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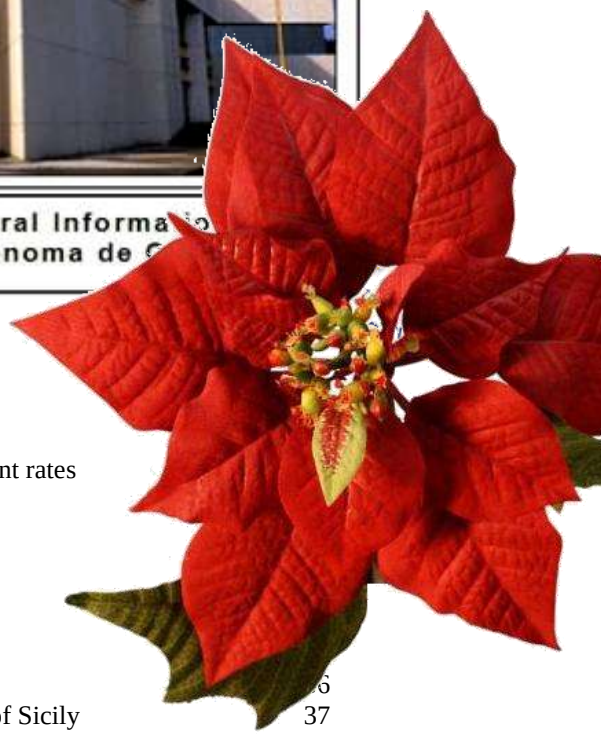

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What not to study: The 20 university degrees with the highest unemployment rates

Elizabeth Bromstein| Nov 25, 2011 10:30 AM

What's your university degree in? I just ended that sentence with a preposition, so you might be able to guess that I don't have one. If I did, it might be in English literature, but I dropped out, which is just as well, since people used to joke that Concordia's English lit. department has its graduation ceremony in the unemployment office. (I later went back and studied history and musicology at U of T, but I didn't get those degrees either. Maybe one day.)

English is one of the more proverbially useless degrees, but it's not the most useless, not today and not in terms of unemployment rates, anyway. No, that honour goes to clinical psychology. This is according to The Wall Street Journal, which recently looked at how 173 college majors fare on the job market in terms of employment and pay, based on 2010 US census data.

Psychology in general is a pretty terrible idea, as are visual, performing and fine arts - pretty much any art, really. You probably could have guessed that. But some of the others surprised me. I guess I assumed, for example, that a degree in neuroscience, would be specialized enough to give you a good chance at a job. I assumed wrong. On the other hand, education of just about any kind is a pretty sure bet.

Obviously, your choice of degree affects your employability. There are other factors to consider, such as the popularity of the degree and the earning potential - all of which you can view here. But for a simple look, below are the 20 highest and lowest unemployment rates by degree. See where yours fits in. Or, if you're thinking of getting (another) one, perhaps this will influence your choice of discipline.

20 HIGHEST UNEMPLOYMENT RATES BY DEGREE:

1. CLINICAL PSYCHOLOGY - 19.5%

2. MISCELLANEOUS FINE ARTS - 16.2%

3. UNITED STATES HISTORY - 15.1%

4. LIBRARY SCIENCE - 15.0%

5. EDUCATIONAL PSYCHOLOGY & MILITARY TECHNOLOGIES, TIE - 10.9%

6. ARCHITECTURE - 10.6%

7. INDUSTRIAL AND ORGANIZATIONAL PSYCHOLOGY - 10.4%

8. MISCELLANEOUS PSYCHOLOGY - 10.3%

9. LINGUISTICS AND COMPARATIVE LANGUAGE AND LITERATURE - 10.2%

10. COMPUTER ADMINISTRATION MANAGEMENT AND SECURITY - 9.5%

11. VISUAL AND PERFORMING ARTS & ENGINEERING AND INDUSTRIAL MANAGEMENT, TIE - 9.2%

12. SOCIAL PSYCHOLOGY - 8.8%

13. INTERNATIONAL BUSINESS - 8.5%

14. HUMANITIES & ELECTRICAL AND MECHANIC REPAIRS AND TECHNOLOGIES, TIE - 8.4%

15. GENERAL SOCIAL SCIENCES - 8.2%

16. COMMERCIAL ART AND GRAPHIC DESIGN - 8.1%

17. STUDIO ARTS - 8.0%

18. PRE-LAW AND LEGAL STUDIES - 7.9%

19. MATERIALS ENGINEERING AND MATERIALS SCIENCE & COMPOSITION AND SPEECH, TIE - 7.7%

20. LIBERAL ARTS - 7.6%

20 LOWEST UNEMPLOYMENT RATES BY DEGREE:

1. ACTUARIAL SCIENCE & PHARMACOLOGY & EDUCATIONAL ADMINISTRATION AND SUPERVISION & SCHOOL STUDENT COUNSELING & GEOLOGICAL AND GEOPHYSICAL ENGINEERING & ASTRONOMY AND ASTROPHYSICS, TIE - 0.0%

2. TEACHER EDUCATION: MULTIPLE LEVELS - 1.1%

3. AGRICULTURAL ECONOMICS - 1.3%

4. MEDICAL TECHNOLOGIES TECHNICIANS - 1.4%

5. ATMOSPHERIC SCIENCES AND METEOROLOGY - 1.6%

6. NAVAL ARCHITECTURE AND MARINE ENGINEERING - 1.7%

7. ENVIRONMENTAL ENGINEERING & NURSING & PUBLIC POLICY & NUCLEAR INDUSTRIAL RADIOLOGY AND BIOLOGICAL TECHNOLOGIES, TIE - 2.2%

8. PHYSICAL SCIENCES - 2.5%

9. TREATMENT THERAPY PROFESSIONS - 2.6%

10 PLANT SCIENCE AND AGRONOMY - 2.7%

11. MEDICAL ASSISTING SERVICES - 2.9%

12. SOCIAL SCIENCE OR HISTORY TEACHER EDUCATION & AGRICULTURE PRODUCTION AND MANAGEMENT & GENERAL AGRICULTURE, TIE - 3.0%

13. FORESTRY & INDUSTRIAL PRODUCTION TECHNOLOGIES, TIE - 3.1%

14. PHARMACY PHARMACEUTICAL SCIENCES AND ADMINISTRATION & GEOSCIENCES, TIE - 3.2%

15. COMMUNICATION DISORDERS SCIENCES AND SERVICES & OCEANOGRAPHY & MISCELLANEOUS HEALTH MEDICAL PROFESSIONS, TIE - 3.3%

16. MATHEMATICS TEACHER EDUCATION - 3.4%

17. MATHEMATICS AND COMPUTER SCIENCE - 3.5%

18. ELEMENTARY EDUCATION & AEROSPACE ENGINEERING & SPECIAL NEEDS EDUCATION, TIE - 3.6%

19. MISCELLANEOUS EDUCATION & MISCELLANEOUS AGRICULTURE, TIE - 3.7%

20. SECONDARY TEACHER EDUCATION & MECHANICAL ENGINEERING & CHEMICAL ENGINEERING, TIE - 3.8%

http://www.workopolis.com/content/advice/article/1587-what-not-to-study-the-20-university-degrees-with-the-highest-unemployment-rates

Dr. Placebo — Half Quack and Half Savant

The placebo effect's ability to influence human healing and human behavior is well documented, but we must be careful to make sure this fakery does no harm.

By Peter M. Nardi

Even when placebos have a positive impact, the effects can be short-term and end up masking more serious symptoms, preventing people from seeking reliable and effective treatments.

[Cue the drum roll] Ladies and gentlemen, introducing tonight, the magical, the amazing, the astounding, the one, the only [cue the cymbal] — DR. PLACEBO!! Performing sleights of hand that will amaze you, entice you, and lure you into miracle cures that will release you from your hard-earned cash. Come see never-before effects. Well, maybe always-seen effects. Step right this way …

OK, perhaps I'm more cynical than skeptical here, but given the successful selling of sham products such as balance bracelets and homeopathy, it's important that we learn to think critically about one of the most powerful forces in medical research, the placebo effect.

Much has been written on the placebo effect — and an exciting new take is on the way from *Miller-McCune* — so our focus here is to critically investigate the role of these fake treatments and beliefs in our daily lives and how to use our skeptical skills in dealing with them. It's important to realize that even when placebos have a positive impact, the effects can be short-term and end up masking more serious symptoms, preventing people from seeking reliable and effective treatments.

Simply stated, a placebo (Latin for "I will please") is a substance or procedure given to a control group when used in scientific research designs to compare with an equivalent group receiving the real treatment or pill. In medical research, the look-alike treatment is often a sugar pill that does not have any real effect on the illness, allowing comparisons to be made between the actual medicine and the fake one.

It's fairly common that about a third of people in the control group receiving the placebo report positive changes or lessening of symptoms. Sometimes recipients of the placebo claim negative side-effects (the "nocebo" effect), such as headaches or nausea. Surprisingly, some patients say they have positive outcomes even when told outright that they were receiving a fake treatment!

The power of the mind and its psychological impact has been a common explanation for how the placebo effect works. But continuing research also points to important physiological and neurological brain changes with placebo treatments. Indeed, with real treatment and medicines, some part of the cure can be attributed to patients' expectations that the substance is working. Recent evidence suggests that placebo medicines are showing more effectiveness that the real pills, again illustrating some powerful physiological responses of patients to social, psychological, and biological expectations.

Headache relief seems to attract lots of placebo products, including one that simply required rolling on a wax-type substance and another by slowly moving a red light across your forehead. The red light should instead remind you to stop with these treatments and save your money, since in most cases, headaches will go away on their own with time and relaxation.Consider too some non-medical situations where the mind has power over the reality. We know, for example, that people will often claim they are not as full after eating food labeled as healthy or low-fat, compared with foods labeled as an "indulgence" or high in calories. Here the placebo principles can result in people eating more unhealthy foods when they are not satisfied after finishing their better-for-you foods.

In an unusual study from New Zealand, university students who were told they were drinking vodka and tonic, but were really sipping a tonic-only placebo, not only acted drunk but also demonstrated worse eyewitness accounts and were more easily swayed by misleading information. Perhaps they would be willing to buy some fake red light treatment for their fake hangover and fake headaches!Pricing can also have an impact on placebos, as Dan Ariely illustrated in *Predictably Irrational*. Researchers sold some students at a university gym a caffeinated soft drink at full price and another group bought it at a two-thirds discount. After finishing the beverage, and because of the caffeine, all students said they felt less tired after their workout. However, the group paying the higher price reported less fatigue than the discounted price group, even though they bought the exact same product. When tested with a problem set of anagrams to solve, those students who paid full price for the caffeine drink performed 28 percent better than the group who paid a discount for the drink. And all students performed even better when told the ads for the drink emphasized scientific studies showing the product improved mental functioning. Even in this experimental situation, the full-price group continued to outperform the students who received the discounted price.

Dr. Placebo, you're amazing. Not only do you have power over fake medical treatments, you enhance the effect of real medicines, you contribute to our experiences when imbibing alcohol-based and caffeinated drinks, and you help people believe advertisers' hype.

But do us critical thinkers a favor: because your name is a Latin word, remember the other Latin phrase that guides medical ethics and skeptical inquiry: *Primum non nocere*, "First, do no harm." Save your effects and tricks for when it is helping people to feel better and to act more responsibly.

http://www.miller-mccune.com/health/dr-placebo-half-quack-and-half-savant-37983/?utm_source=Newsletter189&utm_medium=email&utm_content=1129&utm_campaign=newsletters

Universities under Attack

Keith Thomas

We are all deeply anxious about the future of British universities. Our list of concerns is a long one. It includes the discontinuance of free university education; the withdrawal of direct public funding for the teaching of the humanities and the social sciences; the subjection of universities to an intrusive regime of government regulation and inquisitorial audit; the crude attempt to measure and increase scholarly 'output'; the requirement that all academic research have an 'impact' on the economy; the transformation of self-governing communities of scholars into mega-businesses, staffed by a highly-paid executive class, who oversee the professors, or middle managers, who in turn rule over an ill-paid and often temporary or part-time proletariat of junior lecturers and research assistants, coping with an ever-worsening staff-student ratio; the notion that universities, rather than collaborating in their common task, should compete with each other, and with private providers, to sell their services in a market, where students are seen, not as partners in a joint enterprise of learning and understanding, but as 'consumers', seeking the cheapest deals which will enable them to emerge with the highest earning prospects; the indiscriminate application of the label 'university' to institutions whose primary task is to provide vocational training and whose staff do not carry out research; and the rejection of the idea that higher education might have a non-monetary value, or that science, scholarship and intellectual inquiry are important for reasons unconnected with economic growth.

What a contrast with the medieval idea that knowledge was a gift of God which was not to be sold for money, but should be freely imparted. Or with the 19th-century German concept of the university devoted to the higher learning; or with the tradition in this country that some graduates, rather than rushing off to Canary Wharf, might wish to put what they had learned to the service of society by teaching in secondary schools or working for charities or arts organisations or nature conservation or foreign-aid agencies or innumerable other good but distinctly unremunerative causes.

Our litany of discontents makes me realise how fortunate I was to have entered academic life in the mid-1950s, and thus to have experienced several decades of what now looks like a golden age of academic freedom, 'when wits were fresh and clear,/ And life ran gaily as the sparkling Thames;/ Before this strange disease of modern life,/ With its sick hurry, its divided aims.' It was a time when students were publicly funded and when the Treasury grant to universities was distributed by the University Grants Committee, largely made up of academics and working at arms'-length from the government; they understood what universities needed and they ruled with a light touch, distributing block grants and requiring only that the money be spent on buildings, teaching and research. It was a time when the 'new' universities of the 1960s were devising novel syllabuses, constructed with an eye to the intellectual excitement they generated. Of course, there were fewer universities in those days, and only a minority of young people had access to them. It is a matter for rejoicing that higher education in some form or other is nowadays potentially available to nearly half of the relevant age-group. But because there are so many universities, real and so-called, there are fewer resources to go around and the use of those resources is more intensively policed. As a result, the environment in which today's students and academics work has sharply deteriorated. When I think of the freedom I enjoyed as a young Oxford don, with no one telling me how to teach or what I should research on or how I should adapt my activities to maximise the faculty's performance in the RAE, and when I contrast it with the oppressive micro-management which has grown up in response to government requirements, I am not surprised that so many of today's most able students have ceased to opt for an academic career in the way they once would have done.

Confronted by philistinism on the scale of the Browne Report and the government's White Paper, what are we to do? Where can we turn? Not to the present government, for it is committed to the notion of the university system as a market, driven by economic considerations. And not to the Labour Party, which, when in government, introduced tuition fees in 1998, trebled them in 2008 and declared in a document of 2009 that universities should make a 'bigger contribution to economic recovery and future growth', and in opposition

has been almost totally silent on the whole matter. Not to Hefce, in its new role as 'lead regulator', for its chief executive has, unsurprisingly, welcomed the White Paper with enthusiasm. Not to the research councils, whose role as government agencies has become increasingly blatant. Not to the law courts, for it is surely unlikely that they will grant the recent application by some students to have the fee increase deemed a breach of human rights. Not even to the academic profession as a whole, for only in a few universities do all their members have the right to express their dissent publicly, as in the recent vote of no confidence by the Oxford Congregation, and in many institutions they dare not even complain to their head of department, for fear of subsequent persecution. Not to the vice-chancellors, for, with some honourable exceptions, they have been remarkably supine in the face of increasingly maladroit government policies, and are understandably more concerned to see what their own institutions can gain from the new arrangements than to challenge them directly.

Let me, nevertheless, suggest a few alternative ways forward. First, on tuition fees. The new provisions for student fees have been hastily arrived at and chaotically presented, with much backtracking and many changes of mind, and little visible financial saving at the end of it, for the state still has to put the money up front and will certainly fail to recoup it all in thirty years' time. But in an age of mass higher education, and without either a reduction in other forms of public expenditure or a willingness to raise the level of direct taxation, fees are undoubtedly here to stay. The government's great failure has been its inability to present its scheme for what it is: a graduate tax, payable only by those earning above a certain level and only for a fixed period of time. Instead, potential students have the mistaken impression that they will be crushed by a lifelong burden of intolerable debt. The other day I heard a mother on the radio lamenting that, if her son went to university, he might never get a job and would therefore be unable to repay his colossal debts. Universities should do all they can to help poor students by fee waivers, scholarships and maintenance grants, but above all they should try to dispel the fog of misunderstanding which the government's ineptitude has created.

Secondly, we must press for changes to the REF, formerly the RAE. In my experience, this operation, though initially a stimulus, has in the longer run had appalling effects. It has generated a vast amount of premature publication and an even larger amount of unnecessary publication by those who have nothing new to say at that particular moment, but are forced to lay eggs, however addled. In the social sciences, it has discouraged the writing of books, as opposed to specialist articles, and by making peer review the ultimate arbiter it has very probably enshrined orthodoxies and acted as a curb on intellectual risk-taking and innovation. Everywhere, it has led to an unwelcome shift in academic priorities, for younger faculty have been encouraged to do all they can to secure outside research grants which will allow them to escape from teaching, which they now regard as a vastly inferior activity; and it has induced vice-chancellors to emulate football clubs by buying in outside 'stars' on special terms and conditions. The RAE has also been absurdly rigid in its requirements. A few years ago, a colleague in another university published a huge book, based on a vast amount of archival research, meticulously documented, beautifully written and offering a new and formidably argued reinterpretation of a major historical event. I remarked to a friend in that university that this great work would certainly help their prospects in the RAE. 'Oh no,' he said. 'We can't enter him. He needs four items and that book is all he's got.' At a meeting of the editorial board of a multi-volume historical project, the question arose of what should be done if, by any chance, some of the chapters submitted proved to be unsatisfactory. The obvious answer was to delay publication until they had been properly revised. But it was at once pointed out that this would be very hard on the other contributors, who were relying on their work appearing in time to be included in the REF. So if the worst happens, we shall face an intolerable choice: should we meet the REF deadline at all costs? Or is our primary obligation to ensure the quality of the completed work? There must be hundreds of scholars who are currently confronting the same dilemma.I contrast this with my own experience in the old, supposedly unregenerate days. The college where I became a tutor in 1957 had only 19 academic fellows. Of these, two did no research at all and their teaching was languid in the extreme. That was the price the rest of us paid for our freedom and in my view it was a price worth paying. For the other fellows were exceptionally active, impelled, not by external bribes and threats, but by their own intellectual ambition and love of their subject. In due course three became fellows of the Royal Society and seven of the British Academy. They worked at their own pace and some of them would have fared badly in the RAE, for they conformed to no deadlines and released their work only when it was

ready. I became a tutor at the age of 24, but I did not publish a book until I was 38. These days, I would have been compelled to drop my larger project and concentrate on an unambitious monograph, or else face ostracism and even expulsion.I should like to see the abolition of the REF altogether, but since no one has been able to think of a better method of selectively allocating research funds to universities, it is probably here to stay. Yet we should at least press for a longer interval between each round of assessment, say, ten years rather than six, a much greater emphasis on the quality of publications rather than their quantity, and the relegation of 'impact' to an optional extra rather than an essential requirement. Since the REF is a scheme which is workable only if academics co-operate with it, the universities could easily achieve some reform here, but only if they maintain a united front. Unfortunately, those institutions which are currently most successful in the competition have no incentive to change the system, its undesirable intellectual consequences notwithstanding. We should also enlist the support of the House of Lords, which has on past occasions successfully come to the aid of the universities, most notably in 1988, when it amended the Education Reform Bill, so as to ensure the freedom of academics to express controversial or unpopular opinions without placing themselves in danger of losing their jobs or privileges.

My final suggestion, and much the most important, is that universities should collectively and publicly refute the repugnant philosophy underlying the Browne Report and the White Paper by reaffirming what they stand for and what they believe is their correct relationship to students on the one hand and to the government on the other. The original purpose of universities in the Middle Ages was to train students for service in Church and State, but the undergraduate curriculum was in the liberal arts (which, of course, included science and mathematics), and only after graduating did students take up vocational courses in law, medicine and theology. Today, universities aim to enable students to develop their capacities to the full; in the process, they acquire the mental skills and intellectual flexibility necessary to meet the demands of a rapidly changing economy. But a university should not provide vocational training, in the narrow sense of uncritical indoctrination in the rules and techniques of a particular trade. Institutions which do that are an indispensable part of the higher education system. But if their courses are vocational and their staff do not engage in research, it does not help to call them 'universities': that way they end up being regarded as inferior versions of the real thing. We need a diverse system of higher education, but only some of its components should be universities and much confusion is created by the indiscriminate application of that name.Advanced study and research are essential attributes of a university and some of that research will have vital social and industrial applications. But that is not its primary purpose, which is to enhance our knowledge and understanding, whether of the physical world or of human nature and all forms of human activity in the present and the past. For centuries, universities have existed to transmit and reinterpret the cultural and intellectual inheritance, and to provide a space where speculative thought can be freely pursued without regard to its financial value. In a free and democratic society it is essential that that space is preserved.That will not happen unless the fate of our universities becomes a prominent political issue. We need constituents to badger their MPs and voters to make their views felt in the polls. This will prove a demanding task, but I think that the British public might prove a more receptive audience for our message than is sometimes assumed. Moving, as I do these days, among retired people of a certain age, I am struck by how many of them, though not university-educated, are strongly committed to the values of higher education. They sustain the cultural institutions of the country, whether museums and galleries, or concerts of classical music or the National Trust. They read books and, unlike some students, they seem to enjoy going to lectures. We should mobilise their support, and that of others like them. What we need to do now is to clarify our aims and then to form a pressure group – perhaps the Council for the Protection, not of Rural England, but of British Universities. We should secure the help of an enlightened benefactor, hire a public relations agency and take our case to the country.

Keith Thomas spoke at a conference sponsored by the London Review, the New York Review and Fritt Ord held on 26 November at King's College London.

http://www.lrb.co.uk/2011/11/28/keith-thomas/universities-under-attack

Europe's Financial Crisis, in Plain English

By ADAM DAVIDSON, JACOB GOLDSTEIN and CAITLIN KENNEY

Kay Nietfeld/European Pressphoto Agency

The flag of the European Union flies in front of the German Parliament building in Berlin.

Much like our own recent housing crisis, the European financial mess is unfolding in a foreign language. It is the lingua franca of financial obscurity — "sovereign credit spreads" and other terms that most people don't need, or care, to know.

Yet the bottom line is simple: Europe's problems are a lot like ours, only worse. Like Wall Street, Germany is where the money is. Italy, like California, has let bad governance squander great natural resources. Greece is like a much older version of Mississippi — forever poor and living a bit too much off its richer neighbors. Slovenia, Slovakia and Estonia are like the heartland states that learned the hard way how entwined so-called Main Street is with Wall Street. Now remember that these countries share neither a government nor a language. Nor a realistic bailout plan, either.

Lack of fluency in financialese shouldn't preclude anyone from understanding what is going on in Europe or what may yet happen. So we've answered some of the most pressing questions in a language everyone can comprehend. Though the word for "Lehman" in virtually any language is still "Lehman."

Q: Will the euro survive?

It's a dangerous question to ask out loud. Suppose a credible rumor spread throughout Greece that, rather than accept the harsh terms of another bailout package, the government was plotting to revert to the drachma.

Fearing the devaluation of their savings, Greeks would move their money somewhere safer, like a German bank. The Greek banking system would then, in all likelihood, implode.

But Greece's economy is too small for an isolated collapse to cause any significant damage throughout the continent. (Even a collapse confined to Greece, Ireland and Portugal couldn't take down Europe.) So the concern about a run on the Greek banking system is largely about whether a panic might spread to Spain or — worse — Italy, which *could* topple Europe's financial system. Maybe that's why the treaty that created the euro doesn't say anything about a country's abandoning the currency. Or why European leaders scarcely mentioned the possibility (not in public, at least) until this fall, two years into the crisis.

Q: Why is it such a bad thing for a country to abandon the euro?

If a country did pull off a surprise euro exit — and get out before everybody could take their money out of the banks — there would still be a period of economic chaos. Exports and imports would shut down. Lending would collapse, which would send companies into bankruptcy. Ripple effects would be felt throughout Europe.

The problem is thorny enough that the British chief executive of Next, a European retailer, recently offered a £250,000 prize for the person who comes up with the best plan for countries to leave the euro without destroying the European economy. (Have a brilliant idea? Entries are due early next year.)

Q: Wait a minute: If leaving the eurozone would be so awful, why would anyone do it?

It's not all bad. Leaving the euro would allow a country to ignore demands from the leaders of other European countries. It could simply refuse to pay its debt.

After the short-run pain, weaker European countries could also see a long-term benefit. If Greece or Portugal went back to the drachma or the escudo, the cost of their exports would fall. Because it would be cheaper for foreign travelers to stay in their hotels and eat in their restaurants, their tourism industries would get a bump, too. The alternative is to spend the next decade as poor countries tied to a rich one's currency.

Q: Why exactly does Angela Merkel always look so woebegone?

For the euro to survive in the long run, Germany — the zone's biggest economy — will most likely need to vouch for the debt of struggling eurozone members. And it will become more expensive to borrow money if bond investors fear the country is becoming overextended.

The Germans are also wary of the widespread calls for the European Central Bank to buoy Spain and Italy by buying their bonds. If they know the E.C.B. will bail them out, what will be their incentive to act responsibly in the future? Worse, Germans argue, printing money to pay off government debt (which is what the E.C.B. would essentially be doing) is the first step to hyperinflation.

Q: What happens to the European Union if the euro crumbles?

It turns out that a bunch of vastly different countries, each with control over its own budget but all bound to a common currency, is not a sustainable economic model. And that leaves Europe with two main, and painful, options.

Option 1: Keep the euro, and make the eurozone even more integrated. While this doesn't necessarily require a full-blown United States of Europe, individual countries would probably have to give bureaucrats in Brussels or Frankfurt power over how much money they can spend. The E.C.B. might promise to do whatever

is necessary to stop a panic, but poorer eurozone countries would very likely endure years of difficult economic adjustments, including falling wages.

Option 2: Greece and perhaps a few other struggling countries on the periphery leave the euro. A Greek exit alone might give the European dream a hard kick in the teeth, but it wouldn't necessarily be fatal. It might, in fact, even prod European leaders to act more boldly to defend the rest of the eurozone. But the departure of Italy — the zone's third-largest economy — would be a different story. Italy is what wonks call a systemically important country, which means that it is so big, and so intertwined with the rest of Europe, that it would take the whole eurozone down with it. Think massive disruptions to European trade, chaos in the financial system and a dose of political and social unrest.

Q: What does this mean for the U.S.?

Fortunately, exports to eurozone countries amount to only about 3 percent of America's overall economy. The bigger worry, though, is the financial system. U.S. banks say their exposure to Europe is manageable, but when you ask smart people what a financial disaster in Europe would mean for the U.S., their answer usually goes, "Blah, blah, blah, Lehman." To put a finer point on it: when Lehman Brothers went bankrupt in the fall of 2008, it initiated a global financial panic greater than almost anyone predicted, largely because of uncertainty. Nobody knew who owed what to whom. The global financial system froze, with disastrous consequences.

European banks currently hold an extraordinary amount of European debt. And while U.S. banks have been reporting more details about their exposure to European banks, there still is a tremendous sense of uncertainty about who is on the hook, and for what, exactly. If Europe's biggest banks go down, it could very well cause another Lehman-like crisis in the U.S. The good news: It's still an "if."

Adam Davidson, Jacob Goldstein and Caitlin Kenney work for NPR's Planet Money, a podcast, blog, and radio series heard on "Morning Edition," "All Things Considered" and "This American Life."

http://www.nytimes.com/2011/12/04/magazine/adam-davidson-european-finance.html?_r=1&src=me&ref=magazine

The Globe 100: The very best of 2011

From Saturday's Globe and Mail

Published Saturday, Nov. 26, 2011 6:00AM EST

Here, in no particular order, is The Globe and Mail's annual Globe 100 best books of the year. You can read all 100 here, or view them by category in the four photo galleries attached to this story.

POETRY

Folk
By Jacob McArthur Mooney, McClelland & Stewart

Mooney's poems are subtle and intelligent, with a wry brand of tenderness, his humour sparking with a Generation Y refusal of full-on Gen X ironic distance. *Folk* is timely, an important lyric inquiry into our most mundane and most charged boundaries of community, a probing of how people transcend differences and come together. – *Sonnet L'Abbé*

Methodist Hatchet
By Ken Babstock, Anansi

Full of lush vocabulary and linguistic play, *Methodist Hatchet* is as precise as it is expansive, as complex as it is companionable. It refuses to look away from the unstable nature of self and world and word. That is why Ken Babstock is one of the most exciting lyric poets writing today.– *Sina Queyras*

Origami Dove
By Susan Musgrave, McClelland & Stewart

Musgrave's first collection in 10 years was more than worth the wait. It's trademark Musgrave, gutsy and dexterous, trading off the emotionally raw for the comedic in lyrical snapshots. Her tone is casual and direct, with a deft poetic narrative that pulls you along an emotional plot line. A natural storyteller, Musgrave is frequently heartbreaking and hilarious at the same time. – *Zoe Whittall*

Killdeer
By Phil Hall, BookThug

Phil Hall's Governor-General's Award-winning *Killdeer* is a literary memoir in the form of a lyrical essay, which he rescues from its excesses and turns into something as adventurous as it is readable. Hall is one of the most inventive, and least pretentious, poets we have. If he's not a household name yet, he deserves to be. – *Paul Vermeersch*

CANADIAN FICTION

The Guardians
By Andrew Pyper, Doubleday Canada

Trevor, Randy, Ben and Carl were friends and schoolmates. One day, a teacher disappeared; seeking to solve the mystery, they entered Thurman House, where the unspeakable happened. Twenty-four years later, Trevor is awakened with the news that Ben has hanged himself. They return for Ben's funeral, but the past begins to repeat itself when a young woman goes missing. – Christy Ann Conlin

Don't Be Afraid
By Steven Hayward, Knopf Canada

Don't Be Afraid focuses on the death of 18-year-old Mike Morrison in a mysterious explosion, and his younger brother, Jim, and his family are shattered. But Hayward never lingers over the grief under which his characters are labouring. Rarely has loss and grieving been handled with such deft tenderness, sly humour and almost inexplicable beauty. – Robert J. Wiersema

By Love Possessed
By Lorna Goodison, McClelland & Stewart

The subject matter is unique: Jamaicans of various classes and castes, passionately in and out of love. The style is also unique: a cool, faintly decorous prose, incorporating a witty, idiosyncratic Jamaican patois. As a rule, this, broadly deployed, amusingly distances us. But Goodison's alchemy of standard and Jamaican English places us deep within the consciousness of her people. – Donna Bailey Nurse

Bride of New France
By Suzanne Desrochers, Penguin Canada

A wholly original example of social history at its best. Desrochers, a trained historian, has boldly appropriated fiction to expand a vision gleaned from study of often overlooked evidence about the *filles du roi*, women exported by royal decree into the faltering, almost wholly male colony in the late 17th century to serve as breeding stock. – John Barber

And Also Sharks
By Jessica Westhead, Cormorant

In this story collection, Westhead returns to the office, employing the wit and offbeat characters that recall her novel, *Pulpy & Midge*. The stories unfold seamlessly, strikingly realistic and almost plain. However, there's always something that catches you off guard. Westhead is a talented storyteller with a sharp sense of humour. – Brooke Ford

Into the Heart of the Country
By Pauline Holdstock, HarperCollins

Holdstock takes on the relationship between English fur traders in Churchill, Man., and the native women on whom they relied. The novel follows the real-life, 18th-century exploits of Richard Norton, his son, Moses, and explorer Samuel Hearne, interspersing the goings-on at the Prince of Wales Fort with the dream sequences of Molly Norton, Hearne's fictional love interest. – Suzanne Desrochers

The Free World
By David Bezmozgis, HarperCollins

Bezmozgis tells the story of three generations of Russian Jews in Italy in 1978, emigrating from the Soviet Union to the "free world." The novel unspools in a voice as whimsical and wry and trippingly light as a sidewalk musician's, and Bezmozgis draws us in the way a consummate busker attracts his audience: with deceptive ease and unavoidable power. – Leah Hager Cohen

Every Time We Say Goodbye
By Jamie Zeppa, Knopf Canada

Zeppa's first novel explores three generations of a Canadian family in Sault Ste. Marie, Ont., spreading out the full spectrum of the human experience in an unpretentious and thoroughly convincing way. She takes us from the Depression to the late 1970s as smoothly as if we were on a guided tour in a time machine. – William Kowalski

Underground
By Antanas Sileika, Thomas Allen

This is a rare and compelling chronicle of Lithuanian partisans and their violent struggle against Soviet occupation after the Second World War. The central characters are Lukas, in love with Elena, and his brother, Vincentas. Sileika gives us a brilliant, highly accessible military history, one that remains largely repressed – underground. – Donna Bailey Nurse

Better Living Through Plastic Explosives
By Zsuzsi Gartner, Hamish Hamilton Canada

Gartner's West Coast is wild and weird, uncanny and unnerving, volatile and violent, exploring the increasingly blurry line between science fiction and science fact. These stories are mutants, the glowing fruit of irradiated breeding experiments involving the DNA of a meticulous journalist, a snarky critic of hippie/hipster/yuppie mores, an inventive stylist and an old-school fabulist. – Laura Penny

Quiver
By Holly Luhning, HarperCollins

Like a perfectly executed murder with a feminine touch, *Quiver* has everything: style, substance, terror, a treacherous murderess – and lip gloss. Danica, a Canadian forensic psychologist, finds her enthrallment with violence fed by Hungarian Countess Elizabeth Báthory, who tortured and killed 650 women; her celebrity patient, murderer Martin Foster; and "frenemy" Maria Janos. – Ibi Kaslik

Our Daily Bread
By Lauren B. Davis, Wordcraft of Oregon

Trouble's brewing in the Church of Christ as religion and sin collide in a novel full of remarkable moments. Davis takes her character Dorothy on the road to the mountain of hell and offers to walk us back down. in simple, brave, powerful scenes that sit with the soul long after the book is closed. – *Alan Cumyn*

Alone in the Classroom
By Elizabeth Hay, McClelland & Stewart

Through the figure of a beloved schoolteacher aunt, Hay's narrator in this splendid novel sets out to discover the experiences that shaped her parents, and herself. In 1929, Connie Flood encounters, while teaching in Saskatchewan, a grim principal, self-important and determined to castigate. Antagonist to this sadist is a dyslexic boy whom Connie tutors. – Aritha van Herk

Dogs at the Perimeter
By Madeleine Thien, McClelland & Stewart

Dogs at the Perimeter aims to render intimate the Cambodian genocide, and to inhabit the psyches of three of its victims over several decades. These bracing, shattering stories that link past and present, Canada and Cambodia, are characterized by Thien's insight and compassion. – Charles Foran

The Thirteen
By Susie Moloney, Random House Canada

Haven Woods is a suburban idyll: quiet streets, good schools, friendly neighbours and a bit of blood sacrifice and demon worship, the price of keeping life blessed for a coven of 13 women. Moloney has constructed a compellingly uncanny narrative, binding the tropes of small-town paranoia and cliquishness with the chokehold of family obligations and religious fervour. – *Sandra Kasturi*

The Meagre Tarmac
By Clark Blaise, Biblioasis

A short-story stalwart, Blaise gives us whole personalities and the lived experience of his characters in a handful of pages. He has always explored the interconnections (and disconnections) of cultural and geographical spaces (and people). In *The Meagre Tarmac*, Blaise addresses himself to India and the stories of Indian immigrants in North America. – *Steven Hayward*

Miss New India
By Bharati Mukherjee, HarperCollins

This is a compelling novel of young people washing up in the call centres, coffee shops and bars of today's Bangalore. It is set in India, but American culture and values loom large. The novel makes sense of India's digital age, and brings the worlds of tradition and change together in ways that illuminate both. – *Linda Leith*

Monoceros
By Suzette Mayr, Coach House

In this imaginative, quirky and devastating novel, the first chapter is narrated by the Dead Boy, harassed for being gay. By the end of the chapter, he has hanged himself; the rest of the novel is written by the students, parents and staff affected. Mayr nails the voices of her stable of wildly divergent narrators with aplomb. – *Zoe Whittall*

The Sisters Brothers
By Patrick deWitt, Anansi

The Sisters Brothers, winner of two major prizes, is poignant and powerful. This bold and compelling novel follows Eli and Charlie Sisters as they travel to San Francisco during the gold rush to kill a man. Their pursuit is a fantastic, fatalistic journey into the heart of their own natures, and the consequences of their past. – *Robert J. Wiersema*

Vital Signs
By Tessa McWatt, Random House Canada

McWatt's bracing slap of a novel makes long-term couplehood more puzzling, murky and indefinable than ever. After 30 years of marriage, Michael and Anna must contend with Anna's brain aneurysm and the prospect of a life-threatening operation. Over this book's eerie traverse, Michael comes to question everything he has ever thought about "normal" life. – *Cynthia Macdonald*

A World Elsewhere
By Wayne Johnston, Knopf Canada

In late-19th-century St. John's, Landish Druken lives in exile in a two-room attic. Both Druken and his creator use anagrams, puns and neologisms as keys to unlock secret lives, longings, betrayals and revenges. Revel in one of the funniest books that will move you to a deeper sense of the poignancy of human experience. – *T.F. Rigelhof*

Exit
By Nelly Arcan, translated by David Scott Hamilton, Anvil Press

Exit was finalized just days before Arcan's suicide at 36. Set in Montreal "in the not too distant future," the novel opens two years after a guillotine "malfunction" left narrator Antoinette paraplegic, rather than granting her the death by decapitation she then desired. Dark, beautiful, poignant and clever, *Exit* is a powerful read. – *Lisa Foad*

The Cat's Table
By Michael Ondaatje, McClelland & Stewart

Mynah, 11 is on board a luxury liner in the early 1950s, headed from Ceylon to London. At mealtimes, he is seated at the cat's table, "the least privileged place" in the ship's grand dining hall, but the best spot for an unsupervised boy to overhear the crisscrossing lines of adult intrigue and gossip he will pursue toward life-changing adventure. – *Sonnet L'Abbé*

The Perfect Order of Things
By David Gilmour, Thomas Allen

Gilmour's delicious, subversive, self-mocking novel features a narrator who is a composite from all his other books. He revisits the places he has suffered, hoping to balance old scores and relearn early lessons. In the process, he is transformed from a man who likes to watch his own reflection into a man who reflects on his failings and losses. – *Aritha van Herk*

The Antagonist
By Lynn Coady, Anansi

Rank, the protagonist of Coady's angry, funny, tender work, comes across himself in a novel by a former university pal. Outraged, he fires off a string of e-mails about what it was like to grow up as a huge boy continually mistaken for a tough guy, and who always gets the enforcer role on a hockey team. – *Giles Blunt*

Half-Blood Blues
By Esi Edugyan, Thomas Allen

Set in Baltimore, Berlin and Paris, Scotiabank Giller Prize-winner *Half-Blood Blues* spans from just after the First World War to the 1990s, but centres on the months leading up to the Nazi occupation of Paris. It chronicles the increasingly deadly trials of an interracial jazz band in which the trumpeter, a German of African descent, is arrested. – *Donna Bailey Nurse*

A Good Man
By Guy Vanderhaeghe, McClelland & Stewart

This deeply satisfying novel, dealing with ethics, politics and nationhood, is more entertaining than political historical novels have any business being. It is the kind of impeccably crafted, Dickensian charmer we expect from Vanderhaeghe's now completed "literary western" trilogy, a collection of thematically connected fictions about the death of the wild in the Wild West. – *Andrew Pyper*

The Little Shadows
By Marina Endicott, Doubleday Canada

Featuring three fatherless sisters and their widowed mother, *The Little Shadows* is set on vaudeville stages all over the U.S. and Canadian West around the First World War. The novel features Endicott's trademark wry sensibility and pithy lyricism, and her skill at pulling the rug out from under the reader's feet. – *Katherine Ashenburg*

Infrared
By Nancy Huston, McArthur & Company

Rena, a 45-year-old photographer in Paris, visits Florence with her elderly father and her stepmother, even though she can't bear to be away from her lover and resents her stepmother. We come to see that her relationship with her father is problematic too. Huston shows her mastery of complicated structure, wide cultural knowledge and brilliant, assured portraiture. – *Michel Basilières*

The Time We All Went Marching
By Arley McNeney, Goose Lane

This small, beautiful book is filled with large themes. Edie and her four-year-old son, Belly, have boarded a train to B.C., leaving Belly's father passed out in their freezing apartment. On the train, Edie tells Slim's stories of Depression-era marches to Belly. McNeney layers these stories on Edie's story with great care. A stunning achievement. – *Michelle Berry*

FOREIGN FICTION

The Empty Family
By Colm Tóibín, McClelland & Stewart

This fine collection is both a representative display of Tóibín's literary mastery and an insightful exploration of the world. Each character makes such perfect sense, each revelation, no matter how surprising, fits so well into the framework of previous revelations. Even when Tóibín's stories venture into the not-quite-believable, they are still utterly trustworthy. – *Jane Smiley*

Mr. Chartwell
By Rebecca Hunt, HarperCollins

In Hunt's first novel, the subject is Sir Winston Churchill in the 1960s, and she delivers a refreshing, strange and deeply empathetic portrait of the great man in decline, along with a jumpy, twisty, brilliantly imagined story. Her subject is actually the Black Dog, which is how Sir Winston referred to his severe periodic depressions. – *Peter Behrens*

The Cardboard Valise
By Ben Katchor, Pantheon

A graphic novel from Katchor is quite unlike anything else, more surrealist poem than traditional comic strip. Every page of this book, a travelogue of sorts, boils over with invention. Katchor loves the cheap, the mundane and the disposable. His books are like fantastic window displays, and his "stories" are made up of chains of vaguely connected digressions. – *Seth*

Bullfighting
By Roddy Doyle, Vintage Canada

Almost every one of the fine, poignant and subtly humorous stories in *Bullfighting* is about a middle-aged man. And yet, even with that narrow focus, it is probably the finest collection of Irish short stories since James Joyce's *Dubliners*, displaying delicacy of emotion, spare but elegant writing, heartbreak and humour. – *John Doyle*

The Uncoupling
By Meg Wolitzer, Riverhead

The Uncoupling – in which a student production of Aristophanes's *Lysistrata* sparks a sex strike among the suburb's women – is a smart, tender and utterly hilarious look at the fragility of desire, and the pain that so often attends its disappearance. – *Cynthia Macdonald*

Witches on the Road Tonight
By Sheri Holman, Atlantic Monthly

Holman jumps between pre-Second World War Appalachia and present-day New York in a tale of magic, love and deep, dark secrets. There is humour in her prose, but no camp, no ghoulish excess. *Witches* is a serious novel about America's relationship with homegrown mythologies: horror B-movies, Southern black magic and, yes, witches. – *Andrew Pyper*

The Tragedy of Arthur
By Arthur Phillips, Random House

In bright and rangy prose, endlessly playing on Shakespeare's subjects and themes, *The Tragedy of Arthur* is the funny, often moving autobiography of a serial forger's son, which becomes in turn a middle-aged writer's stocktaking of his family, career and hateful relationship to Shakespeare, which transforms into a take on the publishing industry's appetite for buzz books. – *Randy Boyagoda*

The Forgotten Waltz
By Anne Enright, McClelland & Stewart

Provocative, sexy, romantic, distinctive and gorgeously crafted. Gina Moynihan, Enright's protagonist, has embarked on a lasting affair that unfolds over the course of Ireland's economic boom and bust. Enright's voice is wry at its gentlest, always clear-eyed, sometimes smarting. Each of her sentences has a stand-alone beauty, spring-triggered with wit. – *Lisa Moore*

Before I Go to Sleep
By S.J. Watson, HarperCollins

Christine, who lost her memory in an accident 20 years before, wakes every morning to a life she does not remember and must start from scratch. This is a skillfully made and satisfying novel and Christine is a woman the reader will come to care about as she struggles for a glimpse of truth in a universe that is daily alien. – *Martin Levin*

Long Time, No See
By Dermot Healy, McArthur & Company

Roddy Doyle calls Healy Ireland's greatest writer. He's is definitely in the pantheon; his prose is impressive. This novel covers several months in Ireland's northwest and features an adolescent protagonist nicknamed Mister Psyche. There is little plot, but Healy makes up for this with strange dry humour, affectionate satire and a sharp eye for minutiae. – *Mark Anthony Jarman*

A Dance with Dragons
By George R.R. Martin, Bantam

The long-awaited fifth volume in the mammoth *Song of Ice and Fire* fantasy series centres on the power struggles of the Houses of Stark and Lannister. The story has expanded far beyond the original characters to become a labyrinthine edifice, encompassing myriad characters, cultures, intrigues and mysteries. But by the end, breakneck ferocity has returned. – *Ilana Teitelbaum*

Disaster was My God
A Novel of the Outlaw Life of Arthur Rimbaud, by Bruce Duffy, Doubleday

Rimbaud was a 19th-century prodigy who booted poetry into the 20th century before refashioning himself as an arms dealer in Africa. This "teenaged pied piper" lured Paul Verlaine – here a depraved creature Duffy captures in all his spellbinding loathsomeness – over the cliff of propriety, sobriety and solvency. A wonderful story, with a vitality that can't be suppressed. – *Kathleen Byrne*

The Magician King
By Lev Grossman, Viking

Months as a magician king have left Quentin Coldwater paunchy and restless, so he undertakes a quest to remote Outer Island. What began as a lark turns dark and epic. One of Grossman's great strengths is finding

the balance point between the fantastic and the banal, the magical and the everyday. *The Magician King* is a breakneck read. – *Robert J. Wiersema*

The Grief of Others
By Leah Hager Cohen, Riverhead

Cohen's deeply affecting novel begins with a woman in a maternity ward, struggling to come to grips with the death of her baby, who lived for only 52 hours. A year later, the family is still reeling. This is a complex and resonant novel, a moving exploration of the ways grief can twist and maim us. – *Steven Hayward*

The Night Circus
By Erin Morgenstern, Doubleday Canada

Two young magicians compete in an elaborate game set against the backdrop of the mysterious, black-and-white-striped Cirque des Rêves. But neither realizes that the conclusion of the game could well be tragic. *The Night Circus* is one of those books. One of those rare, wonderful, transcendent books that, upon finishing, you want to immediately start again. – Robert J. Wiersema

The Emperor of Lies
By Steve Sem-Sandberg, Anansi

This brilliantly constructed novel, massive, detailed, teeming with characters, unfolds from 1940, when the Lodz Ghetto was created by the occupying Germans, to 1944, when the last of its inhabitants were deported to the death camps. During those few years, the ghetto was ruled with ruthless cruelty by Mordechai Chaim Rumkowski. – *Anna Porter*

The Great Leader
A Faux Mystery, by Jim Harrison, Anansi

Retired Detective Sunderson dreams of finding enough evidence to imprison Dwight/King David, the Great Leader of a cult that offers pseudo-native-American spiritual enlightenment in return for thousands of dollars and underage sexual partners. Sunderson is aided by 16-year-old Goth girl Mona. An enthralling, exhilarating, provocative novel. – *T.F. Rigelhof*

The Stranger's Child
By Alan Hollinghurst, Knopf Canada

This powerful novel about myth-making, biography and the lot of gay men is unabashedly ambitious in theme and intelligent in execution. It begins in 1913, when George Sawle brings Cecil Valance home from Cambridge, and ends in 2008. Threaded throughout is a history of the possibilities open to gay men before 1967, when homosexuality was legalized in Britain.. – *Margot Livesey*

1Q84
By Haruki Murakami, translated by Jay Rubin and Philip Gabriel, Knopf Canada

In 1984 Tokyo, Aomame is a fitness instructor, massage therapist and assassin, killing men who commit violence against women. Tengo is an aspiring novelist and amiable loner. All they really need, it turns out, is each other. This colossus is expansive, enthralling, but also an over-long and occasionally exasperating foray into the lure of fanatical beliefs. – *Charles Foran*

Ragnarok
The End of the Gods, by A.S. Byatt, Knopf Canada

The premise for Byatt's retelling of the Norse myths is simple and compelling: A girl is sent from the wartime London blitz to the country. At 3, she is taught to read, and her book-born life of the imagination begins. These imaginings are enormously expanded upon, and influenced forever, when her mother gives her *Asgard and the Gods*. – *Gale Zoë Garnett*

11/22/63
By Stephen King, Scribner

A thrilling, thoughtful, character-centred journey into the American dream. The time portal Jake Epping is shown, in a grotty roadside diner, goes only to 1958. Al, who owns the diner, has spent five years in the past, preparing to stop the assassination of John F. Kennedy. But cancer foiled him, so he enlists Jake to finish the job. – *Robert J. Wiersema*

NON-FICTION

The Memory Palace
By Mira Bartók, Simon & Schuster

In this multi-chambered prism that artist Bartók creates as both sanctuary and tribute, she can both memorialize and escape a dangerous, psychotic, much-loved mother, musical prodigy Norma Herr, whom she would essentially abandon to the streets and to others for 17 years. This memoir is a brilliant portrait of a unsparing journey through a horrific experience of severe paranoid schizophrenia. – *Jacki Lyden*

The Magnetic North
By Sara Wheeler, Farrar, Straus & Giroux

Circumnavigating the Arctic and meeting its people in this bookend to her *Terra Incognita*, about the Antarctic, Wheeler ranges unsentimentally through exploration history and climate change and inexorable acculturation. That she emerges with this sparkling book is a triumph of British stoicism – and style. She keeps us fixed with detail, humour and acerbic commentary. – *Ken McGoogan*

Tiger, Tiger
By Margaux Fragoso, Douglas & McIntyre

In this remarkable debut, Fragoso reminds us that "child molesters" do not exist in some separate category of humanity. Fragoso spent 14 years, from the age of 7 to 21, in an intimate, off-and-on sexual relationship with Peter, and in this unflinching portrait of their time together, he emerges as a complex, haunted and haunting character – not necessarily forgivable, but human. – *Marni Jackson*

Moonwalking with Einstein
The Art and Science of Remembering Everything, by Joshua Foer, Penguin Press

This erudite and charming first book finds Foer, dissatisfied with his own forgetful memory, training for the 2006 U.S. Memory Championship. The story follows Foer as he ramps up his training, interspersed with a survey course on the history of memory, from the Greeks to MRIs, and his encounters with modern masters of memory – *Siobhan Roberts*

Day of Honey
A Memoir of Food, Love, and War, by Annia Ciezadlo, Free Press

In her extraordinary debut, Ciezadlo turns food into a language, a set of signs and connections that helps tie together a complex, moving memoir. She interweaves her private story with portraits of memorable individuals and with shattering public events in Baghdad and Beirut. She does so with grace and skill, without sentimentality or simple generalizations. – *Naomi Duguid*

The Information
A History, a Theory, a Flood, by James Gleick, Pantheon

Gleick has the ability to imagine and express the significance of important aspects of contemporary cultural knowledge. His sixth book recounts the history of the concept of information itself, ratifying his role as one of our most readable explicators of Big Ideas. This thick executive summary is accessible to a general audience, while remaining of interest to experts. – *Darren Wershler*

Tommy Douglas
By Vincent Lam, Penguin Canada

Placing Tommy Douglas's 17 years as premier of Saskatchewan and his role as father of medicare at the centre of the narrative, Lam, a Giller Prize-winning author who's also an emergency physician, gives Douglas's incomparable career a thoughtful, balanced, lucid assessment. Lam clearly feels a strong affinity for Tommy – not only for his innovative achievements in health care, but for his compassion, decency and moral courage. – *Roy MacSkimming*

Esther
The Remarkable True Story of Esther Wheelwright – Puritan Child, Native Daughter, Mother Superior, by Julie Wheelwright, HarperCollins

In this highly readable, meticulously researched history, Wheelwright explores the adventurous life of her distant relative, Esther Wheelwright. In doing so, she provides a fascinating portrait of New England and New France in the 18th century, and of the complex negotiations among the French, the English and the Abenaki as they battled over land, religion and hunting rights. – *Margot Livesey*

Here on Earth
A Natural History of the Planet, by Tim Flannery, HarperCollins

This is a hinge moment for civilization. Australian biologist Flannery responds by explaining the nature of that hinge and offering hope for the future. Just as his *The Weather Makers* appeared at the right time to explain climate change, *Here on Earth* arrives at the perfect moment, a bravura synthesis spanning scientific disciplines and billions of years. – *Alanna Mitchell*

Who Killed Mom?
A Delinquent Son's Meditation on Family, Mortality and Very Tacky Candles, by Steve Burgess, GreyStone

Like a Garrison Keillor of the Canadian Prairies, Burgess writes funny, unfiltered observations, anecdotes and character descriptions that flow naturally and make for an engaging story of his life to date. This is a very funny book is worthy of a Leacock Medal for Humour. – *D. Grant Black*

One Hundred Names for Love
A Stroke, a Marriage, and the Language of Healing, by Diane Ackerman, Norton

This is a book about life-altering illness and language as balm and bond. Ackerman writes vividly and movingly about the effects of her husband's stroke on her and on her husband, writer Paul West. She writes well about married life, its intimacies and childish pleasures. Often, her writing is startling and evocative. – *André Alexis*

The Immortalization Commission
Science and the Strange Quest to Cheat Death, by John Gray, Doubleday Canada

Gray's focus is the revolt against death after Darwin, "claiming that science could give humanity what religion and magic had promised – immortal life." As always, Gray is about separating reality from delusion – brilliantly. The astuteness of his thinking, the connections he makes between a wide range of subjects and the clarity of his conclusions make this book extremely satisfying. – *M.A.C. Farrant*

Paying for It
By Chester Brown, D&Q

Brown's comic-book memoir about his sexual obsessions is an exploration and justification of prostitution as a logical option between consenting adults, a tricky tale of unromantic love, a heartfelt argument against the ingrained cultural trappings of romance, and a fierce defence of the often overlooked joys of other forms of love (platonic, filial, interpersonal). And it's funny. – *Brad Mackay*

The Last Act
Pierre Trudeau, the Gang of Eight, and the Fight for Canada, by Ron Graham, Allen Lane Canada

This is a spirited and judicious account of Trudeau's heroic struggle to repatriate the Constitution, "a pivotal moment in the evolution of the nation ... Canada's spiritual coming of age." Graham is an able chronicler of this epic tale of nation-building. He brings clarity and balance to a drama that has been cynically distorted by separatists and revisionists. – *Andrew Cohen*

The Origins of Political Order
From Prehuman Times to the French Revolution, by Francis Fukuyama, Farrar, Straus & Giroux

Two decades after his influential "end of history'" proclamation, Fukuyama affirms the superiority of liberal democracy. His fullest, richest work yet, this is a lively, fascinating and readable milestone in historical and political sociology. It will also be an essential guide to the future direction of world politics. – *Andrew Preston*

The Chimps of Fauna Sanctuary
A Canadian Story of Resilience and Recovery, by Andrew Westoll, HarperCollins

Westoll's account of Gloria Grow and her Quebec sanctuary for damaged creatures should make us rethink what it is to be human – and animal. It's an opera of dramatic events, heart-rending tragedies and uplifting triumphs. For anyone interested in empathy and recovery, this book is required reading. – *Linda Spalding*

Say Her Name
By Francisco Goldman, Grove

Goldman's sublime and heart-rending story of his marriage to Mexican writer Aura Estrada, and of her tragic death is a book about loss and grief and the attendant "guilt, shame, and dread, on an endless loop." *Say Her Name* is also an unforgettable love story, a testament to a great love and love's greatness. – *John Goldbach*

To End All Wars
A Story of Loyalty and Rebellion, 1914-1918, by Adam Hochschild, Houghton Mifflin Harcourt

To End All Wars is about the clash of world views that occurred as traditionalism and modernism jostled for primacy in wartime Britain. Hochschild is a consummate storyteller and the book is a captivating read, thanks in large part to his keen eye for the telling vignette. – *Jonathan F. Vance*

In the Garden of Beasts
Love, Terror, and an American Family in Hitler's Berlin, by Erik Larson, Crown

This tale of U.S. ambassador Christopher Dodd and family landing in 1933 Germany is very sad, because Hitler could have been stopped early on, and because so many Germans blithely followed him. But it is also superb; Larson's core idea, to trace the moral corruption of an entire society through the swiftly altering perceptions of one family, is masterful. – *Martin Levin*

The Psychopath Test
A Journey Through the Madness Industry, by Jon Ronson, Riverhead

Ronson's effort to plumb the depths of psychopathology seems like a contemporary version of *Alice in Wonderland*. The journey, including encounters with conspiracy theorists and reality-TV producers, is sometimes hilarious, sometimes alarming and always entertaining. – *Christopher Dewdney*

Incognito
The Secret Lives of the Brain, by David Eagleman, Viking Canada

I love this book, though it is the sort experts on human nature hate, as Eagleman says things like "criminals should always be treated as incapable of having acted otherwise." I love it precisely because it reveals so many of the strings and levers of human nature; science has revealed us as bio-robots. Not divine, but engineered by evolution. – *Jeffrey Foss*

Something Fierce
Memoirs of a Revolutionary Daughter, by Carmen Aguirre, Douglas & McIntyre

Something Fierce is Vancouver playwright and actor Aguirre's memoir of growing up in the resistance as the daughter of a revolutionary Chilean mother, a journey into selfhood in a high-stakes world of secrecy, fear, bravery and love. It is raw, courageously honest and funny; an insightful journey into the formation of a revolutionary soul. – *Francisca Zentilli*

Phoenix
The Life of Norman Bethune, by Roderick and Sharon Stewart, McGill-Queen's

This revisionist work makes the case that the celebrated doctor led a life of failure, alcoholism and deceit, redeemed by a few glorious months of sacrifice in China. Thorough, objective, well written, exhaustive and highly readable, *Phoenix* should become the definitive basis for all serious discussion of Bethune. – *Michael Bliss*

Born Liars
Why We Can't Live Without Deceit, by Ian Leslie, Anansi

In this persuasive and wide-ranging book about the useful role of deception, Leslie argues that lies are not just the refuge of the cowardly, the Machiavellian or the too-kind. Not coming entirely clean with others people is

part of being a social animal. Leslie brings intelligence and a wealth of thought-provoking research to his topic. – *Marni Jackson*

The Invention of Murder
How the Victorians Revelled in Death and Detection and Created Modern Crime, by Judith Flanders, Harper

Flanders has produced a compelling study of how crime, and crime prevention, emerged as a popular obsession in 19th-century Britain, and came to dominate its literature. Murder did not begin in Victorian Britain (as TV series such as *Rome* and *The Tudors* bloodily demonstrate), but the paraphernalia of crime detection and the vehicles for sensationalism did. Mesmerizing. – *Charlotte Gray*

The Beautiful and the Damned
A Portrait of the New India, by Siddhartha Deb, Bond Street

This work, focusing on five characters in the new India, reads like a sub-continental *Great Gatsby*. Deb has been compared to V.S. Naipaul, but his voice is unique, more honest, a gaze refreshingly different. The invisible aspects of globalization are starkly revealed, as is the plight of India's dispossessed. – *Jaspreet Singh*

Taking My Life
By Jane Rule, Talonbooks

In this absorbing posthumous memoir, Rule the realist has illuminated with insight, joyousness, tenderness and even pain the influences that were to shape her as a writer and as a sexual being. Her great openness about relationships, her insistence on the creation of community, her pursuit of truth, are very much in evidence. – *M.A.C. Farrant*

Little Comrades
By Laurie Lewis, Porcupine's Quill

In her first book, Lewis, now 80, tells of being raised in Calgary by parents who were members of the Communist Party, though her father was a drunk and abusive. Demonstrating a talent for ironic juxtapositions and uncanny observational skills, she brings the Great Depression and Second World War unforgettably to life. – *Elisabeth Harvor*

Arguably
Essays, by Christopher Hitchens, M&S/Signal

Beyond doubt, Hitchens considers provocation his daily bread and wine, even in what may be his final days. But what is most astonishing about *Arguably* is how bare it lays the foundation for Hitchens's enduring relevance as an essayist and commentator. Simply, it all comes down to reading and rereading, arguing with and for, books.– *Charles Foran*

Empire of the Beetle
How Human Folly and a Tiny Bug are Killing North America's Great Forests, by Andrew Nikiforuk, GreyStone

This important book is not just a primer on the recent rampages of the bark beetles that have killed more than 30 billion pine and spruce trees. It is not just a virtual gathering of the dozens of scientists and others who have grappled with the beetle onslaught. It is a principled reflection on "the pathology of resource management." – *William Bryant Logan*

The Swerve
How the World Became Modern, by Stephen Greenblatt, Norton

Stephen Greenblatt tells us that the physical manifestations of modernism grow from a single seed, the manuscript of a lengthy poem by Lucretius, *On the Nature of Things*, lost in the early Christian era and unearthed and unleashed in 1417 by out-of-work papal scribe Poggio Bracciolini. What he unleashed forms this riveting, entirely clear and beautifully written narrative. – *Jane Smiley*

Winter
Five Windows on the Season – the CBC Massey Lectures, by Adam Gopnik, Anansi

Gopnik offers no jaw-dropping conclusions or theories about winter and our relationship to it. He brings to the page a stream of endlessly entertaining insights and ideas – a treasury of people and places and art. The book is ashiver with insights and good will. – *Charles Wilkins*

MetaMaus
A Look Inside a Modern Classic, Maus, by Art Spiegelman, Pantheon

MetaMaus offers several more layers to Spiegelman's graphic classic, *Maus*, one of the most textured of modern books. Imagine a great architect like Frank Gehry offering a guided tour to one of his classic buildings, opening up the original plans, explaining his solutions for each problem. Such an act of self-exegesis is immensely rewarding. – *Jeet Heer*

Boomerang
Travels in the New Third World, by Michael Lewis, Norton

Lewis's guided tour of the world's economic ruins is a bit like hiking through remote gastronomic regions with Anthony Bourdain. Like Bourdain, he gets up close and personal with the economic meltdown, and applies a biting wit that infuses a rare pleasure into the unpleasant business of digesting grim economic tales. – *Jacquie McNish*

Why Not?
Fifteen Reasons to Live, by Ray Robertson, Biblioasis

These thoughtful meditations on the big questions of life (and death) emerge from mental pain and a writer's need for whatever helps you make it through the night. I like Robertson's well-read mind, from which he draws on an array of thinkers from Seneca to Nietzsche in the tradition of Montaigne's investigation into what we know about ourselves. – *Stan Persky*

Nation Maker
Sir John A. Macdonald: His Life, Our Times, Volume Two: 1867 -1891, by Richard Gwyn, Random House Canada

The second of a two-volume, prize-winning biography covers 1867 to 1891, from just after Confederation to Macdonald's death. At its heart is the creation, against all odds, of a railway that would become the spine of the emerging country. The book is a towering achievement, a glittering career-capper, and may prove impossible to beat. – *Ken McGoogan*

The Measure of a Man
The Story of a Father, a Son and a Suit, by JJ Lee, McClelland & Stewart

JJ Lee chronicles the evolution of the men's suit while telling a personal yet universal story about a son's quest to understand his father. This beautiful, clever book gets to the very heart of the most basic masculine bond, and how even through disappointment, abandonment, anger, confusion and pain, a son can love, honour and protect his father. – *Carla Lucchetta*

Steve Jobs
By Walter Isaacson, Simon & Schuster

This is the first full biography of a flawed and complex man, the first to truly show him in the round. This nuanced, warts-and-all portrait shows Steve Jobs was not so much smart as a genius, someone who could make instinctive and almost magical leaps that produced products that seemed to have fallen through wormholes from the future. – *Paul Kedrosky*

Eating Dirt
Deep Forests, Big Timber, and Life with the Tree-Planting Tribe, by Charlotte Gill, GreyStone

It is hard to say why a book full of mould, sodden clothing, bad weather, grizzly bears, broken-down trucks, blisters and tiny seedlings should be engaging, rewarding and full of knowledge, but *Eating Dirt* is so winning because it bridges the dizzying gulf between the people who command that work be done and the people who do it. – *William Bryant Logan*

The End
The Defiance and Destruction of Hitler's Germany, 1944-1945, by Ian Kershaw, Penguin Press

In this remarkable book, Kershaw (author of a definitive biography of Hitler) tells the story of the mass murder and homicidal suicide of the Third Reich in its final days with a mastery of detail so compelling that I could not put it down. A magnificent account of the "twilight of the Nazi gods." – *Jonathan Steinberg*

Rin Tin Tin
The Life and the Legend, by Susan Orlean, Simon & Schuster

Orlean gives us an extraordinary narrative about the careers of the many Rin Tin Tins and the man who "discovered" the canine silent film star. Deeper, larger issues are brought to bear as well: our need for creating permanence; the promise of friendship and how we find completion; our abiding wish to be remembered. – *M.A.C. Farrant*

Blue Nights
By Joan Didion, Knopf

This book about the death of Didion's daughter, Quintana, is heartbreaking in part because it is somewhat jumbled. The shards of memory, shimmering as they are, do not finally fit together, quite. Instead, in its elliptical, kinetic way, the book offers something braver than coherence: a raw and rare integrity that resists resolution. – *Leah Hager Cohen*

Thinking, Fast and Slow
By Daniel Kahneman, Doubleday Canada

Economic rationality, psychologist Kahneman argues in his brilliant work on how we make choices, is all about coherence and logical consistency. This is a magisterial work, stunning in its ambition, infused with knowledge, laced with wisdom, informed by modesty and deeply humane. If you can read only one book this year, read this one. – *Janice Gross Stein*

DarkMarket
Cyberthieves, Cybercops and You, by Misha Glenny, Anansi

British writer Glenny's history of how cyber-crime went from the domain of lone-wolf hackers to a highly organized criminal underworld is entertaining, well written and any number of insightful diagnoses, such as the competitions between hackers, or the reasons why law-enforcement agencies have such difficulty working together. – *Jeffrey Hunker*

When the Gods Changed
The Death of Liberal Canada, by Peter C. Newman, Random House Canada

The end of the Liberals and the rise and fall of Michael Ignatieff animate this important, timely and engaging book, the first to look at the 2011 election, probably a watershed in our history. Few do substantive, long-form journalism like this any more, and no one does it with octogenarian Newman's eye, ear and ego. – *Andrew Cohen*

http://www.theglobeandmail.com/news/arts/books/the-globe-100-the-very-best-of-2011/article2248133/

Virtual robot links body to numbers just like humans

- 11 November 2011 by **Celeste Biever**
- Magazine issue 2838

One lorry: iCub's virtual self can count, too *(Image: David Paul Morris/Bloomberg via Getty Images)*

A virtual robot has acquired a cognitive wrinkle common in people – further evidence that computers need bodies if they're ever going to think like us

ONE of the many curious habits of the human brain is that we tend to associate small numbers with the left side of our body and large numbers with our right.

Now a virtual robot embedded in a synthetic world has acquired the quirk. This is helping untangle the puzzle of how even highly abstract concepts such as numbers might be rooted in our physical interactions with the world.

"Numbers are so abstract and pure, they seemed detached," says Marek Rucinski of the University of Plymouth, UK, who presented the virtual robot at the Cognitive Science conference in Boston in July. "Yet every concept we have is somehow grounded in the real world."

The so-called SNARC (spatial-numerical association of response codes) effect is well established: people respond faster to a number (by pressing a button, say) with their left hand when the number is small and with their right hand when the number is large. Similarly, people who have brain damage that causes them to ignore the left side of their body show a bias towards larger numbers when asked to report the middle of a numerical interval.

These number-space associations epitomise the broader, surprising insight that many other aspects of abstract thought are believed to have their roots in our sensory and motor interactions, says Martin Fischer, who specialises in what's known as embodied cognition at the University of Potsdam in Germany. "The SNARC effect shows that even abstract knowledge goes directly back to the sensory and motor experiences that we had when we acquired the knowledge."

The accepted explanation for the SNARC effect is that when we in the west learn to count, we are most likely to be taught in a left-to-right direction - on a blackboard perhaps or by a parent pointing to objects in a row. This way of learning sets up links between small numbers and the part of the brain that controls our left side, and vice versa, that persists into adulthood. There is also evidence from cultures that read from right to left that the association is reversed.

To better understand how these connections might form, Rucinski and his colleagues turned to a virtual version of a child - a digital simulation of the humanoid robot iCub - and exposed it to processes that might help these connections form in people.

iCub's development began with a phase called "motor babbling", randomly moving its virtual arms and gaze, which human babies are thought to use to become aware of their bodies. In a crude simulation of the architecture of our brains, the researchers set up three areas for spatial processing in the iCub's brain: two corresponding to each arm and one to its gaze.

Next the researchers taught iCub to count by presenting it with a stream of digits from 1 to 15. To mimic the west's cultural bias towards counting from left to right, low numbers were presented to its left, and high to the right. Learning software that mimics the way synapses form connections in the human brain then associated low numbers with the left area of the gaze map and the left arm - and vice versa for the right.

iCub was then ready to take the SNARC test. It was presented with a random series of odd and even numbers. In one instance iCub had to press a button with its left hand when the number was odd and right hand when it was even; in a second instance, the buttons were reversed. Like humans who have taken the same test, iCub was faster both when the number was small and it pressed the button with its left hand, and when the number was large and the button pressed was on the right.

In a second, modified version of SNARC, the robot was presented with numbers followed by an object either on the right or left. The time the robot took to notice the object was then recorded. It was faster both when the number was small and the object was on the left, and the number was large and the object was on the right.

Rucinski can explain what's going on. In both cases, the connections laid down during motor babbling and learning to count meant that simply by appearing, each number was automatically activating the spatial brain areas associated with either the right or left side of iCub's body. This made the robot faster at using that side of the body to complete the task - whether it was hitting a button in the classic SNARC test or noticing an object in the modified test.

"The model provides an embodied explanation for number-space interactions," says Rucinski. The results show that these associations can emerge from a combination of learning to count from left to right and from the way the human body is built. That doesn't mean that iCub's thought processes mirror exactly what is going on in a human brain - but it does imply that the association can arise from just those two factors, both of which humans have, he says.

"This is a really good complementary approach to what we are doing in experimental psychology," says Fischer, who adds that he looks forward to a day when work in cognitive robotics could make a prediction about cognition that is then tested in humans, instead of the other way around.

Why robot bodies need a makeover

It is becoming clear that our physical bodies drive much of our thought. So building a machine that thinks like a human may mean building robots whose limbs enable them to interact with the physical world.

"The body plays a crucial role - it is the means by which the brain can acquire information and learn about the environment," says Rolf Pfeifer, a researcher in artificial intelligence at the University of Zurich, Switzerland.

Robots' bodies can be easily manipulated - adding or removing legs, arms or eyes, say - to systematically test the extent to which the shape of our bodies and their interaction with the environment influences cognition (see "Squishybots: soft, bendy and smarter than ever").

http://www.newscientist.com/article/mg21228385.900-virtual-robot-links-body-to-numbers-just-like-humans.html?full=true&print=true

Whiskers Marked Milestone in Evolution of Mammals from Reptiles

Young white rat. (Credit: © Africa Studio / Fotolia)

ScienceDaily (Nov. 10, 2011) — Research from the University of Sheffield comparing rats and mice with their distance relatives the marsupial, suggests that moveable whiskers were an important milestone in the evolution of mammals from reptiles.

Using high-speed digital video recording and automatic tracking, the research team, which was led by Professor Tony Prescott from the University´s Department of Psychology, have shed light on how rodents such as mice and rats move their whiskers back-and-forth at high speed and in varying ways to actively sense the environment around them in a behaviour known as whisking. Whisking allows mice or rats to accurately determine the position, shape and texture of objects, make rapid and accurate decisions about objects, and then use the information to build environmental maps.

When running in a straight line, rats and mice move their whiskers back-and-forth the same amount on both sides. However when turning, they bias their whisker movements in the direction of the turn, and when the whiskers on one side of the head contact an object, those on the opposite side sweep round to gather more information. These active sensing strategies boost the information gained by the whiskers helping the animals to better understand their world through touch.

In their latest research, the team have shown that whisking like that of rodents, using these active sensing strategies, is also seen in a small South American marsupial -- the grey short-tailed opossum. This animal has many similarities to an early mammal that would have lived more than 125 million years ago; that is, around the same time that the evolutionary lines leading to modern rodents and marsupials diverged.

This evidence suggests that some of the first mammals may also have whisked like a modern mouse or rat, and that the appearance of moveable whiskers was pivotal in the evolution of mammals from reptiles. The research is published in *Philosophical Transactions of the Royal Society B* on 12 November 2011 and will also be presented on the same day at the Society for Neuroscience conference.

The earliest mammals were nocturnal, and tree-living. In order to successfully move around and thrive in this challenging environment these animals needed to effectively integrate information from multiple senses -- sight, sound, smell, and touch. Facial whiskers provided mammals with a new tactile sense not available to reptiles that could help them to get around in the dark.

In addition to continuing to investigate the similarities and differences between rodents and marsupials, the team is also using these insights from biological whisker sensing to develop animal-like robots that can use

artificial whiskers to navigate without vision. These robots could have applications in search-and-rescue, particularly in environments, such as disaster sites, where vision is compromised by smoke or dust.

Professor Tony Prescott said: "This latest research suggests that alongside becoming warm-blooded, giving birth to live young, and having an enlarged brain, the emergence of a new tactile sense based on moveable facial whiskers was an important step along the evolutionary path to modern mammals. Although humans no longer have moveable whiskers they were a critical feature of our early mammalian ancestors."

Story Source:

The above story is reprinted from materials provided by **University of Sheffield**.

Note: Materials may be edited for content and length. For further information, please contact the source cited above.

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1. B. Mitchinson, R. A. Grant, K. Arkley, V. Rankov, I. Perkon, T. J. Prescott. **Active vibrissal sensing in rodents and marsupials**. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 2011; 366 (1581): 3037 DOI: 10.1098/rstb.2011.0156

http://www.sciencedaily.com/releases/2011/11/111110125949.htm

Urban beehive lets you harvest honey indoors

16:20 10 November 2011
Green tech
design

Jacob Aron, technology reporter

(Image: © Philips Design)

Urban beekeeping is taking off amongst those with a back garden or roof terrace, but why should high-rise apartment dwellers be left out? That's the thinking behind Philips' urban beehive design, which lets you stick a swarm in your living room.

The sleek hive comes in two pieces that attach through a hole in a window. The outside part provides an entry into the main hive and holds a flower pot for the bees to gather pollen, while the inside contains honeycomb frames ready for the bees to deposit their wax. An orange glass shell filters light, only letting through the wavelengths bees use for sight, and a pull cord at the base releases smoke to calm the bees before opening the hive to gather honey.

It is certainly an attractive design that could help boost declining bee numbers, but don't expect to see them adorning skyscraper windows any time soon - the hive is just a concept drawn up by Philips as part of its Microbial Home project, which looks at the possiblity of turning the home into a "domestic ecosystem". Indoor beehives also seem unlikely to get past health and safety checks - what happens if the bees get loose?

http://www.newscientist.com/blogs/onepercent/2011/11/urban-beehive-lets-you-harvest.html

Archeologists Discover Huge Ancient Greek Commercial Area On Island of Sicily

Archeologists opening a kiln. Dr. Gabriel (with white hat) moistens the earth with a red water syringe, in order to better recognize the layers. (Credit: Copyright Martin Bentz/Uni Bonn)

ScienceDaily (Nov. 14, 2011) — The Greeks were not always in such dire financial straits as today. German archeologists have discovered a very large commercial area from the ancient Greek era during excavations on Sicily.

Led by Professor Dr. Martin Bentz, archeologists at the University of Bonn began unearthing one of Greek antiquity's largest craftsmen's quarters in the Greek colonial city of Selinunte (7th-3rd century B.C.) on the island of Sicily during two excavation campaigns in September 2010 and in the fall of 2011.

The project is conducted in collaboration with the Italian authorities and the German Archaeological Institute. Its goal is to study an area of daily life in ancient cities that has hitherto received little attention.

"To what extent the ancient Greeks already had something like 'commercial areas' has been a point of discussion in expert circles to this day," said Bonn archeologist Dr. Gabriel Zuchtriegel, a research associate who coordinates the Selinunte project together with Dr. Jon Albers from the Institut für Klassische Archäologie der Universität Bonn at the Chair of Prof. Dr. Martin Bentz. "A concentration of certain 'industries' and craftsmen in special districts does not only presuppose proactive planning; it is also based on a certain idea of how a city should best be organized -- from a practical as well as from a social and political point of view, e.g., who will be allowed to live and work where?" The University of Bonn excavations are now contributing to finding a new answer to such questions.

Huge kilns, used communally

Concentration in a certain city district applied primarily to potteries in Selinunte, which were massed on the edge of the settlement in the very shadow of the city wall. "Consequently, their smoke, stench and noise did not inconvenience the other inhabitants as much," explained Dr. Zuchtriegel. "At the same time, this allowed several craftsmen to use kilns and storage facilities together." The excavations showed that the potters joined cooperatives that shared in the use of gigantic kilns with a diameter of up to 7 meters. The craftsmen's district in Selinunte probably stretched for more than 600 meters along the city walls and is thus among the largest ones known today. The excavations are in the hands of faculty and students from Bonn and Rome -- and they are exhausting. For excavations go on in August and September, when the heat reaches its peak -- but in exchange, there is very little rain.

"This work is a challenge for all involved," commented dig manager Bentz. "This is no camping trip." But for students, it is a great opportunity to learn archeological methods by doing. The Bonn researchers were surprised to find even older remnants of workshops under the 5th c. kilns. While these finds have not been completely excavated yet, indications are -- so the archeologists -- that pottery workshops existed in the same location during the city's early phase in the 6th century B.C. This means that craftsmen were probably intentionally housed on the edge as early as during the design of the city, which was -- like many colonies -- planned on the drawing board.

Reconstructing the past

The finds from the craftsmen's district are not exactly treasures, but they are still valuable for reconstructing the past. In the early phase, widely ranging finds of clay vessels, tiles and bronzes -- among them also imports from Athens and Sparta -- indicate that living and work quarters were housed together. Over the course of the 5th century, the two areas were separated increasingly.

"We hope to improve our understanding of that in future," said Prof. Bentz. But so far, he continued, little was known about the social conditions prevailing during the founding of a colony. What was certain is that often, it was hunger and need that drove settlers to emigrate and found a new city. Why and under what conditions some of them became potters, other farmers, and others yet rich landowners who could afford to participate in the Olympic games -- these are questions that the excavations can shed some light on.

Story Source:

The above story is reprinted from materials provided by **University of Bonn**, via AlphaGalileo.

http://www.sciencedaily.com/releases/2011/11/111114093411.htm

Hybrid phone network offers Wi-Fi calls

13:56 8 November 2011
Smartphone

Jacob Aron, technology reporter

(Image: Republic Wireless/LG Optimus)

Smartphones let you do almost everything over Wi-Fi, so why do we still have to use up cellular minutes when making a call? That's the thinking behind Republic Wireless, a new hybrid phone network that lets you seamlessly make calls using any available Wi-Fi hotspot, falling back to the regular cellular network when you move out of Wi-Fi range.

The company estimates that most people are near a Wi-Fi network 60 per cent of the time, whether that be your home, work or the local coffee house, but it might not be suitable for those who like to roam further afield - rely too much on the cellular connection and you'll receive a warning before eventually being booted off the network.

It is a nice idea, especially if you are after a cheap smartphone - the initial cost is $199 for a modified LG Optimus phone running Android, followed by a $19 monthly charge. There is no minimum contract tie-in as with most other networks. You can't yet use your existing phone, though the company says it hopes to allow this in the future as well as providing a range of other handsets.

But is hotspot availability in the US good enough for the hybrid plan to work? Running data-hungry smartphones on Wi-Fi makes much more sense than the ageing cellular network, which was never designed to stream movies or download the latest apps, but it does rather reduce the mobility of your mobile phone.

Perhaps the Republic Wireless model would work better in a country like Estonia, which enjoys near-ubiquitous Wi-Fi coverage.

http://www.newscientist.com/blogs/onepercent/2011/11/hybrid-phone-network-offers-wi.html

Humans killing at least 750 Bornean orang-utans a year

- 12:51 15 November 2011 by **Michael Marshall**

Now you see it… *(Image: Mitsuaki Iwago/Minden Pictures/FLPA)*

Indonesians are killing endangered orang-utans at an alarming rate. At least 750 were killed in one recent year, according to a new survey.

The survey focused on Bornean orang-utans (*Pongo pygmaeus*) living in Kalimantan, the Indonesian side of the island of Borneo. Led by Erik Meijaard of People and Nature Consulting International in Jakarta, Indonesia, researchers interviewed 6983 people from 687 villages between April 2008 and September 2009 about bushmeat.

Tallying up individual accounts, they estimate that between 750 and 1800 orang-utans were killed in the year leading up to April 2008. In previous years, however, things were even worse: the researchers calculate that between 1950 and 3100 were killed each year.

Interviews suggest 54 per cent were killed for food and eaten by local people. Conflict between humans and orang-utans also seems to be a factor: 10 per cent of orang-utans were said to have been killed because they were raiding crops, and 15 per cent of respondents said the orang-utans had come into conflict with local people.

Even without the threat of becoming bushmeat, Bornean orang-utans are already endangered, with no more than 69,000 left in the wild. The main culprit is habitat loss, with expanding palm-oil plantations often blamed. The high rate of killing only adds to the pressure on the species.

Seventy-three per cent of respondents knew that orang-utans were protected by Indonesian law. "If people are found holding a dead orang-utan they should be prosecuted," says Ashley Leiman, director of the Orangutan Foundation in London. But that is not the case, she says. Killing orang-utans is illegal, but the Indonesian government rarely prosecutes or punishes perpetrators. She is aware of just one successful prosecution; another case is pending.

Journal reference: *PLoS One*, DOI: 10.1371/journal.pone.0027491

http://www.newscientist.com/article/dn21170-humans-killing-at-least-750-bornean-orangutans-a-year.html

Bats Show Ability to Instantly Change Their Ear Shapes, Making Their Hearing More Flexible

This photo shows a bat with the landmarks on the ear and a high-speed video camera pointed at it in the laboratory of Rolf Müller, Virginia Tech associate professor of mechanical engineering. (Credit: Image courtesy of Virginia Tech)

ScienceDaily (Nov. 14, 2011) — Within just one tenth of a second, certain bats are able to change the shape of their outer ear from one extreme configuration to another in order to change their hearing, researchers have discovered.

"Certain bats can deform the shapes of their ears in a way that changes the animal's ultrasonic hearing pattern. Within just one tenth of a second, these bats are able to change their outer ear shapes from one extreme configuration to another," said Rolf Müller, associate professor of mechanical engineering at Virginia Tech.

Müller and his students wrote a paper on their work that is appearing in *Physical Review Letters*, a peer-reviewed journal of the American Physical Society. The students are: Li Gao of Shandong, China, a Ph.D. student with Müller, and Sreenath Balakrishnan of Thrissur, Kerala, India, a master's candidate with Virginia Tech's Department of Mechanical Engineering, as well as Weikai He and Zhen Yan, of the School of Physics at Shandong University.

Müller explained the significance of their work, saying, "In about 100 milliseconds, this type of bat can alter his ear shape significantly in ways that would suit different acoustic sensing tasks."

By comparison, "a human blink of an eye takes two to three times as long. As a result of these shape changes, the shape of the animals' spatial hearing sensitivity also undergoes a qualitative change," Müller added.

Bats are flying mammals most well known for their abilities to navigate and pursue their prey in complete darkness. By emitting ultrasonic pulses and listing to the returning echoes, the animals are able to obtain detailed information on their surroundings. Horseshoe bats, in particular, can use their sonar systems to maneuver swiftly through dense vegetation and identify insect prey under difficult conditions.

Acting as biosonar receiving antennas, the ears of bats perform a critical function in bringing about these ultrasonic sensing capabilities.

Using a combination of methods that included high-speed stereo vision and high-resolution tomography, the researchers from Virginia Tech and Shandong University have been able to reconstruct the three-dimensional geometries of the outer ears from live horseshoe bats as they deform in these short time intervals.

Using computer analysis of the deforming shapes, the researchers found that the ultrasonic hearing spotlights associated with the different ear configurations could suit different hearing tasks performed by the animals. Hence, the ear deformation in horseshoe bats could be a substrate for adapting the spatial hearing of the animals on a very short time scale.

The research piggybacks earlier work led by Müller and reported this spring in the Institute of Physics' journal *Bioinspiration and Biometrics*. That study provided key insights into the various shapes of bat ears among the different species, and illustrated how the differences could affect how their navigation systems worked.

The National Natural Science Foundation of China, Shandong University, the Shandong Taishan Fund, and the China Scholarship Council supported the most recent work.

The collaboration between Shandong University and Virginia Tech started with Müller's opening of a new international laboratory based at the Chinese facility in 2010. The new laboratory focuses on bio-inspired research. In the past, the lab was used by an interdisciplinary group of researchers from the University of Utah, North Carolina State University, and University of California Los Angeles to conduct experiments on the extraordinary capabilities of bats to generate high-powered ultrasonic pulses.

Müller's aspiration in teaching is to bridge the gap between disciplines, especially between biology and engineering.

Müller's research is focused on the understanding of how the most capable biological sensory systems can achieve their best performances. His recent achievements include: providing the first physical explanation for the role of a prominent flap seen in mammalian ears in 2004; discovery of a novel helical scan in the ear directivity of a bat in 2006; discovery of frequency-selective beam-forming by virtue of resonances in noseleaf furrows of a bat, an entirely new bioacoustic paradigm in 2006; establishing the first immediate and quantitative characterization of the spatial information created by a mammal's outer ear in 2007; and now uncovering the acoustic effect of non-rigid ear deformations in bats.

Story Source:

The above story is reprinted from materials provided by **Virginia Tech**, via Newswise.

Note: Materials may be edited for content and length. For further information, please contact the source cited above.

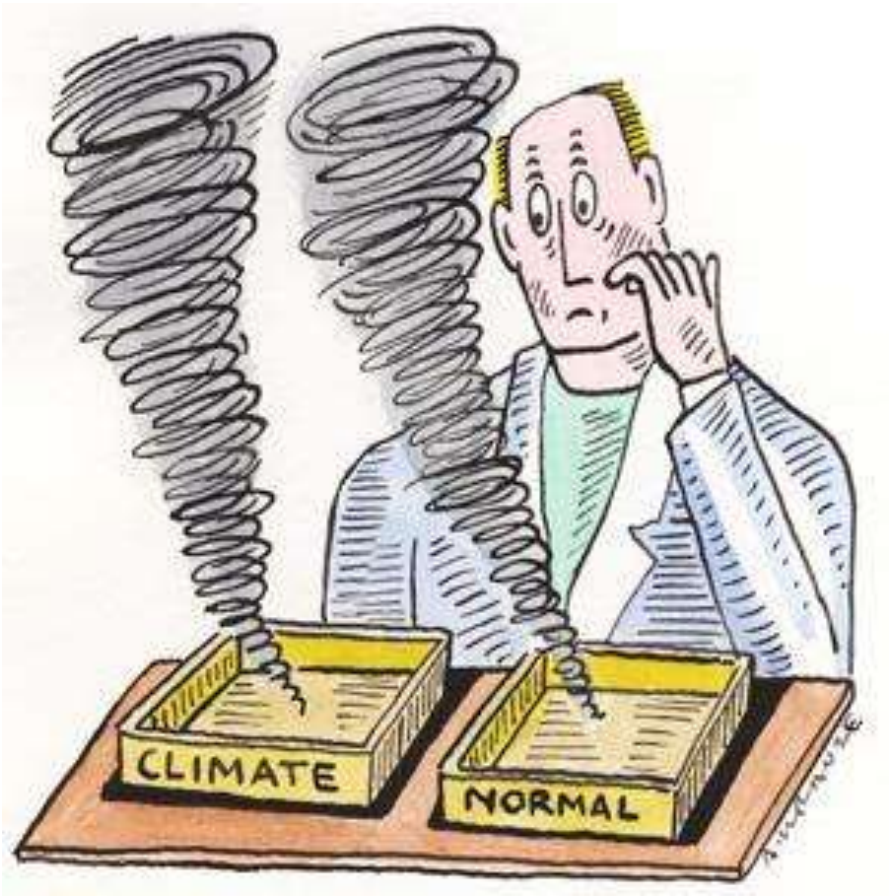
Journal Reference:

1. Li Gao, Sreenath Balakrishnan, Weikai He, Zhen Yan, Rolf Müller. **Ear Deformations Give Bats a Physical Mechanism for Fast Adaptation of Ultrasonic Beam Patterns**. *Physical Review Letters*, 2011; 107 (21) DOI: 10.1103/PhysRevLett.107.214301

http://www.sciencedaily.com/releases/2011/11/111114133646.htm

A chance to blame extreme weather on climate change

- 14 November 2011 by **Peter A. Stott**
- Magazine issue 2838



(Image: Andrzej Krauze)

When extreme weather strikes, somebody, somewhere always asks about a link to climate change. It's time we gave straight answers

IN THE aftermath of hurricane Katrina in 2005, a vigorous debate raged as to whether it was a "normal" natural disaster or a consequence of global warming. Al Gore depicted the devastation of New Orleans in his movie *An Inconvenient Truth* and linked it to climate change. I became involved during a case before the High Court in London challenging a UK government decision to distribute the movie to schools. I was asked to provide expert written evidence on the extent to which the film correctly represented scientific understanding at the time.

I liked the film and thought that Gore's presentation of the causes and likely effects of climate change was broadly accurate. As the Intergovernmental Panel on Climate Change (IPCC) concluded in its most recent assessment report: "warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global

average sea level". And as data continues to pile up, the evidence gets ever stronger that human-induced emissions of greenhouse gases are the main cause of the observed warming over the past century.

But hurricanes are difficult. Climate models predict that they will become more intense. At the same time, considerable uncertainty remains. We only have about 40 years of reliable observational records, which precludes a clear determination of their variability. Given that different aspects of climate change could act to increase or decrease hurricane activity, whether or not Katrina can be ascribed to global warming is a challenge beset by difficulty.

It is not surprising, then, that in the aftermath of Katrina many scientists were reluctant to make definitive statements about its links with climate change. The same has happened after many other extreme weather events such as floods and droughts. When pressed, scientists often say that instances of extreme weather are consistent with the expected effects of climate change. But such statements are problematic. They can be misinterpreted to imply that every extreme flood or drought is due to climate change when this is manifestly not the case. And when events occur that climate change might make less likely, such as the record-breaking cold snap in the UK last December, it doesn't follow that climate predictions are inconsistent or wrong.

A clearer way of thinking about weather and climate is to consider the odds. After the European heat wave of 2003, I worked with Myles Allen and Dáithí Stone of the University of Oxford to show that human influence had very likely more than doubled the probability of such extreme temperatures. Since then, the concept that human influence could have "loaded the dice" in favour, or against, the occurrence of a particular heatwave, flood or drought has become widely accepted by scientists and seems a relatively straightforward message to communicate to the public. But this doesn't mean that we are yet able to reliably quantify the changed odds of all extreme weather events.

What we need is an attribution system, operated regularly like the weather forecast and made available to the public. Its purpose would be to deliver rapid and authoritative assessments of the links, if any, between recent extreme weather events and human-induced climate change.

In the event of, say, a severe flood, the system would provide estimates of the extent to which the event was made more or less likely by human-induced climate change. It would also take into account alternative natural explanations such as the El Niño Southern Oscillation, a large-scale climate pattern in the tropical Pacific Ocean that affects weather worldwide.

We expect such a service would be of great interest to anyone who wants to know whether a given event could be attributed to climate change, from politicians and journalists to homeowners and insurance companies.

Are we capable of delivering? Attribution is difficult and it will be important not to undermine the credibility of a system by prematurely attributing events. However, climate science has advanced to the point where it is possible to assess some types of weather event. For example, the European heatwave of 2003 was consistent with an increased risk of extreme weather caused by climate change, whereas the cold US temperatures of 2008 were not - instead being linked to the La Niña phase of the El Niño.

For other events, such as hurricane Katrina and last year's devastating Pakistan floods and Moscow heatwave, the cause remains uncertain. But the development of an attribution system should help drive further improvements in the forecasting models by continually confronting real world examples of extreme weather.

We at the Met Office - the UK's national weather service - are keen to take this idea forward, and have begun to put together an international collaboration of scientists called the Attribution of Climate-related Events Initiative, or ACE for short. Our aim is to understand when we can reliably estimate the odds of particular

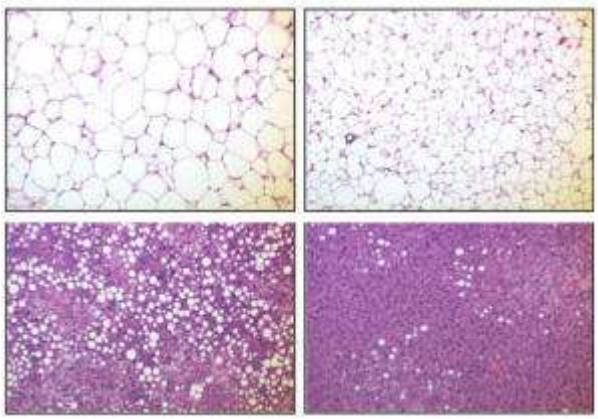
types of extreme weather event and for which types of events further improvements are required. We hope to have a prototype attribution system up and running in two years.

Should another category five hurricane make landfall on the US mainland its attribution will be tough. But scientific understanding is developing all the time. Were an attribution system established and its strengths and limitations well understood, a future judge, journalist or local resident, interested in who - or indeed what - to blame, would know where to go.

Peter A. Stott leads the climate monitoring and attribution team at the Met Office Hadley Centre for Climate Prediction and Research in Exeter, UK

http://www.newscientist.com/article/mg21228386.400-a-chance-to-blame-extreme-weather-on-climate-change.html

Enzyme Boosts Metabolism, Prevents Weight Gain in Mice



Reduced fat. Mice altered to express the IKKbeta enzyme (right column) in their fat had smaller globules of fat in their subcutaneous adipose tissue (top row) and in their liver (bottom row) than normal mice (left column). (Credit: Xu Lab/Brown University)

ScienceDaily (Nov. 14, 2011) — Male and female mice engineered to express the inflammatory enzyme IKKbeta in their fat tissue ate more but gained less weight. They burned sugar and fat more effectively than mice who were left unaltered. The research may shed light on how obesity and inflammation affect insulin resistance and sensitivity.

In a new study, scientists report that they substantially curbed weight gain, improved metabolism, and improved the efficacy of insulin in mice by engineering them to express a specific human enzyme in their fat tissue. Although the obesity prevention came at the significant cost of widespread inflammation, the research offers new clues about the connections among obesity, insulin resistance and type 2 diabetes, and inflammation.

"Turning on this molecule has a very dramatic impact on lipid metabolism," said Haiyan Xu, assistant professor of medicine (research) in the Warren Alpert Medical School of Brown University and a researcher at Rhode Island Hospital's Hallett Center for Diabetes and Endocrinology. Xu is the corresponding author of a paper describing the research in the January 2012 issue of *Endocrinology* and released early online.

Obesity and inflammation are both promoters of insulin resistance, but obesity seems to be the worse one. "Lower body weight is always a beneficial thing for influencing insulin sensitivity."The relationship between fat, inflammation, and insulin performance is complex. The conventional wisdom is that obesity leads to inflammation which contributes to insulin resistance. In this study, the researchers changed the sequence of events for transgenically engineered mice by inducing inflammation via the enzyme IKKbeta in their fatty tissue before they were obese. The result for metabolism was much more positive than for control mice who were left unaltered but were fed the same diets.

For both male and female mice, the ones who were altered still put on weight but significantly more slowly. All the mice started at the same weight. After about 22 weeks on a high-fat diet, however, altered male mice weighed less than 38 grams while unaltered male mice weighed more than 45 grams. On a less extravagant diet named "chow" the difference was considerably lessened but was still statistically significant. Both trends held for females as well.

The altered mice experienced slower weight gain despite eating much more food. Their increased metabolism allowed them to dispatch the extra calories much more efficiently. After being injected with glucose, for example, altered mice maintained lower blood sugar levels than unaltered mice. The same was true after insulin injections, suggesting that insulin was more effective. In addition, the transgenic mice expended much more energy than their normal counterparts, suggesting that the sugar was indeed metabolized.

The mechanisms by which IKKbeta in fatty tissue increases metabolic performance are not completely clear, but the researchers measured increased expression of genes associated both with fatty acid oxidation and with making mitochondria, a cell part responsible for producing energy.

One possible lesson from the research seems to be that while obesity and inflammation are both promoters of insulin resistance, Xu said, obesity seems to be the worse one.

"Lower body weight is always a beneficial thing for influencing insulin sensitivity," she said. "Reduced adiposity wins over increased inflammation."

Another point is that IKKbeta's ability to aid metabolism may be specific to its activation in fat tissue. In previous studies, scientists had activated it in the liver with no weight-reduction benefits and in the brain's hypothalamus, leading to increased weight gain.

The paper's lead author is research fellow Ping Jiao also of the Hallett Center and Brown. Other authors were Bin Feng, Yaohui Nie, and Yujie Li of the Hallett Center; Jie Ma of Rhode Island Hospital and the Department of Medicine in the Alpert Medical School; and Erin Paul of Brown's Department of Molecular Biology, Cell Biology, and Biochemistry. Jiao and Ma are also affiliated with the Jilin University in China and Bin Feng is also affiliated with Huazhong Agricultural University in China.

Funding for the research came from the American Heart Association, which provided Xu with a scientist development grant, and Brown University, which awarded Jiao the George Bray fellowship.

Story Source:

The above story is reprinted from materials provided by **Brown University**.

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1. P. Jiao, B. Feng, J. Ma, Y. Nie, E. Paul, Y. Li, H. Xu. **Constitutive Activation of IKK in Adipose Tissue Prevents Diet-Induced Obesity in Mice**. *Endocrinology*, 2011; DOI: 10.1210/en.2011-1346

http://www.sciencedaily.com/releases/2011/11/111114133740.htm

Playing the climate blame game

- 11 November 2011 by **Fred Pearce**
- Magazine issue 2838.

What caused the fires in Russia? *(Image: Natalia Kolesnikova/AFP/Getty Images)*

A claim that global warming caused the 2010 Russian heatwave could bring closer the day when climate victims can sue oil firms

BLAMING climate change for extreme weather events, like the 2010 heatwave that set the Moscow region of Russia alight in 2010 or the floods that have ravaged the UK since the 1970s (see "Atmospheric rivers cause the UK's worst floods"), is one of the hottest topics in climate science. The Russian fires are currently the subject of debate, and the stakes are high. Solving the issue could bring closer the day when disaster victims can successfully sue oil and coal companies.

Later this month, the Intergovernmental Panel on Climate Change (IPCC) will review progress on the issue. And next year, UK and US climate scientists plan to launch an annual global assessment of whether humans are to blame for the previous year's extreme weather events. They could be busy.

A case in point are two separate studies which have taken a closer look at last year's Russian heatwave. Temperatures up to 10.7 °C above average triggered huge fires in peat bogs, killing an estimated 56,000 people.

Randall Dole of the US National Oceanic and Atmospheric Administration (NOAA) in Boulder, Colorado, looked at weather data from west Russia going back to 1880 and the atmospheric conditions in place in 2010, and concluded that the record-breaking temperatures were mainly due to natural variability. The immediate cause, he said, was a stationary high pressure system, known as a blocking event, hovering over the area (*Geophysical Research Letters*, DOI: 10.1029/2010gl046582).

But in a study published in October, Stefan Rahmstorf and Dim Coumou of the Potsdam Institute for Climate Impact Research in Germany found that there is an 80 per cent chance that the temperature record would not have occurred without climate change (*Proceedings of the National Academy of Sciences*, DOI: 10.1073/pnas.1101766108).

The two studies are not directly contradictory. Rahmstorf found that while most of the heatwave may have been natural, a significant warming in western Russia over 30 years - probably due to climate change - tipped the natural variability described by Dole into a dangerous red zone.

Who is right? "Both are," says Myles Allen of the University of Oxford. "But I am closer to Stefan. In extreme events like the Russian heatwave, most of the impact comes from crossing a threshold." Doing so is made much more likely by climate change.

Whatever the disputes, the business of attributing blame for weather events is growing. Allen has shown that the European heatwave of 2003, which killed 35,000 people, was made twice as likely to happen by industrial greenhouse gas emissions. His colleague Pardeep Pall found the same for the UK's floods in 2000, and Martin Hoerling, also at NOAA, has found that the magnitude and frequency of the drying around the Mediterranean is too great to be explained by natural variability alone.

The IPCC is likely to endorse these findings and warn of much worse to come when it launches its report on 18 November. But not everyone agrees. Some leading researchers on climate extremes, such as Roger Pielke Jnr at the University of Colorado in Boulder, say there is no compelling proof that extreme weather events are becoming more frequent. For flooding and tropical cyclones, the two biggest threats in terms of lost property and life, Pielke insists there is no upward trend. Some risks, such as killer heatwaves, may increase; but others, like cold snaps, may decrease.

The blame game got going this month when Kevin Trenberth of the US National Center for Atmospheric Research, also in Boulder, proposed changing the burden of proof for climate extremes (*WIREs Climate Change*, DOI: 10.1002/wcc.142). He said that all unusual events should be assumed to be due to human emissions, unless shown otherwise. Without this, he argues, the public will underestimate our role in climate events. Not everyone is impressed. "It's a rubbish idea," Allen told *New Scientist*.

All this matters, not least because of the potential for legal action against energy companies over damage caused by weather events. In the US, for instance, victims of hurricane Katrina in Mississippi sued an energy company for contributing to the disaster with their emissions.

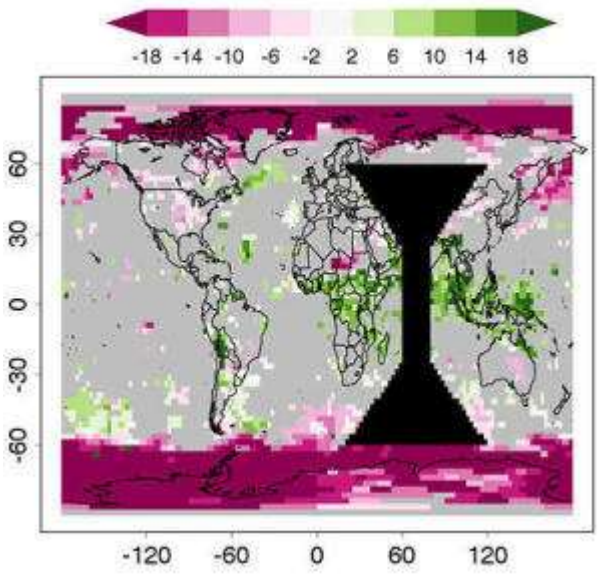
No such actions have succeeded so far, in large part because it is difficult to pin blame. "I'm extremely dubious that science can provide enough evidence for legal actions," says Pielke. Peter Stott of the UK Met Office in Exeter says the legal system has yet to determine the level of proof that will be required, and scientists have yet to establish agreed methodologies to prevent disagreements like that between Dole and Rahmstorf (see "My self-destructing syringe could save millions of lives").

"Rahmstorf's finding would make the rejection of causation arguments more difficult and tend to increase the prospects of private law claims succeeding," says UK lawyer Richard Lord. "This issue is likely to become increasingly pressing if international climate negotiations fail to provide a comprehensive regulatory framework to address... climate change." Allen believes that one litigation success would open the legal floodgates.

Attribution could also help decide who should receive the billions of dollars that developed nations plan to give to poorer ones to help them adapt to climate change. "We will need at some point to demonstrate whether people receiving funds for adaptation really are being affected," says Allen. Studies proving that the extreme weather events they have experienced were caused by greenhouse gas emissions will be pivotal.

http://www.newscientist.com/article/mg21228384.200-playing-the-climate-blame-game.html

Erratic, Extreme Day-To-Day Weather Puts Climate Change in New Light



Princeton researchers found for the first time that day-to-day weather conditions have become more erratic in the past generation. Days have increasingly fluctuated between sunny and dry, and cloudy and rainy with little in-between, which can have negative consequences for ecosystems, plants, solar-energy production and other factors that depend upon consistent weather. Green areas on this map indicate an increase in day-to-day solar radiation (sunshine) variability between 1984 and 2007; pink indicates a decrease. The portion over the Indian Ocean is voided due to a lack of consistent data. (Credit: Image courtesy of David Medvigy)

ScienceDaily (Nov. 15, 2011) — The first climate study to focus on variations in daily weather conditions has found that day-to-day weather has grown increasingly erratic and extreme, with significant fluctuations in sunshine and rainfall affecting more than a third of the planet.

Princeton University researchers recently reported in the *Journal of Climate* that extremely sunny or cloudy days are more common than in the early 1980s, and that swings from thunderstorms to dry days rose considerably since the late 1990s. These swings could have consequences for ecosystem stability and the control of pests and diseases, as well as for industries such as agriculture and solar-energy production, all of which are vulnerable to inconsistent and extreme weather, the researchers noted.

The day-to-day variations also could affect what scientists can expect to see as Earth's climate changes, according to the researchers and other scientists familiar with the work. Constant fluctuations in severe conditions could alter how the atmosphere distributes heat and rainfall, as well as inhibit the ability of plants to remove carbon dioxide from the atmosphere, possibly leading to higher levels of the greenhouse gas than currently accounted for.

Existing climate-change models have historically been evaluated against the average weather per month, an approach that hides variability, explained lead author David Medvigy, an assistant professor in the Department of Geosciences at Princeton. To conduct their analysis, he and co-author Claudie Beaulieu, a postdoctoral research fellow in Princeton's Program in Atmospheric and Oceanic Sciences, used a recently developed computer program that has allowed climatologists to examine weather data on a daily level for the first time, Medvigy said.

"Monthly averages reflect a misty world that is a little rainy and cloudy every day. That is very different from the weather of our actual world, where some days are very sunny and dry," Medvigy said.

"Our work adds to what we know about climate change in the real world and places the whole problem of climate change in a new light," he said. "Nobody has looked for these daily changes on a global scale. We usually think of climate change as an increase in mean global temperature and potentially more extreme conditions -- there's practically no discussion of day-to-day variability."

The Princeton findings stress that analysis of erratic daily conditions such as frequent thunderstorms may in fact be crucial to truly understanding the factors shaping the climate and affecting the atmosphere, said William Rossow, a professor of earth system science and environmental engineering at the City College of New York.

"It's important to know what the daily extremes might do because we might care about that sooner," said Rossow, who also has studied weather variability. He had no role in the Princeton research but is familiar with it.

Rossow said existing climate-change models show light rain more frequently than they should and don't show extreme precipitation. "If it rains a little bit every day, the atmosphere may respond differently than if there's a really big rainstorm once every week. One of the things you find about rainstorms is that the really extreme ones are at a scale the atmosphere responds to," he said.

Although climate-change models predict future changes in weather as the planet warms, those calculations are hindered by a lack of representation of day-to-day patterns, Rossow said.

"If you don't know what role variability is playing now, you're not in a very strong position for making remarks about how it might change in the future," he said. "We're at a stage where we had better take a look at what this research is pointing out."

Medvigy and Beaulieu determined sunshine variation by analyzing fluctuations in solar radiation captured by the International Satellite Cloud Climatology Project from 1984 to 2007. To gauge precipitation, the researchers used daily rainfall data from the Global Precipitation Climatology Project spanning 1997 to 2007.

Medvigy and Beaulieu found that during those respective periods, extremes in sunshine and rainfall became more common on a day-to-day basis. In hypothetical terms, Medvigy said, these findings would mean that a region that experienced the greatest increase in sunshine variability might have had partly cloudy conditions every day in 1984, but by 2007 the days would have been either sunny or heavily cloudy with no in-between. For rainfall, the uptick in variation he and Beaulieu observed could be thought of as an area experiencing a light mist every day in 1997, but within ten years the days came to increasingly fluctuate between dryness and downpour.

The researchers observed at least some increase in variability for 35 percent of the world during the time periods analyzed. Regions such as equatorial Africa and Asia experienced the greatest increase in the frequency of extreme conditions, with erratic shifts in weather occurring throughout the year. In more temperate regions such as the United States, day-to-day variability increased to a lesser degree and typically only seasonally. In the northeastern United States, for instance, sudden jumps from sunny to bleak days became more common during the winter from 1984 to 2007.

In the 23 years that sunshine variability rose for tropical Africa and Asia, those areas also showed a greater occurrence of towering thunderstorm clouds known as convective clouds, Medvigy said. Tropical areas that experienced more and more unbalanced levels of sunshine and rainfall witnessed an in-kind jump in

convective cloud cover. Although the relationship between these clouds and weather variations needs more study, Medvigy said, the findings could indicate that the sunnier days accelerate the rate at which water evaporates then condenses in the atmosphere to form rain, thus producing heavy rain more often.

Storms have lasting effect on daily weather patterns

Although the most extreme weather variations in the study were observed in the tropics, spurts of extreme weather are global in reach, Rossow said. The atmosphere, he said, is a fluid, and when severe weather such as a convective-cloud thunderstorm "punches" it, the disturbance spreads around the world. Weather that increasingly leaps from one extreme condition to another in short periods of time, as the Princeton research suggests, affects the equilibrium of heat and rain worldwide, he said.

"Storms are violent and significant events -- while they are individually localized, their disturbance radiates," Rossow said.

"Wherever it's raining heavily, especially, or variably is where the atmosphere is being punched. As soon as it is punched somewhere in the tropics it starts waves that go all the way around the planet," he said. "So we can see waves coming off the west Pacific convection activity and going all the way around the planet in the tropical band. The atmosphere also has the job of moving heat from the equator to the poles, and storms are the source of heat to the atmosphere, so if a storm's location or its timing or its seasonality is altered, that's going to change how the circulation responds."

These sweeping atmospheric changes can interact with local conditions such as temperature and topography to skew regular weather patterns, Rossow said.

"Signals end up going over the whole globe, and whether they're important in a particular place or not depends on what else is happening," he said. "But you can think of storms as being the disturbances in an otherwise smooth flow. That's why this is a climate issue even though we're talking about daily variability in specific locations."

The impact of these fluctuations on natural and humanmade systems could be as substantial as the fallout predicted from rises in Earth's average temperature, Medvigy said. Inconsistent sunshine could impair the effectiveness of solar-energy production and -- with fluctuating rainfall also included -- harm agriculture, he said. Wetter, hotter conditions also breed disease and parasites such as mosquitoes, particularly in tropical areas, he said.

On a larger scale, wild shifts in day-to-day conditions would diminish the ability of trees and plants to remove carbon from the atmosphere, Medvigy said. In 2010, he and Harvard University researchers reported in the journal the Proceedings of the National Academy of Sciences that erratic rain and sunlight impair photosynthesis. That study concluded that this effect upsets the structure of ecosystems, as certain plants and trees -- particularly broad-leafed trees more than conifers -- adapt better than others.

In the context of the current study, Medvigy said, the impact of variability on photosynthesis could mean that more carbon will remain in the atmosphere than climate models currently anticipate, considering that the models factor in normal plant-based carbon absorption. Moreover, if the meteorological tumult he and Beaulieu observed is caused by greenhouse gases, these fluctuations could become self-perpetuating by increasingly trapping the gases that agitated weather patterns in the first place.

"We have not yet looked for direct ties between weather variability and increased carbon dioxide concentration in the atmosphere, but I would not be surprised if they are connected in some way," Medvigy said.

"Increases in variability diminish the efficiency with which plants and trees remove carbon dioxide from the air," he said. "All of a sudden, the land and the atmosphere are no longer in balance, and plants cannot absorb levels of carbon dioxide proportional to the concentrations in the environment. That will affect everybody."

The study was published online Oct. 14 by the *Journal of Climate*, and was funded by grants from the Princeton Carbon Mitigation Initiative and the Fonds Québécois de la Recherche sur la Nature et les Technologies.

Story Source:

The above story is reprinted from materials provided by **Princeton University**. The original article was written by Morgan Kelly.

Note: Materials may be edited for content and length. For further information, please contact the source cited above.

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1. David Medvigy, Claudie Beaulieu. **Trends in daily solar radiation and precipitation coefficients of variation since 1984**. *Journal of Climate*, 2011 DOI: 10.1175/2011JCLI4115.1

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Row over plans to mine Grand Canyon

- 10 November 2011
- Magazine issue 2837.

US POLITICIANS are at loggerheads over whether to allow uranium mining in north Arizona, near the Grand Canyon. Mining would create jobs, but might pollute the Colorado river, which provides the Southwest US with irrigation and domestic water.

The White House wants to ban all new mining claims in the area for 20 years, but a group of Republicans is backing legislation that would render the ban meaningless.

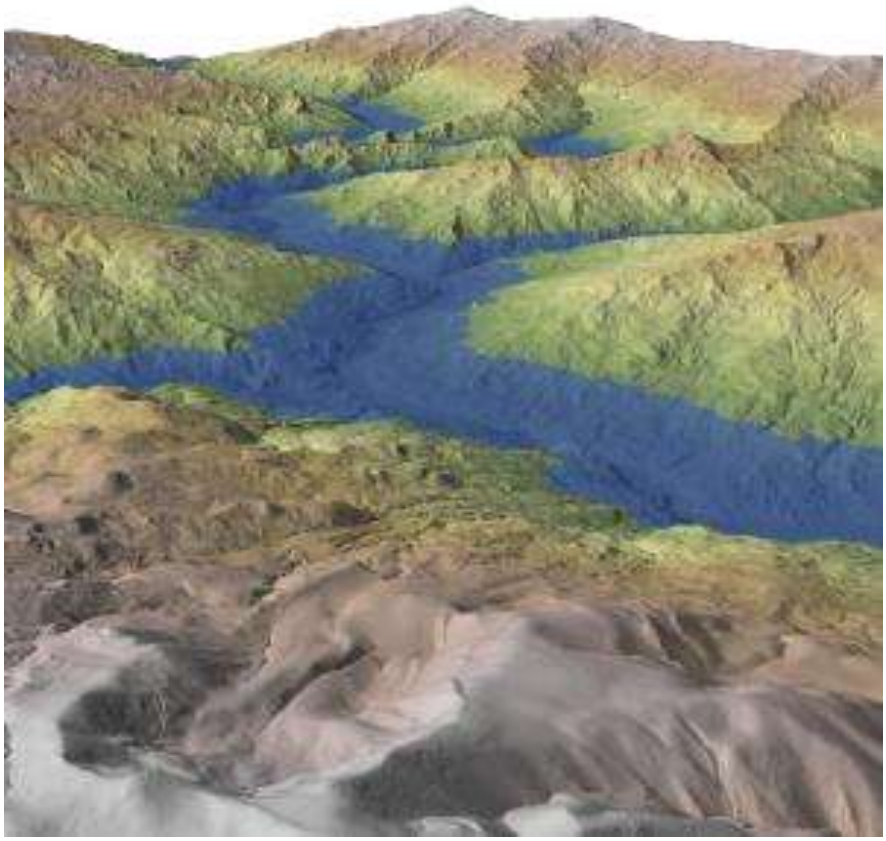
A steep rise in metal prices during the last decade led mining companies to register interest in exploiting thousands of new sites across the US, including several hundred near the Grand Canyon. In 2009, secretary of the interior Ken Salazar put a two-year freeze on anyone even seeking permission to mine in three areas around the Grand Canyon. The US Geological Survey has since found that uranium mining there could increase the levels of radioactive materials and heavy metals in the Colorado river.

On 26 October, the Bureau of Land Management released its Final Environmental Impact Statement, which backs extending Salazar's moratorium for 20 years. Arizona congressman Raúl Grijalva praised the bureau's research, which he thinks will help maintain the Grand Canyon as a tourist attraction.

However, Republican lawmakers, led by Arizona senator John McCain, have proposed a new mining act, which would overturn the ban and instead require Congressional approval for any moratorium.

http://www.newscientist.com/article/mg21228373.400-row-over-plans-to-mine-grand-canyon.html?full=true&print=true

Evidence of Ancient Lake in California's Eel River Emerges



View down the Eel River, with the reconstructed ancient lake surface in blue. (Credit: Ben Mackey, Caltech)

ScienceDaily (Nov. 14, 2011) — A catastrophic landslide 22,500 years ago dammed the upper reaches of northern California's Eel River, forming a 30-mile-long lake, which has since disappeared, and leaving a living legacy found today in the genes of the region's steelhead trout, report scientists at two West Coast universities.

Using remote-sensing technology known as airborne Light Detection and Ranging (LiDAR) and hand-held global-positioning-systems (GPS) units, a three-member research team found evidence for a late Pleistocene, landslide-dammed lake along the river, about 60 miles southeast of Eureka.

The river today is 200 miles long, carved into the ground from high in the California Coast Ranges to its mouth in the Pacific Ocean in Humboldt County.

The evidence for the ancient landslide, which, scientists say, blocked the river with a 400-foot wall of loose rock and debris, is detailed this week in a paper appearing online ahead of print in the *Proceedings of the National Academy of Sciences*.

The National Science Foundation-funded study provides a rare glimpse into the geological history of this rapidly evolving mountainous region.

It helps to explain emerging evidence from other studies that show a dramatic decrease in the amount of sediment deposited from the river in the ocean just off shore at about the same time period, says lead author Benjamin H. Mackey, who began the research while pursuing a doctorate earned in 2009 from the University of Oregon. He is now a postdoctoral researcher at the California Institute of Technology.

"Perhaps of most interest, the presence of this landslide dam also provides an explanation for the results of previous research on the genetics of steelhead trout in the Eel River," Mackey said, referring to a 1999 study by U.S. Forest Service researchers J.L. Nielson and M.C. Fountain. In their study, published in the journal Ecology of Freshwater Fish, they found a striking relationship in two types of ocean-going steelhead in the river -- a genetic similarity not seen among summer-run and winter-run steelhead in other nearby rivers.

An interbreeding of the two fish, in a process known as genetic introgression, may have occurred among the fish brought together while the river was dammed, Mackey said. "The dam likely would have been impassable to the fish migrating upstream, meaning both ecotypes would have been forced to spawn and inadvertently breed downstream of the dam. This period of gene flow between the two types of steelhead can explain the genetic similarity observed today."

Once the dam burst, the fish would have reoccupied their preferred spawning grounds and resumed different genetic trajectories, he added.

"The damming of the river was a dramatic, punctuated affair that greatly altered the landscape," said co-author Joshua J. Roering, a professor of geological sciences at the University of Oregon. "Although current physical evidence for the landslide dam and paleo-lake is subtle, its effects are recorded in the Pacific Ocean and persist in the genetic make-up of today's Eel River steelhead. It's rare for scientists to be able to connect the dots between such diverse and widely-felt phenomena."

The lake's surface formed by the landslide, researchers theorize, covered about 12 square miles. After the damn was breached, the flow of water would have generated one of North America's largest landslide-dam outburst floods. Landslide activity and erosion have erased much of the evidence for the now-gone lake. Without the acquisition of LiDAR mapping, the lake's existence may have never been discovered, researchers say.

The area affected by the landslide-caused dam accounts for about 58 percent of the modern Eel River watershed. Based on today's general erosion rates, researchers theorize the lake could have been filled in with sediment within about 600 years.

"The presence of a dam of this size was highly unexpected in the Eel River environment given the abundance of easily eroded sandstone and mudstone, which are generally not considered strong enough to form long-lived dams," Mackey said.

He and his colleagues were drawn to the Eel River -- among the most-studied erosion systems in the world -- to study large, slow-moving landslides. "While analyzing the elevation of terraces along the river, we discovered they clustered at a common elevation rather than decrease in elevation downstream, paralleling the river profile, as would be expected for river terraces. This was the first sign of something unusual, and it clued us into the possibility of an ancient lake."

The third co-author on the paper was Michael P. Lamb, professor of geological and planetary sciences at the California Institute of Technology in Pasadena, Calif.

The National Center for Airborne Laser Mapping provided LiDAR data used in the project. Additional funding support came from the Keck Institute for Space Studies.

Story Source:

The above story is reprinted from materials provided by **University of Oregon**.

Note: Materials may be edited for content and length. For further information, please contact the source cited above.

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http://www.sciencedaily.com/releases/2011/11/111114152404.htm

University applications down 13% on last year

By Judith Burns Education reporter, BBC News

A clearer view of applicant numbers will emerge by January

UK universities appear to be facing a slump in applications ahead of the first year of higher fees, the university admissions body says.

The latest figures from Ucas show applications to university courses starting next autumn are down 12.9%.

They show the number of students who have so far applied for places at UK universities is 158,387, down 23,427 on this time last year.

But Ucas says there may be a late surge nearer the January 15 deadline.

Tuition fees will be increased to up to £9,000 per year from 2012, but Ucas says it is too early to say whether this will affect the final demand for places.

The admissions body says that application patterns this far ahead are historically unreliable as indicators of the eventual year-on-year change.

Too early to tell

Ucas chief executive Mary Curnock Cook said: "Recent changes in higher education funding mean that application patterns this year may be different to previous years and we are gearing up for a possible late surge close to the 15 January deadline where applicants have taken more time to research their applications.

"We expect some depression of demand due to a decline in the young population but it is much too early to predict any effects from changes in tuition fees."

This months figures are similar to those published last month which showed a 12% year-on-year drop in applications.

But courses which have an October deadline: medicine, dentistry and veterinary science, plus Oxford and Cambridge, showed a reduction of less than 1%.

Figures for applications to veterinary medicine alone showed a slight increase.

Universities and Science Minister David Willetts agreed it was too early to judge underlying trends.

He said "Most new students will not pay upfront, there will be more financial support for those from poorer families and everyone will make lower loan repayments than they do now once they are in well paid jobs."

The National Union of Students called on the government to rethink its plans for higher education.

NUS president Liam Burns said: "Ministers must stop tinkering around the edges of their shambolic reforms, listen to students, teachers and universities and completely overhaul their white paper before temporary chaos turns into permanent damage to our education system."

"Close to crisis point"

Shadow higher education minister Shabana Mahmood promised that Labour would reverse the corporation tax cut for banks and use the money to help cut fees to a maximum of £6,000.

Martin Lewis, head of the Independent Task Force on Student Finance Information, said: "We are close to a crisis point for university applications.

"The portrayal of changes as being mired in a lifetime of debt is enough to put anyone off."

He called for a shift in the debate away from the politics surrounding the fee rises to a focus on the practical financial reality of how the fees will be repaid over students' lifetimes.

Million+, the body representing the newer universities, said detail of the figures reveals the biggest downturn in applications to be from mature students.

Its chairman Professor Les Ebdon said: "One in four first time undergraduates is a mature student.

"No-one should lose the chance to be what they might have been. Ministers need to up their game and should launch a campaign in the New Year to ensure that older students understand the new loan system and the opportunities available."

Sally Hunt, general secretary of the University and College Union, called the figures very worrying.

She said: "We are still waiting for some universities to readjust the cost of their degrees, which adds even more confusion.

"Students should be looking to study the courses most suited to their talents, not searching for something in their price range, and universities should not be forced into cutting prices to try and fill places."

The University of Reading pointed out that last year was a record year for applications as many students decided not to take a gap year to avoid paying higher fees.

The university says application numbers for its courses in 2012 are down on this year's but comparable with those for 2010.

http://www.bbc.co.uk/news/education-15920244

Warm water lured landlubber animals back to sea

- 17:21 09 November 2011 by **Jeff Hecht**

Warm weather may have pushed the landlubber ancestors of some marine animals back to the sea.

Vertebrates ventured from water onto land only once, about 365 million years ago. But since then some 31 groups have gone back the other way. They include the cold-blooded plesiosaurs and ichthyosaurs of the dinosaur age, and present-day whales and dolphins. Even penguins spend most of their lives at sea.

The fossil record shows that all but five of those groups took the plunge during one of seven short intervals, says Ryosuke Motani at the University of California, Davis.

With Isabel Montañez, also at UC Davis, Motani looked at estimates of past temperatures and found that the seven intervals were all much warmer than today. What's more, by considering the former location of the continents and the location of the key fossils, the pair realised that cold-blooded animals like the plesiosaurs took to the seas in tropical parts of the globe.

Warm water would help cold-blooded animals to remain active as they adapted to the oceans, Motani says.

"When you're warm-blooded, you're not restricted that much," he says. Sure enough, the fossil record shows that warm-blooded mammals and birds tended to enter the sea in temperate regions. This carries an advantage because temperate seas are more productive than tropical waters, he adds. However, even these warm-blooded groups took to the water when global temperatures were higher than now.

"Some marine mammals are endangered by climate change today," Motani says. However, most of the marine species that are now endangered are only still around because the world was warmer in the past, he says.

Motani presented his work at the Society for Vertebrate Paleontology meeting in Las Vegas, Nevada, this week.

http://www.newscientist.com/article/dn21144-warm-water-lured-landlubber-animals-back-to-sea.html

Government backs call for classroom coding

Many modern video game giants cut their programming teeth on the BBC Micro

The teaching of computer science must become more relevant to modern needs, said the government.

The government said the current teaching of IT was "insufficiently rigorous and in need of reform".

The call for change came in a response to an industry report which looked at technology teaching in the UK.

Without reform future UK workers would lack key skills and the nation would lose its standing as a video games and visual arts hub, said the report.

Game over

The Next Gen report was published in October and criticised current ICT (information and communication technology) classes which tended to focus on how to use software rather than on how to write it.

Written by gaming guru Ian Livingstone and visual effects veteran Alex Hope, Next Gen called for programming skills to replace learning about business software in ICT lessons.

In its response, the Department for Culture, Media and Sport (DCMS) said the report had set out some "compelling" ideas about how to make the UK a hub for video games and visual effects.

Creative industries minister Ed Vaizey said computer games and the visual effects sectors had a clear economic and cultural value.

"We need to invest in talent that will ensure the UK remains at the forefront of games creativity," he said.

The high quality jobs that could be created in the gaming and effects sectors might help the UK's recovery from recession, added Mr Vaizey.

The DCMS response considered the 20 points for action given in Next Gen and said that, as well as looking into ICT reform, it would take action on other fronts including investigating ways to tempt good teachers of computer science into schools and stepping up plans to get game makers and effects artists to talk to pupils about their work.

Optional

The government shied away from agreeing to include ICT in the national curriculum which was one of the main goals of the Next Gen report.

Despite this, Mr Livingstone said he was "absolutely delighted" with the response because of a separate commitment to ensure that school children would be more digitally literate.

"It's an open door for us to have a dialogue and talk to the Department for Education in particular which we couldn't do until quite recently," he told the BBC.

The Next Gen report led to the creation of a nationwide campaign which has urged a more hands-on approach to tech in classrooms.

Google, Microsoft, Sony, Nintendo, Sega, Electronic Arts, Activision, Talk Talk and the Guardian Media Group have all backed the call for change to ICT teaching.

Mr Livingston said the skills campaign would now work hard to influence the re-writing of the curriculum to ensure core digital skills were included.

http://www.bbc.co.uk/news/technology-15923113

Rising Air Pollution Worsens Drought, Flooding, New Study Finds

New research finds that increases in air pollution and other particulate matter in the atmosphere can strongly affect cloud development in ways that reduce precipitation in dry regions or seasons, while increasing rain, snowfall and the intensity of severe storms in wet regions or seasons. (Credit: Image courtesy of University of Maryland)

ScienceDaily (Nov. 13, 2011) — Increases in air pollution and other particulate matter in the atmosphere can strongly affect cloud development in ways that reduce precipitation in dry regions or seasons, while increasing rain, snowfall and the intensity of severe storms in wet regions or seasons, says a new study by a University of Maryland-led team of researchers.

The research provides the first clear evidence of how aerosols -- soot, dust and other small particles in the atmosphere -- can affect weather and climate; and the findings have important implications for the availability, management and use of water resources in regions across the United States and around the world, say the researchers and other scientists.

"Using a 10-year dataset of extensive atmosphere measurements from the U.S. Southern Great Plains research facility in Oklahoma [run by the Department of Energy's Atmospheric Radiation Measurement program] -- we have uncovered, for the first time, the long-term, net impact of aerosols on cloud height and thickness, and the resultant changes in precipitation frequency and intensity," says Zhanqing Li, a professor of atmospheric and oceanic science at Maryland and lead author of the study.

The study found that under very dirty conditions, the mean cloud height of deep convective clouds is more than twice the mean height under crystal clean air conditions. "The probability of heavy rain is virtually doubled from clean to dirty conditions, while the chance of light rain is reduced by 50 percent," says Maryland's Li, who is also affiliated with Beijing Normal University.

The scientists obtained additional support for these findings with matching results obtained using a cloud-resolving computer model. The study by Li and co-authors Feng Niu and Yanni Ding, also of the University of Maryland; Jiwen Fan of Pacific Northwest National Laboratory; Yangang Liu of Brookhaven National Laboratory, Upton, NY; and Daniel Rosenfeld of the Hebrew University of Jerusalem, is published in the Nov. 13 issue of *Nature Geoscience*.

"These new findings of long-term impacts, which we made using regional ground measurements, also are consistent with the findings we obtained from an analysis of NASA's global satellite products in a separate study. Together, they attest to the needs of tackling both climate and environmental changes that matter so much to our daily life," says Li.

"Our findings have significant policy implications for sustainable development and water resources, especially for those developing regions susceptible to extreme events such as drought and flood. Increases in manufacturing, building of power plants and other industrial developments, together with urbanization, are often accompanied with increases in pollution whose adverse impacts on weather and climate, as revealed in this study, can undercut economic gains," he stresses.

Tony Busalacchi, chair of the Joint Scientific Committee, World Climate Research Program notes the significance of the new findings. "Understanding interactions across clouds, aerosols, and precipitation is one of the grand challenges for climate research in the decade ahead, as identified in a recent major world climate conference. Findings of this study represent a significant advance in our understanding of such processes with significant implications for both climate science and sustainable development," says Busalacchi, who also is professor and director of the University of Maryland Earth System Science Interdisciplinary Center.

"We have known for a long time that aerosols impact both the heating and phase changes [condensing, freezing] of clouds and can either inhibit or intensify clouds and precipitation," says Russell Dickerson, a professor of atmospheric and oceanic science at Maryland. "What we have not been able to determine, until now, is the net effect. This study by Li and his colleagues shows that fine particulate matter, mostly from air pollution, impedes gentle rains while exacerbating severe storms. It adds urgency to the need to control sulfur, nitrogen, and hydrocarbon emissions."

According to climate scientist Steve Ghan of the Pacific Northwest National Laboratory, "This work confirms what previous cloud modeling studies had suggested, that although clouds are influenced by many factors, increasing aerosols enhance the variability of precipitation, suppressing it when precipitation is light and intensifying it when it is strong. This complex influence is completely missing from climate models, casting doubt on their ability to simulate the response of precipitation to changes in aerosol pollution."

Aerosol Science

Aerosols are tiny solid particles or liquid particles suspended in air. They include soot, dust and sulfate particles, and are what we commonly think of when we talk about air pollution. Aerosols come, for example, from the combustion of fossil fuels, industrial and agricultural processes, and the accidental or deliberate burning of fields and forests. They can be hazardous to both human health and the environment.

Aerosol particles also affect the Earth's surface temperature by either reflecting light back into space, thus reducing solar radiation at Earth's surface, or absorbing solar radiation, thus heating the atmosphere. This variable cooling and heating is, in part, how aerosols modify atmospheric stability that dictates atmospheric vertical motion and cloud formation. Aerosols also affect cloud microphysics because the serve as nuclei around which water droplets or ice particles form. Both processes can affect cloud properties and rainfall. Different processes may work in harmony or offset each other, leading to a complex yet inconclusive interpretation of their long-term net effect.

"When the air rises the water vapor condenses on aerosol particles to form cloud drops," says Daniel Rosenfeld, a co-author of the Nature Geoscience article. "In cleaner air the cloud drops are larger due to fewer drops and have better chances of colliding to form large rain drops. In polluted air more and smaller drops are formed. They float in the air and are slow to coalesce into rain drops. With small amount of moisture most cloud drops never become large enough for efficient precipitation, and hence rainfall is reduced. The rain that is withheld in moist polluted deep clouds freezes at higher altitudes to form ice crystals or even hail. The energy released by freezing, fuels the clouds to grow taller and create larger ice particles that produce more intense precipitation. This explains why air pollution can exacerbate both drought and flood. This may partially explain his finding of another study that there are more severe convective storms during summer in the eastern United State, which is generally more polluted than the rest of the country."

Greenhouse gases and aerosol particles are two major agents dictating climate change. The mechanisms of climate warming impacts of increased greenhouse gases are clear (they prevent solar energy that has been absorbed by the earth's surface from being radiated as heat back into space), but the climate effects of increased aerosols are much less certain due to many competing effects outlined above. Until now, studies of the long-term effects of aerosols on climate change have been largely lacking and inconclusive because their mechanisms are much more sophisticated, variable, and tangled with meteorology.

"This study demonstrates the importance and value of keeping a long record of continuous and comprehensive measurements such as the highly instrumented (ARM) sites run by the Department of Energy's Office of Science, including the Southern Great Plains site, to identify and quantify important roles of aerosols in climate processes. While the mechanisms for some of these effects remain uncertain, the well-defined relationships discovered here clearly demonstrate the significance of the effects. Developing this understanding to represent the controlling processes in models remains a future challenge, but this study clearly points in important directions," says Stephen E. Schwartz, a scientist at Brookhaven National Laboratory.

Support for this research was provided by the Department of Energy, NASA, the National Science Foundation and the Chinese Ministry of Science and Technology.

The work adds to and builds on a great deal of other research about air pollution and climate change by University of Maryland researchers in the university's Earth System Sciences Interdisciplinary Center and its Department of Atmospheric and Oceanic Science, and at the DOE national labs.

UMD A Leader in Climate Science and Information

Over the past two decades, the University of Maryland has developed major partnerships with state and federal agencies and fostered research in areas critical to understanding and responding to climate change, including atmospheric and earth science, satellite remote sensing, climate modeling, and energy and insurance research and policy. The UMD Earth System Sciences Interdisciplinary Center's existing cooperative agreement with the NASA/Goddard Space Flight Center and the Cooperative Institute for Climate and Satellites (joint with the National Oceanic and Atmospheric Administration, (NOAA), are two of these partnerships. A third is the Joint Global Change Research Institute (with the Department of Energy). These units are working to help understand climate change, its impacts, and the scientific, technological, economic and public policy challenges it poses.

University efforts to provide the user-driven information and the regional and shorter-term climate forecasts needed by government, business and private citizens are led by UMD's CIRUN (Climate Information: Responding to User Needs) Office, which is creating partnerships among climate scientists; experts from other disciplines such as agriculture, engineering, public health, and risk management; companies which deliver specialized information; and decision makers in the private and public sectors.

Story Source:

The above story is reprinted from materials provided by **University of Maryland**.

Note: Materials may be edited for content and length. For further information, please contact the source cited above.

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1. Zhanqing Li, Feng Niu, Jiwen Fan, Yangang Liu, Daniel Rosenfeld, Yanni Ding. **Long-term impacts of aerosols on the vertical development of clouds and precipitation**. *Nature Geoscience*, 2011; DOI: 10.1038/ngeo1313

http://www.sciencedaily.com/releases/2011/11/111113141304.htm

Frog-killer disease was born in trade

- 20:00 07 November 2011 by **Michael Marshall**

Moment of truth for an *Atelopus* frog in Ecuador *(Image: Joel Sartore/ National Geographic/Getty)*

The global amphibian trade spread the lethal chytrid fungus, which is decimating frogs around the planet, and it now looks like it may have created the disease in the first place.

The team behind this finding are calling for an amphibian quarantine to help slow the disease's spread.

Rhys Farrer of Imperial College London and colleagues sequenced the genomes of 20 samples of the offending fungus, *Batrachochytrium dendrobatidis* (*Bd*), collected in Europe, Africa, North and South America and Australia.

They found that 16 of the 20 samples were genetically identical, belonging to a single strain called *Bd*GPL that had spread to all five continents. Tests on tadpoles also revealed that the strain was extremely virulent.

*Bd*GPL's genome showed that it had formed when two strains mated, some time in the past 100 years. The best and simplest explanation is that 20th-century trade, which shipped amphibians all over the world, enabled the mating, says Farrer's supervisor Matthew Fisher.

"We've got to restrict trade, or at least make sure that amphibians are not contaminated," says Fisher. One approach would be for countries to quarantine all imported amphibians and only allow them to stay if they are uninfected.

Last redoubts

When it emerged that trade was spreading chytrid, the World Organisation for Animal Health made the disease notifiable, meaning that countries must report whether they have it or not. But that doesn't stop it spreading.

The two places in most urgent need of protection are Madagascar and south-east Asia, says Fisher: "They're the last redoubts of uninfected amphibian species." Both are hotspots of amphibian diversity, and are clear of *Bd*GPL. Madagascar remains uninfected despite rampant *Bd*GPL in Africa, and a recent survey shows that Asian chytrid strains are not very virulent (*PLoS One*, DOI: 10.1371/journal.pone.0023179).

If *Bd*GPL reaches these places, it could quickly devastate their frogs. Within months of it reaching Montserrat, in the West Indies, in early 2009, conservationists had to fly giant ditch frogs – also known as mountain chickens – out of the country to save them from extinction.

Countries that already have *Bd*GPL should also institute quarantine, says Peter Daszak, president of EcoHealth Alliance in New York. "This research shows that recombination can occur and give rise to new virulent strains," he says. "Blocking introduction of new strains will cut down on this."

Daszak adds: "It will be hard to stop the spread of new lineages of *Bd*, but if we look at the devastation that this pathogen has already caused, we desperately need to try."

Journal reference: *Proceedings of the National Academy of Sciences*, DOI: 10.1073/pnas.1111915108

http://www.newscientist.com/article/dn21133-frogkiller-disease-was-born-in-trade.html

Ancient Bronze Artifact from East Asia Unearthed at Alaska Archaeology Site

A team of researchers led by the University of Colorado Boulder has discovered the first prehistoric bronze artifact made from a cast ever found in Alaska, a small, buckle-like object found in an ancient Eskimo dwelling and which likely originated in East Asia. (Credit: Image courtesy of University of Colorado at Boulder)

ScienceDaily (Nov. 14, 2011) — A team of researchers led by the University of Colorado Boulder has discovered the first prehistoric bronze artifact made from a cast ever found in Alaska, a small, buckle-like object found in an ancient Eskimo dwelling and which likely originated in East Asia.

The artifact consists of two parts -- a rectangular bar, connected to an apparently broken circular ring, said CU-Boulder Research Associate John Hoffecker, who is leading the excavation project. The object, about 2 inches by 1 inch and less than 1 inch thick, was found in August by a team excavating a roughly 1,000-year-old house that had been dug into the side of a beach ridge by early Inupiat Eskimos at Cape Espenberg on the Seward Peninsula, which lies within the Bering Land Bridge National Preserve.

Both sections of the artifact are beveled on one side and concave on the other side, indicating it was manufactured in a mold, said Hoffecker, a fellow at CU-Boulder's Institute of Arctic and Alpine Research. A small piece of leather found wrapped around the rectangular bar by the research team yielded a radiocarbon date of roughly A.D. 600, which does not necessarily indicate the age of the object, he said.

"I was totally astonished," said Hoffecker. "The object appears to be older than the house we were excavating by at least a few hundred years."

Hoffecker and his CU-Boulder colleague Owen Mason said the bronze object resembles a belt buckle and may have been used as part of a harness or horse ornament prior to its arrival in Alaska. While they speculated the Inupiat Eskimos could have used the artifact as a clasp for human clothing or perhaps as part of a shaman's regalia, its function on both continents still remains a puzzle, they said.

Since bronze metallurgy from Alaska is unknown, the artifact likely was produced in East Asia and reflects long-distance trade from production centers in either Korea, China, Manchuria or southern Siberia, according to Mason. It conceivably could have been traded from the steppe region of southern Siberia, said Hoffecker, where people began casting bronze several thousand years ago.

Alternatively, some of the earliest Inupiat Eskimos in northwest Alaska -- the direct ancestors of modern Eskimos thought to have migrated into Alaska from adjacent Siberia some 1,500 years ago -- might have brought the object with them from the other side of the Bering Strait. "It was possibly valuable enough so that people hung onto it for generations, passing it down through families," said Mason, an INSTAAR affiliate and co-investigator on the Cape Espenberg excavations.

The Seward Peninsula is a prominent, arrowhead-shaped land mass that abuts the Bering Strait separating Alaska from Siberia. The peninsula was part of the Bering Land Bridge linking Asia and North America during the last ice age when sea level had dropped dramatically, and may have been used by early peoples as a corridor to migrate from Asia into the New World some 14,000 years ago.

The artifact was discovered in August by University of California, Davis, doctoral student Jeremy Foin under 3 feet of sediment near an entryway to a house at Cape Espenberg. Other project members included Chris Darwent of UC Davis, Claire Alix of the University of Paris, Nancy Bigelow of the University of Alaska Fairbanks, Max Friesen of the University of Toronto and Gina Hernandez of the National Park Service.

"The shape of the object immediately caught my eye," said Foin, who spotted the soil-covered artifact in an archaeological sifting screen. "After I saw that it clearly had been cast in a mold, my first thought was disbelief, quickly followed by the realization that I had found something of potentially great significance."

The CU-led excavations are part of a National Science Foundation-funded project designed to study human response to climate change at Cape Espenberg from A.D. 800 to A.D. 1400, a critical period of cultural change in the western Arctic, said Mason. Of particular interest are temperature and environmental changes that may be related to Earth's Medieval Warm Period that lasted from about A.D. 950 to 1250.

"That particular time period is thought by some to be an analog of what is happening to our environment now as Earth's temperatures are rising," said Mason. "One of our goals is to find out how these people adapted to a changing climate through their subsistence activities."

The Cape Espenberg beach ridges, wave-swept deposits made of sand and sediment running parallel to the shoreline that were deposited over centuries, often are capped by blowing sand to form high dunes. The Cape Espenberg dwellings were dug into the dunes and shored up with driftwood and occasional whale bones.

The team is examining the timing and formation of the beach ridges as well as the contents of peat and pond sediment cores to help them reconstruct the sea-level history and the changing environment faced by Cape Espenberg's settlers. Information on past climates also is contained in driftwood tree rings, and the team is working with INSTAAR affiliate Scott Elias, a University of London professor and expert on beetle fossils, who is helping the team reconstruct past temperatures at Cape Espenberg.

While the hunting of bowhead whales was a way of life for Inupiat Eskimos at Barrow and Point Hope in northwestern Alaska 1,000 years ago, it is still not clear if the Cape Espenberg people were whaling, said Mason. While whale baleen -- a strong, flexible material found in the mouths of whales that acts as a food filter -- and a variety of whale bones have been found during excavations there, the sea offshore is extremely shallow and some distance from modern whale migration routes. However, there is evidence of fishing and seal and caribou hunting by the group, he said.

The Inupiat Eskimos are believed to have occupied Cape Espenberg from about A.D. 1000 until the mid-1800s, said Hoffecker. They are part of the indigenous Eskimo culture that lives in Earth's circumpolar regions like Alaska, Siberia and Canada.

The Cape Espenberg site has yielded a treasure trove of several thousand artifacts, including sealing harpoons, fishing spears and lures, a copper needle, slate knives, antler arrow points, a shovel made from a walrus scapula, a beaver incisor pendant, ceramics, and even toy bows and toy harpoons. The bronze artifact unearthed in August is currently under study by prehistoric metallurgical expert and Purdue University Assistant Professor H. Kory Cooper.

Story Source:

The above story is reprinted from materials provided by **University of Colorado at Boulder**.

Note: Materials may be edited for content and length. For further information, please contact the source cited above.

http://www.sciencedaily.com/releases/2011/11/111114112314.htm

Trade war looms over Europe's aircraft carbon tax

- 07 November 2011 by **Fred Pearce**
- Magazine issue 2837

Aviation emissions make up 3 per cent of global carbon dioxide emissions *(Image: Josef P. Willems/plainpicture)*

THE world could be on the brink of a trade war over European Union efforts to impose carbon charges on the emissions of all planes landing or taking off within the EU. The scheme, if implemented, would be the first global financial sanction on greenhouse gas emitters.

From 1 January, the EU intends to make international airlines join its Emissions Trading System (ETS). They will have to buy carbon permits for emissions made by flights into and out of European airports. China, Russia, the US, India, Brazil and Japan all oppose the plan, which they say flouts international law, and last week, the US House of Representatives voted to make it illegal for US airlines to comply, though President Barack Obama is unlikely to pass this into law. But the European Court of Justice provisionally ruled last month that the plan is legal. The impasse arose from the failure of the UN International Civil Aviation Organization to control carbon dioxide emissions from aviation, despite its 1997 pledge do to so.

A World Bank report entitled "Mobilizing Climate Finance", prepared for this week's G20 meeting of world leaders in Cannes, France, argues that global carbon taxes on aviation would be a largely painless way of raising revenue and cutting CO_2 emissions.

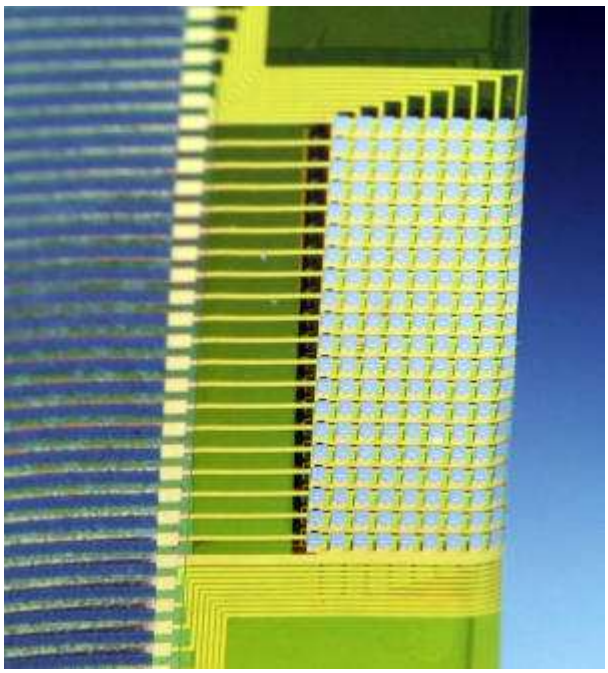
A draft of the paper says that a charge of $25 per tonne on aviation emissions of CO_2 "might raise air ticket prices by around 2-4 per cent", while reducing CO_2 and other emissions on routes covered by the charges by 5 to 10 per cent. This would happen partly through fewer people flying, but mostly by encouraging the retirement of older, more polluting aircraft, as well as a switch to routes and speeds that economise on fuel, it says. The precise charge for carbon credits to fly into and out of Europe will depend on prices within the ETS, which have recently been around $15 per tonne.

Aviation emissions currently make up 3 per cent of global CO_2 emissions. But their contribution to climate change is doubled by the greenhouse effect of other emissions from aircraft engines, such as water vapour and nitrogen oxides.

Airlines say the EU's move will damage their profits and reduce investment in clean technology. But the World Bank says that, far from it being an unfair burden, it would "reflect a scaling back of unusually favourable fuel tax treatment". Aviation fuel is currently untaxed worldwide.

http://www.newscientist.com/article/mg21228374.700-trade-war-looms-over-europes-aircraft-carbon-tax.html

More Flexible Window Into the Brain



High-resolution, ultrathin, flexible, active electrode array with 360 amplified and multiplexed electrodes, allowing close contact with the brain and high-resolution recordings of seizures. (Credit: Travis Ross and Yun Soung Kim, University of Illinois at Urbana-Champaign)

ScienceDaily (Nov. 13, 2011) — A team of researchers co-led by the University of Pennsylvania has developed and tested a new high-resolution, ultra-thin device capable of recording brain activity from the cortical surface without having to use penetrating electrodes. The device could make possible a whole new generation of brain-computer interfaces for treating neurological and psychiatric illness and research.

The work was published in *Nature Neuroscience*.

"The new technology we have created can conform to the brain's unique geometry, and records and maps activity at resolutions that have not been possible before," says Brian Litt, MD, the study's senior author and Associate Professor of Neurology at the Perelman School of Medicine and Bioengineering at the University of Pennsylvania. "Using this device, we can explore the brain networks underlying normal function and disease with much more precision, and its likely to change our understanding of memory, vision, hearing and many other normal functions and diseases." For our patients, implantable brain devices could be inserted in less invasive operations and, by mapping circuits involved in epilepsy, paralysis, depression and other 'network brain disorders' in sufficient detail, this could allow us to intervene to make patients better, Litt said.

Composed of 720 silicon nanomembrane transistors in a multiplexed 360-channel array, the newly designed ultrathin, flexible, foldable device can be positioned not only on the brain surface but also inside sulci and fissures or even between the cortical hemispheres, areas that are physically inaccessible to conventional rigid electrode arrays. Current arrays also require separate wires for each individual sensor, meaning that they can sample broad regions of the brain with low resolution or small regions with high resolution, but not both. The multiplexed nanosensors of the new device can cover a much large brain area with high resolution, while using almost ten times fewer wires.

Monitoring and studying the brain's constant electrical activity, or to alter it when it goes awry, often requires the placement of electrodes deep within specific regions of the brain. These currently used devices can be clumsy and of low resolution, and those used for neuromotor prostheses can cause tissue inflammation and hemorrhages.

Study collaborators including lead author Jonathan Viventi, PhD, an assistant professor at the Polytechnic Institute of New York University who worked with Litt on the project as a postdoctoral fellow at Penn, and colleagues John Rogers from the University of Illinois Urbana-Champaign, and Dae-Hyeong Kim from Seoul National University, worked together to conceive and build the array, believed to be the first device of its kind to be used as a brain interface.

In animal models, researchers observed responses to visual stimuli and recorded previously unknown details of sleep patterns and brain activity during epileptic seizures. The array recorded spiral waves during seizure activity that have not been previously recorded in whole brain. These patterns are similar to those seen in the heart during ventricular fibrillation, raising the possibility of fighting epilepsy with some of the same methods used to treat cardiac arrhythmias, like focal destruction or ablation of abnormal circuits.

The observation of spiral wave activity also served to highlight the extreme sensitivity and resolving capacity of this new active array, which was able to easily distinguish normal signal patterns from abnormal waves even in the same frequency ranges. The activity recorded by Litt's research team has enormous implications not only for controlling seizures but for understanding and treating disorders of other brain processes affecting sleep, memory, and learning, and for the characterizing and treating chronic pain, depression, and other neuropsychological disorders.

Ultimately, the researchers expect that flexible electrode arrays can be perfected for use for various therapeutic and research purposes throughout the body. They could serve as neuroprostheses, pacemakers, ablative devices, or neuromuscular stimulators. Their versatility, sensitivity, and reduced effect on surrounding tissues puts them in the forefront of the next generation of brain-computer interfaces.

In addition to the National Institutes of Health's National Institute of Neurological Disorders and Stroke (NINDS), the research was supported by the National Science Foundation, the Division of Materials Sciences at the U.S. Department of Energy, Citizens United for Research in Epilepsy, the Dr. Michel and Mrs. Anna Mirowski Discovery Fund for Epilepsy Research, and NIH's National Heart, Lung, and Blood Institute.

Story Source:

The above story is reprinted from materials provided by **University of Pennsylvania School of Medicine**, via Newswise.

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http://www.sciencedaily.com/releases/2011/11/111113141405.htm

Thawing microbes could control the climate

- 18:00 06 November 2011 by **Michael Marshall**

The tundra is awakening *(Image: Steven Kazlowski/Science Faction/Getty)*

As the Arctic permafrost melts over the coming decades, long-frozen microorganisms will thaw out and start feasting on the soil. The first have already begun to wake up – and early signs are that they will have a major impact on how Earth's climate changes.

As the Arctic permafrost thaws, runaway global warming may ensue, because the huge amounts of organic carbon the permafrost contains will escape into the atmosphere.

To find out how the permafrost's microorganisms will respond to a thaw, Janet Jansson of the Lawrence Berkeley National Laboratory in Berkeley, California, and colleagues collected three cores from permafrost soil in central Alaska. Back in the lab, they thawed samples of each core and kept them at 5 °C. For the first two days the melting ice released lots of methane that had been trapped when it formed, but the rate then quickly dropped.

That's because soil microorganisms thawed out, and although some began making methane that added to the emissions, others consumed it and converted it into carbon dioxide instead. "It's a very rapid response," Jansson says. Her team took samples of DNA from the permafrost as it warmed up, allowing them to track how the microbial population changed.

Many studies have examined the gases that escape from thawing permafrost, but we knew little about how the microbes within influence the process, says Torben Christensen of Lund University in Sweden. The permafrost ecosystem is almost entirely unexplored. "Most of the microorganisms in permafrost have never been cultivated, and more than 90 per cent are unidentified," Jansson says.

Chilly microbes

Methane is a stronger greenhouse gas than CO_2, although it does not stay in the atmosphere as long. Jansson says a release of CO_2 is still bad news, but preferable to methane.

It's long been known that methane-munching microorganisms will get to work in thawing permafrost, Christensen says. "At least 50 per cent of the gross production of methane will be oxidised." In other words, consumed.

The question is, will the methane-eaters be able to consume the bulk of the gas once the permafrost starts melting in a big way? Christensen says that will depend on what happens to the water table. Higher water tables mean more methane and fewer microorganisms to eat it, while lower water tables mean the opposite.

No laughing matter

Also adding to our worries are indications that thawing permafrost may release large quantities of nitrous oxide – aka laughing gas – which is an even more powerful greenhouse gas than methane, and damages the ozone layer into the bargain.

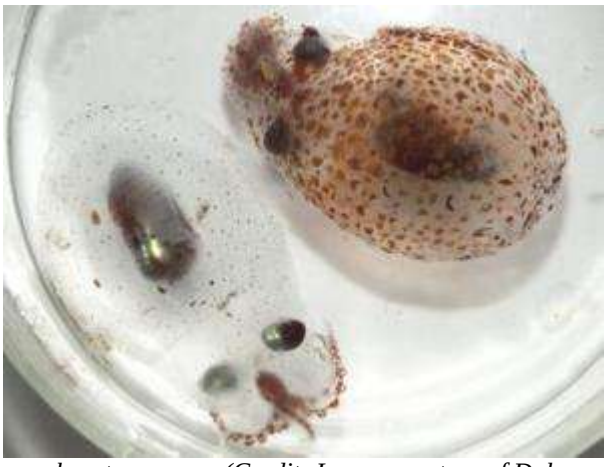
As the team's permafrost samples thawed they saw no boost in the levels of microbes that produce nitrous oxide reductase, an enzyme that converts nitrous oxide into harmless nitrogen. Without this boost, the nitrous oxide could escape.

Christensen has set up a monitoring system to track greenhouse gas emissions from thawing permafrost, and is increasingly tracking nitrous oxide as well as CO_2 and methane. "It may be a player," he says.

Journal reference: *Nature*, DOI: 10.1038/nature10576

http://www.newscientist.com/article/dn21130-thawing-microbes-could-control-the-climate.html

Mid-Ocean Creatures Control Light to Avoid Becoming Snacks



Two Japetella octopuses show how they can change from clear to opaque. (Credit: Image courtesy of Duke University)

ScienceDaily (Nov. 10, 2011) — If you're a snack-sized squid or octopus living in the ocean zone where the last bit of daylight gives way, having some control over your reflection could be a matter of life and death. Most predators cruising 600 to 1,000 meters below the surface spot the silhouette of their prey against the light background above them. But others use searchlights mounted on their heads.

Being transparent and a little bit reflective is a good defense against the silhouette-spotters, but it would be deadly against the "headlight fish," says Duke postdoctoral researcher Sarah Zylinski.

Transparency is the default state of both J*apetella heathi*, a bulbous, short-armed, 3-inch octopus, and *Onychoteuthis banksii*, a 5-inch squid found at these depths. Viewed from below against the light background, these animals are as invisible as they can be. Their eyes and guts, which are impossible to make clear, are instead reflective. But when hit with a flash of bluish light like that produced by headlight fish, they turn on skin pigments, called chromatophores, to become red in the blink of an eye.

During ship-board experiments over the Peru-Chile trench in 2010, Zylinski shined blue-filtered LED light on specimens of both creatures to watch them rapidly go from clear to opaque. When the light was removed, they immediately reverted to transparent. On a second research cruise in 2011 in the Sea of Cortez, Zylinski measured the reflectivity of the octopuses and found they reflected twice as much light in their transparent state as in the opaque state.

Zylinski experimented with 15 to 20 different species of cephalopod pulled up from the deep by the research ships, but only these two responded to the blue light. "I went through several things I thought would stimulate behaviors," she says. Shallow-water cephalopods (squid, ocotopi and cuttlefish) will change their body patterns for a shadow or shape passing overhead, but these deeper water animals don't, Zylinski says. The animals could be seen tracking the movements of probes around them, but it was only the light that made them switch on the their pigments.

Zylinski next would like to investigate the link between transparency and habitat depth for the Japetella octopus. "Smaller young animals are found higher in the water column and have fewer chromatophores, so they are more reliant on transparency, which makes sense because there won't be predators using searchlights there," Zylinski says. But the mature adults have a higher density of chromatophores making them potentially

more opaque and they can be found in deeper waters (below 800 meters) where bioluminescence becomes the dominant light source.

The work, which appears this month in the journal Current Biology, was funded by the U.S. Office of Naval Research and the National Science Foundation.

Story Source:

The above story is reprinted from materials provided by **Duke University**.

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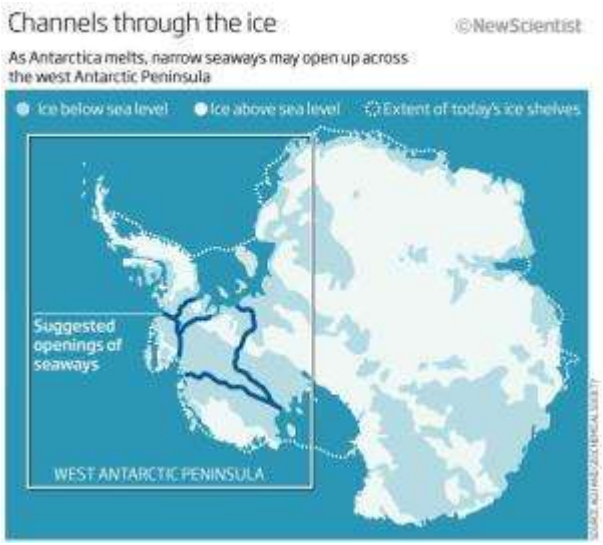
Journal Reference:

1. Sarah Zylinski, Sönke Johnsen. **Mesopelagic Cephalopods Switch between Transparency and Pigmentation to Optimize Camouflage in the Deep**. *Current Biology*, 2011; DOI: 10.1016/j.cub.2011.10.014

http://www.sciencedaily.com/releases/2011/11/111110125731.htm

Seaways across Antarctica could open in 1000 years

- 04 November 2011 by **Michael Marshall**
- Magazine issue 2837.



Channels through the ice

AS ANTARCTICA melts, seaways will open up across the western side of the continent, linking marine communities that have long been isolated from one another.

That's according to David Vaughan of the British Antarctic Survey in Cambridge, UK, and colleagues, who have worked out where these seaways opened up during Antarctica's warmer past - and where they are likely to form again if melting continues.

Without its icy cover, much of west Antarctica would lie beneath sea level, partly because the ice has weighed down the continent. If, when Earth's climate was warmer, Antarctica lost significant quantities of ice, areas of the ice sheet may have become thin and buoyant enough to float above the rocky continent. Seawater would then have flooded beneath the ice and created narrow channels across the continent between chunks of rock that retained their icy caps.

Vaughan suspects that the channels would have been visible from the air, as the floating ice would quickly have broken up.

The team used radar data to measure the depth of Antarctica's rock and the thickness of the ice sheet resting above it, and used this to work out which icy areas will be first to thin to the point that they would detach from the rock below. They identified a number of routes that are likely to have opened up across west Antarctica in the past (see map).

To find evidence for their theory, Vaughan's team turned to the animals living in the seas around Antarctica. They focused on bryozoans, marine filter feeders which spend their adult lives attached to rocks but move around as larvae. Communities on either side of the west Antarctic Peninsula share significantly more species in common than would be expected given the thousands of kilometres of coastline that separates them. This suggests there were once oceanic shortcuts across the peninsula itself, roughly where the team suspected the seaways to have been (*Geochemistry, Geophysics, Geosystems*, DOI: 10.1029/2011GC003688).

"This is a great use of careful, fundamental science to extract important information from subtle clues," says Richard Alley of Penn State University in University Park.

Vaughan says the bryozoan data cannot tell us when the seaways last opened. Genetic testing of animals living at each end of the routes could help put a date on it, which in turn would tell us how likely the channels are to reopen and how vulnerable the west Antarctic ice sheet is to climate change. However, although parts of the sheet are already disappearing, Vaughan estimates that with the current rate of ice loss, even the most easily opened seaway is unlikely to reappear for around 900 years.

http://www.newscientist.com/article/mg21228374.300-seaways-across-antarctica-could-open-in-1000-years.html

Jane Austen 'died from arsenic poisoning'

Crime writer Lindsay Ashford bases claim on reading of author's letters and claims murder cannot be ruled out

Portrait of Jane Austen, c.1790. Photograph: Getty Images

Almost 200 years after she died, Jane Austen's early death at the age of just 41 has been attributed to many things, from cancer to Addison's disease. Now sleuthing from a crime novelist has uncovered a new possibility: arsenic poisoning.

Author Lindsay Ashford moved to Austen's village of Chawton three years ago, and began writing her new crime novel in the library of the novelist's brother Edward's former home, Chawton House. She soon became engrossed in old volumes of Austen's letters, and one morning spotted a sentence Austen wrote just a few months before she died: "I am considerably better now and am recovering my looks a little, which have been bad enough, black and white and every wrong colour."

Having researched modern forensic techniques and poisons for her crime novels, Ashford immediately realised the symptoms could be ascribed to arsenic poisoning, which can cause "raindrop" pigmentation, where patches of skin go brown or black, and other areas go white.

Shortly afterwards she met the former president of the Jane Austen Society of North America, who told her that the lock of Austen's hair on display at a nearby museum had been tested for arsenic by the now deceased American couple who bought it an auction in 1948, coming up positive.

Ashford says that chronic arsenic poisoning gives all the symptoms Austen wrote about in her letters, unlike other possibilities which have been put forward for her death, from Addison's disease, to the cancer Hodgkin's disease and the auto-immune disease lupus. Arsenic was also widely available at the time, handed out in the form of Fowler's Solution as a treatment for everything from rheumatism – something Austen complained of in her letters – to syphilis.

"After all my research I think it's highly likely she was given a medicine containing arsenic. When you look at her list of symptoms and compare them to the list of arsenic symptoms, there is an amazing correlation," Ashford told the Guardian. "I'm quite surprised no one has thought of it before, but I don't think people realise quite how often arsenic was used as a medicine. [But] as a crime writer I've done a lot of research into arsenic, and I think it was just a bit of serendipity, that someone like me came to look at her letters with a very different eye to the eye most people cast on Jane Austen. It's just luck I have this knowledge, which most Austen academics wouldn't."

Although Ashford thinks that, based on her symptoms and on the fact arsenic was so widespread, it is "highly likely" that Austen was suffering from arsenic poisoning after being prescribed it by a doctor for another disease, she explores the possibility that the novelist was murdered with arsenic in her new novel, The Mysterious Death of Miss Austen. "I don't think murder is out of the question," she said. "Having delved into her family background, there was a lot going on that has never been revealed and there could have been a motive for murder. In the early 19th century a lot of people were getting away with murder with arsenic as a weapon, because it wasn't until the Marsh test was developed in 1836 that human remains could be analysed for the presence of arsenic."

Professor Janet Todd, editor for the Cambridge edition of Jane Austen, said that murder was implausible. "I doubt very much she would have been poisoned intentionally. I think it's very unlikely. But the possibility she had arsenic for rheumatism, say, is quite likely," she said. "It's certainly odd that she died quite so young. [But] in the absence of digging her up and finding out, which would not be appreciated, nobody knows what she died of."

Although Ashford would be keen to see Austen's bones disinterred for modern forensic analysis, she accepts this is unlikely to happen. "I can quite understand that people would be outraged by the idea," she said.

http://www.guardian.co.uk/books/2011/nov/14/jane-austen-arsenic-poisoning

Breast-milk stem cells may bypass ethical dilemmas

- 14:30 14 November 2011 by **Linda Geddes**

Now with added stem cells *(Image: Paul Venner/Iconica/Getty)*

Embryonic-like stem cells have been isolated from breast milk in large numbers. The discovery raises the possibility of sourcing stem cells for regenerative medicine, without the need to destroy embryos.

Peter Hartmann at the University of Western Australia in Crawley and his colleagues first announced the discovery of stem cells in breast milk in 2008. Now they have grown them in the lab and shown that they can turn into cells representative of all three embryonic germ layers, called the endoderm, mesoderm and ectoderm – a defining property of embryonic stem cells (ESC).

"They can become bone cells, joint cells, fat cells, pancreatic cells that produce their own insulin, liver cells that produce albumin and also neuronal cells," says Foteini Hassiotou, a member of Hartmann's lab team, who led the recent work.

The breast cells also express the majority of protein markers that you would expect to find in ESCs. "What is really amazing is that these cells can be obtained in quite large amounts in breast milk," Hassiotou adds.

She says the stem cells constitute around 2 per cent of cells in breast milk although the number varies according to how long the woman has been producing milk and how full her breasts are. Hassiotou will present the team's work at the 7th International Breastfeeding and Lactation Symposium in Vienna, Austria early next year.

Many remain sceptical, however. "Perhaps there are some mammary gland stem cells that can be coaxed to have a slightly broader potential than normal, but I very much doubt that embryonic-like cells normally exist in the breast," says Robin Lovell-Badge of the National Institute for Medical Research in London. For one thing, you would expect tumours to be more common than they are.

The real test will be to inject these cells into mice and see if they form teratomas – tumours containing tissue or structures derived from all three germ layers. "That's the gold standard for whether you have a true pluripotent cell," says Chris Mason of University College London. Hassitou says they plan to start these tests in the coming weeks.

Embryonic-like stem cells have previously been discovered in amniotic fluid and in the umbilical cord, but this is the first time they have been discovered in an adult. Other adult stems cells exist – such as hematopoietic stem cells, which can generate all types of blood cell and mesenchymal stem cells, which can turn into bone, fat and cartilage cells. But these stem cells cannot generate as many cell types as the breast milk cells apparently can. "If they are truly embryonic, this would be another way of getting stem cells that would not raise ethical concerns," says Mason.

However, even if they do not turn out to be ESCs, these breast milk cells could still have great potential for regenerative medicine. "It might be possible to grow these cells in culture then bank them so that if or when the mother develops some disease later in life, such as diabetes, her cells may be defrosted and differentiated into pancreatic beta cells," says Lyle Armstrong of Newcastle University, UK, although he too, cautions that more tests are needed to determine exactly what these cells are.

The discovery also raises intriguing questions about the role of these cells in breastfed babies. "It has been shown in mice that live immune cells in breast milk pass through the intestinal mucosa into the blood circulation of the pups and engraft in various tissues," says Hassiotou. "If these cells are in human milk and in such high amounts they probably have a role. They might contribute to tissue regeneration and development of the baby or play certain roles if there is a disease."

The team is planning experiments to track what happens to these cells once they get into infants.

http://www.newscientist.com/article/dn21160-breast-milk-stem-cells-may-bypass-ethical-dilemmas.html

A New Pin on the Art Map

Left, photograph by Pablo Mason, Bruce Nauman/Artists Rights Society; right, Harry Gamboa/Museum of Latin American Art

Bruce Nauman's "Green Light Corridor" (1970), left, and Harry Gamboa Jr.'s "Tree in the Galaxie" (1978).

By ROBERTA SMITH

LOS ANGELES — The postwar art of Southern California is a house with many mansions, a great number of which are now open for viewing. I refer of course to the cacophonous, synergistic, sometimes bizarre colossus of exhibitions known as "Pacific Standard Time: Art in L.A. 1945-1980," which is rampant throughout the Los Angeles region.

It sharply divides our knowledge of postwar art — not just Californian but American — into two periods: before and after "Pacific Standard Time." Before, we knew a lot, and that lot tended to greatly favor New York. A few Los Angeles artists were highly visible and unanimously revered, namely Ed Ruscha and other denizens of the Ferus Gallery, that supercool locus of the Los Angeles art scene in the 1960s, plus Bruce Nauman and Chris Burden, but that was about it. After, we know a whole lot more, and the balance is much more even. One of the many messages delivered by this profusion of what will eventually be nearly 70 museum exhibitions is that New York did not act alone in the postwar era. And neither did those fabulous Ferus boys.

Los Angeles may have entered the postwar years with little to speak of in the way of a contemporary art world, but within a decade it was more than making up for lost time. The oft-cited litany of factors contributing to this explosion of art making includes the region's light, the spaciousness, the cheap rents, Hollywood, the aerospace industry, the car culture, a handful of groundbreaking exhibitions in the '60s at the Pasadena Art Museum, and the increasingly influential art schools. (There were also the harsh, sometimes

galvanizing inequities of the city, especially as experienced by those living in the ghettos and barrios of South Central and East Los Angeles.)

Today Los Angeles has museums and galleries galore, and generations of artistic talent to showcase. And above all — and above it all — it has the Getty Center, on its Brentwood hilltop, which underwrote the project to the tune of about $10 million. Parceled out, the Getty's largess enabled scores of institutions to mount exhibitions excavating and retrieving one portion or another of the area's rich recent cultural past.

During my 5 days here I crammed in about 10 days' worth of art viewing, with visits to some 35 shows in museums, alternative spaces and a few of the commercial galleries that joined the fray.

It was like moving among linked sites on a real-world information superhighway. Exhibitions veered from dense displays of archival documents to elegantly spacious presentations of artworks, all complementing, amplifying and contradicting one another, highlighting the contributions of African-American and Mexican-American artists, the effects of feminism and the proliferation of art forms like assemblage, ceramics and photography. Certain artists and events put in repeat appearances, seen from new angles or within different narratives. And amid it all, a few overarching ideas emerged.

THE CENTER CANNOT HOLD

The great thing about "Pacific Standard Time" is that as more and more institutions got involved, the Getty loosened its grip, and the project morphed into something whose revelations no one could have predicted. But both the older, neater version of Los Angeles's postwar art history and hints of the messier one emerging from the surrounding shows are encapsulated in the Getty's own "Pacific Standard Time: Crosscurrents in L.A. Painting and Sculpture 1950-1970." In a highly compressed fashion (read: crowded, too small and weirdly canonical), the show rehearses the well-known (read: too white and too male) '60s narrative of found-object assemblage, sleek, abstract Finish Fetish sculpture painting, Pop Art and illusionistic Light and Space work, adding some new twists to the story.

In the first gallery the narrative backs up to the late 1950s, reviewing the alacrity with which ceramics artists like John Mason, Peter Voulkos, Ken Price and Henry Takemoto responded to the liberating scale and gesture of Abstract Expressionism in aggressive, often monumental clay sculptures and reliefs, even as some painters, like John McLaughlin, emphatically ignored it, fashioning pristine atmospheric geometries that set the stage for the Light and Space generation.

The show goes on to establish that assemblage was, from the start, a mixed-race endeavor, pursued by white artists like Ed Kienholz, Wallace Berman and Llyn Foulkes, but also by black ones like Melvin Edwards, Ed Bereal, Noah Purifoy and Betye Saar (as well as the Japanese-American Ron Miyashiro). Next the Finish Fetish section includes a decoratively painted car hood from 1964 by the feminist pioneer Judy Chicago. The show continues to the brink of Conceptual Art with a painted word painting from the late 1960s by John Baldessari and concludes with a photograph of Simon Rodia's Watts Towers, whose mosaic-covered spires are a monumental ode to outsider art and assemblage.

For an illuminating footnote to the Getty show, "Artistic Evolution: Southern California Artists at the Natural History Museum of Los Angeles County, 1945-1963," a small exhibition at the Natural History Museum of Los Angeles County in Exposition Park, celebrates the annual juried art shows for local artists held there starting in the 1940s. Just about everyone who became anyone submitted work; the sampling here includes little-known early Abstract Expressionist paintings by Robert Irwin and Mr. Baldessari.

DEEPER AND WIDER

Other shows enlarge upon the different aspects of the Getty show with visionary force. Distributed among the three sites of the Museum of Contemporary Art San Diego, the impeccable "Phenomenal: California Light, Space, Surface," traces the dematerialization of Finish Fetish sculpture into the perceptual etherealities of Light and Space art. It includes a capsule survey of Larry Bell's early progress from geometric painting to glass-box sculptures, as well as the luminous paintings and installations of Douglas Wheeler and Mary Corse and the translucent resin sculptures of Helen Pashgian and DeWain Valentine. And, in a narrow corridor piece by Mr. Nauman, light and space turn psychological and claustrophobic. It certainly doesn't hurt that the museum's main building, in La Jolla, sits on the edge of the light and space of the Pacific.

A visionary power of a gritty, urban sort permeates "Now Dig This: Art and Black Los Angeles, 1960-1980," a beautiful show at the Hammer Museum at the University of California, Los Angeles. This exhibition examines the rich art scene that emerged in the early 1960s in South Central, revealing how a host of mostly but not always black artists explored assemblage's special capacities to fuse medium and message, in some cases inspired by the trauma of the 1965 Watts riots.

Mr. Edwards's fierce welded scrap assemblage-sculptures are seen again here, as are Ms. Saar's poetic recylings of image and object, joined by the efforts of a dozen or so more artists, including the macabre doll-like sculptures of John Outterbridge, and the brooding reliefs of Alonzo Davis. The exhibition also reveals how assemblage was further transformed in the early 1970s by performance-oriented installations of found objects by Senga Nengudi, Maren Hassinger and David Hammons.

The Hammer show is itself placed in even broader context by "Places of Validation,: Art and Progression," at the California African American Museum, back in Exposition Park. Its nearly 90 artists include half of those at the Hammer, with especially impressive pieces by Mr. Hammons and Mr. Purifoy.

(An apotheosis of assemblage as medium and message is on view at the Los Angeles County Museum of Art, in Kienholz's wrenching, incendiary "Five-Car Stud" made from 1969 to '72. The stark nighttime tableau of life-size figures and real cars, which depicts the castration of a black man by six white men while Delta blues plays on the radio of the victim's pickup truck and, inside it, his white female companion looks on in horror. The piece was exhibited previously only once, at the 1972 "Documenta 5" in Germany.)

Southern California is showcased as an epicenter of feminist art in "Doin' It in Public: Feminism and Art at the Woman's Building" in a cavernous gallery at the Otis College of Art and Design near Los Angeles Airport. A deluge of mostly archival material — pamphlets, broadsheets, posters, documents, photographs, videos — with only occasional artworks, its main focus is the evolution of consciousness and collective spaces that culminated in the Woman's Building, founded in Los Angeles in 1973 by Judy Chicago, the designer Sheila Levrant de Bretteville and the art historian Arlene Raven. That, and the array of further activism, feminist art and outreach programs that the Woman's Building fostered during its 18-year existence. This is the kind of show that I once would have said would make a better book than exhibition, and it comes with two very fine volumes. But nothing beats wading through the array of documentary evidence for a visceral sense of the passions, hard work, ingenuity, commitment and very real changes that these women wrought.

FORM AND FUNCTION

While prominently placed at the Getty, ceramics had only a few echoes among the "Pacific Standard Time" shows that I saw — but that will soon change. "Common Ground: Ceramics in Southern California, 1945-1975," opening on Saturday at the American Museum of Ceramics Art in Pomona, with some 300 variously functional, abstract and decorative works by around 50 artists. And among the second wave of shows opening in January is the more focused "Clay's Tectonic Shift: Peter Voulkos, John Mason and Ken Price" at Scripps College in Claremont, accompanied by a catalog that traces the Ferus Gallery's often ignored promotion of ceramic artists like Mason in the late '50s.

Ceramics do have one stunning moment in the current lineup: the survey of the potter Beatrice Wood (1893-1998) at the Santa Monica Museum of Art. A confidante of Marcel Duchamp during his New York Dada days in the late 1910s, Wood moved to Los Angeles in 1928 and gravitated slowly to clay. In an instance of late blooming that more or less coincided with the growth of studio ceramics in Southern California, she became a potter of distinction, reaching maturity in the 1960s with clunky lusterware chalices and goblets. Their brash yet subtle iridescent surfaces look spectacular beneath the Santa Monica museum's skylights. Wood's indifference to the niceties of craft give her forms a roguish humor and sculptural force comparable to those of the Italian modernist Lucio Fontana's (quite different) works in clay. Meanwhile functional ceramics as well as the sculptural kind are plentiful in "California Design 1930-1965: 'Living in a Modern Way' " at the Los Angeles County Museum of Art, where a wall label notes Voulkos's influential (and controversial) pronouncement in the 1950s that his efforts were art, not craft. The design-theme equivalent of the Getty show, this dense, meandering homage to California's considerable influence on American lifestyle also encompasses furniture, textiles, fashion, industrial and graphic design as well as the emblematic living room of Charles and Ray Eames, available in its entirety because the Eames house-museum in Pacific Palisades is undergoing restoration.

The onslaught of the county museum show finds a highly focused counterpoint in "Eames Words" at the fledgling Architecture and Design Museum, in a climate-control-free storefront across the street. All but devoid of art, the show succeeds on sheer curatorial imagination. With quotations from the Eameses displayed across walls, a few films and some alluring displays of everyday objects and raw materials, it is like being inside the designers' heads.

VIVA MÉXICO

Five eye-opening exhibitions that together highlight the work of Mexican-Americans — as well as the Mexican influence on the region's visual culture — suggest that one of the richest veins running through postwar Southern California art is the Mexican-American one. And still these shows leave you with the suspicion that the surface has barely been scratched.

At the Autry National Center in Griffiths Park, "Art Along the Hyphen: The Mexican-American Generation" is devoted to mostly realist painting and sculpture by six Angeleno artists (from three generations, actually). The works range in date from 1906 to the 1970s, with high points including the beautifully reserved still lifes of Eduardo Carrillo (1937-1997).

At the Fowler Museum at the University of California, Los Angeles, the photographs of Oscar Castillo offer a stirring photojournalistic account of Mexican-American life in Los Angeles in the 1970s, while "Mapping Another L.A.: The Chicano Art Movement" sweeps through paintings, drawings, mural art, political posters and punk music. It also includes Asco, the subversive Chicano collective of the 1970s, whose founding members — Harry Gamboa Jr., Willie Herrón, Gronk and Patssi Valdez — dissented from the more decorous and familiar forms of Chicano art with openly rebellious hit-and-run street performances and other actions.

Asco really gets its due in the Los Angeles County Museum of Art's "Asco: The Elite of the Obscure," where it s combination of incisive satire, attitude and style is preserved in images that presage post modern set-up photography and appropriation art. And the artists of Asco also figure, both collectively and individually, in the amazing if disjointed "MEX/L.A.: 'Mexican' Modernism(s) in Los Angeles, 1930-1985" at the Museum of Latin American Art, which was established 15 years ago in a former bowling alley in Long Beach. Opening with a fabulously customized lowrider from 1970 by Jesse Valdez Jr., this exhibition reaches back to before World War II with drawings by Mexican muralists José Clemente Orozco and David Alfaro Siqueiros.

Its wide net includes all kinds of artists influenced by Mexican culture (Frank Lloyd Wright, the Eameses, Walt Disney), and encompasses the photographer Graciela Iturbide, the great outsider Martin Ramirez and recent Conceptualists like Guillermo Gómez-Peña. One telling resurrection is Alfredo Ramos Martínez (1871-

1946), whose politically pointed paintings from the late ’30s of rope-bound Mexicans were executed on pages taken from newspapers, a strategy that presages similar works by Adrian Piper 30 years later. Among the most exciting, open-ended achievements of “Pacific Standard Time,” this rambunctious show should inspire a larger, even more omnivorous one.

THE PHOTO-CONCEPTUAL EXPLOSION

Another insistent strain in much of “Pacific Standard Time” is photography and its constantly mutating role in Conceptual Art starting in the early ’70s. Among the several worthy gallery shows up during my visit, the most impressive was the near total re-creation, at Cherry and Martin, a gallery on La Cienega Boulevard, of “Photography into Sculpture,” a 1970 exhibition at the Museum of Modern Art in New York that included numerous Los Angeles artists who were exploring three-dimensional uses of photographs. (Two early innovators in this area are the subject of their own show, “Speaking in Tongues: The Art of Wallace Berman and Robert Heinecken” at the Armory Center for the Arts in Pasadena.)

The metastasizing of photography (and also video) is a central component in two immense exhibitions, which also go beyond the Southern California focus of “Pacific Standard Time” to address the perennial art historical imbalance between Los Angeles and San Francisco. In Newport Beach, the Orange County Museum of Art’s “State of Mind: New California Art Circa 1970” is a dense, seemingly encyclopedic presentation of Conceptual Art from up and down the coast, shot through with various forms of satire, political fury and emotional vulnerability. Organized with the Berkeley Art Museum, where it will open in late February, it presents works by some 50 artists and artist collectives and resurrects numerous forgotten talents while deepening appreciation of more familiar ones.

An interesting minor sidebar to this exhibition — and also to the women’s show at Otis — is “She Accepts the Proposition: Women Gallerists and the Redefinition of Art in Los Angeles, 1967-1978” at the Crossroads School in Santa Monica. Conceived as a corrective to the view that male curators and art dealers did all the heavy lifting in Los Angeles, it centers on five female art dealers who mounted pioneering shows of installation, conceptual and video art. The Getty should offer grant support for a catalog for this show, which is a gem.

The other immense show that is rife with (although hardly limited to) photo-based work is the baleful, ambitious “Under the Big Black Sun: California Art 1974-1981,” at the Museum of Contemporary Art in Los Angeles organized by Paul Schimmel, its chief curator.

An instance of curatorial imperiousness that makes few concessions to viewer stamina, it represent some 140 artists with nearly 500 artworks, spanning the years between two Californian presidencies — from Richard M. Nixon’s resignation to the inauguration of Ronald Reagan — and charting what might be called the beginning of the breakdown of the American Dream that owed so much to California.

It opens with a haunting juxtaposition of Robert Arneson’s monumental 1981 bust of San Francisco’s assassinated mayor, George Moscone, and several paintings by Mr. Foulkes that riff with Baconesque defacements on official, implicitly presidential portraiture. In effect this exhibition “samples” work from almost every other show in “Pacific Standard Time.” It contains paintings by Mr. Ruscha, Chicano posters and mural drawings, one of Mr. Outterbridge’s wicked dolls and just about every artist, it sometimes seems, in the “State of Mind” show. Its breadth of vision is breathtaking, but it also flattens the art. One can’t help but feel that the “big black sun” may be Mr. Schimmel himself.

EXPLODING ART HISTORY

"Pacific Standard Time" has been touted as rewriting history. It seems equally plausible to say that it simply explodes it, revealing the immensity of art before the narrowing and ordering of the historicizing process. Taken together, its shows may be the next best thing to being there the first time around, or maybe even better: they surely reveal more than any single individual living through these times could have seen or known about.

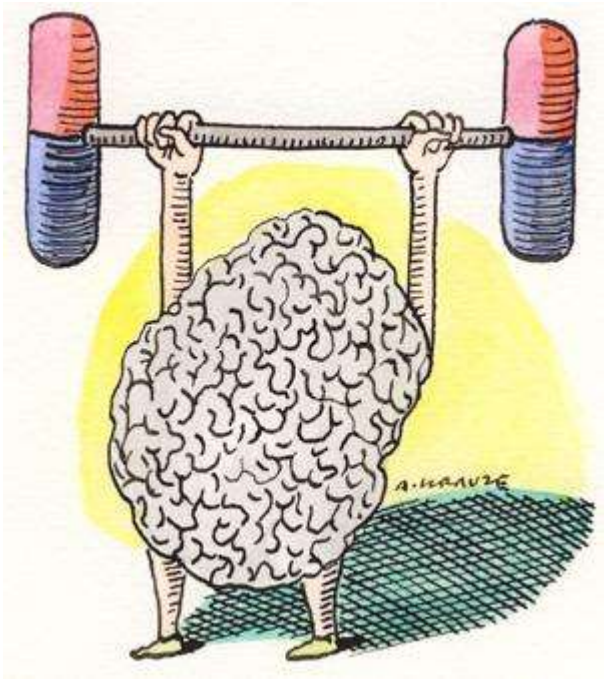
To a great extent this epic of exhibitions reflect our moment's broader historical attitude, which might be characterized as No Artist Left Behind. Anyone who made art at a given moment is eligible to be part of the history of that moment. It's expansive and inclusive and also reminds of me of Lewis Carroll's imaginary full-scale map, which was meant to be as large as the area it charted.

"Pacific Standard Time" is a great argument for museums concentrating first and foremost on local history, for a kind of cosmopolitan regionalism, if you will. It sets an example that other curators in other cities should follow, beginning in my mind with Chicago and San Francisco. If America has more than one art capital, it probably has more than two.

http://www.nytimes.com/2011/11/13/arts/design/pacific-standard-time-art-exhibitions-in-la-review.html?_r=1&ref=design

The dope on mental enhancement

- 16:07 11 November 2011 by **Susan Watts**
- Magazine issue 2839.



(Image: Andrzej Krauze)

Yet another survey has revealed surprisingly large numbers of people using drugs to boost their mental powers. What should be done?

MOST of us want to reach our full potential. We might drink a cup of coffee to stay alert, or go for a run to feel on top of the job. So where's the harm in taking a pill that can do the same thing?

So-called cognitive-enhancing drugs are usually prescribed to treat medical conditions, but they are also known for their ability to improve memory or focus. Many people buy them over the internet, which is risky because they don't know what they are getting. We also know next to nothing about their long-term effects on the brains of healthy people, particularly the young. But some scientists believe they could have a beneficial role to play in society, if properly regulated.

So who's taking what? The BBC's flagship current affairs show *Newsnight* and *New Scientist* ran an anonymous online questionnaire to find out. I also decided to try a cognitive enhancer for myself.

The questionnaire was completed by 761 people, with 38 per cent saying they had taken a cognitive-enhancing drug at least once. Of these, nearly 40 per cent said they had bought the drug online and 92 per cent said they would try it again.

Though not representative of society, the survey is an interesting, anecdotal snapshot of a world for which there is little data. The drugs people said they had taken included modafinil, normally prescribed for sleep

disorders, and Ritalin and Adderall, taken for ADHD. The range of experiences is striking. One respondent wrote: "It helps me extend my concentration. I can study a topic for six hours, for example, that would have me bored to tears in two." Another wrote: "Did not help me do anything but feel anxious and excited, could not sit still even 15 hours later."

When asked about the drugs' potential impact on society, people reported concerns beyond safety, for example warning that the drugs might create a two-tier education system in which some can afford the drugs and others can't. They voiced wider concerns too, such as: "If society has come to the point that we have to take cognitive enhancers to function or perform to certain expected levels, then it is a society that has placed performance over happiness and health."

Laurie Pycroft, a student at the University of Oxford, talked to Newsnight about his experiences with modafinil. "I've taken it a few times, primarily for its ability to increase wakefulness and allow me to concentrate and stay awake for very extended periods of time. I don't take it very often but if I want to stay awake for 20 or 30 hours working on an essay it's very useful," he said.

Keen to learn more, I contacted Barbara Sahakian, a neuroscientist at the University of Cambridge. She and her team work with people who have conditions such as Alzheimer's and Parkinson's disease. One area of their research is testing whether cognitive-enhancing drugs such as modafinil help.

Sahakian thinks these drugs could play a wider role in society. Her most recent research showed that sleep-deprived surgeons performed better on modafinil. "I do think we've undervalued [the drugs]. As a society we could perhaps move forward if we all had a form of cognitive enhancement that was safe," she told me.

Before I could self-experiment with the drug I had to satisfy Sahakian's colleague James Rowe that there were no risks. We also had trained medical staff nearby.

I took a tablet on two separate days without knowing which one was modafinil and which was a placebo. I then did an hour or so of tests involving memory, strategy, planning and tests of impulsiveness.

On the second day I felt more focused and in control and thought I performed better in the tests. That was the day I had been given modafinil. Rowe summed up my performance: "What we've seen today is some very striking improvements… in memory and, for example, your planning abilities and on impulsivity."

It's human nature to want to push against our limitations, but what about the risks? Before sanctioning a drug as a cognitive enhancer for healthy people, regulators would require long-term safety studies so they could weigh up the risks and benefits. Pharmaceutical companies are not rushing to carry out such studies, but Sahakian is calling for such work to be done before someone comes to harm.

Some cognitive enhancers, such as Ritalin, are controlled drugs. Modafinil is not, so it is legal to buy it online, though it is illegal to supply it without a prescription. The UK government, through the Medicines and Healthcare products Regulatory Agency, told Newsnight that tackling the illegal sale and supply of medicines over the internet is a priority.

It's not just students who claim to find the drug beneficial. Anders Sandberg of the Future of Humanity Institute at the University of Oxford talks openly about using cognitive-enhancing drugs. He is about to start a study in Germany to compare the effects of a range of cognitive enhancers, including two hormones – ghrelin, which promotes hunger, and oxytocin, which is associated with empathy – to test their powers at what he calls "moral enhancement".

"Once we have figured out how morality works as an emotional and mental system there might be ways of improving it," he told me.

The bottom line is that cognitive-enhancing pills are a reality and people are using them. But how comfortable are we with the knowledge that some of our children's classmates might be taking such drugs to perform better at school, or that one candidate for a job interview might use modafinil to outshine the others? And who was the real me, the one on modafinil, or the one not? Perhaps we should start thinking these questions through, before a drug offering far more than a few percentage points of enhancement comes our way.

Susan Watts *is the science editor of the BBC TV programme Newsnight*

http://www.newscientist.com/article/dn21157-the-dope-on-mental-enhancement.html

Keyed to Detail, No Matter How Crazy

By ALICE RAWSTHORN

AMSTERDAM — At first glance, there doesn't appear to be anything unusual about it. But if you look closely at the side of the bench, you will see that the supporting panel seems to be squashed by the weight of the seat, as if it was made of a softer material than solid walnut wood.

"It is those tiny details that are important to me," said Aldo Bakker, the 40-year-old Dutchman who designed the bench. "I love having the freedom to pay attention to every detail in my work, no matter how crazy. It's a big challenge for a designer to come up with intelligent objects, which will last, and they need to have a certain amount of complexity, so you can unravel them — layer by layer — over time."

Poise, as the walnut bench is called, is one of a series of thoughtful new pieces that Mr. Bakker has developed in his Amsterdam studio for an exhibition that opens Friday at the gallery Perimeter in Paris and runs to Jan. 15. There is never anything showy about his work, which includes glassware and ceramics as well as furniture, yet each object has a quiet confidence, as if every element has been resolved with nothing left to chance.

One stool to be shown at Perimeter is carved from a single block of oak. Another combines three seemingly identical types of wood, whose differences will become evident as they age. A series of lacquered objects was made using the rare Urushi method in which about 30 layers of lacquer are applied to each piece over six months. Another very old, very slow process produced a collection of slender copper vessels. Mr. Bakker

devotes months, sometimes years, to puzzling over such details, and to tracking down artisans who understand what he hopes to achieve and have the skills to execute it.

He is one of the new wave of designers who could be called design-auteurs for the same reason that François Truffaut dubbed his generation of experimental French filmmakers "auteurs" in 1954, because they treat their work as a medium of self-expression. Mr. Bakker has chosen to do so by developing his own versions of domestic objects that are used every day.

"I can express all the things I need to in them," he explained. "Those objects are very primal. We all need something to sit on. We all need something to eat off. And if we have to have those things why not give them the same attention that artists give to their work?" Just as Mr. Bakker devotes a long time to developing each of his pieces, he himself had a lengthy introduction to design. He was born into the design elite as the only child of the avant-garde jewelry designers Emmy van Leersum and Gijs Bakker. His mother died in 1984, when he was in his teens, and his father went on to co-found the influential Droog Design group in the mid-1990s. By then, Mr. Bakker had decided to work in design, but had dropped out of three design schools. "The longest I lasted was eight months," he said. "I never seriously doubted whether design was my field, but maybe I had to push against my father to discover my own territory."

The first step was to join the Utrecht studio of the jewelry maker Willem Noyons. "He was a great craftsman and there was a lot of knowledge in the studio," Mr. Bakker recalled. "I started working there four days a week making silver spoons and bowls, with peace and quiet to think about my own work. You develop a certain sensitivity from spending whole days polishing one thing. You are so close to the object that you can smell it and feel it. You know that if you do something on one side, it will have a consequence somewhere else." After eight years there, he left in 1999 to design the interior of a restaurant, and was offered a solo show the following year at the Binnen Gallery in Amsterdam. "It had been my dream to show there, but it was too much, too ambitious for me at the time," he said. "I ended up in a big black hole and it took years to get out of it."

Eventually he recovered, and started teaching at Design Academy Eindhoven (one of the schools he had quit as a student) while developing small collections of objects, mostly for Thomas Eyck, the eponymous company founded by a friend, and for the Particles gallery in Amsterdam.

He began with drinking glasses and spent several years finding a glassmaker capable of producing each piece in exactly the same thickness of laboratory glass. Finally, he found one, Petran, in the Czech Republic. An equally arduous search eventually flushed out a ceramicist, Frans Ottink in the Dutch city of Amersfoort, who could produce fine porcelain in the extreme forms designed by Mr. Bakker.

The result is a series of plain white pieces, each made from a single piece of porcelain in a seemingly simple, but subtly complex shape, defined entirely by how it will be used. The milk jug pours from the side, not the top, to avoid dust collecting on the surface. The rim of the salt cellar varies in height to ensure that the salt disperses evenly. The olive oil platter is designed to rub oil gently on to bread, rather than risk it drowning in oil. Each object nestles comfortably in the user's hand.

As the mid-20th-century American designer Charles Eames once said: "The details are not the details. They make the product." Mr. Bakker's work endorses that belief, yet he is equally obsessive about fusing each detail into a coherent whole. "If you look at one of my objects and all you see is its complexity, then I have failed," he said. "The details are important, but so is the question of how they relate to each other, so the finished object seems to be at ease."

http://www.nytimes.com/2011/11/14/arts/design/keyed-to-detail-no-matter-how-crazy.html?ref=design

A Globetrotting Display With American Flair

By KAREN ROSENBERG

Suzanne DeChillo/The New York Times

Pavilion of Art and Design Barry Friedman's booth displays Ian Ingram's "Pierrot," left, and "Embers Under Flame," with Wendell Castle's black walnut chair and Ron Arad's bookcase, "Restless," in front.

Europe may be a drag on our economy, but at least it continues to send us some of its better art fairs. Miami's version of Art Basel, returning next month for its 10th edition, has been enormously popular; a stateside London's Frieze will have its debut on Randalls Island this spring. And now the Pavilion of Art and Design, which began in Paris 14 years ago and expanded to London in 2007, has made a high-profile, auction-week entrance at the Park Avenue Armory.

The fair, known by its acronym PAD, is more design focused than its aforementioned peers. Although there's plenty of 19th- and 20th-century painting and sculpture on hand, it's often upstaged by bold pieces of furniture and decorative artworks.

The mix caters to a new kind of shopper, one who's just as apt to be looking for a sofa to go under the painting as a painting to go over the sofa. And it acknowledges a certain blurring of the traditional categories, at the auction houses, on Web sites like 1stdibs (which is a sponsor of the fair) and at institutions like the Museum of Arts and Design.

As the collector Adam Lindemann writes in a preface to the fair's catalog, "What used to be called the 'decorative arts' has now been dubbed 'design' and is often marketed as limited edition 'art,' or sometimes referred to as 'design/art.' "

All of those labels seem to fit Beth Katleman's three-dimensional "wallpaper," called "Folly," at Todd Merrill. A clever take on the classic toile-de-jouy pattern, it floats tiny porcelain sculptural tableaus on a turquoise wall and incorporates elves and Barbies in lieu of frolicking aristocrats.

Just across the aisle the dealer and interior designer Chahan is exhibiting two bold, architectural ceramic sculptures by Peter Lane. And around the corner Barry Friedman's booth highlights Ron Arad's "Restless" bookcase: a swollen and warped grid of stainless steel.

Most of the 54 exhibitors hail from Europe; only about a fifth are from New York. Many pride themselves on being international tastemakers, showing you not only what to buy but also how you might live with it. The prominent booth of L'Arc en Seine, for instance, is a minimalist fantasia of pale-wood furniture set against ivory walls and carpeting.

Some exhibitors have created highly specialized tableaus, the equivalent of period rooms. If you are looking for French Art Deco, Vallois has nearly an entire booth of Ruhlmann furniture and archival photographs to match. And if you'd rather turn the clock back to the Vienna Secession, Yves Macaux can supply a stiff-backed living room set by Josef Hoffmann.

The art, by and large, is more conservative than the design. But much of it is of museum quality: a wintry Monet landscape at Boulakia, a Morandi still life at Robilant & Voena and a Modigliani double portrait ("Bride and Groom") at Landau.

And although Pierre Bonnard, Jean Metzinger and Christian Schad may not be quite as sought after, all are at their best in paintings at Custot, Béraudière and Macaux. These three works show women seated in front of windows, though the similarity ends there.

The contemporary art is strictly blue chip or safely contextualized (as Wade Guyton's inkjet prints are with Koons and Warhol, at Stellan Holm). But that doesn't mean it can't be fun; at Van de Weghe, Duane Hanson's "Bus Stop Lady," a scarily lifelike sculpture of a Fort Lauderdale, Fla., shopper, is flanked by a punchy yellow-orange Frank Stella and a late Warhol that reads, "Somebody Wants to Buy Your Apartment Building!"

Some diversity would have been welcome, beyond the two booths offering African sculpture (Entwistle and Alain de Monbrison) and the smattering of Latin American modernists, including the Venezuelan Op-artist Carlos Cruz-Diez, at the Mayor Gallery.

And at times I wished that the fair's organizers, the French dealers Patrick Perrin and Stéphane Custot, had embraced a more expansive definition of "good taste." Many of the booths look as if they had been plucked from the pages of Elle Décor or Architectural Digest: a Gio Ponti here, a Richard Prince there.

I found at least one riotous exception at Jason Jacques, where a swirly Art Nouveau fireplace by Hector Guimard — made from reconstituted lava — shares space with spiky, animelike creatures by the contemporary Danish ceramicist Michael Geertsen.

And I marveled at the audacity of Gmurzynska, where paintings by the Dadaist Kurt Schwitters and an assemblage of a wagon wheel and a cigar-store Indian by the Pop artist Robert Indiana sat incongruously in a

gray-walled booth designed by Karl Lagerfeld. The combination suggested a jet setter with some classic modern baggage and an American accent — which is not a bad description of this newly arrived fair.

The Pavilion of Art and Design continues through Monday at the Park Avenue Armory, 643 Park Avenue, at 67th Street; (212) 616-3930, padny.net

http://www.nytimes.com/2011/11/11/arts/design/pavilion-of-art-and-design-at-park-avenue-armory-review.html?ref=design

Geron halts pioneering stem cell research

- 17:25 15 November 2011 by **Andy Coghlan**

The dream of using stem cells to treat people paralysed by spinal injury has been dealt a major blow. Biotech giant Geron has called a halt to its entire stem cell programme, the largest of its kind in the world. That includes a trial to treat 11 people with spinal injuries, which began a year ago.

"Geron is a pioneer and it is very disappointing that the company has had to change direction. The public will need reassurance that this is not the end of an era," says Dusko Ilic of King's College London.

The firm based in Menlo Park, California, says its decision is purely financial and not based on moral reasons or negative results from the four paralysed patients treated so far . The company will now focus all its resources on developing anti-cancer drugs.

The company had to choose between stem cells and cancer, and saw cancer as the better bet. "By narrowing our focus to the oncology therapeutic area, we anticipate having sufficient financial resources to reach these important [targets] without the necessity of raising additional capital," says John Scarlett, Geron's chief executive officer. "This would not be possible if we continue to fund the stem cell programmes at the current levels."

Controversial research

It took years and countless setbacks for Geron to win consent from the US Food and Drug Administration to begin the spinal trial. Geron's programme caused controversy because its cell lines come from human embryonic stem cells (hESCs) obtained through destruction of embryos. Anti-abortion and some evangelical groups have opposed the research because of this.

Most other treatments are based on adult stem cells but some based on hESCs are continuing, including a treatment for a form of blindness called Stargardt's macular dystrophy. "It leaves us holding the flag," says Robert Lanza at Advanced Cell Technology of Worcester, Massachusetts. "There's lots of pressure on us to deliver a success to keep the field alive, but of course it's the second mouse that often gets the cheese."

Too much, too soon?

Lanza questions whether Geron was wise to have chosen such a difficult condition as its first treatment. "Many experts were surprised when they selected spinal cord injury. We knew it was going to be very difficult to show a biological effect," he says.

Others agree: "Making superman walk would have been great for business, but was an ambitious target for a serious problem, and maybe not the best start scientifically or clinically for stem cell therapies," says Alison Murdoch at Newcastle University, UK.

"I have said publically that the Geron trial had no real chance of success because of the design and the [disorder] targeted," says John Martin, professor of cardiovascular medicine at University College London. "It was intrinsically flawed," says Martin, whose own trials are focussing on treating damaged hearts with adult stem cells.Apart from cells for spinal injuries, Geron has also coaxed hESCs into cells for treating several other conditions, including heart disease, diabetes, arthritis and ligament damage.

http://www.newscientist.com/article/dn21173-geron-halts-pioneering-stem-cell-research.html

Where Children Discover Their Inner Child

By LAUREL GRAEBER

Marilyn K. Yee/The New York Times

Interactive exhibits in "EatSleepPlay: Building Health Every Day" at the Children's Museum of Manhattan.

WHAT would you think if you visited a public restroom, and the toilet began to talk — in a female voice with a British accent no less — about the bodily function you'd just performed?

No such bathroom exists in New York City, but "The Royal Flush," among more than 70 interactive exhibits in "EatSleepPlay: Building Health Every Day," the new show at the Children's Museum of Manhattan, does something similar. When little visitors pull this fake toilet's handle, it responds with images and explains, in the warm but slightly brisk tones of a no-nonsense nanny, that what we excrete provides clues to our well-being.

That Mary Poppins voice "adds a sense of decorum to a topic that could otherwise be misconstrued," Tom Quaranta, the museum's director of exhibition services and operations, said in an interview. But while some staff members initially recoiled, "The Royal Flush" ultimately won approval as an ideal expression of this 3,500-square-foot exhibition's mission: to teach children about health in ways that can be vivid and visceral but also playful, memorable and easy to understand.

"It's a huge arts installation," said Andrew S. Ackerman, the museum's executive director, as finishing touches were applied last week. "We want it to be at the heart of behavior change, the way a great movie can be or a great book can be."

Mr. Ackerman explained that more than 10 years ago his staff noticed that a surprising number of visitors were overweight. The museum responded in 1999 with "Body Odyssey," an interactive health exhibition that helped inspire "EatSleepPlay." Increasing news reports of childhood obesity prompted the museum to connect with the National Institutes of Health, whose We Can! (Ways to Enhance Children's Activity & Nutrition) program provides resources to help 8-to-13-year-olds maintain a healthy weight. In 2009 the museum announced a $2.3 million initiative to combat childhood obesity, which included adapting a We Can! curriculum for children as young as 2.

The initiative, which also comprises the $1.2 million "EatSleepPlay" exhibition, gained further momentum when the first lady, Michelle Obama, announced Let's Move!, her campaign for childhood fitness. Now the show, financed by the Laurie M. Tisch Illumination Fund and other private and public donors, incorporates information from more than 50 advisers, including the health institutes and the New York City Health Department.

"The impact of this exhibition is slightly but importantly different from when we first began," Mr. Ackerman added. "Obesity prevention is still the core, but now it's a blueprint for a child's entire development."

"EatSleepPlay," which opens on Friday for an open-ended run, literally swallows its visitors: They walk into a smiling child's mouth leading to a room representing the brain. Another chamber imitates the stomach, while a chain of brand-new septic tanks constitutes a crawl-through colon, a fitting marriage of material and idea. ("The Royal Flush," not surprisingly, comes at the end.) The show's designers, Carol May and Tim Watkins, the married principals of May & Watkins Design, a Brooklyn company, also created a gigantic human heart.

"The design is not realistic, but it's not completely abstract," Mr. Watkins said. Industrial hoses wind across the ceiling like arteries, whose "blood" consists of red light bulbs. A child turning a wheel attached to an anatomical display of a clogged artery finds it hard to set that overhead current flowing; at an open artery, it's easy.

Strands of lights also represent neural pathways. In one exhibit they're connected to panels consisting of fake advertisements for products like potato chips and cigarettes. When children lift the panels to read the hard facts behind the cheery packaging, the lights go out. "It shows that you can shut off the advertising messages to your brain," Mr. Ackerman said.

Making such choices is central to the show's message. In the brain chamber, labeled "Decision Center," children can compete in a digital game to achieve the longest life span. Another game, Choices Change yOUR World!, developed with Linda Gottfried of the company Color, Light & Shadow, lets them navigate a Central Park landscape as a tiny avatar, a beating heart. Lizzy Martin, the museum's exhibition developer, demonstrated how children playing the game at side-by-side video screens could earn points by touching healthy choices — a banana or apple as a snack — or lose them by selecting, say, soda or a cupcake. The heart and the Central Park scene visibly brightened as points accumulated.

"I'm going to ruin our world together now," Ms. Martin said. "I'm going to choose cigarettes. And see what happens. We're in a very dark place." She was right. The screens went inky; Central Park plunged into what looked like nuclear winter; and the entire game paused.

While digital exhibits appeal to children 7 and older, other displays focus on preschoolers. "We really wanted to have humor," Ms. May said. "These shows can get didactic." Thus the digestive system has, well, sound effects, and the stomach also talks to young visitors, who feed it by pulling a lever and watching a screen fill with different foods. The stomach complains if it's given junk or overstuffed. "We went for a Brooklyn taxi driver," Mr. Quaranta said of the voice, "but friendly."

The "Eat" section draws in the youngest children with a two-tiered space representing a New York City Green Cart. Here they meet the Super Sprowtz, Muppetlike vegetable superheroes whose powers relate to their nutritive value. Colby Carrot, for instance, has supersight. Appearing in videos and dioramas, the Super Sprowtz, created by Radha Agrawal, give the area a "Sesame Street" feel, complete with jokes for parents. (Erica Eggplant's deep, dark secret: "I like to roll around in bread crumbs.")

The "Sleep" section illustrates all the functions the body performs during nonwaking hours while zeroing in on more choices. Small children can press buttons for poor bedtime options like "video games" and "TV in bedroom" and see Sleep Stealers — green fabric monsters — inflate. Older children may challenge themselves at a foosball table; one side is labeled "sleep deprived" and the other "well rested." It's rigged. "We made it so the sleep-deprived team will usually lose," Ms. Martin said.

Children also feel the effects of health decisions in the "Play" section. "A lot of kids don't play sports," Mr. Ackerman said. "This concentrates on everyday things," like dancing at home. In a soundproof chamber filled with laser beams, children invent dance moves — stepping in the path of any beam results in an electronic sound — or maneuver ninja style under and around the rays.

Another exhibit offers a variation on the Whac-A-Mole arcade game, accompanied by an electronic bar that players grasp to measure their pulse rates before and after. Children can also press a food choice on a stationary Zike, a combined electronic scooter and elliptical machine, and see how long it takes to pedal away that snack's calories. The machine, which uses quantities comprehensible to youngsters — sips and bites — is calibrated for a 100-pound person, but the message is clear no matter who gets on: Burning the 44 calories in two bites of pizza doesn't happen quickly.

The exhibition, with text in both English and Spanish, includes information that may stun parents: Orange juice has more calories than soda; sleep deprivation causes cravings for fat and sugar; and perhaps most surprising, it takes 8 to 15 tries to persuade a child to accept a new food. So be patient. Those superheroes Erica Eggplant and Colby Carrot haven't lost the battle yet.

Hear a Stomach Talk With a Brooklyn Accent

WHAT "EatSleepPlay: Building Health Every Day"

WHERE Children's Museum of Manhattan, 212 West 83rd Street; (212) 721-1223, cmom.org.

Where to eat:

GOOD ENOUGH TO EAT 483 Amsterdam Avenue, at 83rd Street; (212) 496-0163, goodenoughtoeat.com.

KEFI 505 Columbus Avenue, near 84th Street; (212) 873-0200, kefirestaurant.com.

http://www.nytimes.com/2011/11/11/arts/design/eatsleepplay-at-childrens-museum-of-manhattan.html?ref=design

Test all kids for cholesterol, says US government

- 15:53 15 November 2011 by **Andy Coghlan**
- Magazine issue 2839.

Here's a school-age test that requires no studying to pass. The US National Heart, Lung and Blood Institute wants all children aged 9 to 11 to be screened for high cholesterol levels.

"The reason to start this young is that atherosclerosis, the disease process leading to heart attacks and strokes, starts this young," says Stephen Daniels of the Children's Hospital Colorado in Aurora, chair of the NHLBI panel.

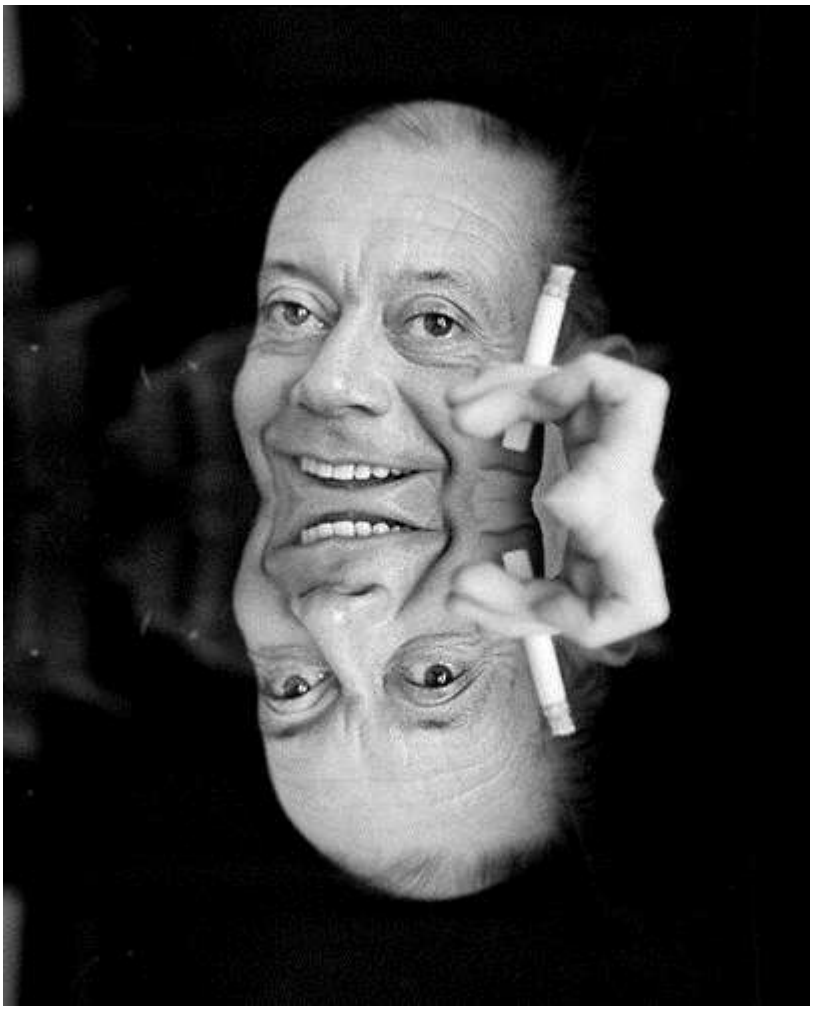
Since 1992, children from families with a history of high cholesterol have been screened, but a report last year suggested the strategy misses one-third of high-risk cases. Testing all children should catch those cases.

But not everyone thinks the approach makes sense. "We have not seen evidence to suggest that screening the entire population of 9 to 11-year-olds would throw out the types of benefits sought," says a spokesman for the British Heart Foundation.

http://www.newscientist.com/article/dn21172-test-all-kids-for-cholesterol-says-us-government.html

A Conjurer of Beautiful People, Back in Town

By KEN JOHNSON



Andy Warhol was a piker compared with Cecil Beaton (1904-80). A British dandy in the Wildean mold, Beaton photographed fashion for Vogue and Vanity Fair; shot portraits of rich, famous and glamorous people; drew and painted cartoons, caricatures, apparel illustrations and theatrical sets with a deft hand; published six volumes of his diaries; and won two Oscars for his costume and set designs for the Hollywood movies "Gigi" and "My Fair Lady. " He never had the impact on fine art that Warhol did, but from the Jazz Age of the 1920s to the Pop era of the 1960s he chronicled the doings of European and American high society with amazing energy. Like Warhol, he became a celebrity in his own right.

From his London home Beaton traveled incessantly and spent extended periods in Manhattan, where he stayed in hotel suites lavishly appointed in accordance with his own supremely elegant taste. In 1969 the Museum of the City of New York mounted a show of his photographs called "600 Faces," which Hilton Kramer, then art critic for The New York Times, disparaged for its excessively intimate engagement with "the vicissitudes of fashion, celebrity and the vagaries of publicity." Now at the same institution we have "Cecil Beaton: The New York Years," a nicely produced exhibition organized by Donald Albrecht, the museum's curator of architecture and design. In photographs, drawings, watercolors and a set of dresses designed for theatrical productions, it tells the story of a man about town whose like we may never see again.

The son of a British lumber merchant, Beaton had already made his mark in London working for British Vogue when he first visited New York in 1928 as a 24-year-old wunderkind. Almost immediately he began his long association with the American edition of Vogue as a photographer, illustrator and writer. Besides his instinct for self-promotion Beaton had a talent for conjuring a world of beautiful people in lovely settings unsullied by the grit of lower-class social reality, even during the years of the Great Depression and World War II. With a journalist's keen nose for what was hip and happening, he moved with seeming effortlessness between worlds. One of the earliest photographs in the show is a double portrait of Fred Astaire and his sister, Adele, taken in 1929. One of the last, shot 40 years later, is a group portrait of Warhol and members of his Factory.

Between those dates he made portraits of Salvador and Gala Dalí (1936), with Gala's face surrealistically obscured by a fencing mask; a young, chubby Marlon Brando resembling a petulant schoolboy in 1946; a model in a ball gown in front of a Jackson Pollock drip painting at the Betty Parsons Gallery in 1951; and, in 1969, the curator Henry Geldzahler and his partner Christopher Scott posing with David Hockney's double portrait of them. Other luminaries include Greta Garbo, with whom Beaton had a long and intimate relationship; Marilyn Monroe; Truman Capote; Diana Vreeland, the longtime Vogue editor; and a laughing Mick Jagger.

Beaton was not an aggressively imaginative photographer. The virtue of his portraits is in their immediacy and lucidity. He got out of the way of his sitters. In one of his most striking pictures, a 1935 portrait of Natalie Paley, a cousin of the last Russian czar, Nicholas II, it takes a moment to realize that the decorative screen behind the woman in black with a blooming corsage at her neck is the gridded wiring of an ordinary bed spring. It is a fine, tactful touch.

In fashion photography he thought more like a set designer than an image maker. Pictures from 1936 of models in dresses by Elsa Schiaparelli and Mainbocher have women deployed in extremely spare yet dreamy environments like actors in Surrealist plays. In a 1948 photograph of nine models in satiny gowns arrayed in a neo-classical-style room, the soft, silvery light and the choreography of poses creates a beguiling ambience of transcendental theatricality that looks back to painting of the Rococo era.

It makes sense that his truest calling ultimately would be as a designer for theater and film. His most memorable achievement must be the nearly all-black-and-white scene in "My Fair Lady," in which Eliza Doolittle makes her debut among aristocrats at the race track in a slinky dress and extravagant hat. In a 1963 photograph Audrey Hepburn appears in a black-and-white dress from the movie that looks as futuristic (in a "Clockwork Orange" sense) as Victorian. Gazing straight ahead, walking stick in one outstretched hand, she stands regally in front of a painting of concentric squares that seem to recede toward infinity. It is a hypnotic time capsule. If memories of Beaton have faded, it might be because he spread himself too thin. His was the curse of the multitalented. Or perhaps he was born too early.

You might suppose that in a post-Warhol world in which the serious and the trivial mix inextricably he would be in his element. Or maybe not. He was, after all, a climbing snob of the first order, a courtier, and he needed a background of fixed social hierarchy against which to do his insouciant but fawning thing. Vogue, Vanity Fair and countless other glossy magazines may still follow the Beaton model, but celebrity, wealth and fame as they appear in today's media have turned routine and ugly, and it is hard to imagine another like Beaton captivating the public imagination the way he did for so many years.

"Cecil Beaton: The New York Years," continues through Feb. 20, at the Museum of the City of New York; 1220 Fifth Avenue, at 103rd Street, (212) 534-1672, mcny.org.

http://www.nytimes.com/2011/11/11/arts/design/cecil-beatons-work-at-museum-of-city-of-new-york-review.html?ref=design

The modest woman who beat malaria for China

- 15 November 2011 by **Phil McKenna**
- Magazine issue 2838.

Tu Youyou, now 80, continues to study artemisinin at her lab in Beijing *(Image: Simon Griffiths)*

*The origins of our best drug against malaria have long been a mystery. Meet **Tu Youyou**, who scoured ancient Chinese medical texts for the cure*

FORTY years ago a secret military project in communist China yielded one of the greatest drug discoveries in modern medicine. Artemisinin remains the most effective treatment for malaria today and has saved millions of lives. Until recently, though, the drug's origins were a mystery.

"I was at a meeting in Shanghai in 2005 with all of the Chinese malariologists and I asked who discovered artemisinin," says Louis Miller, a malaria researcher at the US National Institutes of Health in Rockville, Maryland. "I was shocked that no one knew."

Miller and his NIH colleage Xinzhuan Su began digging into the drug's history. After reviewing letters, researchers' original notebooks and transcripts from once-secret meetings, they concluded the major credit should go to pharmacologist Tu Youyou. Two months ago Tu received America's top medical accolade, the Lasker award.

Now 80, Tu still runs a lab in Beijing where she continues to study artemisinin. Shortly before receiving the award she met me at a hotel near New York's Central Park. Joining us was her son-in-law, Lei Mao, a physician living in North Carolina, who served as interpreter.

Tu is a diminutive figure with short, jet black hair that curls in wisps around her ears. Reading glasses dangle from a chain around her neck. On responding to any kind of praise she is softly spoken and painfully modest. Talking about her research, however, she speaks with an urgency and passion undimmed by passing years.

Tu carried out her work in the 1960s and 70s at the height of China's Cultural Revolution, a government-imposed attempt to forge a new kind of society according to its notion of socialism. It was a chaotic and frightening time, when scientists and other intellectuals were seen as class enemies and arbitrarily sent to work in the countryside for "re-education". Scientific publication was forbidden.

Yet China had a pressing need that trumped any political cause. One of its few allies, North Vietnam, was at war with South Vietnam and its US ally, and malaria was rampant in the region. At the time the primary treatment was a drug called chloroquine, but the malaria parasite was rapidly evolving resistance. The country was losing more soldiers to malaria than to American bullets.

China's leader Mao Zedong set up a secret drug discovery project, known only as 523, for the date it was launched: 23 May 1967. Within a couple of years hundreds of scientists had tested thousands of synthetic compounds without success and it was common knowledge that a similar programme in the US had drawn a blank too.

With no synthetic drugs forthcoming, attention turned to China's traditional medicines. The government asked the Academy of Traditional Chinese Medicine in Beijing to appoint one of its researchers to scour China's herb garden for a cure.

The academy chose Tu, a mid-career scientist who had studied both Chinese and western medicine and knew enough about both to realise it would not be an easy job. "By the time I started my search over 240,000 compounds had been screened in the US and China without any positive results," she says.

Soon after joining project 523, Tu was sent to Hainan province, a region in the far south long plagued by malaria, to observe the effects of the disease firsthand. As Tu's husband had been banished to the countryside at the time, she had to entrust her 4-year-old daughter to the care of a local nursery.

On Tu's return to Beijing six months later, her daughter didn't recognise her and hid from the "strange woman" who came to take her home. But Tu seems to bear no bitterness. "The work was the top priority, so I was certainly willing to sacrifice my personal life," she says. And her time in Hainan had made a big impression. "I saw a lot of children who were in the latest stages of malaria," Tu says. "Those kids died very quickly."

She and three assistants reviewed more than 2000 recipes for traditional Chinese remedies in the academy's library. They made 380 herbal extracts and tested them on mice. One of the compounds did indeed reduce the number of malaria parasites in the blood. It was derived from sweet wormwood (*Artemisia annua*), a plant common throughout China, which was in a treatment for "intermittent fevers" - a hallmark of malaria.

The team carried out further tests, only to be baffled when the compound's powers seemed to melt away. Tu reread the recipe, written more than 1600 years ago in a text appositely titled "Emergency Prescriptions Kept Up One's Sleeve". The directions were to soak one bunch of wormwood in water and then drink the juice.

Tu realised that their method of preparation, boiling up the wormwood, might have damaged the active ingredient. So she made another preparation using an ether solvent, which boils at 35 °C. When tested on mice and monkeys, it proved 100 per cent effective. "We had just cured drug-resistant malaria," Tu says. "We were very excited."

But would it work in humans - and was it safe? Tu volunteered to be the first test subject. "As the head of this research group, I had the responsibility," she says. After suffering no ill effects, Tu began clinical trials with labourers who had contracted malaria in the forest. Within 30 hours their fevers had subsided and parasites were gone from their blood.

Tu's work wasn't published until 1977, after the turmoil of the Cultural Revolution had died down. As was customary, the authors remained anonymous; in such an egalitarian society the group was considered more important than the individual.

The discovery of artemisinin remains a point of pride for China, and some argue it shows the worth of scouring herbal lore for other botanical buried gems. The drug now helps tens of millions of people a year, and it is still obtained from sweet wormwood, grown in China, Vietnam and east Africa. Research is ongoing to breed strains with higher yields of the active compound.

In the past decade the first resistance to artemisinin has emerged, in Cambodia. The drug still works but it takes longer, typically four days instead of two. To stop resistance from spreading further doctors now only use artemisinin in combination with another antimalarial; it is harder for the parasite to evolve resistance to two drugs simultaneously.

As Tu says, malaria researchers have to remain vigilant. "It is scientists' responsibility to continue fighting for the healthcare of all humans." And despite the importance of her work, she is modest. "What I have done was what I should have done as a return for the education provided by my country," she says.

She expressed gratitude at the Lasker award ceremony, with her husband, daughter and granddaughter at her side. But that was just the icing on the cake: "I feel more reward when I see so many patients cured."

Phil McKenna *is a freelance writer based in Cambridge, Massachusetts*

http://www.newscientist.com/article/mg21228382.000-the-modest-woman-who-beat-malaria-for-china.html

Flattery (Sincere?) Lightly Dusted With Irony

By ROBERTA SMITH

Librado Romero/The New York Times
"Sherrie Levine: Mayhem": Cast-crystal skulls in vitrines are part of this show at the Whitney Museum of American Art

The Whitney Museum of American Art's survey of paintings, sculptures and photographs by the appropriation artist Sherrie Levine has a provocative subtitle, "Mayhem." That's strong language but not out of place.

For more than 30 years Ms. Levine has been slyly lifting images and forms from works by well-known Modernist artists and photographers, using them, her admirers maintain, in ways that undermine conventional notions of originality, artistic mastery and authorship. Her goal has apparently been to expose evils like the commodification or fetishization of the unique art object and to chip away at the myths of individual creativity that have historically served male artists and their markets.

But nothing close to mayhem occurs in this exhibition. Over all it is disappointingly sedate, resembling a tastefully appointed art boutique full of fastidious, expensive-looking objects lightly dusted with irony. I'd like to think that Ms. Levine is a better artist than this, but I'm not sure. Whatever life her art has mustered in the past seems to have been mostly left at the door.

Ms. Levine emerged around 1980, taunting the art world by photographing photographs by Modernist masters like Edward Weston and Walker Evans that were indistinguishable from the originals, before adding painting and then sculpture to her repertory. She was a founding member of the Pictures Generation, and her fellow travelers, where rephotography was concerned, included Richard Prince and Barbara Kruger.

Twenty-one of the Evans images — rephotographs of his Depression-era pictures of Southern sharecroppers, humble cabins and weather-worn churches titled "After Walker Evans" — start off the Whitney show. They still represent '80s appropriation art at its most seamlessly provocative: a mental if not a visual affront, well-

enough executed to read also as a tribute. But it is the clarity and passion of Evans's images that hold us more than Ms. Levine's subversive gesture.

Other works here borrow in various ways from photographs by Karl Blossfeldt and Alfred Stieglitz; sculptures by Duchamp and Brancusi; paintings by Monet, Mondrian and Ludwig Kirchner. An image by Man Ray receives especially lavish translation, in the form of four identical, fully life-size renditions of a Victorian-looking billiards table, with mannered, bulbous legs, that project, almost like a diving board, into Man Ray's goofy 1938 painting "La Fortune." (It is owned by the Whitney, and as luck would have it, is on view in its second-floor galleries.)

Fabricated of dark, gleaming mahogany sodded with lush green felt, in 1990, Ms. Levine's tables form a wry comment on Minimalism, especially on Donald Judd's big repeating boxes and planes of saturated color, and on the movement as a kind of men's club. And it's not often that a fairly familiar Surrealist image is so expertly rendered as an object.

Although Ms. Levine's show covers 30 years, it is not a retrospective; the news release describes it as "a project developed by the artist in collaboration" with the show's organizers: the art historian and critic Johanna Burton and Elisabeth Sussman, a Whitney curator, working with Carrie Springer, a senior curatorial assistant. The implication that the artist had unusual control may explain why this presentation is more like a big, commercial gallery show than like a carefully considered career summation.

The works here indicate that Ms. Levine is at her most provocative as a photographer and at her best as a painter, and that — the frisson of the billiard tables aside — she should mostly avoid sculpture. In her hands refined materials and attractive display are ends in themselves, and empty ones, at that. My first impression of the show was that had she been born a generation earlier, she would have been a card-carrying Minimalist, and that she has increasingly succumbed to just the kind of fetishization and preciousness that her work initially sought to expose.

There are occasional exceptions. Her two polished-bronze versions of Duchamp's best-known readymade — the humble urinal that he placed on its back and renamed "Fountain" — underscore its assimilation as high art, and titling them "Fountain (Buddha)" and "Fountain (Madonna)" cleverly yet irrevocably alters their meaning. Suddenly these curving, hooded objects read as hospitable niches ready made, as it were, for spiritual statues. It is a striking transformation.

Other works involve effective expansions of Duchamp's "Large Glass," the shorthand title for "The Bride Stripped Bare by Her Bachelors, Even" in the Philadelphia Museum of Art. For these Ms. Levine extrapolated the abbreviated silhouettes of the six rapacious bachelors into sculptures, also in polished bronze. And she dispersed the wolf pack by isolating each sculpture in its own cherry-wood vitrine, laid out and objectified, as women so often are by men.

In Ms. Levine's versions of Brancusi's ovoid "Newborn," the semi-abstract head of a wailing infant, which she renders in cast glass and cast crystal, veers too closely to museum-gift-shop fare. And a series of eight glass human skulls in separate vitrines demonstrates that without a specific art historical source, the sculptures go mute, unless they are just plain awful. A polished-bronze cast of a skeleton of a two-headed calf, "False God," seems aimed at the art market but is an ostentatious cliché.

In the mid 1980s, Ms. Levine began making small, enticing watercolors of famous paintings, meticulously copied from art books. This meant that their colors might be distorted (I remember a greenish Mondrian), or they might be grisaille, if the reproduction was in black and white. These works have an economy similar to that of Ms. Levine's rephotographs, as well as a feminizing wit; but there's no sign of them here, which is too bad.

In painting, Ms. Levine has largely avoided the simple one-to-one translation of strict appropriation that plagues her sculptures. Instead her grids and stripes suggest game boards or paneling — generic forms of abstraction at large in the culture rather than associated with an individual artist. Her efforts are very much painting about painting, which suggests an element of calculation, but they provide the show's most genuine moments.

In several works in casein on 24-by-20-inch mahogany panels, the surfaces are soft, almost powdery; the colors alternate pungent pastels of cantaloupe and purple, or lime and spruce in three wide verticals and a narrow fourth, an imbalance that makes the painting read as a fragment of a larger one.

The 5-by-4-foot sheets of plywood she turned to in the late 1980s came with their abstraction built in: she simply painted their random elliptical plugs in either gray or gold. These works, which didn't impress me when they were made, look quite strong today, perhaps because the wood has darkened. The tensions between the hard-edge painted ellipses and the undulating patterns of grain have a pictorial liveliness, one whose rhythms and contrasts are never quite the same from work to work.

Even when Ms. Levine copies images of Krazy Kat and Ignatz on small wood panels, she makes sparks. Whether or not she believes in the artist's touch, she has a distinctive one. And it occasionally prevails amid the elegant décor of this airless show.

"Sherrie Levine: Mayhem" runs through Jan. 29 at the Whitney Museum of American Art, ; (212) 570-3600, whitney.org.

http://www.nytimes.com/2011/11/11/arts/design/sherrie-levine-mayhem-at-whitney-museum-review.html?ref=design

My self-destructing syringe could save millions of lives

- Updated 11:09 15 November 2011 by **Jon White**
- Magazine issue 2838

Marc Koska is on a mission to stop syringe reuse

Unsafe injections kill 1.3 million people a year, says former "spoilt brat" ***Marc Koska****, who is on a mission to stop syringe reuse*

You are on a mission to stop the reuse of syringes. How big is the problem?
The World Health Organization (WHO) says 1.3 million people die every year because of the reuse of syringes. The burden of disease cost is over $100 billion a year from syringe reuse, which is just mind-blowingly horrific. Twenty-two million cases of hepatitis B are spread every year because of the reuse of syringes. The WHO says one in two injections given is unsafe.

You invented a simple non-reusable syringe, the K1. Where did it all begin?
I read a newspaper article in May 1984 which predicted that syringes would one day be a major cause of the transmission of HIV. It was what I had been waiting for, a project that had a lot of the things that I liked: problem-solving, product design, campaigning, and being a bit of a big mouth pain-in-the-bum.

I grew up in England, went to a nice public school, then didn't want to go to university so I thought I would wander around. I did a season skiing, a bit of sailing, typical spoilt brat stuff. I ended up in the Caribbean. I was having a blast. I was really waiting for this bit of inspiration if you like, and it came in the form of syringes.

How did you go about designing a self-destructing syringe?
Syringes are made in their billions every month around the world, and I realised that until I could go to a manufacturer and say "this is going to add nothing to your manufacturing costs" then I didn't have a hope. That dictated the design. There is a part of the existing moulding process that is easy to change. I designed a mechanical valve into the plunger. After one use the plunger passes a ring inside the barrel. If you try to retract the plunger past that ring it locks. If you use excessive force, the plunger snaps and it can't be used.

Tanzania has just agreed to use only this kind of syringe. Tell me about that.
The Tanzanian government recognised there is a problem: that they don't have enough sterile syringes, that

they are being reused probably four or five times each, and that this reuse is a massive contributor to their burden of healthcare.

How did you persuade the Tanzanian officials to switch to non-reusable syringes?
I was anonymously sent a video of a healthcare worker reusing a syringe on three people: a 4-year-old, an adult with HIV and then a 1-year-old baby. I edited that into a short version and was able to show it to the minister, who was appalled.

What's next for your safe syringe campaign?
In 2012 I want to concentrate on east Africa. I want to see Tanzania through, then I want to move on to Uganda, Kenya, Rwanda and Burundi. A country like Tanzania is going to go from using 40 million syringes to 200 million. That's going to require them spending about $7 million extra, but is likely to save them $70 million in healthcare costs. But where do they get the $7 million in the first place? My role is also trying to help them find the money.

When this article was first posted, it incorrectly stated that Tanzania had agreed to use only the K1 syringe.

Profile

Marc Koska has worked for 27 years to stop the reuse of syringes. He designed the self-destructing K1 syringe, set up Star Syringe to manufacture it and runs the charity SafePoint, which campaigns against unsafe injections

http://www.newscientist.com/article/mg21228386.500-my-selfdestructing-syringe-could-save-millions-of-lives.html

War Resonates Anew on Hallowed French Ground

By STEVEN ERLANGER

Corentin Fohlen for The New York Times

Le Musée de la Grande Guerre, or the Museum of the Great War, will be inaugurated Friday in Meaux, France.

CHÂTEAU-THIERRY, France — The remains of some of the last American doughboys of World War I to be identified were found just a few years ago, buried in a vegetable garden in this little town, wine bottles clasped in their crossed arms. They had died of their wounds in a field hospital set up in an adjoining farmhouse.

Because dog tags rusted so quickly, soldiers created their own unofficial method for future identification: They wrote a note identifying the dead, with the date and manner of death, and two comrades of higher rank signed it as witnesses. They then stuck the note in an empty bottle, corked it and buried it in the arms of the corpse, said David Atkinson, superintendent of the sweeping Aisne-Marne American Cemetery, at the foot of the hill where the Battle of Belleau Wood was fought, a site sacred to the Marine Corps.

More than 116,500 American troops died in World War I in less than six months, slaughtered in a war that was supposed to end all wars. In this region of France — today a lush, rainy carpet of fields and hills — roughly 300,000 troops were killed or wounded on all sides in the summer of 1918, 70,000 of them American. They were vital to the successful effort to block the Germans from advancing on Paris, about 60 miles away and accessible now by a suburban train.

The battle here is considered to have been crucial, ending a string of German successes and thwarting Germany's push to achieve victory before the American Army arrived in full strength.

The immaculate American cemetery at Belleau and another one nearby, known as the Oise-Aisne American Cemetery and laid out like an open-air cathedral, together contain more than 8,000 American graves. The headstones of white Italian marble are set in ranks, like a parade formation of the dead.

Many of the names — like Mike Zlotcha, a private from Michigan who died on Sept. 23, 1918, or Cataldo Carletta, a private from Pennsylvania who died on July 16, 1918 — are European in origin. At least 18 percent of the American soldiers who fought in World War I were not born in the United States, Mr. Atkinson said; many were immigrants from Europe who returned here to fight and die.

All the dead will be mourned on Friday, a date observed throughout Europe to mark the anniversary of the armistice that began at the 11th hour of the 11th day of the 11th month of 1918. Though 11/11/11 is not its centennial, there is still an unusual resonance.

President Nicolas Sarkozy

of France will devote much of

his day to commemorations honoring Georges Clemenceau, France's wartime leader, and Charles Péguy, the beloved

poet who died near here in the first Battle of the Marne. "Everything begins in mysticism and ends in politics," Péguy once wrote.

Mr. Sarkozy will also go on Friday to nearby Meaux to inaugurate Le Musée de la Grande Guerre (the Museum of the Great War), a 75,000-square-foot oblong building devoted to historical artifacts of the war, near an American memorial erected in 1932.

Nearly all the artifacts were amassed by Jean-Pierre Verney, 66, the grandson of a German woman. Inspired by the tales of veterans, he became fascinated by the war and began buying items at flea markets and auction houses. He became obsessed with collecting, selling "my wife's furniture and jewels" to do it, Mr. Verney said.

In the 1970s, he said, "people weren't interested, and the state was cautious." He proposed displaying his collection at various museums and got no response. But in 2004, at a war commemoration, he met the mayor of Meaux, Jean-François Copé, who now runs Mr. Sarkozy's governing party.

A foreign museum had offered Mr. Verney two million euros ($2.7 million at current exchange rates) for his collection, but he wanted to keep it in France. Mr. Copé arranged to buy it for 600,000 euros ($823,000) with the promise of the museum.

Only about 5 percent of Mr. Verney's 50,000 pieces will be displayed: uniforms from more than 30 nations, guns, canteens, call-up notices, weapons, ammunition, grenades, gas masks and protective suits, prostheses, patriotic knickknacks, art made by bored soldiers out of shells and ammunition. There is a Browning FN Model 1910 pistol, the same type (and a sales catalog for the gun, which cost 42 francs) that Gavrilo Princip used to assassinate Archduke Franz Ferdinand of Austria and his wife in Sarajevo in 1914, the spark that touched off the war. And, courtesy of the French state, the artifacts include a 1917 Renault tank, a truck that housed carrier pigeons, and two warplanes, the fragile Blériot XI and a Spad XIII biplane.

There is a re-creation of a French trench and a German one, with a no man's land in between, and there are films to provide historical context for the years between 1870 and the end of the war.

The museum, with workers racing to finish in time for Mr. Sarkozy and the public, cost 28 million euros ($38 million), divided between state and regional authorities. Some three million euros ($4 million) came from corporate contributors, including Disneyland Paris, 10 miles away, with which the museum expects to form a tourism partnership.

The organizers expect up to 100,000 visitors a year; the memorial at Verdun gets about 200,000 a year. Interest remains high; Michelin is publishing two World War I battlefield guides on Friday, for this area and for Verdun.

On Saturday, in nearby Fère-en-Tardenois, another memorial will be dedicated in the region: a bronze statue on a plinth in honor of the soldiers of the United States 42d Infantry (Rainbow) Division who died in the Battle of Croix Rouge Farm in July 1918. Sculptured by a British artist, James Butler, the statue depicts an American soldier carrying a dead comrade. The memorial is the gift of an Alabaman in the name of his father, Sgt. William Johnson Frazer, who was wounded in the battle, which involved a bayonet charge by the 167th (Alabama) Infantry Regiment.

As for Mr. Verney, what interests him is the human story of the war, especially now that the last serving soldier is thought to have died. So he was stung the other day when a well-known French historian of World War I, Annette Becker, dismissed him as "a handyman who has amassed bric-a-brac, with no historical legitimacy."

Mr. Verney called the remark "despicable" and said: "I am not a collector. I'm a farmer; I made a furrow and I drew it myself, with difficulty."

Now, with the museum a reality, Mr. Verney said, "I'm going to leave the trenches and reflect, and rest a little."

Elvire Camus and Maïa de la Baume contributed reporting.

http://www.nytimes.com/2011/11/11/world/europe/in-france-sacrifices-of-world-war-i-resonate-anew.html?ref=design

Disease-ridden societies could be more murderous

- 15 November 2011 by **Michael Marshall**
- Magazine issue 2838.

DOES the threat of rampant disease leave people more likely to commit murder? It's a provocative suggestion, that, if correct, should provide even more incentive to improve the quality of public healthcare in countries where disease is rife.

Randy Thornhill, an evolutionary psychologist at the University of New Mexico in Albuquerque, has spent years amassing evidence for his "parasite stress" model of human society, which considers all disease to be a parasite on human society. He has already used it to predict that people in disease-ridden regions will be more xenophobic, and prefer to associate with relatives and close neighbours. These "collectivist" societies opt for strongly conservative values and autocratic governments, which Thornhill says minimises the risk of contracting diseases. By contrast, people in countries with low disease rates tend to be more individualistic and democratic, he says.

With Corey Fincher, also at the University of New Mexico, Thornhill has now found a link between disease and violence. The pair compared murder and disease rates from 48 US states and found that high disease rates correlated with high murder rates. The pattern held even when they took into account economic inequality within the society, which also increases the murder rate (*Philosophical Transactions of the Royal Society B*, DOI: 10.1098/rstb.2011.0052).

The idea tallies with what we know about different countries' murder rates, says Martin Daly of McMaster University in Hamilton, Canada. A recent study identified a link between collectivist societies and murder rates, but did not look at disease rates (*Homicide Studies*, DOI: 10.1177/1088767911406397).

"Thornhill has pretty convincingly established a link between parasite stress and violence," says Carlos David Navarrete of Michigan State University in East Lansing.Others are not yet ready to accept the link, though. "It's fascinating and I'd like it to be true," says Val Curtis of the London School of Hygiene and Tropical Medicine, but she points out that there may be other factors at work. For instance, although the research takes into account relative economic inequalities within the society, it does not consider absolute wealth. Poverty itself may lead to higher murder rates - but because poor societies are likely to have relatively weak healthcare systems and higher levels of disease, there might still be a strong correlation between disease and murder.

If Thornhill's hypothesis is right, it should be possible to see a change in the murder rate as a society faces a reduced or heightened disease risk even as the levels of wealth in the society remained constant. The US data was not detailed enough to allow such an analysis. He predicts that simply investing in healthcare - but not necessarily any other aspect of society - could have an effect on the murder rates.

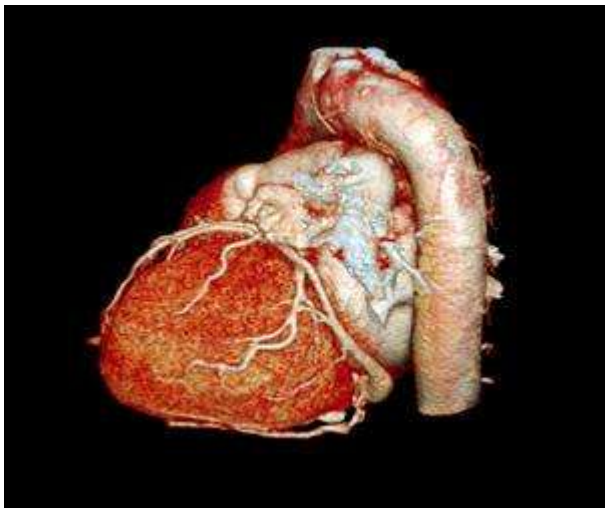
"If you clean up the diseases you'll reduce the rates of homicide," he says. He predicts that reducing disease rates should cut the murder rate within 20 years as a new generation grows up in a healthier environment.

"I'm not sure about that," says John Archer of the University of Central Lancashire in Preston, UK. He says social systems can linger for decades, even if the original cause disappears."The place to try this out is Africa," Curtis says. There are many projects under way to improve public health in disease hotspots, and it would be simple to track any effects on violence, she says.

http://www.newscientist.com/article/mg21228384.500-diseaseridden-societies-could-be-more-murderous.html

Stem cells may help heart pump more blood after attack

- 17:10 14 November 2011 by **Jessica Hamzelou**



Heal thyself *(Image: Zephyr/Science Photo Library/Getty)*

It looks as though a broken heart can mend itself, given a little technological assistance. Stem cells taken from the very organ that needs fixing may help it work better after a heart attack.

Cardiac stem cells can renew themselves and can form one of three types of cell that make up heart tissue. Roberto Bolli and his colleagues at the University of Louisville, Kentucky, reckoned that they might improve heart function if injected after a heart attack.

To find out, the team took stem cells from 16 people who had recently suffered a heart attack, multiplied them in culture and injected them back into each original patient's heart. In each case, the attack had reduced the patient's ejection fraction – the percentage of blood in the heart's ventricles that the heart pumps out in one beat – to less than 40 per cent. Ejection fractions should normally be between 50 and 65 per cent.

A new bypass

When a heart attack stops blood getting to heart tissue, some of the tissue dies. This can result in heart failure, in which its ability to pump blood is permanently decreased.

One routine treatment is coronary-artery bypass graft surgery, which diverts blood around a clogged vessel. During this surgery, Bolli's group took a small flap of tissue from each patient's heart. The researchers cultured around 1 million cardiac stem cells from each flap and injected into major blood vessels that lead to the heart once the patient in question had recovered from the operation.

The cell infusions were directly followed by a small balloon catheter, which was inflated four times for 3 minutes at a time to block the blood flow and help the cells to settle.

Take heart

Over the following year, Bolli's team monitored the patients' recovery, along with that of seven others who had had the same coronary-artery bypass graft surgery but not the stem-cell treatment. The team used echocardiography to measure heart volume and the amount of blood being pumped, and MRI to track the area of dead tissue.

Those who had received the stem-cell therapy saw their heart's ejection fraction increase from an average of 30 per cent to nearly 36 per cent a month later, and over 38 per cent four months down the line. In the eight people from this group that Bolli was able to check a year later, the average ejection fraction had increased to over 42 per cent. The size of the scar in these individuals was also smaller than in those who had not had the stem-cell therapy, and they reported a higher quality of life. The seven controls enjoyed no significant change in their hearts' ability to pump blood over the same period.

Safety first

As the study is a phase I clinical trial, its results can officially only be used to confirm the safety of the treatment. However, Michael Schneider at Imperial College London, who was not involved in the study, says that the work is "outstanding" in terms of "its rigour and scientific underpinnings".

It is unclear exactly how the treatment might have worked. "We don't know how much of the effect might be due to the formation of new beating heart cells, how much is due to activating dormant stem cells in the heart and how much is due to effects on wound healing, the formation of new blood vessels and inflammation," says Schneider.

Another possibility is that recovery was boosted by the inflation and deflation of the small balloon inserted into the blood vessels.

John Martin at University College London and Anthony Mathur at Barts and The London NHS Trust are conducting similar trials using stem cells derived from bone marrow. The pair point out that these types of stem cells, while not specific to the heart, are easier to get hold of and quicker to culture. Schneider thinks that cardiac stem cells are worth exploring further, however: "These cells, more than any others taken from the patient, have a well-proven ability to generate new heart muscle."

Journal reference: *The Lancet*, DOI: 10.1016/s0140-6736(11)61590-0

http://www.newscientist.com/article/dn21168-stem-cells-may-help-heart-pump-more-blood-after-attack.html

Creative Destruction: Peter Thum's Fonderie 47
Daniel Honan on November 15, 2011

What's the Big Idea?

After the United States dropped atomic bombs on Hiroshima and Nagasaki in 1945, a new arms race was joined with the Soviet Union. This arms race led to the proliferation of nuclear weapons. It also led to the development of the first lightweight automatic rifle, the AK-47. This breakthrough weapon, **А**втомат **К**алашникова (Automatic Kalashnikov), named after its inventor, Mikhail T. Kalashnikov, gave the Soviets and their allies the upper hand in many battle situations throughout the Cold War. For instance, while this is still a hotly debated subject, many argue the US-issued M-16 proved frustratingly unreliable in Vietnam, in comparison to the Kalashnikov.

The AK-47, a.k.a, "Everyman's Gun"

In his book *The Gun* (recently released in paperback), Pulitzer Prize-winning journalist C.J. Chivers examines in fascinating detail the mass production, distribution, and global spread of the AK-47. Chivers recounts how this killing machine became the favored weapon of totalitarian regimes from the Middle East to Africa. At the time of the Iraq War, Chivers writes:

After almost six decades, the long travels of the Kalashnikov assault rifle had achieved the inevitable state: full saturation. Decades earlier the first AK-47s had left Soviet hands, and in the years since they had become the hand weapon of choice for strongmen, criminals, terrorists, and messianic guerrilla leaders...What does saturation mean? It would be naive to think that war would stop without these weapons. It wouldn't. It would be just as naive to think that many of the consequences of war as it has been waged in recent decades might not be lessened if these rifles were in fewer hands, and not so available for future conflicts. For how long will battlefields be so? The answer is straightforward -- as long as the rifles exist in the outsized numbers the Cold War left behind.

Enter Peter Thum. In a previous post, Big Think documented this social entrepreneur's launch of Ethos Water, a bottled water company that he used as a "funding and communications platform" that addressed the world water crisis. Thum's latest venture, Fonderie 47, launches today. Fonderie 47 acquires and destroys AK-47s in Africa, then brings some of the metal back home where it is transformed into rare jewelry, watches and accessories. The sale of each piece of their jewelry funds the destruction of more weapons. As Thum says, his company is out to fund "the rapid destruction of these weapons."

What's the Significance?

According to Thum, he and Fonderie 47 co-founder John Zapolski traveled extensively in Africa, and both witnessed firsthand the far-reaching effects of assault rifle saturation. Not only were these weapons a tool for rape and murder, in a much broader sense they stood in the way of progress for an entire continent.

In partnership with NGOs working in Africa, Fonderie 47 already has destroyed more than 6,000 assault rifles. "Does a charity or do charitable efforts exist to exist or do they exist to achieve something specific?" Thum said to Big Think. It's a particularly valid question to ask. After all, his immediate efforts will not eradicate all of the AK47s in Africa. As C.J. Chivers pointed out, it would be naive to think such an act would

put an end to war, but it would also be naive to think that fewer rifles in fewer hands wouldn't lesson many of the consequences of war.

Fonderie 47: Transforming killing machines into jewelry

"I think demonstrating for people that something is possible is the first step" says Thum. "I think people generally, if they were to look at the problem would consider the issue of arms in Africa as sort of an impossible issue."

Where does Thum think this effort will eventually lead? He tells Big Think:

I think if we can start to draw down some of the numbers and demonstrate that it's possible and show people that what kind of difference it makes in someone's life that weapons are being removed, then we can start to attract interest from other funders, from other NGO's, from international organizations and ultimately from governments who will see this as a way of facilitating stability and ultimately higher economic activity.

Learn more at www.fonderie47.com

http://bigthink.com/ideas/41060

Improved Poverty Metrics Show Aid Does Help

A better reading of American poverty by the Census Bureau shows more are poor than thought, but also that aid programs and tax credits can make a difference.

By Emily Badger

Programs like food stamps and low-income tax credits historically were not included in calculations of who is poor in America, but a new measurement from the Census Bureau does. (Photo by Thomas Hawk)

A year and a half ago, the Census Bureau announced that it would address a long-sought demand of poverty researchers: For the first time in four decades, it would produce a dramatically different and more nuanced calculation identifying who in America struggles to cover basic living expenses and who doesn't. We wrote at the time that researchers welcomed the promise of a new metric that could finally help quantify the impact of expensive federal anti-poverty programs.

This week, the Census Bureau released its first report on the new Research Supplemental Poverty Measure (so-called because the existing "official" poverty measure will live on, in part due to the political mess of discarding it). The data reveal a slightly counterintuitive picture: More people are living in poverty than thought — by about 2.5 million — but the new measure also shows government anti-poverty programs are making a difference.

"It was Reagan who made the crack about the war on poverty 'and poverty won,' and I think to some degree, there is that popular perception," said Elizabeth Lower-Basch, a senior policy analyst with the Center for Law and Social Policy. "It is in part because the official poverty measure doesn't capture what are two of the largest anti-poverty programs, particularly for families and children at this point."

These are the Earned Income Tax Credit and the Supplemental Nutrition Assistance Program, or food stamps. The official poverty measure makes no distinction between families who are helped by these programs and those who aren't.

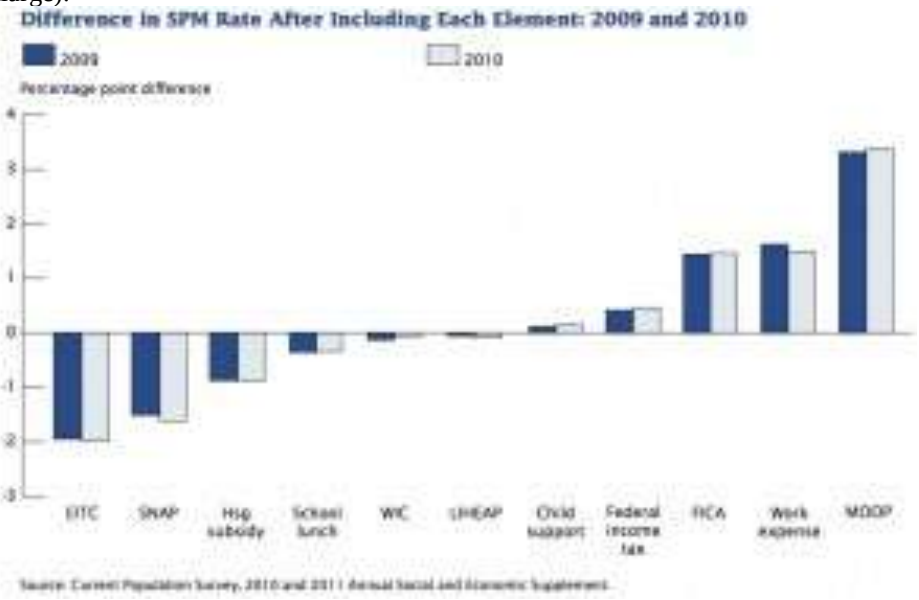
"I think people get a sense that poverty's out there, it's sort of endemic, and public policy can't really do much to affect it," Lower-Basch said. "But public policy really does matter. This measure does a better job of reflecting that."

The official measure — which will still be used to determine eligibility for federal programs — has been largely unchanged for 40 years. When it was first created in the 1960s, the poverty line was set at three times the minimum budget that a family spends feeding itself. Research at the time suggested that this was a good proxy for a family's expenses. That standard has largely been in place since, with updates for inflation (and to the surprise of its original creator).

Over time, though, food has gotten cheaper, and the average living standard of an American family has risen, while the poverty line has not kept pace. The official measure has also failed to take into account everything from childcare and health costs (on the expense side of the equation) to food stamps and tax credits (on the income side).

The new measure does all of these things, while pegging the poverty line to a different benchmark — just above the 33rd percentile of U.S. family expenses on food, clothing, shelter and utilities — that will shift as living standards do throughout the country. The new measure also weighs the varying cost of living in different parts of the country.

One of the most interesting charts the Census Bureau produced in this week's report is this one (click to enlarge):



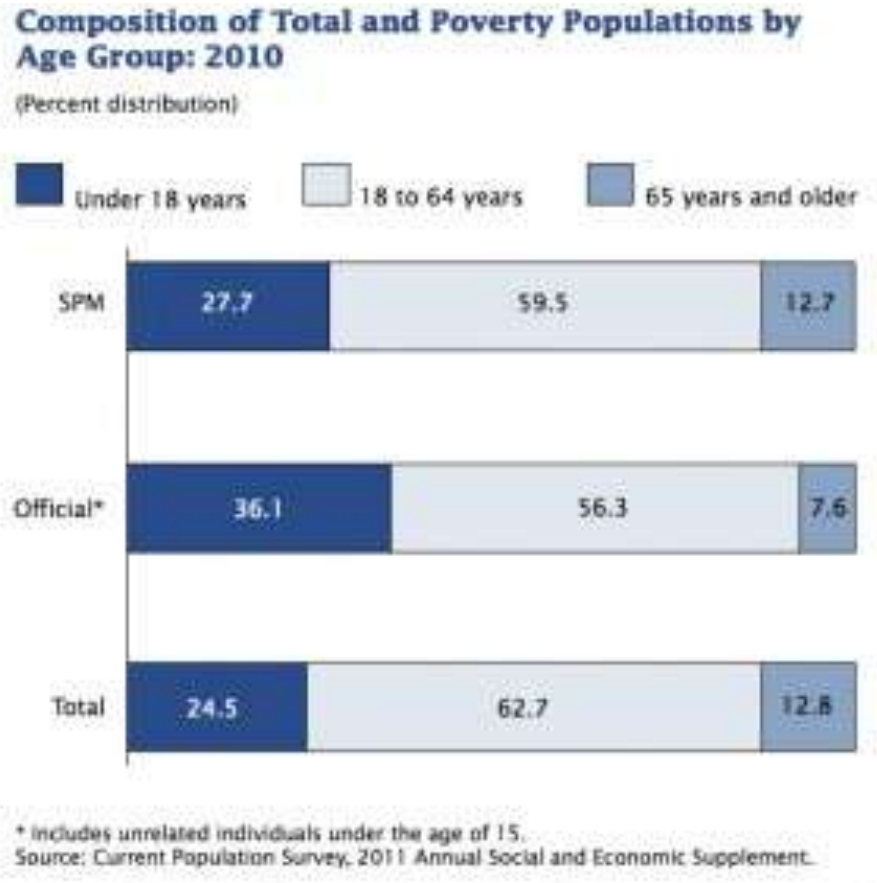
Because the supplemental measure now takes into account a litany of new expenses and benefits, researchers can remove individual pieces from the equation to isolate their impact. This graph illustrates that the Earned Income Tax Credit has the single largest effect on reducing poverty. If the federal government didn't offer it, the poverty rate would be about two percentage points higher than it is now.

On the other end of the spectrum, medical-out-of-pocket expenses — or MOOP — has the single largest effect on dragging people into poverty. Were it not for these expenses, the poverty rate would be more than three percentage points lower.

One data point the Census Bureau does not provide — and this would be a useful statistic for the future — is the cumulative impact of all of the government's anti-poverty programs (a calculation that's more complicated than simply adding up all of the bar graphs to the left).

This chart also helps explain one of the other interesting discoveries of the supplemental poverty measure: The number of people living in poverty is larger than the official measure portrays — 49.1 million compared to 46.6 million — but the composition of that population is also slightly different.

As this second graph shows (click to enlarge), there are considerably fewer children and more elderly living in poverty according to the supplement measure.



The supplement measure also shows fewer people living in poverty from several other demographics: Blacks, renters, rural populations, people living in the Midwest and South, and those covered only by public health insurance. Almost every other group — whites, city-dwellers, mortgage holders — now has a higher poverty rate.

In many ways, this is a reflection of the impact of expenses and benefits that have never been considered before. People on Medicaid have minimal co-pays, and so they are less impacted by medical out-of-pocket expenses than elderly who are living only on Social Security checks and who have larger medical costs. The Earned Income Tax Credit, meanwhile, is heavily targeted at families with children, and this chart suggests that program has lifted many children out of poverty.

This also helps explain the discordant revelations that more people are living in poverty than we thought, even as government anti-poverty programs may also be more effective than some people suspected.

"Both of those things are true," Lower-Basch said. "What [the supplemental measure] tells us is programs help, but there are also real costs that are not reflected in the official poverty measure. Health costs and childcare costs are probably the two biggest pieces of that. And payroll taxes. This does tell you, on the basis of the EITC, that without it people would be taxed into poverty."

http://www.miller-mccune.com/health/improved-poverty-metrics-show-aid-does-help-37763/

The rise of "awesome"

Once it had to do with awe. Now it just means "great". How did "awesome" conquer the world? Robert Lane Greene explains (and reminisces) ...

From INTELLIGENT LIFE magazine, September/October 2011

In the beginning was the word, and the word was with God, and the word was awesome.

If this sounds like an irreverent approach to the famous first lines of the gospel of John, I can assure you it's not. "The word was God," according to the original. But repeatedly in the Bible, God is "awesome". Nehemiah, Deuteronomy and the Psalms refer to "the great and awesome God", "mighty and awesome", and ask worshippers to praise his "great and awesome name". How did this once-awe-inspiring word become a nearly meaningless bit of verbiage referring to anything even mildly good?

The first time "awesome" appeared in the Oxford English Dictionary, in 1598, it was a description for someone feeling awe, rather than someone inspiring it. But it wasn't too long before the now-traditional meaning made its first recorded appearance: "A sight of his cross", wrote a Scottish Presbyterian sermoniser in 1664, "is more awsom than the weight of it."

The King James Bible, published in 1611, does not use "awesome": God is "terrible" in the passages above. This makes sense, since as Proverbs tells us, "fear of the lord is the beginning of wisdom," and in those days "terrible" still had a strong connection to "terror". But over the centuries, "terrible" picked up its now-common meaning, first of "shockingly bad", and by the early 20th century, just plain "bad". In modern translations of the Bible, it wouldn't do to have God described that way. So "awesome" stepped in.

But around the same time, a different change was happening to "awesome". It was defined in 1980 in the "Official Preppy Handbook", a bestselling semi-satirical look at well-heeled American youth: "Awesome:

terrific, great." It had a bit of California surfer-dude and Valley Girl, too. By 1982, the *Guardian* was mocking the West Coast with "It's so awesome, I mean, fer shurr, toadly, toe-dully!"

Soon the word needed no definition. "Awesome" became the default descriptor for anything good. In 1982, I was seven and I swallowed it whole. It stayed with me for decades. In 2005, I remember meeting a girl when I had just seen "Batman Begins", the moody psychological picture that reinvigorated a tired franchise. "It's awesome," I told her. "Awesome. Just awesome." She wondered, she later said, what kind of journalist had just one adjective in his vocabulary. Somehow, she married me all the same.

"Awesome" has been with my generation in America so long that it now has a whiff of retro. There is a Tumblr blog entitled "My Parents Were Awesome", which features pictures, mostly from the 1960s and 1970s, of the writers' parents looking young and cool. It generated a spin-off book that included nostalgic essays by some of the children. And "awesome" caught on not only with my age group, but with anyone young enough to be considered young or youngish when "awesome" became awesome. Barack Obama, a college student in Los Angeles when the "Official Preppy Handbook" came out, turned it into a joke on the campaign trail in 2008. When asked what was his biggest weakness, he would say: "It's possible I'm a little too awesome."

Britons have a love-hate relationship with linguistic innovations from America. In 2008 a *Daily Telegraph* correspondent, Toby Harnden, devoted a blog post to the "Top 10 Most Annoying Americanisms", something that would scarcely occur to an American columnist to do with Britishisms. But he didn't include "awesome". And well he might not, because it now looms as large in Britain as it once did in America. It has even grabbed a chunk of market share from the great British word for "great"—"brilliant". The *Guardian*, the paper that mocked "awesome" in 1982, had used it in 6,457 articles by July 2011, with one or two being added each day. It is no longer just God or jaw-dropping natural wonders: a catch by a cricketer, a mashed-potato dish and savings in a council budget have all gone down as "awesome".

In June the *Guardian* asked writers to name worn-out phrases, and Sampurna Chattarji chose "awesome", noting that it had made it to India ("with an American accent"), while scorning it as meaningless. She's right, but words are shifting—together, as part of a system—all the time. "Terrible" begins to mean "bad", so "awesome" must replace "terrible". Then "awesome" becomes "excellent", so "awe-inspiring" has to fill the space left behind. Then teenagers hear their parents saying "awesome", and it becomes the last thing they want to say. So new words are roped in: "sick" meaning "great" is big in America, while in Britain "safe" shows signs of becoming the new "awesome". If you have kids and want them to stop using either of these words, just adopt it yourself.

Robert Lane Greene *is a business correspondent for* The Economist, *and author of "You Are What You Speak". Here he explains why it's okay to split an infinitive.*

Picture credit: Lara604 (via Flickr)

http://moreintelligentlife.com/content/ideas/robert-lane-greene/just-awesome

Lab-grown blood given to volunteer for the first time

- 11 November 2011 by **Linda Geddes**
- Magazine issue 2838.

Blood banks struggle to meet demand *(Image: Superstock)*

RED blood cells generated in a lab have been successfully injected into a human volunteer for the first time. This is a vital step towards a future in which all the blood we need for transfusions can be made in the lab, so that blood donors are no longer essential.

Luc Douay at Pierre and Marie Curie University, Paris, and his colleagues extracted what are called hematopoetic stem cells from a volunteer's bone marrow. These cells were encouraged to grow into cultured red blood cells using a cocktail of growth factors. After labelling the cells so they could be traced, Douay's team injected 10 billion - the equivalent of 2 millilitres of blood - back into the original donor to see how they survived.

After five days, 94 to 100 per cent of the cells remained in circulation, while after 26 days, 41 to 63 per cent remained - a survival rate comparable to normal red blood cells. The cultured blood cells also gave every indication of being safe to use: they didn't transform into a malignant cell type, for example. Instead, they behaved like normal red blood cells, binding to oxygen and releasing it (*Blood*, DOI: 10.1182/blood-2011-06-362038).

"This is a huge step forward," says Robert Lanza, chief scientific officer at Advanced Cell Technology in Worcester, Massachusetts. In 2008, Lanza was a part of the team that grew red blood cells on a large scale in the lab for the first time.

Anna Rita Migliaccio of Mount Sinai Medical Center in New York City is equally impressed by Douay's work: "He showed that these cells do not have two tails or three horns and survive normally in the body."

"The results show promise that an unlimited blood reserve is within reach," says Douay. That blood reserve is needed urgently. Although blood donations are increasing in many developed countries, blood banks struggle to keep up with the demands of ageing populations who need more operations - often involving blood transfusions. And a source of HIV-free blood is essential in countries with high rates of HIV infection.

Earlier attempts to create blood substitutes have been disappointing. Several products have been rejected as a result of safety concerns or simply because they didn't work well (see "The road to artificial blood"). Besides blood derived from stem cells, alternatives include chemical blood - based on the high-oxygen solubility of perfluorocarbons - and oxygen carriers based on haemoglobin, which involve modifications to the red blood cell protein that transports oxygen.

"All aim to mimic, or in some cases enhance the oxygen-carrying ability of the red blood cells normally given as a blood transfusion," says Chris Cooper of the University of Essex in Colchester, UK, who is developing a haemoglobin-based blood substitute that will be genetically modified to reduce its toxicity - haemoglobin is toxic in its unbound state. "The advantage of stem cell technology is that the product will much more closely resemble a red cell transfusion, alleviating some of the safety concerns that continue around the use of the current generation of artificial products," he says.

Thomas Chang at McGill University in Montreal, Canada, says that the success of Douay's stem-cell approach doesn't mean research into alternatives is any less worthwhile. Although blood grown from stem cells must be chilled, like fresh blood, "haemoglobin-based artificial blood does not need refrigeration", he says. This stability makes it more useful in remote areas or in the aftermath of natural disasters.

Douay's next challenge is to scale up production to a point where the cultured blood cells can be made quickly and cheaply in sufficient quantities for blood transfusions. The 10 billion cells his team made wouldn't go very far - a transfusion typically requires 200 times that number. With his existing technology, Douay estimates that a single transfusion would require 400 litres of culture fluid, which is clearly impractical. "We are still a long way from the vision of dropping a couple of stem cells into the broth and making endless units of blood," says John Hess of the University of Maryland in Baltimore.

Douay believes that it may take several years to scale up the technology. Another possibility is to use embryonic stem cells instead, as Lanza did in 2008. "We can generate up to 100 billion red blood cells from a single six-well plate of stem cells," Lanza says. He also claims to have made red blood cells through yet another technique: generating "induced pluripotent" stem cells from skin samples and coaxing those stem cells into becoming blood cells.

Lanza says he did this using skin from a person with type O blood. People with O negative blood are called "universal donors" because their blood doesn't trigger an immune reaction in recipients. "This is important for patients with massive blood loss where there isn't time for blood typing," says Lanza, who hopes to test both types of lab-made blood in people within the next two years.

http://www.newscientist.com/article/mg21228384.400-labgrown-blood-given-to-volunteer-for-the-first-time.html

Ocean Health Index Accounts for Human Benefits

Oceans are peopled, too! Assessing all of the ways the world's oceans directly benefit humans is not easy, but it must be done in any honest accounting for the Ocean Health Index.

By Karen McLeod, Jameal Samhouri and Ben Halpern

Whether we fish, swim, sail, or collect shells or rocks along its shorelines, we're a part of the ocean. (gavinkwhite/Flickr)

With November elections upon us, we're deluged with political speeches promising us happier and healthier lives, better jobs, a cleaner environment, and so on. It's easy to get caught up in the political rhetoric, but it is also critical to step back and consider the source.

In a speech given on the 25th anniversary of Earth Day, its founder drew a direct link between economic and ecological vitality. "The wealth of a nation is in its air, water, soil, forests, minerals, rivers, lakes, oceans, scenic beauty, wildlife habitats and biodiversity … that's all there is," said Sen. Gaylord Nelson. "That's the whole economy. That's where all the economic activity and jobs come from. These biological systems are the sustaining wealth of the world."

More than 15 years later, the late senator's message resonates with a growing movement that aims to account for this flow of benefits from nature to people and translate it into action. Leaders from the scientific community, local governments, businesses, and entire nations are designing and implementing innovative ways to better capture the value of nature's benefits in their decision-making.

As we discussed in earlier columns on the Ocean Health Index, some of these benefits, like food, are already a fundamental part of our economy. Others, such as having a clean beach or knowing that a coral reef is there (its so-called "existence value") tend to be undervalued. That means we as a society don't fully account for the true costs or benefits of our decisions on the planet.

This view of nature as a provider of services to people has its critics. Many assume that "value" means dollars and argue that a price cannot be put on nature. Yet values can be measured in ways that have nothing to do with money. Others argue that nature should be conserved out of moral obligation, rather than the purely pragmatic view of what it can do for us. Importantly, viewing nature through the lens of how people benefit from it does not undermine or replace its intrinsic value, but instead includes and complements it.

The bottom line is that in this era of unprecedented change (we've even shifted into a new geologic era — the Anthropocene), it is vital to reconnect human progress to the capacity of the planet to support it.

About the Project!

Ocean health means different things to different people, and current assessments of ocean health focus predominantly on the state of the natural environment.

The Ocean Health Index project was founded by Conservation International, The National Geographic Society, New England Aquarium, and the National Center for Ecological Analysis and Synthesis. The project aims to develop a set of indicators that describe ocean health according to how people benefit from and affect marine ecosystems. Here are the articles Miller-McCune.com has published on the subject:

The Ocean Health Index is designed to do just this. As we've mentioned in past articles in this series, the index defines health through the delivery of a spectrum of social benefits, now and in the future. This set of public goals serves as a filter. One of the major hurdles we faced at the outset of this project was to whittle down the laundry list of hundreds of things we could include in the index to a more manageable number that would be feasible to assess in different places around the world.

The possibilities are mindboggling. They include things like pH, the strength of ocean currents, the diversity of fish, the price of wild salmon at local markets, beach erosion rates, or the number of jobs in particular sectors of the coastal economy, to name just a few. But a laundry list is not tractable, nor would it necessarily help decision-makers prioritize or understand the connections among the pieces. Instead, the focus on benefits to people gives us a basis to decide which factors to track and how to relate the consequences of ecosystem change to human well-being.

So we have incorporated people's values in our definition of ocean health by using common public goals as a filter. These bins have another convenient feature — they give the Ocean Health Index flexibility such that it can be applied everywhere. Scientists of all stripes increasingly embrace the idea that humans are integral parts of *all* the world's ecosystems, even the wet and salty ones. However, there have been few efforts to put

these ideas into practice on the ground or in the water, particularly at geographic scales that are larger than individual coastal communities. This is one of our key aims with the Ocean Health Index.

What does a peopled ocean look like?

The image of a fishing community, be it Gloucester, Massachusetts, a small port along the west coast of Africa, or the floating fishing communities of Vietnam, is fairly easy to conjure in our mind's eye. But a peopled ocean includes the bustling harbors of Long Beach, California; Lima, Peru; and Nagoya, Japan. Whether we fish, swim, sail, or collect shells or rocks along its shorelines, we're a part of it. We harvest the energy of its waves, wind, and tides. We increasingly grow our seafood along its shores and in its waters. Even without setting foot on its shores or diving beneath its waves, the values we hold have implications for the ocean of which we're a part.

When it comes to policy and politics, a definition of ocean health that includes the human dimensions is one that can translate directly. We regulate clean air and water, set aside protected areas, set fishing quotas, and so on, but rarely in a cohesive or coordinated manner. The result is that time and time again we create conflicts instead of fostering cooperation among different user groups and interests. Worse, we often do so unintentionally, because we lack a big-picture perspective on the whole system.

We want bountiful seafood, thriving coastal communities, and gorgeous places to explore. But reaping these benefits involves tough choices. One of science's roles is to inform decision-makers and the public about the likely consequences of decisions and remind us, whether we like it or not, that Earth's resources are not infinite.

It is human nature to assume we can have it all. Reality, particularly with an eye toward a sustainable future, tells us that we can't, and that tough choices lie ahead. The Ocean Health Index will help us confront those choices with open eyes.

http://www.miller-mccune.com/environment/ocean-health-index-accounts-for-human-benefits-37657/

I WISH I HAD MET KURT TUCHOLSKY

Irving Wardle learned German just to read him, and then tried to invoke him on stage ...

From INTELLIGENT LIFE magazine, September/October 2011

This is a memoir of somebody I never met. Although it all happened inside my head, the experience went through the stages you find in an ordinary relationship—distant attraction, infatuated obsession, discovery of weaknesses and unforgivable acts, and final recognition that this person has entered your bloodstream.

It began in the 1970s when, during a short life as a magazine editor, I commissioned a piece on German theatre history from a dramaturge in Cologne. He kicked off with an anecdote about the Wiesbaden Schauspielhaus and how the Kaiser turned up to open it, only to find that there were no toilets and the magnificent entrance drive led up to the stage door instead of the auditorium. The story wound up with a four-line poem saying: "Look at that, they're holding a Muses' ball at the palace. All of them in their medals—too bad they're clueless about art." The piece hadn't been translated, so what first caught my eye was:

Sieh da, sieh da: am preuss'schen Hof
Erblickt man einen Musenschwof…
Und alles ist im Ordensfrack…
Nur leider fehlt der Kunstgeschmack.

I knew no German, but for some reason this sounded like the voice of an old friend. His name, it emerged, was Kurt Tucholsky. It appeared again under a quotation a few lines further on: "Art has only one criterion: goose-pimples." Tucholsky promptly went onto the shortlist of writers I'd like to have met.

I envisaged him as a vulpine dandy, an artist imposing himself on the world by the way he lit a cigar or adjusted his Homburg. Nobody I spoke to had ever heard of him, so when I had a sabbatical, I enrolled at the Goethe-Institut in London with the sole purpose of learning enough German to read Tucholsky.

The teacher was a failed musician who had studied composition under Stockhausen. She left us in no doubt that she was cut out for better things than teaching our uncultivated crew, largely made up of tourist guides who filled coffee breaks with horror stories of Australian coach parties. Progress was not fast, but in a few months I was grinding my way through the only book by Tucholsky I had found, "Panter, Tiger & Co".

Or was it by Tucholsky? His name was on the cover, but inside were articles and poems by four very different characters: Peter Panter, a wise-cracking man-about-town; Theobald Tiger, a poet; Ignaz Wrobel, a political commentator; and Kaspar Hauser, an innocent witness of life's atrocities. These were all pseudonyms, what Tucholsky called his "five fingers". Working on *Die Schaubühne*, a pre-1914 magazine, he had wanted to blind his readers to the fact that most of it was written by him. But you didn't need to read far before recognising this as more than a journalistic trick.

They were intensely visual: the rotund Panter gesticulating with his pipe while sending up Berlin's absurdities; Hauser blinking at us, straight out of the egg; the irascible Wrobel, denouncing the Wilhelmenian high command while sporting a regimental haircut. Tiger, pictured as a circus animal going through a hoop, was the most protean. He wrote verse satires and cabaret songs, and his voice could be like the roar of an outraged crowd, or a heartbreaking whisper. Sometimes the chorus of politicised workers and the confessions of the pampered bourgeois author would meet in the same poem—whereupon Tiger himself seemed on the point of splitting into further subdivisions.

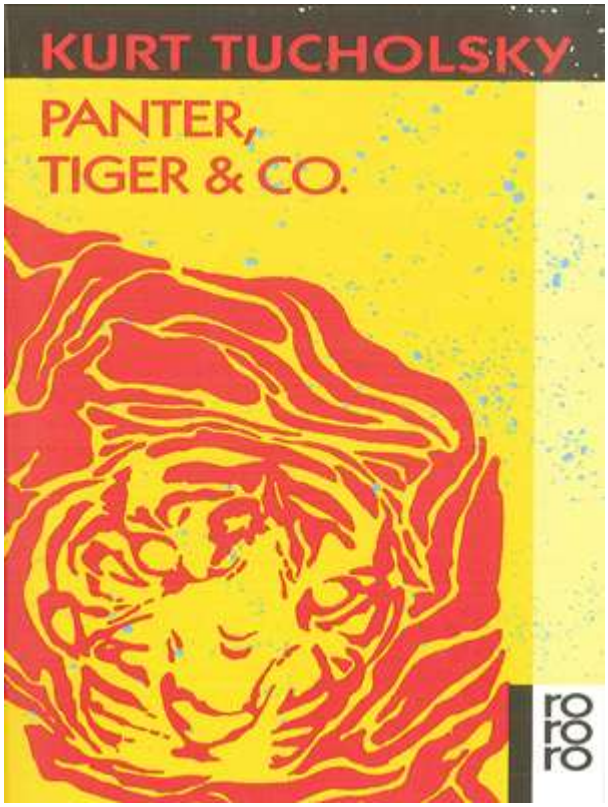
I got a bit closer to Tucholsky after scouting around the Berlin bookshops and finding the shelves loaded with collections of his work, still bestsellers long after his death in 1935. I knew nothing about the Weimar Republic or its hate figures, but there was no problem with the comic stuff. Even with dictionary breaks every other line, Tucholsky came over as a lacerating wit. Here's a householder awoken by the sound of intruders; he creeps out of bed to spy on them and finds he has been watching a heel-clicking debate between two burglars' unions over which has the right to loot his property. Or a hotel guest who spots a bathing beauty staring at him from the balcony opposite and tries to excite her by going into a body-building routine, only to take another look and realise that she is a plastic mannikin. There was masses of this stuff: a fantasy on the origin of zip-fasteners, and why there are holes in cheese; a news story on Berlin's reactions to an escaped lion—"Who let the lion out? THE JEWS! Vote for German People's Party!"

Alongside the comedy were attacks on German militarism, from the duelling code to the ration-pilfering habits of the officer corps, plus denunciation of all soldiers as murderers, and of Germany as a land of masters and slaves, but no men. There was advice, reeking of bitter experience, on how to stand your ground against teachers and judges. And piercing protests on behalf of the millions who had been fooled by the promises of post-war democracy.

Lord God! If you're really up there as we've been taught
Come down from Heaven or send your son.
Tear off the banners, the helmets and the medals
And tell the nations of the earth how we've suffered,
How we were wiped out by hunger, lice, shrapnel, and lies.
In your name, the preachers have led us to our graves.
Come down now and explain why they lied.
Those of us who have knees are kneeling before you. Listen to us.
Drive us back under the ground, but first give us an answer.

While I was still sampling Tucholsky's alter egos, I finally laid hands on a book about the man himself. It was a second-hand copy of an illustrated biography by Helga Bemmann (1990) which came as a shock. It was the pictures as much as the text. Far from the elegant figure I had imagined, Tucholsky was short and fat. There he was, bulging out of tight trousers, and captioned by a disenchanted female reader: "You are a butterball; and we always thought you were wiry." The more I thought about it, the more courageous it seemed for

someone like that to take on the might of German autocratic tradition. His life was memorably summed up by Erich Kaestner as the drama of "a fat little Berliner trying to stop a catastrophe with a typewriter". Or, as Tucho himself put it: "Being fat isn't just a physical state, it's a whole *Weltanschauung*."



He wasn't fat as a boy in Berlin. His *Weltanschauung* then was formed after his father's death in 1905, when he was 15. His mother, Doris, took command and, as Kurt saw it, unleashed a Strindbergian reign of terror. His lifelong hatred of bullies began here, and he seized the first chance to escape and sever all contact. He made an instant hit as a comic magazine writer at 17, wrote and dabbled in politics at university, and then turned a three-day holiday with his girlfriend Else Weil into a bestselling erotic romance, "Rheinsberg". It earned so much money that he opened a book bar on the Kurfürstendamm in Berlin, where you got a free drink to match the book you bought (champagne for Oscar Wilde, and so on). It didn't last long, but by the age of 23 he had found a berth with the leading left-wing weekly *Die Schaubühne* (later *Die Weltbühne*), which became the centre of his working life.

Here Tucholsky started developing his alter egos, but it wasn't until the war that he emerged as a political writer. He spent the war mostly in Latvia editing an air-force magazine and pursuing a secretary from Riga, Mary Gerold, who became the love of his prolific sex life. He never saw action, but something happened which reinforced his hatred of domestic tyranny and transformed him from a part-time leftist campaigner into a mortal enemy of the "other Germany": the land of judges, generals and hangmen.

What gave focus to his hatred was the foundation in 1919 of Germany's first democratic government. The Weimar Republic came about as a split-second decision by the Social Democrats to keep the Communists out, and the whole of the "other Germany" was bent on strangling it in the cradle. Tucholsky's five fingers danced through the accelerating Deutsches Tempo of the 1920s, aiming to protect this fragile regime and inflict damage on its enemies. Writing aside, he was noted for his voice, used to commanding effect on the crowds of up to 40,000 that packed the Lustgarten for the No More War rallies. When accused of negativity, his defence was that this was his only way of keeping hope alive.

That, at least, is how Helga Bemmann presents him. From his ascent as a political warrior, star cabaret writer, foreign correspondent and radical editor, through to his decline as a blacklisted Jewish enemy of the Fatherland and his destitute suicide at the age of 45, she tells his story as the tragedy of a national hero. That noble figure was knocked off its plinth in 1998 by another biographer, Michael Hepp, whose archive-digging exposed the hero as a love-rat whose taste for good living brought him into murky liaisons with the fascist press, led him to forswear journalism for banking, and finally to flee the country, leaving his *Weltbühne*

colleague Carl von Ossietzky to vanish into Sonnenburg for publishing Tucholsky's disobliging comments on the Third Reich.

Hepp never questions the quality of Tucholsky's writing. And as I digested the damaging new evidence, it only heightened the fascination. Here was a man who produced a Republican anthem at the time of the Kapp Putsch ("Red Melody", with music by Friedrich Hollaender, who wrote "Falling in Love Again"); who risked ruin and even assassination by leading anti-military demos. The same man who stayed only at the best hotels, ate too much and exercised what Mary called his "electrical" attraction on women, only to dump them as "blackmailing housekeepers". He never escaped the shadow of Doris, and repeatedly betrayed Mary; but he immortalised their relationship in a collection of letters ("Our Unlived Life") which is comparable to Flaubert's "Sentimental Education". He was the first and greatest of the champagne socialists: a flabby bourgeois who could project the voice of the German people with the force of a Lutheran chorale.

It wasn't a matter of approving of him or not, but of recognising him as one of those escape-merchants who burst out of their own time and gatecrash posterity as everlasting contemporaries. I have had some good tips about the modern world from Tucholsky, like his defence when challenged over switching from a hard-up left-wing magazine to a filthy-rich organ of the right: "better a hand-made opinion than one off the peg". One in the eye for today's Googling news-gatherers, who never go anywhere.

He shares some family traits with my other escapee heroes—like the critic Cyril Connolly, another self-hating fattie who turns into a rapier-wielding premier *danseur* as soon as his pen hits the paper. Or Bernard Shaw, another withdrawn youth who grew into a black-belt orator on discovering that he had "some business in the world"; who, like Tucholsky, was proud to call himself a journalist; and who set out to change society but succeeded only in making people laugh. Above all, Tucho is a blood-brother of Ibsen's Peer Gynt, a restless charmer, forever testing out new countries and new masks for want of a home and face of his own. In Mary, he also had his own Solveig.

The fact that such a person's dates do not overlap with your own can be an acute frustration. Tucho might have wanted nothing to do with me, but at least I could have had a try; whereas there's no future in posting fan mail to the dead. If he had written plays, they could have been revived. However, he did write for the cabarets, which might be a way of restoring him to the present tense. So, in the 1980s, I set about compiling a life-and-times Tucho revue, and telling possibly interested parties.

As I should have known, there is no more deafening silence than the one that greets a critic who applies for a passport through the fourth wall. At my offer to set their turnstiles clicking with a show about an unknown German told through pre-war German pop music, all my managerial acquaintances stopped answering their telephones. After a while I gave up, and continued collecting material from Tucholsky specialists without doing anything about it.

Finally, in 2009, a director friend lost patience with me. This was Helena Kaut-Howson, a star of the Polish stage who had relaunched herself in Britain in the 1970s, building a prolific career with some 100 theatre and opera productions and four years running Clwyd Theatr in Wales. She was accustomed to making things happen. I'd been talking about this show for years, she said, why didn't we just do it?

As in a dream, the obstacles melted away. The Arcola Theatre in east London would be glad to house a late-night cabaret and put money into it. The composer Steve Edis, a specialist in Weimar song, was keen to be musical director. I approached two respected singers and agreed terms; dates were set for rehearsals and performances. I went off and wrote the show by simply picking my favourites from the "Kurt Tucholsky Chanson Buch" and weaving his life story around them. The lyrics looked after themselves: half were still in German and my Tucho archive contained some sparkling English versions by a Toronto scholar, Maarten van Dijk. As the cabaret somehow needed to evoke time and place, we downloaded a stack of old photos and cartoons to use as back-wall projections.

A few weeks before rehearsals were due to begin, we hit a rock. The singers asked if they could junk this unfamiliar stuff and do their esteemed Brecht-Weill programme instead, and then walked out, saying material as dense as this was for people with more time on their hands. Within days, we had found two new bilingual actor-singers, one of whom flew in from his home in Tucholskystrasse, in the former East Berlin. After another week's rehearsals, the show went on. It was a late-night event in Dalston in the midst of a freezing January, but the theatre filled up with people who seemed to be enjoying themselves.

Once the tide of euphoria had rolled away, I started examining the marks in the sand. It seemed that I had been right about the songs. They were like Japanese flowers—drop them on a stage and they start blossoming into miniature plays. It also seemed a good idea to use projections, as there was so much overlap between Tucho's writing and the imagery of the time. So when he referred to seeing the world through a monocle, we showed a Grosz cartoon of a wolfish general with a monocle which, when magnified, reflects the image of a hanged man. It was also an eye-opener to discover how little scenery you need if you have a pianist to evoke a location with a few chords. Tucholsky said he was not a man of the theatre, but our experience was that if you plugged him into a theatrical socket, he lit up like a Norwegian Christmas tree.

Except that he wasn't there. Nor was the subversive spirit of cabaret. What we had was a lively song-and-dance show coupled to some headlines. It stayed on the rails, but I sensed that Tucho would not have been pleased. We tried to invoke him, and he signalled his disapproval by staying away. As I only got involved in all this in the hope of bringing him back from the dead, he will be nagging away at me until I have another go. Next time he may be more helpful. While advising writers to think only of the next day's readers, he also had a weakness for addressing posterity.

Last year, another book came along: Mary Tucholsky's private journal, covering the 19 years from Kurt's domineering courtship—when he claimed to understand everything about her—to the final letter in which he confesses to having understood nothing. Even as a lover, Tucho detached himself by adopting another disguise, calling himself "Nungo" while addressing Mary as "he". I want to see their steps retraced by living human beings, along with the sight of Tucholsky pirouetting for Mary in his underpants like the deluded hotel guest. I want to see Panter struggling out of bed to find out if it is the death's head Freikorps or the National Socialists who are ransacking his apartment. I want to see Hauser open-mouthed before a strip-cartoon of European atrocity from the trenches of Verdun to the dungeons of the CIA.

It would be lovely to go back to the time when some people still believed that warning the audience that the building was on fire might help in getting the fire put out. So I'd like to see Wrobel, in his shiny old suit, jabbing his finger at us and rasping out his message that sooner or later we'll have to open up to the monster beating on our gates. But most of all I want to see Tucho himself, from the year 1926, alone on stage, trying to grab our attention before we get bored with him: "I know you can hardly see me, I'm up to my neck in my own era. Everything about me looks old-fashioned to you, and you know all these things I've never heard of.

We can't really have a conversation. It would be like me asking someone from the Thirty Years War if he'd been gassed at the Siege of Magdeburg. Anyway, I see you want to be off for your dinner. Just one thing I'd like to get straight before you go. You aren't any better than we were. No better at all."

Irving Wardle *was theatre critic of the* Times *from 1963 to 1989. His last piece for* More Intelligent Life *was an obituary of the British actor John Wood.*

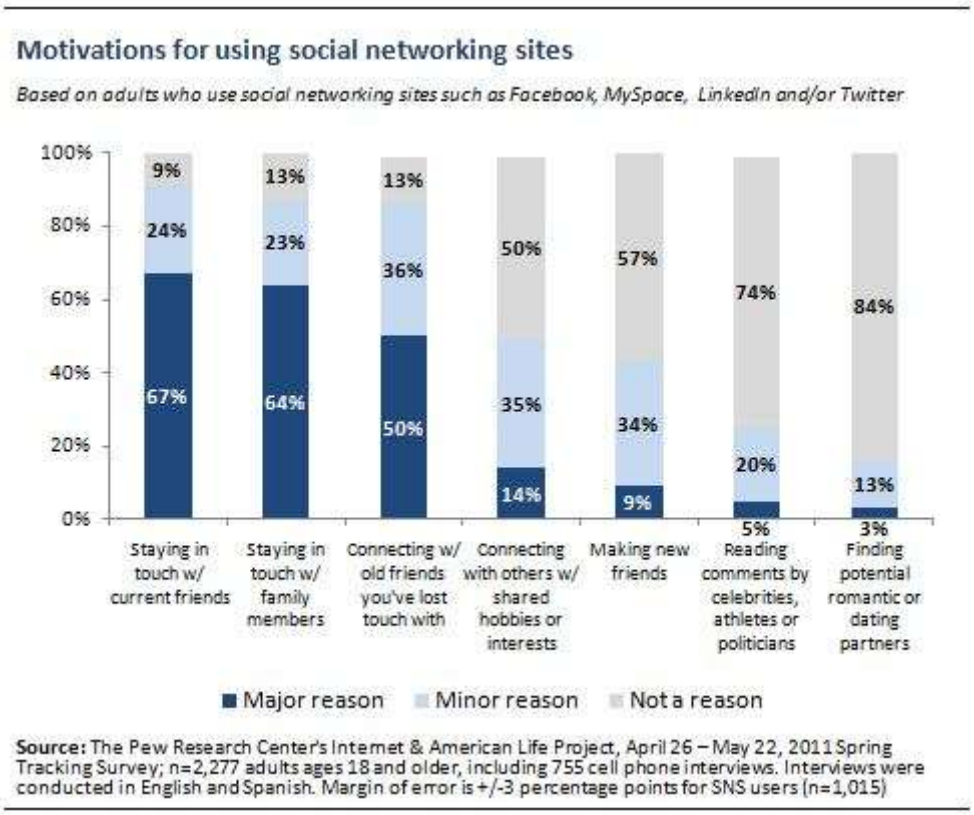
Picture credit: AKG

http://moreintelligentlife.com/content/arts/irving-wardle/herr-goose-pimples?page=full

Why Americans Use Social Media

Two-thirds of online adults (66%) use social media platforms such as Facebook, Twitter, MySpace or LinkedIn.[1] These internet users say that connections with family members and friends (both new and old) are a primary consideration in their adoption of social media tools. Roughly two thirds of social media users say that staying in touch with current friends and family members is a major reason they use these sites, while half say that connecting with old friends they've lost touch with is a major reason behind their use of these technologies.

Other factors play a much smaller role—14% of users say that connecting around a shared hobby or interest is a major reason they use social media, and 9% say that making new friends is equally important. Reading comments by public figures and finding potential romantic partners are cited as major factors by just 5% and 3% of social media users, respectively.

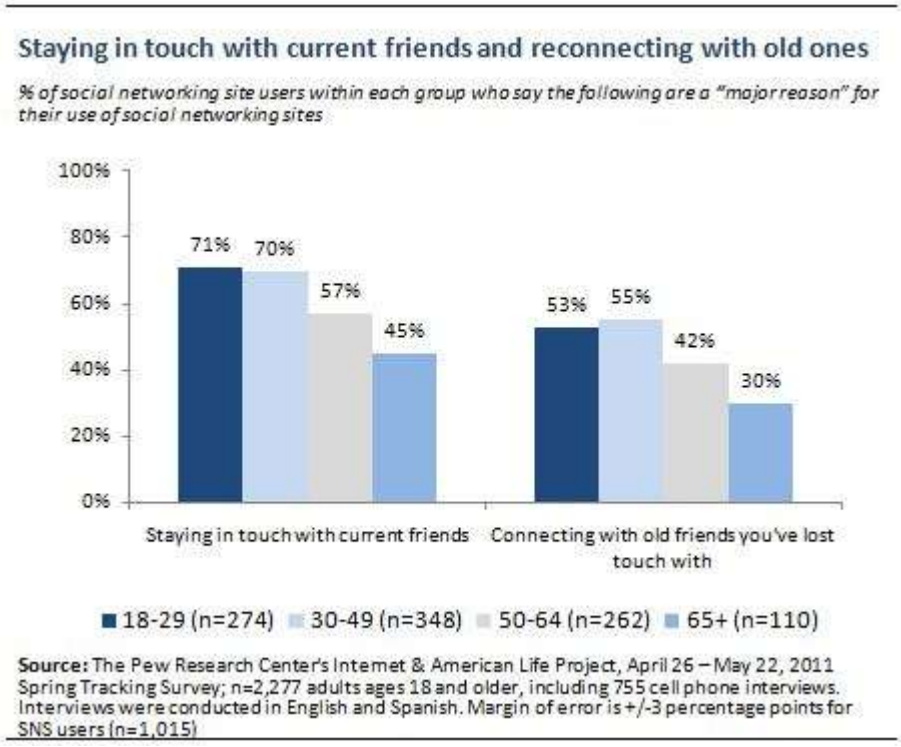


Staying in touch with family members is a major factor across a range of social media users, but it's especially important to women

Those who say that keeping up with family members is a major consideration in their use of social networking sites are a demographically diverse group. Two-thirds of all social media users cite family connections as a major reason for their use of these tools, and there are no major differences on this question in terms of age, income, education, race/ethnicity, parental status or place of residence. The primary difference on this topic pertains to gender, as female social media users are more likely than male users to cite family connections as a major reason for using these sites (72% vs. 55%).

Staying in touch with current friends and reconnecting with old friends is most relevant for those under the age of 50

Compared with older adults, social media users under the age of 50 are especially likely to say that these tools help them keep up with existing friends and reconnect with old ones—roughly seven in ten users under the age of fifty say that staying in touch with current friends is a major reason they use online social platforms, and just over half say that connecting with old friends they've lost touch with is equally important. Each of these is significantly higher than comparable figures for users ages 50 and older, although a relatively large number of older adults point to connections with friends as a major reason for their social networking site usage as well.



In addition to age, gender and parental status are linked with users' attitudes towards social media as a way to maintain connections with friends. Women are slightly more likely than men to say that staying in touch with current friends is a major reason for using online social tools (70% vs. 63%) while parents are more likely than non-parents to say that connecting with old friends is a major reason behind their use of these sites (56% vs. 47%).

Compared with keeping tabs on current friends or old acquaintances, users place much less emphasis on using social platforms to make entirely new friends—just 9% say this is a major reason they use these sites, and 57% say that it is not a reason at all for their online social networking activity. Groups that are more likely than average to use social media to make new friends include men (12% say that making new friends is a major reason for using these sites), African Americans (15%), those who have a high school diploma but have not attended college (16%) and those with an annual household income under $30,000 (18%).

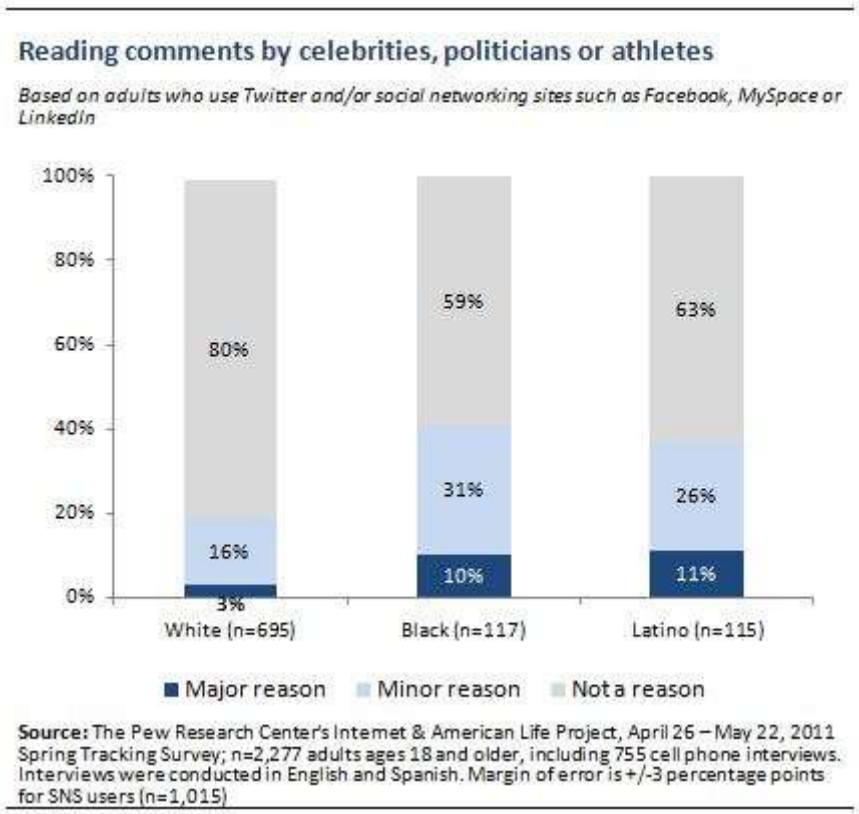
Middle-aged and older adults place a relatively high value on social media as a tool to connect with others around a hobby and interest

Compared with maintaining or rekindling friendships, the ability to connect with others who share a hobby or interest using social media resonates with a slightly older cohort of users. Sixteen percent of 30-49 year olds and 18% of 50-64 year olds cite connecting with others with common hobbies or interests as a major reason they use social networking sites, compared with 10% of 18-29 year olds.

Additionally, men are a bit more likely than women to use these sites to connect around a hobby or interest—56% of male users say that this is either a major or minor reason for their usage of these sites, compared with 44% of female users.

Connecting with public figures online is relatively popular among Twitter users, as well as African Americans and Latinos

Among social media users as a whole, the ability to read comments by public figures such as politicians, celebrities or athletes does not come into play as a major factor—fully three quarters of users say that this plays no role whatsoever in their decision to use these sites. And while connecting with public figures has a relatively modest impact on users across a range of groups, both African Americans and Latinos show more interest in this activity than white users. One in ten black social media users (10%) and 11% of Latinos say that reading comments from public figures is a major reason for using these sites (compared with just 3% of white users). Black and Latino social media users are also more likely to say that this is a minor factor (31% of blacks and 26% of Latinos say this, compared with 16% of whites).



Additionally, Twitter users are more interested in connecting with public figures than are social media users who do not use Twitter. One in ten Twitter users (11%) say that reading comments by politicians, celebrities or athletes is a major reason they use online social networks, and 30% say that this is a minor reason for their usage of these sites. Each of these is notably higher than the average for social media users who do not use

Twitter (4% of these users say this is a major reason for using these sites, with 11% citing it as a minor reason).

Finding potential dating partners is at most a minor element of the social media experience

Very few social media users say that finding potential romantic partners or people to date plays a role in their use of these sites—overall more than eight in ten (84%) do not use these sites for that purpose at all. Most of the remainder say that the prospect of romance is only a minor reason. Most differences on this question are quite modest—for example, men are twice as likely as women to say that finding potential dating or romantic partners is a minor reason for using online social platforms (17% vs. 9%) but overall few men say that this is a major factor (just 4% do so).

To be sure, many Americans are currently in relationships or may not otherwise be seeking dating or romantic partners in any venue (on social networking sites or otherwise). Among those users who identify themselves as single, separated or divorced, 6% say that finding romantic or dating partners is a major reason why they use these sites (an additional 27% say that this is a minor reason for their social media usage).

About this survey

The results reported here are based on a national telephone survey of 2,277 adults conducted April 26-May 22, 2011. 1,522 interviews were conducted by landline phone, and 755 interviews were conducted by cell phone. Interviews were conducted in both English and Spanish. For results based on social networking site users, the margin of error is +/-3 percentage points (n=1,015).

Notes

[1] Throughout this report the term "social media users" refers to individuals who "use a social networking site like MySpace, Facebook or LinkedIn" (65% of online adults do this) and/or "use Twitter" (13% of online adults).

http://pewinternet.org/Reports/2011/Why-Americans-Use-Social-Media/Main-report.aspx

THE STUDENT WITH THREE JOBS

University fees are set to rise in England. But do the neighbours fare any better? Jasper Rees goes on a European tour and meets the students of Generation Skint ...

From INTELLIGENT LIFE magazine, September/October 2011

From the hilltop castle which looms over Heidelberg the view is captivating. The river Neckar thrusts through forested hills. On the north side looms the Heiligenberg, up whose flank slithers the so-called Philosopher's Walk, sylvan haunt of many a strolling professor. At its foot are free-standing villas which speak discreetly of shockproof wealth. A gated bridge tiptoes over the gliding waters and leads to the old town with its elegant streets and important churches. What a gorgeous place to study.

Germany's oldest university doesn't come cheap. The cost of living is roughly €10,000 a year, not including tuition fees. Stefanie Schmidt (not her real name), a 25-year-old student with thin-framed specs and long auburn hair, is nearing the end of her studies in biology and English. Such is her parents' income that she did not qualify for a BAföG, or student loan, but her parents have been unable to give her further financial support, and so she has had to work. A lot.

"I have three to four jobs to pay for it," she says. "I was working as a lifeguard, I'm a research assistant in the faculty library, and on weekends I work at the football stadium." She doesn't officially list the fourth job—private teaching—because that's cash in hand, part of the campus black market. And she still can't afford Heidelberg rents, so she and her boyfriend live 45 minutes away by train. Thanks to a niggardly law, German students have to pay extra if they earn more than €400 a month. Nor can they work more than 20 hours a week. "You need really good time management," she adds. "I really have to calculate every month how often I can work so that I won't reach the limit." Students of recent eras have been labelled Generation X or Y; this lot look like Generation Skint.

One might think that Germany would be good at this sort of thing. In fact its system for funding education is so confused that it can stand as a microcosm for Europe as a whole. Until the middle of the last decade, tuition fees did not exist in Germany. Then they were introduced by some states, mostly those where the Christian Democrats and Liberals were coalition partners. "There was a general understanding that many universities are underfinanced," says Dr Thomas Pfeiffer, a law professor in his 50s who is also Heidelberg's vice-rector for international affairs, "and it was thought to be a good idea to have students or their parents take some responsibility for financing the programmes, and also to put an incentive on the students to study more efficiently, more industriously than some were thought to." Now only three of Germany's 16 *Länder* are sticking with tuition fees. Others have opted for payment after graduation. And some have no fees at all. It's a *Land* lottery.

In the state of Baden-Württemberg, where we are now, there is a remarkable law based on a kind of birth-order roulette. "I am lucky," explains Faris Bidier, a lanky 22-year-old in his third year of a BA in English and geography. "I am a third child and only the first two children have to pay in Baden-Württemberg." On top of which his parents are wealthy enough to pay both his rent and a monthly allowance. No wonder he has looked for work only "half-heartedly". It's possible that the *Land*'s new government will be abolishing tuition fees anyway.

After a tour of the old town on a warm early evening, we have repaired to a subsidised student bar where the sun slants into a large grassy courtyard. Julia Klein (*pictured above*), in her first year of a master's in English, could have had her tuition free too. All she had to do was stay the other side of the river. "The state where I am originally from, just across the Rhine, doesn't have tuition fees," she says. "I have friends who study there because it's free, although some universities are rubbish." But she wanted a prestigious education in Heidelberg. Britain is not the only country where some universities are more equal than others.

Her parents' income is such that she passed the forensic annual means test for a BAfÖG, so Baden-Württemberg picks up half her tuition fees. The rest she has to pay back after a decade and only once her earnings reach a certain level. To make ends meet—rent in Heidelberg is around €300 a month, but can be much more—she works in the library and also does web design and private tuition. "I've been in debt for my entire time as a student," she says. "Even though I have a job, I am in the red every month. It's a huge pressure. You're not going to die, you're not going to starve. But it's not certain that you're going to get a job." Like Stefanie and Faris, Julia has set her sights, with a touch of pragmatism, on the teaching profession. No matter who pays, people will still need educating.

I went to Heidelberg not just as a journalist but also as a parent. My two daughters are only 19 months apart, but the British government has recently threatened to drive a huge financial wedge between them. When my older daughter, Pascale, began a course in French and Spanish at Manchester University in September 2010, she applied for a student loan of just over £3,000 to cover her first year's tuition fees. When her sister Florence began the same process 12 months on, she was hoping to defer entrance and keep her nose out of books for a year. But the financial implications of postponement are forbidding. A year from now the cap on how much universities can charge undergraduates is being raised to £9,000 per annum. The prospect of thus incurring £18,000 more debt than her sister demolished her hopes for a gap year. In September 2011 Florence starts at Newcastle.

For parents who were born in the 1960s, these figures seem like the vendetta of a malign demographic god inflicted upon our children. When I went to university in 1983, the state coughed up for everything, despite being ruled by Margaret Thatcher. Depending on your parents' income, the local education authority even gave you extra—in my case, if memory serves, £60 a term. But that was back when higher education was a minority taste. There weren't enough of us to riot, nor was there anything to riot about (or not to do with universities). In 1979 something like 12% of British school leavers went into tertiary education. By 2010 it

was 45%. In 2008 there were over 2,300,000 students in tertiary education in Britain, slightly more than in France or Germany, which have more people. Someone has to pay for them all.

As a news item, the cost of university tuition has always known its place: around page six, with the odd guest slot in the comment section. Even the introduction of tuition fees in 1998—by Tony Blair of New Labour, picking up a baton from his Conservative predecessor John Major—was grudgingly greeted as a necessity by the public. It helped that the fees were only around £1,000. But those who saw this as the thin end of the wedge turned out to be right. As the fees rose, first to £3,000, they became unpopular, with many of Labour's own MPs as well as the pre-Cameron Conservatives. Once Labour had been ejected from office in 2010, the issue of how to pay for tertiary education took up residence on both the front pages and the English streets.

Why? First there was the credit crunch, and then an election fought on the issue of national debt, which gave no clear result. The Conservatives did not win enough seats to form a government without help from the Liberal Democrats, a previously unthinkable alliance brokered largely on the chemistry between the parties' leaders: David Cameron (Con), educated at Eton and Oxford, and Nick Clegg (Lib-Dem), Westminster and Cambridge. They had a lot in common, including a determination to tackle the debt by cutting government spending to ribbons. Clegg, reneging on a manifesto pledge not to lift the cap on tuition fees, agreed to a plan which allows universities to charge up to £9,000, and became a magnet for hatred. People came out to protest in larger numbers than at any time since the start of the Iraq war in 2003. A young generation presumed lost to political engagement stormed back to the barricades. Loudly trumpeted, their perception is that an Ivy League is being created by the back door, that the already privileged are being further privileged. And that they are paying for an older generation's folly and greed.

The government has worked hard to soften the blow by rearranging terms and conditions. Students can pay piecemeal and at low interest. But, with grants to the universities being cut, more universities than the politicians expected have set the maximum price. Cameron and Clegg, both smooth salesmen, have struggled to hawk this bitter pill. Never in the history of British education has there been more competition for university places than in the academic year now starting, the last before the fees go up. And in the bottleneck, confusion reigns. Recently I met some students in Cambridge, the intellectual cream of their generation, who didn't know if the rise in fees would apply to their own final year or two. (It won't.) Meanwhile, the Welsh Assembly has promised to make good the hoick in fees for any Welsh resident attending an English university. Scottish students do not pay at all, and fees for English students have been put up by the Scottish government to prevent a flood of tuition refugees.

Many observers, including *The Economist*, argue that tuition fees are fair enough, as it is wrong to make all taxpayers help mainly middle-class kids to get degrees that give them an edge in the job market. English universities need fees to compete with American ones, which charge a lot (90% more than they did 30 years ago) and dominate the world rankings, and also with emerging ones from Asia. Britain, whose universities still rank quite highly (*see tabl*e, *below*), wants to turn academia into an export industry, which means keeping standards high. Supporters of fees, from Blair onwards, have insisted that you get what you pay for. Across Europe, the low standards of once-proud universities are a source of concern: it is thought they will have to start charging more to catch up.

The debate rages on. But the social phenomenon is unarguable: this generation of students are having to scrimp, borrow and sweat in a way that their parents never had to. I embarked on a tour of four universities to see how my daughters' peers get on around Europe. Aside from Heidelberg, I went to Milan, Maastricht and finally Paris. In each city I met students and asked the same questions. How much does their course cost? How much do they pay for accommodation? Who pays—parents, state or student? How much paid work are they doing to keep body and soul together? And how would they react if they were told their tuition would cost £9,000 a year? At the last question, a lot of jaws hit the floor.

But not all of them. On a blustery day in midsummer I visit Maastricht, a ravishing product of Holland's 17th-century economic efflorescence. The university itself is a tall clean modern building, tucked away on the edge of the historic centre. It teems with students of many nationalities—43% out of 14,500 are non-Dutch. Rick van der Westen, a 21-year-old studying international business, shows me round gleaming corridors, past sundry seminar rooms and into an amphitheatrical lecture hall full of assertively green seating. Basic tuition costs a relatively modest €1,600 a year, he explains, in this as in every Dutch university. Rent can be up to €300 a month, and it costs the same again in other living expenses. But the government is prepared to help out every student to the tune of €250 a month, on top of which they get free travel on either weekends or weekdays, and hefty discounts on trains at all times—handy for the many Dutch students who like to nip home for the weekend.

That state seems generous. Perhaps, like an overlending bank, too generous. For those who need it, there is the option of borrowing €500 extra every month. Rick, who radiates what feels like a very Dutch air of unflusteredness, is lucky: his fees are covered by his parents (his father owns an insurance company) in one lump sum. "They find it safer than that I borrow. But most people not getting money from their parents take the extra €500 to pay for rent, studies and groceries." The result is that some Dutch students, most of whom stay on as graduates for an extra two years, can end up with debts every bit as towering as the ones English students will soon be facing. They can pay it back over 30 years at low interest. "Friends say, 'I will get a good job and pay it back in a couple of years because my job will be so good.' "

This sounds very much like the mindset inculcated into my daughters' generation in England: borrow now, pay later. The problem is that these days good jobs don't sprout quite as reliably as tulips. That's why there is also a strong culture of students paying their way in Maastricht. One of them is Theresa Bullock, 19, from Redditch near Birmingham. "I know people who will be finishing with €40,000 of debt," she says, "and that's not what I want." Theresa decided before leaving school that she "wanted to do something a bit different". She put "English-speaking universities + Europe" into Google and found Maastricht, where she is in her first year studying the grandly titled Knowledge Engineering (aka computer sciences). The upshot is a curious accent, tinged with Australian, which may come from living in a community where English is hardly anyone's first language; but also a confidence that seems to come from self-sufficiency.

Having taken out her own bank loan of €2,500 as a cushion, Theresa pays off her annual tuition in monthly instalments of €209 and, when she's not studying, earns. This is partly a requirement. Foreign students accepting the government's gift of €250 must do 32 hours' work a month to qualify. "I did work in the post office, sorting business post. It's close to my house and they had an advert in the window. It was nice but really early—6am to 8am." It paid only €7.50 an hour. Like many Maastricht students—from as close as Germany or as far as America and China—Theresa now works for the university itself as what they call an assistant. Her job is to spread the word back home at €9 an hour, giving lectures to schools and welcoming visiting students. Rick joined the workforce too when his father threatened to cut off his allowance.

With heavy rain from the North Sea threatening, we walk along the winding streets to a small square where Falstaff, the city's most famous bar, serves 60 different beers, many at more than €5 a bottle. Rick recommends a dark Trappist brew called Pauwel Kwak. We are served, naturally, by a waitress who is a student. Call centres are also a regular employer, and high-street shops. Another popular job is working for Red Bull driving around in the car with the familiar can on its roof, stopping in front of the university library during the exam period and distributing freebies. And then of course for a notoriously liberal country, there is always the last resort. "I heard about a student", says Rick as he sips his dark monastic beer, "who was working as an escort to older women." But let's not go there.

Higher education among the neighbours is not always as we know it. In Finland and the Czech Republic, tuition is paid for entirely by the government. At the other extreme there is Poland, where about a third of all students attend a private university, of which there are around 300. In Portugal, thanks partly to means-tested grants handed out by the government, an even higher proportion has been tempted into private universities. But these countries all have relatively small populations. This is what the bigger European economies spend on tertiary education, according to the OECD (hence the dollar signs). In 2007-08, Britain spent $15.5 billion. The Netherlands, with roughly a quarter as many students, spent much the same—$16.0 billion. Germany spent $13.8 billion, France $12.8 billion, and Italy only $8.8 billion. British and Dutch universities are the most respected, as the table above shows.

The discrepancies are partly explained by state attitudes to postgraduate education—the second degree known as a master's. Where the percentage of British students who stay in further education after graduating is low, owing partly to the cost, in other countries it's correspondingly high: at Sciences Po in Paris, students can enrol only if they do a master's too. Several of the students I meet are still going strong in their mid-20s. "Most people don't see the bachelor as a full degree," Faris tells me in Heidelberg. "They don't feel like they know anything after three years." On the whole, our fellow Europeans have been more lengthily educated by the age of 23. In Britain the main exceptions are Scottish students, who all do four years as undergraduates, and linguists: my daughter Pascale will have a year abroad before returning for a fourth year.

Unless they're Italian, most other European students have also been fending for themselves for longer too. In Britain a university normally lays on accommodation for its newcomers. Not so around Europe. In Paris, in Maastricht, in Heidelberg, the freshman must find his own bed. What places there are are often reserved for graduates. The picture is rather different in Milan, a city with 200,000 students and only 1,400 university beds. Many of them, as elsewhere in Italy, still sleep in the bedroom they grew up in.

This is one of the benefits of a matriarchal culture which lionises the family: *campanilismo*—attachment to the bell tower of one's youth—lives on in the 21st century. "I study 300 metres from where I live," says Federico Leva proudly. "My parents are threatening to make me pay rent next year because I'm late with my studies." Federico, 22, gangly with thick black hair, is in his third year of a maths degree at the Statale, as the vast state-funded Università degli Studi di Milano, with its 60,000 students, is known to distinguish it from various private neighbours. He chose maths for a solidly mathematical reason: "because statistics show that almost no one ends up unemployed".

The Statale was founded via a merger in 1924, within two years of Mussolini's accession to power. There can be no more prestigious building in which to study than the old Ospedale Maggiore, the community hospital in Festa del Perdono near the cathedral built by Francesco Sforza in the 15th century. On a drizzly Lombard afternoon I am guided round its labyrinth of quadrangles by three personable students—Federico, Giulio (*pictured above*, 23, natural sciences, fourth year) and Gabriele (24, liberal studies and social policies, fifth

year). I don't know whether it's the burden of study or anxiety about Italy's brittle economy, but Giulio and Gabriele are showing signs of male-pattern baldness.

The premierships of Silvio Berlusconi have been characterised by (among other things) an effort to wean Italians off the state's ever-giving teat. Italy is deep in debt, and in 2008 sweeping changes to education funding brought more Italian students on to the streets—a million in Rome—than at any time since 1968. And they're still at it. Gabriele walks me across the city to the political sciences faculty, a more modest palazzo with a cobbled courtyard. In the rush-hour traffic a megaphone leads chants of protest—"students probably," says Gabriele. "There is a protest about something most days."

As a Briton anxious about his daughters taking on debt at a time of shrinking job prospects and ever-rising house prices, I sense that Italian students have little to worry about. Means-tested annual fees range from €700 to €4,000 a year, but in a culture where so much income is undeclared, and the birthrate is phenomenally low, parents can mostly take the hit.

Gabriele, who comes from Lazio and was asked to pay €2,500 in total for his first three years of tuition, is given €900 a month by his parents (who are separated). They agreed that if he had to earn the money he'd have no time to study. He needs every cent, he says, "and I don't lead a big life."

Rent in Milan, often paid without contracts on the black market, starts at €400. From the evidence of my evening in Milan, students take liberal advantage of happy hour in city bars where, for the price of one drink, they can load up at the buffet food with cold pasta, cold pizza, multiple salads and roasted vegetables. The two local boys both make extra money in their spare time in a family business. Giulio works for his mother's catering firm, Federico for his uncle's sports merchandising shop near the San Siro football stadium. "I earn a lot but I cannot say how much," says Giulio. "It's a well-paid job, not just because it's my mother who pays me."

If you were to build an ideal funding structure for a university degree today, you'd want generous Italian parents to fund your living costs and/or give you paid work. If you could manage it, you should also be the third child of a family from Baden-Württemberg, enjoying monthly handouts from the state. But above all the thing you would want to able to benefit from is French munificence.

The English and the French are two nations divided by a common stretch of water on whose name they can't even agree. They have battled and bickered and invaded each other for a thousand years. These days, their differences emerge in other ways. Imagine a scenario in which an English student need do no more than apply to a university to gain a place. What a blessed relief for all our children. How many

nails would have gone ungnawed in my own household, how many anxious visits to the UCAS website would never have happened?

Such is the state-run system in France, where annual tuition costs are vanishingly small: €162 for a licence or undergraduate degree in 2008, €211 for a master's. Some degrees can cost more, and all students are required to pay €350 for health insurance. More than half of all French students receive state financial support, and fees for them are reduced or even waived. There are loans of €2,000 available, but the take-up is minuscule. The downside of getting something for practically nothing is that it isn't highly prized. France has 1.4m students enrolled in 82 state-owned universities. More than half have been known to fail in their first year; and 90,000 students leave a French university each year without a degree.

And then there are the Grandes Ecoles. My final stop is in Paris, at Sciences Po off Boulevard St Germain des Près on the Rive Gauche. L'Institut d'études politiques de Paris, to give it its full name, was founded in 1871 in the wake of the Paris Commune. This is perhaps the most prestigious of the Grandes Ecoles, a network of universities which are able to select their pupils and as a result are much harder to get into than regular state universities. Students are evidently not lured by the glory of the premises, which are less than stunning. Gabriel Odin (*pictured above*, 21, from near Nîmes, in his first year of a master's in international urban studies) shows me round a five-storey building tucked away in a side street, like most of Sciences Po's faculties. A sloping garden with threadbare grass offers a space to mill around in summer. Historically, places here have tended to go to the wealthy and the ambitious. The Grandes Ecoles are an essential finishing school for France's political and economic elite. Jacques Chirac came to Sciences Po, and so did Nicolas Sarkozy, although he reputedly dropped out after failing an exam in English.

We repair to the bar on the corner opposite where, even in happy hour, a beer is around €4. Although it has opened its doors wider in the past dozen years, a lot of Sciences Po's students can absorb the high tariff of both beer and tuition. It now costs €6,000 to take an undergraduate degree, twice that for a master's. "Most students have a lot of money so it's not very difficult for them to pay," says Waria Drame (23, from the Paris *banlieues*, public affairs, fifth year), who has joined us in the noisy bar. "They changed the system, and the cost doubled in one year, and nobody protested!"

Neither Waria nor Gabriel protested either, but for different reasons. "If you get a scholarship from the state, it means your parents are on a very low income," Gabriel explains, "and that's my case. We've paid no tuition fees since entering Sciences Po." He just about succeeds in not looking triumphant. The high Parisian rents—most students rent single rooms in flats – are covered by the scholarship too. With the work schedule so demanding, they confine paid employment to the summer holidays—Waria has worked at H&M and in a bank; Gabriel in a

McJob at a fast-food outlet, and in a stationer's.

But there is anxiety. All Sciences Po students have to spend a year abroad (the same goes for Maastricht and for language students in Heidelberg). Gabriel chose shrewdly: in Pune in India, where the cost of living is much lower, he actually managed to make €250 a week. After ten months his savings will have amounted to €10,000. Waria decided to go to the University of Illinois and thus incurred a debt of exactly the same amount. "I pay interest now," she says. "Not a lot per month: €30. Then in September I will have to begin to pay €300 a month."

She has already moved back home to the banlieues to save money. How else will she pay the debt? "I don't know how, because I don't have a job. One degree is not enough to get a good job." Gabriel nods in agreement. France does like its diplomas and certificates. So at the end of five years at Sciences Po, Waria is thinking of applying to do film studies. "I just had an exam to go to another school," she explains. "I think it will pay because I have a scholarship."

My youngest interviewee is 19-year-old Theresa, the girl from the West Midlands who took one look at Maastricht and ducked out of the British system altogether. In some ways she has the oldest head of all the students I have encountered, delightful and committed as they are. She is the one who reminds me most of my daughters, being English and the same age.

Her perspective counts for something when every country has worries about this issue, which has leapfrogged to the top of legislative agendas across Europe. None seems to have been so ruthless in its accounting as the British government led by two privately educated Oxbridge graduates who keep saying they are eager to widen access. "Everybody here from the UK is aware of the fact", says Theresa, "that from next year their friends might not go to university at all."

As I take the Eurostar back to London, it seems inescapable that my daughters would be less in debt if they were being educated in France, Holland or Germany (although a numbers crunch is coming there too, as the German school system slims down from 13 to 12 years, just as military service is abolished). But, born just soon enough to avoid the grim choice between deep debt and entering the job market without a degree, they are still part of one of the luckier demographics in Britain. Whether they work their socks off or not—and I hope, nay insist, that it's the former—this is a much harsher world for them than for their parents, born in the 1960s and subsidised to the hilt to lounge on lawns and read the odd book. We never knew we had it so good. If a modern education teaches students one thing, it's that life at university is now indistinguishable from the university of life.

Jasper Rees *writes for the* Daily Telegraph *and the* Sunday Times, *and co-founded* TheArtsDesk.com. *His book "Bred of Heaven", about Wales and Welshness, is out now.*

Picture credits*: Thomas Duffé, Guido Clerici and Justin Creedy Smith*

http://moreintelligentlife.com/content/ideas/jasper-rees/student-with-three-jobs?page=full

Oklahoma Earthquakes and the Wages of Fracking

European experiences offer hints as to whether high seismicity in the U.S. oil patch is related to new gas extraction methods.

By Michael Scott Moore

A new report from Britain suggests that fracking can cause small quakes.

When towns to the east of Oklahoma City jiggled over the weekend with two of the state's strongest-ever earthquakes, some people asked an obvious question: Does the recent expansion of "fracking" for natural gas in Oklahoma — shooting water and chemicals and sand into shale deposits to free trapped methane — account for the trembling ground?

Maybe. Oil and gas exploration has caused minor earthquakes in the U.S. since the '30s, and a new report from Britain suggests that fracking itself can cause small quakes. It was "highly probable," according to the report, that a drilling firm called Cuadrilla Resources caused two earthquakes near Blackpool, in northwest England, by fracking for shale gas in May.

But the British quakes were extremely mild — 2.3 and 1.4 magnitude — and experts argue that fracking, on its own, wouldn't cause quakes much out of that range. (The weekend quakes in Oklahoma measured 4.7 and 5.6.) "It is extremely rare for fracking itself to cause detectable earthquakes," writes Nicola Jones at *Nature*, "so rare that geologist Scott Ausbrooks of the Arkansas Geological Survey in Little Rock told this reporter in May that it never happens."

Ausbrooks points out that a related activity *does* cause the earth to shake. Companies involved in mining, fracking, and oil exploration sometimes dispose of wastewater by pumping it into "injection wells," and in the 1960s, the Rocky Mountain Arsenal, a U.S. Army site in Colorado, used injection wells to bury wastewater from chemical weapons. The Army shot a tainted solution of salty water more than 12,000 feet underground,

which led to a flurry of quakes around Denver in the late '60s. The largest were in the 4- and 5-magnitude range.

Fracking probably did cause a number of "micro quakes" in Oklahoma in January, according to seismic expert Austin Holland. The largest quake in that flurry measured 2.8. Holland says he doesn't think fracking led to last weekend's quakes. "It continues to be a possibility," he told an Oklahoma news station, "but the connections are weak, and it would take much more research and a greater understanding of what's going on in the sub-surface to begin to attribute this to oil and gas activities."

Fracking, of course, is unpopular in some parts of the U.S. because poorly sealed wells have leached chemicals and methane into the surrounding groundwater. A flurry of Arkansas quakes raised a question about fracking there last year, but Ausbrooks said the shaking was probably related to injection wells, rather than fracking per se. The difference is important, because the nation's shale-gas reserves could cut carbon emissions and free the country from its dependence on oil — if, and only if, the gas can be safely extracted.

Europe has been watching this U.S. debate. While France has outlawed fracking entirely, Germany is particularly anxious for new forms of energy, and it hopes to use natural gas as a "bridge" for its ambitious move away from nuclear power and toward renewable energy. It allows some limited fracking, but it plans to buy most of its gas from Russia. Authorities in the United Kingdom are cautious—they forced Cuadrilla to suspend its shale drilling after those two small earthquakes in May.

Poland, though, recently threw open its doors to fracking exploration by American firms. Poland burns more coal than almost any EU member, so natural gas would be a welcome alternative. Plus, Poland may have the largest shale-gas reserves in central Europe. "We'll never be an oil state," Andrzej Kozlowski, an executive at the Polish oil company PKN Orlen, told *The Economist*, "but we could become a Norway."

Poland only has a few fracking wells so far, but it has suffered its own curious flurry of earthquakes over the last few years. They've been concentrated around Silesia, a southwestern coal- and metals-mining region. In late 2010 one of the largest quakes, measuring 4.5, killed three men in a copper mine.

http://www.miller-mccune.com/environment/oklahoma-earthquakes-and-the-wages-of-fracking-37689/

DR DOLE QUEUE

These days, students stay at university for longer than they used to. The Economist's Adrian Wooldridge argues that they should think again ...

From INTELLIGENT LIFE magazine, September/October 2011

The modern fashion is for piling degree upon degree: MA upon BA and PhD upon MBA. And it is not easy to argue against it. If education is a good thing, more education should be an even better thing. And academic wisdom maintains that, as economies become more sophisticated and knowledge more advanced, people will have to spend longer studying. Just as industrial countries introduced universal secondary education in the 20th century, so post-industrial economies will introduce universal higher education in the 21st—followed by universal PhDs.

It is doubly hard to argue for parsimony when the economy is in recession, giving all too many people a choice between further education and the dole queue, and when the person making the case has gorged on the fruits of higher education himself. But are we to wait for the good times to return before pointing out that higher degrees are not all they are cracked up to be? And is anybody better equipped to expose the credentials racket than one who has accumulated more than enough of them?

Higher education is even more susceptible to the law of diminishing returns than most fields. Every extra year of higher education costs you more in terms of foregone income in return for less in terms of added value; indeed, once you embark on a PhD, you may well be reducing your value on anything but the academic labour market. William Pannapacker, a professor of English at Hope College, Michigan, says that, outside academia, "a doctorate in English that probably took you ten years is something you will need to hide like a prison term while you pay off $40,000 to $100,000 in loans." In 2008, according to the Bureau of Labour Statistics, over 10,500 Americans with PhDs or professional degrees were employed as "cashiers", over 27,400 as shop assistants and over 4,700 as hairdressers, hairstylists or cosmetologists.

The obvious reason for this is that education becomes more specialised as you get more of it: you spend less time acquiring broad wisdom and transferable skills and more crawling along the frontier of knowledge with a

magnifying glass. You may make a genuine contribution, and you can hold up your head among fellow experts. But you pay a heavy price. Your mental focus narrows, and you discover that you have spent your 20s as an overgrown schoolboy, or girl, rather than establishing yourself in a career. At worst you end up as a middle-aged dogsbody: one OECD study shows that, five years after receiving their degrees, more than 60% of PhDs in Slovakia and more than 45% in Belgium, the Czech Republic, Germany and Spain were still on temporary contracts.

A second reason is that education is a sifting device. The more people there are with a BA, the less the BA is worth and the more incentive there is to add some more letters. The result is an arms race: students spend years of their lives—and tens of thousands of dollars—simply neutralising each other's qualifications. The true beneficiaries are the people who sell higher education.

A third reason is that the productivity of higher education declines as people spend longer in it. Academics devote their attention to graduate students rather than to humble undergraduates (who have to make do with teaching assistants, not all of whom are working in their first language). Students work at a more leisurely pace because they know that they will be able to make up for lost time when they take their second degrees. This institutionalised dithering helps to explain why, according to the American Enterprise Institute, the time spent studying by the average student at an American four-year college has declined from 24 hours a week in 1961 to 14 hours a week today.

The idea of diminishing returns may understate things: the returns on ever-higher education can actually be negative. Some of its leading advocates are professional schools that insist that, to get a head start in your career, you need a professional qualification. But the assumption underlying this—that the best way to learn a profession is to immerse yourself in theory—is nonsense. Professions don't rest on abstractions. They rest on bodies of rapidly evolving practice that are best learned on the job. Doctors clearly have to master their anatomy and lawyers their torts before they are let loose on the public. But there comes a point when they learn more in the courtroom or the operating theatre than in lectures. That point comes a lot earlier in the worlds of business and public policy.

Some graduate schools even destroy value, because they are so far behind developments in the working world. Many consultancies have taken to teaching internal MBAs which they can do in a few weeks rather than the two years that business schools take. Many mainstream firms, shocked by the havoc wrought by fancy business-school ideas about credit default swaps, have taken to recruiting undergraduates rather than MBAs. In any dynamic profession you are far better off learning from the lions of the field than listening to the idle theories of egg-heads.

The inconvenient truth is that the fashion for ever-higher degrees has more to do with the interests of universities than of students. Even if dons are partly right to say that you cannot have too much of a good education, they are wrong to confuse education with credentials: some of the most educated people I know left formal education at the earliest opportunity and some of the greatest bores never left at all. Professional schools are money-spinners for universities. PhD programmes are life-enhancers for professors: they give them acolytes to massage their egos and relieve them of undergraduate teaching while also doing much of their research for them. But they teach you less than you could have learned on the job and a PhD may leave you unemployable. There are far better things to do with your 20s than acquiring yet more letters after your name.

***Adrian Wooldridge** is* The Economist*'s management editor and Schumpeter columnist.*

***Picture credit**: Chris Devers (via Flickr)*

http://moreintelligentlife.com/content/ideas/adrian-wooldridge/dole-queue

Fizzy drink ban has little effect on students

- 10:46 09 November 2011 by **Andy Coghlan**

Fizzy heaven *(Image: Elea Dumas/Workbook Stock/Getty)*

Nothing, apparently, can come between US students and sugary drinks. In states where schools banned sugary soft drinks to reduce calorie counts, children simply brought in their own, consuming equal amounts to those in states that didn't implement the ban.

Dan Taber at the University of Illinois in Chicago analysed 6900 questionnaires sent to students in 40 states in 2006 and 2007. Irrespective of availability in schools, around 85 per cent of respondents said they consumed sweetened drinks at least once a week, and a quarter to a third imbibed daily.

The policy still has worth, Taber says. "[The bans] have improved the school food environment." He hopes they will now be supplemented with measures such as a tax on sweet drinks and distancing fast-food outlets from schools.

"The study clearly shows that isolated efforts are insufficient to improve nutrition to prevent obesity," says Arne Astrup of the University of Copenhagen in Denmark, who has investigated links between sugary drinks and weight gain. "What's needed is a much more comprehensive strategy that attacks the problem from several angles," he says.

Journal reference: *Archives of Pediatric Adolescent Medicine*, DOI: 10.1001/archpediatrics.2011.200

http://www.newscientist.com/article/dn21141-fizzy-drink-ban-has-little-effect-on-students.html

THE BOOK OF ILLUSION

"The Great Gatsby" is a story of a romantic outsider, high rollers and wrecked lives. For Lee Siegel, it's a portrait of contemporary America ...

Special to MORE INTELLIGENT LIFE

First published in 1925, "The Great Gatsby" has never lost its allure. Last year "Gatz", a six-and-a-half-hour stage adaptation of F. Scott Fitzgerald's novel, was a sell-out hit at New York's Public Theatre. Everyone is now buzzing about Baz Luhrmann's screen remake of "Gatsby", now being filmed in Australia with Leonardo di Caprio in the title role that was once Robert Redford's (*pictured above*). A musical adaptation of the novel is set to premiere on September 30th at the New York Musical Theatre Festival in Manhattan. Professor friends of mine tell me that no American work of literature excites their students so much as Fitzgerald's rueful romantic taxonomy of American dreams and fantasies.

The lasting power and beauty of "Gatsby" is rooted in the story's mix of illusions and self-delusion. Jay Gatsby lives in fabulous wealth in a magnificent mansion on Long Island. He throws glamorous, exclusive parties and excites admiration and envy. Yet his wealth is the product of some shady bootlegging. Gatsby swans about in a stainless white suit, yet his glow is tarnished by his foolish obsession with Daisy, the shallow, callous wife of brutish Tom Buchanan. His rise to riches would seem to illustrate the chimerical proportions of the American dream, yet he dies—brutally, senselessly—at the hands of a garage mechanic, who mistakes Gatsby for his wife's murderer and so shoots him in his swimming pool. Such mercurial luck and weird violence is the unexpected underside of the American promise.

The poles of dreamy ideal and grimy real are represented in the novel by the colours gold and yellow, threaded through the book like a Schubertian leitmotif. "Behind every great fortune is a great crime," Balzac once shrewdly observed, and this was not lost on Fitzgerald. Gatsby is ultimately an exemplary American, driven by a hunger for more. He keeps his illusions till the end, even as they blind him to the way his futile pursuit of Daisy is eroding his life. Fitzgerald's worldliness was European, but his wistfulness was uniquely American. "Can't repeat the past?" Gatsby cries incredulously at one point in the novel. "Why of course you can!"

No wonder the tale of fatefully deluded Gatsby still resonates at a time when the collision of illusion and self-delusion has so injured American expectations. America is now full of millions of bankrupt Gatsbys who bought their dream homes with no money down. Meanwhile, the derivatives market was the very embodiment of American fantasy and self-deception, built on as flimsy a foundation as Gatsby's wealth. The promised gold of the Reagan years, burnished to a shine in the new millennium, has turned a grimy yellow.

Along with Gatsby, the novel's other characters seem like they stepped out of today's news. In Tom and Daisy Buchanan, Fitzgerald created the very image of callous, upper-class destroyers. "They were careless people, Tom and Daisy," Fitzgerald writes, "they smashed up things and creatures and then retreated back into their money or their vast carelessness, or whatever it was that kept them together, and let other people clean up the mess they had made." They were the moneyed id in action, blind to social reality and simple human decency. "Her voice is full of money," Gatsby marvels about Daisy.

Among many Americans the past few years have instilled a sense that a thin stratum of people act with similar recklessness. The country's dishonest bankers and shady mortgage-brokers never seem to be touched by economic cycles that grind other Americans down. As unemployment numbers have risen, these callous beneficiaries have seemingly "retreated back into their money."

A romantic outsider, Gatsby is both admired and mistrusted. As Nick Carroway—Gatsby's tenant, new friend and the novel's narrator—tells us, rumours depict Gatsby as related to Kaiser Wilhelm, a German spy during the first world war, a bootlegger and a murderer. Outsiders like Gatsby are quintessential figures of American democracy, a system designed to welcome outsiders by elevating individual will over group affiliation. They can redeem, but they can also unsettle. Gatsby had to escape his humble origins in order to conquer society, yet in remaking his life he generated an aura of mysterious menace. Everyone attended his parties. Hardly anyone came to his funeral.

And here we are, in a time of unsettling flux, in which one enigmatic outsider after another vies for political leadership. Sarah Palin, Donald Trump, Michele Bachmann, the scores of obscure Tea Partiers suddenly thrust into Congress. Then there is the epitome of outsiderness himself, Barack Obama. No one had the audacity to ask Gatsby for his birth certificate as proof of who he really was. But until Obama produced his, he was mythologised as wildly as Gatsby had been: as socialist, communist, revolutionary, conspirator, traitor.

In Gatsby's case, the mysterious stranger in the immaculate white suit was really a cipher named James Gatz, who lucked his way into fame and fortune because of his looks, charm and the way he could imitate the gestures of confident success. The disenchantment with Obama among some of his most passionate supporters finds an echo in Fitzgerald's portrait of Gatsby's social dynamic. Gatsby had:

one of those rare smiles with a quality of eternal reassurance in it, that you may come across four or five times in life…It understood you just as far as you wanted to be understood, believed in you as you would like to believe in yourself, and assured you that it had precisely the impression of you that, at your best, you hoped to convey.

Yet because of the inadequacy of those who were taken in by Gatsby, or because of his own deficiencies as a person, reality intrudes on illusion: "Precisely at that point [the smile] vanished," observes Nick. "I was looking at an elegant young roughneck, a year or two over thirty, whose elaborate formality of speech just missed being absurd. Some time before he introduced himself I'd got a strong impression that he was picking his words with care."

Europeans are too disillusioned ever to be disappointed. But Americans cannot forgive any figure who, having invited them to project their dreams onto him, steps out from behind them. Undeterred, they will keep rushing right past him toward other illusions; toward, as Fitzgerald writes in his famous final lines, "the

orgiastic future that year by year recedes before us. It eluded us then, but that's no matter—tomorrow we will run faster, stretch out our arms further...And one fine morning—".

Lee Siegel *is a New York writer and cultural critic. His latest book "Are You Serious?: How to Be True and Get Real in the Age of Silly" is published by Harper. His last piece for* More Intelligent Life *was about culture after 9/11*.

Picture credit*: Paramount Home Entertainment*

http://moreintelligentlife.com/content/arts/lee-siegel/exemplary-american

The iPod Touch as a Crop Saver

New Gene-Z device identifies diseases in plants, water, and food within 30 minutes, researchers say.

By Melinda Burns

Gene-Z was unveiled November 7 at a conference of the National Plant Diagnostic Network at the University of California, Berkeley. (Michigan State University)

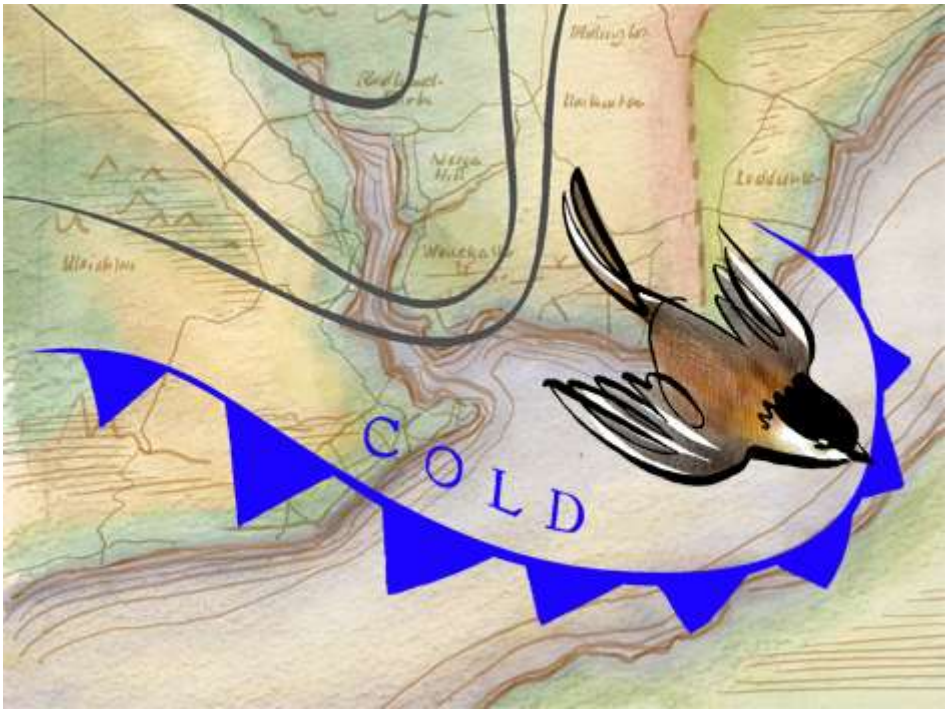
On the heels of Cellscope, a device that clips onto a smartphone to analyze blood samples, comes Gene-Z, a device that can clip onto an iPod Touch and identify diseases in crops and plants.The traditional approach to identifying plant pathogens is to collect field samples, send them to a laboratory, and await the results. With Gene-Z, researchers said, they can take a swab of plant pathogens, transfer the sample to a kind of "lab-on-a-chip," insert the chip into the device, and get results within 10 to 30 minutes via smartphone technology. Gene-Z was unveiled November 7 at a conference of the National Plant Diagnostic Network at the University of California, Berkeley.

"We've already successfully proven Gene-Z's capacity for quantifying cancer markers," inventor Syed Hashsham, a professor of civil and environmental engineering at Michigan State University, was quoted in a release from the university. "With this application, we can speed the analysis of pathogens in plants, water and food with the ultimate goal of improving the safety and security of food supplies anywhere in the world."As reported recently by *Miller-McCune*, new technologies invented at the University of California can convert cellphones into microscopes, making it possible to for doctors in rural villages far from hospitals to identify malaria, parasites and HIV antibodies in blood smears.

Gene-Z uses an iPod Touch or Android-based tablet to identify a plant pathogen and its genetic makeup and calculate its amount. Gene-Z already has been used to test a new disease that is devastating cucumber crops in the United States, researchers said. The device is ready to be manufactured, and Hashsham is working with MSU Technologies to bring it to market.

http://www.miller-mccune.com/science/the-ipod-touch-as-a-crop-saver-37639/

SWALLOWS AND AMATEURS



Weather forecasts by professional meteorologists are about 80% accurate. Robert Butler goes for a walk with the hobbyist who does better ...

From INTELLIGENT LIFE magazine, September/October 2011

It was a conference at the Royal Meteorological Society in Reading. An audience of academics and meteorologists—amateur and professional—had spent the first part of a Saturday morning listening, fairly dutifully, to PhD students discussing media representations of climate change and then representations of climate change in museum collections in the East Midlands. After that, a man in his 70s got up—cheery, pugnacious, and distinctly non-academic—and told us what the weather would be like for the rest of the year. And the year after that. He said his predictions were 90% right. More and more people in the audience started taking notes. They had holidays to think of.

David King doesn't follow the weather forecasts on TV or radio. And he isn't a scientist. What he has is a system, the sort of single-minded system someone might have devised for betting on racehorses. There are four main strands. He has his own notes that he has kept since the 1970s; he has maps charting the movement of the moon; he has a comprehensive list of sayings about the weather, or weather lore, often connected to saints' days; and he has his own close observations from his walks in the Kent countryside. He watches how flies and ants are behaving, when birds arrive and depart, and when seeds, nuts and fruit first appear. He collects this information and cross-checks each observation with the other sources. This allows him to weed out those bits of weather lore, for instance, that are "bad uns". Over nearly 40 years of keeping notes, he has found the ones that are most reliable.

He used to get it 82% right, but now, as the decades of notes pile up and his knowledge has grown more compendious, he has narrowed the margin of error by another 8%. Imagine if the forecasts on television were as reliable. Local farmers contact him to find out when the harvest will be, schools consult him about big days

in their calendar and couples seek his advice for the right weekend to pick for their wedding. Even Clarence House had been in touch, through an intermediary, about Wills' and Kate's big day.

His secret? "It's the little things," he tells the audience. "People look, but they don't see." Afterwards he offered to take me for a walk and show me what he meant.

There's no question David King is a details man. His follow-up e-mail gave instructions about switching platforms at East Croydon ("the train you require is the UCKFIELD train and these go at 23 and 53 minutes past the hour—but after 7pm there are variations") and he tells me what he'll be wearing when we meet ("blue shorts and a T-shirt with a faded blue baseball cap and sunglasses on my head"). He suggested an early visit as he thought the weather would change later in the week. It did.

He lives in Edenbridge, close to Gatwick airport. As we walk down the high street, he explains that the area is a designated flood plain. When too much water flows down from the North Downs, it is retained in the fields round here rather than flooding the homes of people in Tonbridge. For that reason, no building development is allowed. As we follow the River Eden from one spectacular open field to the next, it's as if the whole area has been set aside as a site of special scientific interest.

The walk was like a private natural-history programme. David King pointed out the greengages, sloes, crab apples and hazelnuts, the chiffchaffs and buntings, the swan and the cormorant, and the burdocks and teazles. He described one hedge, full of sloes and nuts, as "like a fridge for the winter". All this bounty, he said, suggested it was going to be a cold, hard winter. "Nature looks after its own." In his view, nature has an intelligence that is working ahead of us. If you know where to look, you can see what's going to happen.

He hadn't heard the cuckoo since Monday (two days earlier), so there was a sign that the warm spell was about to break (as it did). It was important to see how high the birds were flying and how low the flies were keeping. More immediately, he said, pointing up at the mackerel sky, the weather this morning was about to change. I was now looking at the dozen fields around us in an entirely different way—part trainspotter, part Sherlock Holmes.

As we crossed a field of barley he told me meteorologists should get away from their computer screens, step outside and look at the world around them. Hard to argue with that on a beautiful sunny day like this. Scientists at another conference had told him to "put up or shut up". So he sent them his predictions, which were overwhelmingly right. The one factor he couldn't accommodate in his predictions was El Niño. "That's above my pay grade."

After the walk, we go back to his house on a 1960s housing estate. There are vines growing in the small conservatory and his back garden, the size of a caravan, is choc-a-bloc with flowers, herbs and meteorological instruments. He opens his notebook and writes down a dozen details from our walk, such as the time the wind became "noticeable". And then, over a glass of cloudy lemonade, he tells me about his career.

He joined the police in south London when he was 19. It was his work as a copper on the beat that taught him how to notice things, how to talk to people and find things out. For a while, he did nights in a squad car ("a jam sandwich") with another policeman who had been in the RAF, who taught him about the stars, the moon and the sky. His career in the police came to an abrupt end on the day after another royal wedding, that of Charles and Diana in 1981. He was set upon and badly beaten up ("kicked down the street" in his words) when making an arrest. He adds he never let go of the suspect till help had arrived. As soon as the doctor saw him he told him his days as a policeman were over. It took him five years to recover.

It was these two factors—his experience as a policeman and his inability to go very far—that led him to take an interest in his immediate surroundings. He talked to local farmers, found out what was going on, and kept

finding himself disappointed by the weather forecasts. He started taking an almost obsessive interest in weather lore. Now that he's a widower, he'll think nothing of setting off at 6am to drive to Exeter and visit the Met Office library, which opens at ten.

All the readings from his weather instruments in the garden go onto the computer and he feeds the results through to the Met Office. He's part of a wide range of amateur meteorologists whose data helps give the Met Office a denser, richer record of the weather. There have been great figures, from George Washington to Thomas Jefferson, who have been amateur meteorologists, but today this is a hobby with an image problem. Its practitioners tend to be middle-aged and male and have sheds at the end of the garden. As one of the other speakers at the Reading conference said, "I'm not an anorak because..." He paused. "Because..." He paused. "I'm not." But David King is no anorak. Someone should give him a slot on TV.

Robert Butler *is a former theatre critic of the* Independent on Sunday. *He blogs on the arts and the environment at AshdenDirectory.org.uk.*

Illustration *by Kathryn Rathke*

http://moreintelligentlife.com/content/ideas/robert-butler/swallows-and-amateurs

Decision time: How subtle forces shape your choices

- 14 November 2011 by **Kate Douglas**
- Magazine issue 2838

Interpret your gut instincts to help you make the right choice *(Image: Kotryna Zukauskaite)*

Struggling to make your mind up? Interpret your gut instincts to help you make the right choice

DECISION-MAKING was supposed to have been cracked by science long ago. It started in 1654 with an exchange of letters between two eminent French mathematicians, Blaise Pascal and Pierre Fermat. Their insights into games of chance formed the foundation of probability theory. And in the 20th century the ideas were developed into decision theory, an elegant formulation beloved of economists and social scientists today. Decision theory sees humans as "rational optimisers". Given a choice, we weigh up each option, considering its value and probability, and then choose the one with the "highest expected utility".

With your experience of making decisions, you have probably noticed some flaws here. There's the risible idea that humans are rational, and the dubious notion that we would be capable of the on-the-hoof calculations of probability, even if we could access all the necessary information. Decision theory explains how we would make choices if we were logical computers or all-knowing beings. But we're not. We are just rather clever apes with a brain shaped by natural selection to see us through this messy world.

Decision researchers had largely ignored this inconvenient reality, occasionally patching up their theory when experiments revealed exceptions to their rules. But that make-do-and-mend approach may soon change. Earlier this year, an independent institute called the Ernst Strüngmann Forum assembled a group of big-thinking scientists in Frankfurt, Germany, to consider whether we should abandon the old, idealistic decision theory and start afresh with a new, realistic one based on evolutionary principles. The week-long workshop provided a fascinating exploration of the forces that actually shape our decisions: innate biases, emotions, expectations, misconceptions, conformity and other all-too-human factors. While our decision-making may seem inconsistent or occasionally downright perverse, the truly intriguing thing is just how often these seemingly irrational forces help us make the right choice.

We must start by acknowledging that many of our choices are not consciously calculated. Each day we may face between 2500 and 10,000 decisions, ranging from minor concerns about what brand of coffee to drink to the question of who we should marry, and many of these are made in the uncharted depths of the subconscious mind. Indeed, Ap Dijksterhuis at the Radboud University Nijmegen in the Netherlands and colleagues have found that our subconscious thinking is particularly astute when we are faced with difficult

choices such as which house to buy or deciding between two cars with many different features (*Science*, vol 311, p 1005).

What drives these gut feelings? Being inaccessible to conscious examination, the processes are particularly difficult to fathom. One idea is that they are based on heuristics - mental rules of thumb which, applied in appropriate situations, allow us to make fast decisions with minimal cognitive effort. The "recognition heuristic", for example, will direct you to choose a familiar option where there is very little information to go on. The "satisficing heuristic", meanwhile, tells you to pick the first option that meets or exceeds your expectations, when delaying a choice for too long is not in your interests.

Evolution's satnav

Heuristics are shaped by previously successful choices - either hard-wired by evolution or learned through trial and error - so it's no wonder they tend to work. Peter Todd from Indiana University, Bloomington, has shown, for example, that satisficing is a sound basis for choosing a romantic partner (*New Scientist*, 4 September 1999, p 32). The recognition heuristic, meanwhile, may underpin some of your better guesses in multiple choice quizzes. However, some critics doubt whether our subconscious choices really are based on heuristics; they argue that this approach to decision-making would be neither fast nor cognitively simple since we would need a complex mental mechanism to select the correct heuristic to use.

Our emotions may instead be the driving force in subconscious decision-making. We now know that far from being the antithesis of rationality, emotions are actually evolution's satnav, directing us towards choices that have survival benefits. Anger can motivate us to punish a transgressor, for instance, which might help us to maintain social order and group cohesion. So says Peter Hammerstein from Humboldt University of Berlin, Germany, who helped organise the workshop. Disgust, meanwhile, makes us fastidious and moralistic, which should prompt choices that help us avoid disease and shun people who don't play by the rules. And while fear often seems to lead to overreactions, this makes sense when you consider the dangers facing prehistoric humans, says Daniel Nettle from Newcastle University, UK. On that one occasion where a rustle in the bushes really was made by a predator, the less neurotic peers of our ancestors would have paid the ultimate price, failing to pass their laid-back genes on to the next generation (*Personality and Social Psychology Review*, vol 10, p 47).

Heuristics and emotions help us subconsciously focus on what matters. This is just as important when we make conscious decisions. Even the most basic everyday situations are too complex for our brains to compute all the necessary information. Instead, we must simplify.

Gordon Brown at the University of Warwick, UK, argues that we rank alternatives based on cognitively easy, binary comparisons. For example, when deciding whether £2.20 is too much to pay for a cup of coffee, you might recall half a dozen occasions when you paid less and only two when you paid more, leading you to place this particular coffee in the "expensive" category, and choose not to buy it. This so-called "decision by sampling" approach simplifies the options, but it can also lead to bad decisions when the limited information used to rank alternatives is incorrect or based on false beliefs (*Cognitive Psychology*, vol 53, p 1). If, for instance, frequent nights out with boozy friends leads you to conclude that your alcohol consumption is in the top 20 per cent of drinkers, when in fact it falls in the top 1 per cent, you are more likely to decide to ignore the problem. Decision by sampling could even sway your choice when you face more immediate threats: people living in a society with high mortality rates are more likely to decide to put themselves at risk than someone who has had little experience of danger.

That's not very heartening, but Alex Kacelnik at the University of Oxford takes a more optimistic view of our ability to pick and choose the information upon which we base our decisions. "Natural selection allows us to correct our behaviour to do what works," he says. Kacelnik believes the main force influencing decision-making is reinforcement learning. In other words, we learn from experience and favour what has worked in

the past. Nothing controversial there. But, he notes, we are also swayed by our changing internal states - things like hunger, thirst and libido - so that choices are tailored to our needs. Decision theory has long struggled with the problem that people are inconsistent (see "The logic of inconsistency"), but Kacelnik argues that apparent inconsistencies in choice can arise simply because our preferences change according to our needs. "Utility is a moving target," he says. We may not show the "economic rationality" of traditional decision theory but our choices have their own logic, which he calls "biological rationality".

Natural selection can even explain our puzzling propensity to eschew choice altogether and simply follow the herd. Rob Boyd from the University of California, Los Angeles, pointed out at the workshop that we have evolved to learn from others because this is often a wise option. "In most situations it is way beyond an individual's capacity to know the best thing to do," he says. But we are good at recognising who to copy, says Laura Schulz of Massachusetts Institute of Technology who has found that even young children assess the expertise of their "teachers". As a result, our conformist tendencies often lead to surprisingly good choices (*New Scientist*, 1 May 2010, p 40). They allow us to fit in when we start a new school or job and make wise purchases of the latest products without full information on the alternatives. The flip side is that we can also all fall into line with the immoral or illegal behaviour of those around us or be swayed by manipulative leaders.

Consideration of others is yet another aspect of human behaviour that flies in the face of decision theory. There are many situations in which a rational optimiser should not cooperate, since such actions can use up precious resources that we could use to better our own circumstances. From an evolutionary standpoint, it could be argued that some forms of apparent altruism help us to build alliances and improve our standing on the social ladder, but what about the times we overdo cooperation? An anonymous donation to charity, for example, will not boost your reputation or persuade others to help you in your hour of need. In purely evolutionary terms, it is a bad choice. But we do it anyway because the warm glow of altruism, which is evolution's reward to team players, makes us feel good. In effect, we are tricked by a mental glitch. And it is not the only such glitch we possess. Researchers in decision theory have uncovered a variety of mental biases underlying some of our more illogical and arbitrary behaviours (see "Mental glitches that make fools of us").

So what's going on? Have our brains evolved to direct our behaviour in ways that have become maladaptive in the modern world? That should become clear as more decision researchers consider how we actually make up our minds, rather than how we should. Accepting that we are not rational optimisers will make life difficult for economists and anyone searching for a formula for choice, which is why some members of the Frankfurt group were reluctant to abandon decision theory altogether. But a better understanding of the forces that underpin our decisions should help everyone make better choices.

Conformists, for example, might be persuaded to adopt environmentally sustainable habits simply because others already have. Governments wanting us to save up for retirement need to understand why we are so bad at making long-term decisions. And we could all be more aware of the misconceptions and biases shaping our behaviour. The discovery of "decision fatigue", for instance, which makes judges four times more likely to grant bail in the morning than in the afternoon, might persuade you to take more time out when facing a string of tough problems (*Proceedings of the National Academy of Sciences*, DOI: 10.1073/pnas.1018033108). And understanding that the behaviours of your nearest and dearest can bias your view of your own lifestyle might remind you to dig into the facts before you choose to follow or reject a new health regime.

Of all the choices that you face everyday, the decision to try to make better decisions is surely the biggest no-brainer.

Mental glitches that make fools of us

The human brain does not compute options like a rational computer, yet our decisions are often effective. Nevertheless, some of our mental biases are hard to explain.

In novel situations, or ones where information is limited, we have the unfortunate habit of basing decisions on random connections. This so-called anchoring effect was first shown by Daniel Kahneman of Princeton University and the late Amos Tversky, and the consequences can be bemusing. One study found that people asked to write a high number subsequently bid more for items whose value was unknown than people who wrote down a low number.

Kahneman and Tversky also revealed our peculiar attitudes to risk. We tend to be more cautious than is logical when there is the possibility of making large gains or small losses. However, we choose unduly risky options when there is the chance of making a small gain or a large loss. In recent years, our inclination to undervalue rare but catastrophic events has been dubbed the Black Swan effect.

Another factor underpinning some bad decisions is the confirmation bias - our tendency to overemphasise anything that confirms what we already believe. Then there's loss aversion: it feels worse to lose something than to gain the equivalent amount, making us protect what we have rather than take a chance to make a gain. Also, when choosing whether to continue with a venture we irrationally consider the investment we have already made in it - the sunk-cost fallacy. Meanwhile, our short-term bias - temporal discounting - means we tend to prefer smaller rewards now to bigger ones later.

The logic of inconsistency

If you prefer apples to plums, and plums to pears, then given the choice between apples and pears you will obviously pick apples. Or will you? In reality, people fail to show such logical behaviour. This kind of inconsistency, known as intransitivity, has been a headache for mathematicians trying to understand decision-making. But their mistake may have been to think of the human brain as a computer rather than a biological entity that must solve the problem of how to compare apples, pears and plums.

Admittedly, our understanding of what goes on in a brain when it makes a choice is very hazy, as became apparent at an Ernst Strüngmann Forum on decision-making in Frankfurt earlier this year. It is generally agreed that there must be a mental "common currency" for comparing options. What this is, or how it converts into apples, pears, or whatever, is a mystery. However, Nick Chater from the University of Warwick, UK, argues that because the brain lacks time and computing power, it evaluates only a limited number of attributes for each alternative. This process could explain intransitivity, according to cognitive psychologist Danny Oppenheimer of Princeton University.

He believes the brain uses a kind of voting system: different brain areas weigh up the various attributes of apples, pears and plums, say, and compete with each other to have their preference chosen. If there's no clear winner, you might decide on any of the fruit, depending on which region happens to gain the upper hand at that moment (see diagram). Intransitivity could be a by-product of the way our brains work, rather than a trait we have evolved for its own advantage.

Kate Douglas *is an editor at New Scientist*

http://www.newscientist.com/article/mg21228381.800-decision-time-how-subtle-forces-shape-your-choices.html

THE LUCK OF THE IRISH

Flann O'Brien is now acclaimed as one of Ireland's most original novelists but, as Roger Boylan explains, his life was a story of misfortune ...

Special to MORE INTELLIGENT LIFE

Posthumous success is better than no success at all, but it's still rotten luck when the applause erupts only after the curtain has fallen for good. Flann O'Brien was an Irish author who would have turned 100 this October 5th. Bad luck dogged him all his life, and he died unappreciated in 1966. He was so self-effacing and elusive that Brendan Behan, an Irish poet and novelist, said of his contemporary: "You had to look twice to see if he was there at all." But in death O'Brien enjoys a cult following that expresses its devotion in Flann O'Brien pubs, literary conferences, T-shirts and the appearance of one of his books in an episode of the TV series "Lost".

"Flann O'Brien" was the invention of Brian O'Nolan, who used the *nom de plume* as a way to hide his writing from his employers at the Irish Civil Service. (For this reason he also used the name Myles na Gopaleen, or Myles of the Ponies, to write columns in the *Irish Times*—a reference to a character in a 19th-century Irish play by Dion Boucicault.) O'Nolan was confined to speaking and writing in Irish (Gaelic) at home as it was the only tongue countenanced by his nationalist father. But he escaped into English as a child, via the works of Kipling and Conan Doyle, and ultimately preferred the language for his own books. After university, where he performed adequately, he entered the civil service and enjoyed a certain degree of independence until his father died. This promoted him to paterfamilias and sole supporter for his ten siblings, his mother and his wife, Evelyn. Writing was his only escape, which he indulged in the interstices of the job.

Despite the pseudonym, everyone in Dublin's incestuous literary circles knew him. When he started openly mocking the civil service and expressing political opinions—a serious transgression for an employee of the state—he was invited to retire at age 42, in 1953. His pension, together with the slender income from his writing, might have let him succeed as a novelist. But O'Nolan was better at self-sabotage than self-promotion, and he died at 54 of cancer and alcoholism. He still left behind five novels, three of uneven quality

and two, “At Swim-Two-Birds” and “The Third Policeman”, that are among the greatest accomplishments in English-language fiction.

He finished “At Swim-Two-Birds” when he was 28 and sent it off to Longmans, a London publisher, where by a rare stroke of good luck Graham Greene was reader. “I read it with continual excitement, amusement and the kind of glee one experiences when people smash china on the stage,” recalled Greene, who urged publication. From Paris, James Joyce, in a blurb written to help promote the book, pronounced its author “a real writer, with the true comic spirit.” O’Nolan was cautiously optimistic. But the cosmic balance was soon restored. War broke out and in 1940 the Luftwaffe destroyed the London warehouse in which the entire print run of the novel was stored; fewer than 250 had been sold. Then in 1941 Joyce, who had promised to help with publicity, suddenly died, along with O’Nolan’s hopes for the book. “[I]t must be a flop,” he wrote, wallowing in gloom. “I guess it is a bum book anyhow.”

In fact, it’s every bit the masterpiece Greene said it was—a thrilling mix of wild experimentation and traditional Irish storytelling. Stylistically, “At Swim-Two-Birds” runs the gamut from mock-epic—“Finn MacCool was a legendary hero of old Ireland…Each of his thighs was as thick as a horse’s belly, narrowing to a calf as thick as the belly of a foal”—to a kind of arch naturalism—“Having placed in my mouth sufficient bread for three minutes’ chewing, I withdrew my powers of sensual perception and retired into the privacy of my mind…” The narrative is divided into three parts, described with admiration by Jorge Luis Borges: “A student in Dublin writes a novel about the proprietor of a Dublin public house, who writes a novel about the habitués of his pub (among them, the student), who in their turn write novels in which proprietor and student figure along with other writers about other novelists.” It’s an intricate puzzle played for laughs, a novel simultaneously subversive of, and reverent towards, the Irish epic tradition. It was ten years before the Luftwaffe’s draconian edits were reversed and the book was reprinted.

Meanwhile, O’Nolan’s other masterpiece, “The Third Policeman”, which he finished in 1940, had been rejected by his publishers. Intending no compliment, they said that it was even more “fantastic” than “At Swim-Two-Birds”. And so it is—a surreal murder mystery narrated by the murderer. The setting looks like rural Ireland but isn’t; it's an Irish Hell populated by demons in the guise of philosophical country policemen, like Sergeant Pluck, who formulates an atomic theory of the bicycle according to which bicycles and their riders exchange atoms until each consists of parts of the other. The novel’s not a whodunit, because we know from the start that the narrator is the murderer. Nor is it an academic satire, despite the mock-scholarly footnotes about the crackpot theories of a scientist named De Selby (nocturnal darkness is “an insanitary condition of the atmosphere due to accretions of black air”; sleep is “a series of fainting fits”). Rather, the book is a cosmic (and comic) vision of hell and eternity, with its denouement in the afterlife. Like “At Swim-Two-Birds” it parodies traditional narrative form, but does so in an even weirder way, like a cross between “Tristram Shandy”, Dante’s “Inferno”, and “Alice in Wonderland”. It’s one of literature’s few funny nightmares.

But O’Nolan never saw it in print. Too wary of further rejection to send it out again, he told friends it had disappeared: lost on a train, in one version, or blown out of a car by the wind in another. The truth was, it was safe at home atop a sideboard. It stayed there until he died, when his widow Evelyn sent the manuscript to MacGibbon & Kee, who had published his other books. “The Third Policeman” came out in 1967, the year after O'Brien's death, to great acclaim.

In some ways, O’Nolan made his own luck. He nursed a combination of arrogance and self-hatred, exacerbated by booze and a Manichean sense of doom. If he wasn’t despising the critics for not hailing his genius, he was berating himself as a failure on the unrealistic grounds that his arcane, brilliant work never made him rich. He went so far as to confess that thoughts of Margaret Mitchell's novel “Gone With the Wind” kept him awake at night. “I mean,” he said, “the quantity of potatoes earned by the talented lady novelist.” With more self-confidence, O’Nolan could have forced his works onto the attention of publishers and the

public. But he'd lost it, and had none of the glamour or PR talent of contemporaries such as Brendan Behan, J. P. Donleavy and Sean O'Casey.

The novels he did publish were secondary stuff: "The Poor Mouth", a parody of Celtic-revival sentimentality, written in Gaelic; "The Dalkey Archive" (which later gave its name to a publishing house), a heavy-handed comedy in which James Joyce appears as a washed-out Jesuit bartender; and "The Hard Life", an account of the eccentric upbringing of two orphaned brothers. Of the three, "The Poor Mouth" comes closest to the standard of learned, madcap parody that characterizes "At Swim-Two-Birds" and "The Third Policeman". The books sold relatively well, but acclaim was muted. "Seldom has so much promise accomplished so little," wrote the critic Hugh Kenner in 1983 in his book "A Colder Eye: The Modern Irish Writers".

And yet his "little" is a lot, and the best of it is without peer. On the centenary of his birth, Flann O'Brien's genius is finally receiving its due. He would have approved, partly out of pride, but mostly out of respect for the craft. As he once remarked, "Whether a yarn is tall or small I like to hear it well told. I like to meet a man that can take in hand to tell a story and not make a balls of it while he's at it." Despite some knots and frayed edges, O'Brien knew his way with a yarn.

Roger Boylan is a writer based in Texas and the author of "Killoyle" and "The Great Pint-Pulling Olympiad".

Picture credit*: Getty*

http://moreintelligentlife.com/content/arts/roger-boylan/luck-irish

Does This Make My Antenna Look Big?

Researchers mix technology with fashion, analyze a pharaoh's skin condition, measure the smarts of Scrabble players, and more in this edition of Miller-McCune's "Cocktail Napkin."

By Matt Palmquist

(Illustration by Graham Smith)

antennas would be inconspicuous, and even attractive. People would want to wear them."

That's John Volakis, a professor at Ohio State University, trying to convince fashionistas that radio antennae incorporated into clothing, using plastic film and metallic thread — for cell phone, Internet, and emergency care access, much like soldiers' uniforms already have — is the next wave in fashion. This, of course, gives new meaning to the term wireless bra.

Looks That Kill

Talk about a cold case: The Egyptian pharaoh Hatshepsut could have been killed by her own medication. So says a pair of scientists at the University of Bonn, in Germany. Their research revealed that a vial belonging to the pharoah — who lived around 1450 B.C. — that was thought to contain perfume, turns out to have held lotion to treat a chronic skin disease. And that lotion was laced with carcinogens.

CAT scans confirmed that the residue of a dried-up liquid in the vessel comprised a greasy mixture of palm and nutmeg oils — unlikely perfume ingredients. "I didn't think anybody would put so much grease on her face," said Helmut Wiedenfeld, one of the Egyptologists studying the pharoah's tomb. "That would make her look as greasy as a plate of ribs."

Scientists believe the substance was used to to soothe the itchiness of eczema — a condition that ran in the pharaoh's family. But the bottle contained high levels of benzopyrene — "one of the most dangerous carcinogenic substances we know," says Wiedenfeld, and the substance that makes cigarettes so dangerous.

So was the pharaoh unwittingly poisoning herself? The German researchers lean toward saying yes, because Hatshepsut died of cancer, which could have resulted from years of applying the dangerous salve. "Egyptian physicians were general practitioners and good surgeons," Wiedenfeld allowed, "but they were lousy internists."

Science Fiction, or Science?
"The drop-off in both gas availability and star formation seems to have started around the time that Dark Energy took control of the Universe."

So says Robert Braun, of Australia's national Commonwealth Scientific and Industrial Research Organization. His work focuses on how dwindling levels of molecular hydrogen gas have led to a decline in the formation of new stars. Because we don't have enough to worry about.

What Do We Know?
There are two ways of playing Scrabble: using words everybody knows, or stringing together obscure words that will only ever be uttered in connection with Scrabble. As in: "*Qat*. Triple word score!"

In this age of digital dictionaries, when strings of three-letter words beginning with high-scoring Qs and Xs are just a click away, serious Scrabblers are relying more and more on the esoteric. But now researchers at the University of Calgary have confirmed: competitive Scrabble players are smart and all, but they don't know *qat*.

The researchers explain that competitive players, poring over the Official Tournament and Club Word List, can process language faster and better recognize words. But Scrabble players were able to distinguish English words from gibberish 20 percent faster than nonplayers. Ian Hargreaves, the lead researcher, goes on: In the past, "the meaning of the word would have a bigger impact on a person's decision about whether or not it is a true word. … Scrabble players don't tend to emphasize what the words mean."

Oh, *qat*? It's basically Yemeni tobacco, partaken of primarily in social settings and somewhat addictive. You know, kind of like Scrabble.

From the "So Many Questions" File:
A recent edition of the journal *Crisis* featured a paper by Antonio Preti titled "Do Animals Commit Suicide? Does It Matter?"

http://www.miller-mccune.com/science/does-this-make-my-antenna-look-big-37697/

DARKNESS VISIBLE

Simon Willis explores Rembrandt's influence on Francis Bacon at "Irrational Marks", an exhibition at Ordovas in London ...

Special to MORE INTELLIGENT LIFE

In 1962 Irving Penn, an American photographer, went to visit Francis Bacon at his studio in London to make a portrait of him. The photograph he took shows Bacon clasping the front of his dark shirt and gazing up and away. Hanging on the wall behind his right shoulder, bent and creased and covered in paint, is a reproduction of a sombre, unfinished painting by Rembrandt, "Self-portrait with Beret" (pictured below), from about 1659.

Bacon's debt to Rembrandt's self-portraits is the subject of "Irrational Marks", the first show at Ordovas, a new gallery on Savile Row in London. Pilar Ordovás, the gallery's owner is something of an art-world wunderkind, responsible for the sale of Lucian Freud's "Benefits Supervisor Sleeping" for £21m in 2008. She has also managed Gagosian in London, and handled the estate of Valerie Beeston, who worked with Francis Bacon at the Marlborough Gallery. This exhibition shows intent: to put on contemplative considered exhibitions, as well as to be an art boutique with commercial clout.

The exhibition is tiny and tightly focused. On the ground floor there are just six works by Bacon, including two triptychs, along with the Rembrandt painting he liked so much and Penn's photograph. Downstairs in the basement are three working documents from Bacon's studio—all reproductions of Rembrandt self-portraits—and a short excerpt from "Sunday Night Francis Bacon", a film from 1966 in which the painter speaks to David Sylvester, an art critic.

Bacon revered "Self-portrait with Beret". It is an exercise in shadow and texture. The rough ruddiness of Rembrandt's ageing cheek is no more than a patch of vertical lines scratched into the paint; his coarsened and wrinkled forehead crafted from layers of thick impasto in pale yellow and mottled red. Sections are left unpainted, allowing the ground colour to contrast with the brown pigments in a play of light and dark. But it was the eyes that fascinated Bacon. In the interview with Sylvester he says "If you analyse it, you will see that there are hardly any sockets to the eyes, that it is almost completely anti-illustrational."

Rembrandt made more than 90 pictures of himself during his life, from the early etchings of the 1630s, which show him gurning with laughter, anger and surprise, to the last self-portrait of 1669, the year he died. It is telling that Bacon fixated on an unfinished picture so spare in detail but so rich in character. What Bacon loved about Rembrandt's self-portraits was what he called the "tightrope walk" between the abstract and figurative. The paint remains paint. It doesn't disappear into what it depicts. Nevertheless, there is Rembrandt staring out implacably, sceptically. The feeling one has standing in front of the painting is that it is full of self-appraisal. This is a dialogue of a great painter with himself. If it could speak it would never use a long word, but each short one would go to the heart.

Bacon was a slicer and a dicer. The portraits and self-portraits on show here are eruptions of violence and damage. In "Study for Self-Portrait" from 1964 (pictured, top), the face is a mangle of red, white and black with dabs of green and yellow, thick swirls of impasto and striations made by pressing corduroy into the wet surface. On one side, the face has been carved away entirely. By the time he painted the triptych "Three Studies for Self-Portrait" in 1975, Bacon was depicting himself with great incisions in his cheeks and jaw, and with circular holes bored into his throat. These darkly beautiful paintings are dramas of flayed flesh and the frayed psyche, but he walks the same high-wire as Rembrandt, pushing appearance as far as it will go in pursuit of the inner life, but never beyond recognisability.

The paintings by Bacon are all from private collections. The Rembrandt hangs in the Musée Granet in Aix-en-Provence in France—it was last seen in Britain 12 years ago at the National Gallery. This exhibition is a rare chance to see these paintings, all shockingly compulsive and rich in psychological flare. In fact, they are so good you're left wanting more. It is a frustratingly narrow show, representing a 13-year slice of Bacon's work as a portraitist. In "Study for Self-Portrait" from 1973, a watch face in the bottom left-hand corner reads 7.20. Both Bacon and Rembrandt were fascinated by ageing and mortality. This exhibition would have been bolstered by earlier and later work showing the span of Bacon's changing conception of himself.

But despite its limitations, this show is wonderfully suggestive of Bacon's cannibalism as a painter. As Ms Ordovás says in her catalogue introduction, Bacon was a "magpie", pillaging from an astonishing array of sources. The most playful piece in the show is a document from Bacon's studio (pictured right), where he has pinned together a fragment of Rembrandt's "Self-Portrait at the Easel" from 1660 which he'd torn from a book, with part of a photograph of "Papa" Jimmy Yancey, a jazz pianist. In the short film Bacon shows off a number of paint-spattered images—of Marilyn Monroe, of Hitler, of the gestures of chimpanzees and, lastly, of "Self-portrait with Beret". Every object in his studio was there to be used, and every image there to be digested. Rembrandt may have been Bacon's companion, but he had to elbow for room among many others.

"Irrational Marks: Bacon and Rembrandt" is on show at Ordovas in London until December 16th

Simon Willis *is sub-editor at* Intelligent Life.

http://moreintelligentlife.com/content/arts/simon-willis/darkness-visible

The future of online advertising

Nov 14, 2011 01:24 EST

I gave a talk on Thursday at the AppNexus Summit in front of a few hundred digital advertising types. The first part of the talk was a macro overview, but when the Q&A session started, all that anybody wanted to talk about was my take on online media. And given how granular the discussions over the course of the rest of the day were going to be, I wanted to push back a bit against some of the unexamined assumptions which I encounter most of the time when I meet online-media people.

The first is that there's something necessary and inevitable about ad-driven models dominating the online media industry. That's certainly how things have worked out to date, but there was nothing inevitable about it. From the very early days of the World Wide Web, many extremely smart people pushed very hard to develop a workable micropayments architecture online. Ads looked like a non-starter: as Gary Wolf put it in his history of *Wired*, "the computer screen was low resolution; the ads themselves were tiny, and they disappeared as soon as the user scrolled down". A few sponsors would buy ads in order to understand the new medium, but there was never anything particularly promising in online banners.

Meanwhile, people were happily paying small sums for newspapers, for magazines, for coffee, for any number of fast-moving consumer goods. And websites were about as fast-moving a consumer good as the world had. A simple and painless online payments system was clearly the way that the web was going to make money. The only problem was — and is — that the payments world is old, and slow, and very resistant to change; rumor has it that Mastercard actually twisted Marc Andreessen's arm so that he would remove his <payments> tag from the early versions of the Mozilla browser.

With the US payments system being stuck on ACH for the foreseeable future, payments online have been clunky and unwieldy, based around expensive and cartelized credit-card transactions; the only real competitor, PayPal, is a for-profit company, a wholly-owned subsidiary of eBay which doesn't clear at par and which has many other obstacles to being adopted as a broad-based payments architecture.

So one of the big reasons why online advertising has done so well is simply the negative one: online micropayments were a disaster, and never took off. But they're much more compelling as a business model, and there's a decent chance that at some point in the future the financial system as a whole is going to get its act together and put together something which actually works and which people are happy to adopt. At which point, the online ad industry will face a major threat.

My second point was that black-hat SEO advertisers, like the ones who got in touch with Hamilton Nolan last month, do at least serve one purpose: they show just how valuable simple links — as opposed to expensive branded ad campaigns — can be. Hamilton was being asked to insert links into blog posts he was writing; more recently, I got an email from someone named "Whitney Meyer" offering me $50 every time I added a link to an *old* post of mine. Google's PageRank algorithm is a lot more sophisticated than it used to be, but the fact is that it still gives enormous weight to who's linking to whom, for very good reason. Links are what the web is built on, and a large part of why it's so incredibly powerful and popular.

Finally, after the obligatory plug for Counterparties, I laid out my vision of what online advertising could be. Check out the front page of Reuters.com: we have what is basically an ad unit at the bottom of the right-hand column which acts as an ad for Counterparties. It's got Counterparties branding, but the meat of it is four links to four different external sites. (As I write this, they're the NYT, the Guardian, the Economist, and the Huffington Post.) We *want* you to click on those links; when you do, you leave Reuters.com, and you don't go to Counterparties.com. Instead, you go directly to HuffPo, or wherever. Reuters gets no traffic when you click on that link: indeed, we're sending you away. That's a *good* thing: we're providing a valuable service

for our readers, pointing them to great content. If you believe in putting the audience's needs first, this kind of thing is a no-brainer.

What we have cobbled together is something really rather novel: an ad unit that smart readers actually *want* to click on. I've been looking at ads online for over 15 years now, and I've never wanted to click on one, with the exception of a handful of very bloggish sponsored posts at Gawker Media, which were interspersed seamlessly between inferior original editorial posts. It's a known fact in advertising circles that only idiots click on ads — and yet advertisers still think that click-through rates mean something, and that a higher click-through rate means a better ad. It's the measurement fallacy: people tend to think that what they can measure is what they want, just because they can measure it. And it's endemic in the online advertising industry.

In fact, with very few exceptions, I've never even wanted to *look* at online ads: its quite astonishing, the degree to which we've collectively trained ourselves to ignore ads when we bring up a web page. And what that says to me is that online advertising is missing something really huge.

At one point in the Q&A session, I asked the audience to raise their hands if they read *Vogue* magazine; maybe three or four people, in a crowd a hundred times that size, did so. Most of the people in the audience literally *didn't know* that when people buy *Vogue*, they *want* to read the ads; in a very real sense, the editorial is something which just gets in the way.

Leaf through a glossy fashion magazine like *Vogue*, and you'll find dozens of pages of ads at the front of the book, with basically zero editorial content to break them up. If advertisers thought that readers only looked at ads insofar as they were adjacent to editorial, then they would ask for placement opposite editorial. But that's not what happens: the ads all cluster at the front, the editorial gets relegated to the back, and readers spend more time looking at ads than they do looking at editorial features. In fact, the most avid readers of the editorial shoots are the *advertisers*, who use them for ideas when they're planning their next campaign.

Vogue is a prime example of the power of advertising: if, as an advertiser, you know how to give people something they want, then you don't need to rely on second-best stratagems like adjacency. And no one ever clicked on an ad in *Vogue*. Which is one reason why Gawker's former ad chief Chris Batty once proposed that all ads on Gawker Media should be images only, and not clickable at all — it would force advertisers to create something good, instead of chasing after clicks from idiots.

Because it's so easy to measure things like impressions and click-through rates, the online ad industry has missed the real power that advertising can have, and its practitioners tend to sneer at old-media ad money as being largely wasted, in contrast to the carefully quantified campaigns one sees online. One questioner at the conference proposed that ad spend could soon be counted simply as a cost of goods sold in accounting statements, since technology had made the relationship between adspend and sales so transparent.

But there's something very powerful about brand advertising — something which helps explain why so much more money still gets poured into TV ads rather than online campaigns. Part of it is that TV ads are glossier and more self-contained, not competing for attention with simultaneous editorial content. And another part of it is that Americans have demonstrated quite clearly that they prefer lean-back to lean-forwards: cable TV is still a higher priority for the vast majority of the country than is broadband access. And the content they prefer to ingest in a lean-back way includes advertising.

So what's an advertiser to do, online? My idea is to move away from the idea of getting people to click on ads, but at the same time to treat with suspicion the idea that it's possible to deliver a beautiful, self-contained brand proposition online in the same way that you can in *Vogue* or on TV.

Instead, take a leaf out of the book of sites which really have generated a huge amount of loyalty online — sites like Drudge, or Reddit, or Techmeme, or Fark, or any number of other aggregators and curators with enormous followings. Millions of people *love* these sites, and visit them with astonishing regularity. Why? Because they send them to fantastic third-party content.

It's easy to create an ad unit which is primarily links to third-party sites; I'm sure with a bit of effort and creativity you could put one together which is even better than the Counterparties unit on Reuters.com. Start placing that ad over the web, and people will, for the first time, actually have a reason to want to look at your ad; when they see it, they're even likely to click on it! Sure, that click won't take them to your site — but it's still a great measure of engagement. And they will love you for sending them to great content.

And what if it's too hard for you to put together a dynamically-updated list of great content to link to? In that case, you could always ask the people who do it well if they'd be willing to put together a white-label version of their own links for you. The Browser might be a good place to start — or you could even ask us at Counterparties. And our partners at Percolate are already doing something similar for corporate clients. Here's how they put it:

In a digital world, we believe brands can be signals. Pointing consumers to valuable information that is not necessarily about the brand directly, but speaks to the brand promise and consumer mindset.

I'm not saying that online advertisers should drop everything and just start linking to third-party sites. But I *am* saying that it's worth a try — it's an idea worth experimenting with. If you do it, and you start getting lots of positive feedback from consumers, you're probably doing something right. And you might just have discovered a way to build your brand online, even if you're not necessarily a particularly digital company.

http://blogs.reuters.com/felix-salmon/2011/11/14/the-future-of-online-advertising/

EXPLODING THE MYTH

The Pruitt-Igoe housing project in St Louis, Missouri, was built during the post-war boom. A new film explores why it all came crashing down ...

From THE ECONOMIST online

The film-makers behind "The Pruitt-Igoe Myth" confronted a formidable task: to strip away the layers of a narrative so familiar that even they themselves believed it when they first set out to make their documentary. Erected in St Louis, Missouri, in the early 1950s, at a time of postwar prosperity and optimism, the massive Pruitt-Igoe housing project soon became a notorious symbol of failed public policy and architectural hubris, its 33 towers razed a mere two decades later. Such symbolism found its most immediate expression in the iconic image of an imploding building, the first of Pruitt-Igoe's towers to be demolished in 1972 (it was featured in the cult film "Koyaanisqatsi", with Philip Glass's score murmuring in the background). The spectacle was as powerful politically as it was visually, locating the failure of Pruitt-Igoe within the buildings themselves—in their design and in their mission.

The scale of the project made it conspicuous from the get-go: 33 buildings, 11 storeys each, arranged across a sprawling, 57 acres in the poor DeSoto-Carr neighbourhood on the north side of St Louis. The complex was supposed to put the modernist ideals of Le Corbusier into action; at the time, Architectural Forum ran a story praising the plan to replace "ramshackle houses jammed with people—and rats" in the city's downtown with "vertical neighbourhoods for poor people." The main architect was Minoru Yamasaki, who would go on to design another monument to modernism that would also be destroyed, but for very different reasons, and under very different circumstances: his World Trade Centre went up in the early 1970s, right around the time that Pruitt-Igoe was pulled down.

The promise of Pruitt-Igoe's early years was swiftly overtaken by a grim reality. Occupancy peaked at 91% in 1957, and from there began its precipitous decline. By the late 1960s the buildings had been denuded of its residents, the number of windows broken to the point where it was possible to see straight through to the other

side. The residents that remained had to act tough for the chance to come and go unmolested. Critics of modernist architecture were quick to seize on the design of the buildings, arguing that such forward-thinking features as skip-stop elevators, which stopped only at the first, fourth, seventh and tenth floors, were wholly unsuitable and ultimately dangerous. Designed to encourage residents to mingle in the long galleries and staircases, the elevators instead created perfect opportunities for muggings. Charles Jencks, an architectural theorist, declared July 15th 1972, when Pruitt-Igoe was "given the final *coup de grâce* by dynamite", the day that "Modern Architecture died".

Directed by Chad Freidrichs and currently travelling the American film-festival circuit, "The Pruitt-Igoe Myth" complicates that picture by considering the larger context. The city of St Louis was undergoing its own postwar transformations, to which a project such as Pruitt-Igoe was particularly vulnerable. The city's industrial base was moving elsewhere, as were its residents: over a short period of 30 years, the population of St Louis had shrivelled to a mere 50% of its postwar highs. The Housing Act of 1949 encouraged contradictory policies, offering incentives for urban renewal projects as well as subsidies for moving to the suburbs. Federal money flowed into the construction of the projects, but the maintenance fees were to come from the tenants' rents; the declining occupancy rate set off a vicious circle, and money that was dearly needed for safety and upkeep simply wasn't there.

Abstract policy decisions and large-scale economic changes are difficult to render compelling, no matter the medium, but this documentary succeeds in finding the drama. Original footage from Pruitt-Igoe's early days, including a promotional reel replete with a buoyant, 1950s-era voiceover and cheerful primary colours, runs up against desolate photographs of the project's decline. The film also features interviews with several former residents of Pruitt-Igoe, who convey their hopefulness when they first moved in, as well as an affection for the buildings that for many of them persists to this day.

In their eagerness to challenge the Pruitt-Igoe myth, the filmmakers verge on suggesting that the design of the buildings had nothing at all to do with the failure that ensued. But critics of High Modernism can point to the counter-example of Carr Square Village, a low-rise housing project built in 1942 across the street, which didn't suffer from Pruitt-Igoe's escalating rates of vacancy and crime. Clearly many factors—economic, demographic, political and, arguably, architectural—converged on Pruitt-Igoe.

"The Pruitt-Igoe Myth" owes much to earlier academic work that exposed the seams in the dominant consensus. This eight-page paper by Katharine Bristol, published in the Journal of Architectural Education in 1991, offers more analytical rigour than could be captured in an 84-minute film. The difference, of course, is that the documentary carries a more visceral punch, which gives it the potential to reach the kind of wider audience that Ms Bristol's 20-year-old scholarly paper never had. In order to unseat a powerful narrative about the failure of modern architecture and public housing, the filmmakers have offered a powerful narrative of their own.

***Picture credit**: pruitt-igoe.com*

http://moreintelligentlife.com/content/arts/exploding-myth

Gay Neighbors Impact Property Values

New research finds an increase in same-sex couples can nudge home prices either up or down depending on the political orientation of the neighborhood.

By Tom Jacobs

Do gay people have an effect on property values? The answer is yes — in both increases and decreases. New research suggests that sociopolitical attitudes toward same-sex-couple households and home prices are linked to how liberal or conservative a neighborhood is. (Jupiterimages)

When gay people move into a neighborhood, do property values go down?

Newly published research suggests the answer is yes — but only for neighborhoods with negative attitudes toward gay people.

A look at sociopolitical attitudes and home prices in a major Ohio city finds "an increase in the number of same-sex-couple households is associated with an increase in house prices in more liberal neighborhoods, and a decrease in house prices in more conservative neighborhoods.

"This suggests that gay and lesbian coupled households do experience prejudice in conservative neighborhoods," economists David Christafore and Susane Leguizamon report in the *Journal of Urban Economics.*

Using data from before the 2008 economic crash (and subsequent plunge in housing prices), the researchers focused on the Columbus, Ohio, metropolitan area, which they broke down into neighborhoods using census tracts.

They examined the number of same-sex, unmarried partner households (as reported in the 2000 census); housing prices, taken from a data set of 20,027 real estate transactions; and the percentage of Ohioans who voted for the Defense of Marriage Act ballot initiative in the 2004 election. That vote ranged widely from one census tract to another, from a low of 31 percent approval to a high of 85 percent.

"The act stated that a marriage could only be entered into by one man and one woman, and negated legal recognition of same-sex marriages which occurred in other states," they write. "A higher percentage of households voting in favor of DOMA is used as a proxy for whether the area is more socially conservative, while a lower percentage is used as a designation of a more socially liberal area."

The economists found "an increase in the number of same-sex households is associated with an increase in house prices for liberal areas" — that is, for neighborhoods where the vote for DOMA did not exceed 59.5 percent. In contrast, for areas that voted heavily in favor of the act, an increase in same-sex households was associated with "a reduction in housing prices."

In very conservative neighborhoods — those where an overwhelming majority voted in favor of DOMA — an increase in the number of same-sex households is associated with a 1 percent reduction in housing prices. In very liberal neighborhoods, the reverse is true; an increase in same-sex households is associated with a 1.1 percent increase in home prices.

Breaking the numbers down further, the researchers found an increase in lesbian households had an "insignificant effect" on home prices. That means this effect — both positive and negative — is triggered by households headed by gay men.

Christafor and Leguizamon's research puts into context a provocative 2009 paper by Richard Florida and Charlotta Mellander, which found home values are higher in cities with large numbers of "artists, bohemians and gays." Those authors argued that an open, accepting culture helps promote a region's economic growth.

That may be true. But as this research reminds us, housing prices — and levels of openness — vary considerably not only from one metropolitan area to another, but also from one neighborhood to another.

So, perhaps there is a literal price to be paid for holding onto an attitude of intolerance. This study suggests a homeowner's homophobia — if it reflects the attitudes of his neighbors — could end up lowering the value of his property.

http://www.miller-mccune.com/culture/gay-neighbors-impact-property-values-37507/

COOL UNDER FIRE

In Afghanistan not even the museum pieces are safe. Rory Stewart, writer, explorer and politician, returns to Kabul to capture the perilous existence—and enduring power—of its treasures ...

From INTELLGENT LIFE magazine, September/October 2011

Two vast and mostly trunkless legs of stone stand in the hall; near them sits a shattered Bodhisattva, whose hunched shoulders and sorrowful gaze are the work of an Afghan sculptor from 1,700 years ago. In 2001, the Taliban broke it into a hundred pieces. And the Bodhisattva seems to be mourning all the cracks and plaster joints of its reconstruction.

It is difficult not to write about the Kabul Museum as a lament, and perhaps it was ever thus. The single white marble door on your left as you enter probably comes from the Kabul bazaar, burnt by the British in 1842 in revenge for their humiliation in the first Anglo-Afghan war, or from the Royal Palace in the Bala Hissar, destroyed in 1880 during the second British occupation. The museum bears the scars of the rocket that hit it in the spring of 1993; and of the militias who broke into the storeroom the following autumn, ransacking the cases, burning the records and removing most of the collection.

And yet it is not a depressing place. I first saw it at the beginning of 2002. I had walked from Herat to Kabul that winter. I had seen hundreds of pickaxe-wielding villagers, directed by Pakistani traders, uncovering, looting and destroying the ancient city of the Turquoise Mountain, the lost Afghan capital of the Middle Ages. The Taliban had just blown up two monumental Buddhas that had stood, carved into the side of a cliff in the Bamiyan Valley, since the sixth century. I found new craters, left by looters, on mountain ridges at 11,000 feet. In this country of isolated hamlets, the life expectancy was 37, literacy rates in the south were 8%, and archaeological looting had become a common occupation, along with heroin production and mercenary fighting.

Central Kabul seemed like one extended security checkpoint. You were stopped by men who ripped car doors open and pointed their rifles at passengers. You found roads narrowing suddenly into tunnels of sandbags, or closed altogether by concrete blast walls. You were pushed off the street by armoured vehicles with blaring sirens, by embassy convoys, by militias in pick-up trucks.

But the wide, five-mile boulevard leading south-west to the Kabul Museum took one back into a more peaceful nation. You could see the snow peaks on either side. Men, oblivious to the traffic, sat back on empty carts, pulled by ambling donkeys. This had been the first paved road in the country. King Amanullah had driven his seven Rolls-Royces down it in the 1920s, and although, since then, the avenue of plane trees had been cut for firewood, it was still paved. At the end of the boulevard, framed by 15,000-foot peaks and facing the museum, was his great ruined palace of Darul Aman—"the place of peace".

The museum was not surrounded, like a NATO base, with razor wire and blast walls. Nor was it one of the garish palaces of the new Afghan rich, with bulging filigree balconies and pink cupolas. Nor, again, was it covered with the green tiles favoured by drug barons and warlords, contractors and ministers. Instead, here was a two-storey 1930s villa, with walls of muted grey pebbledash and a small line of white plaster decoration beneath the roof. Outside it in a shed stood two 1950s American cars, partially concealed by brown canvas sheets. And a railway engine, for a railway that does not exist.

Littered with stone capitals, the narrow dusty path leading to the entrance had remained unchanged since the piratical Hungarian archaeologist Sir Aurel Stein visited in 1943 (he died in Kabul at the age of 80 and is buried in the British cemetery). The glass of the ticket booth was plastered with fading postcards. In the tattered pile behind the desk were brochures produced during the Soviet occupation of the 1980s, or President Daud's regime in the 1970s, or even under the old monarchy. And the two ladies sitting in the booth seemed to have been there through all those years, always in half-darkness, finishing their lunch, surprised to be asked for a ticket.

Since that first visit, $300 billion has been spent on Afghanistan by the international community, but nothing has changed in the museum. The ladies are still finishing their lunch. The pieces on the first floor and the landing do not seem so much displayed as left in situ, as though exposed in some archaeological site. There are none of the tricks of the modern curator. You do not enter a hushed dark hall, with a few things picked out in muted lighting. There are no hidden spotlights, encouraging you to see each piece as a symbol of the mystery and the wisdom of the ancients. The exhibits stand, in full daylight, in a small, white-walled hall. The headless statue of Kanishka, in his vast felt boots and pleated trousers, has been smashed, repaired and placed back in almost exactly the same position in which he stood in 1976. There are no artfully chosen colour schemes, no old quotations or illustrated maps, no provocative juxtapositions, interpretative panels, audio-guides or glossy catalogues. Often, there are no signs at all. And there are rarely any visitors.

The foreign diplomats, NGO workers and 10,000 consultants in Kabul are paid by employers who insist on bodyguards for most trips and view cultural visits as an unnecessary indulgence. And while, elsewhere in the city, Afghans are enjoying the return of culture—a reading of Rumi's poetry can fill a garden with silent men and women cross-legged on carpets, and Sufi music attracts huge crowds—they are only slowly beginning to value and visit their museum.

Only one piece on the ground floor—the Bodhisattva—is in a glass case. The others do not seem so much art as hefted facts. The half-chipped mihrab seems to trail plaster dust. The basin in the front hall is also dusty; but nothing can subdue the gleam of the cold black marble. It is nearly eight foot in circumference, carved with lotus blossoms below, suggesting that it was once a Buddhist basin, and a fading Kufic inscription above, recording its re-use in a medieval seminary in Kandahar.

You can smell the cedar of the old statues from the pagan culture of north-eastern Afghanistan on the first-floor landing. At the end of the long room, dimly lit through faded, dusty curtains, is a figure with skinny legs, a flat face and a perfunctory attempt at a sword, astride a crude, simplified horse. The deodar tree from which he was carved must have been nine foot in diameter, and perhaps preceded the arrival of Islam, not just in Nuristan but in South Asia.

Most of these hero statues were destroyed when Nuristan was conquered and forcibly converted to Islam in the 1890s. A hundred years later, they were smashed by the mujahideen (including groups in the current government), and then repaired. Then smashed again by the Taliban, and again repaired. But what you notice is not the roughness of the iconoclasts, but of the sculptors. Most pieces bear the brutal marks of the rough adze. Only the great ball of the mounted figure's stomach is smooth.

But the revelation when I visited in the spring was the new exhibition on the second floor. Here foreign curators have worked with the Afghan staff to paint the walls a subdued red, and to introduce glass cases displaying a series of small sculptures only recently excavated. Here, too, is carving in ancient aromatic cedar, but there are no marks of adze or chisel, and no comical proportions. They remind us that almost 2,000 years before the Nuristani statues were carved, Afghan craftsmen were producing Buddhas in wood and stone, in bronze and terracotta and gold leaf: delicate, naturalistic pieces, perfectly finished, whose serene human faces changed Asian art for ever. And gathered together they shift our whole perception of second-century Afghanistan.

They come from the time of the Yue-chih dynasty, which can often seem the epitome of barbarian vulgarity. These steppe horsemen crushed the last surviving successors of Alexander the Great, overthrew the Greek theatres and left the inscription from the oracle of Delphi in ruins. Even their attempts at civilisation, finance, faith and art can seem farcical. On their coinage, fine Macedonian heads are replaced by cartoon figures in baggy boots, and the script is a nonsense of back-to-front Greek letters, etched by illiterates. The coins display 50 different deities from Hercules to Shiva's bull, Nandi, with little sign of theological discrimination. And the fine treasures found near their palace at Begram are imports—Chinese lacquer, glass from Alexandria, sinuous ivories of dancing maidens from India—which may simply have been heaped in a storehouse, on the trade route.

But in this small, second-floor room, the supposedly barbarian kingdom stands revealed as one of the great, and most puzzling, of the ancient civilisations. The pieces are from Mes Aynak, 25 miles south-east of Kabul, where archaeologists have just uncovered a complex of second-century Buddhist religious sites with an astonishing depth of faith and artistry. The figures at the base of these Indian-featured Buddhas wear Macedonian skirts and Persian beards. The gold leaf has fallen off the nose of the figure in the corner, but his heavy-lidded gaze is intact and his serenity still challenges the unbeliever. The sandstone Buddha leans towards you, hand turning in energetic benediction. This is Buddhism with a very distinct and dignified

Afghan form. Where else in the world does one see such solid standing Buddhas, legs firmly planted on broad toes, with the sharp waves of draperies in movement? Where else would one find a naked man beside the Buddha? Or a seated Bodhisattva in black schist with a wrinkled lip and a free nomad's swagger?

These pieces, found among 1,000 acres of monasteries and stupas between Himalayan peaks, are hundreds of years older than the Buddhism of Tibet. They are among the very first human depictions of the Buddha, and belong to the early crest of a great missionary Buddhism that was eventually to push west to Iran and north through Central Asia to Japan. Archaeologists working at the site have found a stupa 50 feet high, a 20-foot Buddha, half-buried in the earth, and a reclining Buddha so vast that it fills an image hall. There are fragments of frescoes, gold and lapis-lazuli blue, on the earth walls of the monasteries. And they are under threat not from the Taliban but from the international community. The Chinese government, with international support, will soon bulldoze and dynamite the entire site of Mes Aynak to create a copper mine. The French archaeological delegation is working with Afghans to try to salvage what they can before the site becomes a crater.

But as Mes Aynak disappears, the Kabul Museum will, I believe, survive. It endures ultimately because it is a deeply Afghan institution. The director, Dr Omar Khan Masudi, has been in place, in his pin-striped suit, since 1978. He did not leave during the civil war, when an Afghan antiquity could sell for over $100,000 in Peshawar. He was one of the few who knew where the Bactrian Treasure, the extraordinary hoard of gold ornaments discovered in northern Afghanistan shortly before the Soviet invasion, had been hidden; and he kept the secret for nine years when many thought it had been stolen. Since the American-led invasion, he has resisted new temptations: the chance to be outside the country for much of the year accompanying travelling exhibitions to Europe, or to take up a fellowship at an Ivy League university. And he patiently absorbs the blandishments, arrogance and bewilderment of the international agencies, pressing to transform Afghanistan

and the museum with it. I have seen him in San Francisco and London, but somehow, whenever I return to Kabul, there he is, moving slowly through the halls of the museum.

Over green tea and walnuts in his office, I ask Masudi what he thinks about the imminent destruction of Mes Aynak. He looks back at me through his tinted glasses and refuses to be drawn. It has been ordained that Afghanistan needs foreign currency, and that the copper mine is the answer. Foreigners who would not contemplate dynamiting Westminster Abbey for a lithium store, or the Parthenon for tin, feel that destroying the last remains of one of the great lost civilisations is justifiable if it produces income for the Afghan exchequer. This is, after all, only Afghanistan: what does it matter? But the Kabul Museum, with its empty galleries, its quiet displays and its loyal staff, stands as a reminder of older values, of an attitude to the past that we too once shared.

National Kabul Museum *Darulaman, 8km south of Kabul city centre. Open Monday to Sunday from 9am to 2.30pm. Admission AFN100 (approx£1.50/€1.60), children under ten free*

Picture credit: *Hossein Fatemi*

Rory Stewart *is MP for Penrith and the Border, former senior coalition official in Iraq, and author of "The Places in Between" and "The Prince of the Marshes".*

http://moreintelligentlife.com/content/places/cool-under-fire?page=full

Network theory reveals patterns in Supreme Court votes

- 22:27 09 November 2011 by **Peter Aldhous**
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The nine members of the US Supreme Court show patterns of common voting that have allowed researchers using network theory to guess how individual justices would have voted in past cases with an accuracy of up to 83 per cent.

Roger Guimerà and Marta Sales-Pardo of Rovira i Virgili University in Tarragona, Spain, study complex systems, such as the metabolism of living cells, by considering them as networks of interacting components.

Data on some components is often missing, which requires the development of algorithms that can fill in the gaps. Applying such algorithms to Supreme Court rulings between 1953 and 2004, the researchers were able to predict the behaviour of individual justices in particular cases.

Because the algorithm depends on knowing the votes of other justices in the same case, it can't predict the outcome of rulings that have yet to be made. But it has turned up one puzzling finding: as a whole, the Supreme Court seems to be less predictable when a Democrat is in the White House.

Presidential puzzle

The Supreme Court is widely seen as being divided into liberal and conservative factions, and activists on either side of the political spectrum accuse justices of the opposite persuasion of making predictable decisions based on ideology, rather than the legal details of each case.

Guimerà and Sales-Pardo's model requires no information about justices' political leanings and the nature of the cases involved, and considers any patterns of common voting – which may or may not be influenced by ideology.

However, the researchers were able to ask whether justices appointed by Democratic and Republican presidents differed in the predictability of their rulings. "We do not find a difference," says Sales-Pardo. "Both are equally biased."

The researchers also found that the predictability of the court as a whole decreased over the period they studied. That could be due to a shift in the nature of the cases coming before the court. "Maybe the cases are getting more complex," suggests Paul Collins, a political scientist at the University of North Texas in Denton who studies legal decision-making.

Why the party affiliation of the incumbent president should make any difference to the court's predictability remains a mystery, however. Collins wonders whether some other factor influencing the stability of the court, which just happens to correlate with the president's party, might be involved. "I think they have uncovered a spurious correlation," he says.

Journal reference: *PLoS ONE*, DOI: 10.1371/journal.pone.027188

http://www.newscientist.com/article/dn21148-network-theory-reveals-patterns-in-supreme-court-votes.html

THE ART OF MONEY

At a time when bankers have become an easy target, a new exhibition in Florence considers their role in shaping the Renaissance ...

From THE ECONOMIST online ...

Renaissance-era Florence is remembered not for its bankers but for its beauty. Yet the city is now hosting a splendid exhibition that reaffirms the important link between the two. High finance not only funded high art, but its money and movement helped to fuel the humanist ideals that inspired the Renaissance. This show, curated by Tim Parks, a British writer based in Italy, and Ludovica Sebregondi, an Italian art historian, considers the influence of 15th-century financiers on Italian art and culture.

"Money and Beauty" is divided into two parts: how money was made, and how it was spent. The gold florin, first minted in 1252 (and equal to $150 today), made the Florentine republic the heart of a nascent banking system that stretched from London to Constantinople. The Medici bank was supreme for almost a century, till its collapse in 1494 when the family was ousted from political power. This show, on view in the Strozzi palace (built in 1489 by a rival banking family), also traces the humbler fortunes of Francesco di Marco Datini, the "merchant of Prato", using the vast archive he left behind. To recreate the daily activities of these bankers as well as their world view, the exhibition includes paintings and mercantile paraphernalia, from weighty ledgers to nautical maps.

The Church deemed it sinful to charge interest on loans, viewing it as profit without labour. This gave rise to artful and elaborate ways to disguise such profit-making, including foreign currency deals and triangular

trading. The divergence of moral and commercial values can be seen in some Flemish paintings included here, such as Marinus van Reyerswaele's "The Money Changer and his Wife", in which a couple fixates on their coins while their candle is snuffed out (*pictured top*).

As bankers fretted for their souls, funding religious art began as a form of penance, like spiritual money-laundering. But as revealed in "Medici Money", Mr Parks's 2005 book about 15th-century Florence (reviewed by *The Economist* here), patronage also projected power. Pious frescos were stamped with the patron's family crest, and the medium was the message: costly paints in gold, cochineal red and lapis blue were conspicuous signs of wealth. Upwardly mobile patrons even appeared in some biblical scenes. In the Ghirlandaio workshop's "Adoration of the Shepherds with Filippo Strozzi", for example, a kneeling banker in a mud-brown tunic basks in the infant Christ's gaze (*above*).

If art converted wealth to power, it also shaped taste and morals. As the booming economy upset the God-given medieval hierarchy, secular sumptuary laws, which regulated consumption habits, were a brake on social mobility. These laws dictated spending for everything from fashion to funerals in order to keep the classes distinct. Yet paintings of the Madonna in lavish attire undermined these rules by sharpening cravings for beauty and bling in a city known for its luxury silk and wool. Paintings also became consumer luxuries. As private commissions soared among the mercantile class, a nude by Sandro Botticelli was much in demand.

The backlash came with Girolamo Savonarola, a fundamentalist friar who preached against luxury and lasciviousness. With his followers he burned "shameful" items (eg, paintings, wigs, harps and chessboards) on the Bonfire of the Vanities in the 1490s, before he was ex-communicated, hanged and incinerated himself. But as the Medici were restored with papal muscle—not as bankers but as dukes—Savonarola's martyrdom cult lived on.

This ambitious show is not without tensions. How are Botticelli's later pious paintings, bereft of Medici patronage, to be read? Was he converted to Savonarola's vision or pandering to new clients? Twin curatorial captions often reveal a gap between art history's smooth offerings and Mr Parks's saltier barbs. But at a time when bankers are subject to a renewed moral backlash, this insight into how money talks through art is both provocative and priceless.

*"**Money and Beauty: Bankers, Botticelli and the Bonfire of the Vanities**" is at the Palazzo Strozzi in Florence until January 22nd 2012.*

***Picture credits**: Museo Nazionale del Bargello, Museum Boijmans van Beuningen*

http://moreintelligentlife.com/content/arts/art-money

Tattoo Remorse Spawns New Business

Tattoo remorse is leading many of the painted masses to rethink their ink, which is fueling a burgeoning business: specialty tattoo removal shops.

By Chris Opfer

(Illustration by Matthew Vincent)

Buffy Martin Tarbox was 22 when she got her first tattoo. It was a 4-by-3-inch, black and red circle above a cross — the symbol for women—on her arm. Less than a month later, she added a second tattoo: a black Celtic knot on her other arm. But when Martin Tarbox reached her mid-30s, she decided it was time for the ink to go. "When I got the tattoos, like most people, I was young," she says. "Believe me, I regret it. I'm a professional woman now."

Roughly a third of Americans between the ages of 25 and 29 have at least one tattoo, according to a 2008 Harris Poll. So do a quarter of 30- to 39-year-olds. Like many trends, celebrities are helping to drive the desire to get inked — roughly 70 percent of NBA basketball players are tatted up, according to Andrew Gottlieb's *In the Paint: Tattoos of the NBA and the Stories Behind Them*, as are a slew of entertainers from Lil Wayne to Lady Gaga.

But tattoo remorse is leading many of the painted masses to rethink their ink and opt for increasingly available laser removal procedures. They are fueling a burgeoning business: specialty removal shops, like California's Dr. Tattoff, Chicago's Hindsight Tattoo Removal, and Zap A Tat in Virginia, are thriving.

"It's a common misconception that our patients are gang members and bikers," says Dr. Tattoff founder Will Kirby, a Beverly Hills dermatologist who starred in the reality TV shows *Big Brother 2* and *Dr. 90210*. "Our average patient is a female between the ages of 25 and 40 who got a tattoo as an aesthetic statement and now has a different lifestyle. It might be that the tattoo is a barrier to employment, … maybe it's just a sign associated with the person's youth. … I see absolutely gorgeous work. That said, every bad tattoo that you could think of — spelled wrong, done in the garage, etc. — we see a lot more of that than we see beautiful work." He adds, "If you want to immediately ruin a relationship, get your significant other's name tattooed on you."

In 2004, Kirby realized more and more patients were asking him for tattoo-removal help, so he started providing the services once a week. Today, practitioners at Dr. Tattoff clinics have performed more than 110,000 treatments at the company's five full-time clinics (four in California and one in Texas). The company plans to open at least two more — one in Houston and one in Atlanta—before the end of the year. And Kirby speculated that the company might go public later this year.

Spurring the industry growth is vastly improved technology. In the last decade, dermatologists began using a "Q-Switched" laser that directs short pulses of highly focused light energy at the tattoo, heating up the ink and breaking it into fragments that are absorbed by the body.

"The new technology is so far superior to the old," says Amy Derick, an Illinois dermatologist who performs 25 to 50 tattoo removal procedures per month. The laser makes removal less painful than harsh previous techniques like dermabrasion and salabrasion (scrubbing ink out with sandpaper and salt) or simply cutting out the tattoo and sewing the skin back together.

Kirby calls the current process "uncomfortable, but tolerable," like being snapped with a rubber band several times. And removing a tattoo requires more time and money than getting one. Most patients undergo between five and 15 treatments, depending on the person's skin tone, ink and tattoo location.

Practitioners often charge by the square inch; each treatment at Dr. Tattoff costs $49 per square inch for the first five square inches, $25 per square inch for the next five, and $15 per square inch for each additional inch. At Sunset Strip Tattoo in Hollywood, an average small tattoo (2 to 4 square inches) costs about $100.

Kirby says the outcome is by no means guaranteed, but for many of his patients, the time, money, and uncertainty are nothing compared to the lasting sting of an embarrassing tat.

After about six treatments by a dermatologist in Nevada and more than $1,200, Martin Tarbox's tattoos faded but remained visible. "My husband jokes that it looks like I have prison tattoos. They look pretty bad," she says, adding, "As my dad would always say, 'If you can't be a good example, be a horrible warning.'"

http://www.miller-mccune.com/culture/disappearing-ink-tattoo-remorse-spawns-new-business-36794/

NOTES ON A VOICE: ARTHUR CONAN DOYLE

In our seventh instalment of Notes on a Voice, Bee Wilson considers the inventor of Sherlock Holmes ...

From INTELLIGENT LIFE Magazine, September/October 2011

"Dr Watson doesn't write to you, he talks to you, with Edwardian courtesy, across a glowing fire." So said John le Carré, one of many writers in thrall to Arthur Conan Doyle (1859-1930). His most famous creation, Sherlock Holmes, provides the excitement. But his second most famous, John Watson, provides the voice.

The stories (1887-1927) are infinitely re-readable. Fans focus on Holmes himself, that perfect assemblage of cold calculation and eccentric tastes—the violin, the cocaine, the tobacco in the Persian slipper. "Every writer owes something to Holmes," wrote T.S. Eliot in 1929. But Holmes would be precious without Watson's direct, manly presence. A late story narrated by Holmes was hopeless. The prose lost most of its energy and all of its suspense, and became smug.

Watson, the medic ever ready with a pistol and a flask of brandy, was a conduit for Doyle himself, who had been a GP. The doctor is decent, and, contrary to popular belief, not stupid. He shares the reader's breathless bemusement at Holmes's lightning deductions. "What can it all mean?" Watson gasps in "The Speckled Band", the most terrifying story of all. "'It means that it's all over,' Holmes answered."

Golden rule

Use energetic verbs to add urgency to plots that could seem static. Holmes never stands up if he can spring to his feet. He also grasps, thrusts, jerks and tosses. Watson even "ejaculates" when excited. The innocence adds to the sense of adventure.

Key decisions

1. Conjuring up 221B Baker Street, a masculine setting, far from family life, but cosy. So many of the stories begin and end here. We may have been alarmed by psychotic stepfathers or Ku Klux Klan vendettas, but 221B is still there.

2. Hinting at a vast Holmesian hinterland, as in "the singular tragedy of the Atkinson brothers at Trincomalee". The endearing zealots who try to flesh out the back story are missing the point. To hear of Holmes's monograph "Upon the Distinction Between the Ashes of the Various Tobaccos" is thrilling. To plough through it would be dull.

Strong points

Dialogue. Whole pages consist of talk as Holmes's clients recount their predicaments. This draws us right in, sitting by the fire, drinking Mrs Hudson's tea. Doyle is good at names—Jabez Wilson, Grimesby Roylott—and not shy of exclamation marks, which lend a staccato vigour: "'Good God!' I cried."

Favourite trick

Watson's trusty adjectives. "Curious" is a regular, as in "the curious incident of the dog in the night-time"—a gift of a title, duly adopted by Mark Haddon. Also "grotesque", "peculiar" and "singular", which conveys fascination, terror and sangfroid.

Role models

The usual suspects are Edgar Allen Poe and Wilkie Collins. Just as important were the Arthurian legends, which Doyle's mother Mary had read to him, giving him a powerful sense of good and evil, and Walter Scott's Waverley novels, which he read "by surreptitious candle-ends". Unlike Poe, Doyle was not gothic in his sensibilities. He was decidedly Celtic.

Typical sentence

"Dr Mortimer looked strangely at us for an instant, and his voice sank almost to a whisper as he answered: 'Mr Holmes, they were the footprints of a gigantic hound!'" (From "The Hound of the Baskervilles".)

"Sherlock" has returned to BBC1 this autumn. "Sherlock Holmes: A Game of Shadows", Guy Ritchie's second Holmes film, opens in December

Bee Wilson *is the "Kitchen Thinker"* for the Sunday Telegraph *and has written for the* New Yorker.

Illustration: *Kathryn Rathke*

http://moreintelligentlife.com/content/arts/bee-wilson/notes-a-voice-arthur-conan-doyle

Uninsured hospital patients discharged sooner

By Amy Norton

NEW YORK | Tue Nov 15, 2011 5:23pm EST

NEW YORK (Reuters Health) -- Uninsured Americans tend to be discharged from the hospital somewhat sooner than those with health coverage, regardless of the medical condition itself, a new study finds.

Researchers are not sure what the reasons for the findings are. And it's not clear that a shorter hospital stay is a bad thing.

Still, the findings suggest that financial factors are playing a role in hospital length of stay, the authors say.

Looking at records for nearly 850,000 adults discharged from U.S. hospitals between 2003 and 2007, the researchers found that uninsured patients had a slightly shorter stay than patients with private insurance or Medicaid -- the government-funded health program for the poor.

When it came to potentially preventable hospitalizations -- for worsening of chronic health problems like asthma or diabetes, for example -- uninsured patients stayed in the hospital just under 2.8 days, on average.

That compared with 2.9 days for patients with insurance and 3.2 days for Medicaid patients.

The gap sounds small, but it's still meaningful, according to lead author Arch G. Mainous III, of the University of South Carolina, Charleston.

"Does this represent something? I think it does," he told Reuters Health.

The difference in hospital length-of-stay was apparent even though the researchers accounted for age, race, sex and the number of medical conditions patients had.

And if anything, Mainous said, it would make sense for uninsured patients to be in worse shape when they arrived at the hospital for a chronic health condition -- since they would be less likely to have routine healthcare to manage the problem.

"So why would they have a shorter hospital stay?" Mainous said.

In addition, the researchers found that uninsured patients also had shorter stays when they were treated for problems not related to everyday healthcare -- like a traumatic injury.

All of that said, it's not possible to tell whether the shorter hospital stays are "necessarily bad," Mainous said.

The findings are based on a national sampling of hospital discharge records. And the researchers had no way of finding out how patients fared after their discharge -- including whether uninsured people faced a greater risk of readmission.

Mainous said there are two possibilities. One is that uninsured patients are more likely to be discharged from the hospital "prematurely." Another is that patients with insurance are sometimes kept longer than necessary because their payment is covered.

"We can't really say which it is right now," Mainous said. But he added that the findings do suggest that financial considerations are playing some role.

Mainous noted that Medicaid patients actually had the longest hospital stays, so "it's not just something about being poor" that explains the shorter hospital stay among uninsured people.

The researchers also excluded records from patients who left the hospital against doctors' advice -- which is more common among people who lack insurance. So that doesn't explain the findings either, Mainous said.

Finding out exactly why uninsured patients leave the hospital sooner, and what the potential effects might be, is no easy task. It's possible to track medical records for patients who are part of a large health plan, or on Medicaid.

But there are no large databases that track Americans without health coverage, Mainous pointed out.

The number of uninsured Americans stood at almost 50 million last year, inching up from the year before.

With that rising number, Mainous said, it will be increasingly important to find out how insurance status is affecting people's hospital stays.

SOURCE: bit.ly/ubhQAp Annals of Family Medicine, November/December 2011.

http://www.reuters.com/article/2011/11/15/us-uninsured-patients-discharged-sooner-idUSTRE7AE2NK20111115

HANDWRITING: AN ELEGY

As more and more of our words are tapped out on keyboards, Ann Wroe celebrates a dying art ...

From INTELLIGENT LIFE magazine, November/December 2011

Take a sheet of paper. Better still, take a whole sheaf; writing prospers with comfort and cushioning. The paper may be deliciously thick, with ragged edges and a surface capillaried with tiny fibres of the rags that made it. It may be thin, blank, industrial A4, one of a thousand in a cut-price pack from Staples. It may be wove paper, vellum-smooth and shiny, or a bit of scrap, torn not quite straight, with a palimpsest of typed meeting-minutes showing through. But write.

The instrument matters but, for the moment, seize anything. The old fountain pen, so familiar that it nestles like a warm fifth finger in the crook of the thumb, its clip slightly shaky with over-use; the pencil, its lead half-blunt and not quite steady in that smooth cone of wood; the ultra-fine felt tip from the office cupboard, with its no-nonsense simplicity, or the ancient mapping pen, nibbed like a bird's claw, which surely writes only in copperplate, scratching fiercely as it goes. Seize even a ball-point, though its line is mean and thin, and though teachers will tell you that nothing ruins writing faster. Dip, fill or shake vigorously; and write.

For most adults the skill is an instinctive one. Yet cursive handwriting takes a while to master. At primary school our small, wide writing books opened on a forbidding grid of lines, red ones an inch apart, blue ones set close together between them. These cradled the bodies of the letters, while the descenders and ascenders made for the reds like pegs for a washing line. So easily, almost showily, Teacher formed the letter with her black pen: clumsily, with our large sharpened pencils, we tried to follow. It was hard. An "m", "n" or "u" settled cosily between the lines; but "a", with its one flat side, was tricky, and "e" rocked over on its back. Tall letters looked simple, but when one leaned all the rest sloped off towards disaster. The tail of a "p" groped fearfully as it descended through empty space. When a whole line succeeded it looked splendid, like a marching battalion with faint band-music playing, and a gold star shining at the end. If I half-closed my eyes,

flicking fast through the pages, the rhythms and patterns arranged themselves in fascinating ways. But once the scaffolding was removed the letters collapsed alarmingly. They still do, unless they have a line to aim for.

At secondary school, surprisingly, we had to learn to write all over again. The teachers found fault with our plain rounded hand; we had to move up to italic now, together with oblique-nibbed pens and dangerously abundant blue ink. Italic was all thicks and thins, diagonal joins and elegant serifs, imposed by nuns who could flick a ruler quicker than an upstroke when faced with a careless piece of work. I came to like the new style for its angularity and boldness, and the way you could dot your "i" with a perfect diamond if you held your pen just right; though it took years to make my backward-sloping letters stand up straight and then lean forward, as both the manuals and the nuns required. All this took far more effort than tapping a computer keyboard.

Writing involves not only the hand and wrist but also the arm, the shoulder, sometimes the whole body. Quill-users were well aware of this, and would choose from the right wing or the left—ideally the third or fourth feather of a goose-wing, but possibly the finest feathers of swans, or ravens, or crows—to make the quill curve towards the hand or away from it, whichever felt more natural. Words could fly that way. Left-handers especially demonstrate the exertion of writing, curling their entire bodies round their pens as they write, smearing their words as they go. Children forming letters sit hunched with concentration, small fingers clenched round crayons, little pink tongues darting out of mouths. After a page or three of writing against the clock, the ablest college student flaps his wrist to ease the ache in it. A script like italic or copperplate is explicitly formed from the shapes made in engraving; pens as they write not only impress the paper, but dig into it, as surely as Sumerians dug their cuneiform letters into tablets of damp clay, or as Roman masons chiselled their magisterial capitals, ancestors of all ours, into the base of Trajan's column. This can be hard physical work; which is perhaps why Gutenberg, when he devised his printing press, was especially keen to boast that no labouring pen had made his blackletter, but a smoothly oiled machine.

Printing did not harm handwriting, though it gradually replaced the calligraphic uncial and gothic of silent, patient monks in their scriptoria. In fact, because it encouraged literacy, printing helped writing to become a more universal skill. Typewriters (though greeted with jeremiads much like this one) did not hurt handwriting too much, because they were used mostly in offices or by sweating beat journalists whose cigarette ash powdered the keys. The rot started when keyboards were allowed, then required, in schools, and when they became small and light enough to slip in a pocket, replacing the notebook and even the jotted to-do list—milk, bread, call garage—which remains, for many people, the greatest boon of writing.

Handwriting is still taught in schools, but in America over the past 50 years the time spent teaching it has fallen dramatically. Though private and charter schools may still make a point of it (as of discipline, and uniforms), many public-school systems are abandoning cursive altogether. Even where taught, it is so soon replaced by typing, for all assignments, that the skill never sets. Teachers tend to agree that most schoolchildren's writing may now be graded "terrible", and is better avoided. From this year the writing test of America's National Assessment of Educational Progress requires composition not on paper, but on a computer.

Pupils remember capitals because they tap at them all day on keyboards; many now write with them, unjoined, ungainly and loud as they are, forgetting that the Romans soon abandoned majuscule as laborious and impractical, and that a letter entirely in capitals still bears the mark of the seriously deranged. In 2006 in America, 85% of those who took the handwritten-essay SAT test for college entry preferred to print their letters. Young people are swiftly losing cursive, using it only to sign their names or write the odd cheque. Most signatures, with long use, develop into ciphers or symbols; some of the young, though, now start off that way, appending their personal signs in the form of a spiral or a heart.

Typing (or, now, horribly, "keyboarding") is more convenient. Typing is what we do, all the time, on the marvellous little gizmos we keep in our pockets. Typing is how love is written now, rather than on perfumed notepaper—and presumably that tell-tale e-mail address causes the same leap of the heart as that backward-slanting hand, with its careful serifs and looped "d"s, ever used to do. With typing we can copy, and paste, and search, and deliver a piece of work as polished as if second thoughts and errors had never occurred to us. And, perhaps most important, we can read what we, or others, intended to say.

In my days as a medieval historian, I spent much of my time deciphering handwriting. This was where treasure lay, as surely as miniatures nestled like jewels in their orderly setting of black or gothic letters: the unexpected fact, the revelatory connection, truth itself. I came to love the neat, sharp-sided, airy script of 14th-century account books, and to admire the delicately rounded humanistic hand of Renaissance Italian ambassadors. Other hands I dreaded. Faced with a page of crabbed 15th-century notarial scrawl I would have to attack it like a thicket, scanning it for glimpses of light, pushing through the branches of intermeshing ascenders and descenders in case a strange or fascinating word flashed there, like a deer. Some words still refused to reveal themselves. Even when lifted out as if with tweezers, even when magnified and written out afresh, as if copying the action of writing might unlock them, they remained mere patterns without meaning. Perhaps hawk, perhaps handsaw. Somewhere, faintly, a man in a dusty clerk's robe would flick his quill and laugh.

Part of the charm and frustration of handwriting is its scope for ambiguity, and its ability to baffle. Letters that are obvious to us become, to other eyes, a cipher as mysterious as the Rosetta Stone. This can be comic, as the scrawled postcard from Auntie Flo in Blackpool is passed round the supper table (was it the water she rode on last night, or the waiter?). But it is tiring over ten sides on the phenomenology of Hegel, and downright dangerous on a doctor's prescription. It can be tragic, too, as when the lover with only the evidence of a letter tries to interpret, dares not interpret, tries to leave unread, the scrawl that suggests goodbye.

We have come to think of typing as faster than writing. That may or may not be so. Some research suggests that the conjunction of brain and writing hand is possibly more efficient. A study by the University of Washington in 2009 found that schoolchildren wrote faster, and wrote more, when they had to compose essays for ten minutes with pen on paper rather than on computers. The word "cursive" means running; it was invented to avoid time-wasting lifting of the stylus or the pen, with a series of fluid joins and, in the most hectic styles, looping ascenders and descenders. In the early 19th century, when people corresponded several times a day by letter, quasi-tweeting the state of nerves, weather and tea-invitations from hour to hour, quill and pen must have raced across the paper at prodigious speeds. The handwriting of Percy Shelley sometimes approached horizontal in the effort to seize inspiration on the wing. It raced, dived and disappeared like a river under thickets of deletions. In that age of poets, though, the Muse was often hindered by the pen, blunting, splitting, spitting ink or, as John Keats complained, making blind "e"s. The sheer act of writing caused so much frustration that any maker of a primitive computer might have been besieged. And who is to say that the poetry would have been worse?

Whatever the truth of it, handwriting is now consigned, like hand-carried post, to the realm of snails. It is used for special things, for first drafts of books and thank-you notes. It is becoming, like its properly artistic cousin calligraphy, a craft and a rarity, rather than a useful and quotidian skill; in years to come it may, perhaps, be as treasured as the lettering of Imperial China, brushed slowly onto bamboo paper in ink pressed out from jade and pomegranates.

Already the word "handwritten" has acquired a cachet it never had before. In the 19th and early 20th centuries, when Cadbury and Kellogg used a handwritten logo to sell chocolate and cornflakes, it suggested the founder's personal commitment to quality, a reputation on the line. In the 1970s and 1980s scrawled cursive on record sleeves evoked bands who couldn't be bothered with bourgeois capitalist print, who tossed down titles as they threw out songs, perhaps on the back of a cigarette packet in some soot-stained warehouse studio. Now it suggests care, leisure, individuality and beauty. "Handwritten" is the name of a new fashion

range, by Tanya Sarne, that seeks to evoke luxury and craftsmanship. In Britain an online Letter Lounge arranges events around the country, taking over tranquil spots with cupcakes, embroidered cushions and cups of herbal tea while would-be writers ponder what they will write, and how they will write it. It all takes blissful hours. In Britain and America there are now shops, modelled loosely on the Il Papiro chain in Italy, selling nothing but exquisite papers, tiny cork-stoppered bottles of ink, quills and leather-framed blotters and beautiful marbled pens. Customers wander round, scarcely daring to touch.

Everything displayed in such shops expresses the idea of handwriting as ritual. It involves an almost sacramental assembling of equipment at the end of which letters, like magic runes, will be conjured from the blank of the page. The very names of Pelikan's gold-chased range of fountain pens, "Majesty", "Ductus" and "Souverän", suggest magisterial acts; the names of letter-writing tablets, Eclats d'Or and Three Candle-sticks, Cream Laid and Vergé de France, imply a noble and receptive setting, like a deep-laid carpet. Only ink slums it, a decoction of lamp-black, vitriol, glue and galls.

The fundamental magic of alphabets—that certain signs, gathered in certain permutations, can create and recreate the world—is common to keyboards too, but the gods of alphabets are more properly honoured with paper and pen, seals and sealing wax. Whether anyone actually unscrews a bottle, dips a pen, dares to sully these lovely artefacts with use, is harder to say.

Last year sales of fountain pens in Britain rose by 70%, and sales of quality writing paper at the John Lewis department store in London rose by 79%. Demand for calligraphy classes soared at City Lit, a popular London college. In America the Writing Instrument Manufacturers Association reported that between 1998 and 2004 fountain-pen sales rose from 12m to 17m, and held steady thereafter. But the trend is less healthy than it seems. It is not hard to track down an exquisite luxury fountain pen, or even an antique model, for which the market is still lively; but anecdotal evidence on both sides of the Atlantic suggests that fewer ordinary retailers are stocking the basic Shaeffers and Parker Vectors that Joe Sixpack used once, when everybody wrote by hand. As the basic tools of handwriting disappear from the wall behind the till, so too does the notion that forming letters on paper is a routine way to communicate with other people.

At a pen-and-paper shop that has done business for 50 years in an English university town, business is slow. The manager nonetheless says he has seen an increase, over the 12 years he has been there, in people buying fountain pens. A pen is a statement or fashion accessory now, like cufflinks or a boutonnière: slightly nostalgic, slightly pretentious, certainly not everyday. The manager thinks it may be smoothness the customers are after, the sheer relaxation of a good nib after years of stressful, pressing ballpoints (the thinner the pen, the greater the stress)—though whether they will write, or simply doodle and squiggle like artists, is less clear. Luxury pens are bought as presents, though the manager agrees that the would-be user needs to weigh it in his hand first, get the heft and spring of it, try it with this nib and that, send it running over the paper with "thequickbrownfoxjumpsoverthelazydog", to be sure it feels right. He continues to marvel at the different ways people hold pens: straight as a ruler, sideways, clenched in a fist, no two alike. Increasingly, though, they don't know how best to approach the task of making letters. Does he use a fountain pen himself? With a burst of embarrassed laughter, he admits that his first tool is a keyboard.

A fine pen, after all, almost assumes that a lovely hand will flow from it. But most people's handwriting is not beautiful. Very few can aspire to the Renaissance italic script of Niccolò Niccoli or Ludovico Arrighi, perhaps the most elegant ever devised, so pure and pleasing that it became the *fons et origo* not only of the best modern handwriting but of the lower-case typefaces that were then being invented. It was later adopted by William Morris to make his illuminated books in the 19th century, a nice example of progress running backwards. Few today (and perhaps few then) can emulate the lovely italic of the young Elizabeth I, taught to her by Roger Ascham, or the measured copperplate of George Washington. Spiders crawling out of inkwells come closer to what many of us achieve. And we like that, because for all the talk of fluency, balance,

harmony and beauty in handwriting—for all the distrust of serifs, curlicues and fussiness in it—it is distinctiveness that we treasure it for: the degree to which it falls away from the copybook, and becomes part of ourselves.

Like a fingerprint, our script expresses us uniquely, and in a way that lasts. The more metaphysically minded might say that it transmits the soul to paper. It is odd that it should, when school writing lessons were meant to make everyone write alike. But within weeks, none of us was writing like anyone else. Only the French, with goodness-knows-what writing drills on their small-squared paper, seem still to impose a rounded, open, characterless national hand.

Handwriting is a personal, intimate thing. Many believe, without much scientific evidence, that creativity is linked to it. Graphologists believe it reveals the character. A forward-sloping hand is said to denote ambition, a backward-sloping one shyness or deceit (a reading that seems hard on left-handers, whose letters naturally tend that way). Looped descenders, they say, mean covetousness, looped ascenders spirituality, unjoined-up letters a surfeit of imagination. The fascination of a literary manuscript lies not only in the deletions and emendations, which show a Wordsworth poem or a Dickens novel in the chaotic making, but also in the clues it seems to offer to the character of the writer, and his or her mood when it was written. A line of poetry that tails off, squashed into the margin and falling downwards, may suggest merely temporary annoyance that the words were too many and the notebook was too small; or it may mean terminal melancholy.

Whatever the substance of graphology, the character is there nonetheless. Though ostensibly silent, a handwritten letter from someone we know speaks with the voice—querulous, joking, ardent, tinged with an accent from Padua or Bulawayo—of its author. Though still, the letters on the page live and breathe as the writer does, crotchety and shaky with old age, hectic with youth, comfortably embracing as a mother. A handwritten envelope (the first we seize on, among the mailouts and bills) announces itself from the doormat as unmistakably as if the sender had walked through the door; and we are accordingly happy or irritated, intrigued or fearful.

Of course, we can talk on Skype now, summoning up the other person before us as though we had rubbed a magic lamp. We don't need to prove our affection or our interest by making signs in ink on paper. It is all too indirect, too dilatory, and rather a performance. Better to communicate straight away, before we get distracted by something else.

And yet. On June 15th the UK Payments Council announced that handwritten cheques would continue to be accepted in Britain as long as needed. Though cheques are declining along with handwriting (their use has fallen by 70% since 1990) there is, as yet, no practical alternative for a private payment. A promise to pay, which is also an appeal for trust and a statement of sincerity, is better written by hand, however clumsily; and once written, it is better signed. It may be that in decades to come this will be all that survives of common cursive: our monetary promises, and our names. Bearded eccentrics in cluttered attics, and lavender-scented maiden aunts, will continue to practise it, just as there will still be people who bake their own bread or scythe the meadow grass. But many more of us will be laid at last under headstones inscribed with the lovely lettering we almost managed to master for a while, until we decided that scratching our ideas in characters upon a surface was a task too primitive for us.

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http://moreintelligentlife.com/content/ideas/ann-wroe/handwriting-elegy?page=full