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ECOLOGIST
FEBRUARY



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February 2008

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An aerial photograph of a lush green landscape. A river flows through the scene, surrounded by vibrant green fields and clusters of trees. The lighting is bright, suggesting a sunny day, and the overall scene is peaceful and natural.

Do you see a field?

We see the opportunity to add to our fleet of six incinerators, which pump dioxins, greenhouse gases and heavy metals across local communities.

By tying Nottinghamshire Council into a 25-year waste contract we landed it with a National Audit Office inquiry over the use of public funds. In 2006, we topped up our Hampshire incinerator with waste from people's recycling boxes. In March 2007, we tried to dig a landfill above a major aquifer in West Sussex, and in July we were fined for preparing to dump highly flammable liquids into a landfill full of hazardous waste.

The environment is an industrial challenge.



Editorial

PR versus Policies

'We'd really like a woman to talk about this,' said the researcher from BBC2's *The Daily Politics* show. I marvelled that TV was even more crass behind the scenes than on screen, and wondered did they perhaps imagine me wearing my pinny and brandishing a rolling pin, like Hilda Ogden? Or with cleavage a-popping and a warm apple pie on my lap, à la Nigella?

In any event the show, which focused on Government plans to push GM food back on to the marketplace, was an all-male affair, with the Soil Association's Patrick Holden isolated in a remote studio in Bristol while three pro-GM pundits (two in the studio, one on film) made their case.

The media's renewed interest in GM has been sparked by comments apparently made by departing chief scientific adviser Sir David King, to the effect that the public's attitude to GM is 'softening' and that acceptance of GM is now necessary and unavoidable if we are going to feed the world in the future. His successor John Beddington agrees.

The latter point is based on a widely held, but erroneous, assumption that people go hungry because we don't produce enough food. In fact, the UN estimates that we produce about one and a half times the amount we need to feed the entire world. People go hungry because of the unsustainable structure of our political and economic systems. They starve because of the free market, where everything goes to the highest bidder rather than to those who need it most.

The former point was worrying, though. Was the public going soft on GM? If anyone would know, our supermarkets – all of which retain market research that can predict what you will have for breakfast next Tuesday – would. We phoned around. All said they have no plans to introduce a GM 'choice' because there is no consumer demand.

The push is on, however, to create that demand, and the best argument our politicians can muster is the scientific equivalent of 'where's the harm?'. They can say truthfully that they have never seen any data showing that eating GM is harmful to humans, because, of course, the research has never been done. But lack of evidence does not equal

evidence of safety. Indeed, from a scientific perspective, GM breaks every sacred tenet of science. Where are the double-blind, randomised, controlled human trials – and especially those involving pregnant women and children, the ones most likely to be harmed by the toxins present in GM foods? The animal data is truly frightening, showing sterility and increased neonatal deaths; not to mention cancer, systemic organ failures and allergic reactions. Why would any government sanction such madness?

The push for GM isn't because it will increase crop yield, or because it will reduce pesticide use, or because it will provide more nutritious food – GM delivers none of these things. The push for GM is about money. Indeed, David King suggests that by not embracing GM food our economy has already 'lost' between £2 billion and £4 billion – a figure that appears to have been plucked out of thin air (see *News*, page 8). And honestly, what is this piddling amount of money (roughly equivalent to eBay's annual turnover, or that of the video games industry) held up next to the £9 billion being spent on the Olympics, the £100 billion we will be spending on the nuclear weapons programme over the next 50 years or the £135 billion our Government spends in procurement of everything from paperclips to fuel?

The GM push is a short-term gamble on the future value of our 'knowledge economy' – our ability to generate profit by selling ideas to other (usually poorer) countries as a 'solution' to their problems – never mind the long-term cost to biodiversity and human health.

Over the next few years you are going to be bombarded with a lot of stage-managed information about things such as GM, nuclear power and incinerators (see stories pages 28 and 44). This PR onslaught is the action of a Government that has been near-paralysed by the sheer scale and complexity of the problems we face, and as a result has resorted to PR instead of policies to 'fix' things. It's going to take people of character, intelligence and tenacity to keep saying no – and mean it.

Now, where exactly did I put my rolling pin...?

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Letters



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NO LAUGHING MATTER

On 8 December I attended my first march against climate change in London. I was there more than anything to be counted. I came away cringing.

The atmosphere on the march was more like a carnival than a protest, filled with song and dance, fancy dress and celebration. What had the marchers to be so happy about? Climate change is a monumentally serious problem; the implications of doing something about it are huge.

Instead of waving at the employees and customers of Fortnum & Mason, Porsche and the Ritz Hotel, and cheering when they wave back, a climate change march should be making these people think about the contribution to the problem the conspicuous consumption championed by those sorts of businesses is making. Shoppers looking up from their Christmas lists saw what resembled a carnival passing by. There was little chance they were going to relate their own activities to climate change and begin the difficult mental process of questioning the shaky foundations of consumer culture. The march was just too much fun. Where was the confrontation and anger?

Climate change is a serious issue. I could not help thinking as I walked away from the march that it would be so much more effective if it consisted of 10,000 people solemnly marching past the palaces of consumerism and its loyal subjects holding up one coherent message: CONSUMER CULTURE CAUSES CLIMATE CHANGE. IS IT WORTH IT? If the Government does produce a stronger Climate Change Bill than the one that has been drafted, it is going to have to start asking this question. If it doesn't, environmentalists are going to have to start asking it themselves and stop pretending that major environmental problems can be averted within a consumer culture.

Morgan Phillips, London

IT'S IN THE BAG

I wish Hina Patel well (November 2007) in her new business venture to make children's party bags more sustainable, but surely this

is still commodification of something that should forever lie outside commerce?

Our two young sons have birthdays close together. Last time around, for their party, we filled paper bags with things we found around Edinburgh. The children at the party took home bags quite different from the usual plastic rubbish that counts for commercial party bags, and our boys had a great time collecting the fallen pine cones, sea-shells and pebbles that filled them.

Sometimes people just need to do things for themselves.

Gavin Corbett, Edinburgh

THE NEED FOR TREES

We have developed the mindset that all we in the rich world can do in our great fight against

global warming is turn off lights and recycle – oh yes, and persuade the poor world to live on a lot less in the future. Of course we need to reduce our greenhouse gas production, but anything we do is still producing a net gain in those sinister vapours. If we don't vastly increase natural fixation of carbon dioxide all our newly adopted efficiencies will be without any benefit at all. The UK should demonstrate to the rest of the world that a positive policy of atmospheric cleaning and adjustment is essential to our future, and plant up all our marginal farmland – that's a good 50 per cent of all such terrain – with native, deciduous woodland. Instead of paying farmers huge subsidies to make matters worse, with methane release, flooding and so on, we can move towards truly sustainable life and start a global movement without the need for force.

Chris Hemmings, Groeslon

MISSING THE BIG PICTURE

Several inconsistencies and unanswered questions are raised by the Vegetarian Society's recent advertisement exhorting people to stop eating meat in order to help prevent climate change [November 2007].

First, I note it is not suggesting we stop consuming milk and other dairy products. Roughly half the adult cattle in this country are involved in milk production. And if the Vegetarian Society is serious about the problem of ruminants, it needs to take into account our (rather large) wild deer population – estimated to be about 1.5 million, or roughly one-sixth of the total cattle population.

It also seems to have overlooked the fact that large areas of this country are unsuitable for growing cereals or vegetables. The land may be too steep, for example, or the soil too thin, and this is not simply on the hills and uplands. In such places the only practicable crop is grass or other herbage, and the only way to turn that into food we can eat is by using ruminants. Moreover, if the grass were not grazed it would simply die, decompose and give off methane anyway.

Then there is the question of livestock manure, a vital source of fertility for other crops. It would have to be replaced by

Ecologist poll

Are modern students better activists than those of '68?

46

per cent of you said that the UK should house 15% of all climate change refugees

artificial fertiliser, the production of which generates large amounts of carbon dioxide.

Sheep, of course, also produce wool (1.2 million tonnes worldwide in 2005). This is a natural product with many valuable uses. Yet more oil would be used in the manufacture of a synthetic alternative.

Finally, we should not forget the essential role cattle and sheep play in maintaining the landscape we enjoy and in helping to preserve the biodiversity we so value.

As an organic beef and sheep farmer, I do not support intensive livestock rearing practises or the feeding of large amounts of cereals to animals that have evolved to eat mainly grass. And I entirely accept that people may choose not to eat meat. But the Vegetarian Society would sound rather more credible if it were less simplistic and stopped to look at the wider picture, as well as acknowledging our dependence on ruminants for dairy products. It is ironic that its advertisement appeared just over the page from a news item beginning: 'A diet that contains just a little dairy and meat products may be more environmentally friendly than a strictly vegetarian diet'.

James Rider, by email

CLIMATE CHANGE MINISTER

The Environmental Audit Committee recently said the UK needs 'a cabinet minister for climate change'. This should be initiated sooner rather than later. For too long humans have misused nature. Time is of the essence.

Robert D. Dangoor, by email

GOVERNING OURSELVES

The IPCC's fourth report has reinforced – indeed, confirmed – a growing impression that we're in a very different scenario than we were five, or even two, years ago.

Let's be frank: environmental campaigning has not worked in terms of getting a major change in attitudes and behaviours. More media coverage has not persuaded Joe Public to give up his addiction to consuming and driving. Nor has it convinced governments to tackle their countries' carbon emissions and other assorted assaults on this planet.

Daily dilemmas

In each month's issue, we ask a common ethical question that many of us ponder in our day-to-day lives, and people can go to our website and offer their suggestions as to how to answer it. In a subsequent issue we will publish the most practical and engaging selections in the letters pages.

How do you know when you have enough?

Go to www.theecologist.org to have your say.

There is no sign that electorates are going to change. They are locked into modes of behaviour that no amount of debate, statistics, eminent reports, clever magazine articles and scary prognoses will alter. Conventional methods of proselytising don't cut it when dealing with ingrained societal addictions. People still love their cars, their shops and their foreign holidays, and won't stop because of a few floods and fires or because some ageing hippy in the *Ecologist* says we're all going to die. Similarly, governments are not going to buck the trend. They need the tax revenue too desperately. Keep consuming, they say, but switch off your televisions when you go to bed. Everything will be OK, citizens.

It's time we gave up expecting government to solve our problems. Let's wean ourselves off the dependency and delusion that has held back real progress on saving our world for 30 years. It's time we grew up. Mummy and Daddy are part of the problem. Our ancient political system has failed to rise to the biggest challenge: survival of the species.

Here's a novel idea. Let's have a convention of the great and good in environmentalism – campaigners, scientists, writers et al. Its message would be a simple one: it's too late to avoid a planetary crisis; governments have failed to govern for the good of the planet and unless we find alternative ways of directing our civilisation, we are facing catastrophe.

Without radical action nothing will change except to get worse, and our hot air will only add to global warming.

William Methven, by email

THE NEW CARBONOMY

Those who debate the reality of global warming are surely missing the point. The reality is irrelevant, so long as there are sufficient grounds to create a plausible suspension of disbelief in the minds of enough people.

For a brief moment at the end of the 20th century, the Y2K threat proved a plausible suspension of disbelief can spawn a whole new industry – albeit short lived. Now global warming has the potential not only to create whole new industries, but also a whole new basis of economics – perhaps Carbonomics.

In the Adam Smith Economy, money is the core driver of all human activity in resource allocation, value creation and trade. In the Al Gore Carbonomy, carbon credits will be the new drivers; bought and sold, invoiced and paid for – a new currency and store of value.

In the Adam Smith Economy, the West has ever less to offer China and India as they become respectively the workshop and service provider of the world. However, in the Al Gore Carbonomy – if it wins the race – Carbonomics can provide the West with a whole new set of technologies and industries to provide it with the basis of exports to Asia in services and equipment for the next century or more.

So let us stop the denial and take up the challenge – carbon is the new capital.

John Hunt

The Edinburgh Institute for Climate Change

DO IT FOR THE GRANDKIDS

Your November editorial was so important I emailed it to most of my friends and others here in Canada. Thank you for your clear, outspoken and timely message.

We hope that our new website – www.fourgrandchildren.ca – will help mobilise grandparents to take action on climate change by helping to educate their grandchildren and contacting decision-makers.

Anthony Ketchum, by email



GM ECONOMICS

KING CONTROVERSY

EVIDENCE DOESN'T SUPPORT CHIEF SCIENTIST'S CLAIM FOR GM CROPS

The Government has been unable to substantiate public remarks made by its outgoing chief scientific adviser Sir David King that not investing in GM agriculture has cost the UK economy £4bn.

Sir David made the claim before the Government Select Committee on Innovation, Universities and Skills. He also accused BBC Radio 4's *Today* programme and the *Daily Mail* of stirring up 'gut fears' about GM.

In a statement to the *Ecologist*, his office said: 'Sir David's estimate was not based on the current market for GM crops, but was intended to reflect the potentially much larger European and global markets he considers would have existed had public concerns about the new

technology been understood and addressed. Before hostility to GM crops, [the UK was] in a prime position to take full advantage of the opportunities offered by GM technologies and UK companies could have expected to take a significant share of the global market. This expertise, and the associated competitive advantage, has now been largely lost.'

Earlier in 2007, Professor Howard Davies, of the Scottish Crop Research Institute, estimated the entire worldwide GM industry to be worth only £2.5bn. In fact, the Soil Association estimates that investing in GM crops may have cost the US some \$12bn between 1999 and 2001.

Sir David's comments came as veteran MP Michael Meacher proposed an Early Day Motion in Parliament calling on MPs to voice public regret at 'continuing attempts to silence or misrepresent scientists whose research indicates possible health problems from GM crops.' At the time of going to press, 23 MPs had signed the motion, which was in part a response to attacks on campaign group GM Watch by Canadian Government employee Shane Morris, exposed on the GM Watch website for rigging research into GM crops (*Comments*, Dec/Jan 2008).

Meacher told the *Ecologist* he found the bias towards GM technologies within government and industry 'very worrying', and hoped the EDM would 'open people's eyes to the interplay between science and politics'.

His comments came in response to the first public appearance of Sir David King's successor, Professor John Beddington, who said he saw no safety reasons for opposing the growth of GM crops on UK soil.

Shortly before Christmas the *Daily Mail* exposed one of David King's 'examples' of the benefits of GM crops as being false.

Photo: DEE RAMADAN

CONSUMERISM

SAD PEOPLE SHOP

Researchers in the US have discovered that people with low self-esteem are more materialistic, but that their materialism decreases with a rise in self-esteem.

The study looked in particular at how materialism has become a 'coping mechanism' for low self-confidence in young children and adolescents. In the *Journal of Consumer Research*, the authors wrote: 'By the time children reach early adolescence, and experience a decline in self-esteem, the stage is set for the use of material possessions as a coping strategy for feelings of low self-worth.'

The research concludes that even small efforts to raise self-esteem could compensate for the



comfort-blanket effect of material consumption.

INCINERATORS DOUBLE JEOPARDY

A Private Finance Initiative (PFI) deal that would see an incinerator capable of burning 180,000 tonnes of waste a year built between three Sites of Special Scientific Interest has been referred to the Audit Commission.

Businessman Charles Cannon believes the terms of the contract between Veolia Environmental Services and Nottinghamshire County Council are loaded against local people.

The PFI deal is based on an assumption that the incinerator will have a life of 50 years, and that Veolia will hand the facility over to the council after 27 years. But Cannon, who used to work in the waste industry, believes all it will receive after that time would be 'a pile of scrap'.

'In 50 years you would easily go through three or four plants' worth

of parts,' he told the *Ecologist*.

Cannon wrote to the Audit Commission with a detailed breakdown of the manufacturer's specified lifetime for each of the incinerator's component parts. He showed that no single part had a life exceeding 25 years.

'It helps Veolia get rid of the problem of decommissioning,' he said. 'It simply passes on a broken facility to the taxpayer.'

Cannon also fears the waste quantity demands of the incinerator will limit recycling rates in the local authority for the duration of the contract, meaning that Nottinghamshire residents will not be allowed to recycle more than 52 per cent of their waste.

RAILWAYS TREES ON THE LINE

UK railway maintenance firm Network Rail is cutting down and poisoning track-side trees in order to meet performance targets, a campaign group has claimed.

Sussex-based Save the Trees

GO FIGURE...

Deforestation and climate change could destroy **60%** of the Amazon by 2030. The weak US dollar encouraged **7.4%** more transatlantic shopping flights this year than last. **More vehicles** will be produced in the next **25** years than in the entire history of the motor car. **30%** of business premises have fridges switched on – but have nothing in them. Current pollution taxes in the UK account for **7.3%** of total tax, compared with **9.4%** in 1997. If the world economy grows at a rate of **3%** until 2040, we will use resources equivalent to all those consumed since we first stood on two legs. Organic fruit and veg is up to **73%** more expensive in supermarkets than a local organic box scheme.

campaign has clashed with Network Rail and the British Transport Police several times in attempts to stop contractors using chainsaws and herbicides to undertake 'safety clearing'.

Gary Hassell, from the Sussex branch of the RMT Union, described the tree-clearing as 'fraught with danger'. 'There have been documented cases of resulting landslips in Burgess Hill and Haywards Heath,' he said.

Save the Trees wants Network Rail to coppice the trees instead, maintaining root structures that hold the banks together and allowing for regrowth.

CLIMATE CHANGE DISTORTED TRUTH

UK schoolchildren are to be encouraged to watch Martin Durkin's disgraced documentary *The Great Global Warming Swindle* as a way of 'exploring alternative views on climate change'.

New guidance for teachers has been issued by the Department for Children, Schools and Families in response to a 2007 High Court ruling over the showing in schools of Al Gore's *An Inconvenient Truth*.

Although the High Court found no reason to ban Gore's movie, it did insist that teachers be issued with an information pack in order to counter what it describes as Gore's 'partisan views'.

Durkin's documentary, which was the subject of open letters of complaint from leading scientists and an Ofcom inquiry, used creative editing to misrepresent the views of climate scientists and featured misleading graphics.

FERTILISERS SPRAY DAY

Continued food shortages led to an increase in fertiliser use by at least 200,000 tonnes during summer and autumn 2007, according to the Agricultural Industries Confederation.

Food pressures also led to a European Commission decision to

remove the obligation on farmers to 'set aside' eight per cent of their fields, meaning that more land will be put to intensive production.

WATER EAU DE SHAMPOO

Turn on your kitchen tap and you could be getting a draught of parabens and phthalates.

This is the conclusion of a study by the Royal College of Chemistry, which found UK drinking water contained traces of antibiotics, anti-depressants, painkillers,



anti-cancer drugs, beta-blockers, toothpaste and shower gels.

The long-life design of many of these chemicals means that they are not degrading when released into the wider environment.

The college is now calling for further investigation into the health effects of these substances.

SUPERMARKETS EVERY LITTLE COSTS

It's Tesco's favourite argument: that a new store will bring cheap goods to a town.

But now a shopping basket comparison by a campaign group in Manchester has shown that buying a selection of goods in a Tesco Express would actually cost shoppers some 7.5 per cent more than buying the same products from local, independent retailers.

The 'Keep Chorlton Interesting' campaign has been fighting a planning application by the supermarket to build a Tesco Express store because of the extra traffic and pressure on local businesses it would bring.

A number of councillors are now calling for an assessment on how the Tesco store would affect the local economy.

SCOTLAND NO GM

The Scottish Executive has thrown its weight behind EU Environment Commissioner Stavros Dimas's attempts to have genetically modified (GM) crops banned from the European Union.

In a move expected further to anger a progressively pro-GM Westminster, Scotland's environment minister, Michael Russell, offered Dimas his country's full support. 'The Scottish Government is profoundly opposed to the cultivation of GM crops in Scotland,' he said. 'We don't know enough about the risks.'

The Executive's move came as reports confirmed that BASF's GM potato, which was approved for trials in England earlier this year, contains a gene that confers resistance to two key antibiotics vital in hospital treatments.

WI-FI PHONE FEARS PUPIL EXODUS

Parents of 10 pupils at a primary school in Nottinghamshire have withdrawn their children from the classroom following the construction of a mobile phone mast 100 metres from the school building.

Rob Macklam said that he had been forced to remove his six-year-old daughter from Orston Primary School because he 'didn't want to consider' how the radiation from the mast might affect her in later life.

The parent protest follows the successful campaign of some 40 librarians in Paris to have their building's Wi-Fi wireless internet systems to be switched off, following a raft of symptoms including headaches and nausea.

The city authorities are now investigating possible health risks posed by the system, whose installation coincided with the librarians' illnesses.



FARE TRADE

Fresh food from local farms prepared in proper kitchens – these are the demands of the recently launched campaign group School Food Matters (SFM).

Initially based in the London Borough of Richmond, SFM is campaigning for all schools to get their food from sustainable local sources, to establish links with and organise school trips to the supplying farms, and to provide pupils with a suitable environment when it comes to mealtimes.

The campaign is creating a database of suitable farms, as well as lobbying headteachers, governors and local councils to provide the necessary funding and support.

For details, visit www.schoolfoodmatters.co.uk

VAN HAILING

UK van-sharing website www.freightalerts.co.uk helped to avoid 1.4 million road miles last year.

Freight alerts was set up to take advantage of the 562,000 vans and lorries that make empty return journeys every day.

Now more than 1,000 transport companies use the site, saving both CO₂ and money. Founder David Hiscox estimates that reducing the number of empty vehicles on the road by a mere three per cent could save more than one million tonnes of CO₂ being used every year.

NUCLEAR POWER

NEGATIVE ENERGY

BEFORE ANY NEW NUCLEAR POWER STATIONS ARE BUILT IN THE UK THERE WILL BE A URANIUM CRISIS AND CRIPPLING WASTE PROBLEM

Within 15 years, the nuclear power industry could become 'energy bankrupt' – incapable of ever generating enough energy to deal with its own growing waste problem.

This is the conclusion of a new report by acclaimed environmental economist and author David Fleming, which examines the lifecycle costs of nuclear energy. By taking into account the energy needed to extract, purify and supply uranium, as well as that needed to build, run and decommission a power station, Fleming calculates that at current levels of uranium ore deposits, the nuclear industry will need to divert all its energy to cleaning up its waste by roughly 2025.

If the industry were to postpone the task and continue to feed the grid with electricity beyond 2025 then the global legacy of nuclear power would be that it had consumed more (fossil) energy than it ultimately gave us.

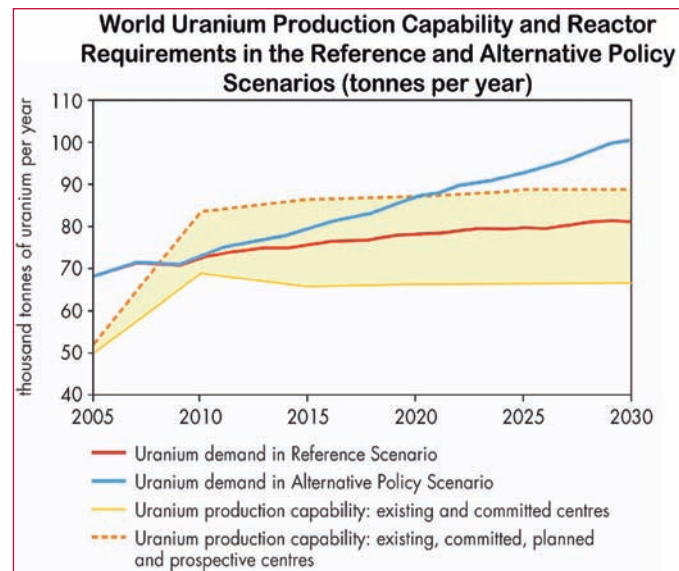
'I conclude that nuclear energy is not part of the solution to climate change and energy security,' said Fleming. 'It is part of the problem.'

He called for action to deal with nuclear waste while there was still energy enough to do so.

Fleming's figures are reinforced by data from the International Energy Agency (see graph opposite), which show that a growth in nuclear power would lead to a uranium supply crunch by 2020.

At the exact period when the Government's much hankered-after new nuclear plants would be coming on-stream, the IEA's graph suggests that the increased demand for uranium fuel (blue line) would outstrip even the production capabilities of planned and prospective uranium facilities.

The yellow line on the graph indicates the output of current uranium production facilities, well below the requirements of even a modest new nuclear programme.



AGRI-BUSINESS CROPPED HONEY

An anecdotal study by an apiarist in Pennsylvania has

shown that bees foraging away from agricultural land produce significantly more honey than those that collect nectar only from farm crops.

Baffled by the loss of his own bees through Colony Collapse Disorder the previous winter, beekeeper John McDonald conducted his own 'trial'.

He placed four hives in the middle of rolling farmland and four in thick forest with no nearby crops. By the end of the experiment, in October, the forest bees had produced 200lb of recoverable honey, whereas their farmland counterparts had produced none.

McDonald now intends to leave the hives in place to see whether

the crop-foraging bees can survive the winter on such depleted honey reserves.

DESALINATION NUKE WATER

With increasing pressure on fresh water supplies across the globe, the use of nuclear energy to desalinate sea-water is gaining in popularity.

Writing in a specialist journal, Meenakshi Jain, the director of an environmental consultancy in India, says: 'Desalination with fossil energy sources would not be compatible with sustainable development [but] nuclear energy seawater desalination has a tremendous potential for the production of freshwater.'

Companies are already developing 'floating' nuclear plants – reactors on ships – that could be sent to wherever energy and fresh water are required.

Meanwhile, new research

demonstrates that crops irrigated with desalinated water can suffer physiological defects and stunted growth, as the process sucks not only salt from the water but also vital minerals, depriving the plants of essential trace nutrients.

RENEWABLE ENERGY HAMSTER POWER

The unpredictability of wind power has long been considered its bête noir, but new research by scientists at Stanford University suggests connecting multiple wind farms can 'smooth' the electrical output from turbines to supply steady 'base-load' power.

'It's a bit like having a bunch of hamsters generating your power, each in a separate cage with a treadmill,' said lead author Cristina Archer. 'At any given time, some hamsters will be sleeping or eating and some will be running on their treadmill. Get enough hamsters together and

the odds are pretty good that at least a few will be on the treadmill, cranking out the kilowatts.'

By joining up the output from multiple wind farms, the study found that up to 47 per cent of their total electrical output could be used to supply valuable base-load power. It could also reduce the cost of connecting to the grid.

NANOTECHNOLOGY SMALL COMFORT

Scientists are more worried about the potential health and environmental impacts of nanotechnology than the public, according to research by the journal *Nature Nanotechnology*.

A survey of 363 nanotech scientists and engineers revealed a high degree of uncertainty as to the potential of the science of the very small. The findings conflict with attitudes towards previous 'techno-fixes', such as genetic modification and nuclear power,

where scientists were generally more relaxed than the public.

The study showed that potential health problems were the scientists' greatest concern. More than 30 per cent of the scientists feared some human health risk, compared with only 20 per cent of the general public.

CONSUMERISM DIRTY LUXURIES

How's that Bulgari watch sitting? Or your new Tiffany ring? Perhaps not so pretty, following an investigation by WWF into the environmental and social impact of luxury goods' providers.



The campaign group scored 10 well known manufacturers, including L'Oréal, Hermès and Tiffany according to their own ethical reporting and reports

GREENWASH CHEVY CHASE

Which model won Green Car of the Year 2007? The Prius? The Polo Bluemotion? Nope. It was the hybrid Chevrolet Tahoe, an eight-passenger SUV that gets 21 miles per gallon around town.

The award was given by the Green Car Journal, which praised the Chevrolet Tahoe's fuel-efficiency improvement of 30 per cent as 'changing the dynamic' of gas-guzzling SUVs.

NOW THAT'S... PROGRESS

- 1** 20 per cent of students in the United States said in a survey that they would be prepared to forfeit their right to vote in the 2008 elections in exchange for an iPod.
- 2** Developers are planning to build a water-sports park in Phoenix, Arizona – an area that receives only 20cm of rainfall a year and has record low levels of drinking water.
- 3** Heathrow operator BAA has offered residents beneath its flightpaths free loft and window insulation. BAA denied it had anything to do with the proposed third runway.
- 4** Taxes on pollution have fallen from 9.4 per cent in 1997 to 7.3 per cent today, but the Government is issuing more fines for littering than ever before.

from NGOs and the media. L'Oréal scraped the top mark of C+, while clothing company Tods came bottom of the class with an F, refusing to give information on its production processes.

WWF's report contains many examples of good practice in the luxury goods market, and calls on the companies above to strive for 'a new definition of luxury'.

SUBSIDIES HEALTHY PENALTIES

A new study by scientists at the University of Washington has found that the cost of lower-calorie foods is rising faster than any other.

The price of fresh fruit and vegetables has increased by almost 20 per cent in the past two years, putting a balanced diet progressively beyond the reach of the less wealthy.

The US Farm Bill faced fierce criticism in early 2007 for subsidising feed crops of high-calorie food supplies such as corn, soybeans and wheat, making energy-dense foods cheaper than their healthier counterparts.

CLIMATE CHANGE NO ICE BY 2012

NASA climate scientist Jay Zwally has said the Arctic ocean could be

ice-free in summer by 2012.

Examining new satellite data collected after the startling 2007 summer melt, Zwally concluded that the ice was disappearing 'much faster than previous predictions'. Mark Serreze, senior scientist at the US Snow and Ice Data Center, described the Arctic as 'screaming'.

Climatologists have now begun to ask whether 2007 was simply an 'anomalous' year, or whether the climate is warming at a rate unpredicted by even the most advanced computer models.

GLOBALISATION TRADE WARNING

Concern is mounting over the EU's trade deficit with China, which is predicted to be \$170bn (£90bn) in 2007.

'The considerable and growing trade deficit is adding to EU citizens' anxiety about globalisation,' said European Commission President Jose Manuel Barroso. 'Indeed, there is a risk that the economic emergence of China is seen by Europeans as a threat.'

Barroso said that China must deal with its ballooning trade surplus and open its markets, adding that China's growth model relies far too much on exports instead of internal consumption.



BUSH WHACKED

Despite the failure of Bali to agree on action to tackle climate change, regional action continues apace.

Governors of 10 states in the US Midwest, including Wisconsin, Minnesota and Iowa, have signed the Midwestern Regional Greenhouse Gas Reduction Accord, pledging to agree carbon emission limits and establish carbon trading initiatives. If the accord's signatory states were a country, they would be the world's seventh biggest carbon polluter.

The initiative is the third such agreement in the US, meaning that half of all Americans are now covered by a climate change agreement, irrespective of President George Bush's federal inaction.

MINE VICTORY

British company Vendanta Resources Plc has been banned from mining bauxite in eastern India by the country's supreme court.

Vendanta had planned to feed a nearby smelting plant with a £470m open-cast mine that would have devastated the densely forested and biodiverse Niyamgiri plateau in Orissa.

Tribal communities were jubilant at the ruling, but fear a loophole might be used to bypass the ban.

Hedge funds for forests

Protecting rainforests is now almost as lucrative as cutting them down. **Mark Anslow** reports on a commodities-centred approach to stopping deforestation



Last year brought a shock to Indonesia. From being the 14th largest emitter of carbon dioxide in the world, it took a precipitous jump to third position, just shy of greenhouse behemoths China and the US. Its land mass is just a fifth the size of its new carbon neighbours; its GDP is one-seventh that of China and one-13th that of the US.

The reason for Indonesia's rise to infamy? Deforestation. Between 2000 and 2005, its rate of deforestation increased by a staggering 19 per cent, as rainforest made way for palm oil plantations. It is clear that while there is a market price for a palm olive tree and not for a native Kapok tree, slash-and-burn agriculture will always be the quickest road to riches

In 2005, NGOs and policy-makers began to flesh-out the REDD initiative – Reduced Emissions from Deforestation and Degradation – which would award countries carbon credits for every ton of rainforest left uncut.

They ran into problems instantly. Would it become a massive offset scheme, with Western governments shirking carbon targets by buying tracts of virgin rainforest? How to account for the methane from rotting trees? Most contentious of all, what about rewards for countries that already had policies and measures to preserve their forests?

Frustrated by the achingly slow progress of the UN negotiations, side initiatives began to spring up. The Brazilian government proposed an international fund to buy the new forest credits. The Coalition of Rainforest Nations wanted the forest credits to be incorporated into the current Kyoto system, and the World Bank proposed the Forests Carbon Partnership Facility scheme, with 'sellers' in rainforested countries and 'buyers' in rich nations.

Alongside them, a proposal known as the Forests Now Declaration has begun to garner support. Run by the Global Canopy Programme, it calls for forest credits to be created for all forests

and, uniquely, for governments to acknowledge the value of 'ecosystem services' – such as clean air, rainfall generation, soil stabilisation and food, fuel and habitat provision – and incorporate this into a trading system.

Counting among its signatories veteran ecological campaigner Wangari Maathai and primatologist Jane Goodall, the declaration has won support by promising to acknowledge the wider value of forests, not as mere carbon sinks, but as rich habitats providing more value to mankind than anyone has realised.

'My worry is that REDD is so complicated it may never get off the ground,' says programme

'Using pictures of pretty animals won't do it. We need investor capital'

founder Andrew Mitchell. 'It's also open to abuse. You could spend years cutting down trees, then suddenly reduce your deforestation and earn money on carbon credits. It offers nothing to local communities. Our scheme calls for a valuing of the entire forest ecosystem, with local communities as the custodians.'

Rather than trade carbon internationally, the Global Canopy Programme proposes bundling up forest ecosystems into 'funds' to be traded by long-term investors, with profits split between them and the communities managing the forests. Such funds may be 10 years from market, but a legal framework is already being drafted, and is attracting the attention of hedge and pension fund managers.

This commodification of ecosystems is raising hackles, however.

'Trading schemes promote an "offsetting mentality" – that the West can pay someone

to reduce emissions for us,' explains Friends of the Earth international climate campaigner Tom Picken. 'On an economic level, the price of carbon is simply too low for them to work. The West would need to make serious carbon cuts of its own before the price of carbon became high enough to trade in tons of forest.'

Picken also warns an awful lot of people are waiting to make an awful lot of money from 'driving forests to market'. He foresees logging companies, many of which, with state consent, have built up vast land banks, cashing in on land that may not even be their own.

He points instead to Costa Rica, where deforestation rates have tumbled through state intervention. By offering families \$50 a month not to log their land, it makes sense to become a forest custodian. Picken is insistent solutions should come from the grassroots.

'These people have acted as guardians of the forests since time immemorial, and have done a pretty damn good job of it,' he says. 'And the Costa Rican programme has cost a fraction of an equivalent carbon market programme.'

Mitchell agrees community participation is the way to proceed, but argues the Costa Rican experience simply isn't 'scalable'.

'Wringing hands and raising money using pictures of pretty animals won't do it,' he says. 'I've been a conservationist for 15 years and we need investor capital to make a difference.'

As Guyana offers up its rainforests to UK protection and Norway pledges an annual \$500 million preservation fund, it is clear that forests mean money in a way they never have before. In whose pocket the money ends up, however, and whether it can preserve what is left of the world's rainforests, will depend largely on whose voice is loudest at the next UN climate conference in 2009. **E**

Image: GCP/K. Secoy

OXFORD solar

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Reducing the Carbon Footprint of your home or business

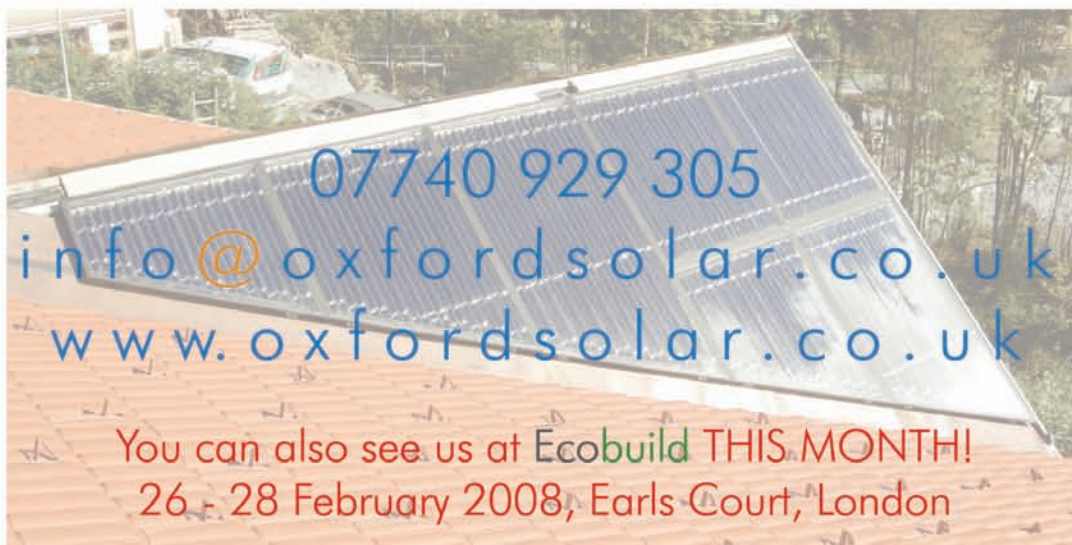
Oxford Solar specialises in design, installation & supply of solar hot water heating systems & log, pellet & woodchip boilers.

A well-designed solar hot water heating system can provide 60-70% of your annual hot water requirements.

UK distributor for SOLARFOCUS GmbH renewable energy products including the unique CPC flat plate collector and Therminator II wood boiler which is capable of burning logs, wood pellets & woodchips.

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- Domestic, commercial & swimming pool systems
- Advice & assistance on obtaining grants
- Members of the Solar Trade Association





CLIMATE CHANGE

When bad news is good news

There were deaths, pollution and substandard goods, but last year's slew of negative publicity may have encouraged China to face up to its responsibilities, says **Isabel Hilton**

It's the bad news, of course, that makes the headlines. No news editor would splash with a story headlined 'Quality of Chinese Goods Steadily Improves'. Stories like that belong to the public relations industry and its evil twin, the political spin machine.

For the government of the People's Republic of China, though, which once controlled everything that was published or broadcast within the country and shrugged off external criticism as black capitalist propaganda, this year's painful reckoning with international headlines has been more than difficult. The ruling Communist Party is no more eager than any other political organisation to admit mistakes: historically, its own propaganda held that the Party, as the most advanced political organisation in history, was all-but infallible. Few people inside or outside the Party believe that today, but given that public criticism still involves loss of face, and that international complaints are wounding to national pride, China has had some painful lessons this year. From lethal petfood and dodgy medicines to substandard tyres and lead paint on children's toys, China's brand image has been tarnished.

It's humiliating for any country to be associated with substandard goods; for China, it's more than that. Its rise over the past three decades has been important to national self-esteem not only because a country as large as China feels that big power status is its right, but also because it is seen to exorcise more than a century of weakness and of humiliation at the hands of the West, still felt by many Chinese to be a period of national shame. Next year's Olympic Games are not simply two weeks of high sporting drama: they are Beijing's coming-out party as the next world power and a return to China's rightful place in the world. Anything that damages that trajectory is keenly felt.

China is particularly sensitive to criticism because of the narrative that accompanies its rising economic clout.

The Communist Party has abandoned class struggle in favour of the neo-Confucian theory of 'harmonious society' and its international corollary, 'peaceful rise'. In contrast to the big powers of the West, this theory goes, China is not an imperialist power and its rise threatens nobody. In fact, the rise of China will be a positive contribution to world peace.

The branding of the new China depends on a positive image, not only in the capitals of the West, but also in the global south, where it is now the most voracious buyer of raw materials, where China's cheap goods threaten local manufacture and its companies practise their multinational skills. To support the narrative of universal harmony, Beijing has spent millions in recent years on an unprecedented soft power effort, spreading its cultural exports around the world, handing out aid and investment, offering scholarships to Chinese universities and generally playing favourite uncle to regimes that welcome the unusual combination of largesse with no human rights or good governance strings.

But in the past few months that narrative, always greeted with scepticism in Washington, has proved insufficient to the task. China's lack of governance and rule of law at home, coupled with unrestrained corruption and lax standards of public health, has begun to harm its international reputation. If Chinese citizens die, as many have, from counterfeit goods, they have little redress – and the scandals are so many they have lost their impact.

China has been inundated with fake drugs and poisoned food products in recent years. Last year, six people died and scores of others became ill after taking a contaminated antibiotic; in previous years, in one of the most shocking cases, 300 babies fell seriously ill and more than a dozen died after being fed fake

milk powder. The Chinese are suffering a major health crisis caused by water contamination, air pollution and adulterated food, but there is little they can do about it. Citizens elsewhere are another matter.

As climate change impacts begin to affect the global south, China's recently acquired status as the world's largest emitter by volume of greenhouse gases and Beijing's reluctance to discuss emissions limits, coupled with a
breakneck programme of coal-fired power stations, begins to look less benign even to China's traditional constituencies in Africa.

And as the world watched with sympathy as Burma's monks led peaceful pro-democracy demonstrations against a brutal regime, China's policy of business with no strings did little to enhance Beijing's reputation as a responsible player on the global scene. Even the Olympic Games, with its potential for high-profile blackmail by every discontented group inside and outside China, is beginning to seem more like a nightmare than a dream.

How has Beijing reacted? Ten years ago, criticism of Chinese goods would reliably have been seen in Beijing as unwarranted sabotage by powers that are determined to keep China poor and subjugated. But, though government spokesmen have pointed out, rightly, that China exports no greater proportion of substandard goods than other countries, there was a relative lack of paranoia in Beijing's reaction to scandals of 2007. They did, in fact, prompt Beijing to act. The government closed down the enterprises churning out illegal or substandard goods and, to demonstrate its seriousness, sentenced the vice minister of the State Food and Drugs Administration – arrested the previous December for bribetaking – to death.

Politically, too, Beijing has demonstrated a

The scandals of 2007 prompted Beijing to act. It closed down the enterprises churning out illegal or substandard goods

new flexibility, from North Korea to Darfur, and recently, even in Burma. China is unlikely to join the grandstanding of the Bush administration in denouncing the Burmese regime, but Chinese pressure, discretely applied, may have kept the bloodshed to a minimum and secured access for the UN's envoy. Even on climate change, there are signs of action: though the government may not label them as such, many of China's energy policies are climate-friendly, as is a new emphasis on sustainable development. Beijing knows that China is perilously close to an environmental meltdown and, if Beijing follows to the letter the Western model of industrialisation – develop first and clean up last – the country will run out of everything from water to usable agricultural land long before clean-up time comes round, when climate change will be a lost cause.

What can be done to encourage China to be more environmentally responsible? The door is opening to constructive engagement on both environmental and climate change issues, but Beijing is unlikely to rein back on coal-fired power stations, for instance, as long as the United States continues to build them – and there are plans for more than 150 in the US in the next few years.

Nor is it likely to accept the emissions limits that Washington refuses. Below the level of hostile headlines and government diplomacy, there is scope for technical co-operation and sectoral agreements that combine the attractions of China's mass market and cheap manufacturing with everyone's need for cleaner technologies.

China is ambitious to move up the manufacturing value chain. To do so effectively Beijing will have to put serious efforts into making government officials at every level obey the increasingly progressive legislation that the central government has enacted on public participation, the right to know, freedom of the press and the rule of law – legislation that is presently flouted at every level. If the Chinese government is serious in its efforts to root out corruption and institute good governance, it should start from the understanding that bad headlines might be wounding, but they are also a useful pointer to abuse and a tool for improvement. If that lesson were to be learned in Beijing, last year would turn out to be a real turning point. **E**

Isabel Hilton is the editor of www.chinadialogue.net

MAKING DO

The end of the affair

I've just been shopping. I went to London, walked into shops and bought things. New things. Not many – in fact my little pile of shopping bags is tragically small. I rapidly got bored and tired, and came back home.



I found the brashness of the shops a little grating. I felt I was getting a headache from the lighting and the assistants asking me whether I needed any help. The whole experience was stressful.

All this might sound like it comes from someone who has been in prison or in a desert, when all I have done is not go into shops for a year. I should clarify that I've been into supermarkets and farm shops, chemists and post offices, but I haven't been in any consumer shops; not once in 12 months.

I also haven't done any online shopping, something I used to do quite a lot. Over the last month of my no-shopping experiment I admit I built up a list in my Amazon shopping basket. When my year was up I went to my list, scanned the collection of DVDs, computer peripherals and a new video camera, and hesitated. All it would take was a single mouse-click and all this stuff would be delivered in a couple of days. I couldn't do it. It made me nervous. Did I really need any of it? I went through the list again and removed about half. As I write this I still haven't clicked.

Something has changed and now I am worried it won't change back. I have found the experience of the past year very easy; it's been a massive get-out of all the stress of consuming. Over the past 12 months, whenever I have found myself tempted to buy I have had a simple default setting. Don't. End of problem.

When something broke, I fixed it (my watch took three months) and when something new came out, I ignored it. That was how I went along for 11 months. In the twelfth I started wasting time on the internet, comparing the Panasonic HDC SD5 camcorder

with the Sony HDR SR7E. I already have a camcorder but its lens is held together with superglue and gaffer tape. I dropped it just before my year started and it is something I use a great deal. It still just about works but the auto-focus is shot to bits and it's generally a bit knackered.

Then there's the iPhone. I went into the store and looked at it. I picked it up – I admit I was vain enough to watch myself on YouTube on it. It was really amazing, but I didn't buy it because I really don't need one. I have a mobile phone that came free with my contract; I make calls on it and people call me. It works. I don't need a new one.

How am I going to shake off this satisfaction with what I have already? How am I going to learn to yearn? It was such a simple little step to make and it has utterly changed my life. I am still interested in working; I am still driven to earn money; I just don't want to buy things I don't really need. If it really is this simple, it could catch on. More people might do it and find it's not that hard; if they do, it could have devastating consequences for the economy. That's the problem: you say you're only going to give up buying new stuff for a

year, but when the year's up you don't really want to go back. I feel a bit guilty. It's all my fault, I'm not doing my bit to support the economy – but then is it me that's wrong, or is it the economy? **E**

Robert Llewellyn is an author, actor and television presenter

“How am I going to shake off this satisfaction with what I have already? How am I going to learn how to yearn?”

Put five apes in a room. Hang a banana from the ceiling and place a ladder underneath the banana to enable them to reach it. Have it set up so any time an ape starts to climb the ladder, the room is sprayed with ice-cold water. The apes will soon learn not to climb the ladder.

Now take one ape out and replace him with another one – Ape #6 – then disable the sprayer. The new ape will start to climb the ladder and will be attacked unmercifully by the other four apes. He will have no idea why. Replace another of the original apes with a new one and the same thing will happen, with Ape #6 doing the most hitting. Continue this pattern until all the original apes have been replaced. Now all of the apes will stay off the ladder, attacking any ape that attempts the climb, and have absolutely no idea why.

This is how company policy and culture is formed.

While this allegory – which was sent to me in an email five or six years ago without attribution – is a humorous and somewhat accurate account of how corporate cultures can become calcified and resistant to change, we need to remind ourselves that we are humans. We have access to a consciousness that can transcend lifelong patterns of behaviour, reframe mindsets and transform worldviews.

Human beings possess the ability to think. We can choose different behaviours. We can learn to think differently. Once we recognise that stubborn corporate cultures are merely collective groups of people acting and thinking stubbornly, that dysfunctional cultures are merely groups of people acting dysfunctionally, it may be much easier to deal with the task of large-scale transformation of these systems.

I use the term ‘system’ to describe a set of expectations and relational dynamics – the ‘rules’ to which people subscribe. Most people are impacted by dozens of systems every day, systems that, to differing degrees, influence their decisions and actions.

A ‘system’ in this context is any collection of practises, traditions, habits, policies and ethics that influence common behaviours. Examples include families, communities, corporate cultures, nationalities, religions, industries, professional groups and trade associations. Your family may have a tradition of making a toast before a particular holiday dinner and, when they do, you feel certain

pressures to conform. So you join in the toast.

Good people can behave in bad ways when they are immersed in certain social structures. In systems-speak we call these ‘closed systems’. Examples include religious cults, teenage gangs, militia groups or terrorist groups, which appeal to people seeking some sort of self-identity. An example of a system-gone-wrong would be a lynch mob. The place where we work, of course, is one of the systems that has most influence on our behaviour.

So how does this apply to the corporate system? Most of the time we refer to ‘business people’ in a pejorative way, as ‘suits’ who are ‘only interested in the bottom line’. But anyone who deals with, is persuaded by or receives gain from money or the exchange of goods and



BUSINESS LIFE **A systems view of corporate culture change**

We have the ability to think our way out of the seemingly unchangeable ways in which we conduct business, says **John Renesch**

services is a ‘business person’. If you work for a company or own your own business you are part of a system that traditionally honours economic gain more than anything else. As a player in that system you contribute in a direct way to the way business is conducted.

In other words, we are all part of the economic system of commerce and have all allowed our corporate systems to develop cultures of market fundamentalism – that single focus on the financial bottom line – which has displaced all other values. By not objecting as it gained footholds in the business culture over recent years, the past couple of generations have enabled this steroid version of market capitalism to creep into the social culture and become acceptable and ‘normal’. To change this, we must change.

Simplistic, cause-effect thinking works for simple systems, but we need to keep pace with the complexity of the modern systems we’ve

created. To think a complex systems problem can be solved by linear thinking is naive and often dangerous.

Most contemporary problems are systemic. The major killer diseases in the world today – heart disease, AIDS and cancer – are all systemic, the result of several factors, not simply a single infecting ‘agent’. The ‘magic bullet’ cures that combat diseases such as polio, tuberculosis and malaria won’t work on the killers that affect the body’s immune system. Treatment requires a whole-system approach that includes diet, lifestyle and state of mind or consciousness, as well as medication. Pills alone won’t do it.

But people still act as if there’s a simple cure. Even doctors are slow to adopt the systems perspective, routinely prescribing medication and hoping for a magic bullet.

Einstein said we cannot solve our problems with the same consciousness or thinking with which we created them. The future is bleak unless we acknowledge the complexity of the systems influencing us. The outlook is depressing, unless the people who make up the systems stop pretending nothing can be done or that they are not complicit in the dysfunctions. The problem is within each of us who allows the deterioration of our cultural functioning to continue.

Those in larger corporations may have a tougher task due to their sheer size, but there are also more people to take it on. Smaller businesses have an easier time but fewer people to help. Older, more established organisations might be more entrenched in their status quo ways. If they are publicly held, the task might be even tougher. It isn’t hopeless, though. People created these cultures, these complex systems, and people can reform them. It is time for people to start expecting systems to serve them in the way they were intended and to emancipate themselves from their tyranny. It is time to recognise who’s in charge and escape from the servitude to the system. **E**

John Renesch is a San Francisco businessman-turned-futurist and a pioneer in the movement to marry the worlds of commerce and human consciousness. He offers keynotes and workshops in systems thinking. His latest book is *Getting to the Better Future: A Matter of Conscious Choosing*. For more information about his work, visit www.renesch.com

CLIMATE CHANGE

Too much information

'You're confused by recycling, bless you,' say the politicians. Nonsense, says **Mark Anslow**

Since the Department for Trade and Industry was turned into 'BERR' in June 2007, many have been waiting to find out what the new name means. We've seen plenty of focus on 'Business' and 'Enterprise', but not as yet much in the way of 'Regulatory Reform'.

That all changed shortly before Christmas, when BERR released a report entitled 'Too Much Information Can Harm'. It is the Government's job to save us from the excessive amount of product warning and information labels that we face when trolleying up the aisles, said the department's chief, John Hutton:

'This information is expensive to provide, costing business over £1.5 billion a year, and simply confuses consumers. It is unacceptable that consumers are taking decisions in the dark, unaware of the potential dangers or consequences. We are acting to give the power back to consumers to make informed choices by rationalising information and making sure it is presented as simply as possible.'

Good heavens! Have we been making rash, foolhardy decisions for all these years? Let us, in that case, have more information! No, hang on: we've got too much already; Hutton thinks we're 'confused'. So now our information is to be 'rationalised' and 'simplified'.

Research began back in January 2007. BERR asked the Better Regulation Executive to ask Vanilla Market Research to ask the public what it made of information available on everything from insurance forms to toaster manuals. Vanilla devised seven 'scenarios' in which consumers come into contact with confusing information. One of these was when faced by the recycling logos on product packaging.

A member of one focus group made this appeal: "If there is a different grade of plastic and you can [recycle] two bottles and you can't use the other one, why? Why isn't the third one made of plastic you can re-use so every plastic bottle goes in the plastic bloody bin? Simple." Pensioner, Low-Income.'

Pensioner Low-Income, we hear you. Unfortunately, your clear and simple plea became distorted in the engines of BERR, oiled with notions such as 'enabling businesses to

bring their communication expertise to bear in complying', lubricated by desires to 'be open to suggestions from [those] being regulated'.

BERR pointed out that the new requirements were being nicely met by a collaboration on recycling logos between the Government's Waste and Resources Action Programme (WRAP) and the British Retail Consortium (BRC).

Concerned that supermarkets were taking flak on packaging simply because local authority waste schemes couldn't get their act together, the BRC stepped in to propose a less 'confusing' recycling logo with three categories: 'Widely Recycled', for waste handled by over 60 per cent of local authorities; 'Check Locally', for waste handled by between 20 per cent and 60 per cent of local authorities, and 'Not Currently Recycled', for waste collected by less than 20 per cent of local authorities. Simple.

But wouldn't this last category be a recycling logo that designates a material 'non-recyclable' when up to 20 per cent (that's 77) of local authorities may well actually recycle it?

'Sorry, we're not discussing it,' WRAP told me. 'We're consulting.'

So I rang the BRC. 'There have been some very unfounded and misguided accusations made at retailers over packaging, which plays an essential role,' they told me. 'But the biggest barrier to people recycling is a lack of correct information. Our research shows that there will be a net gain in recycling even if some items that could be recycled are thrown away. We've got to make it easy for people.'

'Even if making it easy means throwing recyclable items in the bin?' I probed.

'I've already answered that question and I'm not going to repeat myself,' was the reply.

'But it's still voluntary, right?' I asked.

'Yes, but that's why we're consulting.'

Once again, big retailers look set to be offered a cost-saving, voluntary, greenwashing way out. Instead of having to provide detailed

information and declare which plastics or composites they are using in their products, producers can simply whack on a 'not currently recycled' logo and forget about it. After all, it's probably the local authorities' fault anyway – less than 20 per cent of them are recycling it.

Instead of encouraging consumers to find out whether and where they can recycle their waste, we will be faced with the conscience-salving, guilt-effacing 'not currently recycled' sign, a dumbed-down logo that will hamstring informed consumers and progressive councils

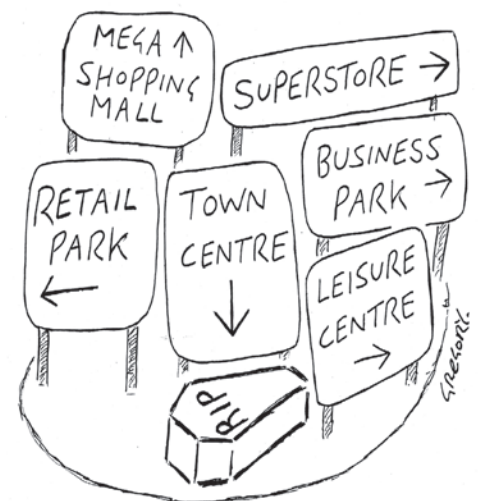
alike. And what of those trail-blazing local authorities?

'Local inconsistencies cannot be allowed to thwart a standardised label that will help millions of customers and mean more of what can be recycled is collected,' says BRC director general, Kevin Hawkins.

On the contrary, providing information and encouraging 'local inconsistencies' – like St Edmundsbury for its recycling work, and Merton Borough and Woking Town Council for planning and energy policies respectively – is the only way things ever move forward. **E**

Mark Anslow is the Ecologist's senior reporter

Instead of having to declare which plastics they are using, producers can simply whack on a 'not currently recycled' logo



POLITICS

City planning as if people mattered

We let down our children and our communities when we ceded control of the streets to the car. **Philip Parker** flies the flag for a people-first approach to traffic management

Our local built environment has the power to affect our moods and behaviour. It will suggest certain values and can promote positive feelings. But for the past 50 years the streets and spaces where we live have primarily been designed to facilitate the movement of cars. This has frequently had a negative impact on local communities and affected the way we live.

Radical alternatives have been developed on the near-continent, however, pioneered in Holland, that offer the hope for a future where communities can prosper. By designing for people, a safer, more pleasant and sustainable environment can be created with many resulting benefits. These include promoting a healthier lifestyle, reducing crime and anti-social behaviour, cutting carbon emissions and assisting social cohesion – but above all improving quality of life and contentment.

It was apparent in the early 1960s that future car growth would be significant. In 1963, the Government commissioned the Buchanan Report, which determined that cars and pedestrians should be segregated for their mutual safety. Since that point, and especially throughout the 1970s, even minor housing developments have featured wide roads and separate kerbed footways. This created the perfect environment for the car, which, like any pest given perfect conditions, thrived and multiplied, claiming the space as its own.

Children that once played in the streets and moved aside when a car appeared were now told to play on the pavements. Consequently car speeds increased. Children stepping on to the street were considered even less safe and told to play inside. Due to this spiral of retreat, the streets became roads, solely for cars. Victory for the car! As a result, houses have now become self-contained play areas and children's bedrooms entertainment centres. With home cinema and garden mini-parks, furnished with playground equipment, there is no longer a need to venture outside or interact with our neighbours at all. Community

life has suffered as a result.

In recognising that traffic in our streets had become a problem, local authorities had to find solutions. A new breed of engineer was created: traffic engineers, trained to control this new menace. The space between our buildings became their exclusive domain, as no planning permissions or consultation was required for them to develop their art. As a result of recognising traffic problems solely as such, however, only the solutions proffered by experts in that field were considered and developed.

Traffic engineers naturally used the knowledge and skills in which they had been trained – but the expertise available was necessarily one-dimensional and limited.

So public spaces became increasingly engineered to be roads for cars and less streets for people. As a consequence, traffic problems increased – and we turned once again to traffic engineers to solve them. More traffic signs, road paint in its various garish colours, chicanes, road humps and flashing signs appeared. When these did not work, even more regulations were introduced and more signs and paint appeared to try and enforce them.

It is a spiral that has continued. With the introduction of every sign, kerb, additional road paint, zebra crossing or traffic calming device, it is reinforced once again that the space is primarily one for cars, and the quality of community life is yet further diminished. Standard solutions – using standard materials in a standard way, often inappropriately and with no respect for local character – are inflicted. Creeping suburbanisation has been occurring by default in many of our villages and small towns.

We need radical new thinking to break this cycle. Happily this is available. Like the punk reaction to the over-elaborate music of the

mid-70s, a New Wave of street design has been sweeping the near-continent.

Contrary to perceived conventional design wisdom, actually reducing road width and creating obstructions to visibility – as well as removing traffic signs, road markings, kerbs and other segregation, so that pedestrians, cyclists and cars share a common space – has been found markedly to reduce vehicle speeds and the number and severity of accidents.

Even assessed purely on engineering grounds, complete removal of

traffic signals at junctions in Denmark and Holland has shown significant improvements both in traffic flow and safety. The examples are proven and dramatic.

As a result, a more attractive and natural environment can be created, one designed principally for

people and where traffic has to accommodate itself to the social life of the streets rather than vice versa. Creating such a community environment, which respects the individual community identity and its values, will encourage and sustain moods and behaviour that are important to our contentment. Appropriate and sympathetic design lifts the soul and allows communities to flourish, rather than degenerate further into a dreary and monotonous world of traffic.

The alternative world of the UK traffic engineer is uncomfortable, cheerless and risks greater abuse and vandalism. Hans Monderman, the celebrated Dutch engineer and pioneer of the Shared Space concept, neatly summed it up when I met him: 'Spatial environment is very strong in the story of telling people how to behave. When you want people to behave as if they are in a church, you build a church, not a disco. If you want people to behave as if they are in a village then you have to build a village. We have made many discos of our villages in the past!'

Segregated from pedestrians, the car, like any pest given perfect conditions, thrived and multiplied, claiming the space as its own

In a recent Unicef survey, Dutch children were found to be the happiest in the rich world, with British children languishing in last place. A similar study has been conducted by the European Commission since 1973 to find its most content citizens. Each year the country ranked first has been Denmark.

Likewise in a poll of satisfaction, Colombia, despite being one of the world's poorest countries, was found to have as high a satisfaction level as Denmark. Its homicide rate in 2005 has been reduced to less than a quarter of that in 1993.

Colombia has invested heavily in its public spaces and public transport over the past decade, creating 1,100 parks and play areas in three years in its capital, Bogotá, and building a 45km greenway for buses, cyclists and pedestrians in preference to an eight-lane urban highway. They have car-free Sundays following the success of a car-free Christmas, which attracts three million people into the city to share the streets. It has won a 96 per cent approval rate from the people.

The Colombians followed three interesting principles: that the distribution of quality of

life is more important than income distribution; public transport is for everyone, not simply those on low incomes; traffic congestion is good, as it forces people to make more intelligent travel choices.

The philosophy all these countries have followed has been to invest in designing public spaces for people, rather than for cars. The benefits are manifold, including better mental and physical health, lower carbon emissions, greater safety, more social cohesion and lower crime rates.

Reversing established mainstream thinking challenges more than 40 years of conditioning that regards our streets primarily as conduits for the passage of traffic. The alternative ideas proposed are considered by some to be eccentric, but as the philosopher Bertrand Russell pointed out: 'Do not fear to be eccentric in opinion, for every opinion now accepted was once eccentric.'

The future of a civilised society living together in peaceful co-operation depends fundamentally on the local environment we help create. We have a responsibility to future generations to bequeath places that offer

encouragement and are a fitting testament to the values that are important to us. We must not leave the design of our public spaces to chance, developed remotely and by default in piecemeal fashion by engineers based in county halls. There are attractive and more sustainable alternatives available. It is important for communities to take ownership of their own local spaces and demand change.

Churchill advised that we shape our public spaces and that our public spaces then shape us. If we can create sympathetic public spaces and streets that reflect our needs and values, we could rediscover the soul of our communities. Then perhaps we will be as happy and content as the Dutch and the Danes, or even those impoverished folk in Colombia, who nevertheless have learned, as Epicurus taught, that 'wealth consists not in having great possessions, but in having few wants'. **E**

Philip Parker is a chartered civil engineer with an interest in urban planning that maintains local character. To read the full version of this edited essay, visit www.theecologist.org/people.planning

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BEHIND THE LABEL:

Candles

While nothing says holistic living like a nice candle, that warm glow may be hiding a toxic secret, warns **Pat Thomas**

Most of us are aware of the health effects of combustion by-products from major outdoor sources, such as cars and power plants, and even from obvious indoor sources such as stoves. Few are aware of the potential health effects of regularly burning candles – even though these are usually lit indoors, in small, poorly ventilated spaces.

In research by the US Environmental Protection Agency and the American Lung Association, candles have been shown to emit a frightening range of carcinogenic volatile organic compounds (VOCs), including acetone, acetaldehyde, benzene, carbon disulfide, carbon tetrachloride, chlorobenzene, carbon monoxide, creosol, cyclopentene, ethylbenzene, formaldehyde, phenol, styrene, tetrachloroethene, toluene, trichloroethene and xylene.

In addition, like anything that burns, candles produce a microscopic soot that can sometimes contain toxic heavy metals released from the candle wick.

The purpose of a candle wick is to draw wax to fuel the candle's flame. Generally speaking two different types of wick are used: cored and non-cored.

Non-cored wicks are generally made of a braided or twisted fibre (usually cotton), and are considered the safest to burn. Cored wicks also use cotton, but this is wrapped around a paper or metal core to give it support. Wicks with a metal core also burn at a higher temperature, useful when the candle is made of a wax that only melts at high temperatures. Lead and cadmium are the most common metals found in cored wicks, but zinc and tin can also be used.

As the candle burns, it releases dirty soot containing sub-micron-sized particles light enough to remain suspended in the air for considerable time, and small enough easily to be absorbed into the body once inhaled.

Research by the Environmental Protection Agency (EPA) has shown that burning multiple candles, or a candle with multiple wicks, can lead to high levels of indoor pollution. Scented candles give off more of this soot than unscented candles.

The problem of candle soot was illustrated in a 2000 study at the University of Michigan School of Public Health. Researchers there examined a range of candles made in the US, Mexico and China, and measured the amount of lead they emitted while burning, as well as the amounts left in the air in an enclosed space after one hour and five hours.

Results showed that lead emission rates for the candles ranged between 0.5 and 327 micrograms (mcg) per hour. After burning

What's in candles?

Candles contain a complex mix of unseen and unlabelled ingredients that add to the atmospheric pollution they create. Emissions include:

Lead

Even low levels can adversely affect the central nervous system (brain and spinal cord), the heart, red bloodcells and kidneys. Chronic exposure in adults is associated with endocrine and reproductive problems. Lead exposure in children is linked to behavioural problems and depressed intelligence.

Cadmium

Inhaled cadmium is carcinogenic. Overload can cause yellow teeth, dry skin, chronic bronchitis and fatigue. Toxic to liver, kidneys, bones and testes, as well as disruptive to the immune, hormone and cardiovascular systems.

Perfume

Synthetic perfumes contain toxins and sensitisers capable of causing cancer, birth defects, central nervous system disorders. Other toxic effects include asthma, allergies and skin disorders.

Polycyclic Aromatic Hydrocarbons

When volatile chemicals are burned they release PAHs, which are absorbed through the skin as well as inhaled, causing skin, eye and respiratory irritation, nausea and headache. Long-term PAH exposure can cause cancer, central and peripheral nervous system damage, and hormone disruption.

Particulates

Microscopic particles (10 microns or less in diameter) are easily and deeply inhaled into the lungs, and can damage the heart, lungs and arteries, as well as cause respiratory problems and trigger allergies. Long-term exposure increases the risk of death from heart disease.



the candle for one hour, the lead levels in the air ranged from 0.04 to 13.1 mcg per cubic meter ('safe' levels, as defined by the US Environmental Protection Agency are 1.5 mcg per cubic meter); after five hours they were 0.21 to 65.3 mcg per cubic meter.

More recently, in 2006, atmospheric scientist Stephan Weber of the University of Duisburg-Essen, in Essen, Germany, measured levels of micro-particles in the air of a single church over a 13-day period leading up to Christmas. His equipment measured concentrations of particles up to 10 microns (μm) in diameter (PM10) and also those 1 μm in diameter or smaller (PM1). The church used both candles and incense during its services, and Weber found that concentrations of both types of particle almost doubled when just candles were burned. Burning candles and incense together raised the concentration of PM10 to levels seven times those recorded between services, and PM1 to about nine times background levels.

Concentrations of particulate matter quickly dropped after the candles were extinguished, but remained elevated for 24 hours after simultaneous use of candles and incense.

Weber concluded that even brief exposure to contaminated air during a religious service could be harmful to some people.

Two years earlier, researchers in the Netherlands also measured particulate matter in churches that burn candles. Theo de Kok, of Maastricht University, found that when candles had been burning in a Dutch chapel for nine hours, particles in the air there formed 10 times as many free radicals as airborne particulates collected along busy roadways travelled by 45,000 vehicles daily. It also had levels of tiny solid pollutants (PM10s) up to 20 times European limits.

According to De Kok, PM10 from candles might be especially harmful because, in the body, constituents of the smoke readily generate free radicals that damage cells.

Around the same time, the UK consumer magazine *Proof!* reported on its laboratory analysis of a range of pillar-type candles and tealights purchased from supermarkets, department and home furnishing stores in London. The smoke from the burning candles was analysed for traces of lead and cadmium. Seventeen per cent (or nearly two in 10) had detectable levels of cadmium and a small number also contained lead, though levels detected were also well below those found in other surveys. In this analysis, the candles

with the most lead and cadmium were scented candles purchased at Boots. Other cadmium-containing candles came from IKEA. In common with other data, the survey found that metal-containing candles came from China, as well as Poland and Germany.

In April 2003, the Consumer Product Safety Commission banned candles with lead wicks from being imported to or sold in the US. Other countries, including the UK, have yet to follow suit. There is no way to distinguish lead-containing wicks from safe ones, nor do labels state what a wick contains.

Apart from how its wick is made, how 'cleanly' a candle burns depends on several other factors, including the type of wax it is

clarity and ability to hold colour and fragrance, are basically petroleum oil turned to jelly, and need to be used in a container (often with a reinforced wick) because the wax is very soft. Both types produce smoke and soot.

It can be hard to make a candle using natural essential oils. Good-quality essential oils are expensive and so are not suitable for production-line candles; they also may not blend well with candle wax. They can be more volatile than synthetics and difficult to use in candles unless they have added stabilisers or fixatives.

So manufacturers generally use more toxic synthetic fragrances. In addition to these,

'In the body, constituents of the smoke from candles generate free radicals that damage cells'

made of, whether it is perfumed and coloured, and how long the wick is. A wick that is too large will flare and produce more soot than a properly trimmed one; and a flaring smoky flame will put particulate matter into the air no matter what the wick is made from.

Tallow and other unprocessed animal fat, once widely used in candle-making, are no longer popular. Instead, paraffin, which is made from petroleum waste, is the most common type of candle wax. From the manufacturers' point of view it is cheap and easy to work, has an appealing translucence and is slow-burning. Stearic acid (a component of tallow and some vegetable fats) is commonly added to paraffin candles to raise their melting point and burning time.

Gel waxes, popular because of their crystal

many types of candles contain synthetic colours. The safety of colours used in candles depends largely on the ingredients of the dye, but most synthetic dyes will give off some unsafe particles on burning.

It is almost impossible for most consumers to tell the difference between candles with metal-containing wicks and those that are metal-free. You may wish to avoid candles made in countries such as China – though many candles on the market contain no labelling information to say what they're made of or where they're made. Likewise, few candles will provide information on fragrance ingredients or types of wick (indeed, this is not required). A legal requirement for clearer labelling would certainly help consumers make better choices. **E**

Choosing and using candles safely

If you want the glow of candlelight in your home with a minimum of toxic emissions, consider these measures:

- Cotton or hemp wicks are considered to be safe, so ask what the wick is made of. If the shop or manufacturer can't tell you, don't buy it.
- Choose candles without added colours or scents.
- Avoid block candles and those with multiple wicks. Keep wicks trimmed to around $\frac{3}{4}$ in ($\frac{1}{2}$ cm).
- Avoid buying candles whose labelling is in any way unclear.

- Tapers are less likely to contain metals than pillar or gel-type candles.
- Beeswax and bayberry wax are two naturally scented waxes. Both burn cleanly and are better for people who have allergies or environmental sensitivities. Soya wax also burns cleanly, but unless the label guarantees the wax is GM-free, it is ethically better to avoid such candles.
- Buy candles from countries where quality control is in force.
- Open a window. Burning candles (and also incense) in enclosed spaces increases the build-up of toxic soot.

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Fund performance as at 31 August 2007*

% Change over	1Yr	2Yrs	3Yrs	10Yrs
Henderson Global Care UK Income Fund	+13.3	+34.5	+62.9	+128.3
Sector Average	+9.1	+26.5	+56.5	+109.1
Henderson outperformance	+4.2	+8.0	+6.4	+19.2

Discrete year performance (%) as at 30 June 2007*

	Jun 07 Jun 06	Jun 06 Jun 05	Jun 05 Jun 04	Jun 04 Jun 03	Jun 03 Jun 02
Henderson Global Care UK Income Fund	+19.8	+19.3	+17.7	+11.6	-5.5

Past performance is not a guide to future performance. The value of an investment and the income from it can fall as well as rise as a result of markets and currency fluctuations and you may not get back the amount originally invested.

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China's desert storm

In China, landscapes, economies and traditional ways of life are being lost to the desert. Sandstorms are overwhelming its cities and fertile, productive land is disappearing beneath a sea of sand. **Sean Gallagher** provides a snapshot of the desertification of the world's most populated country

Few people think of China as a desert nation, and yet it is among the world's largest. What is more, Chinese deserts are expanding at an alarming rate – around 1,500 square miles every year. Overgrazing, water and agricultural mismanagement, and the amplifying effects of climate change mean that desertification now afflicts around a third of the country. More land is being lost to the shifting sands each year, and a large portion of that loss is thought to be irreversible.

Water mismanagement by farmers is a large problem. In some areas, farmers regularly flood their fields in an effort to hydrate the soil. Root systems are easily damaged by the flooding method, causing permanent and irreversible damage. Flooding also leads to rapid evaporation, which leads to salt being deposited on the soil surface. In other areas, such as Dunhuang, an oasis city in western Gansu Province, the water table has been continually dropping for years. As underground water levels fall and rivers and lakes are encroached upon by sand, salt enters the fresh water system, reducing biodiversity, interfering with irrigation, contributing to coastal erosion and adversely affecting the health of humans and animals alike.



The encroaching deserts feed increasingly frequent and powerful sandstorms in cities such as Beijing, and have caused the erosion of some 25 miles of the Great Wall of China. The fallout from these storms has shut down airports and closed schools in countries as distant as South Korea, Japan and even the United States. It is estimated that some 24,000 villages have already been lost to expanding deserts, sand drifts, dune movement and sandstorms. There are now desert refugees in three provinces: Inner Mongolia, Ningxia and Gansu.



Since the 1950s, sand drifts and desertification have cost nearly 700,000 hectares of cultivated land, 2.35 million hectares of rangeland and 6.4 million hectares of forests, woodlands and shrubland. Dunes forming 70km from Beijing may be drifting south at a rate of 25km a year – even conservative estimates say 3km. Despite massive spending on land reclamation and replanting, scientists say the capital could be silted over within a few years.



Habitat destruction directly reduces numbers of animals, plants and micro-organisms. As numbers reduce, genetic erosion occurs, as species of plants and animals used by the local population deteriorate both in number and variety.



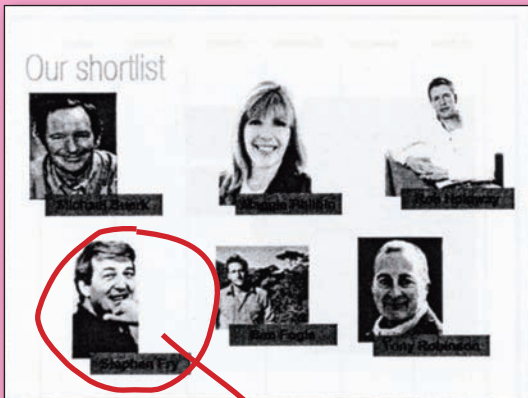


In some areas where the desert has taken over farmland, enterprising locals have turned to tourism to make a living. Visitors to some parts of China can now take hikes and camel rides across the vast sand dunes. The problem is that tourism in parts of the more picturesque areas of the desert can hasten the degradation of the land. In the building and construction of new developments aimed at catering for tourists, pressures on the land are increased, as more water is used and land is damaged due to the increased presence of vehicles and workers.

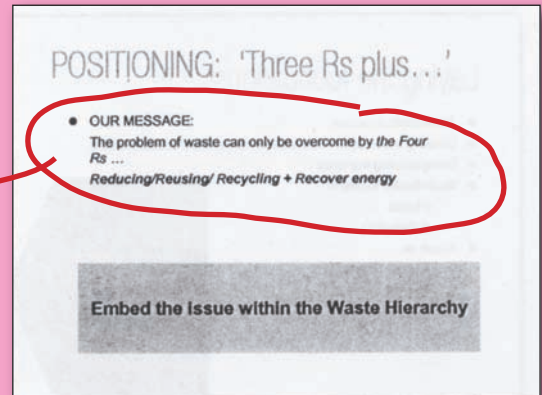
Visit www.gallagher-photo.com for more of Sean Gallagher's photographs

I ♥ incinerators

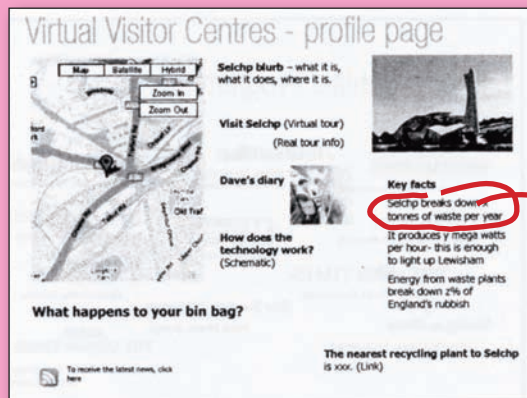
When it comes to selling incinerators, only the best PR will do. **Mark Anslow** reports



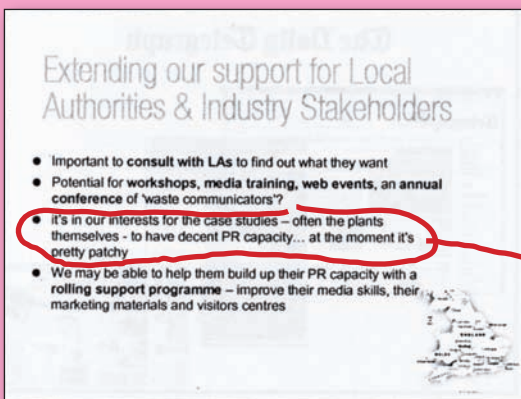
Put a trusted face in front of the campaign



Subvert the 3Rs by including incineration ('Recover')



Use the term 'break down' instead of 'burn' - it sounds more like composting



Ramp up the PR at the incinerator plants; disguise 'pretty patchy' image

Would you be more inclined to believe something crazy if Stephen Fry told you? How about Michael Buerk? Tony Robinson?

These three are among a list of friendly celebrities that PR firm Munro & Forster believes could help the Department of Environment, Food and Rural Affairs (Defra) convince the public that building more incinerators is a really good idea.

A leaked PowerPoint presentation obtained by Friends of the Earth shows how the Government has sought pitches from branding

agencies in order to deal with what it describes as 'residual waste', rubbish left over after recycling and composting. Under this scheme, incinerators - which routinely emit cancer-causing dioxins, heavy metals, PCBs and particulates - become just another brand, like the latest heart drug or anti-wrinkle cream.

Defra has pledged to reduce household residual waste by 45 per cent by 2020, but by the same token has also promised to increase incineration of residual waste to 20 per cent by the same date. Knowing each new proposal for an incinerator would meet with a storm of public protest, Defra seems to have planned a PR onslaught with just one goal: to make us

learn to love incinerators.

The Munro & Forster document, which is available online - visit www.theecologist.org/incineratorplans - begins by baiting its hook for a specific catch. She will be at least 35 years old, 'well educated', with a successful career, children and a 'strong sense of ethical and social responsibility'. She will also be an 'affluent and consumptive' broadsheet reader who is interested in news and current affairs.

Because such a target would already be familiar with environmental principles and beliefs, the pitch suggests altering the renowned slogan 'Reduce, Reuse, Recycle' to 'Reduce, Reuse, Recycle, Recover [incinerate],

In Science We Trust

Risk analysis

- Medium → Low
- Research findings not suitable
- Careful crafting of questions without 'leading'**
- Defra reporting what the public say
- Open and transparent with survey findings; respected survey company
- Media interested in different angle
- Careful construction of survey
- Overshadowed by related story
- Liaise with Defra press office
- Spokesperson availability
- Liaise with CSA office and Defra press office
- NGO response
- Rebuttal process and 'friendly' NGOs

Remember to 'craft questions' to get desired response

Make pro-incineration propaganda look like news features

Advertorials

- An advert designed to look like editorial content
- Print and online content
- Able to get on the agenda quickly
- We can control the content
- Provide information in an engaging way
- Embed the issue within the 4Rs
- Talk about problem and solutions

Message Journey

- We have a problem (with residual waste)
- Increased levels of recycling are helping
- But we need to do more (recycling plus/4 Rs)
- Technology can (and must) help**

Is this you?

Focus on the techno-fix

Our Audience

- Affluent & 'Consumptive'**
Cars, holidays, activities
- Married/Family**
School/teenage children or empty nesters
- Interested in**
Politics, news, current affairs environment
- Attitude**
Strong sense of ethical and social responsibility
- Well educated**
Successful career
Likely to be local leader/volunteering locally
- Homeowners**
Roots in the community
Mortgages
- Busy!**
- Attitude**
Strong sense of ethical and social responsibility
- Internet user**
Online shoppers, telephone bankers
4/5 use every week
- Media consumption**
Quality papers; Today/Newsnight, TV in moderation, documentaries/news Radio
- Older (35-65)**
ABC1 (29% UK pop)
Very slight female skew
- Lifestyle/memberships**
High index on 'green' memberships (10%)
- Environmentally Aware**
Duty to recycle, concerned about pollution/environment
- Environmentally mature/ Discerning elders**
P2/mosaic
- Green/Cwa**
Defra segmentation

Mission accomplished: 'create a favourable environment' within which 'local authorities can progress infrastructure plans'

Insights

Residual Waste – our understanding of the task

- Increasing public awareness (and dialogue) on residual waste management issues
- Creating a favourable environment within which the local authorities can progress communications/infrastructure plans**
- Ensuring balanced debate (continuing context for recycling/technology neutral)
- Managing and engaging positive stakeholder and delivery partner support

... gaining public support for additional ways to deal with waste ...

Dispose [landfill]. Being an educated 21st-century consumer, the branding guidance suggests she will be persuaded technological fixes to environmental problems are just waiting in the wings. Cue the incinerator.

Except it won't be called an incinerator; it will be an Energy From Waste facility or Energy Recovery plant. The message that incinerators are good will be reinforced throughout the media by placing 'advertorials' – adverts designed to look like editorial content. Oh, and don't talk about 'burning' or 'incinerating' – talk about 'breaking down' waste. Sounds more like composting.

Such tactics are the ABCs of public relations

– but the document goes further, repeatedly suggesting the Government 'use' Defra's chief scientific advisor, Dr Robert Watson, and his Cabinet counterpart, Professor John Beddington, as central PR contacts. At one point, it is even suggested the scientists act as 'tour guides' for journalists on an incinerator site visit. The days when a scientific advisor was an independent expert consulted by the Government on controversial issues seem to have passed; now he or she is just another pawn in the Westminster armoury.

The document goes to similar lengths with the principles of social science. Concerned that public opinion polls on whether people

believe technofixes can save the day may not produce the desired results, Munro & Forster also suggests 'careful crafting of questions' and a 'careful construction of the survey' in order to achieve the desired answers.

For the Government to embark upon a programme that deliberately sets out to defuse very real public health concerns over incinerator emissions seems to go beyond the usual betrayal of trust into deliberate – and dangerous – obfuscation. **E**

For more on Friends of the Earth's anti-waste campaign, see <http://tinyurl.com/yp7a77> Mark Anslow is the Ecologist's senior reporter

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The spirit of '68 and the spectre of climate change have galvanised a new breed of student activist, say **Ed Hamer** and **Jon Hughes**. Generation X is dead – long live Generation Why?

February 1968. From South Vietnam the explosive Têt Offensive has dealt a final blow to shattered US troops and sparked a worldwide appetite for insurrection.

Left destitute by standards of living and provoked by a three-year war on their ideological comrades, student leaders across Europe rise up with a single voice 'We shall fight. We will win. Paris, London, Rome, Berlin.' Within six weeks, 20,000 protesters will besiege the American embassy in London's Grosvenor Square. It is the Spring of Discontent, and revolution is the air.

1968 remains framed in history as the year that defined an entire generation. It was a year in which a collective wave of hope, anger and direct action swept across four continents,

laying foundations of change and toppling governments in its wake. Although the events of that momentous year are too often discounted by the cliché of sex, drugs and rock 'n' roll, it is worth remembering that, in the 40 years that have passed, no movement has come close to reclaiming the immortality of that time.

The kids aren't alright

Looking back, the political unrest that grew to dominate the period could largely have been predicted. As a result of postwar welfare reforms and investment in education, student numbers across the western world doubled between 1952 and 1960. For the first time, a generation of students found themselves educated to think independently and cushioned from the shackles of unemployment. It was an explosive combination and only a matter of time before it found its mark.

In the UK, the failing Labour government of Harold Wilson provided a likely target.

Increasing state involvement in private lives, support for the US invasion of Vietnam and conservative attitudes towards women's rights, homosexuality and abortion had polarised public opinion. Dreamers demanded a 'new-dawn of inclusive politics', while activists agitated movement of the New Left.

What was fundamental to the students, however, was the belief that an alternative was both realistic and ultimately achievable. During this period, the traditional Left retained its socialist integrity with the support of the Trade Unions, while the Students' Union provided a solid foundation in which the emerging movement could build affinity and find support.

Leading up to '68, New Socialism became adopted as the alternative model, with students drawing inspiration from Cuba, China and, increasingly, Vietnam. In this way Vietnam came to epitomise their struggle; the attack on Communism in Vietnam represented an attack on free-thinking individuals across the world, while the might of the US military demonstrated the fear with which inclusive

politics was viewed by the West.

Political writer Tariq Ali, then a founding editor of *The Black Dwarf* magazine – the voice of the New Left – describes the essence of the time: ‘Students everywhere experienced a system incapable of fulfilling its promises, let alone satisfying their intellectual and social needs; a political order reluctant to accept any serious criticism and an imperial giant engaged in a brutal war against a poor, Third World country.’

So it was, that when the world woke on 1 February 1968 to the news that Saigon had fallen to the Vietnamese National Liberation Front, it was the spark needed to light the first Molotov cocktail. The US had not been defeated by superior fire power or outnumbered in the battlefield; instead, the world’s largest super-power had been brought to its knees by a simple but impassioned belief in an alternative

political ideology to free-market capitalism.

Students around the world erupted on to the streets. Across Europe, the US defeat demonstrated that Babylon’s throne could – and would – fall, and gave birth to the rallying cry, ‘Be realistic! Demand the impossible!’

Rise of the campus campaigners

Although they didn’t command the headlines, actions were taking place on UK campuses that contributed significantly to the sense that a groundswell was gaining momentum.

One unlikely hotbed of student radicalism to emerge was Essex University. Having only been established in 1964, the Colchester campus was relatively small, numbering only 600 students. Within its short history, however, students had already set a precedent and established a reputation by disrupting a visit by Anthony Crossland, then education

secretary, and facing down riot police and dogs during a visit by Harold Wilson.

Tensions at the campus were further provoked by the presence of the nearby MoD base, Porton Down, then involved in researching chemical and biological weapons. In May 1968, Essex students didn’t have to go far to find solidarity with the Vietnamese people, when a poorly judged visit to the university by a professor from Porton Down was met by mass demonstrations and arrests.

Though later reinstated, Pete Archard, a post-graduate studying at Essex at the time, was one of three students to be expelled following the demonstration.

‘The Porton Down protest really captured the feeling of the time and radicalised the student body, not just at Essex but in other universities as well,’ he recalls. ‘We showed the threat of expulsions could no longer be used by the authorities to contain our protests, giving us a new sense of confidence and helping to establish our own anti-university.’

The Essex Anti-University was in fact the second to be set up in England that year, the first being launched in London in February. According to one of the founders, Joseph Berke, the idea of the anti-university was ‘to counter the intellectual bankruptcy and spiritual emptiness of the educational establishment.’ Prose aside, anti-universities proved an invaluable forum for lectures, debates and networking within the movement.

May 1968, however, will be remembered most vividly as the month that

1968	2008
War on communism	The War on Terror
Students campaign for equal rights and against ‘suicidal’ nuclear armament	Students campaign for human and civil rights and against ‘suicidal’ climate change
Angered by the Vietnam War	Angered by the Iraq War
Facing a looming oil crisis	Facing a looming oil crisis
Disappointment in Harold Wilson’s Government	Disappointment in the Blair/Brown Government
Feeling inflationary pressures	Inflation threatening banking; housing crisis
Being sold the white heat of technology	Being sold the smart materials revolution
At the foothills of an industrial revolution (i.e. automation, computers)	At the foothills of an industrial renewable revolution
Big is beautiful is the au courant economic orthodoxy	Small is beautiful is the emerging economic argument
Students wore duffel coats	Students wear Fairtrade clothing
Took soul-searching passages to India and the East	Take fact-finding gap years
Stereotypically portrayed as being ‘revolting’ and studying new-fangled courses such as sociology	Often portrayed as being dumbed-down, unable to think and studying Mickey Mouse courses in sustainability and psychology
They were angry	You are... angry?



the student barricades went up in Paris. The decision to hold American-Vietnamese 'peace talks' in the city provided disaffected French students with a welcome backdrop for three weeks of running street-battles. Not only did the French empower an entire continent with their audacity, but also inspired a wave of trade union strikes that brought the country to a standstill and left the presidency of Charles de Gaulle in tatters.

Throughout the summer, it was again the students who would lead the charge against Soviet tanks invading Czechoslovakia; and students who ignited the uprising that overthrew Pakistan's military dictatorship. It was in Mexico City, however, where they would pay the ultimate price for their courage. On the night of 2 October, 74 students were killed and several hundred wounded after the military opened fire on a demonstration in Tlatelolco Plaza calling for civil liberties.

As the year drew to a close, campus tensions continued to flare, although the taste for revolution had been numbed by disbelief at the Tlatelolco massacre. Instead, 1969 and the early 1970s saw a renaissance in political activity, though this time largely confined, by increasingly authoritarian control, to the lecture halls and traditional lobbying corridors. The economic promise of the Reagan-Thatcher era was

apparently sufficient to turn public sentiment away from civil disobedience and confine protest to the fringes of society.

John Papworth, now 86, was one of the UK's foremost social activists. He believes the momentum of '68 was lost due to a small but fundamental oversight by the protesters.

'Essentially, the 1960s movement didn't last because it failed to recognise the importance of the small-scale,' he says. 'Many protests took place on campuses but were nearly always focused on national or international goals.'

'The mistake was to focus on the power at the top, not the powerlessness of the people at the bottom. The concept of scale is central to the argument – ultimately the power lies in the hands of the local community.'

Papworth also blames the rise of neo-liberal politics under Thatcher and Reagan for deliberately eroding people's awareness and confidence in calling for change.

'A movement needs theoretical equipment, which today is sadly lacking,' he says.

Today, the UK student movement is forced to operate within a very different environment. Post 11 September 2001, the definitive street protests, which embodied the movement of '68, have become yet another

casualty of the War on Terror. Any attempt today to restage 1968's Grosvenor Square protest would undoubtedly be met with tear gas, mass arrests and media censorship, supported by a raft of anti-terror legislation.

Those who don't learn from history...

The similarities between the discontents of the 1960s and those of today are striking, however. A failing Labour government, increasing state involvement in private lives, support for the US invasion of Iraq and conservative attitudes towards race and immigration. Sound familiar?

The focus of the movement has also had to evolve in the face of a changing world. Whereas during the 1960s the emphasis was largely on issues of political ideology, race and gender, the past 40 years has seen the emergence of a much wider spectrum of campaigns ranging from social and economic justice to deep ecology and the environment.

Tactics are also changing fast. A campaign can no longer be judged on its effectiveness simply according to the number of individuals turning out



'The 1960s movement's mistake was to focus on the power at the top. The concept of scale is central. Ultimately power lies in the hands of the local community'

on the streets to protest, but instead by its ability effectively to engage with its target. This is demonstrated by increasing student involvement in direct action campaigns, from faculty occupations to factory blockades and the Camp for Climate Action.

People & Planet is the UK's largest and longest-running forum for student pressure groups. Established at the end of the 1960s, the organisation has witnessed first-hand a shift in student engagement over nearly four decades. As a student activist in those days, People & Planet's director, Ian Leggett, believes that on many levels today's student population is much better equipped to tackle these issues.

'In 1968, the student population was relatively small and was drawn by and large from relatively middle-class and upper-class families,' he says. 'Today, roughly 45 per cent of teenagers will take some form of higher education, representing a wider, more diverse cross-section of society. Students these days are much more savvy to the internal and external dimensions of exploitation, poverty and environmental degradation.'

And it's not just awareness that is growing.

Within the past two years, People & Planet has seen a

50 per cent increase in membership from UK universities, while its annual Shared Planet conference has seen attendance figures double over the same period. There are now more than 160 student groups active across the UK, from universities to sixth-form colleges.

Another important difference is that today's student movement is not only restricted to affiliated campaigns, but also increasingly led by autonomous groups bringing actions to UK campuses. Recent examples include refugee solidarity actions at the London School of Economics, and the Student Climate Project launched at Oxford University last year.

In October 2007, students from University of Sussex were among those arrested during a peaceful demonstration outside the Brighton headquarters of EDO Technologies, an arms manufacturer supplying weapon components to the US and Israeli military. Charlie Walsh, a second-year anthropology student at Sussex, was arrested at a previous EDO demo. She believes the student movement is now learning the importance of bringing global issues back to campus-level.

'We have to be realistic,' she explains. 'We are not trying to tackle the arms trade, as it is an impossible industry to try and defeat. What we are doing is focusing on one achievable target. It is essential that

grassroots campaigns can respond to what's being done within our communities. You can go to noisy demonstrations and lobby officials, but at the same time there is the empowering option of taking immediate and direct action.'

The new green generation

Reflecting changing attitudes in society as a whole, the environment is now playing a leading role in sculpting student attitudes both inside and outside the lecture halls. As observed by Joss Garman, himself a veteran student activist and co-founder of the UK's Plane Stupid direct-action group, the recent climate change debate has inspired a generation of students 'armed only with peer-reviewed science' to take to the frontlines.

'The past few years have seen things really kicking off within the student community, and this has been triggered largely by climate change concerns,' he says. 'Almost all actions we have been involved in recently have been supported by students, from protests in Sheffield and Cambridge to occupations at Manchester and Nottingham airports. Student activism is undoubtedly on the rise and the environment is at the top of the agenda now more than ever.'

It's easy to see why: with 360,000 employees and an estimated student population of 2.5 million, our universities are the fourth largest service providers in the country. Each year in the UK, the



'The past few years have seen things really kicking off within the student community, and this has been triggered largely by climate change concerns'

higher education sector is directly responsible for 300 million tonnes of CO₂ emissions, 16 million cubic metres of water consumption and one million commuter journeys per day.

There is little ambiguity, then, for ethically minded students looking for campaign targets on their own campus. At the end of February, People & Planet will hold its annual 'Go Green Week', which last year won it National Environmental Media Award. The event brings climate change awareness to the campus by highlighting and supporting actions from sourcing green energy to minimising waste and closing campus car parks.

In April this year, a grassroots pressure group, Ecodemia, will also launch itself across the UK to campaign for radical changes in environmental policy within higher education. Supported across the board by students, staff and faculties, the movement, which began at

Sussex University, will emphasise the role of direct-action in achieving change on campus.

According to Dan Glass, Ecodemia's national co-ordinator: 'The most exciting thing is the diversity. All the time different groups wanting to take action: cleaners against bosses not purchasing ecological cleaning products; bus drivers challenging the fuels in the buses and supporting green alternatives. Many people are shocked to learn that education establishments are not in fact subject to the same environmental regulations as industry.'

Ecodemia's launch will involve a national 'trail of environmental construction', bringing students into contact with action groups such as Bicycology and Plane Stupid, as well as the traditional trade unions.

'The focus of our campaign is constructively to expose areas where universities are currently compromising their environmental

record and then using positive action to bring about change,' says Dan.

Ironically, the failure of the high-profile 'Fuck Fees' campaign at the end of the 1990s handed today's students a powerful weapon in their armoury. As fully paid-up consumers, the UK's 2.5 million student population is now in a position to make previously impossible demands upon their institutions.

With tuition fees now averaging £3,145 a year, students are more entitled than ever to have their concerns acknowledged by their universities. According to the UK's Higher Education Statistics Agency, staff salaries and research spending account for 64 per cent of this figure, leaving a massive £2.8 billion a year of student finance spent on procurement of goods, services and investment.

University procurement covers sourcing of everything from paperclips to building

On the march

The phenomenal growth of student activist organisation People & Planet over the past few years reveals a resurgent student movement, angered and anxious over the Government's failure to tackle the issues of human rights, fair trade and, above all, climate change.

While the student years of many of the class of '68 were marked by nihilism and Nietzsche, today's students aren't rebels looking for a cause, they face the real and present danger of climate change.

Generation Why? is tuned into the problems associated with unsustainable globalisation, not least because in recent years many of its pop heroes have put debt and climate at the forefront of the youth agenda. Many of today's students have been weaned on food miles, world debt, terrifying climate shocks and gap years.

Yet, these students, articulate and experienced, feel alienated by the political process, as revealed in poll after poll, and ignored, unheard and patronised – not least over the Million March against the Iraq war and broken promises on tuition fees. But instead of the 'why bother?' attitude of the 1970s at the height of the Cold War, increasingly evident among today's students is a 'why not?' attitude. If the powers that be are going to continue trashing the planet and spending our legacy, we may as well go down fighting.

People & Planet is no new kid on the block, but is certainly in the right place at the right time. It was born of the spirit of '68, established to raise funds to offer assistance to impoverished countries and victims of wars such as Vietnam and Korea.

Its founders soon realised the flaw in this sticking-plaster approach, however: you couldn't raise enough funds to supply enough plasters. So they re-established themselves as a forum to offer support to student activists. Change, they concluded, can only be achieved by changing mindsets.

Today, as a member-led, bottom-up organisation, People & Planet advocates campaigns on human rights, fair trade and climate change, and has more than 100 active groups in schools and universities.

The student activists are economically savvy: they pay for a service from their university; they have the right to demand it be good. People & Planet's Green League is their at-a-glance name-and-shame list of which institutions are green, in sourcing power and fair trade goods, and which are wedded to waste – still a frightening number. The encouraging thing is the realisation that the total annual spend on running universities can swing markets in favour of local communities, to the benefit of global warming and equality (sixth-form councils and Parent-Teachers Associations should take note: schools in the UK emit 9.3 million tons of CO₂ a year, not including the

1.2 million tons emitted on the school run).

There are more wide-ranging campaigns. A spotlight is currently on the Department for International Development and the Royal Bank of Scotland, owner of NatWest, as part of the Ditch Dirty Development campaign. The aim is to drive funds towards renewable technologies and away from oil and gas exploration and extraction. RBS promotes itself as the oil and gas bank, and DfID is the UK's direct line to the World Bank.

As well as supporting such demand-led campaigns, People & Planet is engaged directly in the political process, actively protecting rights in a current review of campaign law and making submissions to Defra on reducing carbon emissions, and to DfID on world poverty.

Today's students are asking the right questions. Why can't we cap carbon at the point of extraction? Why can't we contract and converge? Why can't we protect the rainforests? Why aren't we investing in renewable energy? Why do we encourage neo-colonialism in the guise of ethical trade? Why are we building the third runway at Heathrow and proposing five coal-fired power stations? Are the masters of the universe so economically illiterate that they can't make the change to a low-carbon economy? Why aren't we doing anything?

Generation Why? is on the march.

'The environmental movement is filling the void left by traditional social values, reigniting the original belief in a realistic and achievable alternative'



materials – £2.8 billion a year represents a considerable chunk of the economy, which could be used as a vote for ethical alternatives. The scope for action is enormous, from sustainable sourcing to improving efficiency and reducing wastes. A campaign on fair trade, for example, has resulted in 55 UK universities being awarded full Fairtrade status over the past four years.

In addition to procurement, universities also invest your capital with banks and financial institutions. People & Planet recently highlighted investments made by The Royal Bank of Scotland (RBS) and NatWest in oil and gas industries.

'As a number of UK universities currently invest in RBS, we think they should be aware that climate change, not oil and gas exploration, is an immediate priority for our students,' says campaigns officer James Lloyd. 'Instead, we would like to see universities investing in banks that can guarantee their ethical credentials.'

So is the environment emerging as the new spark the movement has been waiting for? Joss Garman believes so.

'As last summer's Climate Camp at Heathrow showed, real direct activism is on the rise once again and students are at the forefront

of this. Protests are becoming more targeted, more creative and crucially, more effective,' he says. 'I think we'll see that the Climate Camp was just the start.'

And he has a point. The current fixation with the environment by media and government is both timely and unprecedented. Green pledges made by industry demonstrate that the environment has its foot firmly in the boardroom door – although posturing still vastly outweighs action. Even so, growing environmental concerns are inevitably reflected by the central role the environment now plays in the curriculum, from primary through to secondary and higher education.

It is also undeniable that today's graduates are the first of a generation that will see their professional careers dominated both by social and environmental responsibility. A report by the Confederation of British Industry in November 2007 was the latest to highlight the immediate action required to tackle climate change and environmental sustainability head-on – as well as the job-creation potential.

There is evidence, too, that the environmental movement is filling the void left by traditional social values, reigniting the original belief in a realistic and ultimately achievable alternative. John Papworth believes the recent revival in environmentalism, and the Transition Towns initiative in particular,

is the most encouraging sign he has seen since the 1960s that a movement is gathering pace.

'What Transition Culture has done is to place the environment at the centre of a whole range of issues – political, social and economic – through our response to peak oil,' he says. 'More importantly, it has done this with the "scale" factor at its heart. By building alternatives on a local scale, this movement is offering, for the first time, a real alternative to the economic and political disorder we find ourselves in.'

Whether this alternative manifests itself through a continued resurgence in grassroots activism or launches itself as a united international front, one thing is for sure: the potential of this time is immense, and a spring offensive could be just around the corner. **E**

Ed Hamer is a freelance journalist

Jon Hughes is deputy editor of the Ecologist

More information

Join the revolution at:

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www.ecodemia.org

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The rainforests on our doorstep

Prince Charles has called UK peatlands ‘Britain’s tropical rainforests’ – and like rainforests worldwide, ours are in decline. **Trevor Critchley** reports on the devastating consequences for global warming

There’s black gold beneath the UK’s moors and mountains; not crude oil, but peat, a substance that can absorb and retain huge quantities of atmospheric carbon. It is estimated that around three billion tonnes of carbon is stored in UK peatlands at present – more than the forests of Britain and France put together. But our hills are slowly being eroded, and upland soils are now producing greenhouse gases at an alarming rate.

Peat bogs are found on every continent, from the tropics to the tundra. In the UK, we have around 75 per cent of the world’s heather moorland – a rich, yet endangered source of peat – and 10 to 15 per cent of the global area of blanket bog.

A recent report by Moors For The Future, a partnership funded by Heritage Lottery, in collaboration with scientists at Durham and Manchester Universities, suggests that pristine UK peatlands have the potential to absorb 400,000 tonnes of carbon a year.

The report warns, however, that UK peatlands damaged by drought, fire and erosion could actually emit up to 381,000 tonnes of carbon a year. While peat uplands in Scotland still appear to be absorbing carbon, those in England and Wales are faring much worse. Bogs in the South Pennines, in particular, are badly eroded due to the historical stresses of industrial pollution, and are now releasing alarming amounts of carbon into the atmosphere.

Peat forms when moorland vegetation – particularly sphagnum moss – becomes trapped in waterlogged ground. In the absence of sufficient oxygen to allow decay, the organic matter can remain virtually unchanged for centuries – hence the discoveries of ancient boats, human bodies and even intact trees within peat bogs that have been excavated.

In many ways blanket bog, the most common type of

peatland in the UK, has a lot in common with crude oil. Unlike trees, which eventually decay and release their carbon stores, the vegetation locked away in peat acts more like a fossil fuel. As long as it doesn’t decompose, the stored carbon largely remains trapped in the soil.

Central to this delicate balance, however, is the soil moisture content, which has been declining for years.

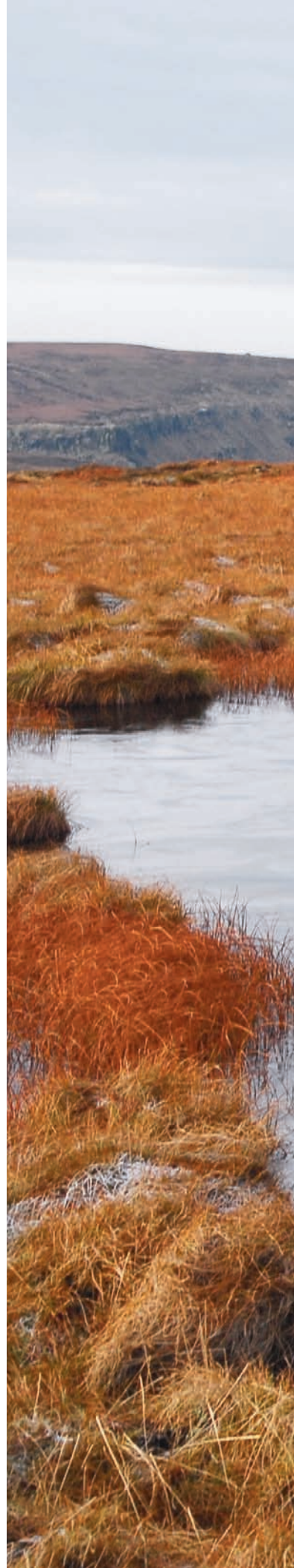
History repeating itself

The damage probably began as far back as the Middle Ages, with localised overgrazing. Vegetation loss exposes peat to the elements. Once dry, the vegetation within begins aerobic decay, and carbon dioxide is released. Erosion also carves out deep gullies, which further increase soil erosion. Vegetation loss has been accelerated by two centuries of industrial pollution, with some areas of upland peat becoming too acidic to support even ericaceous moorland plants such as heather and bilberry.

Wetland drainage began in earnest during the Roman occupation, but latterly gained pace in the ‘feed Britain’ era following World War II. Government grants funded the mechanical ploughing of drainage channels, or ‘grips’, over 1.5 million hectares of moorland, to improve the land for stock grazing and to support larger grouse populations. The scientific rationale behind the project was poor, however, and neither goal was achieved.

From the 1970s, moorland overgrazing was encouraged by Common Agricultural Policy subsidies linked to farm productivity, worsening erosion damage. Mercifully, the recently introduced Single Farm Payments scheme could help halt the decline and significantly reduce moorland grazing densities. Some areas of particularly badly damaged moorland are now wholly livestock-free and the new subsidy scheme also rewards landowners for conservation activities such as gully-blocking.

Bruce Wilkinson © Moors for the Future / PDNPA





Pictured: Dean Head Moss, Peak District, Derbyshire; many of Britain's peatlands are emitting alarming amounts of carbon into the atmosphere

Peatlands worldwide

Although peatlands are found on all continents, it is difficult to calculate exactly how much peatland there is in the world. Not only is this information unavailable or incomplete, but also, according to the organisation Peatlands, the criteria used to classify peatlands (variously known as bogs, moors and mires) can vary between countries. Broadly speaking, there are six different types: blanket, raised, string, tundra, palsa and peat swamps, and they are classified by their depth, shape, source of water and vegetation.

The most recent estimate is that there are more than four million square kilometres of peatland worldwide. This is approximately three per cent of the Earth's terrestrial and freshwater surface, and 10 per cent of its global freshwater resources.

In December 2007, at the UN summit on climate change in Bali, a comprehensive global assessment of the link between peatland degradation and climate change was presented. It stressed the urgent need to restore and protect the world's peatlands, and as a result cut global greenhouse gas emissions by 10 per cent.

Europe

While most European countries have areas of peatland, the most extensive are in the north, particularly Finland, Sweden, Norway and Russia. The cool, wet climate of Western Europe, especially that of Ireland and the United Kingdom, also provides ideal conditions for the formation of peat. It is estimated that there are around 223,600 square kilometres of bog in the UK

Africa

Peatland occurs in many African countries, but generally only in very small areas. The African countries with the largest areas of peatland include the Democratic Republic of Congo, Uganda and Zambia.

The Americas

The largest area of peatland (1,235,000 square kilometres) is found in Canada. The US also has substantial areas of peatland, increasing northwards – 50 per cent of the peatlands in the US are found in Alaska (see picture below). Only small areas of peatland are found in Central American countries. Peru and Brazil have the largest areas of peatland in South America.

Asia

The largest proportion of peatlands in Asia are found in Asian Russia. Indonesia has large areas of peat swamps that support forest vegetation. Siberia is home to the world's largest frozen peat bog, equivalent in size to France and Germany combined. Recent scientific evidence suggests this bog – which contains some 70 billion tonnes of methane, a quarter of all the methane stored on the land surface worldwide – is melting at an alarming rate, with potentially devastating consequences for global weather.

Australia and the Antarctic

Peatlands are not a characteristic habitat of the Southern Hemisphere, but small areas are found in several countries, including New Zealand, Australia and even Antarctica. These peatlands are important because they differ from northern peatlands in terms of vegetation and animal communities.

On all continents, peatlands continue to be destroyed and exploited in an unsustainable manner.

Since 1976, there have been more than 350 wildfires on Peak District moors. One of the biggest, on Bleaklow in April 2003, left in its wake nearly 850 hectares of bare peat, which soon became badly eroded. Spring 2007 in the Peak District saw widespread moorland closures due to the risk of wildfires – the ground and vegetation were tinderbox dry. Rangers were posted to access points to divert walkers and acted as an early warning system when several fires broke out.

These wildfires are occurring with greater frequency as climate change increases periods of spring and summer drought, followed by heavy rain. Human activity may also be to blame in other ways: the majority of fires originate next to footpaths, suggesting careless or reckless behaviour on the part of outdoor enthusiasts who should know better.

A healthy and active peat soil should act as a net carbon sink. In addition to carbon dioxide released through aerobic decomposition when the water table is low, peat loses carbon via particulate erosion from its surface – through footpath erosion, gullying and fire damage – and as dissolved organic carbon (DOC) into streams and gullies. Around 40 per cent of DOC is returned to the atmosphere as carbon dioxide.

Dr Fred Worrall, of Durham University, has been studying DOC levels in UK rivers for decades. His view is that levels began to rise 40 years ago and are now increasing by some six per cent a year. According to his studies, 77 per cent of those areas he has examined show a significant increase in carbon loss, and he sees our changing climate as a primary issue: 'The frequency of summer drought and wildfire is certainly increasing. The worst possible scenario is a dry summer, which hastens aerobic decay, followed by a wet winter, which then flushes out dissolved organic carbon.'

Carbon loss from soil may be further exacerbated as



Heather Angel / Natural Visions

greenhouse gas levels rise. Researchers at the University of Wales, Bangor, recently discovered that elevated atmospheric carbon dioxide levels accelerate bacterial decay in peat bogs, causing stored carbon to be discharged into streams and amplifying the effects of climate change. Given that peat soils worldwide are estimated to hold 30 per cent of terrestrially stored carbon, urgent action is needed literally to stop the rot.

Efforts are underway to mend the damage that has already been done and to prevent further erosion by regulating grazing and burning by landowners. Restoring peat bogs that actively sequester carbon will be a much tougher objective, though.

In addition to these factors, much of the upland heath in the UK is managed for grouse shooting. Rotational burning of heather during the winter months – at

Getting to grips with the issue

The Northumbria Regional Flood Defence Committee has made the connection, and is helping to fund the Peatscape project in the North Pennines. Drainage ditches are dammed using peat blocks that are cut by hand or using a low-impact digger. This is slow and costly work. There are an estimated 10,000km of grips to block in the North Pennine area alone, and permission to do so must first be granted by the landowner.

The problem is how to pay for the work elsewhere. One way for upland restoration to generate some of its own funding could be through the emerging carbon-offset market – though this is not as straightforward as it might first appear.

Trading upland carbon gains as certified emissions reductions could finance moorland restoration on a

Below: new legislation on burning heather will help to protect the peat beneath
Bottom: cotton grass can indicate healthy blanket bog



Bruce Wilkinson © Moors for the Future / PDNPA

‘Restoring peat bogs that actively sequester carbon will be a much tougher objective than simply mending the damage’

intervals of at least 12 years – helps regenerate denser, more lush vegetation. This provides better food and shelter for grouse. Damage to peat is minimised if this is done with care and while the peat is moist. This has apparently not always been the case – and new legislation designed to reduce erosion caused by bad management came into force on 1 October 2007. This limits the area to be burned, with tighter restrictions on steep, easily eroded slopes and next to watercourses.

In the South Pennines, Moors For The Future staff and volunteers have, over the past few years, spread heather ‘brash’ – shredded vegetation from healthier areas of moorland – on to approximately 600 hectares of peat that have been exposed by fire. This helps stabilise the soil, helping heather seeds from the brash to germinate, and reintroduces vital mosses, lichens and fungi. Steeper slopes are stabilised with expanses of jute netting; ascending the Pennine Way from the Woodhead Pass towards Bleaklow Head now feels a little like walking on a giant patchwork quilt.

So far, the project has proved successful in meeting its primary aims, with some areas revegetated by as much as 93 per cent. This should limit surface erosion, but may not be enough to restore the peat to an active state.

Raising the water table is crucial to recreating blanket bog conditions. Gully-blocking – often using simple dry-stone walls – can help keep peat moist, although the effect upon the water table is purely a local one. Gully-blocks also trap large amounts of sediment, which would otherwise be washed away.

Upland peat should act as a natural sponge, instrumental in preventing flash-flooding in low-lying areas such as York. While much attention was given to the problems facing our flood plains this summer, few people may have considered the importance of such upstream factors.

large scale. Unfortunately, the precise emission savings of blocking a gully or a grip are hard to quantify – unlike tree-planting, for which better data is available. As Fred Worrall points out, there are other complications, too.

‘The UK Government is not required to account for soil carbon losses as part of its current emissions total,’ he says. ‘In order to obtain the financial benefits of emission-reducing moorland restoration schemes, carbon dioxide loss from upland soil would have to be included in the first place.’ Given the accelerated rate of carbon loss from peatlands, it is easy to see why the Government would be less than keen on doing so.

Voluntary offsetting, according to Dr Worrall, seems a more likely solution – one he believes is very close to becoming a reality: ‘While planting a tree may appear a

Moorland biodiversity

Common ling heather has many historical uses. Its Latin name, *Calluna vulgaris*, originates from a Greek word, *kalluno* – to cleanse – referring to heather broomsticks and its use in folk medicine as an antiseptic and diuretic. The flowers can be used to make orange dye and as a source of honey. Heather has also been used as fuel, thatch and animal fodder.

Another member of the heather family, cross-leaved heath (*Erica tetralix*) favours wet soil, and can indicate healthy blanket bog, along with cotton grass (*Eriophorum spp*). Sphagnum moss is another bog-dweller – possibly the most important for peat formation. It can hold several times its own weight in water, staying moist even when the surrounding soil is dry, and has been used to line babies’ nappies.

Moorland shrubs support a diverse fauna, including rare moth and butterfly larvae, along with thousands of other invertebrates. These in turn sustain ground-nesting birds, such as red grouse, which are hunted between August and December. Wading birds such as lapwing, curlew and golden plover, and birds of prey including the short-eared owl, merlin and hen harrier, also thrive on the moors.

Peat bogs

Right: active peatlands can sequester carbon equivalent to 84,000 family cars a year
Below: jute netting helps peat regenerate undisturbed



DUNCAN SHAW/SCIENCE PHOTO LIBRARY



Bruce Wilkinson © Moors for the Future/PDNPFA

What's in your grow-bag?

The peat in your grow-bag is unlikely to have come from upland blanket bogs. Most peat extraction occurs on similarly endangered lowland raised bogs.

Traditionally, peat fuel-blocks were hand-cut – a sustainable practise still occurring in some rural communities. Today, peat is removed by 'milling': bogs are drained, the surface ploughed and the peat vacuumed into lorries.

Demand for horticultural peat grew in the 1960s in response to heavy marketing by the extraction industry. Previously, gardeners relied upon a range of soil improvers including compost and manure. The late Geoff Hamilton summed up the problem nicely: 'Gardeners buy peat because of brain conditioning rather than soil conditioning.'

It seems incredible to think that such an important habitat has been literally churned up and sucked away by machines, simply so that we can grow our tomatoes with less effort. Several raised bogs in the UK have been granted SSSI (Site of Special Scientific Interest) status, though often too late: peat companies were granted extraction rights many years earlier.

Consumer awareness increased in the 1990s and a range of 'peat-free' horticultural products emerged. Under the Biodiversity Action Plan, the Government set a target for 90 per cent of soil improvers and growing media to be peat-free by 2010. On this at least, things are moving in the right direction.

Unfortunately, while the proportion of peat being used in horticultural products has been steadily falling, use of commercial growth media by amateur gardeners – representing by far the greatest source of demand – has rocketed. As a result, the total volume of peat being used remains largely unchanged at around 3.4 million cubic metres per annum.

One consequence, as protection for peatlands in this country improves, is that much of our horticultural peat is now imported from Estonia and Eastern Europe, where environmental protection is less stringent.

A combination of resistance to change and ignorance about the alternatives therefore looks set to spoil efforts to get peat out of garden centres. Clearly gardeners need to be re-educated if the world's peatlands are to remain the carbon-sink they should be.

more tangible outcome for someone wishing to offset their personal emissions, peat restoration has a significant advantage – trees store carbon temporarily, but peat can truly act as a carbon sink.'

Restored, active peatlands across the UK could sequester carbon equivalent to the emissions of 84,000 family-sized cars per year. At present, we are a very long way from achieving that ideal.

Changing our ways

Raising awareness of the vulnerability of our peatlands is both essential and urgent. If visitors can be educated to tread carefully on the hills, there is no reason we should not continue to do so. Facilities such as the new Moorland Centre at Edale, Derbyshire, encourage visitors to explore these precious landscapes, but to do so with respect for their fragility. Tourism also provides a valuable stimulus for the many rural communities facing economic decline, yet whose involvement in conservation is vital.

The Pennine Way stretches 268 miles from the Peak District to the Scottish Borders. The contrast between the deeply scarred south and relatively intact north of the range is stark. This damage was wrought through centuries of pollution and neglect, but patterns of climate change now look set to make matters much worse. Rising temperatures are causing carbon to drain from the moors into waterways at an escalating rate.

Heather moorland is certainly worth preserving for its unique character and its stunning biodiversity – but we humans often need something more tangible to make us truly listen. So whether it is through the effects of our changing climate, the colour or the cost of our tap water as DOC levels rise, or simply the possibility that lowland flooding may affect our homes, people in the UK may soon be feeling the effects of what is happening far away on those bleak, windswept moors. **E**

Trevor Critchley is a chemistry teacher, freelance writer and hillwalker

Find out more

You can find out more – and there are many opportunities to get involved as a conservation volunteer – by contacting the following organisations:

Moors For The Future

www.moorsforthefuture.org.uk

Peatscapes

www.northpennines.org.uk

National Trust

www.nationaltrust.org.uk

Peatlands

www.peatlandsni.gov.uk

THERE IS A BIGGER THREAT TO YOUR FUTURE THAN GLOBAL WARMING OR TERRORISM

Fact 1: The world's oil supply is rapidly running out. Fact 2: The world is going to change dramatically. Fact 3: Vernon Coleman's new book, *Oil Apocalypse: How To Survive, Protect Your Family And Profit Through The Coming Years Of Crisis* will help prepare you for the devastating consequences ahead.

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You will never read a more important or more alarming book than *Oil Apocalypse* by Vernon Coleman. The disaster inexorably heading our way will make any natural disaster, any tsunami, seem inconsequential. Forget global warming. Forget terrorism. They are, as you will see, trivial problems.

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It seems quite incredible that the astonishing facts about the world's oil supply aren't more widely known, but there are reasons why they have been kept secret from the public. Only in Vernon Coleman's book *Oil Apocalypse* will you find out precisely why and how the frightening truth about the world's oil supply has been suppressed from the public. When you've read *Oil Apocalypse* much of what has happened in recent years will suddenly become very clear.

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Over half of all oil-producing countries reached their peak oil years ago. Numerous other oil-producing nations are expected to reach their individual 'peak oil' year well before 2010. The oil is going to run out soon. In *Oil Apocalypse* you will learn how to survive and how to protect yourself – and your family. You will also learn the following:

- Why there will be millions of people living on the streets
- Which towns will survive in the future
- Which homes will survive
- Why supermarkets won't survive
- Why people will have to stop eating meat
- Which jobs will be redundant and which jobs will be successful

- Why Britain is going to be one of the countries that will suffer the most
- How your car number-plate could soon affect your freedom to travel
- Why nuclear power is inevitable
- Why the cost of grains will go up
- How we can make the world's food shortage disappear overnight

This Isn't The Script For A Horror Movie

'The lorry that collects your rubbish won't be running. Streetlights won't burn. Hospitals will close. Factories will shut. There won't be any television programmes. You won't be able to recharge your mobile telephone.

Within a generation, five out of six people on the planet will be dead.

It isn't fiction.

It's going to happen. And it's already started.'

Vernon Coleman

- Why you should beware if you are relying on a pension
- What thieves will be stealing in the future
- How ethanol will cause a massive increase in world starvation
- The terrible truth about palm oil

And Much, Much More!

Your Survival Plan

If you and I are to survive then we need to prepare ourselves for the future.

The final two sections of *Oil Apocalypse* contain invaluable practical and financial advice describing precisely how Vernon Coleman is planning to survive the coming years of crisis – including the investment programme he has devised for himself.

Why We Have To Rely On Ourselves

It's a sad but true fact – we cannot and should not rely on others to help us in the future, especially the Government and those who work for the Government. We really have to rely on ourselves in order to survive. That's why I believe that you will not want to

Vernon Coleman has written over 100 books which are sold in more than 50 countries and have been translated into 22 languages. Over two million copies of his novels and non-fiction have been sold in the UK alone.



be without Vernon Coleman's new book *Oil Apocalypse*.

The information in *Oil Apocalypse* will ensure that you are one step ahead. This book will help you and your family to survive. It is wise to start preparing for your future now before it is too late. This is the most important book you'll ever read.

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Editorial Director

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ECO1

What do government and industry do when something is toxic but massively profitable? Most of the time, says Devra Davis, they just invest in better class of PR...

The safer cigarette

In his book *Propaganda*, written in 1928, Edward Bernays, the founding father of today's PR industry, argued that democracy depended on the successful control of public opinion: 'The conscious and intelligent manipulation of the organized habits and opinions of the masses is an important element of democratic society.

Those who manipulate the unseen mechanism of society constitute an invisible government which is the true ruling power of our country...'

Nowhere are clever and complex strategies to manipulate the public mind more clear than in the prolonged, failed, costly and eerily relevant campaign to produce a safer cigarette.

The story of the rise – and fall – of tobacco has been widely told in broad brushstrokes,

but one of the lesser-known chapters is how the industry tried to have it both ways. At the same time as assuring the public its product was safe, many in the tobacco industry in the UK and US used the cover of 'trade secrets' to carry out expensive, clandestine efforts to design a less harmful cigarette.

In 1957, the notion that tobacco smoking could be considered a healthful habit – as many contemporary ads promised – was beginning to come undone in many quarters. Doctors may have smoked Camels and other cigarettes, but growing numbers were beginning to grasp the absurdity of their dependence. That year, in two separate stories, the popular *Reader's Digest* struck what appeared to be a fatal blow to the industry. The magazine revealed a set of 'industry secrets', including the allegation that tobacco bosses were holding out on a 'safer smoke'.

The first *Reader's Digest* story detailed laboratory tests proving the amount of

nicotine and tar inhaled from the current crop of filter-tip cigarettes was no less – and was sometimes far greater – than that from plain smokes. In some cases, switching from a regular-size plain cigarette to a king-size filter actually increased the tars and nicotine inhaled. In fact, the filtered King and Hit Parade cigarettes contained 30 per cent more nicotine and tar than unfiltered Camels.

But in 1953, when filters were just beginning, the American Medical Association (AMA) tested three new types and found that one, used in the Kent brand, actually did remove 55 per cent of all tars and nicotine.

What was in these too-efficient Kent filters was disclosed in the second story. The Atomic Energy Commission had recently declassified a report about a remarkable aerosol filter that removed radioactive particles from the air in nuclear power plants. This extraordinary material was crocidolite – a bluish kind of asbestos. In 1952, the company making Kent cigarettes, PJ Lorillard, decided to use this new material to filter its brand-new cigarettes.

Nearly 12 billion of these asbestos-filtered cigarettes – 585 million packs – were sold in the US until 1956. Ads assured smokers these

Photography: www.vitrine.co.uk



filters provided health protection. Laboratory tests using smoking machines to simulate human exposures, eventually published in 1995, proved this was not the case. A typical smoker would have inhaled considerable amounts of asbestos, known now to induce lung cancer and mesothelioma – a tumour of the lining of internal organs, which basically causes people to suffocate to death.

At the time, however, lots of smart money bet on selling the phallic elegance of filters as less harmful, cleaner and easier smokes. Before 1954, only one out of every 10 cigarettes sold was filtered. By 1957, close to 75 per cent of all cigarettes would be. In the US, revenues from tobacco advertising accounted for more than one in every four dollars spent in the booming business of shaping public opinion.

There was, however, a price to be paid for being an early adopter. Kent's filters proved too efficient. Sales eventually tanked as smokers complained the cigarettes just didn't have that tobacco taste. Nevertheless, people wanted to believe that filters would fix that problem. Until that time, the risks of lung cancer had been demonstrated in industrial nations by charting the health of those who had used plain, unfiltered cigarettes. So the battle of the filter-tips began: how to design a filter that looked as though it was doing the right thing, but didn't really remove too much of whatever it was that made a cigarette a cigarette and kept people craving more?

By March 1957, research was underway at the British American Tobacco Company (BAT), in Southampton, UK. The programme looked into whether or not the amount of various

carcinogens formed could be lowered by different shapes or designs of cigarette. At one point they tried to rebuild the cigarette itself, creating a coaxial design in which the tobacco core was completely blanketed by thicker, filter-like material. They also developed a wide variety and length of filters. Each variant was tested for the amount of carcinogens released. None worked completely.

At first reading, the articles in *Reader's Digest* looked like a heavy hit on the industry. In fact, they were a set-up. The first article ended with a tantalising report on a trade secret nobody wanted readers to know: most companies had begun to use the pieces of tobacco they had been sending to landfills, blending stems with fine tobacco leaves.

Putting tobacco scraps in cigarettes proved to be useful on several fronts. It was cheaper for a start, but it also turned out the smoking machines employed by the US Federal Trade Commission to measure the amount of tar and nicotine, found cigarettes containing what was to be called 'reconstituted tobacco' looked 'healthier'. By recycling its tobacco rubbish, the industry was producing smokes that looked better and contained less tar. It seemed a financial and public health triumph: less costly and less potent cigarettes could be created. As with so many of its promised advances, however, the industry was blowing more smoke than it was clearing.

Waging the tobacco wars

In truth, the great bulk of the tobacco 'science' that appeared in print was well-disguised public relations work. Public doubt as to the

truth of the dangers of tobacco had long been nurtured under the aegis of various medical experts. The editor-in-chief of the *Journal of the American Medical Association*, Morris Fishbein, masterminded highly profitable strategies to advertise tobacco, boosting the coffers of the AMA over more than two decades, long after officials had pronounced the product a public menace. In a real sense, the modern field of epidemiology evolved in response to the doubt-provoking tactics of the tobacco industry. The need to establish proof that tobacco was harmful was held up as a perfectly reasonable demand by the highly profitable industry. The national economies of Britain and the US, already dependent on tobacco revenues to fund various public works, including health services, easily accepted this stipulation. A well-engineered campaign of actively collaborating or occasionally unsuspecting experts fomented doubt about what sort of evidence was needed to establish proof of human harm.

Occasionally, however, the truth crept out. Much to the shock of UK tobacco firms, in 1962 the Royal College of Physicians issued a report declaring that smoking damaged human health. Richard Doll, the man behind early British research on the dangers of tobacco, told me that the report was delayed close to five years because of the tremendous influence of the industry and its vital role for the recovering Cold War economy.

In truth, Doll and many others knew that German, US, Japanese and Argentinian scientists had proven the dangers of tobacco for health in the 1930s and 1940s, in both



Tobacco wars

experimental work and some public health analyses. The tobacco manufacturers in Britain had long assumed that because the government depended so heavily on revenues from tobacco to fund the health system (to this day the NHS receives money from the tax on tobacco), among other national services, they could create impossibly high bars of evidence regarding what could be deemed proof of human harm. As long as uncertainty could be magnified about the science, the tobacco industry remained immune from direct government control.

When its report indicting tobacco finally appeared, the Royal College's data sent the industry reeling. Immediately afterwards, a major powwow was held by BAT's research and development leaders. One, Sir Charles Ellis, explained at a conference in July 1962 that the challenge was to come up with a basic change in the nature of cigarettes:

'The board recognises this problem must be tackled from two sides, and the first being at

[sic] medical research on the origin of lung cancer and bio assay on the biological effects of smoke, the second being the composition of smoke and the possibilities of modifying it.'

Sir Charles went on to promise that if any new toxicology research was found that was relevant to improving the health of its product, the board would share this information with other tobacco companies, rather than seeking any commercial competitive advantage. Whether this information would ever be shared with the public or health authorities was not even considered.

Not long after in the US, Kenneth Endicott, the four-packs-a-day, chain-smoking chief of the National Cancer Institute, became convinced there had to be a safer way to smoke, and embarked one of the more bizarre chapters in the history of the war on cancer. In 1967, five years after the Royal College of Physicians and three years after the US Surgeon General had declared smoking caused lung cancer, Endicott began a

government programme that spent more than \$30 million of taxpayer money to create a safe cigarette. Similar efforts were also mounted in Britain.

Perhaps the concept of making cigarettes safer has an inherent logic, but less bad does not mean good, as the world would eventually have to admit. To carry out the objective of crafting a safer cigarette, the industry tapped respected researchers at private institutions, including the University of London, the American Health Foundation in New York, the AMA and the American Cancer Society, as well as the US government. These groups not only worked with the tobacco industry to engineer a safer smoke, but also profited from coming up with methods by which the chemical engineering and epidemiological safety of the product could be evaluated.

It's not clear what was more foolish: the idea that a healthy cigarette could be designed using filters and newly configured types of tobacco waste, or the notion that the government ought to pay to come up with it to benefit what was already a heavily subsidised, multi-billion-dollar, multinational industry. The decision to attempt to engineer a safe smoke must be one of the more perverse results of tobacco's grip on public thinking. The notion that cigarettes could be made safer was fuelled in part by scientists such as Endicott and surgeons, more than half of whom were heavy smokers themselves, and by a naïve sense that a safe cigarette would be far easier to create than a major programme to discourage most men and growing numbers of women from smoking.

What makes this story so remarkable is that the tobacco industry knew all along that filters did not make enough of a difference and that in trying to engineer a safer smoke, the industry was in effect acknowledging the primary toxicity of its product.

Cutting through the smokescreen

Not all government officials, however, were spellbound by the PR spin. Joseph Califano, a Harvard-educated lawyer and skilled litigator who headed up the US Department of Health and Human Services during the administration of Democratic President Jimmy Carter at the end of the 1970s, didn't accede to the tobacco-supporting programme of the administration he served. Like many in government, Califano had been a heavy smoker, but unlike most had kicked the habit. Not known for his diplomatic skills, Califano became no friend to tobacco.

Profitable Pollutants

It usually takes a major public health crisis to remove profitable toxins completely from marketplace. In the mean time most of us continue to be exposed to a variety of profitable poisons, including:

Fluoride

Sold as the solution for all our dental woes in major-brand toothpaste, this chemical is also routinely added to the water supply of some six million Brits. Historically used as a rat poison, fluoride is linked to cancer, brittle bones and thyroid disease.

MTBE

Methyl tertiary-butyl ether (MTBE) is used as an additive for petrol. Primarily through leaks and spills, massive quantities of MTBE are known to have entered the environment, polluting soil and, more alarmingly, water supplies. MTBE is a known health risk and many US states have banned its use. The Bush administration aborted plans for a nationwide ban.

Aspartame

One of the world's most popular artificial sweeteners. Studies have shown it to be a neurological toxin, as well as a potential carcinogen. In spite of this, aspartame is widely used in everything from soft drinks to children's medicines. Manufacturers are now working on a 'safer' version called neotame.

Flame retardants

Brominated flame retardants (BFR) are used to prevent electronics, clothes and furniture from catching fire. Considered highly important to the electronics industry, BFRs accumulate in human breast milk and food items. Studies suggest BFRs are toxic towards the liver, thyroid and neurodevelopment.

PVC

One of the most valuable products in the chemical industry, polyvinyl chloride (PVC) is used abundantly in everyday plastics. It is known to harm the environment and human health at all stages of its life cycle, with links to cancer and damage to the immune and reproduction systems.

PFOA

Perfluorooctanoic acid (PFOA) is the main compound in Teflon, the non-stick, stain-resistant material used in cooking utensils, clothing and food packaging. Known to get into the human bloodstream, PFOA is considered a likely human carcinogen by the US Environment Protection Agency.

Phthalates

Chemicals that are used to soften plastics and also as an ingredient in common cosmetics. Known to be absorbed into the body, phthalates have been linked to birth defects and are considered a probable cause of cancer.

On 11 January 1978, Califano proposed the most strident anti-cigarette programme ever to come out of a cabinet-level office. Calling cigarettes 'Public Enemy Number 1', Califano wanted schools in the US to teach children about the consequences of smoking. He wanted a higher federal excise tax on cigarettes and called on the Civil Aeronautics Board to ban smoking on all commercial flights.

The breadth of the proposals left the tobacco barons and their defenders seething. Senator Jesse Helms chided Califano for 'callous disregard for economic realities, particularly for the economy of North Carolina.' Governor Jim Hunt challenged Califano to visit to learn what tobacco meant to North Carolinians. Representative Charlie Rose, a Democrat who


consisted of nothing more than a potpourri of mostly unrelated studies that reached the lame conclusion: 'The bulk of the research supports the contention that smoking cigarettes played an important role in the development of chronic obstructive pulmonary diseases and constitutes a great danger to individuals with pre-existing diseases of the coronary arteries.'

It was 1979, nearly 15 years after the surgeon general's report on lung cancer and smoking, and the AMA had finally decided to acknowledge that smoking was bad for the lungs. This costly AMA report ignored the issue of lung cancer on the flimsy

was spent on such a bad idea for such a long time offers a moral tale with relevance to other realms (see box p.46).

Goaded by a bevy of expertly expressed technical doubts, public opinion came to wonder whether proof could ever be developed that smoking was harmful.

Each time a report appeared showing that smokers faced increased risks of lung cancer or other diseases, experts were tapped to explain how the study had not quite got it right. Crucial evidence was missing.



'Tobacco advertising and sponsorship invaded every part of modern life, from drama hours to major sports contests'

represented tobacco farmers in the east of the state, elevated the whole discussion when he said, 'We're going to have to educate Mr Califano with a two-by-four [plank], not a trip.'

German playwright Bertolt Brecht, who spoofed Stalinist policies, argued that if the government didn't like what the people wanted it should elect another people. Califano's efforts to get public authorities to tackle tobacco made it clear that he was one person who could not continue to be part of the tobacco-friendly government.

Later that year, when President Carter visited North Carolina – then the nation's top tobacco-growing state – as part of his campaign for re-election, Califano was not with him. He joked to the crowd that he had planned to bring along that infamous former smoker, Secretary Joe Califano, but explained he changed his mind when he realised North Carolina not only produces more tobacco than any other state, but also made 'more bricks than anyone in the nation as well'.

The same day the president was mocking and threatening Califano's anti-smoking efforts, the AMA's Education and Research Fund released a lavishly printed report on a study that took four years and a considerable amount of money to complete, with more than 800 researchers and untold numbers of lobbyists. Much ballyhooed, the report

pretext that the National Cancer Institute was already studying the problem. Within days, the *Journal of the American Medical Association* published an astonishing paper: 'Toward Less Hazardous Cigarettes: Current Advances', boasting that as a result of the government effort to make a safe cigarette, a major breakthrough was at hand. Modern filters, some of which they named by brand, could be smoked to yield a 'tolerable risk'.

The truth, as scientists knew then and have repeatedly shown since, was quite the opposite. People smoking filtered cigarettes suck harder, breathe deeper and take in more tars, nicotine and cancer-causing chemicals than they do with plain smokes. With respect to tobacco science, however, truth has always been a rare commodity.

The lengthy battle to gain public acceptance of the dangers of tobacco lasted as long as it did for two reasons: tobacco is highly addictive and was made more so by physical manipulation of the cigarette by the industry. Tobacco advertising and sponsorship invaded every part of modern life, from comedy and drama hours to major sports contests. Smokers' addiction to tobacco was chemical; for the rest of society it was economical.

Based on what now appears to have been at best misguided thinking, at worst delusional, the UK and US governments spent millions trying to help the tobacco industry come up with a safer cigarette. How so much money

The groups looked into were not really the right ones. Some basic flaw kept the results from being deemed definitive proof. The costly, decade-long effort to craft a healthier cigarette can be seen as further proof of how scientists can be just like anyone else. If it makes their world a bit easier, they are happy to believe in what they know probably isn't true – especially if they are well paid to do so.

The lessons of tobacco have broad contemporary relevance. It is not possible for any public health issue involving millions of dollars and lives – whether mobile phones, aspartame or the misuse or overuse of diagnostic radiation or psychiatric medications – to be resolved without a major press of public relations and cutting-edge scientific studies being funded by those who run the invisible government. As Bernays knew, the best public relations appear as impeccable science, presented by expert advisors.

The dreams of an open society, where the marketplace of ideas governs, look faint and ephemeral. On any of these suspect modern hazards, what information is permitted to get to the marketplace? Who decides when to release findings about public health threats? These things are not determined by unfettered scientific inquiry, but by the social and economic realities that constrain them. **E**

Devra Davis is the director of the Center for Environmental Oncology at the University of Pittsburgh. This article is adapted from her latest book, *The Secret History of the War on Cancer* (Basic Books/Perseus, £16.99)



Born to shop?

Is there something in our brains that makes us desire ever more, even when we know we have enough? **John Naish** explores the human hardwiring of consumer society

Ever since the 1970s we have lived with the growing awareness that our ecosystem is fragile and the perpetual exploitation of our natural resources impossible. By the late 1980s, even *The Sun* newspaper had its own green correspondent. Everything we buy, use and throw away has an impact somewhere on the ecological continuum, and nowadays the most bullish Western consumers' consciences are regularly punctured by shards of eco-worry. We also increasingly realise that working ever harder for more possessions, more options, more stuff, doesn't tend to make us more content.

Instead it can cause anxiety, stress and depression. Lifestyle pundits blame 'society' or the Government. Some say it's a sickness. But still our culture strives to produce and consume more. The question is 'why?'

Breakthroughs in brain-scanning science and evolutionary psychology suggest the real culprit is us – or rather the way we play fast and loose with our primitive, instinctive brains. Our basic evolutionary wiring got us down from the trees and across the world, through Ice Ages, plagues, famines and disasters, right into our age of bounty. This unprecedented success was built upon a voracious strategy of 'get more of everything, whenever possible'.

Now, however, that strategy is set to dump us on the cosmic ash-heap. In the rich world we have gone from millennia of scarcity to unprecedented abundance. Materially, we have everything we need to be content. Except for a stop-button. An 'enough' button.

According to evolutionary biologist Robert Trivers, of Rutgers University, New Jersey, US: 'We've evolved to be maximising machines. There isn't necessarily a mechanism in us that says "relax".'

Worse, we have created a modern culture that constantly and powerfully prods our acquisitive instincts, stranding us on a carousel of unfulfilable desire, while our

planet's natural resources become depleted and its ecology collapses. The only way to change course is to evolve beyond the mindset of 'never-enough'.

The desire-driven architecture of our lower, primitive brains evolved during the late Pleistocene era, between 130,000 and 200,000 years ago. It was moulded by the behaviour of groups of half-starved hunter-gatherers who turned into farmers, fretfully watching their crops fail. Those who gave up fell by the wayside; the ones who kept going, who colonised the Earth in only 60,000 years, gave us their genes. Our survivors' brains configure us to keep driving onwards – to operate as perpetual dissatisfaction machines. A study in the *Journal of Neuroscience* in 2007 revealed our minds seem built with fewer mechanisms for feeling pleasure than suffering pangs of desire. The Michigan University testers found the sensations of wanting and liking are run by two separate 'hedonic hotspots' deep in the brain. The circuit for wanting seems to have around a third more influence on our behaviour than that for liking.

Hard-wired to want more

That hard-wiring could wreak considerable environmental impact in itself, but on top of that we evolved as a uniquely acquisitive species, driven to possess things in a way no other creature does. Consider the artefacts found at Neolithic cave sites: hand-axes. Millions of them. Far more than any tool-wielding hominid would have needed. Anthropologists believe that they were not only prized for slicing bison, but also as show-off exemplars of design technology, jagged precursors of Philippe Starck lemon-squeezers. Being able to perform or own fine craftsmanship showed what a high-status, reproductively worthwhile hominid you were.

Nowadays, that instinct has been craftily subverted: we are led to believe we can acquire chunks of mate-pulling mojo by waving credit cards at mass-produced branded items. It's a shame the mojo seems to wear off so fast, but that's what keeps our wasteful system whirring – there's always a more impressive hand-axe substitute ready to come off the production line.

In effect, our acquisitive minds are wired for wasteful buying. Brain scans by scientists at Emory University, in Atlanta, Georgia, show how the neurotransmitter dopamine, one of our brain's powerful reward chemicals, is released in waves as shoppers ponder buying a product. But dopamine is about the hunt, not the trophy; only anticipation stimulates its release. After the deal is sealed, the chemical high flattens in minutes, often leaving a regret known as 'buyer's remorse'.

But there's always a new next thing to want. Marketing departments have refined an endlessly enticing strategy of constant special offers, latest models and limited editions with added extras. This plants in our famine-sensitive, Stone Age brains the worrying illusion of scarcity, despite the abundance surrounding us. It's the kind of 'First World angst' that gets affluent women ripping off each other's limbs in the sales to get this season's must-have frocks.

Still more enticing to our Stone Age instincts is the fact that all the new products appear to be owned by beautiful



people, whether Liz Hurley in ecstasies over some cosmetics or Daniel Craig manfully tapping on a product-placed laptop while pretending to be James Bond. Our minds tend to over-identify with celebrities because we evolved in small tribal groups. If you knew someone, they knew you. Our minds still work this way – and give us the idea that the celebs we see so much are our acquaintances.

Humans are also born imitators. This talent underlies much of our species' success – it enabled us to adapt to changing environments far quicker than our competitors could via biological evolution alone. What gets us far ahead of other primates is our attention to detail. A chimp can watch another poking a stick into an ant-hill and mimic the basic idea, but only humans can replicate a technique exactly. We need to choose with great care who we copy, so we have evolved to emulate the habits, idiosyncrasies and clothes of the most successful people we see, hoping imitation will elevate us to their rank. This helps explain why many of us feel compelled to try to keep up materially with celebrities, the mythical alphas in our global village.

There is a dark side to the celeb effect, though. We've grown to despise being out of the in-crowd. Scans by the National Institute

of Mental Health, in Maryland, US, show that when we feel socially inferior two brain regions become more active: the insula and the ventral striatum.

The former is linked with the gut-sinking sensation you get when someone makes you look just 'that big', the latter with motivation and reward.

To stave off the pain of feeling second-rate, we get compelled to barricade ourselves behind social acquisitions.

That mechanism would have kept our ancestors competitively stretching for the next rung of social evolution ('Oh my gods, darling, look: the Proto-Joneses have entered the Bronze Age'), but in the 21st-century it has locked us into a Pyrrhic battle – because the folks next door can also just-about afford all the latest status symbols.

We also mistake designer brands for friends.

Our ancient brain circuits are configured to relate primarily to other people and animals, but this way of relating often gets attached to inanimate objects. We habitually anthropomorphise, which is why so many of us call our cars 'she'. A report in the *Journal of Advertising Research* in 2000 says we do the same with brands. The branded products we buy are painstakingly created to encourage us to identify with them, to believe they share the same kind of human values we do. We can even believe brands have attitudes towards us, and so develop tight 'primary' relationships as we would with friends. In effect, we subconsciously think we are hanging out with impressive tribe-mates.

Some of our acquisitiveness can be blamed on a mass spiritual crisis, on trying to buy purpose in a deity-free cosmos. Easter eggs and Christmas pressies aside, secular life has little use for religious co-branding. Many in the West believe the old omnipotent God is dead and that no-one watches over us. Our only shot at immortality is to achieve acclaim in this material world by piling up stuff. It's a form of existential dummy-sucking. How, indeed, would millions define their sense of purpose if there weren't shopping?

This links in to a fascinating theory that shopping isn't just 'retail therapy', but a way of buttressing our shaky mental universe. In a 1992 paper entitled 'Why Do People Need Self-esteem?', published in the *Journal of Personality and Social Psychology*, American psychologist Thomas Pyszczynski developed the 'terror-management theory'. Retail-supported self-

esteem is, he argues, 'a shield designed to control the potential for terror that results from awareness of the horrifying possibility that we humans are merely transient animals groping to survive in a meaningless universe, destined only to die and decay'. To mask this possibility, we have created a society that proffers us clothes to transform us into fashion gods, and kitchen utensils to make us domestic deities. Pyszczynski adds that we may have no more significance in the universe than 'any individual pineapple or porcupine' – except have you ever seen a porcupine damage the ecosystem with its retail forays?

Shopping till we drop?

So here we are, a species that is uniquely wired, compelled, hormonally drugged and scared into wanting things. Perhaps we should resign ourselves to riding the consumptive spiral until we hit eco-geddon. Hell no, argues Aleksandr Solzhenitsyn, the Nobel prize-winning writer and former Soviet dissident. He reckons the only way to revive our sense of human purpose is by not shopping – by reining in our jackdaw urges. Despite his objections

'Our brain circuits are configured to relate to other people, but we often get attached to inanimate objects'

to the old Soviet regime, Solzhenitsyn has an equally baleful view of Western consumerist culture. He believes we need to cultivate a sense of unselfish spirituality and politely decline our unprecedented opportunity to use up the planet's resources all at once: 'There can be only one true progress: the sum total of the spiritual progresses of individuals. Self-limitation is the fundamental and wisest step of a man who has obtained freedom. It is also the surest path towards its attainment.'

That idea might provoke lemon-sucking faces down at the mega-mall, but there seems little alternative environmentally. We have to stop over-revving our never-satisfied primitive instincts and cultivate a society that cools them in favour of more nourishing, non-destructive pathways to satisfaction. We have some evolving to do – and quickly. We need to develop a sense of enough. We must challenge society's overriding message, that we do not yet have all we need to be satisfied.



Why we shop

In the West, we have created everything we need as a base for finding contentment. But we're stuck in acquisition mode, rushing past the point beyond which getting more makes life worse rather than better. We have to learn to live 'post-more'.

This presents difficult challenges. We have never before been environmentally compelled to invent our own constraints – instead we have deep instincts that kick against environmental limits. And our brains find it hard to comprehend the scale and breadth of the problem because they haven't kept pace with the rapid growth of our economic world. Stone Age people had only a few hundred tradeable products – in modern cities there may be 10 billion. The system that produces and sells them appeared in the past 250 years – too sudden for our mental hardware.

Meanwhile, consumerism helpfully tries to blind us to our problems. Modern life is so padded with minor preoccupations about fashion, style, personal growth – the self-obsessed stuff that constantly prims our primitive egotism – that it's hard to recognise the eco-threat as sufficiently monstrous to make our culture do more than gesture at it.

To have any impact, the argument must be framed for our current preoccupations. It must address the personal, rather than anything huge, distant, amorphous or (thanks to our cynicism about politics and media) cornily altruistic. We have to appeal to the over-stimulated primitive ego-brain. An answer may lie in not talking about global warming and sustainability, but in personal warming and personal sustainability. Because amid the global warming we are seeing more personal

warming; more anxiety and depression; more melting of our circuits; more diseases of excess such as obesity and drug dependency. People complain their lives are too harried and stressed: they are unsustainable. Enoughness is about a personal ecology, about finding our own optimum sustainable balance. It's about saying, 'That's enough for me.'

Returning to an elegant sufficiency

The idea is an ancient one. It reaches back to an older, wiser, form of self-fulfilment. Before it was marginalised by consumerism, the art of finding one's point of enoughness had been debated by sages since Aristotle. Constant consumption may feel normal and natural, but it is a relatively recent fad. In 18th-century Europe, frugal-cool was a lifestyle choice. Outside royal courts, luxury goods were often spurned, thanks to 'worldly asceticism', a Calvinist idea offering the hope of salvation through diligent use of God's gifts (aka planet Earth). Puritans and Quakers promoted the ideal of 'Christianity writ plain', where it was considered good to produce and bad to consume more than necessity required. Those living luxuriously were criticised for squandering resources that might support others.

And if we want to make our minds content then brain-scanning science shows there are far more nourishing and sustainable

alternatives to spending one's life getting and consuming.

Research shows that practising gratitude for the bounties surrounding us is an effective way of bolstering our morale (though it requires us to reject our 'been there, done that, it's soooo yesterday' culture). And although modern media encourage us to fear our neighbours and to compete with each other, brain research increasingly shows that social co-operation, real face-to-face networking and acting generously towards each other can fill our heads with reward chemicals more effectively

'We are human and limited. Embracing this fact is a path towards contentment and away from eco-geddon'

than the next pair of new shoes ever could.

To turn such things into our mainstream priorities would require a huge evolution in social behaviour. But we can't even stop there: most of all, declaring 'enough' demands that we all challenge our own internal propaganda, the messages that get supercharged by our consumerist get-more, be-more culture. Yes, our brains feel immortal. Yes, they whisper that (in the poet Walt Whitman's words) we can contain multitudes. Yes, our minds tell us that we can have it all and do everything. But in fact, no, our brains aren't immortal, and we can't have it all. Those are simply convictions our heads evolved to persuade our bodies out of bed on cold mornings.

We are human and limited, and have to live within our lives' realistic limits. We can hit personal bests, but there will be many things we'll never own, or see, or be or do. Enoughism requires us to accept that the carrot of infinite promise will always dangle just beyond our noses. Embracing this is a path towards contentment and away from eco-geddon. The alternative is for us to wind up as a species that failed to make its next evolutionary step, and condemned itself to remain whining, stressed and angry primitives, greedily grasping for more until the day came when there was simply nothing left to grasp. **E**

John Naish is a journalist and author of *Enough: Breaking free from the world of more* (Hodder & Stoughton, £16.99)

Have you got enough...?

Waste. Every year UK households throw away the equivalent of 3½ million double-decker buses (almost 30 million tonnes), a queue that would stretch from London to Sydney and back again.

Debt. Consumer debt in the UK breached the £1 trillion mark in 2004 and is continuing to rise at an alarming rate.

Credit cards. There are more credit cards in the UK than there are people.

Food. In the UK we throw away a third of our food before we ever eat it.

Clothes. British women collectively own some £7.3 billion of clothes they don't wear. Each spends £12,810 on unwanted

clothing during her working life.

Resources. It takes 1.9 hectares of biologically productive land per person to supply resources and absorb waste. The average person already uses 2.3 hectares.

Space. The self-storage industry made £310 million in 2005. It is growing by four per cent a year as people run out of space to store 'stuff' in their homes.

People. Consumption is on the up at least in part because of a population increase. The UN projects a 41 per cent rise by 2050.

Enough for all? 20 per cent of those in the highest-income countries account for 86 per cent of total private consumption, and the poorest 20 per cent a tiny 1.3 per cent.

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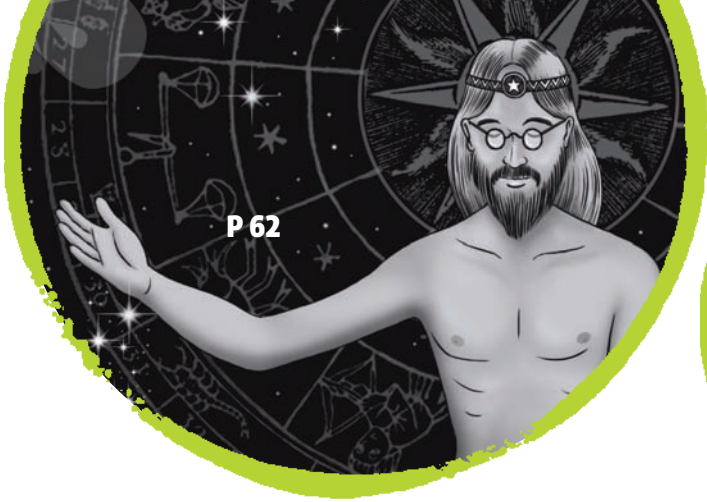
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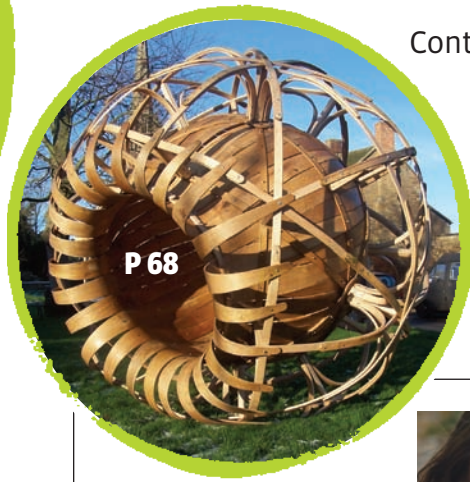


available from health food stores and some grocery outlets

www.meridianfoods.co.uk



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64 Charity Shop Chic Buying clothes from charity shops is eco-friendly and ethical, but will you find anything you want to wear? **Laura Sevier** goes shopping with stylist Mary Fellowes and discovers that it's not just what you buy – it's the way that you wear it

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Holly Wicks talks to bespoke wooden furniture maker Tom Raffield about bending wood, and how he's convincing the design community of the importance of not using plastic

70 Orkney Rose

Laura Sevier meets Rose Grimond, a champion of seasonal, sustainable food from one of the wildest parts of the UK: the Orkney Islands



Wherever you see this little bird it'll point you to relevant contacts in our Green Shopping Guide



P 64

It's been exactly two years since I became editor of the Green Pages. How things have changed since then. Two years ago, the idea of a 'green Christmas' seemed as inviting as a cold swim in the Thames. Now it seems every single publication has its own features or whole specials on how to go about it.

Where once the idea of 'eco fashion' sent the style-conscious into collective cardiac arrest, now there are five books on the subject, including my own, *Eco Chic*. Reviews of all are welcome. Sales of all things organic and Fairtrade continue to rise exponentially, and 'green homes' – newbuilds or refurbishments – are popping up as fast as you can say 'reclaimed wood'.

So we can all take a deep breath and relax, right? It depends if you see the glass half-empty or half-full.

There is some indication things are moving in the right direction – but not quickly enough. I need not remind readers of the latest figures on what life will be like half a century from now, even if we stop emitting CO₂ today. Even my husband, not naturally the greenest of types, gives me a doe-eyed, innocent look when he asks if Bali can really save us.

I don't know the answer, but I have heard we need to reduce the amount of CO₂ each of us consumes from nine tons to two. In terms of being a 'green consumer', the message I would like to get across is this: socialise more. The social side of shopping can grow indefinitely; its material impact can't.

For me, shopping these days means food shopping – I don't do much of the other kind. It's a weekly ritual to go to the local farmers' market and bump into our favourite neighbours; our local fishmonger now greets me by name and I regularly strike up conversations with 'locals' in the queue at the butcher's. Whether we're talking about Bali or the price of lamb we're all doing our bit, just being there.

Matilda Lee, Green Pages Editor

★ READER OFFERS ★

74 £2 off any Stony Yogurt or dessert

76 60% off Suntech Solar thermal collectors from Jayhawk International Ltd.

79 15% off felt slippers from The Wet Felting Company

81 15% off selected Earthbound Organics bodycare products

February

BY LAURA SEVIER

3 Eco Websites

- 1 www.vskips.org – get rid of unwanted items, upload requests and have a good rummage. Free.
- 2 <http://planet.way2.be> – a search engine based on Google. 100% of advertising profits go to the United Nations Foundation to combat global warming.
- 3 www.climatecounts.org – helps you find out which companies are taking climate change seriously.

2 Feb

World Wetlands Day

Britain's wetlands are home to a huge diversity of plants and animals, and play a major role in storing floodwater. The Wildfowl & Wetlands Trust (WWT) has nine wetland visitor centres around the UK, and on World Wetlands Day they will be offering free entry for under 16s, as well as providing activities to celebrate wetlands and their importance. See www.wwt.org.uk for more information.



Pick of the month Montezuma's British chocolate

Lawyers turned chocolate entrepreneurs, Helen and Simon Pattinson founded Montezuma's in 2000, hand-making their own organic chocolate using one little machine in a single shop in Brighton. Now they have eight of their own shops and their chocolate is sold in some 2,000 shops around the UK. Nor are they afraid to experiment – Montezuma's flavours include the spicy 'three pepper' (pink, white and black organic peppercorns in white chocolate), the unusual 'peppermint and vanilla' and the intriguing 'sweet paprika and strawberry'. As one satisfied customer notes on their website, this is 'the most original, organic and orgasmic chocolate ever.' See www.montezumas.co.uk



Become self-sufficient

Attend one of the Soil Association's 'a taste of the good life' masterclasses and learn how to bake bread, keep chickens, make jams, run a smallholding and grow your own fruit and veg. Classes take place on organic farms and are run by experts in their fields. For more information, see www.soilassociation.org/masterclasses



Pancake Day races

Pancake racing appears to have started in 1445 or so. Legend has it that a housewife in Olney, Buckinghamshire, was busy making pancakes when she heard the church bell calling all to the 'shriving' service for absolution. To avoid being late she ran through the streets with a pancake in the pan. Pancake Day racing still take place in Olney, Winster, in Derby, Spitalfields, in London, and Lichfield in Staffordshire. See www.england-in-particular.info

5 Feb

Shrove Tuesday: Pancake Day

Get the children cooking with this raisin and lemon pancake recipe by Fi Bird (www.stirrinstuff.org).

- 1 Sift 100g of self-raising flour into a bowl. Add 25g of unrefined caster sugar and the grated rind of half a lemon. Make a hole in the centre and add one egg. Using a wooden spoon or small whisk, beat the egg and draw in a little flour. Add 125ml of milk, drawing in all the flour. Beat into batter.
- 2 Heat a non-stick frying pan and add a little butter. Drop a dessertspoon of batter into the pan and scatter a few raisins on top. Cook two at a time.
- 3 When the pancakes puff up and start to bubble, flip them over. Cook for 30 seconds until the underside is golden.



Image: MARY EVANS

Feb wildlife

Look out for...

- **Toads:** toads and frogs hopping across roads towards ancestral ponds.
- **Birds:** in parks and gardens, flocks of wintering thrushes such as redwings and fieldfares moving around together in search of berries and other food.
- **Hazel catkins:** opening out, expanding their golden tassels to release pollen to the wind.



14 Feb

Valentine's Day

A day the planet could do without. Roses flown in from Kenya and grown using pesticides; trees cut down for cards and throwaway gifts... Here are some greener alternatives:

- Instead of flowers, give someone a plant that will last a lifetime, or, for a unique, green gift, you can buy an acre of rainforest for £25. See <http://worldlandtrust.org>
- Nibble on Fairtrade or organic chocolate
- Buy cards made from recycled materials, make your own or send an e-card
- Cook a meal for someone you love from local, organic, seasonal produce. Serve it up with organic wine
 - Give a massage instead of a present
 - Go for a walk in the park



25 Feb – 9 Mar

Fairtrade fortnight

Fairtrade toffee apples, candyfloss and teacup rides are the highlights of this year's Fairtrade fortnight, which launches in London on 24 February. The retro-Victorian fairground theme will continue at other events around the country. Look out for the Fairtrade Taste Experience, a sampling roadshow, and two new books: *The Fairtrade Everyday Cookbook*, edited by cookery writer Sophie Grigson, and *Fighting the Banana Wars and Other Fairtrade Battles*, by Fairtrade executive director Harriet Lamb. See www.fairtrade.org.uk

Email: laura@theecologist.org with upcomi

Inner central heating

Spices to cook with that will warm you from the inside:

- Ginger
- Turmeric
- Cumin
- Cayenne pepper



Snowdrops

Otherwise known as 'February fair maids', snowdrops are in bloom in woodlands and on riverbanks. To find out where to see them, visit www.england-in-particular.info

Special snowdrop events include:

- Snowdrop Festival, at St Mary's Church, Kirk Bramwith, Yorkshire, tel 01302 734309.
- Snowdrop Week, which starts at Berrington Hall (National Trust), near Leominster, Herefordshire, tel 01568 615721.



Seasonal food

Vegetables

- Beetroot
- Broccoli (purple sprouting)
- Brussels sprouts
- Cabbage
- Carrot
- Cauliflower
- Celeriac
- Chard
- Chicory and endive
- Garlic
- Jerusalem artichoke
- Kale
- Kohlrabi
- Leek
- Lettuce
- Onion
- Parsnip
- Potato
- Rhubarb, forced
- Salsify
- Scorzonera
- Spinach
- Squash
- Swede
- Turnip

Below: a member of the beet family, chard is perfect for stir-fries or as a spinach substitute

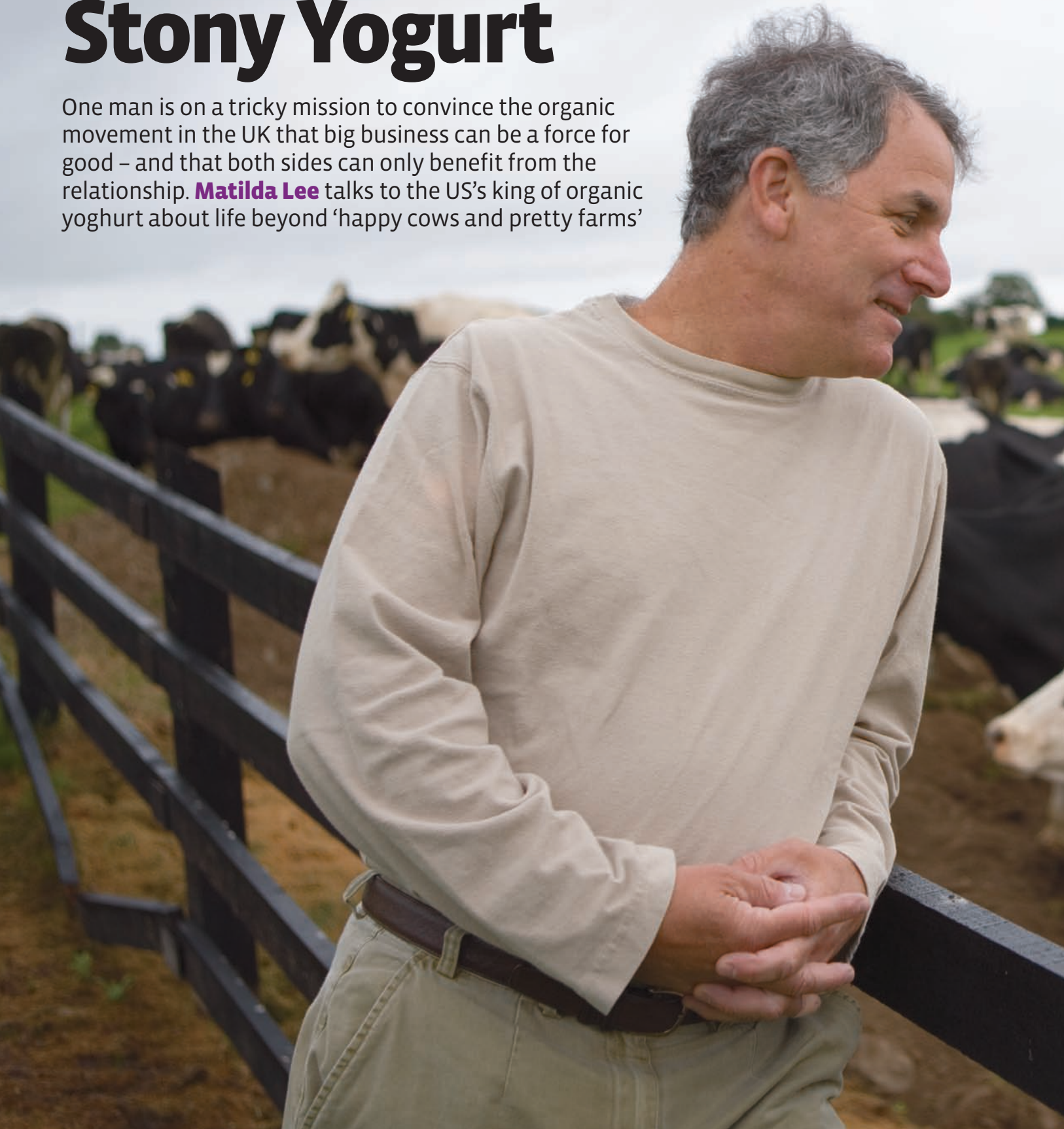


Above: the root of the salsify has an oyster-like flavour

LOCAL HERO

Gary Hirshberg Stony Yogurt

One man is on a tricky mission to convince the organic movement in the UK that big business can be a force for good – and that both sides can only benefit from the relationship. **Matilda Lee** talks to the US's king of organic yoghurt about life beyond 'happy cows and pretty farms'



Watching Gary Hirshberg eat yoghurt is like watching someone trying sweets for the very first time. As the 'yum's, 'wow's and 'yeah's spill out of his mouth in between spoonfuls (three tubs in all) during this article's photo shoot, I wonder if it is all a deliberate exaggeration, part of a well-honed ploy for publicity's sake. It's hard to judge, but clearly this enthusiasm for fermented cows' milk hasn't hurt his business. After a quarter of a century selling organic yoghurt, Stonyfield Farm, which Gary co-founded, is one of the most unconventional and controversial 'ethical' business success stories in the United States. His slogan-studded yoghurt lids may raise the ire of powerful interest groups (in the case of anti-handgun-violence slogans he became, literally, the target of US rights groups), but he's also provoking debate about whether the green movement should work with big business – and if so, how.

'The environmental movement has so far failed to get beyond itself. I came to the conclusion back in

the late 1970s that we were spending more time talking to ourselves and trying to be pure,' he says.

It is a brash and unyielding comment, perhaps, but Gary's aim is to prove being 'good' can be a more powerful force for change than being 'pure'. By change he means 'awakening a consciousness that you can have it all. We can have a climate-neutral, renewable-energy-based culture without toxins in our food system, air, water or soil. We won't give up on taste or walk around in bare feet.'

After doing PhD work on the environmental causes of advancing alpine tree lines around the world he realised that 'scientists were studying the problem [of climate change], but nobody was focusing on the solution'. In 1977, he went to work at the Massachusetts-based New Alchemy institute, building renewable-energy-powered bioshelters for growing organic food, and eventually became the institute's executive director.

What blew him off a perfectly respectable if uncontroversial 'green' career path was a visit to Florida's Epcot centre, where a 'Food of the Future' pavilion funded by food giant Kraft presented visitors with a view of food that was 'highly dependent on fossil fuels, heated using oil, and

crops grown with pesticides, herbicides and chemical fertilisers. The sad thing was that the number of people visiting this place per day was the same as the total number of subscribers to our newsletter.'

In the early 1980s, according to Gary, the organics industry had 'no supply and no demand, but apart from that it was a great business'. Despite this, in 1983 he teamed up with Samuel Kaymen, who ran an organic farming school that boasted just seven Jersey cows but was already making 'incredible yoghurt'. To this Gary brought managerial skills and Samuel a cash injection of \$35,000, borrowed from a group of Catholic nuns. Twenty-five years later, Stonyfield Farm is the number-three yoghurt brand in the US.

'We still have only a seven per cent share,' he says, 'but that's a sizable bite of a very, very big market.' Gary strongly believes organics as a whole needs to break out of being just a rounding error (2.5 per cent) in the food market to really start making a difference.

Happy cows, pretty farms

In the UK, where Stonyfield Farm, renamed Stony, launched less than



I concluded that we, the green movement, were spending more time talking to ourselves and trying to be pure



Business is a powerful force for change. My goal is to bring more people into the organic space

a year ago, the question is why we need them when we're getting along nicely enough with our Rachel's and Yeo Valley yoghurts?

'If that's all it was about, you are absolutely right,' Gary says. 'Without being critical of the other players in the UK, I think a lot of folks have branded themselves "happy cows and pretty farms", but with not enough of the hard-hitting ecological reality. What I have learned is that business is an immensely powerful force for change. If you can balance politics and humour you really can move the needle. If all we do is steal market shares from the other guys, it's an abject failure. My goal is to bring more people into the organic space.'

He illustrates the point with a story: 'I was about to go for an appointment at a supermarket chain and was looking at yoghurts. As I was holding up a Yoplait cup, looking at ingredients, this little old lady came up to me, pulled me by the elbow and said, "Young man, I couldn't help noticing you are looking at the Yoplait cup. Someone your age really should be eating Stonyfield." It was like seeing God. I asked why. She started telling me how she and her bridge club only eat Stonyfield because we give 10 per cent of profit to environmental causes, and how



Top: Gary Hirshberg has faith in the power of business and the consumer to change trends
Above: The Glenisk factory, in Ireland, where Stony Yogurt is made

we were pioneering ways to reduce our carbon emissions. I introduced myself and told her she had made my decade. A company that stood for these things meant something to her. But this is not who the environmental community targets.'

The big issue

Reaching out to more little old ladies and their bridge clubs is presumably the reason why Gary decided to take the controversial move of selling an 85 per cent share of Stonyfield to multinational Danone, the fourth- or fifth-largest food company in the world. For a lot of ethical consumers, supporting Stony and the environmental and social causes it champions is one thing, but quite another to be putting money into the same coffers that produce Evian

mineral water and Actimel.

'I'm really trying to educate Danone. My objective is to get them to see that this \$20 billion-plus company's best and most promising 21st-century business plan is to move towards at least sustainable, if not organic. Danone is the number one acquisition target of Nestlé, Kraft and Pepsi. If Danone can demonstrate success with organics then you know the rest have to follow.'

Gary insists Danone has made no changes to Stonyfield's management, its mission or values, and he still retains three of the five board seats.

Since then, Gary has convinced Franck Riboud, Danone's chairman and CEO, to launch three new organic brands in the UK, Canada and in France, a country where organics 'doesn't really exist' and a measurable amount of organic milk isn't able to be sold as organic because there is no market for it. It's a judgement call, and essentially what Gary is asking is that consumers vote for him and his vision.

'When you run an item past a scanner, that vote probably counts more than a vote at the ballot box because corporations spend billions tallying those votes,' he says.

But with bigger influence comes bigger responsibility. Two years ago Gary convened a group of leading climate change advocates to come up with a simple, easy-to-measure method for a consumer to gauge businesses' commitment to fighting climate change. Climate Counts measures four variables – whether a company is measuring its carbon emissions; whether it is reducing them; if it is reporting its actions and whether it is pushing for positive legislation. They are then given a numeric score from one to 100. By naming and shaming companies that are not reducing their carbon footprint – or worse, that are opposing action and legislation – they are letting the world know.

The 75 companies assessed in the first round averaged 30 out of 100 – with 16 companies scoring below 10 points, including Apple and Levi Strauss – 'but by re-measuring every

six months, we give the companies the opportunity to improve,' says Gary. 'I'm telling the people I'm dependent upon for the success of my business, "This is how you rate".'

Canon scored relatively high with 77 and 'have now started an internal initiative to get to a 90.' Apple got a dismal two – 'and Steve Jobs made a public announcement. McDonald's scored a quite poor 22, but said "At last we now have an index to use to measure ourselves".'

Why does all this matter? As Gary points out: 'If the 100 largest companies in the US reduced their climate footprint by five per cent, it would be the equivalent of taking 25 million cars off the road. We would be halfway to Kyoto.'

Growing roots in Ireland

Assuming all this 'big' talk delivers results, it begs the question of whether Stony will still have an impact on the ground. The situation of small dairy farmers worldwide is rough, and saving family farms and growing the pool of organic milk has been part of Stonyfield's business strategy from the outset.

'We believe that it's all words if organic family farmers do not survive,' says Gary. 'Farmers have got to be better off financially as a result of going organic.'

He is on the record as stating that 1,200 organic dairy farmers would not be in business today if it weren't for Stonyfield. Organic dairy took off in the US because of the use of synthetic bovine growth hormones

– Stonyfield was the first company to pay producers not to treat cows with one such hormone, rBST.

Stony's UK yoghurt comes from 15 organic cow farmers in Ireland and 15 in Northern Ireland, all members of dairy co-operative Glenisk, founded in 1987 by Jack Cleary. 'We would never have imported yoghurt from the US,' Gary says. 'As someone who tries to lower his carbon footprint every year, even moving yoghurt across the States is not something I'm exactly proud of.'

The Cleary family – 'incredible yoghurt-makers' – contacted Gary seven or so years ago. 'They knew we

represented where they were trying to go. With 14 siblings in total, nine of the brothers decided to turn the co-op organic in 1995, at a time in Ireland when no-one was really talking about it.' Stony bought a minority stake in Glenisk and the Clearys retain control.

The Glenisk yoghurt factory has been given an eco-renovation and now connects to reed beds in order to recycle waste water, is powered by renewable energy and uses lorries that are powered by grapeseed oil.

One of the members of the co-op is James Howard. James's farm in The Burren, County Clare, has 25 cows and has always been organic – it needs to be 'if you have any pride in your children and in food'. The cows graze in fields filled with clover and wildflowers, and all of them have names. James's wife, Bridgette, serves some of the most delicious homemade bread you'll ever eat.

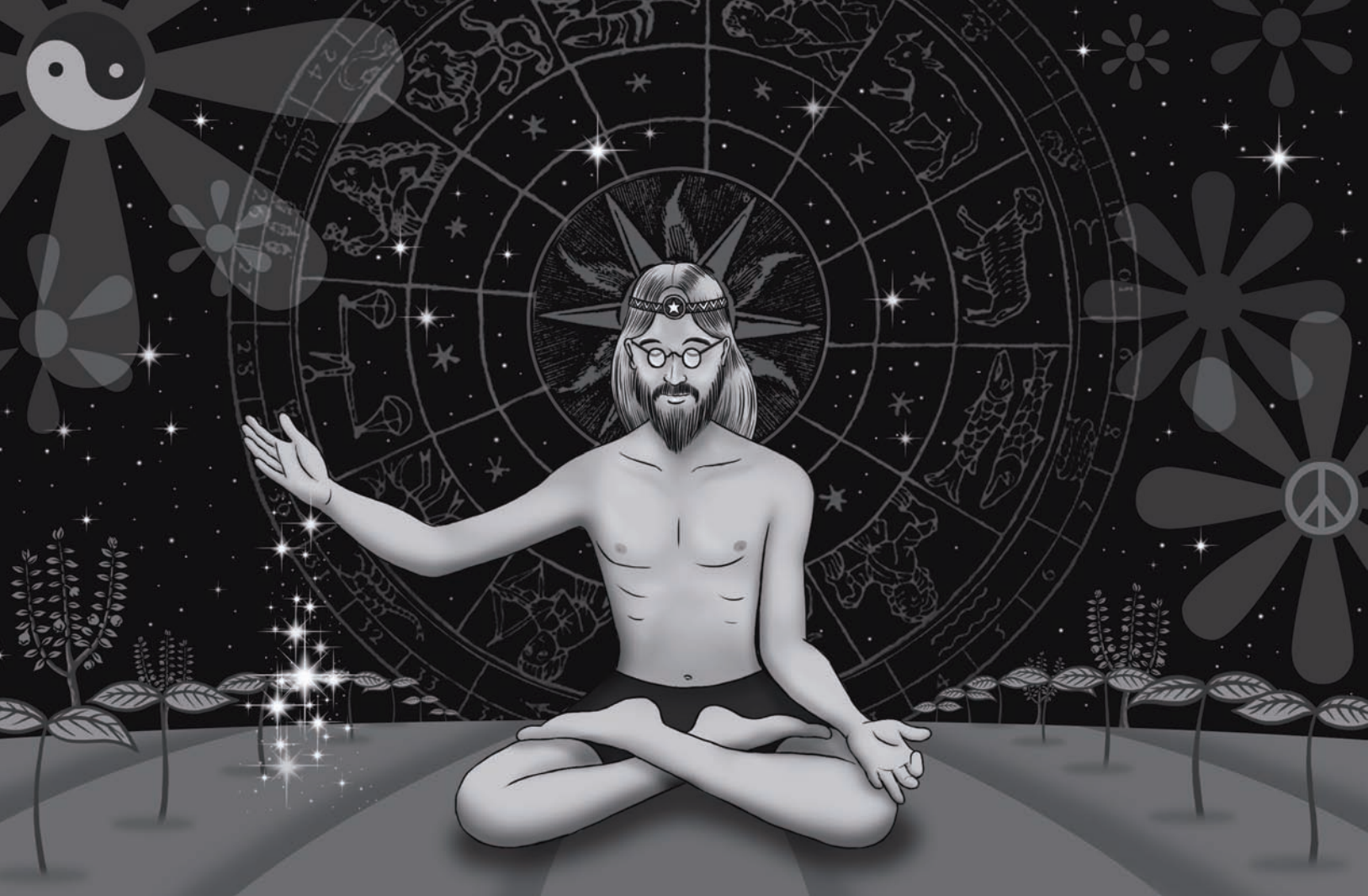
To be a small farmer, James says, 'you need two things: love of the land and the ability to survive.' Surviving in his case means spreading your options: he always grows enough to feed his family, with a vegetable garden, two pigs and some sheep. Farmers like James are up against a lot of obstacles, not least subsidies to encourage farmers to stock much higher levels of animals and the fear of not using synthetic fertilisers and chemicals that is instilled in would-be farmers at farm schools and by companies. Glenisk's supply base has grown 10 per cent since hooking up with Stony.

If Gary is responsible for throwing farmers such as James a lifeline, he has also offered a vision of hope to the little old lady and her bridge club. It is no longer a question of whether Gary has remained 'pure' – given the positive changes he has achieved at grassroots, perhaps it's time the terms of the debate were reappraised too. **E**

Below: Glenisk co-operative farmer James Howard has only benefited from working with Stony
Bottom: James's farm in The Burren, County Clare



For more information
www.climatecounts.org
www.stony.co.uk
www.glenisk.com



Weird or wonderful?

Does massaging its chakra points help a carrot grow? Can making sacrifices to the gods of Wicca really improve the fortunes of your cabbages and cauliflowers? Organic allotment life is spiritual enough without help from the gardening gurus, says **Paul Kingsnorth**

A year ago, my brother, who is probably a better gardener than me (even though he does insist on giving half his land over to mangel-wurzels, whatever they are) gave me a book called *Gardening and Planting by the Moon*. I'd never heard of the author, publisher or, to be honest, the idea of gardening and planting by the moon. The book's cover promised me 'higher yields' and 'better flavours', though. 'Why don't you give it a try?' said my brother. 'You never know – it might even work.'

I still haven't done it. Every time I see the book I tell myself that I'm

going to get started on it next week; get some kind of experimental 'moon plot' up and running, perhaps. It sounds as though it could be quite fun, and it surely has to be worth trying. Yet it never happens. Why not? Mostly because I'm disorganised, and because growing food the more 'conventional' way takes up enough time as it is. But also partly, I'm sure, because I'm quite conservative – with a small 'c', I hasten to add. Maybe that's what having an allotment does to you: you inevitably and gradually turn into a grumpy old man in wellies and a donkey jacket, who looks askance at anything new-fangled.

“
Anything that smacks of New Age freakery gets my back up. Good old-fashioned common sense will prevail here

Maybe it's just a matter of time.

Or maybe it's just me. Either way, anything that smacks of New Age freakery immediately gets my back up. There are no wind chimes on my allotment, no Cree dream-catchers or crystal slug-repellents. I will not wear patchwork trousers and I will not sing to my seedlings – they can get on and grow without it. Good old-fashioned common sense will prevail here.

This is the trouble with organic growing. If you're not careful you can be assailed from all sides by the sort of people who assume that because you don't use chemical fertilisers you must be a practitioner of Wicca

Illustration: AMANE KANEKO

or a professional reiki dog masseuse. Growing food, like so many other areas of life, has become, for some, a blank canvas on to which they can paint their need for spiritual fulfilment. Don't get me wrong: spiritual fulfilment is, generally, a good thing. If you want to find it by growing carrots in the name of the Mother Goddess, then you should feel free. Just don't tell me about it.

Take, for example, biodynamic growing. This is a form of agriculture pioneered by Austrian philosopher and weirdo Rudolph Steiner in the 19th century. Biodynamics claims to be 'founded on a holistic and spiritual understanding of nature' and to offer 'a clear and accessible means for attaining spiritual knowledge.'

As such, it already has me running for the bar. Any sentence that contains both the word 'holistic' and the word 'spiritual' is, in my book, a sentence to be avoided.

Having said this – and guaranteed myself some hate mail – much of biodynamic agriculture is based on practical research and organic good practise: manure preparations, no artificial chemicals, reducing external inputs to a minimum and promoting ecological diversity. Results on the ground are often very good, and plenty of knowledgeable people – including the *Ecologist's* biodynamic wine writer Monty Waldin – are prepared to swear by the results.

Unfortunately, there are always some people who want to take things too far. Along they come, with their guff about energy vortices, planting by the horoscope (sigh), harnessing 'cosmic forces' to improve yields and burying cow horns full of manure naked at full moon (or something). Serious advocates are convinced biodynamics is the solution not only to global hunger, but also to the spiritual poverty of modern life.

Call me repressed, call me closed-minded, call me terribly English, but when I go to my allotment I'm not seeking spiritual knowledge. I'm seeking vegetables. And perhaps a bit of fresh air and exercise. But that's all. I'm not there to unblock

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Call me repressed, but when I go to my allotment I'm not seeking spiritual knowledge. I'm seeking vegetables

Below: Rudolph Steiner (1861-1925) was the pioneer of biodynamics, agriculture with a 'holistic and spiritual' bent

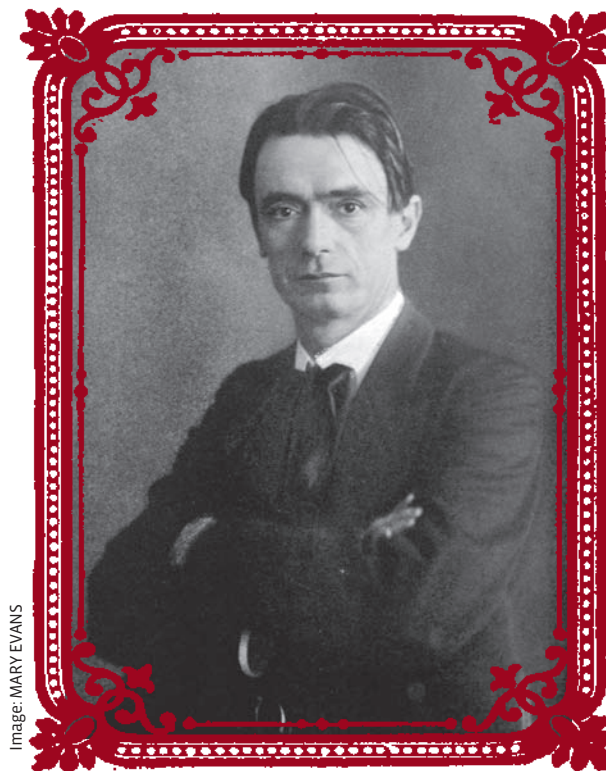


Image: MARY EVANS

my chakras. I haven't got time. I've got to put horse poo on the bean rows. Leave me alone.

But biodynamics is quite conservative these days. On the fringes is some much weirder stuff. Goddess gardening, astrological gardening, New Age gardening. Harnessing the power of ley lines to improve yields. Arranging your broccoli beds according to star charts drawn up especially for you. There is nothing, in this age of pick and mix spiritual fulfilment, that your garden cannot do to help plug that gaping void where God used to be.

There's nothing more spiritually fulfilling, of course, than laughing at hippies. Yet while it can fill you with a warm sense of self-satisfaction, this energetic dismissal of all things knitted and rainbow-coloured can also sometimes throw the baby out with the bathwater. Because, if I'm being honest, there is more to this growing food lark than simply providing something for the pot. It does nourish more than your stomach. The simple act of spending time outside, surrounded by trees, birds, the odd frog, the wind and, too often, the rain, is a welcome reminder of the real world that persists beyond office

and computer terminal. Monks have long viewed gardening as a form of meditation, and I can see why: it unclutters the mind wonderfully. Japanese Zen monks have been making spiritual gardens for millennia and no-one laughs at them. Not to their faces, anyway.

So perhaps it's all about striking a balance; about keeping your mind open to new approaches while employing an intelligent scepticism to filter out the woolly bilge. Take growing by the moon, for example: it seems that the principle behind it is not esoteric after all – it's based on the long-noted influence of the moon on water on Earth. The moon's pull causes the tides to flow in and out, and seems to do the same for groundwater, too. Knowing the moon's phases can therefore be helpful in planning when to plant, how much to water and even when to apply fertiliser.

Plenty of level heads, it seems, swear by this system. One of them – John Harris, head gardener at Tresillian House Gardens estate in Cornwall – even turned up on *Radio 4's Gardener's Question Time*, the imprimatur of bourgeois gardening respectability. He plants according to the phases of the moon, as did his father and grandfather.

'It's not folklore,' he insists. 'It's practical knowledge that works. People call me the "loony gardener" but I don't mind.'

Obviously I need to be more open-minded. I should have listened to my brother. I'm going to take that book off the shelf, I think, and give it a shot at last. Just don't tell the Wiccans. I don't want to encourage them. **E**

Contact me

If you have any questions, comments or anything you think I should know, email growit@paulkingsnorth.net

All my previous columns on allotments and food-growing are collected on my website, visit www.paulkingsnorth.net

Dusty, disorganised, with nothing worthwhile to speak of? I must admit I felt this way about charity shops until I spent a morning trawling round some in London with clothing stylist and friend Mary Fellowes. 'You have to be in an adventurous mood and willing to stray away from the comfort zone of what you normally wear,' says Mary. 'The most important thing is to walk into the shop with an open mind and be willing to experiment. Because there is a limited choice you need to be more creative.'

The moment we walked into the first shop, TR Aid, I headed for the t-shirt tops. Mary, within an instant had spied a white tweed jacket, a mohair cardie and, from the men's rail, a long white shirt, large jumper and a waistcoat. I quickly learned that a bit of cross-dressing can work wonders. Why stick to the women's rail when you can transform an oversized men's shirt with a belt?

So I started to trust Mary's styling skills. She spotted some grey, baggy, wool

trousers in the Trinity Hospice Charity Trust shop I wouldn't normally have touched with a barge pole. But she was right. They were gorgeous – a real classic cut that looked good with both trainers and heels. I bought them for a tenner. Mary was full of ideas on how to transform the duller items into something wearable and exciting. Three shops later we had enough clothes for five new outfits.

Each shop was a lucky dip and each shopping experience more fun and creative than in a high street chain. Okay, so finding the right size can be a

bit hit or miss and it's not necessarily the place to go to for things like underwear, but charity shops are beneficial to the planet as well as to people in need.

MARY'S TIP

View clothes in a different way

A plain black dress can be dressed up – or down – with a few colourful accessories. Try it on in the shop, play with it in front of the mirror and think how you'd make it look modern. You can always buy something and then alter it by changing the hemline or buttons.

MARY'S TIP

Trench coats or jackets

can be transformed with the simple addition of a belt.

Charity shop chic

High-street fashion at bargain prices, charity shops are the ethical way to accentuate a wardrobe. All you need is a sense of adventure...

By **Laura Sevier**



White jacket £19.99, TR Aid; Dress £29.99, Oxfam; Shoes £10, Trinity Hospice Charity Trust; Hat £5, Sunglasses £3, Belt £4.99, all from Oxfam

MARY'S TIP

Mix old with new

Mix the older or vintage items you buy from charity shops with things that are modern and new, such as trainers or biker boots.

MARY'S TIP

Men's clothes can be worn as women's clothes

An oversized men's shirt or jumper can be worn with a belt and waistcoat over skinny trousers. You can customise it with colourful, funky buttons or by putting ribbon around the cuffs. Men's belts are good too, but go for fabric rather than leather ones.

Men's waistcoat
£12.99, TR Aid;
Men's shirt
£12.99, TR Aid;
Belt £4.99, Oxfam

MARY'S TIP

Look at things you wouldn't normally go for

If you've always been into skinny trousers then be open to different shapes. Get out of your comfort zone and go for a different look.

MARY'S TIP

Buy quality or vintage items

They're more likely to last and less likely to date compared to low-quality, modern things.

Why charity shops are eco-friendly...

- **Waste of clothes.** Defra says 1.1 million tonnes of textiles are thrown away in household bins each year. To put this into perspective, a single tonne of textiles fills roughly 200 black binbags. Imagine 220 million binbags sent to landfill. According to Wastewatch, two million shoes are thrown into rubbish bins in the UK every week.
- **Charity shops reuse and recycle.** An estimated 250,000 tonnes of clothing and other textiles pass through charity shops every year and are either sold for reuse or recycled. This gives a further use and a second life to thousands of unwanted items that might otherwise have gone to landfill.
- **Raising funds.** Every year charity shops raise approximately £110 million, funding overseas aid, environmental initiatives and supporting sick and deprived children, homeless people, mentally and physically disabled people, animal welfare and a number of other causes.

Top £15.99, TRAUD; Trousers £10, Trinity Hospice Charity Trust; Necklace £2, Trinity Hospice Charity Trust



Charity shop information

There are an estimated 7,000 charity shops in the UK and the majority are run by volunteers. To find a shop in your area, visit www.charityshops.org.uk

TRAID (Textile Recycling for Aid and International Development) has eight shops and more than 900 textile banks across the UK. Money raised funds sustainable projects and emergency aid in some of the poorest regions in the world. www.traid.org.uk

Oxfam

Oxfam has more than 600 shops selling clothing. 100% of shops' profits helps to fund the organisation's work in more 70 countries. www.oxfam.org.uk

Trinity Hospice Charity Trust

Trinity Hospice cares for people with advanced illnesses. Its 20 shops raise more than a million pounds each year for Trinity. www.trinityhospice.org.uk

Marie Curie Shop

Marie Curie Nurses provide free home-based nursing care to cancer patients and those with other terminal illnesses. They have 170 shops in the UK. www.mariecurie.org.uk

MARY'S TIP

Cool accessories

- Big, chunky necklaces and bangles.
- Long, skinny silk scarves in plain colours (can also be worn in the hair).
- Colourful and quirky belts.
- Sunglasses – the bigger the better.

Belts all £4.99
from TR Aid,
Oxfam and
Trinity Hospice
Charity Trust



To get in touch with stylist Mary Fellowes, visit www.maryfellowes.co.uk



Photography:

Ivan Jones

Hair and makeup:

Samantha Walker

Bend it like sixixis

Tom Raffield, co-founder of bespoke furniture makers sixixis, talks to **Holly Wicks** about the art of steam-bending wood and how the design community as a whole would do well to give up on plastic



It's seven o'clock in the evening and Tom Raffield enters a quiet bar in Falmouth wearing scruffy work clothes, with dust in his hair and dirt on his arms – a rare absence from his workshop. 'I'm passionate about wood,' he says, 'and if that means only having one day off a week, so be it.'

Shortly after graduating from University College Falmouth in 2005 with a Degree in 3D Design for Sustainability, Tom Raffield formed sixixis with classmates Charlie Whinney and Chris Jarratt. 'Regardless of what material you work with, the impact comes from your ability to design with it,' he says. 'I hope we are showing others the benefits of using wood in the 21st century.'

For two years, Raffield experimented with the traditional

process of steam-bending wood (the practise of weakening, stretching and reforming wood fibres to a desired shape) developed by Michael Thonet in the 19th century, but many of his attempts were unsuccessful. 'The wood kept snapping, so I adapted a method that enabled us to twist and bend wood in any direction, on any plane, by using different tension support straps. We can now achieve any 2D or 3D bend you can imagine.'

A bending former made of steel is constructed to provide a backbone or mould for the wood during the bending process. A custom-made steam device is then used to channel heat on to the part of the unseasoned wood (green wood, which is wet and more flexible than seasoned) that will form the bend, and the steam forces water vapour into the wood.

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By using different tension support straps, we can now achieve any 2D or 3D bend you can imagine

Above: the complex sixixis designs are made using steel 'backbones' to shape unseasoned wood, then steam is applied to the bends

'Unseasoned wood is a very unstable material – there is no set pattern to how it behaves, but we relish the challenge because the results are impressive,' says Raffield.

When sufficient time has elapsed, the steam device is quickly removed and the wood is bent and clamped into its new position against the steel. Raffield bends one section to the next, until a 3D object is created with no need for toxic glues or man-made binding aids. 'With over-excited imaginations we create objects using wood in ways many professionals said were impossible, and that none of our competitors would ever attempt,' says Raffield.

Sixixis sources Forest Stewardship Council-registered timber from local suppliers at the Tregothnan Estate, near Truro, thereby cutting out

Green furniture

unnecessary processing.

'We choose healthy ash and oak trees with a straight grain, the foresters chop and plank it, and we take it from there,' Raffield says.

'Every tree cut is replaced with three more. As our expectations for quality are high, the foresters can charge a premium for their wood, bringing them more revenue and increasing the economy of the woodland industry in the South West.'

Sixixis's first commission was for Charlie Whinney's father. 'After watching *James And The Giant Peach*, Charlie's dad decided he wanted a giant ball to roll around the garden,' says Raffield.

Whinney began designing the structure using computer-aided design and a programme he developed known as the 'sixixis grid shell system', the starting point of which is a 3D computer drawing. Once a layer has been calculated mathematically, it can be transformed into a multilayered structure of unparalleled strength and lightness.

'That's where the rolling summerhouse came from,' explains Raffield. 'It got loads of press because it was huge and yet you could roll it around, position it, get in and relax.'

Near-impossible to mass-produce, each sixixis product – whether it's a chaise longue, tree seat, curly lampshade or cityscape coat hanger – has its own identity; a new piece of technical equipment is made to ensure every idea comes to life. It can take Raffield up to two weeks to make a chair, so craftsmanship is always at the top of his agenda.

Raffield is quick to point out why the company's ethos is unlikely to become an industry standard, however: 'Unfortunately, there is

always going to be a constant battle between sustainability and cost-effectiveness. Money is everything these days, so sustainability will always come second.'

Regardless, sixixis is changing attitudes inside and outside the industry by lecturing at different institutes around the UK.

'We're showing designers and students our ways of working, what it's like to run a creative enterprise,' Raffield reveals. 'We also hold steam-bending workshops so people can see our processes in action – making a difference by helping others, which is much more important.'

Sixixis's forward-thinking approach won the company last year's Laurent-Perrier Design Talent Award, which Raffield considers his biggest personal achievement so far.

'I wanted to prove to the industry that unseasoned wood can be used in replacement

of plastic, metal and all the most advanced composites.

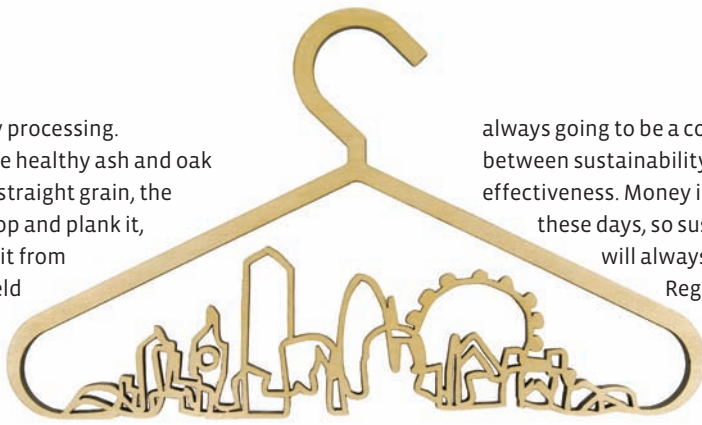
If someone says something can't be made out of wood, we will invent the technology to make it work.'

Earlier this year, Charlie Whinney set up another workshop near Oxford, exploring new technologies (such as asymmetric geodesic structures) to create outrageous one-offs that look like nothing ever seen before. Whinney's latest piece of artwork was created in partnership with this summer's Gold Award-winning Cancer Research Garden at the Chelsea Flower Show. A huge free-flowing structure, it contorted itself around the garden like wisteria branches.

The scale of sixixis's creations seems limitless, and Raffield is optimistic about the future. 'When people see what we can do and how much fun we have designing and making things in an environmentally conscious way, they see maybe they can incorporate that, or at least respect it.'

Championing true craftsmanship with a level-headed understanding of the industry, sixixis looks set to carry on proving that when you work with nature, nothing is impossible. **E**

For more information on sixixis, call 01209 217774 or see www.sixixis.com



Each sixixis product has its own identity – a new piece of technical equipment is made to ensure that every idea comes to life

Above: London in a coat hanger, and an ash rocking chair
Right: huge but light, the sixixis summerhouse can be rolled into position



REAL FOOD ACTIVIST

Rose Grimond founder of Orkney Rose

‘I can tell you what farm every cow came from, how long it’s been in the family, where it’s been killed and if it had a name.’

Laura Sevier meets an inspirational Orcadian food supplier



Rose Grimond takes fresh Orkney food to the London market

Unless you grew up on a farm or by the sea you’re unlikely to know about rare breeds of sheep or when scallops are in season. In the UK, four-fifths of the population live in cities, with only the occasional weekend or one week’s holiday to get even a glimpse of a field or a wood. But now a new, eco-conscious generation, fed-up with their office jobs in cities, is being drawn back to the country, to find their calling and to set up their own sustainable businesses. In Rose Grimond’s case, it has been to support farmers, fishermen and artisan food producers on the Orkney Islands, off north-east Scotland.

‘Being in your 20s you have time to take risks, to learn – you have lots of energy,’ says Rose, who set up Orkney Rose two years ago at the age of 26. Her aim was to create more sales for the islands’ producers by opening up the London market to them, as well as providing Londoners with high-quality food that is not mass-produced. Although she grew up in Orkney, she had no background in farming or the food business. Previous jobs included acting, temping and work in the social change and reform sector, all based in London.

‘My learning curve has been very steep,’ Rose admits. ‘From what’s in season and when, to rare breeds of sheep, cows and pigs and cuts of meat. I can tell you what farm every cow came from, how long the farm has been in the family, where it’s been killed – and if they had names I’d know it. I know all the farmers, and that animal welfare is very high.’

Orkney Rose represents 20 producers across a wide range of products, including organic pork, lamb and beef, award-winning cheese, smoked kippers, handmade oatcakes, a 5,000-year-old type of barley, wild rhubarb jam and diver-caught scallops, which are some of the biggest and juiciest scallops available. Finding the producers proved fairly easy.

‘Many Orcadians work in farming and fishing, and there are lots of high-



Local producer Esther with a fresh batch of oatcakes

quality artisan producers who are passionate about what they're doing,' says Rose. 'Often they're carrying on a family tradition and so have generations of experience.'

Orkney supplies most of its own food to its own people. Producers are unsurprisingly wary of shipping out all the best produce only to import cheaper food from the Continent. Rose is keen to point out that 'the first priority is to the local market and the second to export.'

What she sells is also affected by the seasons and sustainability.

'We may only be selling the produce of seven or eight of our producers at any one time,' Rose says. 'For instance, we don't sell scallops in July or August. They should be left to spawn and grow in the warmer waters, so the divers won't dive for them during this time.'

Then there's the weather to contend with, which, from May to November, can dictate whether or not lobster fisherman Ian Deyell heads out in his traditional 'North Ronaldsay pram', a banana shaped boat designed to stay close to the shore. It is a form of 'conservation fishing' that doesn't affect vulnerable stocks out at sea. Orkney Rose sells only sustainable fish, such as herring and mackerel. 'We don't and won't sell anything on the Marine Conservation Society's Red List,' says Rose. 'Even if we could get cod, there's no way we'd sell it.'

Produce is transported by train from Inverness to London, where Rose sells from a stall at Borough Market two days a week. She also supplies

some of London's top restaurants, including Roast, the River Café and the Anchor & Hope, 'places where the chefs care enormously about the produce and flavour.'

So what makes the produce so good? Rose reckons the magic ingredient is the sea. Orkney waters are some of the coldest and cleanest in the UK, so you get giant prawns (some over a foot long) from Scapa Flow – 'it's a prawn heaven,' says Rose – and no part of Orkney, which comprises more than 70 or so islands, is far from the sea. Due to the low hills, the lack of trees and the abundance of wind, Orkney's fields are also constantly lashed with seawater. The sea brings with it high levels of calcium and sea minerals, so the soil is high in micronutrients.

Helping to keep one of the wildest, most unspoiled areas of the UK alive and thriving by supporting its producers is an impressive cause to be championing. But Rose is cautious about taking too much credit.

'I don't want to blow my own trumpet too much because many were doing fine before I set up Orkney Rose – but some I know I've helped significantly in terms of sales.' **E**

More information:

Visit Orkney Rose at Borough Market, in London, on a Friday or Saturday.

To order online, see www.orkneyrose.com, email info@orkneyrose.com or call 0560 11 55 643.

In season: Rose recommends...

North Ronaldsay hogget: A rare-breed sheep from the most northerly of Orkney's 79 islands. As a result of the sheep's seaweed diet, its meat has a tasty, complex flavour. The hogget meat (lamb over a year old but not yet 18 months) is dark, the colour of red wine, rich in Omega 3 and very lean. Slow-roasted, the flavour is so good you don't need extras such as rosemary, garlic and salt. Serve with roast potatoes and root veg, or with the traditional 'neeps and tatties' (mashed turnips and potatoes).

Lamb: It is still a great time to eat lamb. The spring lamb season starts in August in Orkney, which means that a lamb eaten in February will be about 10 months old and therefore bursting with flavour.

Scallops: In their peak season. Winter is the best time to eat them, as they spawn in summer. Being diver-caught, however, supply is even more sporadic, as the sea can get very rough (not to mention cold).

Other Orkney specialities...

Bere meal: An ancient variety of barley that has been cultivated in Orkney for more than 5,000 years, ground by a 100-year-old working water mill-stone. Bere is used to bake a flat bread, bere bannock, which is an ideal accompaniment to cheese.

Grimbister Farm Cheese: Made from unpasteurised milk from the family's own herd of mainly Friesian cattle, the cheese is a delicious, crumbly, moist, fresh-tasting cheese.



Some of the UK's finest scallops are caught off Orkney

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76 60% off Suntech Solar thermal collectors from Jayhawk International Ltd

79 15% off slippers from The Wet Felting Company

81 15% off Earthbound Organics arnica and ginger balm, facial scrub and men's face cream

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Food and drink

The online producers below supply genuinely fresh, seasonal fruit, vegetables, fish and meat. And what could be more convenient than having your cooking essentials delivered direct to your door? You can also feel safe in the knowledge that you're buying environmentally sound, delicious food that supports small, independent producers



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Stony

Stony Yogurt On A Mission is the offspring of Stonyfield Farm, makers of the world's best-selling organic yoghurt, which landed in UK shops in June 2007. Although its parent company is US-based, Stony's ingredients, milk and processing are localised in the EU. Stony UK is produced in Ireland, using milk from more than 50 family farms in Northern Ireland and the Republic of Ireland. All Stony Yogurts are certified organic by the Soil Association and every product lid carries an environmental message.

As well as all being made from organic ingredients, Stony's yoghurts, low-fat yoghurt desserts and children's fromage frais product range contain no preservatives, artificial sweeteners or colouring. Stony is the first brand to offer organic 'underground' sauces in the bottom of their pots. It uses Rainforest Alliance bananas and Fairtrade chocolate, and its products include two probiotic cultures.

The Stony plant in Ireland is powered by green supplier Airtricity and Stony is a partner of iCount, the UK's largest coalition of climate change awareness and action organisations. Stony is also researching and developing GM-free biodegradable pots.

To find out more, visit www.stony.co.uk

£2 off any Stony Yogurt or dessert



£2 off any Stony Yogurt or dessert
To take advantage of this offer, simply take this voucher to your local shop, stock up on Stony and get £2 off any yoghurt or dessert
Offer ends: 31/03/08



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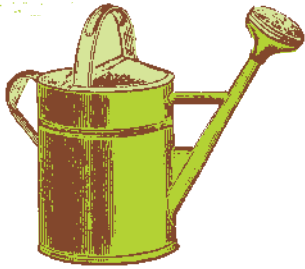
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Home and garden

From garden tools to bed linen, cleaning products and furniture – by simply changing our household buying habits we can reduce our carbon footprint and the chemical cocktail that makes its way into our homes. So visit the online producers below for ideas on how to green your home



Suntech solar thermal collectors



60% Discount

A solar thermal collector is an industry term for a series of pipes running to and fro over a short space, through which water passes and is heated up by the sun.

About Suntech

Suntech is a new premium brand of solar water-heating collector. Engineered and developed in the UK, it was designed by the founder of Powertech Solar Ltd and Jayhawk International Ltd, Eric Hawkins, who is offering *Ecologist* readers 60% off until 31 March 2007.

How much does it cost?

Prices vary according to the size of your home. On average, a collector costs £1,607.00 (less 60% discount = £642.80). On top of this you will need a professional installation kit in order to connect the collector to the hot water tank (from £300, available from Jayhawk).

There are two options for installation:

DIY: Offered as a supply-only package with full step-by-step installation procedures. Jayhawk offer one-day courses on DIY installation.

Professionally: Jayhawk can select a trained installer in your area. The cost is provided by the installer and will depend on the size and location of your house, but will be confirmed prior to work starting and only once they have visited your home.

How to order

If you are interested send an email to Eric Hawkins – erh@solar.org.uk – with the subject line ‘*Ecologist* offer’ or telephone him on 01202 890234.

There is a 10-year guarantee offered on the collector when installed to their recommended method. For more information see www.jayhawk-int.com

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Clothing

Shopping guide

GREEN PAGES

The virtual boutiques and retailers featured on these pages stock a range of well-made, stylish and ethical clothes. Precise sizing charts make it easy to find the right size for you – and if something doesn't fit, or you don't like it, simply return it. Being fashionable and being ethical are no longer at odds...



The wet felting company



15% discount on slippers

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Slippers hand-crafted from wool fibres

Clare Packer discovered wet felting a few years ago after a felt-making workshop in Tavistock, Devon.

'I was hooked,' she says. 'Although it started as a hobby I decided that there was probably a market for it – especially for slippers.'

She uses 30 different colours of wool and also a natural, undyed variety. 'We buy try to source locally where possible. The undyed fleece, for instance, is provided by local farmers.'

To make a slipper, Clare covers a foot-shaped plastic template

(which will vary according to shoe size) with wool. To felt it she uses olive soap, which holds the fibres together, hot water and friction (rubbing and rolling). Then she removes the template from the inside and turns the whole thing inside out – and a slipper is born. Clare also makes rugs, tea cosies and mobiles (the kind you hang in the air over a child's cot) as well as running local workshops for schools and others who are interested in felting.



To order: Visit www.wetfeltingcompany.org.uk then telephone 01822 841636, quoting 'Ecologist offer'.

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How to wash green

1. Save energy and water

- Wash at lower temperatures: 30°C instead of 40°C or 60°C. Eighty per cent of the energy used to wash clothes is to heat the water. Turning the temperature dial down can dramatically cut your energy consumption – by up to 40 per cent.
- Wash less. To save energy and water, only wash things that really need it and only run the washing machine when you've

got a full load (which uses less energy and water than two half loads).

- Air dry instead of tumble drying.
- Iron only if necessary.

2. Eco detergents

- Use eco-friendly washing detergents with fewer or no phosphates. Phosphates in the waste water stream promote the growth of green algae, which, in excess, can limit the survival

of water-based organisms, from plankton to fish to otters.

- Ecover (www.ecover.com) and Bio D (www.biodegradable.biz) make phosphate-free laundry liquids, powders and fabric softeners. They also don't contain optical brighteners (used to give an illusion of 'whiteness'), which are extremely difficult to biodegrade, can cause mutations to micro-organisms in receiving waters and can irritate the skin.

3. A greener dry clean

Dry cleaning involves using the chlorinated and carcinogenic solvent perc (perchloroethylene). GreenEarth has pioneered a method that, though not entirely chemical-free, uses a less polluting, silicon-based solvent than do conventional machines. There are almost 200 machines running GreenEarth in the UK. For more information, visit www.greenearth.co.uk

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www.terramar.co.uk



Bodycare & cosmetics

The best way to ensure healthy skin is to maintain a healthy diet, get enough sleep and keep stress levels low. If you do buy products for your face or body, try to make sure they are based on natural ingredients. The companies listed here carry products that have not been tested on animals; they contain no parabens, no petrochemicals and no synthetic ingredients

Earthbound organics



15% off

Arnica & Ginger Balm

This wonderful, warming, relaxing concoction of herbs and oils help relieve muscular tension and pain. For muscular, back and joint strains, apply at night before going to bed. For bumps, apply immediately to prevent bruising (NB it cannot be used on broken skin). Keep a pot in your kitchen and bathroom cupboard (15g – £3.20; 50g – £7.55; 120g – £10.50).

Facial Scrub

A deep cleanser to exfoliate and revitalise, good for clearing impurities such as blackheads and all the dirt and pollutants the skin absorbs daily. Ground aduki beans act as a gentle yet deep skin cleanser; oatmeal helps counter oiliness, soothing and rejuvenating dry skin, and lavender helps heal minor skin infections or spots (30g – £6.55).

Men's Face Cream

A new light formula that doesn't leave the skin shiny or greasy, this cream is packed with gentle, soothing, nourishing and revitalising oils such as cranberry seed oil, apricot kernel oil and jojoba oil. The light zingy, citrus fragrance has natural antiseptic and healing qualities. It is especially good for sensitive skin (50ml – £12.95).

Jo Ordonez, founder of Earthbound Organics, makes all her skincare products by hand in a glass workshop that looks on to her garden in Wales. All the ingredients in Earthbound products are natural and most are organic. Jo even grows some of the herbs in her garden.

To see the full range of Earthbound moisturisers, toners, cleansers, oils and soaps, go to www.earthbound.co.uk



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Triodos Bank is a different kind of bank. It doesn't simply refuse to put money into unethical enterprises; it actively seeks out and promotes sustainable, entrepreneurial businesses and organisations driven by values and ideas. It is behind one of the UK's best-known renewable energy companies, Ecotricity, as well as hundreds of organic and environmental initiatives.

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- The New Economics Foundation
- Youth Hostel Association
- Greenpeace UK
- Fordhall Farm

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Anita Roddick - Founder of the Body Shop - July 2006

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Home energy

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Eco power campaign

How do we meet the UK's energy needs from clean, renewable sources of energy that come from sources as local as possible?

- 1 Switch to Ecotricity as our energy supplier
- 2 Reduce our energy demand
- 3 Localise our energy supply... individually and in our communities

Our current energy sources are non-renewable and increasingly expensive: gas (40 per cent), coal (30 per cent), nuclear (20 per cent) and oil (five per cent). We need to move to non-polluting, small-scale energy sources generated as close to users as possible, such as wind, hydro, solar and tidal.

What's wrong with nuclear? Dale Vince, founder and CEO of Ecotricity, says, 'Fossil fuels' days are numbered. Nuclear, often held out as the answer to our looming energy gap, is not a renewable fuel. Uranium is finite; its cost has risen 10-fold in the past year or so, on the back of increased worldwide usage. It's another fossil fuel story waiting to unfold: mining will peak, demand will outstrip supply and it will one day run out. Renewable energy is the only energy source we can use once and then use again and again, and it's the only sustainable energy source.'

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Eco Centres and Courses, by Terena Plowright, has more

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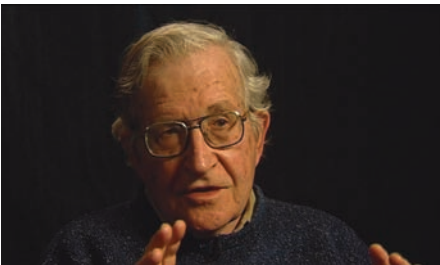
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Where art meets technology

Global collapse, democracy, consumerism, Middle Eastern politics and fear – all are to be found here, contained in a unique video exhibition about a singular man. By **Jon Hughes**



Two years ago, like most of us, artist Cornelia Parker was aware of climate change but not the immediacy of the threat. Then she attended a two-day seminar in Oxford, where luminaries such as Philip Pulman and Ian McEwan mixed with some of the world's leading climate scientists. The reticence bemoaned by NASA's Jim Hansen in a paper last year was top of the agenda.

Science is an orthodoxy; art isn't. Hear what we have to say, implored the scientists,

and do what you will. We can't be activists.

Always concerned with fragility and the destructive causality of events, Parker is probably best known in the UK for *Cold Dark Matter: An Exploded View* and *Heart of Darkness*, using the burned timbers of a forest fire, haunting works that reduce the monumental to the molecular. Her photographs of Einstein's blackboard through a microscope saw the universe unfold in the chalk-strokes of his famous equation – the molecular become monumental.

In *Chomskian Abstract*, however, Parker wanted the author and activist to speak.

'Noam Chomsky is one of the great thinkers of our time, and the environment the great concern of our time, yet seemingly he wasn't talking about it,' she explains. "Where is his voice?" I wondered.'

It's a good question. Parker went to the

Massachusetts Institute of Technology to interview Chomsky and the result is a captivating 42-minute video of the 79-year-old explaining how we've arrived at this critical point in time, with his usual intellectual rigour and no-nonsense candour.

'I thought it might be the time to do something direct. The urgency of the situation requires it,' says Parker.

The finished result is made all the more direct by Parker's stark study of Chomsky himself, who has the still-life quality of a true man thwarted yet constant. Art is often defined as something memorable that makes you look at the world differently, which *Chomskian Abstract* sublimely achieves.

***Chomskian Abstract* is at the Whitechapel Gallery from 14 February until 30 March. To hear Cornelia Parker discussing the work, see www.bbc.co.uk/radio3/listen/index**

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Pat Thomas

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GAIA THINKING



Planet Savers: 301 Extraordinary Environmentalists

Kevin Desmond (Greenleaf Publishing)

From the Buddha to José Bové; St Francis of Assisi to Wangari Maathai; philosophers, scientists and writers – the collection of 'planet-savers' gathered under the banner of environmentalism reflects just how

varied the movement is. These pioneers understand humanity's relationship to nature is not specific to any one tradition.

Attempting to encapsulate the best of these in some 300 pages, it is unsurprising that some are overlooked, but the page-long biographies illustrate the life and work of the key figures, providing a database for the reader to research further. It pays homage to those who bridge the gap between politics and the natural environment, such as Al Gore and Mikhail Gorbachev, while simultaneously celebrating those who marry philosophy and ecology, such as Arne Naess and EF Schumacher.

The book's focus generally tends towards the environmental history of the past 40 years, but that is a positive sign that as awareness increases, so too is the number of individuals actively taking part to shape the world.

Gandhi's famous observation 'When people lead, governments will follow' is held up by Desmond as the 'environmentalist's motto', echoing the book's refreshing optimism that such figures have and will continue to help save the planet. **Helen Morgan**

Peaked into action

Lucid, urgent and engaging, **Mark Anslow** salutes Richard Heinberg's non-alarmist vision of the world we're living in

Richard Heinberg is a leading authority on peak oil, and the lucidity with which he can discuss the issue made him the keynote speaker at last year's Soil Association's Lady Eve Balfour Memorial Lecture. His picture of post-oil agriculture stunned even an audience of dyed-in-the-wool greens. It was delivered with urgency but without hysteria, and it is in this tone that *Peak Everything* is written.

Heinberg is a master of joined-up thinking. While our politicians are only on the cusp of realising that climate change and the coming energy crunch have something to do with each other, he is already elegantly weaving a picture of a century in which we will have to contend with peak population, peak grain yields, peak uranium, peak climate stability, peak fresh water levels, peak fish catches, peak economic growth and even the peak of some minerals and metals.

Always factual but never opaque, he shows how fossil fuels have at once liberated and shackled us; how the very fabric of society has changed into a form crafted by the availability and exploitation of oil. He paints a vivid picture of the decline of industrialised agriculture – forced into obsolescence by dwindling fertiliser and water reserves – and describes the break-up of agricultural land and the 're-ruralisation' of the 21st

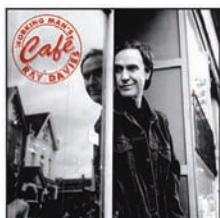
century. He looks at how the industrial processes spawned by cheap oil led to the 'hydrocarbon aesthetic': art that is big, fast and ugly. He grabs the word 'sustainability' with both hands and wrenches it out of the grasp of PR spin, examining what the term means ecologically. He looks at how we have lost touch with nature, or else placed it in cages to be 'admired'. He grapples with the thorny legacy of Malthus, looks at our psychological response to climate change and peak oil, and ends with a 'letter from the future', a missive from an energy-scarce 2107.

At the lecture, Heinberg was introduced as a 'polymath'. This book demonstrates the man's full repertoire. As comfortable discussing the vagaries of geology as he is the nuances of social anthropology, Heinberg has created a roadmap to the 21st century that no-one should be without.



Peak Everything: Waking Up to the Century of Decline in Earth's Resources

Richard Heinberg
£11.99 (Clairview, 2007)



MUSIC Working Man's Café Ray Davies

Ray Davies has been around for nearly as long as Cliff Richard. Although the far more lyrically and musically influential of the two, he is also by far the more neglected. If Sir Cliff had released a new album just before Christmas it would have been ubiquitous. Davies's latest album, by comparison, was

released to the sound of silence. That's partly a result of bitchiness on the part of rival media strands at its release via a *Sunday Times* giveaway, but it's also down to the fact that Davies is and always has been a contra. From the days of The Kinks – with such legendary pop tracks as the anti-war *Dead End Street* and the anti-homogenisation *Plastic People* – all the way to this, bizarrely only his second solo studio album, the Godfather of jingle-jangly indie pop has always let loose with both barrels. Here he comments on the adverse effects of globalisation (*Vietnam Cowboys*) and the computerised world (*In A Moment*), and, as with the best Kinks' records, the result is foot-tapping and catchy. A lyrical Lowry, this is the chunky, funky genius of Davies at his best. **Jon Hughes**

Last words? Rama

Status: Acutely endangered – fewer than 30 fluent speakers.

Habitat: Rama Cay Island and scattered surrounds, Bluefields Lagoon, on the Miskito (Atlantic) coast of Nicaragua.

Description: Rama is one of the most northern of the Chibchan languages, a group that stretches along parts of the Central American isthmus from Honduras to Colombia. Most of these are today extinct. The Rama have always been a small community, and more and more of them are now moving to Bluefields City, to the detriment of their culture. The language was saved in the past by the work of the revolutionary Sandinista government in the 1980s, but the vast majority of (the somewhere around 600-900) ethnic Rama still use English – the common tongue for the Creole peoples of the Caribbean shore. The international Rama Language Project (RLP) was set up, but stalled in the early 1990s, something that often occurs where understaffed and underfunded – although vital – linguistic studies are concerned. More recently the project has been renewed.

Rama only has three basic vowels (a, i and u) and is heavy in consonantal clusters, visible in words such as 'alngu' (drink), 'nuknuknga' (yellow) and 'tkwustkwus' (rabbit) – spot some onomatopoeia in this last example. This gives the language a thick, nasal quality. Negatives are expressed by adding 'taama' to the end of sentence, as in: 'naming piup tukalue naing taama' – literally, 'that meteorite is mine not'. A special word – 'angka' – used to denote impossibility. Rama is also rich in compounds (nouns formed by joining other words together) such as 'suulikaas' or 'animal-flesh' for 'meat'.

The future is uncertain, but with luck the continued efforts of the RLP will allow people to keep saying 'Rama kuup alkwisbang!' – 'Let's speak Rama!'

David Hawkins

How to be free

Get disconnected

The internet once represented something like freedom for **Tom Hodgkinson**, but the honeymoon ended when the problems of the virtual life became all-too-real

I hate the internet. What promised to be an instrument of liberation has turned into a means of voluntary slavery. I remember in the early years, around 1993, I was a huge fan, evangelist and apologist. Friends at the time wrote it off as CB radio for the Nineties, but I tirelessly promoted the joys of email and the then-fledgling World Wide Web, a technology that allowed you to read words written on the other side of the world. It also seemed to offer the joys of being able to publish your work at little or no cost and find an audience.

How bitterly I rue that time, when I naïvely spouted forth on the liberating power of the internet. I look round today and see millions of little workers, plugged into screens all day, only seemingly able to communicate with their friends through a computer network, forgetting how to play, to make bread, to sing and dance.

I see these obedient workers being sold piles of rubbish by the same computer network that trumpets its ability to keep them in touch with their friends. I see them being spied on by Big Brother, all their little internet searches and most intimate communications logged on a vast computer somewhere in the US. The internet is a cross between a global mail-order catalogue and a spying device, and we voluntarily submit to its authority, rejoicing when a new computer programme promises to 'allow' us to do something new.

I see a whole generation of people literally being 'disabled' by computers, unable to carry out the simplest task without reference to something such as Wikipedia, the world's worst encyclopaedia. Rather than learning from friends and elders and books, we choose instead to learn from idiots on YouTube and self-important geeks in California.

Motivated by these reflections, I recently pulled the plug on my own forum, on *The Idler's* website. When this forum began, I

enjoyed the novelty of it and the way people appeared to be communicating – and it was popular; thousands signed up – but as it went on, I realised it was entirely without purpose. Nothing happened. It simply provided a place where people could 'whinge and procrastinate', as my friend Neil put it. They just sat there moaning, a load of self-important show-offs.

So I pulled the whole thing down and put up the following message: 'It's time to stop spewing your bons mots into the ether and go and talk to real people.' At first, there was a predictable outburst of wailing, like the infant

whose mother pulls her nipple from its mouth. But then I started to receive letters thanking me for taking the forum down. As a result of its removal, people were actually arranging to meet up in real life. It seemed I wasn't alone in despising the substitution of computerised communication for real life.

But oh, alack and alas! With over 60 million people worldwide voluntarily enslaved to giant nothings such as Facebook, it looks as though I am in a minority. Leftists, liberals and eco-people proclaim the democratic wonders of the internet, forgetting it was invented by the US military as a means of spreading the gospel of the American dream, securing its position as number one superpower and opening new markets across the world. In

1958, the US, greatly perturbed that the USSR had beaten it into space, set up the Defense Advanced Research Projects Agency (DARPA) to keep up with new technologies. Computer networking was one of DARPA's early inventions. Its website gives the following mission statement: 'DARPA's mission is to maintain the technological superiority of the US military and prevent technological surprise from harming our national security by sponsoring revolutionary, high-payoff research that bridges the gap between fundamental discoveries and their military use.'

It is with a similar purpose in mind that, in 1999, the CIA set up a non-profit investment company called In-Q-Tel. The aim of In-Q-Tel was and is to invest in young technological start-ups in order to keep abreast of the latest technology and keep the US ahead in its military aims.

In the face of this technological invasion, the truly radical thing is to switch off and go for a walk. **E**

Tom Hodgkinson is the Editor of *The Idler* and author of the book *How to be Free* (Hamish Hamilton, £14.99).



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