in these meetings over here, to go into that God business,' Joseph said. 'It's indirect agitation. There's a confliction … It's frictional psychology,' Leon said. From which Rokeach deduced that 'a psychotic is a psychotic only to the extent that he has to be.'

As Christ, Leon had been married to an absent wife called Dr Blessed Virgin Mary of Nazareth. With his translation to Dung, she was married off to Leon's mystery uncle, and Leon took a new wife: the powerful but invisible Madame Yeti Woman. Joseph's 'delusional authority', whom he called Dad, was Dr Yoder, the actual head of the hospital. Dad and Madame Yeti Woman became the main players in the final phase of Rokeach's plan to test the nature and persistence of the three Christs' belief systems. Clyde, too old and rigid to be further experimented on, was allowed to continue with the meetings but wasn't confronted with his delusions. Rokeach's idea was to see if Leon's and Joseph's fantasy authority figures were real enough to them to instruct their 'husband' and 'son' to enact 'normal' behaviour. Leon and Joseph began receiving letters. Leon's were signed *Your loving wife* (and sometimes *Truthfully yours), Madame Yeti Woman*. Some of Joseph's letters from 'Dr Yoder', written on hospital headed paper, ended: *be assured that I will always love you just exactly like a father who deeply loves his own son. Sincerely yours, O.R. Yoder, MD*. Leon's initial refusal to accept letters from Madame Yeti Woman excited Rokeach into wondering whether he didn't, after all, really believe in his delusions. Do the deluded take on their persona more consciously than it seemed, as a shield against having to cope in the regular world? Are the mad really mad? Did Leon only want them to *think* he believed what he said? Leon at first firmly rejected the fleshing out of his fantasy, became extremely depressed and said he didn't like the idea of people imposing on his beliefs. But gradually, unable to resist the temptation in spite of his deep suspicions, he came to accept her as a real presence. She sent money, told him to buy things for himself and to give the change to Clyde and Joseph. Leon, the only human being Rokeach had encountered who genuinely had no interest in money, did as he was instructed. Madame Yeti Woman made Dung's inner world as real as the meetings he attended. In one letter she enclosed a 'positive cigarette holder … I think you will enjoy this one since it also has a cosmic boupher.'

It is excruciating to read of his capitulation, as he accepts the existence of and is ready to interact with someone else in his isolated world. In a meeting where Leon is given a letter with a dollar bill, Rokeach notes a breakthrough for the study:

Suddenly I realised that he was really doing something I had not expected to witness. He was struggling to hold back his tears. With this much effort he would surely succeed. But he did not … *Does the letter make you happy or sad?* 'I feel somewhat glad' … *Are you crying?* 'No, my eyes are smarting because of some condition.' *You say you feel somewhat happy?* 'Yes, sir, it's a pleasant feeling to have someone think of you. But there's still a tugging against her and I don't care for it.' *Do you want to disobey her?* 'No, no! I don't! That's the point! I don't care for the temptation against her.'

It seems as if the invasion is complete, but Rokeach goes too far as both Madame Yeti Woman and Dad. Madame Yeti Woman arranges a meeting, which Leon goes to, but, of course, finds no one there. 'When he returns to the ward he is visibly upset and angry. He tells an aide that he is very angry with his wife because she was in the back of the cafeteria having relations with a Negro.' After transferring his love to a new female research assistant and finding his yearning intolerable, Leon at last announced that all his former wives were dead, that he had discovered his 'femaleity', married himself and been pregnant with twins who bled to death before birth.

I'm looking forward to living alone. My love is for infinity and when the human element comes in it's distasteful … I've found out whenever I receive something, there's always strings attached and God bless I don't want that.

Joseph also had his sticking point. When Dad asked him to go to church, he did for a while, but when Dad suggested that he write an article (Joseph had dreamed of being a writer when he was young) and sign a formal statement that he was not Jesus Christ, he wrote back, not to Dr Yoder, but to President Kennedy, offering to be his speechwriter. He announced that he was 'caught in the net of the three Jesus Christs', and refused 'to tell a lie' by signing Yoder's statement. Joseph gave up Dad and found himself a higher fantasy authority, in order to live as he had to live. Rokeach at last discovered that he had not succeeded in changing 'a single one of Joseph's delusions' but in the course of trying had gained 'clinical and theoretical insights about the limits beyond which his delusional system could not be pushed'.

In an epilogue written some months after the experiment ended, Rokeach updated the reader:

Clyde and Joseph give every appearance of remaining essentially unchanged. But Leon continues to show evidence of change or at least further elaborations in his delusional system of belief … The prognosis for schizophrenia, paranoid type is poor … But to say that a particular psychiatric condition is incurable or irreversible is to say more about the state of our ignorance than about the state of the patient. This study closes with the hope that at least a small portion of ignorance has here been dispelled.

It turned out that Milton Rokeach was the one who gained the most from his experiment. An afterword, appended when the book was reissued in 1981, is called 'Some Second Thoughts about the Three Christs: Twenty Years On'. By then Clyde had been released back to the custody of his family, and Leon remained in the 'back wards' of Ypsilanti State Hospital; Joseph died in 1976. Rokeach reread the book with regret. There were, he says, four people with delusional beliefs, not three. He failed to take himself into account, and the three Christs, not cured themselves, had cured him of his 'God-like delusion that I could change them by omnipotently and omnisciently arranging and rearranging their daily lives'. He came to realise that he had no right to play God and interfere, and was increasingly uncomfortable about the ethics of his experiment. 'I was cured when I was able to leave them in peace, and it was mainly Leon who somehow persuaded me that I should leave them in peace.' Back when Leon was shown the newspaper article, he'd explained to Rokeach:

'A person who is supposed to be a doctor or a professor is supposed to lift up, build up, guide, direct, inspire! … I sensed it at the first meeting – deploring!'

Deploring? Do you know I've come 75 miles in snow and storm to see you?

'It is obvious that you did, sir, but the point still remains, what was your intention when you came here, sir?'

No one could have done more than Leon to explain to Rokeach what was wrong with his experiment: 'You come under the category where a person who knows better and doesn't want to know is also crazy to the degree he does not want to know. Sir, I sincerely believe you have the capabilities to cast out negative psychology. I believe you can aid yourself.' Rejecting his false wife he said: 'I know I'm missing out on pleasure – eating, drinking, merry-making and all that stuff – but it doesn't please my heart. I have met the world. I got disgusted with the negative ideals I found there.' The best Rokeach can manage is the acknowledgment that psychosis 'may sometimes represent the best terms a person can come to with life'.

In 1964, having spent some time myself in a psychiatric hospital, I read *The Three Christs*, and soon after came on Laing's early books, which confirmed what I had seen in it. It has made me very wary of reading 'case histories', written about the disturbed by those who believe themselves to know better. It also seemed to me, aged 16, that *The Three Christs of Ypsilanti* contained everything there was to know about the world. That's not the case of course, but if resources were short, I'd still be inclined to salvage this book as a way of explaining the terror of the human condition, and the astonishing fact that people battle for their rights and dignity in the face of that terror, in order to establish their place in the world, whatever they decide it has to be.

[*] NYRB, reissue, 342 pp., £10.99, April, 978 1 59017 384 8.

http://www.lrb.co.uk/v33/n18/jenny-diski/diary

Altered HIV Can't Evade Immune System

A model of HIV showing the organization of membrane associated cholesterol (in yellow). (Credit: Image courtesy of Johns Hopkins Medical Institutions/Jenny Wang)

ScienceDaily (Sep. 28, 2011) — Researchers at Johns Hopkins have modified HIV in a way that makes it no longer able to suppress the immune system. Their work, they say in a report published online September 19 in the journal *Blood*, could remove a major hurdle in HIV vaccine development and lead to new treatments.

"Something about the HIV virus turns down the immune response, rather than triggering it, making it a tough target for vaccine development," says David Graham, Ph.D., assistant professor of molecular and comparative pathobiology and medicine. "We now seem to have a way to sidestep this barrier," he adds.

Typically, when the body's immune system cells encounter a virus, they send out an alarm by releasing chemicals called interferons to alert the rest of the body to the presence of a viral infection. When the immune cells encounter HIV, however, they release too many interferons, become overwhelmed and shut down the subsequent virus-fighting response.

The researchers had learned from other studies that when human immune cells (white blood cells) are depleted of cholesterol, HIV can no longer infect them. It turns out the coat that surrounds and protects the HIV viral genome also is rich in cholesterol, leading the Johns Hopkins team to test whether viruses lacking cholesterol could still infect cells at all.

The researchers treated HIV with a chemical to remove cholesterol from the viral coat. Then they introduced either the cholesterol-diminished or normal HIV to human immune cells growing in culture dishes, and measured how the cells responded. The cells exposed to cholesterol-diminished HIV didn't release any initial-response interferons, whereas the cells exposed to normal HIV did.

"The altered HIV doesn't overwhelm the system and instead triggers the innate immune response to kick in, like it does with any first virus encounter," says Graham.

Next, the researchers checked to see if cholesterol-diminished HIV activates so-called adaptive immune responses -- the responses that help the body remember specific pathogens long-term so the body develops immunity and counters future infections. To do this, they put normal HIV or cholesterol-diminished HIV into blood samples, which contain all the different cells needed for an adaptive immune response.

More specifically, they tested blood samples from people with previous exposure to HIV in order to see if their blood could mount an adaptive immune response. Blood samples were used from 10 HIV positive people and from 10 people repeatedly exposed to HIV who weren't infected. The researchers didn't expect the HIV-positive blood to respond to either version of HIV because of the severely damaged immune systems of HIV patients. However, when cholesterol-diminished HIV was introduced to the non-infected HIV blood in a tube, the cells of the adaptive immune response reacted against the virus. By altering the virus, explains Graham, the researchers were able to reawaken the immune system's response against HIV and negate HIV's immunosuppressive properties.

"In addition to vaccine applications, this study opens the door to developing drugs that attack the HIV viral coat as an adjunct therapy to promote immune system detection of the virus," says Graham.

This research was supported by funds from the Wellcome Trust and the National Institutes of Health.

Contributors to the research include David Graham and Veronica Aquino of The Johns Hopkins University; Adriano Boasso, Caroline Royle and Spyridon Doumazos of Imperial College; Mara Biasin, Luca Piacentini, Barbara Tavano and Mario Clerici of Università degli Studi di Milano; Dietmar Fuchs of Innsbruck Medical University; Francesco Mazzotta and Sergio Lo Caputo of Ospedale S. M. Annunziata and Gene Shearer of the National Cancer Institute.

Story Source:

The above story is reprinted (with editorial adaptations by Science*Daily* staff) from materials provided by **Johns Hopkins Medical Institutions**.

Journal Reference:

1. A. Boasso, C. M. Royle, S. Doumazos, V. N. Aquino, M. Biasin, L. Piacentini, B. Tavano, D. Fuchs, F. Mazzotta, S. Lo Caputo, G. M. Shearer, M. Clerici, D. R. Graham. **Over-activation of plasmacytoid dendritic cell inhibits anti-viral T-cell responses: a model for HIV immunopathogenesis**. *Blood*, 2011; DOI: 10.1182/blood-2011-03-344218

http://www.sciencedaily.com/releases/2011/09/110928105909.htm

Why I Quit Primary Care: One Doctor's Story

In the new book "Out of Practice," a primary care physician tells why he quit his practice and why the care of 78 million aging baby boomers can't be left to specialists.

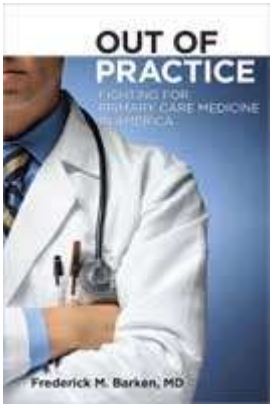
By Melinda Burns

Primary care physicians in America are struggling with what is and what will be: a health care system that's broken and the coming influx of aging baby boomers, according to Frederick M. Barken, M.D. in his book, "Out of Practice."

By most measures, Frederick M. Barken, M.D., was a success as a primary care doctor. He ran a solo practice in rural upstate New York with 3,000 patients; he was well respected, and he earned a comfortable income. But after 25 years, at the relatively young age of 51, he'd had enough.

In his new book, *Out of Practice: Fighting for Primary Care Medicine in America*, Barken tells how he was driven out by the extraordinary demands of a frail and befuddled elderly clientele in the era of "fast food" medical care.

It wasn't just the nonmedical requirements of the job that got to him, like the 80-year-old who was brought in by his daughter after he entered a highway exit ramp at 2 a.m. and began speeding along the wrong side of road at 70 miles per hour ("Tell him not to drive!"), or the wife who dragged in her elderly husband because "he can't hear worth a damn," ("I can hear you just fine," the old man told Barken) or the little old lady who wanted to take a drug she saw advertised on TV but didn't need ("Ask your doctor if [our pill] is right for you!").



"Out of Practice: Fighting for Primary Care Medicine in America" by Frederick M. Barken, M.D.

Out of Practice is the compelling story of one man's struggle to retain a close connection with his aging patients, many of whom he began seeing when they were much younger, even as he was squeezed by Medicare. It's also the story of a doctor beset by rising overhead costs, plagued by liability insurance, exhausted by demented clients, and swamped by faxes that arrived by the pound, awaiting his signature, often for nonmedical matters ("Patient may have her hair done").

Primary care physicians need to see 30 to 35 clients daily in order to cover a fixed overhead of $250,000 yearly, and that's impossible when the waiting room is packed with anxious and lonely people with multiple and complex ailments, Barken says.

"A patient who requires meticulous fine-tuning and frequent, lengthy counseling, such as a poorly controlled diabetic with wildly fluctuating blood sugars, takes too much time," he writes. "… There is, amazingly, no time or room for *sick* people in the doctor's office."

Time is indeed at a premium, except as it applies to the generalist's pay.

Consider the case of a 72-year-old man with blurred vision and cataracts who is sent to Barken, his primary care doctor, for medical "clearance" for surgery. The patient tells Barken—but not his ophthalmologist—that he has been experiencing blinding headaches for six months. During a head-to-toe exam, Barken discovers that the man has a heart murmur. He postpones the eye surgery and orders a CAT scan and an echocardiogram. Then he reviews the reports, which point only to muscle pain or perhaps arthritis of the neck. Next, he calls the patient to tell him the good news, and he mentions that the scan shows some shrinkage of the brain. At this, the man becomes distraught and inconsolable and thinks he must have Alzheimer's disease. In separate, lengthy conversations with the man and his daughter, Barken patiently explains that shrinkage is a common finding for the geriatric brain. Finally, he reschedules the man's eye surgery.

In all, Barken has spent two hours on this patient and his family, for which Medicare pays him $175. Medicare doesn't cover his coordination of care or communication of the test results and their significance to the patient. But Medicare pays the cardiologist $244 for a 15-minute echocardiogram and the radiologist $299 for a CAT scan that took 10 minutes to read.

So Barken gives up, and the reader is alarmed: If he can't make it work, who can? Deftly weaving the anecdotal with the big picture, *Out of Practice* sounds the warning for the soon-to-be senescent Woodstock Generation-all 78 million of them—and the "nation of caregivers" that Barken predicts will soon have to look after them. Now more than ever, he says, boomers need good primary care: Only a special relationship with such a doctor, through thick and thin, can help them forestall frailty and get the comfort and consolation they want.

Primary care has been shown to improve health and save lives. Nurse practitioners and physician's assistants can't take the place of trained generalists, Barken says, and they'll only serve to stratify primary care, as the wealthy flock to "boutique" practices. Computers are no substitute for the case-by-case learning of the generalist. Walk-in clinics are skimming off the younger, healthier patients. Specialists are those who know "more and more about less and less."

To meet the challenges of baby boomer care, Barken proposes a mandatory draft for medical school graduates—two years in primary care before they can be trained as specialists. There was a doctor draft in the United States during the Korean and Vietnam wars, he says—why not for compassionate service at home? Primary care doctors should be called "clinical coordinators" and be paid well for serving as advocates for the

elderly, Barken says. Some of the frail octogenarians in his waiting room, he writes, could "barely negotiate the short path to the lavatory, let alone navigate a complex, fractionated system of health care. …"

Barken envisions doctors with laptops for offices making house calls, screening a geriatric population for mild cognitive impairment and other frailties. He wants Medicare to pay for long-term, in-home nursing care. And he says high school students should be educated about the needs of family members who are losing their sense of self. Studies show that by 2050, one in every 45 Americans will be afflicted with Alzheimer's.

"How can we hope to thrive, prosper and grow as a nation when saddled with such a heavy burden?" Barken asks. "… Our approach to the coming epidemic of dementia will determine who we are."

http://www.miller-mccune.com/health/why-i-quit-primary-care-one-doctors-story-36586/

Millisecond Memory: 'Teleportation' of Rats Sheds Light On How the Memory Is Organized

Laboratory rat. (Credit: © lculig / Fotolia)

ScienceDaily (Sep. 28, 2011) — You're rudely awakened by the phone. Your room is pitch black. It's unsettling, because you're a little uncertain about where you are -- and then you remember. You're in a hotel room.

Sound like a familiar experience? Or maybe you've felt a similar kind of disorientation when you walk out of an elevator onto the wrong floor? But what actually happens inside your head when you experience moments like these?

In an article published in this week's edition of the journal *Nature*, researchers at the Norwegian University of Science and Technology's Kavli Institute for Systems Neuroscience describe exactly how the brain reacts in situations like these, during the transition between one memory and the next. The study employed a method that allowed them to make measurements right down to the millisecond level. The research was conducted in the laboratory of May-Britt and Edvard Moser, co-director and director respectively of NTNU's Kavli Institute, by first author Karel Jezek.

Their findings show that memory is divided into discrete individual packets, analogous to the way that light is divvied up into individual bits called quanta. Each memory is just 125 milliseconds long -- which means the brain can swap between different memories as often as eight times in one second.

"The brain won't let itself get confused," says Professor May-Britt Moser. "It never mixes different places and memories together, even though you might perceive it that way. This is because the processes taking place inside your head when your brain is looking for a map of where you are take place so fast that you don't notice that you are actually switching between different maps. When you feel a little confused, it is because there is a competition in your brain between two memories. Or maybe more than two."

Beam me up, Scotty

Brain researchers Edvard and May-Britt Moser are trying to understand exactly how the brain works. Their approach is to meticulously monitor electrical activity in different parts of the rat brain, while the rats explore different mazes. It's a painstaking approach that provides them ever more pieces to the puzzle that is the workings of the brain.

To explore the question of whether the brain mixes memories together, the researchers created a special box for their laboratory animals that effectively enabled them to instantaneously 'teleport' a rat from one place to

another -- without the help of the Starship Enterprise. Then, they tested how the brain handled the memory of place when the experience of that place suddenly changed from one location to another.

"We tricked the rats," May-Britt Moser explains. "They're not really teleported of course, but we have an approach that makes them believe that they have been. The features of the box, which give the rats a sense of where they are, are actually 'constructed' out of different lighting schemes. So we can switch from one group of location characteristics to another with the flick of a light switch."

The rats were trained over a long time to believe that the various lighting schemes represented different rooms. The researchers can tell that the rats truly believe that they are in different places because of their brain activity. "Once we turn on one lighting scheme, we can read a very specific pattern of activity in the cells in the part of the rat's brain that creates maps," May Britt Moser says. "And when we switch to the other lighting scheme, the map pattern in the brain is completely different."

When the researchers 'teleport' the rats from one place to another by flipping the light switch from A to B, the rats experience exactly the kind of confusion you feel when you momentarily don't know where you are. "But the mind doesn't actually mix up the maps," she says. "It switches back and forth between the two maps that represent rooms A and B, but it is never in an intermediate position. The brain can 'flip' back and forth between the two different maps, but it is always either or, site A or site B."

May-Britt and Edvard Moser have previously discovered the location of the brain's sense of place, shown how the brain works to make memories distinctively different, and have found that the brain has a mechanism to switch between experiences through the use of senses and images stored as memories. Now the researchers have also shown how the brain switches between individual memories, and how long the brain lingers on the different bits of memory.

"We are beginning to get a glimpse of the contours of the mechanisms that make up the world of our thoughts," says May-Britt Moser.

Story Source:

The above story is reprinted (with editorial adaptations by Science*Daily* staff) from materials provided by **Norwegian University of Science and Technology**, via EurekAlert!, a service of AAAS.

Journal Reference:

1. Karel Jezek, Espen J. Henriksen, Alessandro Treves, Edvard I. Moser & May-Britt Moser. **Theta-paced flickering between place-cell maps in the hippocampus**. *Nature*, September 28, 2011 DOI: 10.1038/nature10439

http://www.sciencedaily.com/releases/2011/09/110928131800.htm

DADT: Researchers Have Been There All Along

As the U.S. military today begins allowing gay service members to no longer hide their sexuality, we look at the various academic and empirical studies that surround the issue.

By Michael Todd

President Barack Obama signs the Don't Ask, Don't Tell Repeal Act of 2010 at the Interior Department in Washington. Today the law went into effect. (Chuck Kennedy/WhiteHouse.gov)

Today, the United States military ended its policy of allowing gay troops to serve as long as they didn't publicly identify themselves as gay. The "don't ask, don't tell" policy, enacted 18 years ago during the Clinton administration, was a bridge from the days when being homosexual was an automatic ticket to a dishonorable discharge, to today, where gay soldiers, sailors and airmen can serve openly.

Over the years, Miller-McCune has examined the process that led to the repeal of DADT, starting with a 2009 piece that examined the general acceptance — based on polling of both the public and the uniformed services — toward allowing gays to serve openly.

The article noted that opponents of the repeal argued that "unit cohesion" — a vital attribute in combat and for peacetime morale — would suffer. Proponents, including The Palm Center, a pro-repeal think tank at the University of California, Santa Barbara, pointed to Australia, Canada, Israel and Britain as countries that allowed gays to serve openly without a loss in fighting ability. In fact, a new study of civilian workplaces suggests that the tension surrounding not knowing a co-worker's sexuality can diminish performance for everybody, suggesting that military may be even better for having ended DADT.

The wealth of information on gays serving — going back to a 1993 RAND study and even earlier — made the slow-motion advance on repeal a bit suspect, Idea Lobby blogger Emily Badger suggested in February of last year. Citing those studies, Clinton Anderson, director of the Lesbian, Gay, Bisexual and Transgender Concerns Office with the American Psychological Association, told Badger, "The evidence from our perspective is clear: It's a bad policy, it should be repealed, and we don't see any justification for delaying it."

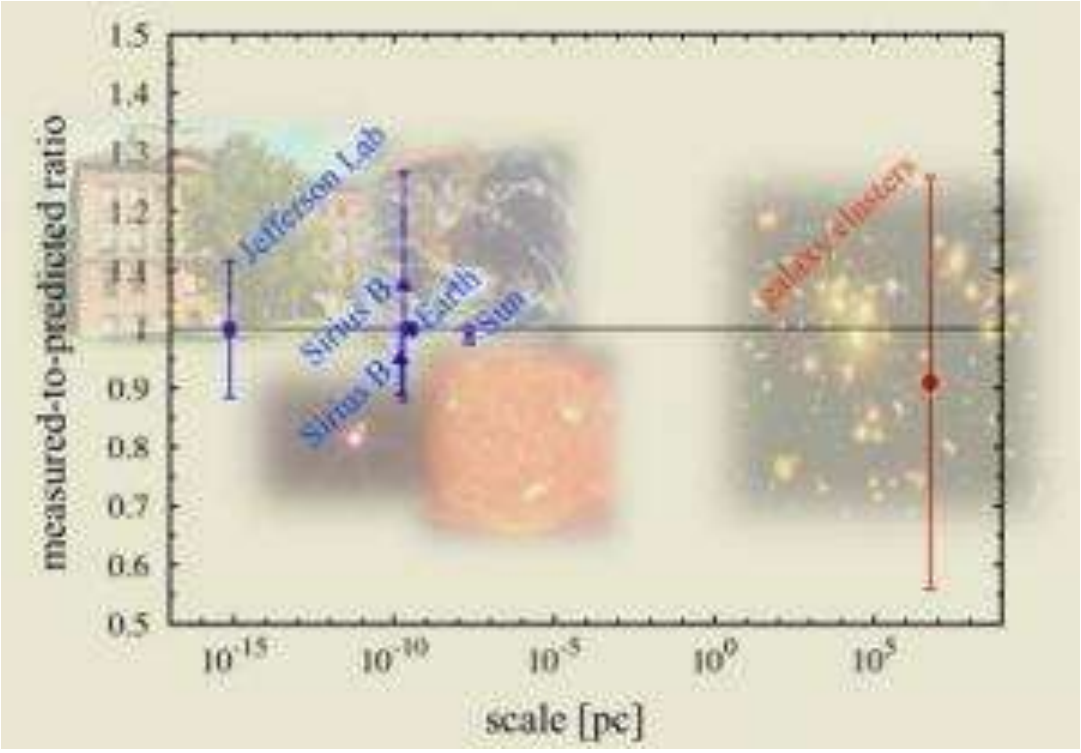
But then what sociologists and psychologists know based on studies may not alleviate the concerns of the troops or their commanders. So, Badger looked at a survey of the forces conducted by the Pentagon, and later at the operational questions the various services might need addressed in integrating this newly unveiled subset of it own.

"If you look at actually most of the specific policy areas where questions are arising in the transition, the guiding rule is 'no change,'" Aaron Belkin, director of the Palm Center, told Badger. "What are they telling chaplains? No change. Marriage benefits? No change. Housing, for the most part, absent some emergencies? No change. Collection of data on gays? No change.

"The big change is just that they're going to stop firing gays for uttering the words 'I am gay.'"

http://www.miller-mccune.com/culture/dadt-researchers-have-been-there-all-along-36299/

Light from Galaxy Clusters Confirms General Theory of Relativity



Until now, the gravitational redshift has only been tested with experiments and observations in relation to distances here on Earth and in relation to the solar system. With the new research the theory has been tested on a cosmological scale for the first time by analyzing galaxies in galaxy clusters in the distant universe. It is an immensely large scale, which is a factor 1,022 times greater (ten thousand billion billion times larger than the laboratory test). The observed data confirms Einstein's general theory of relativity. (Credit: Dark Cosmology Centre, Niels Bohr Institute)

ScienceDaily (Sep. 28, 2011) — All observations in astronomy are based on light (electromagnetic radiation) emitted from stars and galaxies and, according to the general theory of relativity, the light will be affected by gravity. At the same time all interpretations in astronomy are based on the correctness of the theory of relatively, but it has been difficult to accurately test Einstein's theory of gravity on scales larger than the solar system. Now astrophysicists at the Dark Cosmology Centre at the Niels Bohr Institute have managed to measure how the light is affected by gravity on its way out of galaxy clusters. The observations confirm the theoretical predictions.

The results have been published in the scientific journal, *Nature*.

Observations of large distances in the universe are based on measurements of the redshift, which is a phenomenon where the wavelength of the light from distant galaxies is shifted more and more towards the red with greater distance. The redshift indicates how much the universe has expanded from when the light left until it was measured on Earth. Furthermore, according to Einstein's general theory of relativity, the light and thus the redshift is also affected by the gravity from large masses like galaxy clusters and causes a gravitational redshift of the light. But the gravitational influence on light has never before been measured on a cosmological scale.

"It is really wonderful. We live in an era with the technological ability to actually measure such phenomena as cosmological gravitational redshift," says astrophysicist Radek Wojtak, Dark Cosmology Centre under the Niels Bohr Institute at the University of Copenhagen.

Galaxy clusters in the searchlight

Radek Wojtak, together with colleagues Steen Hansen and Jens Hjorth, has analysed measurements of light from galaxies in approximately 8,000 galaxy clusters. Galaxy clusters are accumulations of thousands of galaxies, held together by their own gravity. This gravity affects the light being sent out into space from the galaxies.

The researchers have studied the galaxies lying in the middle of the galaxy clusters and those lying on the periphery and measured the wavelengths of the light.

"We could measure small differences in the redshift of the galaxies and see that the light from galaxies in the middle of a cluster had to 'crawl' out through the gravitational field, while it was easier for the light from the outlying galaxies to emerge," explains Radek Wojtak.

Then he measured the entire galaxy cluster's total mass and with that got the gravitational potential. By using the general theory of relativity he could now calculate the gravitational redshift for the different locations of the galaxies.

"It turned out that the theoretical calculations of the gravitational redshift based on the general theory of relativity was in complete agreement with the astronomical observations. Our analysis of observations of galaxy clusters show that the redshift of the light is proportionally offset in relation to the gravitational influence from the galaxy cluster's gravity. In that way our observations confirm the theory of relativity," explains Radek Wojtak.

New light on the dark universe

The discovery has significance for the phenomena in the universe that researchers are working to unravel. It is the mysterious dark universe -- dark matter and dark energy.

In addition to the visible celestial bodies like stars, planets and galaxies, the universe consists of a large amount of matter, which researchers can work out that it must be there, but which cannot be observed as it neither emits nor reflects light. It is invisible and is therefore called dark matter. No one knows what dark matter is, but they know what the mass and thus the gravity must be. The new results for gravitational redshift do not change the researchers' modelling for the presence of dark matter.

Another of the main components of the universe is dark energy, which according to the theoretical models acts like a kind of vacuum that causes the expansion of the universe to accelerate. According to the calculations, which are based on Einstein's theory of relativity, dark energy constitutes 72 percent of the structure of the universe. Many alternative theories try to explain the accelerating expansion without the presence of dark energy.

Theory tested on a large scale

"Now the general theory of relativity has been tested on a cosmological scale and this confirms that the general theory of relativity works and that means that there is a strong indication for the presence of dark energy," explains Radek Wojtak.

The new gravitation results thus contribute a new piece of insight to the understanding of the hidden, dark universe and provide a greater understanding of the nature of the visible universe.

Story Source:

The above story is reprinted (with editorial adaptations by Science*Daily* staff) from materials provided by **University of Copenhagen**, via EurekAlert!, a service of AAAS.

Journal Reference:

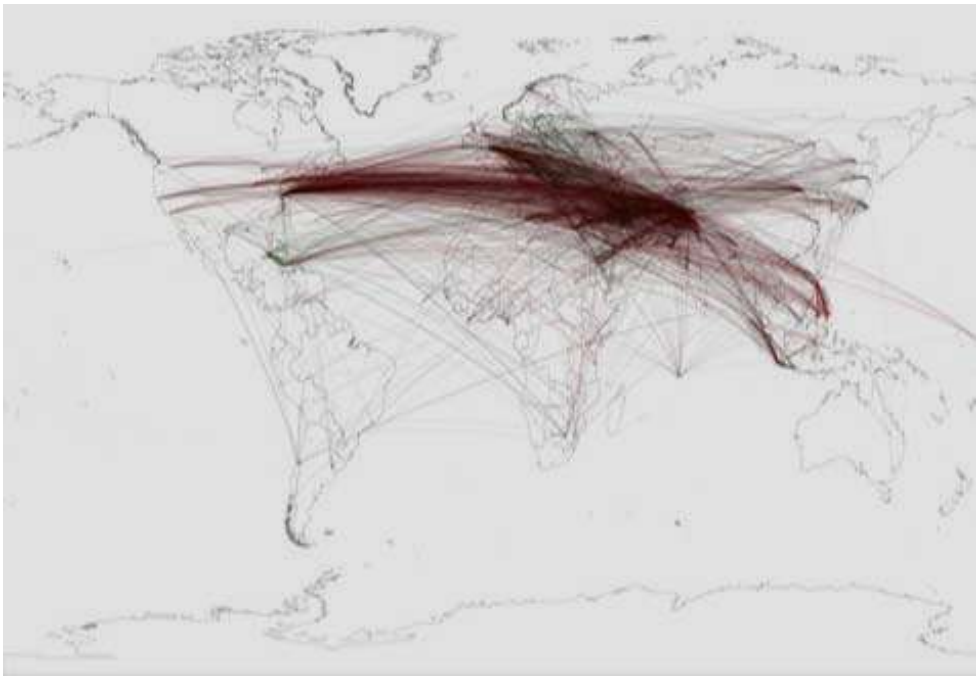
1. Radosław Wojtak, Steen H. Hansen, Jens Hjorth. **Gravitational redshift of galaxies in clusters as predicted by general relativity**. *Nature*, 2011; 477 (7366): 567 DOI: 10.1038/nature10445

http://www.sciencedaily.com/releases/2011/09/110928131758.htm

Culturomics 2.0 Aims to Predict Future Events

By analyzing tens of millions of news stories, a supercomputer in Tennessee may be able to predict future human events.

By Dan Watson



Could global news have given us insights into the hiding place of Osama Bin Laden? This map shows the global geocoded tone of all "Summary of World Broadcasts" content, January 1979–April 2011 mentioning "bin Laden." (Leetaru)

Last week, shortly after Idea Lobby blogger Emily Badger wrote about "a new R&D project to test tools that would mine publicly available data to predict political and humanitarian crises, disease outbreaks, mass violence and instability," a professor at the University of Illinois published his findings on how a computational analysis of millions of news stories could have predicted the Arab Spring.

Kalev H. Leetaru, writing in the online journal First Monday, showed how data mining in the worldwide news archive could have "have forecasted the revolutions in Tunisia, Egypt, and Libya, including the removal of Egyptian President Mubarak, predicted the stability of Saudi Arabia (at least through May 2011), estimated Osama Bin Laden's likely hiding place as a 200-kilometer radius in Northern Pakistan that includes Abbotabad, and offered a new look at the world's cultural affiliations."

The forecasts came after the fact, but Leetaru's work suggests a proof of concept for the Open Source Indicators Program, and project sponsored by the U.S. Office of the Director of National Intelligence.

As Badger wrote, the project "is premised on the idea that big events are preceded by population-level changes, and that those population-level changes should be identifiable if we just look in the right places." To Leetaru, the "right place" is within news stories, both print and online.

"While heavily biased and far from complete, the news media captures the only cross-national real-time record of human society available to researchers," he wrote. He observes that news stories convey much more than just factual information; the news also features "an array of cultural and contextual influences strongly impact how events are framed for an outlet's audience, offering a window into national consciousness."

The federal project expects to spend more time observing Internet activity. In his paper, Leetaru discusses the benefits that would come from examining social media and search engine trends, "but the technical and linguistic complexities, especially the need to operate on large numbers of vernacular languages across the world, made it beyond the scope of this study."

Leetaru gathered data from a range of sources including organizations that monitor local media, and online news archives. A supercomputer at the University of Tennessee analyzed more than 100 million articles, and its computations suggested (albeit in hindsight) that a similar effort may be able to predict events such as revolutions in Libya or Egypt.

If this draws comparisons with the hot new pursuit of "culturomics," in which an historical issue is analyzed based on mentions in a giant body of printed material, that's no accident. Leetaru dubs his work "culturomics 2.0."

He concludes, "The findings of this study suggest that Culturomics, which has thus far focused on the digested history of books, can yield intriguing new understandings of human society when applied to the real-time data of news."

http://www.miller-mccune.com/media/culturomics-2-0-aims-to-predict-future-events-36140/

Feast Your Eyes On the Fried Egg Nebula

This picture of the nebula around a rare yellow hypergiant star called IRAS 17163-3907 is the best ever taken of a star in this class and shows for the first time a huge dusty double shell surrounding the central hypergiant. The star and its shells resemble an egg white around a yolky center, leading astronomers to nickname the object the Fried Egg Nebula. (Credit: ESO/E. Lagadec)

ScienceDaily (Sep. 28, 2011) — Astronomers have used ESO's Very Large Telescope to image a colossal star that belongs to one of the rarest classes of stars in the Universe, the yellow hypergiants. The new picture is the best ever taken of a star in this class and shows for the first time a huge dusty double shell surrounding the central hypergiant. The star and its shells resemble an egg white around a yolky center, leading the astronomers to nickname the object the Fried Egg Nebula.

The monster star, known to astronomers as IRAS 17163-3907 [1], has a diameter about a thousand times bigger than our Sun. At a distance of about 13 000 light-years from Earth, it is the closest yellow hypergiant found to date and new observations show it shines some 500 000 times more brightly than the Sun [2].

"This object was known to glow brightly in the infrared but, surprisingly, nobody had identified it as a yellow hypergiant before," said Eric Lagadec (European Southern Observatory), who led the team that produced the new images.

The observations of the star and the discovery of its surrounding shells were made using the VISIR infrared camera on the VLT. The pictures are the first of this object to clearly show the material around it and reveal two almost perfectly spherical shells.

If the Fried Egg Nebula were placed in the centre of the Solar System Earth would lie deep within the star itself and the planet Jupiter would be orbiting just above its surface. The much larger surrounding nebula would engulf all the planets and dwarf planets and even some of the comets that orbit far beyond the orbit of Neptune. The outer shell has a radius of 10 000 times the distance from Earth to the Sun.

Yellow hypergiants are in an extremely active phase of their evolution, undergoing a series of explosive events -- this star has ejected four times the mass of the Sun in just a few hundred years [3]. The material

flung out during these bursts has formed the extensive double shell of the nebula, which is made of dust rich in silicates and mixed with gas.

This activity also shows that the star is likely to soon die an explosive death -- it will be one of the next supernova explosions in our galaxy [4]. Supernovae provide much-needed chemicals to the surrounding interstellar environment and the resulting shock waves can kick start the formation of new stars.

The Very Large Telescope mid-IR instrument, VISIR, captured this delicious image of the Fried Egg Nebula through three mid-infrared filters that are here coloured blue, green and red [5].

Notes

[1] The name indicates that the object was first spotted as an infrared source by the IRAS satellite in 1983 and the numbers show the star's place in the sky, in the heart of the Milky Way in the constellation of Scorpius (The Scorpion).

[2] IRAS 17163-3907 is one of the 30 brightest stars in the infrared sky, at the wavelength of 12 microns observed by IRAS, but it had been overlooked because it is quite faint in visible light.

[3] The total mass of this star is estimated to be roughly twenty times that of the Sun.

[4] After burning all their hydrogen all stars of ten solar masses or more become red supergiants. This phase ends when the star has finished burning all of its helium. Some of these high-mass stars then spend just a few million years in the post-red supergiant phase as yellow hypergiants, a relatively short time in the life of a star, before rapidly evolving into another unusual type of star called a luminous blue variable. These hot and brilliant stars are continuously varying in brightness and are losing matter due to the strong stellar winds they expel. But this is not the end of the star's evolutionary adventure, as it may next become a different kind of unstable star known as a Wolf-Rayet star (http://www.eso.org/public/images/wr124/), before ending its life as a violent supernova explosion.

[5] The three mid-infrared filters that were used passed light at wavelengths around 8590 nm (coloured blue), 11 850 nm (coloured green) and 12 810 nm (coloured red).

More information

This research is presented in a paper "A double detached shell around a post-Red Supergiant: IRAS 17163-3907, the Fried Egg nebula " by E. Lagadec et al., submitted to the journal Astronomy & Astrophysics.

The team is composed of E. Lagadec (ESO, Garching, Germany), A.A. Zijlstra (Jodrell Bank Center For Astrophysics, Manchester, UK), R.D. Oudmaijer (University of Leeds, UK), T. Verhoelst (Instituut voor Sterrenkunde, Leuven, Belgium), N.L.J. Cox (Instituut voor Sterrenkunde), R. Szczerba (N. Copernicus Astronomical Center, Torun, Poland), D. Mekarnia (Observatoire de la Cote d'Azur, Nice, France) and H. van Winckel (Instituut voor Sterrenkunde).

ESO, the European Southern Observatory, is the foremost intergovernmental astronomy organisation in Europe and the world's most productive astronomical observatory. It is supported by 15 countries: Austria, Belgium, Brazil, the Czech Republic, Denmark, France, Finland, Germany, Italy, the Netherlands, Portugal, Spain, Sweden, Switzerland and the United Kingdom. ESO carries out an ambitious programme focused on the design, construction and operation of powerful ground-based observing facilities enabling astronomers to make important scientific discoveries. ESO also plays a leading role in promoting and organising cooperation in astronomical research. ESO operates three unique world-class observing sites in Chile: La Silla, Paranal

and Chajnantor. At Paranal, ESO operates the Very Large Telescope, the world's most advanced visible-light astronomical observatory and two survey telescopes. VISTA works in the infrared and is the world's largest survey telescope and the VLT Survey Telescope is the largest telescope designed to exclusively survey the skies in visible light. ESO is the European partner of a revolutionary astronomical telescope ALMA, the largest astronomical project in existence. ESO is currently planning a 40-metre-class European Extremely Large optical/near-infrared Telescope, the E-ELT, which will become "the world's biggest eye on the sky."

Story Source:

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Journal Reference:

1. E. Lagadec, A. Zijlstra, R. Oudmaijer, T. Verhoelst, N. Cox, R. Szczerba, D. Me´karnia and H. Van Winckel. **A double detached shell around a post-Red Supergiant: IRAS 17163-3907, the Fried Egg nebula**. *Astronomy & Astrophysics*, September 26, 2011

http://www.sciencedaily.com/releases/2011/09/110928105716.htm

'Wither' the Liberal Arts College?

Writer and Oberlin English professor Anne Trubek quizzes Victor E. Ferrall Jr., author of "Liberal Arts on the Brink," about the glum future of the American liberal arts college.

By Anne Trubek

A picturesque scene from Oberlin College. Victor E. Ferrall Jr., author of "Liberal Arts on the Brink" and former president of Beloit College discusses the depressed state of America's liberal arts institutions and how graduates can still benefit from them. (Barry Solow/Flickr.com)

In *Liberal Arts at the Brink*, Victor E. Ferrall Jr., former president of Beloit College, bluntly and convincingly argues that liberal arts colleges, from famous leafy schools like Swarthmore and Bowdoin to lesser-known regional schools like Bethel and Hiram, are in trouble. The increasing career orientation of students entering higher education has led many of these schools to add vocational majors such as nursing, education and leisure studies, watering down their historic missions. While listed tuitions remain high, in part to ensure prestige, colleges compete for the few top students, discounting tuition for them so drastically that the institutions lose money.

Ferrall, who was a senior partner in a Washington, D.C., law firm before becoming Beloit's president, where he is now president emeritus, believes in the core values of a liberal education and urges America's 225 liberal arts colleges to band together to ensure their collective survival. He advocates for creating tuition consortia, curricular collaborations and cost-sharing measures.

Victor E. Ferrall Jr.

As a professor at a liberal arts college dismayed by higher education's increasing cost and its increasing silence in public debates, I was eager to read Ferrall's book. While *Liberal Arts on the Brink* has been discussed at institutions, such as the Wilson Center, and lauded by business leaders, the book has yet to generate much response within the very communities Ferrall writes about. By ignoring Ferrall's warnings, are liberal arts colleges proving his point that they are "at the brink"?

Anne Trubek: You cite a statistic that in 2000, fewer than 100,000 students, or less than 0.6 percent of all U.S. higher education enrollees, graduated from liberal arts colleges. That really surprised me. I would have guessed the number to be much higher, closer to 15 percent.

Victor E. Ferrall Jr.: That's because so many well-known leaders and public figures graduate from liberal arts colleges. For some reason — whether it is the sharing, the intimacy, the intensity or the course — liberal arts colleges produce a disproportionate number of leaders in all areas, not just in academia, but also in business, entrepreneurship, the arts, and elsewhere. A liberal arts education makes individuals inquiring, less self-certain, and more concerned citizens.

But it is hard to be quantitative about the liberal arts. I looked at 225 schools in four tiers. The colleges most of us think of as liberal arts colleges are in Tiers I and 11. But when you get down to the bottom of the list, at the Tier III and IV liberal arts colleges, some offer so many vocational majors, like criminal justice or business administration, that it is hard to know how to count their graduates. Students who major in liberal arts subjects are becoming fewer and fewer. Fifty-one of the 225 colleges had more than 50 percent vocational majors. Do we count those as those liberal arts colleges?

AT: You argue that demand for liberal arts degrees is going down, and that's a key issue these colleges must confront. But you believe in their mission, that "the pubic interest is far better served by maximizing the number of young people who receive a quality liberal arts education" and that "this requires that the viability of as many colleges as possible be maintained." Your solution is collaboration and cooperation.

You and I both attended Oberlin College, and I returned there 15 years ago as a faculty member. You, after a long career in law, became president of Beloit College. You say that every liberal arts college believes it is "unique and special, and that its special-ness matters." I agree. At Oberlin, our sense of specialness can sometimes veer into smugness, as if no other college comes close to us. You argue this "special" attitude prevents liberal arts colleges from collaborating with each other and becoming a unified group advocating for the liberal arts.I have a hard time seeing Oberlin's faculty and alumni getting behind this because it would threaten that specialness — or "brand" — of Oberlin.

VF: Oberlin isn't unique. It's unique in the sense that chocolate cake is unique from vanilla cake, but both are cakes. Each college's uniqueness is marginal: it's the frosting, and yet the frosting is what the schools focus on.

Collaborations are about cost savings. That's good. It's clear to me that there's going to be more and more Internet collaboration. But if you use the word "collaboration," faculty starts thinking about sharing classes and everyone gets edgy.

The No. 1 problem facing liberal arts colleges is demand. An increasing number of people don't think they are valuable. In the past, people never really thought, "What I want is liberal arts education." They thought, "I want a degree from Williams or Swarthmore." Now that more people see college as an investment, asking what they can get out of it, they are choosing vocational majors. Everyone else is telling them they should — even [U.S. Education Secretary] Arne Duncan is telling us we need a "better-trained workforce."

Colleges need to band together to share with the public that a liberal education is a good thing. You can't do that by just talking to nervous 17-year-olds and their parents. I advocate a collaborative education campaign. Colleges hate the idea of lobbying, but they need to share with the nation that liberal arts education is a good and useful thing.

If we don't do that, it's not going to be that far in the future when the liberal arts become just a nice thing, like women's colleges were seen as being 30 years ago — a place to drink wine and chat. People will always want to go to Amherst because that's where bright people are going — but only as preparation for professional schools. And a little ways down the list it's not so clear. We'll be left with a really small group of liberal arts colleges.

AT: At Oberlin we extol the percentage of our graduates who go on to get Ph.D.s and encourage our students to do the same. Given how few jobs there are for Ph.D.s, I wonder if this isn't an act of bad faith (and I do not encourage my students to go to graduate school). But if I don't then teach vocational courses, what am I preparing my students for? What's the purpose?

VF: You're right. Are you really doing the right thing when you urge your students to go into English literature? Faculty shouldn't encourage students going to graduate school. That's treating liberal arts education as vocational education, and that's not the value of it. The value of it is to study something that you might not actually do later. Faculty should just teach and not worry about preparing their students for anything.

I had a lot of criticism for suggesting a liberal arts education is useless. But uselessness is a good thing. I don't mean useless in sense that it doesn't advantage you. I mean studying something you don't have to so you are focused on the act of learning instead of what you are learning it for. That's huge. That's the most important reason why people who have a liberal arts education do well.

AT: Like what Immanuel Kant says about art, that it is being "purposive without a purpose".

VF: Exactly.

I'm not against vocational education; I'm suspicious of how good it is. I know for a certainty that one does not learn how to be a lawyer in law school. Do you learn how to be a parks and recreation person by taking parks and recreation courses? It is better to work at place as an unpaid volunteer even if you make nothing. You'll still be better off than if you paid tuition. The problem is everyone says, "But you need the credential to get in the door." Credentials are getting more important as the number of people looking for jobs is getting larger.

AT: You discuss the complicated topic of discounting very persuasively. As you put it, colleges sell their services to the lowest bidders, effectively "purchasing" students and then selling them back an education. Colleges tell prospective students, "We sell liberal arts education services for $40,000, but we provide discounts (financial aid) of up to 100 percent, that is $40,000." [They] could just as well say, "We purchase students and will pay up to $40,000 for a high-quality applicant."

The fact that few students actually pay the sticker price of liberal arts colleges is something more parents and prospective students need to better understand. I am always explaining to my friends that it probably will not cost them $50,000 per year to send their kids to Oberlin. Many attend for, say, $10,000 a year or for free. They don't believe me. And I have a hard time making the case clear to them. Discounting is really confusing.

VF: It is easy to find a parent and tell her, "You don't actually pay list price. You won't pay the sticker price tuition." And she says, "Yes, I know," and then she sends her kid to an out-of-state university [paying out-of-state tuition]. This school costs more than a liberal arts college would have. But the reason she gives for her decision is because the liberal arts college is too expensive!

I have no explanation for this. It is such an odd disconnect. List prices give the colleges prestige, so they keep them high, and then discount tuition when they admit students. But the problem is people do not believe in the discounting.

AT: Your depiction of liberal arts professors is, um, amusing. You make fun of them — or should I say us — but you say you admire us, too. I suspect when you are off the record, you just tell stories about ridiculous faculty debates and completely out-of-touch tenured professors. Am I right?

VF: No. I love the faculty. Faculty [members] are people in very special circumstances, and they are the product of those circumstances just like coal miners or dentists are the products of their circumstances. It's silly to expect them to be different from what they are. They are bright and interested — what's wrong with that? They are an attractive bunch.

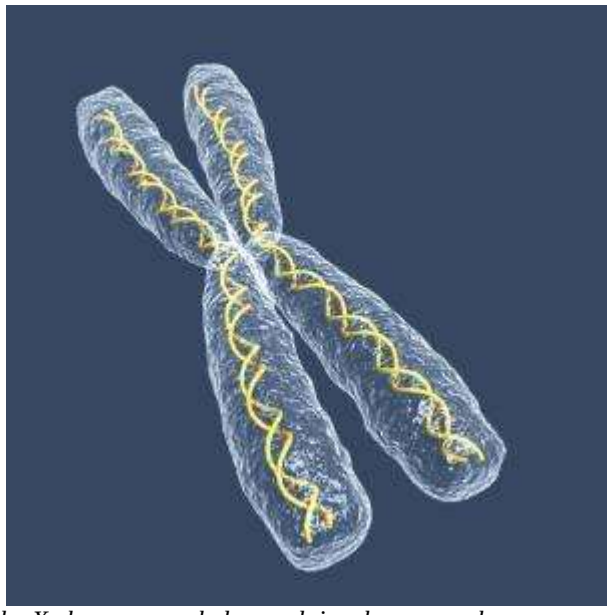
But they are different! And they are terribly conservative. The worst thing is that in their calculus for making decisions, timeliness is never part of it.

AT: Some have said liberal arts colleges won't be around in 50 years. Are they right?

VF: No. There will be some, but not as many. And the lower-tier schools are the ones that will go first. Some are gone already, having been acquired by for-profit institutions, who then display the schools' pretty campuses on their websites.

http://www.miller-mccune.com/education/wither-the-liberal-arts-college-36476/

Women Have Stronger Immune Systems Than Men -- And It's All Down to X-Chromosome Related microRNA



New research on the role of MicroRNAs encoded on the X chromosome helps explain why women have stronger immune systems to men and are less likely to develop cancer. (Credit: iStockphoto)

ScienceDaily (Sep. 28, 2011) — As anyone familiar with the phrase 'man-flu' will know women consider themselves to be the more robust side of the species when it comes to health and illness. Now new research, published in BioEssays, seems to support the idea. The research focuses on the role of MicroRNAs encoded on the X chromosome to explain why women have stronger immune systems to men and are less likely to develop cancer.

The research, led by Dr Claude Libert from Ghent University in Belgium, focused on MicroRNA, tiny strains of ribonucleic acid which alongside DNA and proteins, make up the three major macromolecules that are essential for all known forms of life.

"Statistics show that in humans, as with other mammals, females live longer than males and are more able to fight off shock episodes from sepsis, infection or trauma," said Libert. "We believe this is due to the X chromosome which in humans contains 10% of all microRNAs detected so far in the genome. The roles of many remain unknown, but several X chromosome-located strands of microRNA have important functions in immunity and cancer."

Dr Libert's team proposes that the biological mechanisms of the X chromosome have a strong impact on an individual's genes, known as genetic imprinting, which gives an immunological advantage to females. To develop their hypothesis the team produced a detailed map of all described microRNAs which have a role in immune functions and cancer in both human and mouse X chromosomes.

"We believe this immunological advantage is due to the silencing of X-linked genes by these microRNAs," said Libert. "Gene silencing and inactivation skewing are known mechanisms which affect X-linked genes and may influence X-linked microRNAs in the same way."

This genetic silencing leaves males at an immunological disadvantage as a male has only one X-chromosome. The Y-Chomosone contains fewer genes so if the genes involved in immunity are silenced maternally the male is left with no compensating genetic information.

"How this unique form of genetic inheritance influences X-chromosone linked microRNAs will be a challenge for researchers for years to come," concluded Libert, "not only from an evolutionary point of view, but also for scientists investigating the causes and cures of disease."

Story Source:

The above story is reprinted (with editorial adaptations by Science*Daily* staff) from materials provided by **Wiley-Blackwell**, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com/releases/2011/09/110927192352.htm

Do Principals Know Good Teaching When They See It?

Most principals can't identify or explain what constitutes good teaching, much less help teachers improve, according to a new book.

By Melinda Burns

It's no secret that teachers need better training to engage their students. Some experts are teaching principals to lead teachers via methods that are modeled after medical rounds. (Creatas)

It's happened hundreds of times. An audience of principals, superintendents and instructional coaches is shown a short videotape of a classroom lesson and asked to score it from 1 to 5. It would seem straightforward: The teacher is good, bad or somewhere in-between. But invariably, the scores come in all over the map, with high and low in fairly equal numbers.

Having toured the United States with those videotapes, two leaders of the University of Washington's Center for Educational Leadership conclude that most school leaders can't identify or explain what constitutes good teaching, much less come up with helpful suggestions for improvement.

"Frankly, this is shocking to consider," say Stephen Fink and Anneke Markholt, co-authors of *Leading for Instructional Improvement: How Successful Leaders Develop Teaching and Learning Expertise* and executive and associate directors, respectively, of the center.

"Whether under the guise of academic freedom, local control, or perhaps just simply doing what we have always done, millions of students are taught every day by hundreds of thousands of teachers, supported by thousands of school and district leaders without a clear understanding and agreement on quality practice," the authors say.

In their view, the major challenge facing public education in America is a widespread lack of expertise. No wonder, they say: While doctors spend between six and 11 years in medical school, principals charged with improving the "highly complex and sophisticated endeavor" of teaching typically study administration for

only two years and will spend no more than a semester in an internship. As Miller-McCune reported last year, the National Council for Accreditation of Teacher Education itself has suggested that teachers be trained through "clinical practice," as doctors are.

Separately from the audience survey, Fink's center has administered individual tests to 2,000 principals, superintendents and instructional coaches in several hundred school districts since 2001, asking each participant to observe a 20-minute videotape of a math or reading class, assess it in writing and make recommendations for how to improve it.

The principals and their colleagues answered three questions:

• What do you notice about teaching and learning in this classroom?

• What conversation would you want to have with this teacher?

• How, if at all, does this inform your thinking about and planning for professional development?

Based on how well a principal can assess a teacher's goals and strategies, take stock of how engaged the students are and offer helpful feedback, the center assigns him or her a grade. Out of four possible points, with 4.0 being an "expert instructional leader," the average score of the school leaders was 1.8.

"It should be deeply insightful for us as policymakers to say that if we're not focusing on developing the expertise of our teachers and leaders, then we're off-track," Fink said.

It's not a question of simply getting rid of bad teachers, Fink said. "If we're going to improve the quality of learning for all kids, we have to develop the expertise of those teachers we have in our ranks."

He admits the center sets a high bar for "expert" scores: "You really have to know your stuff."

But most don't. For example, while visiting a class on the novel *To Kill a Mockingbird*, a principal sees that the teacher is simply grilling students on what's in the text. In a written evaluation after the class is over, the principal suggests that the teacher ask higher-level questions that would prompt students to analyze and think about what they've read instead of merely parroting it back. But as Fink and Markholt note, the teacher likely doesn't know how to ask those kinds of questions or he or she would already be doing it.

"We have observed this typical exchange between principals and teachers dozens of times," they write. "If principals want teachers to teach differently — in any way, shape, or form — then they must guide, support and nurture teacher learning just like we expect teachers to do for students."

To help smarten up schools, the center shows principals how to become like anthropologists taking field notes, "noticing and wondering" and scripting what goes on in the classroom. The center also sends in coaches to lead principals on "learning walkthroughs," or "instructional rounds." These are modeled after the medical rounds in which doctors, nurses and medical students discuss hospital patients, case by case.

"Principals are in school classrooms all the time," Fink said in an interview. "What we're pushing for is for them to be much more purposeful in that work. We think it's really important for leaders to be clear about why they're in schools and what they're intending to accomplish."

As Miller-McCune also recently reported, some schools regularly schedule time for teachers to meet in small groups and share their ideas about what works in the classroom. These efforts make sense, Fink and Markholt say, but only if there is a enough expertise in the group to bring up the general level of learning.

The center instead sets up "residencies" in which a coach, possibly an expert from within the school, models a teaching strategy in a live classroom while the principal and a group of teachers watch — another concept borrowed from medical school. Later, the coach and the classroom teacher may try the strategy together, or the coach will watch as the teacher tries it alone.

"It takes expertise to make expertise," Fink and Markholt say, yet coaching in schools is "still the very rare exception, not the norm.

"We believe that K-12 education, as often practiced, is a quasi-profession at best, because we do not, in fact, have common standards of professional practice."

http://www.miller-mccune.com/education/do-principals-know-good-teaching-when-they-see-it-36417/

Jumping Gene Enabled Key Step in Corn Domestication

Corn split off from its closest relative teosinte, a wild Mexican grass, about 10,000 years ago thanks to the breeding efforts of early Mexican farmers. Today it's hard to tell that the two plants were ever close kin: Corn plants stand tall, on a single sturdy stalk, and produce a handful of large, kernel-filled ears. By contrast, teosinte is branchy and bushy, with scores of thumb-sized "ears," each containing only a dozen or so hard-shelled kernels. (Credit: © Comugnero Silvana / Fotolia)

ScienceDaily (Sep. 28, 2011) — Corn split off from its closest relative teosinte, a wild Mexican grass, about 10,000 years ago thanks to the breeding efforts of early Mexican farmers. Today it's hard to tell that the two plants were ever close kin: Corn plants stand tall, on a single sturdy stalk, and produce a handful of large, kernel-filled ears. By contrast, teosinte is branchy and bushy, with scores of thumb-sized "ears," each containing only a dozen or so hard-shelled kernels.

In seeking to better understand how teosinte gave rise to corn, a scientific team has pinpointed one of the key genetic changes that paved the way for corn's domestication. As reported on September 25 on the *Nature Genetics* website, a major change occurred about 23,000 years ago, when a small piece of DNA -- a jumping gene known as Hopscotch -- inserted itself into the control region of a teosinte gene that affects plant architecture. This case is among the first to show that a jumping gene can cause alterations in gene expression that impact evolution.

"Hopscotch cranked up the gene's expression, which helped the plant produce larger ears with more kernels, plus become less branchy, and so those early farmers picked plants with the Hopscotch to breed," says University of Wisconsin-Madison plant geneticist John Doebley, a corn evolution expert who led the team.

Jumping genes are strange genetic entities. Found in all sorts of organisms, these pieces of DNA, which carry just a few genes, have the ability to splice themselves out of their current position in the genome and "jump" to other spots. As they mix and mingle with the genome, jumping genes, which are also known as transposable elements, create genetic variation that evolution can act upon. Typically, jumping genes' effects are neutral or bad, as when they land in a stretch of junk DNA or disrupt a critical gene.

"But occasionally, they do something good," says Doebley. "So we found a case where the mutation caused by a transposable element has done something good."

In corn, Hopscotch dials up expression of the teosinte branched 1 (tb1) gene, which produces a transcriptional regulator protein that represses branching, encouraging the plant to grow a single stalk and produce larger ears with more kernels. When early Mexican farmers first encountered teosinte with this Hopscotch insertion, the rare plants must have been prized breeding stock: Today 95 percent of modern corn has this particular genetic alteration.

In recent years, researchers have begun finding more and more cases where transposable elements are associated with altered gene expression, but the links are often only correlative. For this project, however, the paper's first author, Anthony Studer, Doebley's former graduate student who now works as a postdoctoral researcher at Cornell, took the time to show that Hopscotch does in fact cause elevated gene expression. In doing so, this study is among the first to prove that jumping genes can impact gene expression, and, in turn, evolution.

"It's rare that geneticists can explain the genetic changes involved in domestication at this level of detail," notes Doebley, who has made a number of impressive contributions to the corn evolution field over the years.

Early in his career, Doebley helped identify teosinte as corn's closest relative, and in 2005, his team showed that a single genetic mutation was responsible for removing the hard casing around teosinte's kernels, exposing soft grain, another critical step in corn's domestication.

While Doebley's motivation comes from the desire to understand basic evolutionary processes, his work, he notes, could also have real-world applications. "People in plant breeding and plant biotechnology take some interest in this work because they are basically trying to continue the domestication process," he explains. "So understanding what's worked in the past could influence what they do in the present to improve corn."

In addition to Doebley and Studer, the *Nature Genetics* paper's authors include Qiong Zhao, a graduate student in Doebley's lab, and Jeffrey Ross-Ibarra, an assistant professor of plant sciences at the University of California, Davis.

The work was funded through a U.S. Department of Agriculture Hatch grant and by the National Science Foundation.

Story Source:

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Journal Reference:

1. Anthony Studer, Qiong Zhao, Jeffrey Ross-Ibarra, John Doebley. **Identification of a functional transposon insertion in the maize domestication gene tb1**. *Nature Genetics*, 2011; DOI: 10.1038/ng.942

http://www.sciencedaily.com/releases/2011/09/110925185441.htm

'Do Not Litter' Signs Can Be Counterproductive

When signs prohibiting certain behaviors are blatantly ignored, it inspires others to act in antisocial ways.

By Tom Jacobs

Keep off the grass? Yeah, right. It seems the sternly worded signs that adorn our parks, plazas and playgrounds admonishing us not to do things, under certain circumstances, seem to have the opposite effect, according to researchers. (iStockphoto.com)

Do Not Litter. Keep Off the Grass. Clean Up After Your Dog.

Sternly worded signs adorn our parks, plazas and playgrounds, reminding visitors to follow certain codes of conduct. But a newly published study finds that, under certain circumstances, these admonitions seem to have the opposite effect.

Researchers in the Netherlands present evidence that if certain rules are clearly spelled out, and you note that others have been disregarding them, you're more likely to break them as well. What's more, you are also more likely to ignore an entirely different directive.

Writing in the journal *Group Processes and Intergroup Relations*, psychologist Kees Keizer and two colleagues from the University of Groningen describe a series of experiments. All were conducted in an alley where people park their bicycles while shopping in nearby stores.

The experiments all had the same basic structure. Researchers attached a flyer to the handlebar of a parked bicycle, which read "Happy Holidays," and gave the name of a fictional sportswear shop. When the shoppers retrieved their bicycles, researchers noted whether they took the flier with them (there were no trash cans in the alley) or threw it on the ground.

In their first experiment, Keizer and his colleagues confirmed the results of a 2008 study that found people are more likely to litter an already-littered area. Fifty-three percent of the cyclists took the flier with them when the alley was clean, but only 39 percent did so when it was strewn with "a few empty soda cans, flyers, plastic bags and candy wrappers."

In their next experiment, the researchers similarly littered the alley but also hung a large anti-littering sign on the wall. Under those circumstances, only 28 percent of people took the flier with them. Repeating the experiment, they got a similar result: Thirty percent of the cyclists didn't litter.

Either number is a significant drop from the 39 percent who tossed the flier aside when no sign was present. This suggests evidence that a clear rule that has been flouted disinclines others to obey that directive.

For their next series of experiments, the researchers sprayed the alley wall with graffiti, creating "several improvised tags in different colors." They then repeated the litter experiment.

They found the graffiti had an almost identical effect as strewing garbage on the ground: Only 38 percent of cyclists took the flier with them rather than dropping it on the ground. When a "No Graffiti Allowed" sign was hung on the wall (a message the supposed taggers had blatently ignored), that number went down to 31 percent.

However, when the graffiti was cleaned up and a "No Graffiti Allowed" sign was visible, 68 percent of cyclists took the flier with them – the highest percentage of any of the experiments. However fleetingly, the cyclists took note of the fact that their fellow citizens were obeying the law (in this case, the no-graffiti rule), and this inspired them to do the same (by avoiding littering).

As Keizer and his colleagues note, these findings have direct implications for policymakers. They suggest removing evidence of rule-breaking behavior, such as litter or graffiti, should be a priority — especially in areas where signs directly forbid it. It appears antisocial behavior is contagious, and the more brazen it is, the more power it has to spread.

The researchers sum up their advice with their own admonitory statement: "Do not place prohibition signs where the rules are not enforced." That's a little too long to fit on a sign, but they make their point.

http://www.miller-mccune.com/culture/do-not-litter-signs-can-be-counterproductive-36427/

Because we weren't there?

Rory Stewart

Entering Libya four days after the fall of Tripoli did not seem, at first, very different from trips I had made to Kosovo, Baghdad and Kabul shortly after those interventions. There were as yet no formalities, still less visas, at the Libyan border. The dusty office chairs at the checkpoints in the Nafusa hills, crookedly propped on their remaining castors, were those favoured by militias in Afghanistan. The charred government office in Zawiyyah could have been in Sarajevo. Similar Japanese cars formed longer lines at the petrol stations in Baghdad. Here too, torn posters of the leader lay in the street; here too, angry crowds shouted outside a bank; and here too, a villa, 'J-Dammed' flat by Nato bombs, smelled of dead people.

The last two decades of intervention suggest one thing: that interventions are intrinsically unpredictable, chaotic and uncertain. They can work: the international community played a prudent and constructive role in Bosnia, and the Bosnia of 2005 was far better than that of 1995. But in Iraq and Afghanistan, disorder and chaos seemed predestined. Guilt at lost lives, embarrassment, pride, fear of Islamists and hubris all prevented the West from acknowledging failure: instead of pulling back, they dived ever deeper. And their occupation bloated, warped and corrupted the fundamental structures – social, political and economic – of the countries they were purporting to help.

The lesson for Libya was that the West should not be dragged too far in and that it should anticipate chaos. The language of the UN resolution emphasised restraint: there were to be no troops on the ground and the military operations were designed to protect civilians, primarily in Benghazi, not to topple Gaddafi. But Nato was soon flying 400 miles away from Benghazi, targeting Gaddafi's headquarters in Tripoli. Lawyers assured me that no one was using the bombing raids to try to kill Gaddafi, generals whispered that Gaddafi could only last another two weeks, and diplomats denied that the rebel government was extremist or divided. But five months later, there had been numerous raids on Gaddafi's compound; Gaddafi was still in power; and the rebel general, formally arrested on the orders of the rebel deputy leader, had been tortured and executed by an Islamist faction.

The more confident the Western generals became, the more likely disaster seemed. In Afghanistan, Nato leaders had continued to claim progress long after it was obvious that the Afghan government was not becoming more credible, effective and legitimate, and that the Taliban was not defeated. The situation was growing worse not better. The truth was missed in part because it was unbearable and in part because Nato's leaders were entirely detached from the reality of Afghan rural life. It seemed likely that a similar optimism and isolation would distort their perception of Libya and encourage them to ignore the signs of impending chaos.

There were many reasons to fear that the aftermath of the fall of Tripoli would resemble the first days after the fall of Baghdad. For decades, Libya had been controlled by Gaddafi and his secret police. His sons, allies and a few tribal chiefs had grown fat on largesse, oil, sanctions-busting and the remnants of a state-owned economy. When these men fell, others would scramble to seize what they could. Gaddafi's civil servants would spend their last moments burning documents and trashing desks, and leave with televisions and armchairs. Their successors would steal the ministry cars. Gaddafi's cronies would flee for the border with cousins and jewels; and militia groups would squat in their marble-floored villas (with squalid bathrooms because there was no water supply). Gangsters would seize petrol stations; and opportunists would strip the computers from schools and perhaps the beds from hospitals. Garbage and sewage would fill the once tidy streets.

Meanwhile, Islamist brigades might challenge the religious values of the new government. The militias might ask for money to protect businesses. Fights might break out between teenagers with mortars looted from the state arsenals and those with foreign-supplied, truck-mounted anti-aircraft guns. Minor fissures, in the past

often irrelevant, between Benghazi and Tripoli, Berber and Arab, desert and coast, Salafi and Brotherhood, tribe and tribe, could suddenly become decisive splits. The villas and the farms, the banks and the hotels of Gaddafi's children would be up for grabs; so too would be the land transferred illegally by Gaddafi to tribes now out of favour. Others might well fight to gain control of state monopolies; the commissions, agents' fees and franchises from foreign companies; the contracts from international donors; and $120 billion of overseas Libyan assets. The new self-appointed transitional government, with its expatriate professors, mid-level businessmen and aged dissidents, would struggle. Gaddafi himself predicted much of this.

And it was easy in my first few hours in Libya to find evidence for this way of thinking. Within ten miles of the border, I was stopped at six different checkpoints, manned by teenagers with new-model Kalashnikovs and American rifles. In Bir-al-Ghanam, five pick-up trucks roared into the square and men in clean blue jeans and tight T-shirts leaped out, firing round after round into the air. Who was in control of them? Who could control them? Weapons were everywhere: on the outskirts of Tripoli, I saw, lying on the grass, a gleaming, finned, three-foot live rocket, and nearby, still in its packing case, a seven-foot-long surface-to-air missile.

The militias that clearly were under someone's control were even more troubling. The man with the long grey beard, combat trousers, aviator shades and quiet voice who told me to get out of my car had the manner of an intelligence officer. The very tall young man in flowing robes with a soft curly beard – whose limousine was waved through the checkpoint with such deference – looked like a Saudi. Mahdi al-Harati, the commander of the Tripoli brigade, who wore his military beret for the Eid prayers, had been the only member of his family not to be imprisoned as an Islamist; he had lived in Dublin, run Islamic relief organisations, sailed on the Gaza flotilla and been shot by Israeli special forces. What were his views? And what of Abdul Hakim Belhadj, who was on the military council and was detained by the CIA in 2004 because of his links to al-Qaida?

The interior minister, in his grey suit and grey tie, held a press conference flanked by overweight mustachioed men in police uniform with colonels' tabs. One of them told me he had worked in the 'interrogation' department under the old regime. 'When I went to Martyrs' Square and said I was the interior minister,' the minister boasted, 'there was far more shooting in the air than normal – it was to greet me. If you don't believe me, come with me to the square, I will show you.' I was not confident of his ability to keep order.

Yet so far Libya has proved, not unpredictably awful but unpredictably good. After 15 years working around interventions, I was watching for any hint of disaster. I noted, for example, that a Berber militia had occupied a prime hotel beside the arch of Marcus Aurelius on the grounds that the owner 'was a Gaddafi sympathiser'. But even after 24 hours, I couldn't escape the sense that things were not that bad: that Libyans were delighted and confident, and with justification.

The celebration in the central square that night was far happier, more joyful than any I'd seen in Bosnia, Iraq or Afghanistan. Hundreds of young men in jeans and T-shirts were hanging off cranes, 50 feet in the air. Five-year-olds in bright pink dresses were lining up at popcorn stands. A 50-year-old director of the audit department of the national airline had brought his mother and teenage daughters to see the crowds at midnight. 'No one in the world has ever seen anything like Gaddafi,' he said to me. 'You cannot imagine what it was like. We are just so happy he is gone.' Like everyone else, he joined in the revolutionary songs, and seemed to know the words. As a mullah tried to make a ponderous statement about God and the martyrs of the revolution, the crowd clapped and chanted: 'Poor old Gaddafi – it's time to move on.'

When my new friend the interior minister appeared on stage at two in the morning, in front of the crowd of ten thousand, he had lost his grey tie and his police escort and gained a smile. 'Young people,' he began, 'please, one minute, please – do not fire your weapons in the air – it gives a bad image to the foreigners.' The crowd continued to fire (one man was hit, it seemed fatally, by a falling bullet) and some teenagers continued to chant. But the minister slowly got the measure of his laughing audience: pausing for long stretches and

luring the crowd into moments of silence. Eventually, they even cheered him. And everyone sang the national anthem.

Libya did not look as shabby or dangerous as Iraq. Despite six months of fighting and uncertainty, the lawns in Tripoli were mown, the bougainvillea bushes were bright, and the rubbish was still in garbage bags, not strewn, as in Basra, in suppurating ditches. The shops and petrol stations were reopening, the water supply was beginning to return. The armed 15-year-olds were polite. No one at any of the checkpoints asked for a bribe, or our satellite phones. The Misrata militia in their jeeps were as friendly as the Knights of Zintan in their pick-up trucks. There was little talk of revenge. No one was shooting anyone else.

And to my surprise, there was little looting. In the executive offices, it was not just the furniture and the televisions that were untouched: even the silver ashtrays and gold paperknives were still on the desks. It seemed that no one had slipped even a fountain-pen into their pocket when the government left and the rebels came in. At night, the streets of Tripoli were so jammed with honking cars, waving flags, boys wearing the national colours, that one might imagine Libya had just won the World Cup. The government and the police were not in any position to prevent disorder, but it seemed that the Libyans were not drawn to looting or violence. And no one I spoke to, from expatriate engineers to young gunmen, expected that.

Already people are claiming that the euphoria and calm after the fall of Tripoli could have been predicted and can be easily explained. But such civility was not inevitable; it could not have been assumed from Libyan history or culture. Libya shares many features of countries where anarchy has prevailed. Like Afghanistan or Iraq, it has a distinguished history and has experienced periods of stability but lacks the essential trinity of the international state-building apostles: 'a vibrant civil society', 'rule of law' and 'good governance'. It has a rapidly growing young population, which is only partially educated, and few jobs. The traditional forces of tribe and Islam co-exist with more cosmopolitan aspirations, as they do in the rest of the Islamic world.

Many of the positive things that can be said about Libya can be said about other more troubled countries – right down to the small details. Libyans, like Iraqis and Afghans, remember a moderate, tolerant, Western-friendly country in the late 1960s and 1970s, which fell unexpectedly victim to leaders – and an ideology – alien to its indigenous culture. In the same way, the Lebanese writer Nassim Nicholas Taleb maintained that there was nothing preordained in Lebanon's civil war, that Lebanon had been 'at peace for centuries'. And in the Balkans in the 1990s, people insisted: 'I did not even know people's ethnic group – I have a Serb father, a Croat mother … We were Yugoslavs.'

All these countries can offer equally plausible explanations of why things go right and why things go wrong. One Libyan woman said, 'it is orderly because there is not the corrupt, gangster class in Libya that there was in Iraq'; but Suleiman, a 20-year-old businessman from Benghazi, replied that under Gaddafi every businessman paid bribes of more than half the value of the contract. An older Libyan minister said there was no looting because the population was 'educated', but Suleiman complained of how bad his schooling had been, and how ignorant and isolated Libyans had become. Huda, a young woman working with the TNC, suggested that the paperknives had not been stolen because Libyans were wealthy; others emphasised rural squalor and 30 per cent unemployment. One of the most senior members of the new government said that the mid-level civil service worked well, regardless of the ministers. All other Libyans assured me that Gaddafi had 'hollowed out the state' and left nothing functioning behind.

There was some talk of a country impoverished and pulverised by Italian colonialism; and some of an ancient Mediterranean civilisation. For some, Libya was 'a modern country' where tribal influences have largely vanished. For others, it was 'not really a country' but a colonial creation cobbled together after the war from three states with quite different histories and identities: a place where Gaddafi had emphasised tribal and regional differences, and prevented the emergence of a settled modern identity – a nation 'in trauma'.

Unlike Libyans, international diplomats and politicians tended not to emphasise Libyan history or Libyan character but the actions of individual leaders. They suggested that there had been no anarchy after the fall of Tripoli because Gaddafi was a hated tyrant; because the Nato military campaign and their post-conflict planning had been particularly strong; and because the Transitional National Council was well prepared. But insofar as the leaders mattered at all, it may be less for what they did than for what they didn't do.

Gaddafi's state was not Saddam's. He didn't inherit, or rely on, a powerful pre-existing Baath Party apparatus. Or drag his people through an eight-year total war. He tortured and killed, but his trademark – unlike Saddam's – was not totalitarian brutality. Perhaps because of this there was less rage, less bitterness, less desire to smash the symbols of the old regime than I saw in Iraq. The Nato campaign was deliberately minimal: in terms of both military and civilian support. The most dramatic difference between Tripoli and the other capitals of intervention was the absence of foreigners. Entering Kosovo, I was immediately stuck in a traffic jam of white land-cruisers painted with international acronyms – the one in front of me read 'Clowns without Frontiers'. US military convoys roared down the highways of Iraq; heavy machine-guns pointed into market squares; razor-wire and cement barriers cut off urban streets. The executive offices in Kabul were filled with young laptop-wielding, jeans-wearing European and American advisers. I saw none of this in Tripoli.

And Libya's rebel 'government' was relatively weak. In Afghanistan, those who pushed out the Taliban were long established warlords. Ismail Khan in Herat had led the first uprising against the Soviets in 1979; the governor of Helmand had been connected to the opium trade for decades and had many armed men. The SCIRI opposition in Iraq was established in the early 1980s; Dawa in the late 1950s. Chalabi was a well-known figure in Washington. Each had known foreign backers and links to foreign intelligence services. They all had their resources, their mutual resentments, their deep ideological differences and their long-established plans for domination. They had aides, and a plethora of satellite phones.

The executive offices of the Transitional National Council by contrast felt as placid as an old people's home, or a cruise liner. One senior cabinet minister didn't yet have a single secretary, and seemed to have only very vague ideas of what his department needed. One floor up, I found a deputy minister watching television three days after the fall of the city; there wasn't a paper on his desk. During the 45 minutes I spent with him, only one person looked in; and when he picked up the phone, no one answered. Only Ali Tarhouni, the deputy prime minister, had aides and energy and he was an American academic who apparently hadn't been back to Libya since 1978.

Such multiple sources of weakness may prove to be a strength. Since Gaddafi's state was not powerful, its fall may have comparatively little effect. Security in the streets was provided almost from the start by neighbourhood committees, many organised from mosques; their effectiveness and legitimacy was taken almost for granted and they did not seem (yet) to be abusing their power. The lack of foreigners allowed Libyans to feel that the revolution was theirs, not an international production. It also meant that our curious priorities and processes were not imposed on Libyan politics. The Islamists and the Gaddafi loyalists couldn't portray the new government as a puppet, or market themselves as fighting for Libya and Islam against a foreign military occupation.

Even the improvisatory, passive nature of the opposition may have been constructive. It included many members of Gaddafi's government who were working from the very beginning to make links with their former colleagues. When the politician Abdul Hafiz Ghoga arrived in Benghazi and criticised the council, they invited him in. They seemed to be able to incorporate Islamists with equal ease. Every time they described their strategy, they talked about compromise and negotiation. Sometimes people spoke like this in Afghanistan and Iraq too – explaining how easy it would be to cut deals with the Taliban or the Sunni insurgency – but the US-led coalition rarely let them try.

And then there was their attitude to the West. I expected the minister of health – a British-Libyan doctor who knew I was an MP – to present a shopping list of demands. But when I asked him about foreign support, he said that Libya had been 'well-supported by Qatar and the UAE, by Turkey and Tunisia'. And there he stopped. When I asked about the UN agencies and NGOs, he said he had seen a bit of them in 'stake-holder meetings' held on Tuesdays in Benghazi, but the meetings had petered out. He implied that the processes for getting support from Western aid agencies were far too bureaucratic, that he would stick with Middle Eastern cash, confident that Libya would get what it needed. The mixture of self-importance and desperation that created the destructive, co-dependent marriage between foreigners and locals in Afghanistan seems to be entirely absent in Libya.

But it would have been easy to take the same factors – a weak Gaddafi state, a light foreign footprint and a weak rebel government – and assume these were ingredients for disaster. This is why the major lesson of the post-1989 interventions should not be a renewed confidence in 'the responsibility to protect', or a belief that we have found a new secret recipe in targeted air-power. We shouldn't think we know how to construct 'a transitional administration'; even to attempt to pin down the common elements in the successful cases – population size, GDP per capita, ethnic composition – would be misguided.

These events are inherently unpredictable. There are no universal traits that condemn a society to anarchy when the leviathan falls. The violence I witnessed in Iraq, and felt was the inevitable result of a revolution, was in fact specific to that moment in that place and in particular to its Shia parties, their fraught and contradictory relationship to their neighbours and to their nation. But even apparently clear differences between countries aren't as helpful as they seem. For example, Libya, unlike Iraq or Afghanistan, has no serious ethnic or sectarian divisions – no Arab-Kurd, no Pashtun-Tajik, no Sunni-Shia divides – but this on its own can't explain the difference: Libya's neighbour Algeria has no Shia population and has nevertheless experienced decades of civil war.

The lesson of all this shouldn't be inaction. Intervention isn't doomed to fail – countries can turn out unpredictably well, as well as unpredictably badly. If we cannot come to any satisfactory conclusions on the London riots – a limited event, exhaustively documented, in our own capital – what sense can we make of why they did not riot in Tripoli?

http://www.lrb.co.uk/v33/n18/rory-stewart/because-we-werent-there

Pigeon 'Milk' Contains Antioxidants and Immune-Enhancing Proteins

Pigeon and chick. (Credit: Dr. Tamsyn Crowley)

ScienceDaily (Sep. 28, 2011) — Production of crop milk, a secretion from the crops of parent birds, is rare among birds and, apart from pigeons, is only found in flamingos and male emperor penguins. Essential for the growth and development of the young pigeon squab, pigeon 'milk' is produced by both parents from fluid-filled cells lining the crop that are rich in fat and protein.

Research published in BioMed Central's open access journal BMC Genomics uses new technology to study the genes and proteins involved in pigeon 'milk' production and shows that pigeon 'milk' contains antioxidants and immune-enhancing proteins.

Researchers from CSIRO Livestock Industries and Deakin University, Australia, compared the global gene expression profiles of the crops of four 'lactating' and four 'non-lactating' female pigeons. As the pigeon genome has not yet been sequenced, they used a chicken microarray to find the genes involved. Genes predominantly over-expressed in 'lactating' birds were those involved in stimulating cell growth, producing antioxidants and in immune response. They also found genes associated with triglyceride fat production, suggesting the fat in the 'milk' is derived from the pigeon's liver.

Lead author, Meagan Gillespie, says, "It is possible that if antioxidant and immune proteins are present in pigeon 'milk', they are directly enhancing the immune system of the developing squab as well as protecting the parental crop tissue." She continues, "This study has provided a snap-shot view of some of the processes occurring when 'lactation' in the pigeon crop is well established. Due to the unusual nature of 'lactation' in the pigeon it would be interesting to investigate the early stages of the differentiation and development of the crop in preparation for 'milk' production to further ascertain gene expression patterns that characterize crop development and 'lactation' in the pigeon."

She concludes, "This mechanism is an interesting example of the evolution of a system with analogies to mammalian lactation, as pigeon 'milk' fulfills a similar function to mammalian milk."

Story Source:

The above story is reprinted (with editorial adaptations by Science*Daily* staff) from materials provided by **BioMed Central**, via EurekAlert!, a service of AAAS.

Journal Reference:

1. Meagan J. Gillespie, Volker R. Haring, Kenneth A. McColl, Paul Monaghan, John A. Donald, Kevin R. Nicholas, Robert J. Moore, Tamsyn M. Crowley. **Histological and global gene expression analysis of the 'lactating' pigeon crop**. *BMC Genomics*, 2011; 12: 452 DOI: 10.1186/1471-2164-12-452

http://www.sciencedaily.com/releases/2011/09/110919074253.htm

Dead Sea Scrolls go online, thanks to Google, Israel Museum

September 26, 2011

The Dead Sea Scrolls are a popular draw whenever fragments of the ancient manuscripts are displayed at museums around the world. Now you can get a close-up glimpse of the scrolls with a few keystrokes on your personal computer.

Google and the Israel Museum in Jerusalem have partnered to launch a new website that allows the public the ability to examine the Dead Sea Scrolls in fine detail. The site provides searchable, high-resolution images of the scrolls, plus explanatory videos and background on the foundational texts.

The initiative is part of the Dead Sea Scrolls Digital Project between the museum and Google. The museum has so far digitized five scrolls in its collection -- the Great Isaiah Scroll, the Community Rule Scroll, the Commentary on Habakkuk Scroll, the Temple Scroll and the War Scroll.

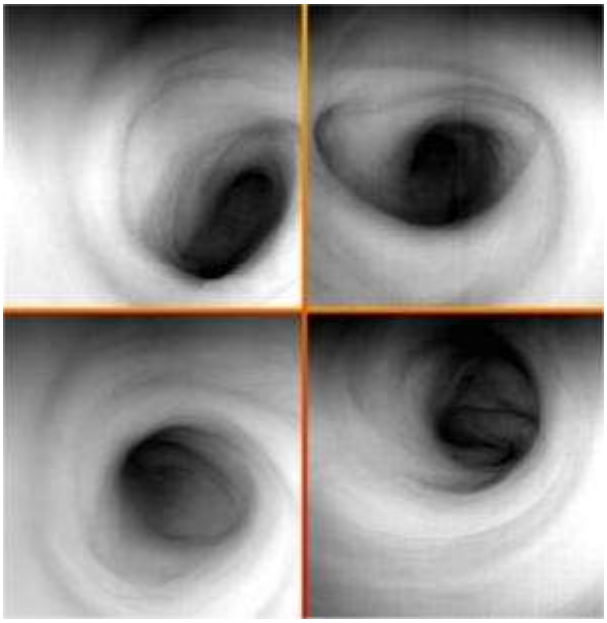
The Dead Sea Scrolls remain a controversial subject. Some Palestinian officials believe that the scrolls were illegally obtained by Israel when it annexed East Jerusalem in 1967. In 2007, the San Diego Natural History Museum hosted a selection of the scrolls in a six-month show that was a popular draw.

Discovered between 1947 and 1956, the scrolls are attributed to an isolated Jewish sect, referred to in the scrolls as "the Community," whose members settled in Qumran in the Judean desert.

In the past, Google has launched similar online initiatives with other museums through the Google Art Project.

http://latimesblogs.latimes.com/culturemonster/2011/09/dead-sea-scrolls-online-israel-museum-google-.html

Venus Weather Not Boring After All, Scientists Discover



A set of images of the Venus south polar vortex in infrared light (at 3.8 microns) acquired by the Visible and Infrared Thermal Imaging Spectrometer instrument on ESA's Venus Express spacecraft. The images show the temperature of the cloud tops at about 65 km (40.4 miles) altitude. A darker region corresponds to higher temperature and thus lower altitude. The center of the vortex, at a temperature of about 250K (around minus 9.7 degrees Fahrenheit), is the deepest zone, exhibiting the highest temperature. (Credit: ESA/VIRTIS/INAF-IASF/Obs. de Paris-LESIA)

ScienceDaily (Sep. 27, 2011) — At first glance, a weather forecaster for Venus would have either a really easy or a really boring job, depending on your point of view. The climate on Venus is widely known to be unpleasant -- at the surface, the planet roasts at more than 800 degrees Fahrenheit under a suffocating blanket of sulfuric acid clouds and a crushing atmosphere more than 90 times the pressure of Earth's. Intrepid future explorers should abandon any hope for better days, however, because it won't change much.

"Any variability in the weather on Venus is noteworthy, because the planet has so many features to keep atmospheric conditions the same," says Dr. Tim Livengood, a researcher with the National Center for Earth and Space Science Education, Capitol Heights, Md., and now with the University of Maryland, College Park, Md.

"Earth has seasons because its rotation axis is tilted by about 23 degrees, which changes the intensity of sunlight and the length of the day in each hemisphere throughout the year. However, Venus has been tilted so much, it's almost completely upside down, leaving it with a net tilt of less than three degrees from the sun, so the seasonal effect is negligible," explains Livengood, who is stationed at NASA's Goddard Space Flight Center in Greenbelt, Md. "Also, its orbit is even more circular than Earth's, which prevents it from getting significantly hotter or cooler by moving closer to or further away from the sun. And while you might expect things to cool down at night -- especially since Venus rotates so slowly that its night lasts almost two Earth months -- the thick atmosphere and sulfuric acid clouds act like a blanket while winds move heat around, keeping temperatures pretty even. Finally, almost all the planet's water has escaped to space, so you don't get any storms or precipitation like on Earth where water evaporates and condenses as clouds."

However, higher up, the weather gets more interesting, according to a new study of old data by NASA and international scientists. The team detected strange things going on in data from telescopic observations of Venus in infrared light at about 68 miles (110 kilometers) above the planet's surface, in cold, clear air above the acid clouds, in two layers called the mesosphere and the thermosphere.

"Although the air over the polar regions in these upper atmospheric layers on Venus was colder than the air over the equator in most measurements, occasionally it appeared to be warmer," said Dr. Theodor Kostiuk of NASA Goddard. "In Earth's atmosphere, a circulation pattern called a 'Hadley cell' occurs when warm air rises over the equator and flows toward the poles, where it cools and sinks. Since the atmosphere is denser closer to the surface, the descending air gets compressed and warms the upper atmosphere over Earth's poles. We saw the opposite on Venus. In addition, although the surface temperature is fairly even, we've seen substantial changes -- up to 54 degrees Fahrenheit (about 30 K change) -- within a few Earth days in the mesosphere -- thermosphere layers over low latitudes on Venus. The poles appeared to be more stable, but we still saw changes up to 27 degrees Fahrenheit (about 15 K change)."

Kostiuk and Livengood are co-authors of a paper about these observations that appeared July 23 in the online edition of the journal *Icarus*.

"The mesosphere and thermosphere of Venus are dynamically active," said lead author Dr. Guido Sonnabend of the University of Cologne, Germany. "Wind patterns resulting from solar heating and east to west zonal winds compete, possibly resulting in altered local temperatures and their variability over time."

This upper atmospheric variability could have many possible causes, according to the team. Turbulence from global air currents at different altitudes flowing at more than 200 miles per hour in opposite directions could exchange hot air from below with cold air from above to force changes in the upper atmosphere. Also, giant vortexes swirl around each pole. They, too, could generate turbulence and change the pressure, causing the temperature to vary.

Since the atmospheric layers the team observed are above the cloud blanket, they may be affected by changes in sunlight intensity as day transitions to night, or as latitude increases toward the poles. These layers are high enough that they could even be affected by solar activity (the solar cycle), such as solar explosions called flares and eruptions of solar material called coronal mass ejections.

Changes were seen over periods spanning days, to weeks, to a decade. Temperatures measured in 1990-91 are warmer than in 2009. Measurements obtained in 2007 using Goddard's Heterodyne Instrument for Planetary Wind and Composition (HIPWAC) observed warmer temperature in the equatorial region than in 2009. Having seen that the atmosphere can change, a lot more observations are needed to determine how so many phenomena can affect Venus' upper atmosphere over different intervals, according to the team.

"In addition to all these changes, we saw warmer temperatures than those predicted for this altitude by the leading accepted model, the Venus International Reference Atmosphere model," said Kostiuk. "This tells us that we have lots of work to do updating our upper atmospheric circulation model for Venus."

Although Venus is often referred to as Earth's twin, since they are almost the same size, it ended up with a climate very different from Earth. A deeper understanding of Venus' atmosphere will let researchers compare it to the evolution of Earth's atmosphere, giving insight as to why Earth now teems with life while Venus suffered a hellish fate.

The team measured temperature and wind speeds in Venus' upper atmosphere by observing an infrared glow emitted by carbon dioxide (CO_2) molecules when they were energized by light from the sun. Infrared light is invisible to the human eye and is perceived by us as heat, but it can be detected by special instruments. In the

research, it appeared as a line on a graph from a spectrometer, an instrument that separates light into its component colors, each of which corresponds to a specific frequency. The width of the line revealed the temperature, while shifts in its frequency gave the wind speed.

The researchers compared observations from 1990 and 1991 using Goddard's Infrared Heterodyne Spectrometer instrument at NASA's Infrared Telescope Facility on Mauna Kea, Hawaii, to observations from 2009 using the Cologne Tunable Heterodyne Infrared Spectrometer instrument at the National Optical Astronomy Observatory's McMath Telescope at Kitt Peak, Ariz.

Story Source:

The above story is reprinted (with editorial adaptations by Science*Daily* staff) from materials provided by **NASA/Goddard Space Flight Center**.

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Is our culture too much in thrall to the glories of the past?

Are our most popular films, books and TV shows too entrenched in nostalgia? Robert McCrum and Boyd Hilton debate the state of British culture

- Robert McCrum and Boyd Hilton
- The Observer, Sunday 25 September 2011

Gary Oldman in Tinker Tailor Soldier Spy: 'the opposite of nostalgia'.

Robert McCrum,* Observer *assistant editor

A Martian, scanning any current listings magazine, might be forgiven for thinking that we Brits really haven't shaken off the post-imperial nostalgia that's been such a feature of postwar culture. *Tinker Tailor…* (cold war nostalgia); the latest episodes of *Downton Abbey* (Great War nostalgia); the BBC's forthcoming adaptation of Ford Madox Ford's masterpiece, *Parade's End* (ditto); and the "Great" (Britain) campaign just launched by the prime minister in New York suggest a society apparently fixated on the stories and images of past glory.

And if you go just below the cultural waterline it's not hard to bump into the outline of a trend: pop "eating itself" in the endless recycling of its material. I do think we are in thrall to the past, and, yes, it does matter. Healthy cultures shouldn't feed on nostalgia, any more than they should express themselves through propaganda, the debased lingo of dictatorships. I note that, as an example of a vibrant, contemporary cultural patron, the Tricycle theatre is about to commission a drama inspired

by last month's riots. That, to me, is what an original culture should be about: innovation, social realism, and a dynamic relationship with the present.

So my slogan, in the arena of this debate, is Ezra Pound's: make it new.

Boyd Hilton, TV and reviews editor of* Heat *magazine

I like the idea of your Martian scanning the listings magazines. In fact, said alien would find the vast majority of entries are firmly set in the present. Eight out of the current top 10 films in the UK are contemporary. Even if we confine the listings to current drama output, the likes of *Spooks*, the fine new student comedy-drama *Fresh Meat*, *Shameless*, *The Fades*, *Waterloo Road*, *The Body Farm* and so on and so forth could not be more current. I could go on. But that would be boring. Suffice to say the overwhelming mass of today's popular culture is very much about what's going on in the world right now. So factually, we're not in thrall to the past at all. Quite the opposite.

Further than that, I also think it's a mistake to assume that stories set in the past are by definition works of nostalgia. *Tinker Tailor…*, apart from being the best film of the year, is also a tough, brilliantly uncompromising look at a world of sad, lonely men playing pointless and dangerous games with one another. It's the opposite of nostalgia. Even the lush, beautifully produced *Downton…* has boldly taken on the first world war this series, and contrasts the hell of the trenches with the pretty lives of those still arranging flowers at the abbey. As well as having huge soapy fun, I also think Julian Fellowes is educating millions of viewers in the grim realities of 1916.

I'm delighted the Tricycle has commissioned a piece about the riots. Quite right. Of course it might turn out to be awful. Who knows? Fortunately for my side of this debate, the most prominent examples of our cultural agenda that *are* set in the past happen to be absolutely wonderful. And not particularly nostalgic.

I say to you and dear old Ezra Pound: make it good.

RM: With a handful of honourable exceptions, writers and artists today seem to lack the radical, energetic and passionate engagement with contemporary society and its discontents I recall from the 1970s and 80s. Today, the novelist is as likely to stick his or her head into a history book, as go out and get his or her shoes dirty by becoming dangerously mixed up in everyday life. Consider the current Booker shortlist. It's been widely dissed by the literary commentariat for its "readability". What few have noticed is how many titles take inspiration from a specific historical moment. There is, no doubt, a popular appetite for the re-cooked cultural snack. But what this debate invites us to contemplate is a culture in which poets are avant-garde, novelists take shocking risks and playwrights relish sending a frisson of excitement through their audiences. This is a manifesto for "make it new". If you are seriously offering *Downton Abbey* as a dramatic commentary on the contrasting horrors of the Great War, then I think the moment for a new generation of enfants terribles (à la Eliot, Pound, Graves and Joyce) is long overdue.

BH: Well, if we're talking literary novels, poems and plays, then you may have a point. Of course self-consciously high-brow types are forever looking to the past, although let's celebrate Stephen Kelman's Booker-nominated *Pigeon English*, a book that's surely as "dangerously mixed up in everyday life" as you could possibly want. I'd also urge you to look outside the Booker-ish bubble to the world of genre fiction, where Sophie Hannah, for example, is grappling with the nastiness of modern Britain in her stunning psychological thrillers. There's a whole load of relevant, vital and rather well-written commercial fiction that's a world away from the remoteness of the stuff reviewed reverentially in the broadsheet book pages.

Perhaps, too, the young playwrights you're wanting to engage with the current world are actually working in popular TV and film. Stefan Golaszewski (*Him & Her*) and Jack Thorne (*The Scouting Book for Boys*) are just two excellent examples.

As far as I can tell, genuinely popular culture is as engaged with the here and the now as much as, if not more than, ever. But that doesn't mean we can't have excellent depictions of the past. And, yes, I seriously believe *Downton…* is doing something pretty impressive with its scenes set in the trenches. Fellowes could have just glossed over the whole thing. But he didn't.

RM: I think I'm talking about the literary (and possibly musical and artistic) culture as a whole. I'm certainly not – heaven forbid – in a "Bookerish bubble", and share your enthusiasm for Sophie Hannah. Where I take issue is with your rather touching optimism in the engagement of the artistic scene with contemporary society. Yes, I share your disdain for the reverence among the cultural commentariat (including books pages) for stuff that is, frankly, pretentious, remote and irrelevant to the hearts and minds of almost everyone. One caveat: if writers *are* looking backwards it's because we all are, for a whole range of complicated reasons: anxiety, doubt and confusion. And one thing is for sure: the future is no longer a place anyone wants to contemplate, except possibly as the mise-en-scène for a modern dystopia. We haven't discussed the recent appetite for apocalyptic stories, of all sorts.

The hardest part of siting your cultural sextant in the middle of a perfect storm of change is getting a clear reading. Probably what this exchange illustrates is two drowning men thrashing about in search of a life-jacket. Here's hoping we make it to dry land!

BH: I'm glad we're agreed on Sophie Hannah! Yes, I admit it, I am optimistic that the creative communities will continue to engage with contemporary society.

Quite simply, I just don't see the problem. Right now the media is focused on *Tinker Tailor…* and *Downton Abbey…*. If the BBC hadn't stupidly put *Spooks* up against *Downton…*, we might all be talking about how ingeniously that show reflects the current geopolitical climate. As for *Tinker Tailor…*, I'm thrilled that it's number one this week, but in the end it won't earn anything like the box office of, say, *The Inbetweeners Movie – the* UK film hit of the year. The fact is, week in, week out I review films, TV shows, books and music that deal with life as we're living it right now. You say we're thrashing about in a perfect storm, but I can only see a rich, vivid cultural landscape all around me. Sometimes there are pleasurable, meaningful detours into the past, sometimes into the future, or often into alternate fantasy worlds, but by and large the focus is firmly on the present.

Meantime, I'm off to see *Tinker Tailor…* again. It's bloody awesome.

http://www.guardian.co.uk/commentisfree/2011/sep/25/debate-popular-culture-thrall-nostalgia

People Learn While They Sleep, Study Suggests

People may be learning while they're sleeping -- an unconscious form of memory that is still not well understood. (Credit: © Valua Vitaly / Fotolia)

ScienceDaily (Sep. 27, 2011) — People may be learning while they're sleeping -- an unconscious form of memory that is still not well understood, according to a study by Michigan State University researchers.

The findings are highlighted in the *Journal of Experimental Psychology: General.*

"We speculate that we may be investigating a separate form of memory, distinct from traditional memory systems," said Kimberly Fenn, assistant professor of psychology and lead researcher on the project. "There is substantial evidence that during sleep, your brain is processing information without your awareness and this ability may contribute to memory in a waking state."

In the study of more than 250 people, Fenn and Zach Hambrick, associate professor of psychology, suggest people derive vastly different effects from this "sleep memory" ability, with some memories improving dramatically and others not at all. This ability is a new, previously undefined form of memory.

"You and I could go to bed at the same time and get the same amount of sleep," Fenn said, "but while your memory may increase substantially, there may be no change in mine." She added that most people showed improvement.

Fenn said she believes this potential separate memory ability is not being captured by traditional intelligence tests and aptitude tests such as the SAT and ACT.

"This is the first step to investigate whether or not this potential new memory construct is related to outcomes such as classroom learning," she said.

It also reinforces the need for a good night's sleep. According to the National Sleep Foundation, people are sleeping less every year, with 63 percent of Americans saying their sleep needs are not being met during the week.

"Simply improving your sleep could potentially improve your performance in the classroom," Fenn said.

Story Source:

The above story is reprinted (with editorial adaptations by Science*Daily* staff) from materials provided by **Michigan State University**.

Journal Reference:

1. Kimberly M. Fenn, David Z. Hambrick. **Individual differences in working memory capacity predict sleep-dependent memory consolidation.**. *Journal of Experimental Psychology: General*, 2011; DOI: 10.1037/a0025268

http://www.sciencedaily.com/releases/2011/09/110927124653.htm

Violence Vanquished

We believe our world is riddled with terror and war, but we may be living in the most peaceable era in human existence. Why brutality is declining and empathy is on the rise.

By STEVEN PINKER

On the day this article appears, you will read about a shocking act of violence. Somewhere in the world there will be a terrorist bombing, a senseless murder, a bloody insurrection. It's impossible to learn about these catastrophes without thinking, "What is the world coming to?"

With all its wars, murder and genocide, history might suggest that the taste for blood is human nature. Not so, argues Harvard Prof. Steven Pinker. He talks to WSJ's Gary Rosen about the decline in violence in recent decades and his new book, "The Better Angels of Our Nature."

But a better question may be, "How bad was the world in the past?"

Believe it or not, the world of the past was *much* worse. Violence has been in decline for thousands of years, and today we may be living in the most peaceable era in the existence of our species.

The decline, to be sure, has not been smooth. It has not brought violence down to zero, and it is not guaranteed to continue. But it is a persistent historical development, visible on scales from millennia to years, from the waging of wars to the spanking of children.

This claim, I know, invites skepticism, incredulity, and sometimes anger. We tend to estimate the probability of an event from the ease with which we can recall examples, and scenes of carnage are more likely to be beamed into our homes and burned into our memories than footage of people dying of old age. There will always be enough violent deaths to fill the evening news, so people's impressions of violence will be disconnected from its actual likelihood.

Bartolomeo Manfredi/Getty Images

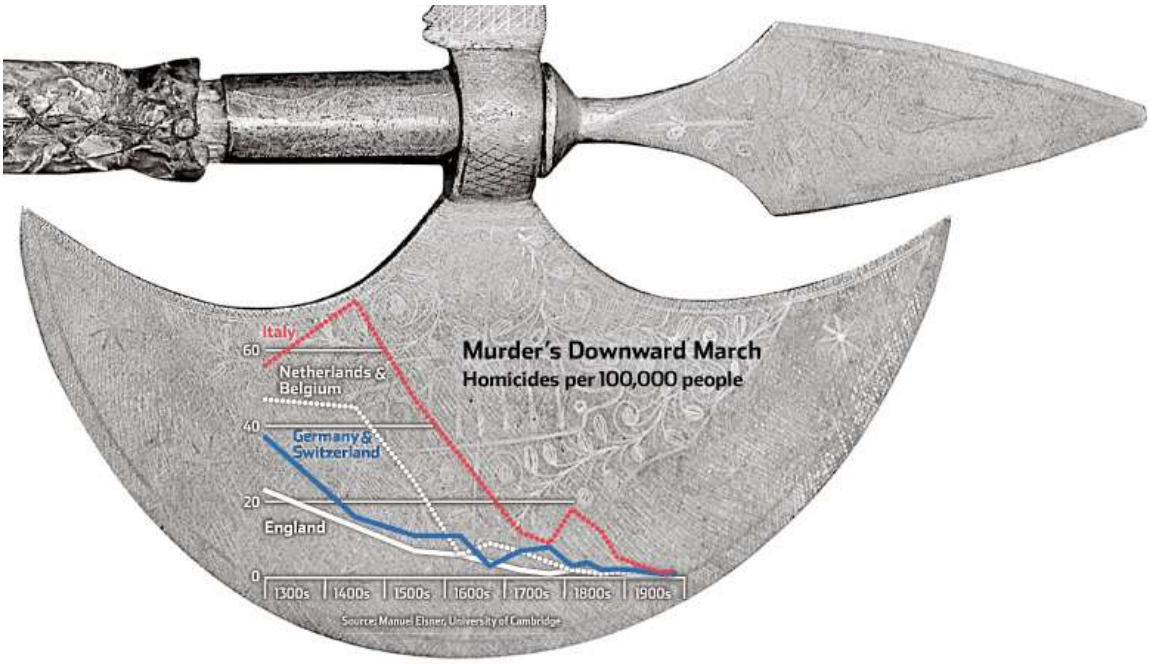
'Cain Murdering Abel,' Bartolomeo Manfredi, c. 1610

Evidence of our bloody history is not hard to find. Consider the genocides in the Old Testament and the crucifixions in the New, the gory mutilations in Shakespeare's tragedies and Grimm's fairy tales, the British monarchs who beheaded their relatives and the American founders who dueled with their rivals.

Today the decline in these brutal practices can be quantified. A look at the numbers shows that over the course of our history, humankind has been blessed with six major declines of violence.

The first was a process of pacification: the transition from the anarchy of the hunting, gathering and horticultural societies in which our species spent most of its evolutionary history to the first agricultural civilizations, with cities and governments, starting about 5,000 years ago.

For centuries, social theorists like Hobbes and Rousseau speculated from their armchairs about what life was like in a "state of nature." Nowadays we can do better. Forensic archeology—a kind of "CSI: Paleolithic"—can estimate rates of violence from the proportion of skeletons in ancient sites with bashed-in skulls, decapitations or arrowheads embedded in bones. And ethnographers can tally the causes of death in tribal peoples that have recently lived outside of state control.



These investigations show that, on average, about 15% of people in prestate eras died violently, compared to about 3% of the citizens of the earliest states. Tribal violence commonly subsides when a state or empire imposes control over a territory, leading to the various "paxes" (Romana, Islamica, Brittanica and so on) that are familiar to readers of history.

It's not that the first kings had a benevolent interest in the welfare of their citizens. Just as a farmer tries to prevent his livestock from killing one another, so a ruler will try to keep his subjects from cycles of raiding and feuding. From his point of view, such squabbling is a dead loss—forgone opportunities to extract taxes, tributes, soldiers and slaves.

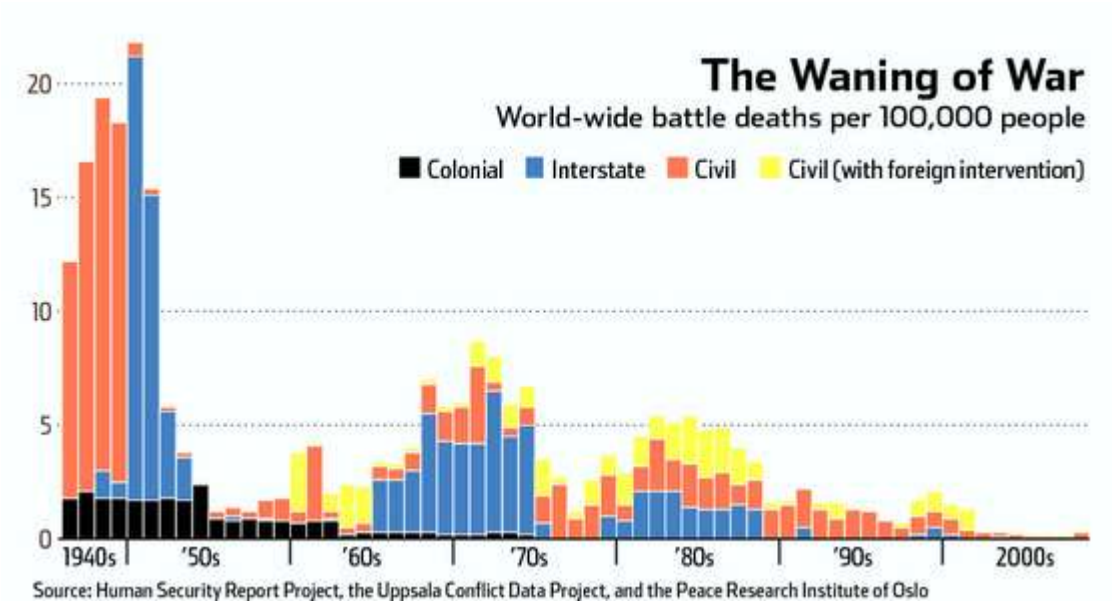
The second decline of violence was a civilizing process that is best documented in Europe. Historical records show that between the late Middle Ages and the 20th century, European countries saw a 10- to 50-fold decline in their rates of homicide.

The numbers are consistent with narrative histories of the brutality of life in the Middle Ages, when highwaymen made travel a risk to life and limb and dinners were commonly enlivened by dagger attacks. So many people had their noses cut off that medieval medical textbooks speculated about techniques for growing them back.

Historians attribute this decline to the consolidation of a patchwork of feudal territories into large kingdoms with centralized authority and an infrastructure of commerce. Criminal justice was nationalized, and zero-sum plunder gave way to positive-sum trade. People increasingly controlled their impulses and sought to cooperate with their neighbors.

The third transition, sometimes called the Humanitarian Revolution, took off with the Enlightenment. Governments and churches had long maintained order by punishing nonconformists with mutilation, torture and gruesome forms of execution, such as burning, breaking, disembowelment, impalement and sawing in half. The 18th century saw the widespread abolition of judicial torture, including the famous prohibition of "cruel and unusual punishment" in the eighth amendment of the U.S. Constitution.

At the same time, many nations began to whittle down their list of capital crimes from the hundreds (including poaching, sodomy, witchcraft and counterfeiting) to just murder and treason. And a growing wave of countries abolished blood sports, dueling, witchhunts, religious persecution, absolute despotism and slavery.



The fourth major transition is the respite from major interstate war that we have seen since the end of World War II. Historians sometimes refer to it as the Long Peace.

Today we take it for granted that Italy and Austria will not come to blows, nor will Britain and Russia. But centuries ago, the great powers were almost always at war, and until quite recently, Western European countries tended to initiate two or three new wars every year. The cliché that the 20th century was "the most violent in history" ignores the second half of the century (and may not even be true of the first half, if one calculates violent deaths as a proportion of the world's population).

Though it's tempting to attribute the Long Peace to nuclear deterrence, non-nuclear developed states have stopped fighting each other as well. Political scientists point instead to the growth of democracy, trade and international organizations—all of which, the statistical evidence shows, reduce the likelihood of conflict. They also credit the rising valuation of human life over national grandeur—a hard-won lesson of two world wars.

The fifth trend, which I call the New Peace, involves war in the world as a whole, including developing nations. Since 1946, several organizations have tracked the number of armed conflicts and their human toll world-wide. The bad news is that for several decades, the decline of interstate wars was accompanied by a bulge of civil wars, as newly independent countries were led by inept governments, challenged by insurgencies and armed by the cold war superpowers.

The less bad news is that civil wars tend to kill far fewer people than wars between states. And the best news is that, since the peak of the cold war in the 1970s and '80s, organized conflicts of all kinds—civil wars, genocides, repression by autocratic governments, terrorist attacks—have declined throughout the world, and their death tolls have declined even more precipitously.

The rate of documented direct deaths from political violence (war, terrorism, genocide and warlord militias) in the past decade is an unprecedented few hundredths of a percentage point. Even if we multiplied that rate to account for unrecorded deaths and the victims of war-caused disease and famine, it would not exceed 1%.

The most immediate cause of this New Peace was the demise of communism, which ended the proxy wars in the developing world stoked by the superpowers and also discredited genocidal ideologies that had justified the sacrifice of vast numbers of eggs to make a utopian omelet. Another contributor was the expansion of international peacekeeping forces, which really do keep the peace—not always, but far more often than when adversaries are left to fight to the bitter end.

Finally, the postwar era has seen a cascade of "rights revolutions"—a growing revulsion against aggression on smaller scales. In the developed world, the civil rights movement obliterated lynchings and lethal pogroms, and the women's-rights movement has helped to shrink the incidence of rape and the beating and killing of wives and girlfriends.

In recent decades, the movement for children's rights has significantly reduced rates of spanking, bullying, paddling in schools, and physical and sexual abuse. And the campaign for gay rights has forced governments in the developed world to repeal laws criminalizing homosexuality and has had some success in reducing hate crimes against gay people.

* * * *

Why has violence declined so dramatically for so long? Is it because violence has literally been bred out of us, leaving us more peaceful by nature?

This seems unlikely. Evolution has a speed limit measured in generations, and many of these declines have unfolded over decades or even years. Toddlers continue to kick, bite and hit; little boys continue to play-fight; people of all ages continue to snipe and bicker, and most of them continue to harbor violent fantasies and to enjoy violent entertainment.

It's more likely that human nature has always comprised inclinations toward violence and inclinations that counteract them—such as self-control, empathy, fairness and reason—what Abraham Lincoln called "the better angels of our nature." Violence has declined because historical circumstances have increasingly favored our better angels.

The most obvious of these pacifying forces has been the state, with its monopoly on the legitimate use of force. A disinterested judiciary and police can defuse the temptation of exploitative attack, inhibit the impulse for revenge and circumvent the self-serving biases that make all parties to a dispute believe that they are on the side of the angels.

We see evidence of the pacifying effects of government in the way that rates of killing declined following the expansion and consolidation of states in tribal societies and in medieval Europe. And we can watch the movie in reverse when violence erupts in zones of anarchy, such as the Wild West, failed states and neighborhoods controlled by mafias and street gangs, who can't call 911 or file a lawsuit to resolve their disputes but have to administer their own rough justice.

Another pacifying force has been commerce, a game in which everybody can win. As technological progress allows the exchange of goods and ideas over longer distances and among larger groups of trading partners, other people become more valuable alive than dead. They switch from being targets of demonization and dehumanization to potential partners in reciprocal altruism.

For example, though the relationship today between America and China is far from warm, we are unlikely to declare war on them or vice versa. Morality aside, they make too much of our stuff, and we owe them too much money.

A third peacemaker has been cosmopolitanism—the expansion of people's parochial little worlds through literacy, mobility, education, science, history, journalism and mass media. These forms of virtual reality can prompt people to take the perspective of people unlike themselves and to expand their circle of sympathy to embrace them.

These technologies have also powered an expansion of rationality and objectivity in human affairs. People are now less likely to privilege their own interests over those of others. They reflect more on the way they live and consider how they could be better off. Violence is often reframed as a problem to be solved rather than as a contest to be won. We devote ever more of our brainpower to guiding our better angels. It is probably no coincidence that the Humanitarian Revolution came on the heels of the Age of Reason and the Enlightenment, that the Long Peace and rights revolutions coincided with the electronic global village.

Whatever its causes, the implications of the historical decline of violence are profound. So much depends on whether we see our era as a nightmare of crime, terrorism, genocide and war or as a period that, in the light of the historical and statistical facts, is blessed by unprecedented levels of peaceful coexistence.

Bearers of good news are often advised to keep their mouths shut, lest they lull people into complacency. But this prescription may be backward. The discovery that fewer people are victims of violence can thwart cynicism among compassion-fatigued news readers who might otherwise think that the dangerous parts of the world are irredeemable hell holes. And a better understanding of what drove the numbers down can steer us toward doing things that make people better off rather than congratulating ourselves on how moral we are.

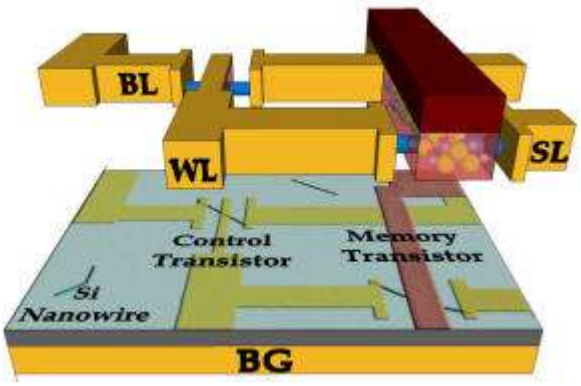
As one becomes aware of the historical decline of violence, the world begins to look different. The past seems less innocent, the present less sinister. One starts to appreciate the small gifts of coexistence that would have seemed utopian to our ancestors: the interracial family playing in the park, the comedian who lands a zinger on the commander in chief, the countries that quietly back away from a crisis instead of escalating to war.

For all the tribulations in our lives, for all the troubles that remain in the world, the decline of violence is an accomplishment that we can savor—and an impetus to cherish the forces of civilization and enlightenment that made it possible.

—Mr. Pinker is the Harvard College Professor of Psychology at Harvard University. This essay is adapted from his new book, "The Better Angels of Our Nature: Why Violence Has Declined," published by Viking.

http://online.wsj.com/article/SB10001424053111904106704576583203589408180.html

New 'FeTRAM' Is Promising Computer Memory Technology



This diagram shows the layout for a new type of computer memory that could be faster than the existing commercial memory and use far less power than flash memory devices. (Credit: Image courtesy of Birck Nanotechnology Center, Purdue University)

ScienceDaily (Sep. 27, 2011) — Researchers are developing a new type of computer memory that could be faster than the existing commercial memory and use far less power than flash memory devices.

The technology combines silicon nanowires with a "ferroelectric" polymer, a material that switches polarity when electric fields are applied, making possible a new type of ferroelectric transistor.

"It's in a very nascent stage," said doctoral student Saptarshi Das, who is working with Joerg Appenzeller, a professor of electrical and computer engineering and scientific director of nanoelectronics at Purdue's Birck Nanotechnology Center.

The ferroelectric transistor's changing polarity is read as 0 or 1, an operation needed for digital circuits to store information in binary code consisting of sequences of ones and zeroes. The new technology is called FeTRAM, for ferroelectric transistor random access memory.

"We've developed the theory and done the experiment and also showed how it works in a circuit," he said. Findings are detailed in a research paper that appeared this month in *Nano Letters*, published by the American Chemical Society.

The FeTRAM technology has nonvolatile storage, meaning it stays in memory after the computer is turned off. The devices have the potential to use 99 percent less energy than flash memory, a non-volatile computer storage chip and the predominant form of memory in the commercial market.

"However, our present device consumes more power because it is still not properly scaled," Das said. "For future generations of FeTRAM technologies one of the main objectives will be to reduce the power dissipation. They might also be much faster than another form of computer memory called SRAM."

The FeTRAM technology fulfills the three basic functions of computer memory: to write information, read the information and hold it for a long period of time.

"You want to hold memory as long as possible, 10 to 20 years, and you should be able to read and write as many times as possible," Das said. "It should also be low power to keep your laptop from getting too hot. And it needs to scale, meaning you can pack many devices into a very small area. The use of silicon nanowires along with this ferroelectric polymer has been motivated by these requirements."

The new technology also is compatible with industry manufacturing processes for complementary metal oxide semiconductors, or CMOS, used to produce computer chips. It has the potential to replace conventional memory systems.

A patent application has been filed for the concept.

The FeTRAMs are similar to state-of-the-art ferroelectric random access memories, FeRAMs, which are in commercial use but represent a relatively small part of the overall semiconductor market. Both use ferroelectric material to store information in a nonvolatile fashion, but unlike FeRAMS, the new technology allows for nondestructive readout, meaning information can be read without losing it.

This nondestructive readout is possible by storing information using a ferroelectric transistor instead of a capacitor, which is used in conventional FeRAMs.

This work was supported by the Nanotechnology Research Initiative (NRI) through Purdue's Network for Computational Nanotechnology (NCN), which is supported by National Science Foundation.

Story Source:

The above story is reprinted (with editorial adaptations by Science*Daily* staff) from materials provided by **Purdue University**. The original article was written by Emil Venere.

Journal Reference:

1. Saptarshi Das, Joerg Appenzeller. **FETRAM. An Organic Ferroelectric Material Based Novel Random Access Memory Cell**. *Nano Letters*, 2011; 11 (9): 4003 DOI: 10.1021/nl2023993

http://www.sciencedaily.com/releases/2011/09/110927155228.htm

'Quixote,' Colbert and the Reality of Fiction

By WILLIAM EGGINTON

Leif Parsons

In his contribution to The Stone last week, Alex Rosenberg posed a defense of naturalism — "the philosophical theory that treats science as our most reliable source of knowledge and scientific method as the most effective route to knowledge" — at the expense of other theoretical endeavors such as, notably, literary theory. To the question of "whether disciplines like literary theory provide real understanding," Professor Rosenberg's answer is as unequivocal as it is withering: just like fiction, literary theory can be "fun," but neither one qualifies as "knowledge."

Literature has played a profound role in creating the very idea of reality that naturalism seeks to describe.

Though the works of authors like Sophocles, Dante or Shakespeare certainly provide us with enjoyment, can we really classify what they have produced as "fun"? Are we not giving the Bard and others short shrift when we treat their work merely as entertainment? Does their fictional art not offer insights into human nature as illuminating as many of those the physical sciences have produced?

As a literary theorist, I suppose I could take umbrage at the claim that my own discipline, while fun, doesn't rise to the level of knowledge. But what I'd actually like to argue goes a little further. Not only can literary theory (along with art criticism, sociology, and yes, non-naturalistic philosophy) produce knowledge of an important and even fundamental nature, but fiction itself, so breezily dismissed in Professor Rosenberg's assertions, has played a profound role in creating the very idea of reality that naturalism seeks to describe.

We especially revere the genius of Shakespeare in the English-speaking world, but I'd like to focus on the genius of another writer, a Spanish one, Miguel de Cervantes, who shaped our world as well, and did so in ways that may not be apparent even to those aware of his enormous literary influence. With the two parts of "Don Quixote," published in 1605 and 1615 respectively, Cervantes created the world's first bestseller, a novel that, in the words of the great critic Harold Bloom, "contains within itself all the novels that have followed in its sublime wake."

As if that were not enough, in writing those volumes Cervantes did something even more profound: he crystallized in prose a confluence of changes in how people in early modern Europe understood themselves

and the world around them. What he passed down to those who would write in his wake, then, was not merely a new genre but an implicit worldview that would infiltrate every aspect of social life: fiction.

What is fiction? And how does reading fiction affect how we experience the world?

The literary historian Luiz Costa Lima has argued that prior to the invention of fiction, narratives were largely measured against one overriding standard: the perceived truthfulness of their relation to the world. That truth was often a moral or theological one, and to the extent that narratives related the deeds of men, proximity to an image of virtue or holiness would be considered worthy of imitation, and distance from it worthy of opprobrium.

Fiction is different.

For a prose narrative to be fictional it must be written for a reader who knows it is untrue and yet treats it for a time as if it were true. The reader knows, in other words, not to apply the traditional measure of truthfulness for judging a narrative; he or she suspends that judgment for a time, in a move that Samuel Taylor Coleridge popularized as "the willing suspension of disbelief," or "poetic faith." Another way of putting this is to say that a reader must be able to occupy two opposed identities simultaneously: a naïve reader who believes what he is being told, and a savvy one who knows it is untrue.

In order to achieve this effect the author needs to pull off a complex trick. At every step of the way, a fictional narrative both knows more and less than it is telling us. It speaks always with at least two voices, at times representing the limited perspective of its characters, at times revealing to the reader elements of the story unknown to some or all of those characters.

While writers prior to Cervantes deployed elements of this fictional template, he was the first to use the technique as a basis of a full-blown, extended narrative. In order to do this, Cervantes imported into the art of prose narration a ploy he learned from his favorite art form, the one he most desperately wished to excel at — the theater. Like a playwright including a play within a play, with characters dividing into actors and audience members on the stage, Cervantes made his book be about books, and turned his characters into readers of and characters in those books.

Cervantes is parodying our inability to suspend the judgment of truth and falsity that reduces all narrative to one standard.

In one of the many debates about literature that take place in "Don Quixote," the canon, a staunch critic of the kind of reading that occupies his good friend, says, "For my part I can say that when I read the tales of chivalry, as long as I avoid thinking about the fact that they are all lies and frivolity, they give me some enjoyment. But when I realize what they are, I throw the best of them against the wall, and would even throw them into the fire if I had one close by, which they richly deserve, as false and deceiving and outside of the treatment required by common nature, and as inventors of new sects and new lifestyles, and as giving the common people reason to believe and accept as true all the stupidities they contain."

One of the standard scholarly interpretations of "Don Quixote" is that Cervantes wrote it principally as a send-up and criticism of the romances that passed for literature at the time. But this reading fails to see how the book holds all positions, even that one, up to criticism. Cervantes is not parodying the tales of chivalry but rather the inability to suspend the judgment of truth and falsity that reduces all narrative to one standard.

Cervantes multiplies levels of authorship and readership from the first lines of his masterpiece. The front matter of his book is packed with poems of praise ridiculing the practice of packing books with poems of

praise; the author's place of authority is also quickly undermined, as the narrator claims the book to be the work of an Arab historian that he had translated by a market scribe.

In all cases Cervantes is playing with the previously established conventions of storytelling, and then incorporating that play into his work. The result is a world that mirrors our own, because it includes in its purview our representations of the world and how we judge them. His novel becomes a mise en abyme, with representations of representations of representations, creating characters whose blindness as to the perspectives of those around them becomes the central source of drama and laughter.

In one famous episode, Don Quixote and his squire Sancho encounter a barber from whom the Don had previously stolen a basin, convinced that it was the famous magical helmet of the legendary — and fictional — king, Mambrino. Sancho had also taken advantage of the fight to steal the man's packsaddle, and when the barber accuses them of theft before a group of fellow travelers, Quixote responds by declaring him under the sway of an enchantment. When the barber turns to the other travelers to verify his version of the story, they decide to play a trick on him and pretend that they too see a helmet and not a basin. There is no question but that this is a joke, and that in "reality" the packsaddle and the basin have never been anything but what they are. In one of the book's great comic moments, Quixote admits that, if they want his opinion, the packsaddle looks like a packsaddle, but that he is not about to take a position on that matter.

Political leaders have become remarkably adept at manipulating the fictional worldview to their own ends.

The point to stress is that the characters can argue about the nature of their perceptions only insofar as we, the readers, have a concept of reality that is independent of their various reports. In fact, the common notion of objective reality that most of us would recognize today and the one on which Professor Rosenberg's defense of naturalism rests — as that which persists independent of our subjective perspectives — is mutually dependent on the multiple perspectives cultivated by the fictional worldview. It is not a coincidence that the English term "reality" and its cognates in the other European languages only entered into usage between the mid-16th and early-17th century, depending on the language. (In the case of Spain, the first recorded usage was two years after the first book of "Don Quixote" was published.) And it was not until Descartes wrote his "Meditations" at the end of the 1630s that a rigorous distinction between how things appear to me and how they are independent of my perspective entered the philosophical lexicon.

As readers of the novel, in which we must relate conflicting reports about reality to the independent reality required by the story, we divide ourselves into two, and momentarily forget to ask the question of how the fictional interior reality relates to our own. This division of the self was the active ingredient in the German Romantics' reinterpretation of irony, which they often based on readings of Cervantes, and which they identified as the key trope of aesthetic modernity.

The fictional worldview, then, is one in which we are able to divide our selves to assume simultaneously opposing consciousnesses, and to enter and leave different realities at will, all the while voluntarily suspending judgments concerning their relation to an ultimate reality. This worldview has had an extraordinarily powerful impact on the modern world; in some interpretations it is the very epistemological signature of modernity, affecting equally our thought and politics as thoroughly as it does our art and literature.

Take the impact on politics. People in the modern, industrialized world tend to ally their identities with large symbolic bodies called nations, and then within those nations with other more intimate groupings — from religious communities to sexual orientations to nuclear family units. Political leaders have become remarkably adept at manipulating the fictional worldview to rally these various levels of identification to their own ends. But if the fictional worldview allows for such manipulation, it also gives us the tools to fight back — tools Cervantes already developed at the dawn of the modern age.

In an interview published in The New York Times Magazine in 2004, Ron Suskind quoted an aide to then-president George W. Bush who mocked him and other journalists for their allegiance to "the reality-based community." The administration's apparent nonchalance about truth, along with its skill at using the media to influence the public's perception of world events, inspired the comedian Stephen Colbert to arm his right-wing alter-ego with lexical zingers like "truthiness" ("the quality of preferring concepts or facts one wishes to be true, rather than concepts or facts known to be true") and that non plus ultra for all political debate, "reality has a well-known liberal bias." When Colbert pushed his act to its extreme, roasting Mr. Bush and the Washington press corps in their presence, he was borrowing from Cervantes' repertoire to cross swords on a battlefield at least in part of Cervantes' making. The battle was over reality, and whose version of it would hold sway; the weapon was the irony that only fiction supports.

"The greatest thing about this man is he's steady," Colbert said, standing in front of the president of the United States. "You know where he stands. He believes the same thing Wednesday that he believed on Monday, no matter what happened Tuesday." Colbert's routine mocked the administration's slippery relation to truth (what happened Tuesday), and identified the president's famous "resolution" as the character trait that the administration relied on to sell their version of reality.

The brilliance of Colbert's attack, though, lay in how it was delivered. Colbert's body was inhabited by two conflicting realities, one in which "Colbert" was a right-wing pundit expressing his admiration for the president, and another that undermined the first by reveling in its inanities. Like Cervantes before him, Colbert used irony to sever his audiences' conflated identities; the discomfort and hilarity of his act stemmed from our watching as fictions that had blurred into truths were expertly extracted and revealed for what they were.

As Cervantes realized in the context of the newly born mass culture of the Catholic, imperial, Spanish state, irony expertly wielded is the best defense against the manipulation of truth by the media. Its effect was and still is to remind its audience that we are all active participants in the creation and support of a fictional world that is always in danger of being sold to us as reality.

William Egginton is Andrew. W. Mellon Professor in the Humanities and Chair of the Department of German and Romance Languages and Literatures at the Johns Hopkins University. His most recent book is "In Defense of Religious Moderation."

http://opinionator.blogs.nytimes.com/2011/09/25/quixote-colbert-and-the-reality-of-fiction/

Feathered Friends Help Wild Birds Innovate

The birds had to operate a lever-pulling device to get a food reward. In the experiments the researchers found that as the size of the groups increased individual birds got more food in return for the time they spent puzzling how to work food-dispensing devices: showing that larger groups were able to solve a puzzle more efficiently. (Credit: Image courtesy of University of Oxford)

ScienceDaily (Sep. 27, 2011) — Larger groups of great and blue tits are better at solving problems than smaller ones, Oxford University scientists have found. The researchers believe that this is probably because the larger the group, the more chance there is of it including a 'bright' or 'experienced' bird that can solve a particular new problem: in this case operating lever-pulling devices to receive a food reward.

The study took place on wild populations of great tits (*Parus major*) and blue tits (*Cyanistes caeruleus*), which naturally flock together, in Oxford's Wytham Woods. A report of the research appears this week in *Proceedings of the National Academy of Sciences*.

'Previous research has suggested that this effect, sometimes called the 'pool of competence' occurs in humans, but this is the first direct evidence that a similar effect occurs in non-human animals,' said Dr Julie Morand-Ferron of Oxford University's Department of Zoology who did the work with colleague Dr John Quinn.

'Surprisingly we found that there does not seem to be an optimal size of flock after which the benefits of birds 'putting their heads together' tails off,' said Dr Morand-Ferron. 'Instead, for these social songbirds, 30 heads are almost always better than 20, and 20 better than 10, when it comes to solving problems.'

In the experiments the researchers found that as the size of the groups increased individual birds got more food in return for the time they spent puzzling how to work food-dispensing devices: showing that larger groups were able to solve a puzzle more efficiently. They also found, by comparing behaviour around devices at 'exposed' locations and those with nearby cover, that this efficiency may be boosted because larger groups have more eyes to watch out for predators whilst individuals complete a task.

'Great tits are amazing innovators and are always trying something new -- they have even been found to prey on bats!' said Dr Morand-Ferron. 'It may be that in species that are always looking to move into new areas, and so confront new problems, there are many benefits to being in a gang with individuals with different skills and personalities. This is especially true in the case of social birds, such as great tits and blue tits, which follow and learn from each other.'

Story Source:

The above story is reprinted (with editorial adaptations by Science*Daily* staff) from materials provided by **University of Oxford**.

Journal Reference:

1. J. Morand-Ferron, J. L. Quinn. **Larger groups of passerines are more efficient problem solvers in the wild**. *Proceedings of the National Academy of Sciences*, 2011; 108 (38): 15898 DOI: 10.1073/pnas.1111560108

http://www.sciencedaily.com/releases/2011/09/110926223419.htm

Will Robots Steal Your Job?

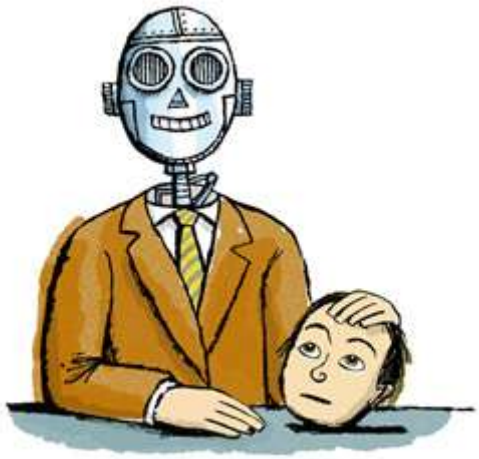
You're highly educated. You make a lot of money. You should still be afraid.

By Farhad Manjoo|Updated Monday, Sept. 26, 2011

Join Farhad Manjoo in Washington, D.C., on Thursday, Sept. 29, for a Future Tense event on robots and the workforce. Manjoo will be joined by Tyler Cowen, author of The Great Stagnation and blogger at Marginal Revolution; Robbie Allen, whose company StatSheet could put sportswriters on unemployment lines; and others. To RSVP for a free ticket, click here.

If you're taking a break from work to read this article, I've got one question for you: Are you crazy? I know you think no one will notice, and I know that everyone else does it. Perhaps your boss even approves of your Web surfing; maybe she's one of those new-age managers who believes the studies showing that short breaks improve workers' focus. But those studies shouldn't make you feel good about yourself. The fact that you need regular breaks only highlights how flawed you are as a worker. I don't mean to offend. It's just that I've seen your competition. Let me tell you: You are in peril.

At this moment, there's someone training for your job. He may not be as smart as you are—in fact, he could be quite stupid—but what he lacks in intelligence he makes up for in drive, reliability, consistency, and price. He's willing to work for longer hours, and he's capable of doing better work, at a much lower wage. He doesn't ask for health or retirement benefits, he doesn't take sick days, and he doesn't goof off when he's on the clock.



What's more, he keeps getting better at his job. Right now, he might only do a fraction of what you can, but he's an indefatigable learner—next year he'll acquire a few more skills, and the year after that he'll pick up even more. Before you know it, he'll be just as good a worker as you are. And soon after that, he'll surpass you.

By now it should be clear that I'm not talking about any ordinary worker. I'm referring to a nonhuman employee—a robot, or some kind of faceless software running on a server. I've spent the last few months investigating the ways in which automation and artificial intelligence are infiltrating a range of high-skilled

professions. What I found was unsettling. They might not know it yet, but some of the most educated workers in the nation are engaged in a fierce battle with machines. As computers get better at processing and understanding language and at approximating human problem-solving skills, they're putting a number of professions in peril. Those at risk include doctors, lawyers, pharmacists, scientists, and creative professionals—even writers like myself.

This is not a new story. People have been fretting about the rise of the machines since Ned Ludd took a hammer to his knitting frames, and probably before. In general, these fears have been unfounded. Yes, better technology sometimes replaces workers in the short run, but over the long march of history, technological improvements have been a key to economic growth, and economic growth improves prospects for workers across a range of industries. Indeed, economists have a name for the popular but misguided notion that technology will displace human workers: They call it the Luddite fallacy, after old Ned himself. To many in the academy, it's an iron-clad law of how economies work.

But this time could be different. Artificial intelligence machines are getting so good, so quickly, that they're poised to replace humans across a wide range of industries. In the next decade, we'll see machines barge into areas of the economy that we'd never suspected possible—they'll be diagnosing your diseases, dispensing your medicine, handling your lawsuits, making fundamental scientific discoveries, and even writing stories just like this one. Economic theory holds that as these industries are revolutionized by technology, prices for their services will decline, and society as a whole will benefit. As I conducted my research, I found this argument convincing—robotic lawyers, for instance, will bring cheap legal services to the masses who can't afford lawyers today. But there's a dark side, too: Imagine you've spent three years in law school, two more years clerking, and the last decade trying to make partner—and now here comes a machine that can do much of your $400-per-hour job faster, and for a fraction of the cost. What do you do now?

There is already some evidence that information technology has done permanent damage to workers in a large sector of the economy. This specifically applies to workers who are considered "middle skilled," meaning that they need some training, but not much, to do their jobs.

Middle-skilled jobs include many that are generally recognized to be antiquated—secretaries, administrative workers, repairmen, and manufacturing workers, among others. Since the 1980s, across several industrialized nations (including the United States), the number of workers in these job categories has been rapidly declining (the pace of the decline increased greatly during the last recession). Instead, most job growth has been at the poles, in professions that require very high skills and earn high wages, and in the service sector, where most jobs require few skills and pay tiny wages.

David Autor, an economist at MIT who is the leading scholar of this phenomenon, calls it "job polarization." Autor identifies a number of causes for the decline of middle-skilled work, including the decreasing power of unions and the declining federal minimum wage. He puts one factor above the rest, however: The rise of information technology.

Video: How real-life robots differ from bots in TV and movies.

Autor argues that middle-skilled jobs tend to have two factors in common—they are composed of lots of tasks that are both routine and geographically portable. What does a secretary do all day? He files, sorts, organizes, watches for calendar conflicts, and in other ways manipulates information. What does a tax preparer do? He asks you a series of questions, and performs some calculations based on your answers. These are all tasks that can be written in software—and, once there, they can be done faster, and more cheaply, by machines. And even when a computer can't completely replace these middle-skilled jobs, it can make them easier to transfer to lower-wage humans—you still need a human being to answer tech support questions, but now you can hire

someone in Andra Pradesh rather than Alabama. This decimation of middle-skilled work explains another unsettling trend in American business. New companies today are starting up with far fewer workers than in the past, and they're staying smaller as they grow.

Low- and high-skilled jobs have so far been less vulnerable to automation. The low-skilled jobs categories that are considered to have the best prospects over the next decade—including food service, janitorial work, gardening, home health, childcare, and security—are generally physical jobs, and require face-to-face interaction. At some point robots will be able to fulfill these roles, but there's little incentive to roboticize these tasks at the moment, as there's a large supply of humans who are willing to do them for low wages.

So if computers have already come for middle-skilled workers, and if low-skilled workers aren't an attractive enough target, who's left? That's right: Professionals—people whose jobs required years of schooling, and who, consequently, make a lot of money doing them. As someone who is fascinated with technology, the stuff I found in my investigation of robots and the workforce tickled me. I got to see a room-size pill-dispensing robot, machines that can find cervical cancer on pap-smear slides, and even servers than can write news stories. As someone who likes his job (and his paycheck), what I saw terrified me.


Martin Ford

Most economists aren't taking these worries very seriously. The idea that computers might significantly disrupt human labor markets—and, thus, further weaken the global economy—so far remains on the fringes. The only deep treatment of this story that I've seen has come from a software developer named Martin Ford. In 2009, Ford self-published a small book called *The Lights in the Tunnel: Automation, Accelerating Technology and the Economy of the Future*. In his book, Ford argues persuasively that computers will redefine the very idea of "work" in the modern age.

When I spoke to him recently, I asked Ford about economists' standard rebuttal to fears of automation—the story of the decline of agricultural jobs in the United States. In 1900, 41 percent of the American workforce was employed in agriculture. Over the next 100 years, the technological revolution in farming dramatically increased productivity, enabling fewer and fewer people to produce more and more food. By 2000, just 2 percent of the workforce was employed in agriculture. Yet this shift, which required millions of people to move off farms and acquire new skills, didn't ruin the economy. Instead, by reducing food prices and freeing up people to do more profitable things with their time, it contributed to massive growth. Why won't that happen again with information technology—why won't we all just learn new skills and find other jobs?

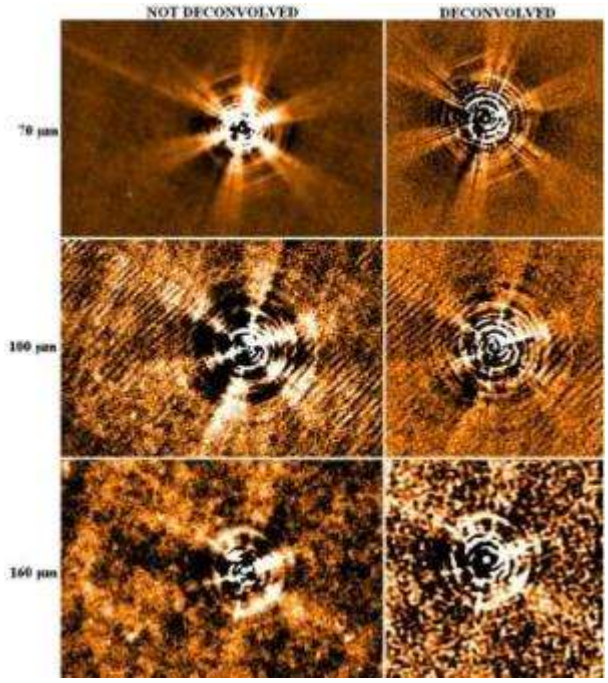
"There's no question that there will be new things in the future," Ford says. "But the assumption that economists are making is that those industries are going to be labor-intensive, that there are going to be lots of jobs there. But the fact is we don't see that anymore. Think of all the high-profile companies we've seen over

the past 10 years—Google, Facebook, Netflix, Twitter. None of them have very many employees, because technology is ubiquitous—it gets applied everywhere, to new jobs and old jobs. Whatever appears in the future, whatever pops up, we can be certain that IT will get applied right away, and all but the most non-routine-type jobs won't be there anymore."*

Over the next few days, I'll be examining how Ford's predictions are playing out in a number of professions. I'll start by looking at how the people in my own life are being replaced by machines. First, I'll look at my dad's career, pharmacy. Then, I'll examine my wife's line of work, medicine. In my third piece, I'll turn my investigation inward—how will robots replace writers like myself and Web curators like Jason Kottke? I'll end the series with a pair of stories on how machines will change the lives of lawyers and scientists. I hope you read every part—if you're going to outsmart the robots, you'll need all the help you can get.

http://www.slate.com/articles/technology/robot_invasion/2011/09/will_robots_steal_your_job.single.html

Giant Star Expels Multiple Dust Shells, Astronomers Find



The images show the far-infrared light emitted by the cold dust particles in the arcs. Analysis of the images allows the astronomers to deduce the temperature and the amount of dust in each shell. Every shell is the witness of a different epoch in the mass loss history of the star. (Credit: Image courtesy of Katholieke Universiteit Leuven)

ScienceDaily (Sep. 27, 2011) — An international team led by KU Leuven astronomer Leen Decin discovered not less than a dozen cold dust arcs around the giant star CW Leo. The team used the sensitive PACS instrument on board the Herschel Space Observatory to detect for the first time arcs of dust far away from the star. CW Leo has expelled these shells of dust in different epochs in its life. The faintest shell we can see now was, according to the team, expelled about 16,000 years ago. In the mean time it has drifted away from the star over more than 7,000 billion kilometers.

Episodes

"Until recently, the environment of giant stars seemed homogeneous, but more and more observations indicate that this is not true," says Leen Decin. "These new Herschel images confirm that in a stunning way. We have detected a dozen arcs, puffed out by the star in the course of its life. The faintest shell we found is already at a distance of 7,000 billion kilometers from the star."

The different shells were ejected by the star with intervals of 500 to 1,700 years. The astronomers in the team believe such shells, even fainter, are also present further out, up to the violent bow shock where the expelled material of the star collides with the interstellar medium. The oldest shells have probably disappeared in the bow shock already.

Our own Sun too will turn into a red giant star, about five billion years from now, when it will inflate and condensate dust in the outer, cooling layers of its atmosphere. The episodes in CW Leo's history help astronomers understand the future of our own Sun.

Cold

Since the different shells have been travelling far away from the star by now, they are also very cold, about -248°C. The PACS instrument onboard the Herschel Space Telescope was especially designed to make images of the far-infrared light emitted by dust that cold. Thanks to the Belgian participation in the building of the PACS instrument, the team got priority access to the space telescope. Christoffel Waelkens, Co-principal investigator of the PACS instrument consortium is proud of yet another discovery by Herschel: "We had a lot of ideas for science with Herschel, but we also hoped that Herschel would surprise us with unexpected results. It has been a continuous delight since the first observations: at every opportunity nature proves to have more imagination than we have, but still presents us the phenomena so that we can understand them."

Digging in the data

Making the rings visible in the Herschel images was not trivial. Pierre Royer, instrument expert in the PACS team of the Institute of Astronomy at KU Leuven, clarifies: "The work of constantly refining the instrumental calibration and improving the data-analysis techniques really becomes rewarding when it comes to push the instrument to its limits, allowing for cutting-edge science." Also after the Herschel Launch in 2009 the PACS instrument team, including 7 scientists and engineers at KU Leuven, continued to refine the initial calibration and data analysis software.

Publication

The team published the results in the October 2011 issue of the journal *Astronomy & Astrophysics*.

Story Source:

The above story is reprinted (with editorial adaptations by Science*Daily* staff) from materials provided by **Katholieke Universiteit Leuven**.

Journal Reference:

1. L. Decin, P. Royer, N. L. J. Cox, B. Vandenbussche, R. Ottensamer, J. A. D. L. Blommaert, M. A. T. Groenewegen, M. J. Barlow, T. Lim, F. Kerschbaum, T. Posch, C. Waelkens. **Discovery of multiple dust shells beyond 1 arcmin in the circumstellar envelope of IRC +10216 usingHerschel/PACS**. *Astronomy & Astrophysics*, 2011; 534: A1 DOI: 10.1051/0004-6361/201117360

http://www.sciencedaily.com/releases/2011/09/110927072625.htm

A Sit-In Threat on Day One

September 26, 2011
By Peter Laipson

The letter arrived on my desk on the first day of my first year as head of Bard College at Simon's Rock. Four juniors and seniors, who claimed to speak for the student body at large, objected strongly to a new college policy -- and threatened a sit-in that Friday night if the administration did not respond satisfactorily to their demands.

The issue? Library hours. Students were upset by a plan to close the building on Saturdays.

I suppose I shouldn't have been surprised. Simon's Rock is an early college; we accept bright, highly motivated students after the 10th or 11th grades. We emphasize the life of the mind – and as I was about to be reminded, our students take learning seriously.

Like most colleges, especially small ones, Simon's Rock tries to economize wherever we can without hurting our core mission. Following the departure of a library staff member, colleagues and I decided to close the facility on Saturdays, a day it typically sees light use. We thought it was an easy trim – students have plenty of other options for quiet study spaces on weekends.

The students who wrote had a very different notion. Their letter – thoughtfully composed, beautifully written, and cogently argued -- contended that the library was, in fact, a hub of college life. To close it on Saturdays, especially without having consulted students, would be a grievous mistake. The letter took pains to assure me that students understood the need for painful choices in uncertain financial times. The authors also made clear they intended their letter with great respect and hoped to enter into a dialogue with the administration about how best to serve the needs of the entire community.

And then it concluded with the statement that, if discussions did not lead to the library being open at least some of Saturday, the students were prepared to lead a peaceful sit-in on Friday evening.

I read the letter with mixed feelings. On the one hand, I was delighted not just by the eloquence of students' objection to the closure but also by the importance they attached to their cause. College students ready to sit in for more time in the library? Really? How could I object? After all, the enthusiasm for learning at Simon's Rock is what made me want this job in the first place.

But I was also piqued that students had planned a sit-in even before asking for a meeting. Real dialogue is an honest conversation in which both parties are prepared to change their minds, not a negotiation coerced by a display of power.

The standoff, I'm happy to say, ended amicably after a few hasty conversations. The head of the library and the dean of academic affairs arranged for coverage of the library for five hours on Saturdays to begin the semester. In addition, I promised (in best administrative style) "to review the library's role in the academic life of the campus as the semester proceeds and to modify this arrangement as necessity demands." The authors of the letter called off the sit-in. The semester has begun without further incident.

I am glad that this first potential fracas resolved itself so cordially. And I have taken from the event a few lessons that will help guide my work in the months ahead.

Say yes when you can so you can say no when you have to. Leaders, especially new ones, should take every opportunity they can to bank goodwill.

It would have been inadvisable simply to reinstate the status quo and keep the library open all day Saturday. But it made great sense to find an inexpensive way to make the facility available for part of the day. There'll be other times when I have to refuse student requests.

Look for common ground not just in practice but in principle. Wrangling over details is no picnic, but it's easier if you can affirm shared goals. In my response to the students, I stressed my strong agreement with the conviction that inspired their letter: that the preservation of the academic program had to be our first priority. Even if students didn't get everything they wanted, they at least knew I sympathized with their point of view.

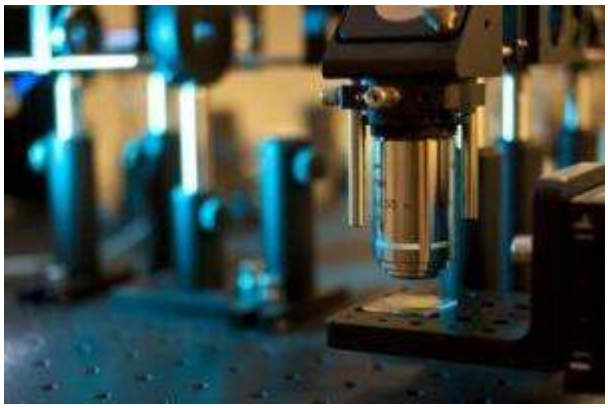
Remember that it's not about you. A former colleague used to say that the best advice he got about leadership was "Don't be the show." He's right. Sometimes you're at your best when you're seen and heard the least. A few days after I replied to the students who had written me, they announced they were discontinuing the sit-in. They also made their letter available to the faculty -- without including my response. At first, I was disappointed. No one would know I had said yes when I could; no one would realize I had sought common ground in principle as well as in practice! I soon realized, however, that none of that was relevant. What mattered is that the life of the college went on uninterrupted, and students were talking, thinking, reading and researching. Even on Saturdays.

Oh yes, and I learned one other, very important lesson from this first-day tempest. At Simon's Rock, you don't mess with the library.

Peter Laipson is provost and vice president of Bard College at Simon's Rock.

http://www.insidehighered.com/views/2011/09/26/essay_on_a_threatened_sit_in_during_a_first_day_leading_a_college

Handling Nanoscale Particles: 'Next-Generation' Optical Tweezers Trap Tightly Without Overheating



This is the optical table in Ken Crozier's lab at Harvard SEAS. (Credit: Eliza Grinnell / Harvard SEAS)

ScienceDaily (Sep. 27, 2011) — Engineers at Harvard have created a device that may make it easier to isolate and study tiny particles such as viruses.

Their plasmonic nanotweezers, revealed this month in *Nature Communications*, use light from a laser to trap nanoscale particles. The new device creates strong forces more efficiently than traditional optical tweezers and eliminates a problem that caused earlier setups to overheat.

"We can get beyond the limitations of conventional optical tweezers, exerting a larger force on a nanoparticle for the same laser power," says principal investigator Ken Crozier, Associate Professor of Electrical Engineering at the Harvard School of Engineering and Applied Sciences (SEAS).

"Until now, overheating has been a major problem with tweezers based on surface plasmons. What we've shown is that you can get beyond that limitation by building a plasmonic nanotweezer with an integrated heat sink."

Optical tweezers have been an essential tool in biophysics for several decades, often used for studying cellular components such as molecular motors. Researchers can trap and manipulate the proteins that whip a flagellum, for example, and measure the force of its swimming motion.

But optical tweezers have drawbacks and limits, so researchers like Crozier are perfecting what might be called the "next-generation" model: plasmonic nanotweezers.

To create conventional optical tweezers, which were invented at Bell Labs in the 1980s, scientists shine a laser through a microscope lens, which focuses it into a very tight spot. The light, which is made up of electromagnetic waves, creates a gradient force at that focused spot that can attract a tiny particle and hold it within the beam for a short period of time -- until random motion, radiation pressure, or other forces knock it out.

The trouble with these optical tweezers is that a lens cannot focus the beam any smaller than half the wavelength of the light. If the targeted particle is much smaller than the focal spot, the trapping will be imprecise.

At the same time, the focal size limit places an upper limit on the gradient force that can be generated. A stronger force is necessary for trapping nanoscale particles, relative to larger, microscopic particles, so conventional optical tweezers must use a very high-powered laser to trap the tiniest targets.

To overcome these problems, researchers in applied physics discovered a few years ago that they could enhance the trapping field by focusing the laser onto an array of nanoscale gold disks. The light excites the electrons at the surface of the metal, creating rapid waves of electromagnetic charge called plasma oscillations, resulting in "hot spots" of enhanced fields around the edges of the disk.

In other researchers' designs, the tiny gold disks were arrayed on a sheet of glass, and the whole setup was submerged in water with the target particles. In tests with those devices, one problem was that the brightest hotspots were at the base of the pillars, partially inside the glass, where the particles could never be trapped. A bigger problem, as Crozier's team discovered, was that unless they kept the laser power very low, the water boiled.

The Harvard team has solved both problems by replacing the glass with a piece of silicon coated in copper and then gold, with raised gold pillars. These materials are much more thermally conductive than glass, so they act as a heat sink.

"The gold, copper, and silicon under the pillars act just like the heat sink attached to the chip in your PC, drawing the heat away," says lead author Kai Wang (Ph.D. '11), who completed the work at SEAS and is now a postdoctoral fellow at the Howard Hughes Medical Institute.

The new device reduces the water heating by about 100-fold and produces hotspots at the top edges of the pillars, where Crozier's team was able to trap polystyrene balls as small as 110 nanometers.

In an unusual twist, the team discovered that they were able to rotate the trapped particles around the pillars by rotating the linear polarizer on the optical table where they conducted the experiments. Going further, they replaced the linear polarizer with a circular one and found that the particle automatically and continuously traveled around the pillar.

As the electromagnetic field circled the pillar, it created an optical force that pushed the particle. Interestingly, despite the fact that the electromagnetic field traveled at about 1014 rotations per second, the balance between the optical force and the fluid drag resulted in a particle velocity of about 5 rotations per second, effectively a terminal velocity.

"This phenomenon seems to be entirely novel," says Crozier. "People have trapped particles before, but they've never done anything like that."

As tools for trapping and manipulating nanoparticles become more advanced, the potential applications in biophysics are extensive. One remaining challenge, however, is the researchers' ability to detect and quantify the motion of such tiny particles.

"It's going to be harder and harder to precisely track the center of the particle when we do these manipulations," says Crozier. "Progress in the realm of sensing tools will need to keep up."

Crozier and Wang's co-authors were Ethan Schonbrun, a former research associate, and Paul Steinvurzel, a former postdoctoral researcher, both from Crozier's lab at SEAS. The work was supported by the National Science Foundation, the Defense Advanced Research Projects Agency, and the U.S. Department of Energy.

Story Source:

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1. Kai Wang, Ethan Schonbrun, Paul Steinvurzel, Kenneth B. Crozier. **Trapping and rotating nanoparticles using a plasmonic nano-tweezer with an integrated heat sink**. *Nature Communications*, 2011; 2: 469 DOI: 10.1038/ncomms1480

http://www.sciencedaily.com/releases/2011/09/110926104132.htm

Classroom Styles

September 27, 2011
By Robert J. Sternberg

When I received my first test score – a 3 out of 10 -- in college introductory psychology, I realized that I had some hard slogging ahead, especially after the professor told me that "there is a famous Sternberg in psychology and it is obvious there won't be another one." I eventually pulled a C in the course, which the professor referred to as a "gift." That professor was probably as surprised as I was when I earned an A in his upper-level course, and I certainly was grateful to him when, as chair of the search committee, he hired me back to my alma mater (Yale University) as an assistant professor, where I would remain as a professor for 30 years. My instructor probably wondered, as did I, how I could have done so poorly in the introductory course and so much better in the upper-level course.

There may have been multiple contributing causes to the difference in performance, but one was almost certainly a difference in the styles of learning and thinking that were rewarded in the two courses. The lower-level course was pretty much a straight, memorize-the-book kind of course, whereas the upper-level course was one that encouraged students to formulate their own research studies and to analyze the research studies of others.

Psychologists and educators differ as to whether they believe in the existence of different styles of learning and thinking. Harold Pashler and his colleagues have claimed that the evidence for their existence is weak, but a number of scholars, whose work is summarized in a 2006 book I wrote with Li-fang Zhang entitled *The Nature of Intellectual Styles,* and in a forthcoming edited *Handbook of Intellectual Styles,* have provided what we believe to be compelling evidence for the existence and importance of diverse styles of learning and thinking. I have often felt that anyone who has raised two or more children will be aware, at an experiential level, that children learn and think in different ways.

My own thinking about styles of learning and thinking has been driven by my "theory of mental self-government," which I first presented in book format in a volume entitled *Thinking Styles.* According to this theory, the ways of governments in the world are external reflections of what goes on in people's minds. There are 13 different styles in the theory, but consider now just three of them. People with a legislative style like to come up with their own ideas and to do things in their own way; people with an executive style prefer to be given more structure and guidance or even told what to do; people with a judicial style like to evaluate and judge things and especially the work of others.

From this point of view, the introductory psychology course I took, like many introductory courses, particularly rewarded students with an executive style – students who liked to memorize what they read in books or heard in lectures. In contrast, the advanced psychology lab course more rewarded students with a legislative or judicial style, in that students came up with ideas for their own experiments and evaluated the research of others.

In a series of studies I conducted with Elena Grigorenko of Yale University and later with Li-fang Zhang of the University of Hong Kong, we had both teachers and students fill out questionnaires based on my theory of mental self-government. In one set of studies with Grigorenko, we then computed a measure of the similarity of the profile of each student to his or her teacher. We also evaluated the styles preferred by the diverse educational institutions on the basis of their mission statements and descriptive literature. There are three findings from that study of particular importance to college classrooms.

The first finding was that institutions differ widely in the styles of thinking that they reward. For example, in the study, one tended to reward a conservative style (characterizing people who like things to remain more or less the way they are) and tended to penalize a liberal style (characterizing people who like things to change),

whereas another rewarded exactly the opposite pattern. The correlations of styles with academic success were statistically significant in both schools, but in opposite directions. Teachers also value different styles. Hence it is important for students to select a college or university and, to the extent possible, professors who value at least to some degree the kinds of learning and thinking that best characterize a particular student. Similarly, it is important for professors to select a school at which to work that values the ways in which the professors prefer to think and to teach.

The second relevant finding was that teachers tend to overestimate the extent to which students match their own profile of learning and thinking styles. Teachers often teach in a way that reflects their own preferred styles of learning and thinking, not fully realizing that the styles that they prefer may not correspond to the styles that many of their students prefer. They believe they are teaching in ways that meet the needs of diverse students, when in fact they often are not. In essence, we are at risk for teaching to ourselves rather than to our students.

The third key finding was that teachers tended to grade more highly students whose profiles of learning and thinking better matched their own. In showing this pattern, the teachers were not purposely favoring, nor probably were they even aware they were favoring, people like themselves. But the fundamental principle of interpersonal attraction is that we are more attracted to people who are like ourselves, and so it is not surprising that teachers would value more students who think in the same ways they do. Ideally, teachers will be flexible, both within and between courses. (The psychology professor to whom I referred earlier was flexible between courses, but not within each course.)

Where these preferences particularly become a problem is when the styles that lead to success in a particular course do not match the styles that will be needed for success either in more advanced courses in the same discipline, or, worse, in the occupation for which the course prepares students. For example, in most occupations, one does not sit around taking short-answer or multiple-choice tests on the material one needs to succeed in the job. The risk, then, is that schools will reward students whose styles match the way they are taught but not the requirements of the work for which the teaching prepares them. As an example, 35 years after receiving the C in introductory psychology, I was president of the American Psychological Association — the largest association of psychologists in the world — and did not once have to sit down and take fact-based quizzes on the material I needed to succeed on the job. Indeed, the factual content that would be taught in an introductory-psychology course, and in many other courses, had changed radically in the 35 years that had passed since I took the course.

In my own teaching, I have had run-ins with the importance of styles. For example, when I first started teaching introductory psychology, I taught it the way I ideally would have liked the course, with lots of emphasis on "legislative" activities — students coming up with their own ideas for structuring their learning. It became obvious to me within a couple of weeks that the course was failing to meet the learning needs of the students. I later realized it was for the same reason that the introductory psychology course I had taken had not worked for me. I was teaching to my own style of learning, not to the diversity of students' styles of learning. I now try to teach in ways that encourage a mix of legislative, executive, and judicial activities. For example, students come up with their own ideas for papers, but also have to answer some short-answer questions on tests and have to analyze the theories and research of various investigators.

Similarly, in teaching an advanced statistics course, I had pretty much pegged some of the students as "stronger learners" and other students as "weaker learners." One day, I read about how to teach a technique I was covering geometrically rather than in the algebraic way I had been teaching that and other material in the course. When I started teaching the material geometrically, I found that many of the students I had identified as "strong learners" were having difficulty, whereas many of the students I had identified as "weak learners" were easily absorbing the material. I had confounded strength of students' learning skills with match of their learning style to the way I happened to be teaching.

In sum, styles of learning and thinking matter in the classroom. We best serve our students when we teach in a way that enables all students to capitalize on their preferred styles at least some of the time, but that recognizes that students must acquire flexibility in their use of styles and so cannot always learn in their preferred way. My own institution, Oklahoma State University, has a Learning and Student Success Opportunity Center that intervenes with students in ways specifically oriented toward meeting the needs of their diverse learning and thinking styles. Our Institute for Teaching and Learning Excellence teaches teachers how to meet the stylistic needs of students. Our goal in higher education should be to prepare students for the diverse demands later courses and careers will make on their learning and thinking styles so that they can be successful not just in our course, but in their later studies and work.

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http://www.insidehighered.com/views/2011/09/27/essay_on_different_teaching_and_learning_styles