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ECOLOGIST

APRIL

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ECOLOGIST



The *Ecologist's* new masthead being created using a traditional letterpress by Graham Bignell of New North Press. Graham is one of the last people still working in the UK in this way, using techniques and materials that have hardly changed since Gutenberg printed the Bible 600 years ago.
To get in touch with Graham email graham.bignell.t21@btinternet.com
telephone 020 7729 3161

Editorial

New leaf. Old hat.

In his 1999 book *Faster – the acceleration of just about everything*, James Gleick describes typing the phrase ‘information overload’ into an internet search engine and finding that more than 20,000 sites addressed the problem. I did the same search eight years later and got 1,200,000 hits.

Following this, I typed in ‘letterpress printing’, the process employed by Johannes Gutenberg in the 15th century when he created the first press, used for hundreds of years until the advent of desktop publishing a few years ago, and now kept alive by people like Graham Bignell, the printer pictured opposite. I came across the homepage of an organisation dedicated to preserving this dying craft in the UK. It listed just nine active printers.

Obsessed with the hot young thing, the new black, the latest must-have, we become less interested in what’s already been. When my computer has hundreds of fonts built into its hard-drive, who cares about some clunky old bits of metal and wood? To suggest that the past has something to offer is to be derided as an anti-progress nostalgic for an irretrievable era.

Of course, some really do want to turn back the clock, believing that all our problems are rooted in how we live today. When we started publishing website addresses a few years back, some people cancelled their subscriptions, appalled at our apparent embrace of this new, cold and inhuman technological monster.

Both extremes are too simplistic, based on ideology rather than rationality. Depending on whom you ask, we always live in the best of times... or the worst.

But, more importantly, when we blame technology, or look to it as the solution, we either let ourselves off the hook, or deny the capacity for

goodness within us all. The world won’t be destroyed by a nuclear bomb, or saved by a solar panel. It will be because of how we choose to act as human beings. As the Archbishop of Canterbury says in our interview with him (see page 54): ‘At the end of the day, even if you knew for certain that climate change was irreversible, there would be a better or worse way to live in the environment. There would be a way more or less congruent with human dignity and responsibility.’

Climate change is perceived as the greatest threat there is. It’s also given us the greatest opportunity we’ve ever had. An opportunity for a new way of being – built not on the distances allowed by cheap oil, but on the proximity that its soaring economic and ecological price will increasingly demand, and on the real values that ‘living closer’ produces. Respect for and understanding of our environment. Concern for our communities’ wellbeing. Technologies in the service of humanity and nature, not the other way round. An expectation of less manufactured choice, but more real variety and local distinctiveness. And a knowledge that these are all connected.

The redesigned *Ecologist’s* aim is to celebrate the rich possibilities of this new world while exposing the actions of those standing in its way. To combine the best of the past with the best the present has to offer. We want people to find for themselves that the ecological life isn’t just better for the planet – it’s more rewarding for us all too.

Nature doesn’t forget about its past, its fallen leaves and dead wood. It uses them to renew itself, to provide food and shelter for life to come. We may all sing about the beauty of the new flower. But we have the old leaves to thank.

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Letters



Send letters for publication to:

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Commercial Street, London E1 6NF.
Email: letters@theecologist.org.
The Ecologist reserves the right to edit letters as necessary.

WHAT ABOUT BIODIESEL?

I cannot disagree with any of the points raised in your biodiesel special (March 2007), but I was saddened to see that no case was made for biodiesel made from used oil, which would otherwise have to be disposed of (with difficulty); nor, while it is true we should all use our cars less, was there mention of vehicles that just cannot be used less – e.g. rubbish/waste collection lorries. Nor was it recognised that ‘second use’ bio could fill a gap until other technologies were developed.

Veronica-Mae Soar,
Oldland, Gloucestershire

SWAMPIES IN SUSSEX

In his article ‘Road Rage’ (March 2007), Paul Kingsnorth asks ‘where are the Swampies, the treehouses and the tunnels?’ Missing from his list of where to find them alive and well is Camp Titnore in West Sussex.

Since May 2005, a brave band of tree protectors has occupied Titnore Woods, complete with treehouses, tunnels, compost loo, solar panel and vast amounts of support from the local community, who are opposed to the scheme to build 875 new houses (in the first instance) along with (*quel surprise*) a giant Tesco, new access road and straightening and widening of the existing Titnore Lane. The proposed development will plough through one of the last remaining areas of ancient semi-natural woodland on the coastal plain.

The long-running protest and the camp have featured twice on ITV’s *Tonight with Trevor MacDonald* and had copious press coverage and even though the High Court appeal was lost and the eviction order granted, to date there has been no attempt to remove the occupants and the fight continues.

Look at www.protectourwoodland.co.uk or www.eco-action/porkbolter to find out more.

Rosemary Lewis, by email

DRIVE LESS, LIVE MORE

Paul Kingsnorth’s article contains a pointer to resolving the conflict between more roads and more congestion: reducing both the need and desire to travel. Most car journeys aren’t made for the pleasure of the drive but as a means to

another end. There is a cost in time and money, and congestion is a deterrent in itself. So if a way of achieving the end can be found without making the journey it would be attractive. This is surely a fruitful area for enquiry.

Alan Wheatley, by email

NON-STICK SOLUTIONS?

I recently read Pat Thomas’ article about Teflon (June 2005) and have since disposed of our non-stick pans. However, most baking dishes are non-stick – are there any alternatives? I noticed some silicone ones in the ‘natural collection’ catalogue, which stated they were good for people worried about the transfer of chemicals from Teflon – is silicone safe to use?

I also wondered about plastic containers. I have an 18-month-old toddler and have always cooked his food myself, using organic and local

as much as possible, but I am now worried because I have been freezing it in plastic tubs and I don’t know whether they are OK or not.

Kirsty, by email

Health Editor Pat Thomas replies: It’s amazing how quickly things like Teflon and plastic storage boxes have become seemingly indispensable. If you wish to avoid Teflon cookware, choose stainless steel, cast iron, Pyrex (my favourite) or enamel-coated cookware. For baking, silicone sheets and silicone rubber moulds are supposed to be safer and more heat-stable. As far as anyone knows, silicone in this form is inert. The chemicals in plastic are most likely to migrate when exposed to heat but if you are worried, consider freezing your toddler’s meals in silicone moulds (e.g. ice trays) instead. The downside of silicone is that it is not biodegradable, so buy the best you can and intend to use it for a lifetime.

LORD TEDDY?

I very much enjoyed Paul Kingsnorth’s profile on the ecological hero Teddy Goldsmith. If ever anyone should be honoured for his dedication to exposing the environmental catastrophes that face us, it is he. But the honours system is now so tainted with knighted pop stars and Monegasque-based retailers, not to mention cash to political parties, that I suppose it is better that he remains as he is. It is a great loss to the debates in the House of Lords, however.

James Osborne,
Canterbury

UP IN SMOKE

It was a sad, black day for the ecology of Sussex when, despite 16,000 recent objections (more over the past seven years), the plan went ahead (at a meeting at County Hall, Lewes) on 21 February 2007 to build a giant incinerator burning 240,000 tons per annum (with capacity to burn to 500,000 in future) in the small town of Newhaven – population 11,000.

Protestors put up numerous, excellent and knowledgeable arguments against the proposal, but were met with ignorant, bone-headed,

Ecologist poll

Would you take your money out of a bank account if you knew the bank invested heavily in ‘carbon intensive’ projects? See news, page 10

90 per cent of you said last month that ‘building more roads is not the solution to UK congestion’

Daily dilemmas

Starting this month, each issue we will 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. The following month we will publish the most practical and engaging selections in the letters pages.

To start with:

'My supermarket stocks fairtrade bananas and organic bananas. My local independent greengrocer stocks non-organic, non-fairtrade bananas. Which should I buy?'

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

self-interested display by five deciding councillors from other parts of the county (not district); one, who was against, stepped down. The decision took just under three hours.

Councillor Daniels (Labour, Hastings), one of the five, likened the health effects of incineration to nothing more than 'eating too many Cadbury Creme Eggs'. Daniels also told protestors that the magnificent design would enhance the area, which nestles in stunning South Downs land, designated an Area of Outstanding Natural Beauty. It was all too clear that there would be penalties from the French company Veolia/Onyx, if the county council pulled out of the contract with them – signed with the council years ago to waste-manage Sussex.

No other ways of dealing with waste apart from incineration have ever been discussed. People are invited to write to Ruth Kelly at the Department for Communities and Local Government for a call-in; a petition has been compiled by Defenders of Ouse Valley, www.dove2000.org. Please help. We deserve better, backyard-friendly technology on our lovely South Coast, which is a great place to visit, and to live.

**Janice Alderson,
Newhaven, Sussex**

CLIMATE CURRICULUM

The article by Rosie Atkins (*Ecologist* online, 8 February), on teaching schoolchildren about sustainable lives, touched a raw nerve for me. For 34 years I was a primary school teacher

with a qualification in environmental biology. I taught my classes about climate change, extinction of species and sustainable living. In all of the 34 years when my classroom walls were covered with posters about endangered animals and loss of habitat or recycling I only met ONE other teacher with a similar interest.

The fact is that most teachers do not have the interest or the time to devote to the subject; they do not have the total commitment to evoke a change in their pupils in this area. I still meet young people now that I taught years ago. They speak to me and tell me: 'I'm still interested in the environment, Miss', or 'I'm recycling, like you said.' That is success!!!

I'm retired now but would love to be part of this new movement. Young teachers coming

into the profession will not be regarded with suspicion as I was. To quote one headmaster who interviewed me: 'You're a bit green, aren't you – you won't make them chain themselves to trees, will you?' I did get the job!

I hope the new movement in schools is a success – for without the commitment of our young people we cannot win. They are the ones who will ultimately drive the change.

Nicki Penaluna, by email

CHIEF SCIENTIST?

In Sir David King's interview (February *Ecologist*) he talks about chairing the GM science panel. In one of the meetings I observed as a member of the public, Dr Michael Antoniou was trying to explain to the other panel members what exactly happens to the genome during genetic modification. At that, Sir David said: 'You're losing us, Michael', and moved the discussion on. I found that shocking beyond belief, as it was immediately clear how little credence could be placed in a panel whose members knew so little of the mechanics of GM. Was it for similar reasons that at least one original member of the panel resigned?

When Sir David also says that India is doing well out of GM, he must have quite a lot more reading to do!

**Cherry Lavell,
Cheltenham**



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Patrick Curry

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NPower wants to fill the lake left with waste ash from Didcot so it will resemble the picture in the inset

LOCAL ACTION

RETURN TO RADLEY

CAMPAIGN AGAINST POWER STATION GETS PERSONAL

In November, we reported on plans by electricity-generation company NPower to fill an Oxfordshire lake and local beauty spot with ash from its Didcot power station. Worried by the groundswell of opinion against its plans, it seems that NPower has taken to censoring the press.

Freelance photographer and regular contributor to this magazine Adrian Arbib has been served with an injunction for taking photographs of NPower's security guards. He faces a five-year prison sentence if he attempts to sell his photographs or take more. Afraid to visit the lakes, he told the *Ecologist*: 'I've never come across anything like this in my life.'

NPower also brought injunctions against the local vicar, a retired scientist and the local paper, the *Oxford Mail*. NPower's security guards recently evicted protestors who had set up camp in an NPower-owned

house on the shore of the lake. Windows were smashed and the structure of a steel tower, which one protestor had climbed, was shaken violently despite pleas for guards to stop.

Although local people have won a public enquiry against NPower's activities, the company is proceeding to cut down the lake's border of trees, calling it 'tree maintenance'.

NPower told *The Guardian* that it was merely protect the identities of their workers. Its security guards, from the firm Shercurity, operate with balaclavas, flashlights and video cameras. To find out more, go to www.theecologist.org/radleylakes.asp

AVIATION

100-FOLD INCREASE IN KENT FLIGHTS

Local communities in Kent are facing a hundredfold increase in flights to and from Lydd Airport on Romney Marsh.

The operators of Lydd, known also as London Ashford airport, have announced plans to increase passenger numbers from fewer than 5,000 a year to two million, with the construction of a new terminal and extended runway.

The Royal Society for the Protection of Birds (RSPB) has joined the local community in calling for a public inquiry into the planning application, highlighting the fact that the airport is next to the 1,000-hectare Dungeness nature reserve, home to at least 60 different bird species. More than 3,000 local people have already signed a petition against the proposed expansion.

'Planners should be following the example of those at Stansted,

where the council has rejected plans to increase passenger numbers,' commented Chris Corrigan, RSPB Director for South East England. 'Air travel is the fastest-growing source of greenhouse gas emissions and airport expansion at Lydd, a site so obviously unsuitable, should not be allowed.'

SUPERMARKET POWER HUGH AND CRY

Chef and writer Hugh Fearnley-Whittingstall has railed against supermarkets' 'corrosive effect' on our food culture, calling their rise to power 'a major scandal'.

Along with other speakers at a public meeting organised by several charities, including



Friends of the Earth, he called on the government to act to stop the environmental and social damage caused by the UK's biggest retailers. This would include strengthening local planning rules limiting their growth, and ensuring effective controls on how they treat suppliers.

'Local producers are bullied and even busted by the aggressive tactics of the supermarket, while many shopping centres, once the heart of the community, have been standardised or gutted by retail totalitarianism,' he said.

The Competition Commission is currently investigating whether the 'big four' supermarkets abuse their power.

ENVIRONMENTAL EDUCATION BACK TO SCHOOL

Environmental issues may be given priority in schools, thanks to a government 'curriculum review' announced in February.

The review will look for a 'much

stronger focus' on sustainable development and environmental change in the geography curriculum for 11- to 14-year-olds.

But Rosie Atkins, coordinator of sustainable school initiative Suschool, was sceptical, telling the *Ecologist*: 'When the rhetoric is unpicked, sustainable development and climate change will actually only be a compulsory part of Geography and not until 2008. Moreover, these are only proposals, not definite changes to be implemented now.'

SUSTAINABLE HOUSING HOUSES VS TREES

The council for Hebden Bridge, a West Yorkshire town that became an unofficial home of the hippy movement in the 1960s, has rejected a planning application for a new development of environmentally-friendly houses.

The proposed semi-detached houses would be linked by a timber walkway, insulated with

thick stone and feature solar heating panels and grass roof terraces. They would have annual fuel bills of just £133, six times less than a comparable Victorian house in the same town.

But Calderdale Council officers say the scheme would have an adverse impact on a crop of trees that provide a 'wedge of greenery' in the town, adding that the plans were 'not in keeping' with Hebden's characteristic stone terraces. The developers are planning to appeal.

CLIMATE CHANGE GREEN LONDON

London Mayor Ken Livingstone has announced a Climate Change Action Plan, which aims to cut London's CO₂ emissions by 60 per



cent by 2025, and by 20 per cent in the next 10 years.

The plan relies heavily on the commitment of householders, responsible for 38 per cent of London's total CO₂ emissions.

However, Deputy Mayor Nicky

Gavron expects the largest barrier in meeting goals to be the dominance of centralised power stations, which currently supply energy for more than half of the homes and public buildings in London. Decentralised energy, where energy is generated close to where it is needed, is a much more efficient option, believes Gavron, who said: 'We are spearheading a decentralised energy revolution.'

CLEAN ENERGY RENEWABLE PLANS GET GO-AHEAD

Renewable energy production has received a boost, with planning permission for a new 500-megawatt wind farm in the outer Thames Estuary and a 30-megawatt 'wave farm' off Orkney, Scotland.

The Thames project, known as the London Array, will feature 140 turbines and provide enough clean electricity to supply 415,000 homes, and reduce CO₂ emissions by 1.5m tonnes a year.

Orkney is to host the world's largest 'wave farm' in a project that will see four sausage-shaped wave generators produce 30 megawatts of electricity – enough for 3,000 homes. The

generators use hydraulic pistons to harness the energy in the rise and fall of the waves.

Scotland has the potential to generate one-quarter of Europe's available marine energy.

ECO ARCHITECTURE ONE PLANET LIFE

Planning permission has been given for the world's first One Planet Living (OPL) community in Brighton. Run by WWF and sustainability organisation Bioregional, the development will adhere to OPL principles of being zero carbon (having a net energy consumption of zero through the highest standards of thermal efficiency and carefully sourced materials). The homes will also follow 'zero waste' strategies, aiming to recycle or compost as much waste as possible. Those who move into the offices and apartments will then be helped to live as sustainably as they can, with Bioregional acting as a 'green caretaker'. The site will have living, community and business space, including communal gardens, rooftop allotments and wind turbines.



BOGOF, SAY BRISTOL RESIDENTS

Residents of the Gloucester Road area of Bristol – renowned for its quirky, independent shops – have formed a campaign against a planning application by Storegap, a property developer operating on behalf of a supermarket.

Known as Bishopston Opposing Glut Of Supermarkets (BOGOFs), the campaign wants people to write to the Council, challenging the planning application, and signing a petition. www.bogofs.org

SAVE LONGSTONE EDGE

A three-mile-long ancient limestone hill in the Peak District is threatened with destruction by intensive limestone quarrying.

Longstone Hill is subject to a 'Minerals Permission', which allows quarrying. However, the Permission was drawn up in 1952 and applied to 'vein minerals', which at the time were extracted by pickaxe and wheelbarrow.

The Save Longstone Edge Group has been fighting since 1997 to prevent the quarrying, but the Peak District National Park has been unable to act on their behalf, fearing expensive legal action from quarrying corporations. To support the campaign, visit www.longstone-edge.org.uk

NUCLEAR POWER

ENERGY REVIEW 'UNLAWFUL'

Greenpeace has won a landmark high court battle against government support for nuclear power. The Royal Courts of Justice ruled that the Government had not, as stated in its 2006 Energy Review, conducted 'the fullest public consultation' with regard to support for new nuclear power stations.

The judge called the consultation 'seriously flawed', describing the process as 'inadequate and unfair'. The Government had not provided sufficient information for an 'intelligent response', he added.

In response to the ruling, Tony Blair told the BBC: 'This won't affect the policy at all.'

Greenpeace has long lobbied for the use of small, decentralised power generation in place of large-scale, nuclear infrastructure. Nuclear power stations, many of which are nearing retirement because of safety reasons, currently account for around 20 per cent of the total electricity generation in the UK.

2

THE NUMBER OF Olympic swimming pools that the average bath-using UK household splashes its way through in a lifetime, according to a survey by Shuc Ltd. Taking showers instead of baths can reduce water use by 50 per cent.



GLOBALISATION THE TWO PER CENT MYTH

A COUNTRY'S OFFSHORE INDUSTRIES MUST BE INCLUDED IN ITS ECOLOGICAL FOOTPRINT

'The UK is only responsible for two per cent of global CO₂ emissions' has become a mantra of British politicians anxious to shift responsibility for reducing energy consumption to the USA, China or India.

But the days of this cliché could be numbered, according to a new report by Christian Aid, which suggests that the UK in fact contributes more like 15 per cent of emissions.

By estimating the carbon footprint of the investments made by FTSE-100 listed companies, the report's authors found that the UK was responsible for some 3.8 billion tonnes of CO₂ equivalent, as opposed to the official figure of 0.7 billion tonnes. The report condemns what it

describes as a 'massive under-reporting, even among those that declare the emissions closest to their immediate operations.'

Andrew Pendleton, the lead author of the research, told the *Ecologist* that the current statistics did not properly reflect the UK's economic impact on the rest of the world: 'The UK's integration into the global economy means that money raised in the UK – which comes from our pension funds, insurance companies and banks – is lent and spent all over the world, much of it without any questions asked as to whether or not it is contributing to the proliferation of greenhouse gases.'

In particular, the report points a finger at Barclays bank – which has just reported record profits of £7.1 billion – as holding the most 'carbon intensive' investments of the UK's three major retail banks (Royal Bank of Scotland, HSBC and Barclays). Despite claiming that it is 'one of the largest financiers of renewable energy projects in the UK and Europe,' the report's authors note that the bank has continued to invest in CO₂-intensive power generation projects.

Christian Aid is now calling on the government to develop a comprehensive, transparent system that would require UK companies to fully disclose the emissions of carbon dioxide, direct or otherwise.

STATISTICS

12–15 per cent: the UK's actual global CO₂ emissions.

286 million tonnes: the CO₂ emissions from the top 16 FTSE-100 companies

440 tonnes: Barclays' CO₂ emissions per £1 million lent.

24 per cent: proportion of FTSE-100 companies providing most basic CO₂ emissions data.

CULTURAL DIVERSITY DYING TONGUES

The loss of world languages is usually viewed as a cultural problem. But scientists now think that many species could be lost if languages are allowed to die out, *The Independent* reports.

David Harrison, assistant professor of linguistics at Swarthmore College, Pennsylvania, believes that biologists would learn more by talking to indigenous people whose languages have preserved the names of creatures that may be unknown to science.

The South American skipper butterfly is one example. For years, scientists had thought that the butterfly was just one species, until DNA tests revealed 10 different species that appeared identical physically. The local Tzeltal-speaking population in Mexico, however, could have told the scientists that their language held several names for its different kinds of caterpillar. As a

rural people, it was important to know which larvae might attack their crops at a given time of year.

Today there are 7,000 spoken languages in the world, although more than half of them may be lost by the end of the century.

ALTERNATIVE ECONOMICS BERK-SHARE ALIKE

A local currency described by *The New York Times* as 'a great socio-economic experiment' is proving highly popular with the residents of Berkshire, Massachusetts.

'Berk-Shares', which have an identical value to dollars, aim to keep money circulating within the local economy. Because the exchange rate for one Berk-Share is 90 US cents, the customer gets a 10 per cent discount on goods



and services. This encourages them to shop in local stores that support the scheme.

So far, Berk-Shares can be exchanged for restaurant meals, cinema tickets, hotel rooms and ski-lift passes. The next stage of the project will see the installation of a Berk-Share ATM machine.

NUTRITION JUNK FOOD... ITALY?

Italy, long seen as the healthy man of Europe, is starting to suffer the effects of fast and junk food.

The Italian government has revealed plans to subsidise fruit in schools and offices after new research showed that deaths related to alcohol, smoking and processed food have soared.

Health minister Livia Turco said that smoking, alcoholism, bad diet and increasingly sedentary lifestyles were becoming 'general tendencies'. She added: 'It's a paradox that the country of the Mediterranean diet needs to

introduce nutritional guidance because of advertising, consumerism and the hurry people are in.'

The Health Ministry's action plan includes reducing the price of fresh vegetables and selling fruit in school vending machines.



NEW NUCLEAR SYMBOL

The International Atomic Energy Association (IAEA) has released a new symbol (shown above) to warn of ionising radiation, after

a five-year study revealed that many people mistook the old trefoil symbol – which still makes an appearance in the apex of the new nuclear warning sign – for ‘a ship’s propeller’.

‘We can’t teach the world about radiation,’ said Carolyn MacKenzie from the IAEA, ‘but we can warn people about dangerous sources for the price of a sticker.’

TECHNOLOGY WI-FI FEAR

Just weeks after BT released its new ‘wi-fi’ mobile phone, a study headed by Dr George Carlo of the Safe Wireless Initiative suggests that the radio waves emitted by cell phones and wireless technologies can cause tumours in the brain and eyes, and breaches of the blood-brain barrier.

Carlo founded the Safe Wireless Initiative in the US after the cell phone industry rejected his findings – the product of seven

NOW THAT’S... PROGRESS

- 1** Scientists in China have developed a way to control pigeons in flight by implanting electrodes in their brains. A computer system allows them to tell the birds to fly up, down, left or right.
- 2** Instead of reforesting a mountainside stripped bare by quarrying, Chinese officials hired seven workers, who spent 45 days spraying it green.
- 3** A UK crematorium is offering bereaved pet owners the opportunity to turn the bodies of their recently deceased animals into diamonds at a cost of £2,100 to £15,000.
- 4** Hungry mobile phone owners in Japan are now able to order from nearby McDonalds branches direct from their handset, in case the lengthy wait for the food proves too much.

years’ research, peer-reviewed by the Harvard Medical School.

He told the *Ecologist*: ‘We know enough about the disease process to be able to intervene to prevent these conditions.’

Dr Carlo is now calling on the UK to establish a body similar to the Safe Wireless Initiative, which is currently studying the correlation between electromagnetic radiation and the symptoms of patients recently diagnosed with cancer. He urges UK citizens to write to their local MP, asking him or her to support such an initiative.

MARINE ENVIRONMENT TYRE REEF CRASHES

An artificial reef off the coast of Florida, originally devised as a means of disposing of old car tyres, has proved to be an environmental disaster.

It was hoped that the project would provide a haven for wildlife in the same way that scuttled ships can provide a habitat for marine life. But many of the tyres have broken loose and are now washing up on beaches or destroying nearby natural reefs by wedging into rocks and blocking coral growth.

Although scientists are unsure why marine life has not grown on the tyre reefs, some believe that

the rubber leaches toxins into the water. The same problems have been reported worldwide.

The Florida reef, which one commentator has called a ‘coral-destruction machine’, must now be dismantled at a cost of around \$3.4 million.

POISONED FOOD ROCKET FUEL LEAK

The American Food and Drugs Administration (FDA) has found significant levels of the toxic rocket fuel perchlorate in 93 per cent of all lettuce and milk sold in the USA.

At levels over five parts per billion (ppb), perchlorate can contribute to thyroid problems and birth defects in children. The FDA’s study found levels as high as 29.6 ppb in iceberg lettuce grown in California. Perchlorate has also been detected in human breastmilk in every woman tested during a study in Texas.

Perchlorate, the explosive propellant used in military rockets, has been used, made or stored at 150 sites in 36 States. Because the chemical bioaccumulates in the body’s tissues, repeated exposure to contaminated drinking water or vegetables dramatically increases the risk of thyroid damage.



LIGHTS OUT DOWN UNDER

Australia is to ban incandescent lightbulbs, which are five times less efficient than the newest eco-friendly models. The move will cut Australia’s CO₂ emissions by some 800,000 tonnes a year.

EU Commissioner Stavros Dimas says the EU is ‘currently looking into whether an EU standard for environment friendly light bulbs is doable.’ A recent report by the International Energy Agency estimated that replacing the world’s light bulbs with energy-efficient varieties could reduce the global electricity bill by one-tenth.



GREENPEACE CREATE A ‘GREEN- LIGHT’ DISTRICT

Greenpeace activists in Holland have created a ‘green-light district’ in the middle of Amsterdam’s famous red-light district. By replacing red lamps with energy-saving bulbs, the group hopes to draw attention to the ‘simple things we can do to tackle climate change.’

GREENWASH?

THE TRUE COST OF GLOBAL WARMING?

Sir Richard Branson’s offer of \$25 million to the first scientist to demonstrate a way to remove CO₂ directly from the atmosphere was given a lukewarm reception by journalists, who wanted to know how he could offer the prize whilst operating a transatlantic air fleet and, in the near future, a low-orbit space programme.

Meanwhile, the American Enterprise Institute, which has had over \$1.6 million from Esso, offered \$10,000 to any scientist or economist who can undermine the latest climate report from the UN’s Intergovernmental Panel on Climate Change.

The write stuff

Don't fancy chaining yourself to a whaling ship or marching on Parliament? That doesn't mean you can't make a difference. Just pick up a pen. By **Lorna Lythgoe**

Letter writing is one of the most effective ways to make those with the power to bring about change pay attention and do so. And it doesn't always take stacks of post. In 2003, while she was out shopping, Norwich-based solicitor Polly Morgan spotted a 'MADE IN MYANMAR' tag in a Kookai blouse. Her single letter to the major fashion company, outlining her concerns that stocking Burmese goods helped to prop up Burma's illegal and oppressive military regime, led to Kookai withdrawing all their Burma-made goods.

Like companies, many politicians are more receptive to clear and sensible requests for change than you imagine. It is in their interest

to know what you want; they just need to be made aware of issues that trouble you. MPs have a responsibility to listen to you and may act on your behalf. Few people take the time to write to law-makers, so even a handful of letters can sway an important decision.

According to Friends of the Earth (FoE) parliamentary campaigner Katie Elliot: 'Letter writing gives MPs who often find it hard to get a good response from constituents, the opportunity to represent them.'

Caroline Lucas, Green Party MEP for Southeast England, agrees: 'Individuals can have an enormous impact on legislation. The hundreds of letters I receive from constituents inform the work I do, whether or not they mirror my opinions.'

CASES IN TYPE

People and Planet Trade Justice

Warwick University became the first 100 per cent Fairtrade student union in Britain in 2004, after People and Planet Trade Justice Coordinator David Taylor launched a campaign. All it took was one letter to his student union's vice chancellor, plus a bit of elbow grease in getting 500 signatures on his petition, support letters from four MPs and a 78 per cent referendum. 'Hundreds of letters instead of hundreds of signatures on a petition are even more effective, because letters demonstrate popular mobilisation and commitment,' David said.

EU-wide ban of seal fur

After Green Party MEP Caroline Lucas received a bulging bag of letters calling for an EU-wide ban on the import of seal fur, she co-sponsored a parliamentary motion. It attracted record cross-party support last year, and will translate into EU law soon.

Forests in Malahvia

In 2003, Finland's last old-growth forests in Malahvia were saved when 3,000-plus people sent letters to the biggest customers of state-owned forestry enterprise Metsähallitus. The letter campaigners asked StoraEnso, UPM-Kymmene and M-Real not to buy pulp and timber resulting from forest destruction. Metsähallitus had planned to use clear-cutting and selective logging despite scientific evidence showing the high biological value of the forests.

Friends of the Earth

FoE's The Big Ask campaign, launched in May 2005 to force a climate change Bill through government, was a resounding success. Campaigners sent 100,000 postcards and 5,000 personalised letters to MPs. In a 180° turnaround on the issue, the Queen's speech in November 2005 announced that a Bill would be introduced.

HOW TO WRITE AN EFFECTIVE LETTER

'It's relatively easy to get people to sign up to a good intention. It's a tick box exercise – "instant democracy". A way to wreck your campaign is to send identical letters. But it adds so much value to say why the issue matters to you personally. If enough people show they have an individual desire for change, things happen.'

– Lynne Featherstone, Lib Dem MP

- Be firm but polite. Your aim is to effect change, not vent your feelings.
- Write as though the recipient is open to reason and discussion.
- State what you want your addressee to do.
- Be accurate and don't exaggerate.
- Be brief – less than 300 words.
- Stick to one or two main points, plus a summary of the background and context.
- Keep it simple. Use plain language.
- If you're joining an organisation's campaign, make sure to align your request with theirs.
- If possible, connect your letter to a topic that recently appeared in the media and refer to it using the date, publication or programme and title, if applicable.
- Include your name and contact details.
- If writing to a newspaper, remember they reserve the right to edit your letter.
- If contributing to a campaign, try to write your own letter rather than signing your name to an organisation's template letter.
- Keep the correspondence going. Change can be slow, so if you haven't been given the desired answer or change, write back again.
- If writing to an MP, encourage fellow constituents to do so too.



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Cumulative Fund Performance as at 31 December 2006*

% Change over	1Yrs	3Yrs	10Yrs
Henderson Global Care Income Fund	+24.1	+67.7	+151.9
Sector Average	+17.9	+64.9	+138.3
Henderson outperformance	+6.2	+2.8	+13.6

Discrete Year Performance (%) as at 31 December 2006*

	Dec 06 Dec 05	Dec 05 Dec 04	Dec 04 Dec 03	Dec 03 Dec 02	Dec 02 Dec 01
Henderson Global Care Income Fund	+14.9	+16.7	+12.8	+17.2	-11.3

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Dragons, locusts and wild honey

Can venture capitalism be good for the planet, wonders **Nick Robins**.

It's a sure sign you're in a bubble when the arcane world of finance enters the cultural mainstream. At the end of the 1990s, stock markets became the face of popular capitalism, only to implode in a frenzy of speculation and fraud. Now it's the turn of private equity to draw attention, with the BBC's *Dragon's Den* pitting would-be entrepreneurs against venture capitalists.

The vicarious thrill of this financial reality show has been given extra spice by the very public backlash against the sector. Once the preserve of 'high risk, high return' venture capitalists investing in start-ups, private equity has recently come to prominence on the back of the surge in 'low risk, high return' buyouts of well-established companies, often from off the stock market. The prize for these new privateers is to deliver an expansion in profits through cost-cutting and commercial growth faster than the rising burden of debt these leveraged deals inevitably bring. Of course, if the terms of this equation change unexpectedly – say, through an interest rate hike – then this high-octane business model could get washed away by a tsunami of debt.

From relative obscurity at the beginning of the decade, private equity has expanded in a dramatic fashion so that the firms it owns currently employ almost one in five people working in Britain's private sector. In many

ways, this unheralded surge has its seeds in the collapse of the public equity markets at the time of Enron. For the world's pension funds, which provide 80 per cent of the capital for private equity, stock markets showed themselves to be feverish places obsessed by the next set of quarterly returns. Although private equity has been accused of only taking a three-year view on investments, this is at least three times longer than the average fund manager on the stock market. For executives, the lure of private equity was to be rid of this myopic environment – and free themselves from the attentions of the corporate governance movement. For investment managers, private equity offered the chance of lucrative fees at a time when ever more of the world's stock markets were entering the comatose state of low margin index-tracking funds.

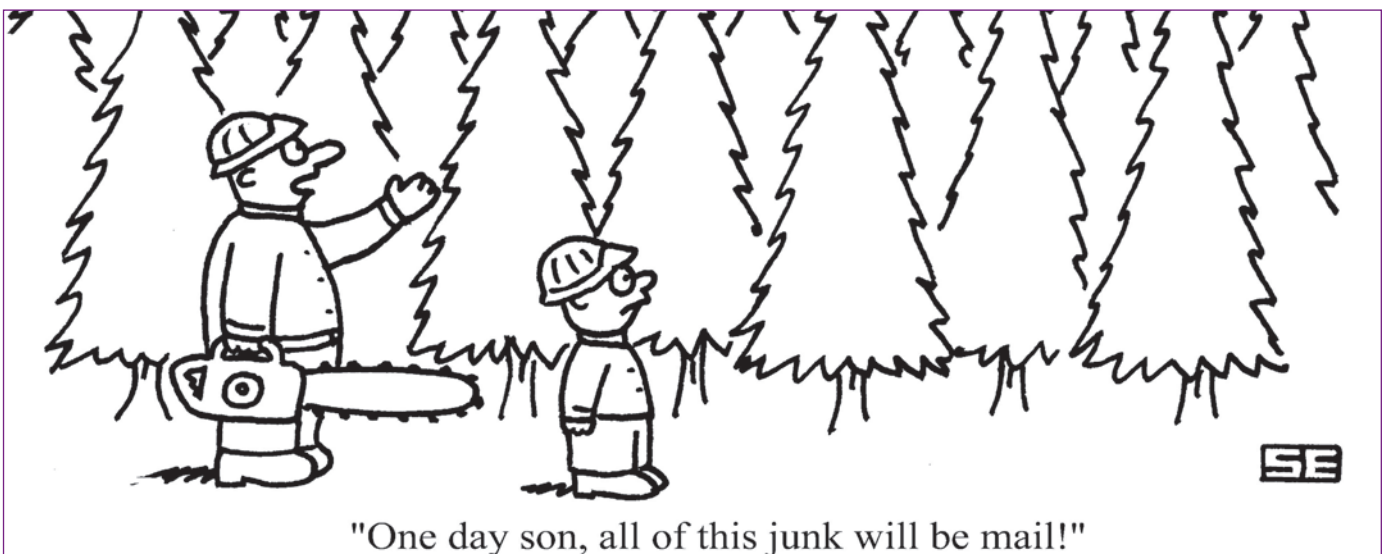
With size comes exposure, and Europe's labour movement has successfully pushed the social impacts of private equity up the political agenda. Back in April 2005, high-ranking German Social Democrat Franz Muntefering argued that private equity funds 'fall like a plague of locusts over our companies,

devour everything, then fly on to the next one'. Last November, three international trade union networks representing 50m workers met in the Swiss town of Nyon, and a highly focused campaign was born. Union anger stems not only from job losses – for example, at the Automobile Association, where 4,000 people were sacked – but also the secretive nature of the funds and the tax breaks they receive for the debt they amass. The head of the TUC, Brendan Barber, has described them as 'casino capitalists enjoying huge personal windfalls at the same time as they gamble with other people's futures'.

What is striking when examining the private equity industry is how corporate responsibility has almost completely passed it by. Only one of Britain's leading private equity

firms has a public commitment to corporate responsibility, and that is 3i, which also happens to be the only stock market-listed firm, where expectations of corporate conduct are steadily rising. Late in the day, the industry established a new Private Equity Foundation to channel its charitable giving. But this smacked of crumbs from the

Casino
capitalists enjoy huge personal windfalls at the same time as they gamble with other people's futures



rich man's table and its launch was picketed by union activists. Equally strange is how the pension funds that have worked to mainstream environmental and social issues on the stock market have so far failed to show how they apply the same standards to private equity.

A solution is at hand, however, in the form of the UN Principles for Responsible Investment, launched in 2006 to integrate environmental, social and governance factors into all types of investing, from listed equity and bonds through property to private equity and hedge funds. With more than 120 signatories worth a total of \$5 trillion backing the principles – many with private equity stakes – the task is to show that high standards of social responsibility are being applied to all asset classes. But more is required to rebuild trust than just standards and disclosure. Private equity also needs to introduce comprehensive employee share ownership plans in the companies they own, to show how everyone benefits from its involvement, rather than just the exclusive few.

This belated injection of justice into the world of private equity is important for another reason. Criticism should not obscure its potential for shifting capital onto a low-carbon path. This was highlighted by the unprecedented \$45 billion buy-out of electricity producer TXU at the end of February. Under the cosh from environmentalists for its plan to build 11 new coal-fired power stations, TXU's management saw its share price slide to the point at which private equity judged the assets cheap enough to step in. As part of the deal, private equity firms KKR and Texas Pacific agreed to scrap eight of the 11 plants, double spending on energy efficiency and back federal curbs on carbon.

A great victory for the environment, it also demonstrated that some of the most profit-hungry capitalists on the planet had concluded that the longstanding green-power model of downsizing coal and expanding conservation was a better financial bet. Add the extraordinary growth in venture capital investments in clean technology – which have doubled in Europe and North America since 2004, to stand at over \$3.6bn – and private equity is starting to offer an intriguing glimpse of how capital markets could back a sustainable future. Let's hope for more of the wild honey... and fewer locusts. **E**

Nick Robins is author of *The Corporation that Changed the World: How the East India Company Shaped the Modern Multinational* (Pluto Press, £15.99)

ENVIRONMENTALLY UNFRIENDLY

It's for charity

A group of medical students on a London Tube were collecting money towards a kidney dialysis machine. They were dressed in rag week attire, suspenders and comedy breasts, attempting, I imagine, to put the fun back into kidney failure. However, they still got nothing from me, because I don't give to charity. Not only that, I'm against its very existence.

Let me explain. I'm from a generation led by *Tomorrow's World* to believe in a 21st century techno-Utopia. A society so advanced there won't be any disadvantaged people to give charity to. And if there were, according to William Beveridge, the State would take care of the problem.

Instead, any solution to our ills has become privatised out, either to the guilt and conscience of the individual, corporate benevolence or the philanthropic work of pop stars and comedians. All of which strikes me as unsustainable, sometimes ludicrous and often hypocritical.

Cast your mind back to the tsunami tragedy – the greatest 'natural disaster' in living memory (by the way, if we agree we cause global warming, can we keep using the term 'natural' for disasters?). Tens of thousands killed and who were the pillars of the community deemed worthy enough to make a solemn appeal? The booze-sozzled ex-rocker Ozzy Osbourne and his wife Sharon, whose qualifications were that she sat on the panel of a TV karaoke programme. 'As long as it's for charity,' my mum used to say.

It's like Jade Goody fronting a Pakistani flood appeal, or Gary Glitter in concert for UNICEF. In truth, a lot of this stuff seems designed to help the celebrity more than the recipients of the charity.



Our obsession with charity as a way to save the world also often overlooks how we raise the cash. During the tsunami appeal, a Welsh council, keen to be seen doing the right thing, decided to hold a swimathon. I wonder what slogan they used: 'Swim for the drowned'?

Another common example is running a marathon for a friend with lung cancer. If I'm lying in hospital coughing to death, the last thing I want to watch on TV is my mates running 26 miles and still being alive at the end. Anyway, why do we need to encourage people to 'lap dance for leukaemia' or 'bungee for bulimia'? If you feel it's a worthy cause, then give them the bloody money instead of making them jump through hoops... 'for herpes'.

Which brings me to another problem. How do you choose? Who is more worthy? Fatima, the war orphan? Or Spike, the abandoned collie cross? It may not surprise you to learn that in Britain each year, more money is given to pet charities than to children's charities.

Finally, charity depoliticises, stopping us thinking about why we might need the charity in the first place. If we made sure the government were responsible for the things we actually need, like kidney dialysis machines, then we could still use charity as a way of funding the things we don't actually need but some people feel they want. Like a nuclear deterrent, or Jade

Goody. We could send soldiers with buckets to collect money for Trident on the Tube. They could still wear suspenders and comedy false breasts in an attempt to put the fun back into nuclear war. As long as it's for charity. **E**

“If I am dying of lung cancer, the last thing I want to watch on TV is my friends running 26 miles and still being alive at the end

Jeff Innocent is a stand-up comedian

There is an empty lot on the main street in my town, next to the bakery, a local hang-out. For years, people have talked about buying it to create a space for people to come and gather. But recently a friend and I said, 'Why wait?' We fixed up a couple of old benches and set them away from the street, under a tree, which seemed vaguely park-like. Within a week, people had moved the benches right up to the pavement, which is where they have stayed ever since.

Not long after the bench-moving, I happened upon a book called *The Social Life of Public Spaces*, by William H Whyte. Whyte spent much of his life studying how people use such spaces. He found that there are recurring patterns, a kind of economy of human interaction. Among other things, people like to sit near the flow of life, rather than in secluded corners – which is exactly what had happened in our commons.

This is not so surprising, really. We humans are social creatures. We like to be around other people – at least, most of us do – even if it is the anonymous buzz of a coffee shop. This disposition shows itself in many ways, from the dance of street crossing at crowded intersections, to the mutual help of neighbours and friends. Given a half-hospitable setting, it can be generative in much the way that nature is – a kind of parallel economy that meets real needs; increasingly, the most pressing ones.

But this productivity is invisible to most economists, and thus to the media and policy establishments, because it is not transacted through the medium of money and price. As with its natural counterpart, this invisibility has made the social commons vulnerable to invasion, expropriation, degradation and neglect. The spontaneous sociability of high streets is easy prey for anonymous chain stores; cell phones and iPods easily displace serendipitous encounters on trains and buses (while making these places into insufferable noise holes); and on and on.

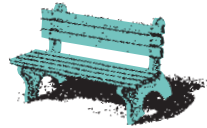
The same corporate forces that have degraded the ecosystem have attacked its social counterpart. The result has been a breakdown of community, and loneliness and isolation that are epidemic in this hyper-wired age. There is a vicious spiral, a kind of social equivalent of compound interest. People need more money to replace the supports and capacities they have lost; so the corporate economy must

churn ever faster, and the assault on nature escalates. Meanwhile, the policy establishment cheers because the GDP is going up.

Ecological economics, so-called, tries to address this by rafting 'correct pricing' onto the conventional model. Make corporations pay for the muck they disgorge and the market will work as advertised. It is a useful idea as far as it goes. But how far is that?

Wal-Mart could adhere to the most stringent green codes and still be a plague to the social ecology of the main streets it displaces. Green Ritalin might spare the ecosystem, but the social pathologies that lead to drugging kids to keep them quiet in school would remain.

Ecological economics is necessary but not sufficient. It needs a complementary model that



SOCIAL ECOLOGY

Prozac or park benches

Ecology isn't just about the natural world. It's about the world we all live in, wherever that might be.

By **Jonathan Rowe**

works outside the market and which produces what that market can't, and which it increasingly tends to destroy.

Which brings us back to the benches, and whatever it is in human nature that causes people to want to put them near the sidewalk. That instinct, as mentioned, takes a multitude of forms. It even drives much of the activity in the market itself – not greed, and certainly not need, but a simple desire to be engaged with other people. What today we call 'the market' actually began as fairs and gatherings in the plazas next to churches. The social occasion came first; the calculus of gain glommed on to it later.

Today, however, the corporate economy has cannibalised the social commons that spawned it – sucked out the core, and left a giant feedlot and financial casino in its place. That's what happens when a Wal-Mart kills a town centre,

or a Starbucks drives out the local coffee shop. They are like economic neutron bombs: the community goes but the stuff remains.

The result is we buy more to fill the void. Development patterns have fed this syndrome, enclosing us in cars, cut off from the sociability that once was built into daily life. It is not surprising that so many of us feel isolated and alone in this most 'connected' of ages. (*USA Today* reported some 25 per cent of Americans feel they have no one they can confide in.) Is it entirely accidental that the use of antidepressant drugs is soaring, along with – and as part of – the rising GDP? Pharmaceutical companies want to blame our biochemistry, but there is more to it than that.

Why, for example, is it 'economic' when a plumber fixes a leak, but not when a neighbour does so? Why do counselling and Prozac count, but not the informal daily interactions that might reduce the need for these? There is no reason, besides the astigmatism of the conventional economic mind. We are told we are nostalgics for believing such things.

To entertain the thought that a prior state of affairs might have had advantages over the current one is to be deemed psycho-emotionally deficient.

Yet take a hard look around you.

What are the greatest needs you see – for more stuff, or more community?

Which would do more for your life: a high-definition television, or a good neighbour?

We face what my friend Edgar Cahn calls a 'hidden rustbelt' of extended family, neighbourhood and community. Nobody knows, for example, who is going to care for our ageing population. The debate over public versus private is beside the point; there will not be enough money either way.

Volunteer fire departments in the USA are withering for lack of volunteers. It has become increasingly hard to get people to staff polling places during elections. The true nostalgics today are the economists who believe that yesterday is forever and that stuff alone can do the job. Human needs are different today than they were two centuries ago; increasingly we need – socially as well as ecologically – the very things the corporate market has been destroying in the name of making life better.

Something in human nature, however, has been activated in recent years, almost like an antibody. It is evident in the increasing efforts to resist the transgressions upon the non-market economy of the commons; and also to rebuild it. The campaigns against Wal-Mart,



for example, are not just the anti-corporate reflexes that critics assume. They are efforts to protect the social ecology of traditional main streets and the hidden productivity they include.

So too with the Buy-Local campaigns, which are spreading across the UK and USA; and the farmers' markets, which are not just about food, but even more about the social content that has been stripped away from food. There is a long list of kindred efforts, from community gardens and the recreating of public spaces, to municipal WiFi and slow food. In some cities, neighbours are reclaiming back alleys from drug dealers and rubbish and turning them into protected commons for residents of the block.

A real dynamic is at work here; and also real enterprise, a questing and inventive spirit. The Time Dollar movement is spreading rapidly in the USA, UK and beyond. The concept is simple: time spent helping a neighbour in need earns a

“Some 25 per cent of Americans feel they have no one they can confide in. Is it coincidence the use of antidepressants is soaring?”

credit for every hour offered, regardless of the service; the neighbour helped is debited one credit that they earned by helping someone else. A computer program helps to schedule services and keep track of the credits and debits. Time Dollars is providing a currency tailored for the social economy, in which the aim is reciprocity rather than gain.

Until recently, such efforts could be dismissed as eccentric. Farmers' markets and alternative currencies did not seem poised to shake the world. Yet now the social dynamic that animates them is finding expression in a potent and unlikely place – high tech, which has become both a medium and a metaphor for the larger changes that are emerging.

This is not entirely the case. High tech invades the commons in a multitude of ways, from the noise of phones to the over-reaching of the intellectual property laws that make sharing music a crime. Yet look at the other side. Generative communities such as

Wikipedia and Linux are producing software and knowledge in open and cooperative ways that defy the supposed laws of economics. No property rights? No monetary 'incentive'? According to the economic rules it should be impossible.

Yet here they are, because people get a kick out of producing things together, much as they instinctively move benches near the pavement to be in the flow of life. The seed of a new economics is here; not because people are heroically altruistic, but because they have a capacity to perceive their needs and do that which meets them. Along with nature, it will be the factory of the future; not replacing the corporate version, but existing alongside it and serving as a boundary to its transgressions.

When advocates of an open internet and oceans, wilderness and public spaces, grasp that they are talking about aspects of the same thing, then there will be an economic movement that is truly formidable. They will have a story that can stand against the romance of the market and finally eclipse it. **E**

Jonathan Rowe is a senior fellow at Redefining Progress (www.rprogress.org)

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The Biodiversity Policy Review group is currently examining biodiversity policy in the UK, as well as in Europe and the rest of the world.

We have been prompted to act by a sense of alarm at the continuing rate of biodiversity loss and the hope that we can influence future government policy in the lead-up to the UK general election.

We seek:

- to assess existing biodiversity policy in an objective manner
- to identify current areas of weakness
- to put forward effective solutions to biodiversity decline



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LITERATURE

A marvellous adventure

Henry Miller reflects on the power of a beloved work of literature

Ever since the journey through *The Air-Conditioned Nightmare*, I have been obsessed by the thought that the greatest misfortune which ever visited the white man took place in this continent. Even as a child I was impressed by the story of how the Indian greeted the first white comers as gods. Later, as a man, and as an American particularly, the shameful record of our relations with the Indians saddened me to a degree beyond anything I had ever felt in connection with man's inhumanity to man. Still later I came to look upon this phase of our history in another way, an even sadder way, I might say. I saw the refusal of the white man to play the role which was expected of him as an opportunity lost, an opportunity indeed which man perhaps will never have again.

Then came the story of Cabeza de Vaca, of the miracles he accomplished not only for himself but for others. It was the first bright spot I encountered in the bloody legend created by the conquistadores. It is a bright spot in the history of man, I should add, for, as the author states in his preface, Nunez ceases at a certain point to be an historical personage and becomes a symbol. It is this view of the Journey which makes me prefer his account above the others; this interlinear method lifts the drama to a plane whereon it may be compared with other great spiritual events in the chain of man's ceaseless effort towards self-liberation. For me the importance of this historical record lies not in the fact that de Vaca and his men were the first Europeans to cross the American continent, that they blazed a trail which other explorers were to follow, or that their peregrinations

proved the existence of a land mass of continental proportions north of New Spain, or even that by his flaming protests de Vaca brought to an end the barbarous slave raids in that region, but that in the midst of his ordeals, after years of fruitless, bitter wanderings, the man who was once a warrior and a conqueror should be able to say: 'I shall teach the world how to conquer by gentleness, not by slaughter.' For in the course of his tribulations – and triumphs – Cabeza de Vaca finally came to understand that 'as much as a man is before God, so much is he, and no more,' to use the words of St. Francis. The Journey is the simple, heart-breaking record of a man stripped of everything, and obliged to act out every moment of his life in the sight of God.

Terrible as it was to be separated from his companions, terrible as it was to be naked and hungry for weeks, sometimes months on end, terrible and humiliating as it was to be made a slave by the people they had come to conquer, the worst 'lay in parting little by little with the thoughts that clothe the soul of a European, and most of all the idea that a man attains a strength through dirk and dagger..' How eloquent his simple words when, near the end of the Journey, he meets with other members of the expedition who had been laying waste the land and leading the Indians into slavery. 'In facing these marauders,' he writes, 'I was compelled to face the Spanish gentleman I myself had been eight years before.'

This theme recurs again and again: the man I was versus the man I now am. The conversation was not only thorough and complete but alive in his consciousness to a degree almost unbearable to read of. At this point I must again pay tribute to Haniel Long for having the courage to recreate the narrative imaginatively. 'To the understanding of such days and events this additional narrative becomes necessary, like a real figure to walk beside a ghost.' This passage occurs in the Interlinear, after it has been related how the miracles were effected by de Vaca and his companions. And then comes a colloquy between de Vaca and the one called Andres. And Andres says: 'It is not miracles these people need. They need everything fate stript us of in bringing us amongst them naked and on equal terms.' De Vaca replies: 'Let the

This lone Spaniard's experience in the wilderness of America puts to nought the whole democratic experiment

'This won't affect the policy at all.'

Tony Blair, on the High Court decision that the consultation on nuclear power was flawed.

'The urban future isn't what it was cracked up to be when we were riding high, surfing the big waves of cheap energy in the seemingly endless summer of oil. It won't be fun fun fun 'til Daddy takes the T-bird away.'

James Howard Kunstler

We are at war against climate change. Business as usual, while relying on improved technology as a get-out-card, is a fool's game.'

Michael Meacher MP

'They will ride this raft right over the falls and take us with them. This unyielding belief in the salvific power of free trade is, like socialism, one of modernity's secular religions.'

Pat Buchanan

'It is standard practice in world politics for wealthy countries to bribe poor countries.'

Padraic McGuinness, on claims Japan pays poorer countries to support its pro-whaling stance

'There is distrust in Washington. I am surprised, frankly, at the amount of distrust that exists in this town. And I'm sorry it's the case, and I'll work hard to try to elevate it.'

George W Bush



truth be said, Andres: "All that we learned across the water we have had to throw away. Only what we learned in our mother's arms has stayed with us to help others."

There has been a tendency on the part of commentators, when referring to these miracles, to adopt an ambiguous attitude. Unable to deny the truth of the occurrences, they seek to explain them away by insinuating that consciously or otherwise the Spaniards did not imitate the Indian Shamans. They commend the modesty of the Spaniards in attributing their success to the direct aid of divine power, but in the same breath they attempt to excuse the exaggerations and misconceptions born of an inflamed imagination. By this attitude they seem to me to evade the question of miracles altogether, for if the powers of de Vaca and his men are thus rendered suspect, what of the powers of the Shamans? This question of power was one which greatly concerned the Spaniards. 'What occupied me,' reads the narrative, 'was whether I could master, whether indeed it was for me to master – perhaps being a self-directing power that came through me.' 'Being Europeans,' we read again, 'we thought we had given away to doctors and priests our ability to heal... We were more than we thought we were.' This is repeated, 'To be more than I thought I was – a sensation utterly new to me.' They speak of their self-consciousness in performing the cures before one another. And then occurs this significant statement: 'Alone in this wilderness no tissue of the body hindered the mysterious power.'

I am aware, of course that much of this is 'interlinear', how much I do not care. The important thing to bear in mind is precisely what the Interlinear brings out, namely that the civilised European of four centuries ago had lost something which the Indians still possessed. None of our medicine men, despite their superior knowledge and equipment, are capable of performing these miraculous cures. That the Spaniards acquired their healing powers only when their own lives were threatened seems to have been overlooked. Had they been shrewd and cunning, observant of the practices of the Shamans, they would have exploited these powers long before they had reached such an extremity. Nothing is

The power of maintaining life in others lives within each of us, and from each of us does it recede when unused

explained by attributing their partial or probable success to 'a new and striking procedure'. What we are interested in knowing is – how and why did these methods work, and, if they worked, why not now?

Perhaps the answer to this conundrum is best given by de Vaca himself at the close of the narrative.

'The power of maintaining life in others lives within each of us, and from each of us does it recede when unused.' This answer will always remain a challenge to those who, putting their hope and trust in external government, deny all individual responsibility. Never was there a time when this delusion held more sway than today. The whole trend of the times is towards the surrender of individual power and authority. In spite of this, miracles have been accomplished, but of what order and at what price! Only time will tell whether, as de Vaca says, 'our communal life dries up our milk.'

I believe that the experience of this lone, forsaken Spaniard in the wilderness of America puts to nought the whole democratic experiment of modern times. I believe if he were to come alive today, and be shown the wonders and horrors of our time, he would revert instantly to the simple, efficacious way of life he chose four centuries ago. I believe that St. Francis would do the same, and Jesus, and the Buddha, and all who have seen the light. I can't for a single instant believe they would have anything to learn from our way of life. The believers of this world mouth agreement, I know, but their actions speak differently. De Vaca had learned that one heals through faith, that one conquers by gentleness. 'It is curious,' he writes to his Majesty, 'when one has nobody and nothing to rely upon outside of oneself.' Yes, it is indeed curious. 'To understand what it means to have nothing one must have nothing.' True. Yet, who but a handful in all time have dared the experience.

The men who govern the world promise this and that, always freedom, honour, security – and work. Their promises are empty, have been proved empty again and again and again. But men who are empty like empty promises. The man who counsels, 'Look to yourself, the power is within you!' is looked upon as a dreamer and a madman. Yet these are the very men who performed miracles, who altered the

world. None of them spoke of possessions, of security, of honour, or of freedom. They spoke of God and of his presence everywhere, even in the soul of the unbeliever. They spoke of the dictates of the heart, of dedication and devotion, of service to one's fellow man, of charity, of love, of tolerance and forbearance, of humility, of forgiveness. Cabeza de Vaca was one of the few men in this great hemisphere who acted upon these principles of faith. The simple story of his illumination, his irrevocable change of heart, wipes out the bloody tales of Cortes and Pizarro and all of the conquerors of the earth from time immemorial. It leads us to believe what deep in our hearts we all know, that a man can always stop dead in his tracks and, facing the truth, exemplify it in action. It leads us to believe more, that in truth nothing less than this will ever satisfy man. And this, I believe, is the meaning of the Journey which we all are making. **E**

This is a slightly edited reprint of the preface to the new edition of *The Marvellous Adventure of Cabeza de Vaca*, translated by Haniel Long (Souvenir Press, £7.99).

Once

By Alice Walker

It is true –
I've always loved
The daring
Ones
Like the black young
Man
Who tried
To crash
All barriers
At once
Wanted to
Swim
At a white
Beach (in Alabama)
Nude



If I...

...was in government

comments **Jonathan Porritt**, I'd have done something about the politically unfashionable issue of overpopulation

I very rarely regret not having gone into mainstream politics, but I do occasionally speculate that, if I had, I might have been able to do a lot more about the thorny issue of population. At least, I might have achieved something in terms of banging political heads together on just how critically important this is. But I didn't. So all I can do from outside the system is hurl the occasional thunderbolt of invective.

One thing shouts out from the IPCC report in February: a 60 per cent cut in emissions of CO₂ by 2050 is completely inadequate if we're going to avoid potentially irreversible 'runaway' effects. In the Panel's follow-up reports later this year, we'll hear a lot more about likely impacts of climate change, about appropriate technological interventions, and about political and economic measures. But you can pretty much guarantee you won't hear a single word about population, let alone about the need for rapid reductions in overall human numbers in the shortest possible period of time.

This is spectacularly illogical – and stupid. Just do the sums. The total amount of CO₂ that six and a half billion of us put into the atmosphere today is around 30 billion tonnes. Very crudely, that works out at a personal CO₂ budget of 4.6 tonnes per person. If we achieve the current target of a 60 per cent cut (bearing in mind it's almost certainly going to have to get a lot tougher over the next few years), that means we'll need to be emitting no more than 18

billion tonnes. But by 2050, there will be nine billion of us in the world, rather than six and a half billion, which works out at a personal CO₂ budget of two tonnes each. If global population was seven and a half billion, it would be 2.4 tonnes of CO₂; and at six billion, three tonnes.

But reducing human numbers is never advanced as a solution to climate change. The policy debate is focused almost exclusively on technology gain (dramatically reducing the amount of CO₂ and other greenhouse gases per unit of economic growth) and lifestyle change – not just doing what we do now infinitely more efficiently, but leading different lives to avoid emissions in the first place. Yet the facts speak for themselves: the fewer there are of us, the greater our personal carbon budgets – and we're starting from a baseline in the UK of around 12.5 tonnes of CO₂ per person!

I can't tell you how politically incorrect it is to spell things out in those terms. Even those getting more and more enthusiastic about the idea of personal carbon budgets (including the Environment Secretary, David Miliband) wouldn't dream of giving voice to such a crass calculation. Leaders of our ever-so-right-on environment movement can barely bring themselves to utter the dreaded 'p' word. The Millennium Development Goals don't mention it. Tony Blair's Commission for Africa ignored it entirely, even though it's obvious that completely unsustainable population growth in most of Africa will keep that continent permanently stuck in deepest, darkest poverty. Our own Department for International Development grits its teeth and reluctantly doles out little bits of money for family planning projects, but the idea it should be the

It's blindingly obvious: completely unsustainable population growth will keep Africa stuck in deepest, darkest poverty

Department's Number One priority – if that organisation was remotely realistic about its poverty-alleviation aspirations – remains anathema to most officials and ministers.

This was the main thrust of the report on global population growth (albeit articulated somewhat less intemperately!) from the All-Party Parliamentary Group on

Population at the beginning of February. On the basis of official hearings involving a vast range of national and international organisations, it comes to the simple but devastating conclusion that it will be 'difficult or impossible' to deliver most of the Millennium Development Goals if

population continues to grow at current rates, particularly in sub-Saharan Africa, the Middle East and parts of Asia.

Paradoxically, the only countries in the developed world where there is a lively debate about population are those whose governments are promoting the urgent need for an increase in population. So concerned are they that their total fertility rate (TFR) has dropped below replacement rate (2.1 children per couple) that they're busily bribing women to have more children. In France, women get up to £670 a month to have a third child; in Australia, it's around £900 for any number. All this on the assumption that a declining population will create negative economic consequences and social dislocation of a very serious kind.

This so-called 'demographic time bomb' has been massively exaggerated. For people living longer, working longer and staying healthier, the idea that one's productive (and earning) life comes to a juddering halt at 65 is simply archaic. I don't doubt that there will be issues around pensions (in terms of what it's fair to ask young people to contribute to the wellbeing of a much larger number of older people), but the idea that Western societies will somehow implode because of this demographic shift strikes me as fantastical.

The UK is one of very few European countries where the population is still increasing, not because of a higher fertility rate, but because of immigration. According to the government our population is projected to grow from just over 60 million today to around 67 million in 2031, of which increased number 57 per cent is attributable to the assumed level of net inward migration.



Thanks to a generous grant from the oil companies, scientists discover the real reason glaciers are melting.

And this of course is one of those reasons why all good Greens and Lefties don't want to talk about population. They know they will have to talk about immigration, and they're scared witless that they will end up sounding like an offshoot of the BNP.

As a Patron of the Optimum Population Trust, I feel very comfortable with the idea of limiting immigration to the same number of people who leave the UK every year – around 350,000. Asylum seekers would take priority, and then economic migrants. With declining fertility, that would mean a slow but steady decline in overall numbers over time. If we wanted a faster decline, we would have to set a lower rate of net inward migration.

So what's the problem? Would we be falling short of our international obligations? I don't think so, and make no apologies for arguing that one of the most overcrowded nations on Earth must factor that consideration into its immigration policy. Would it alienate existing immigrants and ethnic minorities? I very much doubt it. Perceptions of 'excessive' immigration are already having a seriously corrosive effect on social cohesion, and it will get a great deal worse as the BNP and the *Daily Mail* keep grinding away at peoples' fears and anxieties on this score.

In short, I'm believe strict, transparent and fair limitations on immigration are absolutely critical – indeed, a precondition of securing the kind of vibrant, cohesive multicultural society which the vast majority of people in this country are proud of and want to see flourish. (And after working for 10 years – in the 1970s – in a West London comprehensive school, where a multicultural ethos underpinned everything we did, I find Trevor Phillips' contention that multiculturalism has now become 'divisive' completely vacuous.)

But for all the controversies associated with the population debate here in the UK, the real problems lie elsewhere in the world. Particularly in Africa. There are around 30 million people in Uganda; by 2025, there will be around 55 million. If it keeps on down that track, Uganda will become the world's twelfth largest country, with around 130 million people. President Museveni calls this population growth 'a great resource' for his

country; most sensible people see it as an unmitigated disaster.

This isn't just economic idiocy, it's also intensely inhumane. Although it's true that women in some countries do still want large families, many more in very poor countries end up with large families simply because they have no say in managing their own fertility. In Uganda, fewer than one woman in five has access to contraception. On a global basis, it's been estimated that between 125 and 200 million women are deprived of that basic right.

With the right kind of government intervention (properly supported by Western aid programmes), average fertility can be substantially reduced – without any of the tactics that have quite understandably given 'population planning' such a bad name. People forget that the state of Kerala in India reduced its TFR almost as fast as China over the same period of time, by focusing entirely on better education for girls and better health-care for women – including easy access to a choice of contraceptives. In the 1970s, Kenya's TFR was more than eight children per mother; it is now below five, as a result of family planning being made a national priority.

In its evidence to the All Party Parliamentary Group, the World Health Organization spelled out the connection between fertility management and promoting gender equality – the third Millennium Development Goal: 'although women's ability to control their fertility is by itself not sufficient to gaining their full empowerment and gender equality, it is the first and most important step'. And the empirical correlation is pretty clear too: countries with a high contraceptive use (as we see in our own) have a higher proportion of girls in secondary schools.

The idea it is 'elitist' (in a 'rich world' kind of way), 'illiberal' or even 'oppressive' to urge massive extensions of good family planning in the world's poorest countries, is ignorant, inhumane and destructive of women's rights. It cannot be long before the continuing neglect of this critical humanitarian challenge is exposed, once and for all, as a fundamental betrayal of some of the world's most exploited people.

If it takes the cold, unyielding calculus of climate change to ram home that message, so

All good greens and lefties don't want to talk about population. They are scared witless of sounding like the BNP

I HAVE DECIDED

By Alistair Noon

I have decided

In view of continuing problems and shortfalls

In the light of repeated errors and delays

and as part of ongoing improvements in services

I have decided

To privatise my eyes
To sell off my legs
To merge my brain and my arse

And review the position of my ears
Extending their contract
In the light of performance

(From the collection *This poem is Sponsored By... Poems in the Face of Corporate Power*, reviewed in this issue)

much the better. But that awareness had better dawn soon before the combination of an extra 70 million people arriving on Earth every year, and levels of CO₂ in the atmosphere increasing just as inexorably every year, precipitates such a cataclysmic collapse that our numbers will be controlled not by design but by disaster. **E**

Jonathan Porritt is Chairman of the UK Sustainable Development Commission



ENERGY

Who's afraid of peak oil?

David Strahan asks why those campaigning about climate change are often so unwilling to talk about the depletion of global oil reserves

What is it about climate change campaigners and peak oil? The idea that global oil production will soon go into terminal decline makes the things they have been lobbying for all the more urgent and compelling. Yet most big NGOs ignore the idea. True, the Soil Association has recently taken to peak oil like an organic duck to water, but the websites of Greenpeace and Friends of the Earth have but a few brief and non-committal references. Most peak oilers accept global warming without question, but the feeling is not mutual.

They ought to be natural allies. For every climate argument there's a strong peak one to reinforce it. Climate change campaigners want to encourage local agriculture, to reduce food miles and hence carbon emissions; peak oilers want the same, to secure the food supply when fuel runs short. Climate change campaigners want better vehicle fuel economy, to cut carbon emissions; peak oilers, to help defer the date of peak production and its attendant economic crisis. Both agendas call for an early and rapid transition from the oil economy, but peak oil arguments have greater urgency: peak

oil's most devastating impacts will come far sooner than the most catastrophic of climate change – within a decade or so, rather than a century. So why are climate campaigners so wary of peak oil?

Do they have the impression peak oilers think climate change is not such a problem – or that 'running out' of oil will solve global warming? On the contrary, it is possible to run short of oil and pollute the planet to destruction.

The International Energy Agency (IEA)'s forecast shows CO₂ emissions from fossil fuels growing from 26 billion tonnes in 2004 to 40 billion in 2030. The IEA does not accept the

case for an early oil peak, but its forecast relies on an over-optimistic assessment. Even if we take its forecast and impose an oil peak in 2010, followed by production decline at three per cent per year, total emissions will still rise by 25 per cent over the next two decades, to 32 billion tonnes. The fall in oil-related emissions is simply overwhelmed by growth from gas and coal, which are less resource-constrained.

Some campaigners are uncertain of the reliability of peak oil forecasts. When I interviewed Greenpeace director Stephen Tindale, he was ready to accept that peak oil might provide additional ammunition for his organisation, but was adamant they should not include it in their armoury. 'This is a highly contested area,' he argued. 'If it turned out that the oil peak thesis was wrong, and we'd been using it, then that would undermine and discredit other things we had been saying.' Such caution is understandable, but no longer justified.

Doubts about the imminent oil peak are evaporating almost as fast as those about climate change. Of just under 100 oil-producing countries, 60 are already in terminal decline. More such countries join the list almost yearly,

and since the late 1990s have included significant producers such as

Britain, Norway, Denmark, Mexico, Argentina, Columbia, Australia and Oman.

In aggregate, OECD oil production has been in decline since 1997, and most forecasters – even optimists such as the IEA and ExxonMobil – now predict the entire world except for OPEC will peak by early in the next decade.

There are also severe doubts about the scale of OPEC's reserves, and most serious independent observers do not expect its production to stave off the global peak for long.

Despite government denials – the official position in Britain and the USA is that there will be no peak before 2030 – this notion is

now being taken seriously at the highest levels. The consultancy PFC Energy has briefed US Vice President Dick Cheney that on a conservative estimate, OPEC oil production – and thus global output – could peak by 2015. In a speech at Stanford University last year, Sir David Manning, Blair's chief foreign policy advisor between 9/11 and the invasion of Iraq, noted the consensus was narrowing to 'some point between 2010 and 2020'. At an Energy Institute lunch in 2005, the government's chief scientific advisor, Sir David King, told me emphatically '10 years or less'. And yet some climate campaigners remain suspicious. One well-known author even suggested to me recently that peak oil was nothing but oil company propaganda, apparently unaware that ExxonMobil is just as contemptuous of peak oil as it has been of climate change.

This continuing denial of peak oil is myopic in the extreme, since falling oil production does not solve climate change, but is likely to make fighting global warming very much harder. When oil production goes into decline, the price of crude is likely to soar, with devastating economic effect. The kind of long-term impacts attributed by Stern to climate change could arrive much sooner and in a single thunderclap. Where then will the money come from to make the massive investments needed to create a new energy infrastructure? And, faced with the likely re-emergence of mass unemployment, will the political priority be to impose a high carbon price, or simply to keep the lights burning at lowest cost?

Peak oil could also sabotage attempts to fight climate change, if oil depletion forces us to exploit the wrong kinds of fuel. The alternatives to crude oil are all resource-constrained and unlikely to fill the gap, but can do enormous climate damage. Burning rainforest and peatlands to create palm oil plantations for biofuels releases vast amounts of CO₂, and has already turned Indonesia into the world's third biggest emitter after America and China. Synthetic transport fuels made from gas using the Fischer-Tropsch chemical process emit even

“ Out of just under 100 oil-producing countries worldwide, 60 are already in terminal decline and more such join the list yearly

more carbon on a well-to-wheels basis than conventional crude. When the feedstock is coal, the emissions double. So in the unlikely scenario that we manage to replace more than half the yawning deficit with coal-based fuel, we would still suffer fuel shortage – while emitting even more CO₂ than forecast.

Ignoring the peak is most short-sighted, however, in light of climate campaigners' failure to convince people to change their behaviour – even when preaching to the choir. A recent survey of *Guardian* and *Independent* readers revealed the gulf between their green self-image and their actions; most hadn't even insulated the loft. And despite the increasingly shrill warnings, large swathes of the population still apparently see no conflict in having children – whose lives could be blighted by global warming – and continuing to drive the 18mpg Range Rover Sport and taking several long- and short-haul holidays per year.

Climate change arguments hold the moral high ground, but are weakened because their appeal is essentially altruistic: change our ways for polar bears now, and for people some time in the future. Peak oil, by contrast, appeals immediately to baser instincts such as fear and self-preservation: what will happen to me and mine when the oil runs short? Since those who flout climate change imperatives to cut their consumption are apparently purely selfish, perhaps peak oil is the best way to reach them. The climate-change campaigner has nothing to match the wallet-grabbing power of the peak oil argument against buying an SUV: how much do you think that beast will be worth with oil at \$200 a barrel?

If we all take peak oil seriously, people will be forced to re-examine some of their most comforting beliefs. Once you accept a fairly imminent shortage of oil and liquid transport fuels – and thus a major hole in the energy supply – all sorts of unpleasant things follow. The notion that Western levels of consumption can continue to grow becomes untenable, and a system of energy rationing looks increasingly inevitable. The idea of natural gas as a 'bridge fuel' to some hydrogen-powered Utopia is ludicrous; gas production has already peaked in the USA, is widely expected to peak in Europe by 2010, and some forecasters predict a global peak as early as 2025. Put this way: who wouldn't be afraid of peak oil? **E**

David Strahan is author of *The Last Oil Shock: A Survival Guide to the Imminent Extinction of Petroleum Man* (John Murray, £12.99)

CASSANDRA

Ninety seconds is a long time in European politics

The extent to which the Brussels exercise has dealt a body blow to traditional political activism contains lessons that have barely begun to sink in. Much anti-European activity is still little more than a knee-jerk response to Brussels and assumes that a restoration of national independence will meet the needs of the time; there is no recognition at all of the extent to which the non-democratic nature of mass politics was the basis on which European adventurism was enabled to take off at all.

Our traditional political concept emerged from struggles waged within national territorial entities and were based on the erroneous supposition that 'one man, one vote' would enable citizen control to be democratically exercised. What was overlooked is that while such a voting principle might operate very well in a Greek city state of a few thousand members, on a mass basis of millions, it empowers great leaders while disempowering the individual citizen. The citizen does not control the leaders – the leaders control the citizen.

Another little-noticed political principle: the larger the number of voters, the smaller the significance of the individual (and the fewer the voters, the more significant the individual). Once this is grasped, it is easy to understand how Hitler and Stalin were able to operate, how Tony Blair and President Bush were able to drag us into war, and how European politicians have been able to set the whole European farrago in motion.

But the European exercise indicated the play of another force that emerged from the throes of the old political game, in which it played a subordinate role but now



Another little-noticed political principle: the larger the number of voters, the smaller the significance of the individual

dominates. We refer to the market, more specifically to boardroom power.

Whereas the old imperialisms were territorially based, modern boardroom imperialism finds national boundaries an irksome irrelevance. It requires the abolition of local boundaries (and of course local loyalties, identities and traditions) in its perpetual quest for expansion into a single global market.

The family has always been the first line of defence of the individual against the forces of the wider world; the grouping of families in local communities was the second.

The global boardroom barons have succeeded effectively in abolishing both, leaving the individual isolated, alienated, manipulated and psychologically and morally devastated while being at the mercy of the powers of media, overcentralised government and secular consumerism.

The promoters of Europe know the people of Europe never asked for it and do not want it; any opposition to their scheme is seen as a tiresome irrelevance to be circumvented, suppressed or ignored. Thus a non-elected 'Commission' controls the European Assembly and determines its rules of procedure, so that if any member wishes to influence the course of debate the maximum time for a speech is 90 seconds. That is not a misprint for minutes; after 90 seconds the member's microphone is switched off.

The struggle against Europe is really part of a global battle for democracy against the boardroom titans that now dominate our lives much as they dominate national parliaments. This dominance is why none of the big three UK parties dare oppose Europe – despite its vote-winning potential. **E**

The Unusual

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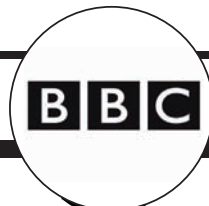
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Suspects



How Esso employs tactics and people used by tobacco firms to create uncertainty over the science of climate change.
Report by **Jon Hughes**

It's not often that a journalist gets to bandy the words liar and lies in print. They are guaranteed to attract the interest of m'learned friends. So here's hoping. The OED definition of a lie is: '1: to speak untruthfully with intent to mislead or deceive 2: to convey a false impression or practise deception 3: an untrue or deceptive statement deliberately used to mislead 4: something that is deliberately intended to deceive.' A liar is defined as someone who tells lies.

On that basis it is right and proper to call the CEO and board of ExxonMobil (formerly Exxon and known as Esso in the UK) liars. This group, with a hotline to the White House, has made a concerted effort to mislead and deceive and convey a false impression to the world about the truth of climate change.

Its underhand activities have recently been exposed in a damning investigation undertaken by journalist Seth Shulman on behalf of the Union of Concerned Scientists, a non-profit organisation working for a healthy environment and safer world. Entitled 'Smoke, Mirrors and Hot Air', it details documents obtained under freedom of information legislation to shed light on the company's funding of pseudo-science to legitimise the Bush administration's refusal to take action to combat climate change. What Shulman's report makes clear is that in terms of tackling global warming, Exxon's covert activity has set the world back a decade.

As for its main business, 'Company operations alone pumped the equivalent of 138 million metric tons of CO₂ into the atmosphere in 2004 and roughly the same level in 2005,' says Shulman, extrapolating from figures in

ExxonMobil's own company reports. 'In 2005, the end-use combustion of ExxonMobil's products – gasoline, heating oil, kerosene, diesel products, aviation fuels and heavy fuels – resulted in 1,047 million metric tons of CO₂-equivalent emissions. If it was a country, ExxonMobil would rank sixth in emissions,' behind America, China, Russia, Japan and India.

Pollution, to put it plainly, is where Exxon makes its money. 'At \$339 billion,' writes Shulman, 'its 2005 revenues exceeded the GDP of most of the world's

followed a deliberate and set methodology:

- manufacture uncertainty about even the most indisputable scientific evidence that their products were hazardous to human health
- pioneer a strategy of information laundering in which they used – and covertly established – seemingly independent front organisations to make the industry's own case and confuse the public
- promote scientific spokespeople and invest in scientific research in an attempt to lend legitimacy to their public relations effort
- recast the debate by charging that the wholly legitimate health concerns raised about smoking were not based upon 'sound science'
- cultivate close ties with government officials and members of Congress.

'No researcher or institution was immune from their tactics,' documents Shulman. 'For instance, as a 2000 report from the World Health Organization details, tobacco companies went to extraordinary lengths to try to undermine the scientific evidence at that institution. They paid WHO employees to spread misinformation, hired institutions and individuals to discredit the international organisation, secretly funded reports designed to distort scientific studies and even covertly monitored WHO meetings and conferences.'

DRILLER KILLERS

The parallels with ExxonMobil soon become apparent. In 1998, ExxonMobil helped to create a small task force calling itself The Global Climate Science Team (GCST), after other leading oil companies such as BP, Shell and Texaco changed their stance on climate science and abandoned the group's forerunner, The Global Climate Coalition. Members of GCST included Randy Randol, Exxon's senior environmental lobbyist at the time; Joe Walker, the public relations rep for the American Petroleum Institute; and Steven Milloy, the head of a quasi-think tank called the Advancement of Sound Science Coalition, which was covertly created by the tobacco company Philip Morris in 1993 to 'manufacture uncertainty about the health hazards posed by second-hand smoking'.

A 1998 GCST task force memo set out the task at hand: 'Victory will be achieved when average citizens understand (recognise) uncertainties in climate science' and when public 'recognition of uncertainty becomes part of the conventional wisdom'. It continued, 'If we can show that the science does not support the Kyoto treaty... this puts the United States in a stronger moral position and frees its negotiators from the need to make concessions as a defence against perceived selfish economic concerns.' Finally, the memo proposed that ExxonMobil and its partners 'develop and implement a national media relations program to inform the media about uncertainties in climate science.'

ExxonMobil's 'partners' are little more than a web

Pollution is where Exxon makes its money. At \$339 billion, its 2005 revenues exceeded the GDP of most of the world's nations. It is the most profitable corporation in history

nations. It is the most profitable corporation in history. In 2005, the company netted \$36 billion – nearly \$100 million in profit each day.'

Meanwhile, Shulman continues, it gave more than \$4 million in political donations between 2000 and 2006 – nearly \$1 million at the last election, more than any other power company, and most went to the Bush campaign – and 'paid lobbyists more than \$61 million between 1998 and 2005 to help gain access to key decision makers'.

However, Shulman's report doesn't dwell on the company's funding of political parties, but on the comparatively small \$16 million that ExxonMobil paid between 1998 and 2004 to fund 'select political organisations' to manufacture uncertainty about the scientific consensus on global warming.

SMOKING GUN

The blueprint for Exxon's disinformation campaign was established by the tobacco industry, which has pursued just such a strategy since the mid-Fifties, when the health risks associated with smoking first surfaced.

This campaign was so successful that, despite the scientific consensus about smoking causing lung cancer and heart disease, it allowed the former vice president of the US Tobacco Institute, Murray Walker, testifying under oath in 1998, to say, 'We don't believe it's ever been established that smoking is the cause of disease.'

The aim of big tobacco's campaign was simple: not to prove that smoking was safe, but simply to maintain doubt regarding the science that says it isn't. Shulman reports an infamous internal memo from tobacco company Brown & Williamson, which said:

'Doubt is our product, since it is the best means of competing with the "body of fact" that exists in the minds of the general public.'

Casting this doubt in people's minds



of front organisations, largely staffed by oil industry insiders and pseudo-scientists, who endorse, corroborate and draw on each other's work to cast doubt over the scientific consensus on climate change. The report highlights 43 such organisations and 15 'authors' who now write copiously for them, of whom many were previously affiliated to big tobacco's campaign of disinformation.

The reason ExxonMobil funds so many climate-change sceptic organisations is to create an echo chamber, which works on the basis that if you tell a lie often enough, and loud enough, enough people will start to believe it. One organisation releases a document, another validates it, a third references it, a fourth confirms it, and so on and so forth. The trail back to Exxon becomes obscured and by the time it reaches the public domain the science appears independent and to be coming from a wide range of sources.

But on closer inspection, it's always the same faces behind these documents. For instance, meteorologist Patrick Michaels of the Marshall Institute – which has received \$630,000 from Exxon since 1998 – recently released a collection of essays titled *Shattered Consensus: The True Story of Global Warming*.

According to Shulman, 'Michaels has over the past several years been affiliated with at least 10 organisations funded by ExxonMobil. Contributors to the book include others with similar affiliations with ExxonMobil-funded groups: Sally Baliunas, Robert

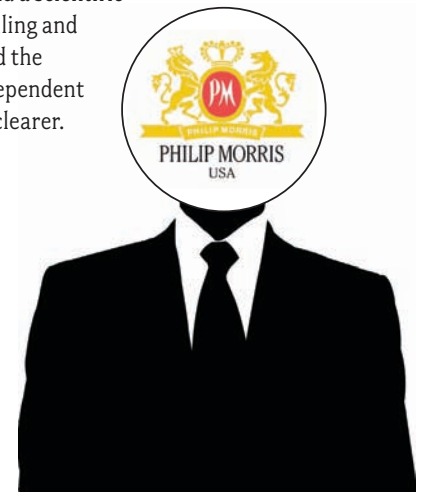
'Doubt is our product,' said tobacco firm Brown & Williamson in an infamous internal memo, 'since it is the best means of competing with the "body of fact" that exists in the minds of the general public'

Balling, John Christy, Ross McKittrick and Willie Soon.'

Visit the website of the Chicago-based Heartland Institute (\$119,000 from ExxonMobil in 2005) and you will see recent climate-change sceptic articles by the same set of authors. Over at the Committee for a Constructive Tomorrow (\$215,000 off Exxon in 2004 and 2005), you'll find the same authors and a scientific advisory panel that includes Baliunas, Balling and Michaels. Look at any of the 43 groups and the incestuous nature of these seemingly independent think-tanks and scientists becomes ever clearer.

SCIENCE? WHAT SCIENCE?

Baliunas and Soon are the darlings of the ExxonMobil campaign because they are actually scientists, as opposed to being former spokespeople for big oil and big tobacco. The pair, both astrophysicists associated with the Harvard-Smithsonian Centre for Astrophysics, came to the attention of Exxon front groups for a



THEY HAVE THE POWER

What sort of political power does Exxon gain for its largesse?

2001 Exxon is invited to participate in Dick Cheney's Energy Task Force 'to set the administration's goals for a national energy plan' (as are all donor power companies). Exxon lobbies for Bush to renege on the USA's Kyoto commitments – successfully. 'POTUS [President of the US] rejected Kyoto, in part, based on input from you,' Paula Dobriansky wrote in a memo to Exxon lobbyist Randy Randol and the Global Climate Coalition. Dobriansky now serves as Under-Secretary for Global Affairs in the State department and has headed US delegations negotiating the replacement for Kyoto.

2001 Then-chairman of the IPCC Robert Watson is targeted, following that year's IPCC report. 'Can Watson be replaced now at the request of the US?' urges an Exxon memo. Despite his being a former director of the science division at NASA and chief

scientist at the World Bank, America refuses to support Watson's renomination as chair in 2002 and he is replaced.

2001 Exxon nominees are given key roles in the Bush administration's climate policy. Kyoto opponent Harlan Watson becomes chief climate negotiator. Philip Cooney, an API lawyer, joins as 'climate team leader' the same year and has authority to rewrite reports that cross his desk, despite having no scientific background. When in 2005 a whistleblower reveals the censorship and distortion Cooney is pursuing, he resigns and one week later joins Exxon as a high-ranking public relations manager.

2002 The US multi-agency Climate Action Report concludes that climate change is a significant risk and is caused by human emissions. Cooney contacts Myron Ebell at the Exxon-funded Competitive Enterprise Institute (CEI). Ebell urges the President to distance himself from the report. Within days, Bush does just that, denigrating the

report as having been 'put out by the bureaucracy'. Someone needs to take the blame. Ebell targets Environment Protection Agency head Christine Todd Whitman, who resigns within the year.

2003 Ebell pledges to do what he can to respond to the White House's request to 'clean up this mess'. In 2002, Exxon had offered the CEI an additional \$60,000 to cover unspecified 'legal activities'. In August 2003 the CEI files the second of two lawsuits calling for the Bush administration to invalidate the National Assessment (a peer-reviewed synthesis report upon which the Climate Action Report was based). The lawsuit calls for it to be withdrawn as it was not based on 'sound science'. Says Shulman, 'As Maine Attorney-General Steven Rowe noted: 'The idea that the Bush administration may have invited a lawsuit from a special interest group in order to undermine the federal government's own work under an international treaty is very troubling.'

Exxon dirty tricks

study they conducted into solar variation (the changes in the amount of energy emitted by the sun).

As Shulman points out, 'Solar variation is one of the many factors influencing earth's climate, although according to the IPCC it is one of the minor influences over the past century.'

For ExxonMobil front groups, however, the paper was manna from heaven. They immediately began to highlight the work, commissioning its authors to write more articles on the topic for other Exxon-funded institutes and their journals.

Then, in 2003 Baliunas and Soon wrote a review paper for the journal *Climate Research*, alleging that the 20th century was not the warmest century of the past 1,000 years and that the climate had not changed significantly over that period.

Despite the fact that four editors at the journal resigned in protest over the publication of the paper and 13 of the scientists quoted in the paper published a rebuttal, saying that Soon and Baliunas had seriously misinterpreted their research, the likes of James Inhofe (chair of the US Senate Environment and Public Works Committee until January this year) 'cited the Soon-Baliunas review as proof that natural variability, not human activity, was the "overwhelming factor" influencing climate change.' Job done. The ExxonMobil message had been amplified to the top and cast doubt over the consensus on climate change.

Another notable case involves Frederick Seitz, who has links to both big tobacco and Exxon. On the face of it, Seitz is a respected physicist, who was president of the US National Academy of Scientists (NAS) from 1962 to 1969. However, by the end of the Seventies he was in the employ of tobacco firm RJ Reynolds, where he was responsible for overseeing the industry-sponsored medical research programme. Today he is quite frank about what was expected of him.

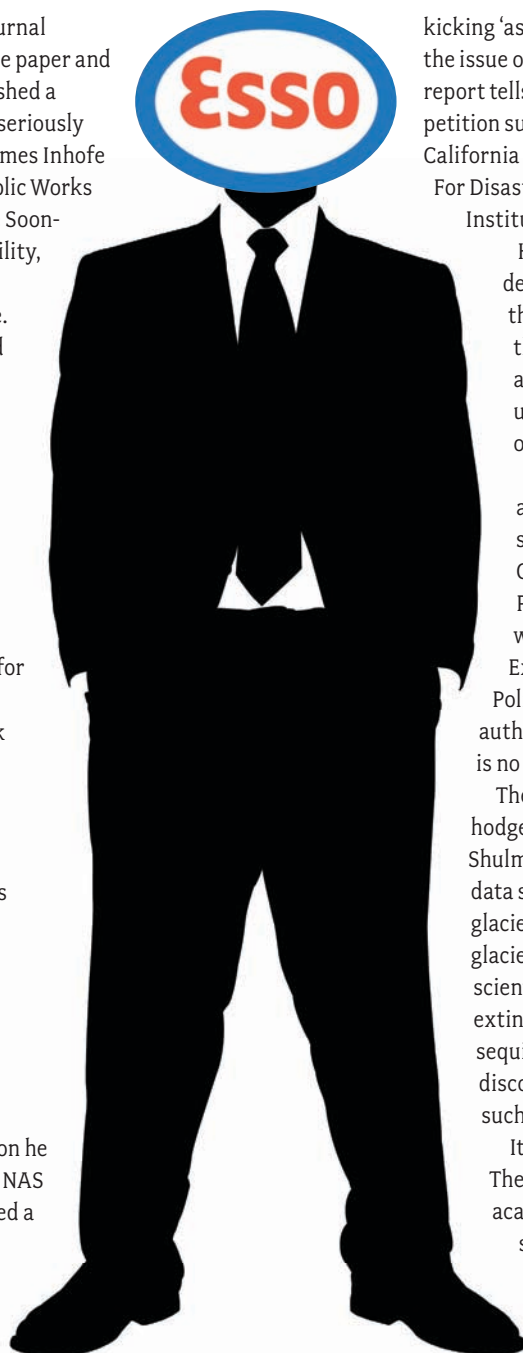
'They didn't want us looking at the health effects of cigarette smoking,' he admitted in a recent *Vanity Fair* article. Instead, he dispensed the sponsorship money to projects looking at other lifestyle issues that might contribute to disease.

Seitz, now in his mid-90s, 'is also notable because he has returned from retirement to play a prominent role as a global warming contrarian involved in organisations funded by Exxon,' Shulman's report notes. His most audacious effort came in the form of a petition he drummed up, using his by-now dusty title as NAS President to give it authority. He also enclosed a letter by Baliunas and Soon saying that CO₂ emissions pose no warming threat. The petition was presented as being supported

by 17,000 scientists. Again, like the Soon/Baliunas paper in *Climate Research*, the petition was exposed as a sham. The journal *Scientific American* investigated it and concluded that fewer than one per cent of its signatories held a PhD in a climate-related field; and NAS itself issued a statement disowning the petition and disassociating itself from it.

Nevertheless, the Exxon network kept it alive and

The Royal Society sent an unprecedented letter of complaint to Exxon last September, urging it to stop funding the dozens of groups spreading misinformation on global warming



kicking 'as evidence of widespread disagreement over the issue of global warming'. For instance,' Shulman's report tells us, 'in the spring of 2006, the discredited petition surfaced again when it was cited in a letter to California legislators by a group calling itself Doctors For Disaster Preparedness, a project of the Oregon Institute of Science and Medicine.'

However erroneous such letters are, they demand a response, which in itself validates them. News of the response circulates round the Exxon network until it becomes reported as 'California legislators to investigate uncertainties surrounding the human cause of climate change'.

Such lies and distortions are then used as the catalyst for another raft of official-sounding papers, such as 'Issues In The Current State of Climate Science: A Guide For Policy Makers and Opinion Leaders', which was published by the official-sounding, yet Exxon-funded, Center For Science and Public Policy. This paper was released last year, authored by Robert Ferguson, for whom there is no biographical detail.

The non-peer-reviewed paper offers 'a hodgepodge of distortions and distractions,' says Shulman. For instance, Ferguson questions the data showing that the majority of the globe's glaciers are in retreat, by arguing that not all glaciers have been inventoried. He disputes the scientific evidence that climate change is causing extinctions of animal species, with the non-sequitur that several new species were recently discovered in New Guinea. The usual suspects, such as Willie Soon, are cited.

It is this kind of unrelenting activity that led The Royal Society – the independent scientific academy of the UK and Commonwealth – to send an unprecedented letter of complaint to Exxon in September last year, urging the company to stop funding the dozens of

groups spreading disinformation on global warming and strongly criticising the company's 'inaccurate and misleading statements' on global warming. Exxon responded by defending the statement in its 2005 Corporate Citizenship Report, saying that scientific uncertainties make it 'very difficult to determine objectively the extent to which recent climate changes might be the result of human actions'.

Another veneer is achieved by funding legitimate organisations researching science, policies and technologies designed to solve the problems caused by climate change. As Shulman says, 'This strategy provides a positive "pro-science" public stance for Exxon Mobil that masks their activity to delay meaningful action on global warming and helps keep the public debate stalled on the science rather than focused on the policy options to address the problem.'

Following the release in February of the latest IPCC report, a new line of defence emerged. *Newsnight*, the UK's flagship current affairs programme, made its bookclub choice Nigel Calder's *The Chilling Stars*, which offers 'a new theory of climate change'. In it, Calder tells the story of climate physicist Henrik Svensmark's experiments to prove how solar activity, cosmic rays and exploding stars impact on the climate. It's a strange book. Svensmark's experiments are initially funded by an unnamed industrialist. Without critiquing the book (which has, according to the publisher, been rushed out and doesn't include references in the index), it becomes apparent there is a lot of hyperbole. On page 17, there is Sally Baliunas – she of the Exxon front organisations and discredited *Climate Research* paper. On page 73, the science community and consensus are accused of running a closed shop against which the beleaguered Svensmark has to battle.

Calder does his subject and collaborator a disservice. Svensmark has made a connection that many scientists welcome. He has proved a link between solar activity and cloud creation. He hasn't proved that solar activity is the main cause of climate change. The difference is that the Union of Concerned Scientists' 3,500 members, and the IPCC, reckon it has a small impact, whereas Calder and Exxon claim it is entirely responsible.

For Exxon, this is another welcome distraction. For the world, it is a devastating one. When programmes such as *Newsnight* endorse such outlandish claims by giving them air time, we see how effective the Exxon echo chambers are.

There used to be lies, damned lies and statistics. Now we face lies, damned lies and Exxon.

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BEHIND THE LABEL

Nicorette nicotine patches

We all know that smokers should quit the habit. But does nicotine replacement really help? **Pat Thomas** investigates

There's no getting around it. The nicotine in cigarettes is highly addictive and can make stopping smoking a difficult undertaking. Without a regular nicotine fix, smokers can experience withdrawal symptoms such as depression, irritability, insomnia, difficulty in concentrating, restlessness, increased appetite and weight gain that bedevil the job of quitting.

The theory behind nicotine replacement therapy (NRT) – using a nicotine patch, chewing gum or inhaler – is that it provides your body with the nicotine it craves, allowing you to wean yourself off it gradually. Nicotine patches (the most-used method for serious attempts to stop smoking) consist primarily of synthetic rubber into which the nicotine has been dissolved. Body heat encourages the release of the nicotine, through a separate control layer, into the skin. Absorbing the nicotine this way is considered healthier because you do not inhale the upwards of 2,000 other toxic chemicals found in cigarettes.

In 2005 the global NRT market was worth \$1.2 billion. In the UK we spend £100 million a year on such products – much of this footed by the taxpayer, via the NHS. Nicorette, manufactured by Pfizer, is the UK's number-one selling stop-smoking brand, commanding just under half the total market.

The idea of 'replacement therapy' suggests that something crucial to health is being replaced. But of course, your body has no biological need for nicotine, and quitting does not produce a deficiency. Instead, NRT is what the late stop-smoking guru Allen Carr called nicotine continuation therapy.

But so powerful is the mythology that says giving nicotine to nicotine addicts helps them quit, that the NHS now supplies NRT free to any smoker who wants to quit. Since 2004, the



INGREDIENTS

Active ingredient: Nicotine

Inert ingredients: Medium molecular weight polyisobutylene, low molecular weight polyisobutylene, polybutylene, non-woven polyester, backing film, siliconised polyester release liner.

government, desperate to meet its target to reduce adult smoking rates from 24 to 21 per cent, has been pouring money – around £138 million – into stop-smoking clinics that rely heavily on NRT.

Last year, in a bid to get more smokers to quit, the Committee on Safety of Medicines took the warnings off nicotine patches and other forms of NRT so that pregnant women, breastfeeding mothers and those with liver, heart and kidney disease could have access to them. The NHS also made nicotine patches available to children as young as 12 via their school nurses. As the public and workplace

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smoking ban comes into place in the UK in July this year, employers are also being encouraged to fund NRT to employees who are smokers, to encourage them to quit.

NRT, it would appear, is helpful for everyone. Yet there are problems with this 'therapy' – the most prominent of which are its adverse effects, and the fact that the evidence for its effectiveness, mostly culled from short-term studies, is unconvincing.

PATCHY SUCCESS

Nicotine patches produce their own unique adverse effects, such as skin irritation, which can be minimised with daily rotation of the application site. Sleep disturbance (such as insomnia and nightmares) is also common. Other reported effects of NRT include headache, dizziness, heart palpitations, dyspepsia, nausea, hiccups, muscle pain, anxiety, irritability and poor concentration.

In the UK, clinics using NRT claim that nicotine patches and other forms of NRT help 100,000 smokers a year to quit, but much depends on how you define 'quitting'. For instance, a 2004 Treasury report into public health spending found that the success rate of NRT had been inflated by broadening the definition of 'quitting' to include those who stopped smoking for just two out of the first four weeks of NRT treatment.

In general – and depending on which study you read – six weeks after initiating treatment, 23 to 61 per cent of smokers are successful in 'quitting' the habit. Six months down the line this drops to around 20 per cent, while one year on, the success rates range

WASTE MANAGEMENT

Most transdermal patches contain 20 times the amount of drug that will be absorbed during the time of application. After removal, most patches contain at least 95 per cent of the total amount of drug initially in the patch. In the USA, nicotine is considered hazardous pharmaceutical waste in the same class as arsenic and cyanide compounds, nitroglycerine and some chemotherapy agents. Yet in that country, as elsewhere in the world, there is no guidance on the environmental impacts of nicotine patches in our waste supply or on how to safely dispose of the millions of used nicotine patches tossed in the rubbish.

from nine per cent to 28 per cent.

Only one study (published in 2004 in the journal *Tobacco Control*, part of the *British Medical Journal* group) has tried to establish how effective NRT is in the longer term. The researchers looked at 12 trials that announced initial results after one year but continued to follow up participants who were deemed to have quit smoking for a longer period, from two to eight years. The analysis showed that three out of 10 people who claimed to have stopped initially using NRT were smoking again after 12 months. After eight years, only 12 per cent of those who had quit using NRT were still non-smokers, compared to eight per cent who used a placebo. The only conclusion that can be drawn from such an analysis is that doing something is better than doing nothing – though clearly not much better.

BUT I DIDN'T INHALE...

Manufacturers depend on the addictive nature of nicotine to keep customers coming back again and again. Indeed, cigarette manufacturers and NRT manufacturers are now competing for the same market of nicotine addicts. At the moment, NRT manufacturers are on to a winner because of a combination of taxes, smoking bans and free handouts on the NHS.

By the time you read this, the Chancellor, as a public health service, has probably upped the tax on cigarettes again. However, this may simply drive the problem of nicotine addiction underground. For many smokers, using NRT can be cheaper than buying cigarettes. For someone smoking 20 a day, for instance, buying a month's supply of nicotine patches is a much more cost-effective source of nicotine than buying a month's supply of cigarettes.

NRT, particularly nicotine gums, which contain 2mg or 4mg nicotine per piece (equivalent to one or two strong cigarettes), is also useful for smokers who have no desire to quit but simply need to be tided over in non-smoking pubs, restaurants and cinemas until they can find somewhere to smoke again.

The NRT myth may benefit from a lot of glitzy PR and exaggerated success stories. But the figures speak for themselves. In the UK, the number of smokers is decreasing by around 0.4 per cent per year. Contrast this with the 10 per cent a year growth in NRT products. Do the maths. Does NRT really do anything more than keep smokers physically and psychologically addicted to the substance that's causing their problems in the first place?

INGREDIENTS

Ingredient: Nicotine

Purpose: Psychoactive drug

Inadverse effects: Once in the body it causes a rapid release of adrenaline, the 'fight-or-flight' hormone that can result in rapid heartbeat, increased blood pressure, rapid, shallow breathing and ultimately, decreased immunity. During pregnancy, nicotine can retard foetal growth. It blocks the release of insulin, resulting in hyperglycemia; it increases the level of low-density lipoprotein (LDL), the 'bad' cholesterol that damages your arteries and increases your risk of heart attack or stroke. It breaks down into various constituents, notably nornicotine, a highly reactive substance implicated in illnesses including cancer, neurological disease such as Alzheimer's, and cardiovascular disease.

Ingredients: Medium molecular weight polyisobutylene, low molecular weight polyisobutylene

Purpose: Adhesives, tackifiers

Inadverse effects: A synthetic rubber with adhesive properties. Nicotine is held in the matrix of the rubber until body heat triggers its release. This rubber can cause allergic/sensitivity reactions. Essentially the same substance used in plastic food wrapping and, as with food wrapping, some of the chemicals present in polyisobutylene may migrate into the skin and thus the bloodstream.

Ingredient: Polybutylene

Purpose: Plasticiser

Inadverse effects: Also known as polybutene. Added to the polyisobutylene to make it more permeable, thus allowing the nicotine to migrate in a controlled dose into the skin. Can contain traces of phthalates, which are known carcinogens and reproductive toxins.

Ingredients: Non-woven polyester, backing film

Purpose: Outer seal

Inadverse effects: Seals the nicotine into the plastic matrix and provides structure to the patch. Non-woven fabrics are made in part from plastics, which are slow to biodegrade and can contain carcinogens and reproductive toxins



Dead as a dolphin?

Another animal's gone extinct. But this time it's one of our most beloved creatures – a dolphin. **Malcolm Tait** reports on a species loss that is more than just another statistic

Dead as a dodo. It's a well-worn phrase and we use it for all sorts of things, although rarely when talking about extinction. We'll use it to describe someone's career, perhaps, or a fashion that's passed its sell-by date. There's something of the vernacular about it: dead as a dodo – you're finished, mate.

Perhaps it's because of the origin of the phrase. Lewis Carroll's tales of Alice introduced the dodo to a reading public that was largely unfamiliar with the bird, and the phrase was coined soon afterwards. Unsurprising, then, that it should carry about it a hint of whimsy, from an association with Carroll's fantastical works.

It's all given the dodo a certain status among extinct creatures. When you consider that an estimated 99.9 per cent of the species that have ever appeared on this planet are

now gone forever, then the dodo has done rather well to be one of the most famous of them all. Only known about by the Western world since the end of the 16th century, and extinct just a few decades later, its path crossed our own for a very short time. Yet this idiosyncratic creature, with its huge, ungainly beak, bald expressive face and flightless defencelessness, still stands out as a symbol of that which is lost, destroyed by mankind, the underdog that never stood a chance. Of all the species that have

Self-sustaining for millennia, the baiji crashed to zero in 50 years. This was no natural extinction

disappeared since then, none have displayed quite the same level of vulnerability and individuality as did the dodo.

None, that is, until now. In December last year, a six-week expedition that had travelled 3,500km up China's Yangtze River from Yichang, past the Three Gorges Dam and down to the Yangtze Delta, then all the way back again, was completed. The scientists on board had been armed with top-notch optical instruments and underwater microphones, and had one mission in mind: to find as many Yangtze River dolphins as possible. By the time they had made it back to Yichang, their checklist was frighteningly empty. They had not discovered a single individual.

The Yangtze River dolphin, often called the baiji, was known to be low in numbers, and the expedition had feared that they might find only a few dozen individuals. To find none at all was heartbreaking. A creature that had

Photograph: WDC

been swimming the waters of the Yangtze for at least 20 million years had come to the end of the line. Sure, there might be one or two individuals left that the researchers had missed, but they won't be enough to keep the species alive. As 2006 drew to a close, the baiji was declared functionally extinct, and mankind had achieved a new first. We'd killed our first dolphin.

And what a dolphin it was, too. Long of beak, and nearly blind, the baiji navigated the muddy depths of the Yangtze using its powerful sonar, feeding nocturnally, and producing offspring only once every two years. Like only three other dolphin species in the world, it was entirely riparian, and had sustained itself comfortably over the millennia: it is estimated that some 2,000 years ago there were around 5,000 baiji, a number that still held true by the 1950s.

Self-sustaining over the millennia, then crashing to zero in just 50 years. Clearly, this was no natural extinction. Like the dodo before it, the baiji collapsed in just a few short decades due to human pressures – in the dolphin's case, a combination of factors including vessel strikes as China's river traffic increased, entanglement in fishing gear, habitat loss and a degree of pollution.

Yet here the comparison with the dodo ends. Whereas the destruction of the bird came about by people who had only just discovered it, and who didn't realise the implications of what they were doing, the collapse of the baiji beggars belief. No newcomer to mankind, this dolphin: it had been revered in China for at least 2,300 years, and enjoyed protected status, not for conservation reasons, but because it was the stuff of legend.

The traditional story went that the baiji was the reincarnation of a beautiful princess. Forced to marry a man she did not love, she refused, and was drowned by her family, only to re-emerge as this graceful creature of the waters. The baiji became a symbol of peace and prosperity, and was known as the Goddess of the Yangtze. You don't hunt goddesses, and so the baiji was left alone.

Then, in 1958, China had a remarkable *volte face*. Its Great Leap Forward, in which communism was embraced and anything approximating to animist religion denounced, was the baiji's main death sentence. Its mythological status was officially removed, and the hunters moved in for its meat and skin. By the 1980s, the government realised

How could a nation that once revered a dolphin as a semi-deity allow it to die? And how could the world fail to stop it happening?

its predecessors' mistake and slapped conservation orders on the dolphin, but it was too late. Numbers had collapsed, and the vessel strikes, fishing gear and pollution simply finished them off.

Let's pause for a moment to put this in context. In 1956, two years before China lifted its moratorium on baiji hunting, Gerald Durrell published his seminal book *My Family and Other Animals*. Many feel it was the first time that the plight of the world's wildlife, and the impact that we were having on the creatures with which we share the planet, was really driven home to the man in the street, to whom animals were just food and fun. Conservation was introduced into the public domain and within a couple of decades, really took off. By the 1970s, we were saving the whale. In the 1980s, we were worried about elephants and tigers. Rhinos were among the headlines of the 1990s; today, we're aware of the struggles of so many animals around the planet that it's sometimes difficult to know where to place our charitable donations.

Yet throughout this time of fear and concern, we've managed to hold on to all the headline species. Sure, a few bird species have gone, and the occasional small mammal. Yes, we've lost some amphibians and insects, too. But these are the creatures that slip by the layman's attention – a sad truth, but a truth nonetheless. For years, the man on the Clapham omnibus, or the woman in the Chelsea tractor, has been reading about imminent extinctions of large mammals, nature's A-listers; yet not a single famous creature has gone.

And now it has. Not just any old large mammal, either, but a representative of one of the world's favourite families. Dolphins are so beloved that where the society Butterfly Conservation has around 11,000 members in Britain, and the Mammal Society

less than half that, the Whale and Dolphin Conservation Society (WDCS) numbers some 70,000 supporters.

We're mad for dolphins. Their intelligence and communication skills, combined with a joyful love of freedom and open spaces and topped off with an enigmatic Mona Lisa smile, makes them extremely attractive and apparently empathetic animals. We want to be like them – admiring their strong social groups, the freedom to roam and play – and we love them.

So how on earth could we have killed one of them? How could a nation that once revered a dolphin as a semi-deity allow it to die? And how could the world, with all its growing conservation skills and awareness, fail to stop it happening?

The death of the baiji is more than just another statistic. It can be a symbol of what we are doing that really strikes home in the hearts of the public around the world. Biologically, of course, a dolphin is no different from a frog, or an ant, or an amoeba. But socially, culturally, it is a far more potent icon. We haven't just nearly killed the tiger, or the elephant, or the rhino – we really have killed a dolphin. Despite the warnings and efforts of WDCS and other conservation bodies, we stood by while it fell.

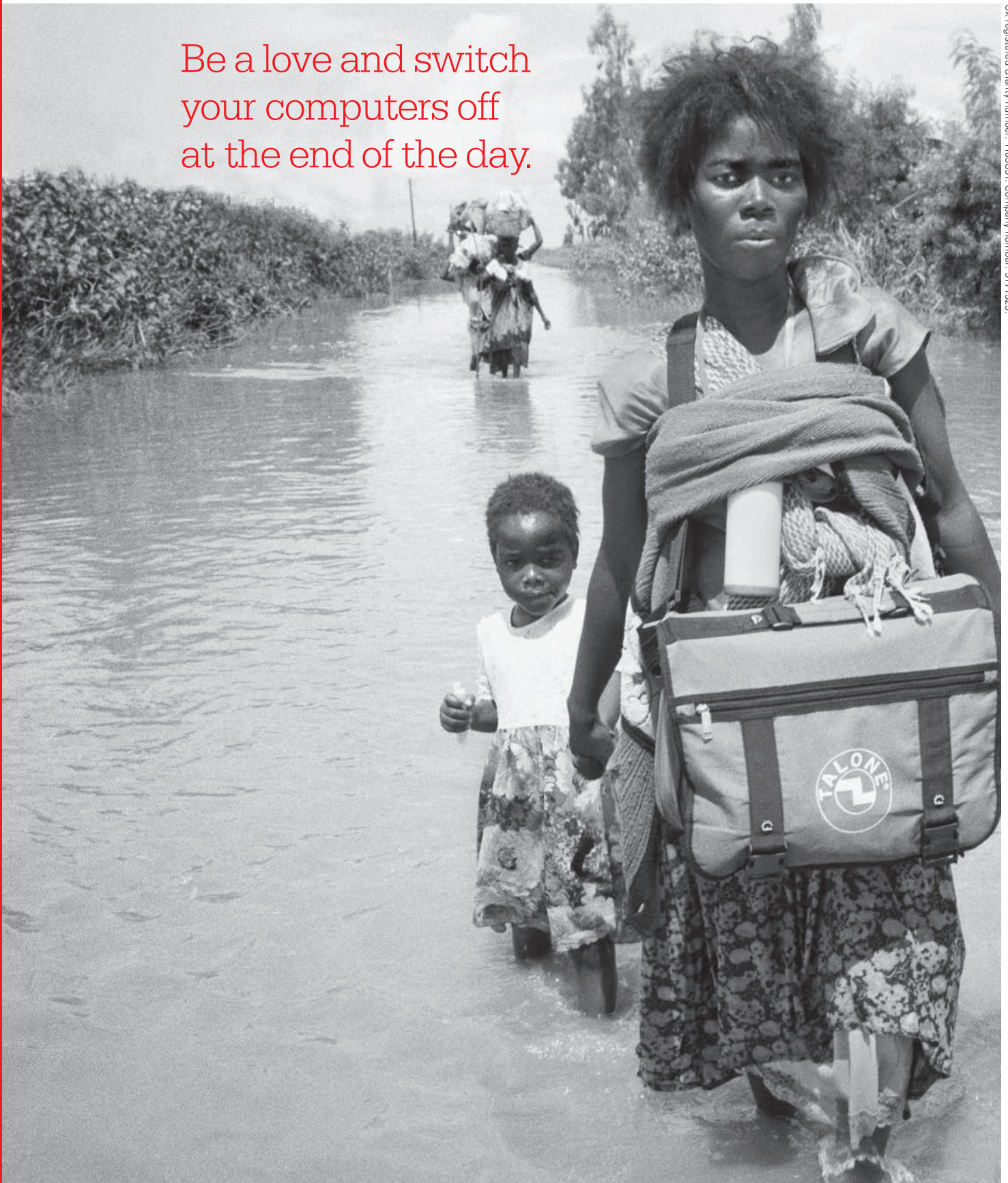
Will it change us? It must. The baiji represents the difference between the extinction we are now causing, and the mass extinctions that have gone before. When the meteor fell some 65 million years ago, it wiped out a massive chunk of life on earth. Life reshaped itself, of course, and there are some who argue that nature will simply do the same once we've ravaged it then died out ourselves. But unlike the meteor, we know what we're doing. We're aware that we're destroying, and with that awareness comes the moral obligation not to destroy.

Because of its family's fame, the baiji can become the symbol that heightens that awareness, that sticks in the gullet of our collective conscience. We may not have known what we were doing back when we drove the dodo to extinction, but we certainly knew what we were doing to the baiji, every single step of the way.

Dead as a dolphin. Now that's a phrase with impact. **E**

Malcolm Tait is the editor of WDCS

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The world's 'coolest' towns?

Paul Kingsnorth reports on the growing numbers of local people across the world who are tackling climate change in their own communities

There's nothing special about Chew Magna. Nor about Blisland, nor Belstone nor Harlow North nor Ashton Hayes. You've probably never heard of any of these places, and until recently there was no particular reason why you should have done. They are ordinary, unspectacular British communities, inhabited by people like you and me. Paradoxically, this is what makes them so exciting.

All of these places are notable for one thing: they are taking action on climate change. Not by signing petitions, going on marches, joining Greenpeace or writing to their MPs. They are doing so by – well, by doing so. At local level, in their villages and towns, on their streets. By changing the way they live and work as people and communities. They have stopped waiting for permission.

In doing this, they've found that they are not alone. They have found many other communities like them – not just in Britain, but all over the world – which have also decided that action on climate change begins at home. They reasoned that if we wait for business and government to sort out a problem that they

created, we will probably be waiting until it's too late. Can people power save the day?

Nobody knows. But it may be our best hope.

Chew Magna is a small village near Bristol. Last year, a couple of villagers concerned about climate change set up a project called GoZero. The aim was to turn Chew Magna into a zero-waste village. The work they would do – and have been doing – to achieve this was unglamorous, gritty but vital stuff. Home energy audits for everyone in the village. Restoring the local watermill with eco-materials and turning it into a zero carbon base for the project. Producing a local food guide. Researching home-made biofuels. Organising car-share schemes and negotiating with the local council for better public transport. The ultimate aim is to make the entire village both carbon neutral and zero waste.

'I hope that this bottom-up approach can work all over the place,' says Ian Roderick, one of GoZero's key players. 'I think there is a groundswell of opinion that it's time to take control ourselves instead of waiting for others to do it. There is a perception that any real action from the top down will take a long time to come, and that even when it does come it will just be in the form of taxes, financial incentives – that sort of thing. People are anxious about climate change, and there is an understanding now that it's a case of changing all our lifestyles. The key thing about a project like ours is that it gives people the chance to come together to do it. They don't have to feel like they are alone. There's strength in numbers.'

NORTH WICK 1
DUNDRY

CHEW MAGNA 3

1st



Ashton Hayes is a small village near the Welsh borders. Here, a handful of keen people set out to persuade the rest of the village that going green was vital. Last year they launched a scheme to become the first carbon-neutral village in the country. They've teamed up with academics in Britain and abroad, supportive local councils, schools, renewable energy companies, MPs and other supportive and interested parties. As in Chew Magna, what started as a fairly small-scale project has ballooned and inspired many other communities to do something similar.

Leading lights in both Chew Magna and Ashton Hayes can barely keep up with the invitations to speak, lecture and advise other communities. And other communities

involved in these recent projects, in contrast, are not self-aware green activists. They don't have dreadlocks, they don't drink soya milk and they've never heard of the Big Green Gathering. As a result, they're likely to be a hundred times more effective in persuading the average Briton to take climate change seriously.

There's something else about these projects. Small though they may be, they are not just local, or even national, concerns. They are international. Not only in the sense that climate change is a global issue, but in the links they are making with other such projects all over the world. This may be the start of a global movement of sorts. For the more you look, the more you find. There are hundreds, maybe thousands, of such communities all over the world – and they are growing in numbers.

Last year, a delegation from the town of Castlemaine in Victoria, Australia, visited Ashton Hayes to find out what was happening in the village. Castlemaine plans to become Australia's first carbon-neutral community – a significant step in a gas-guzzling, un-green nation. Castlemaine and Ashton Hayes have since become unofficially twinned, and the university in the nearby Australian city of Ballarat has instituted formal links with the University of Chester, near Ashton Hayes.

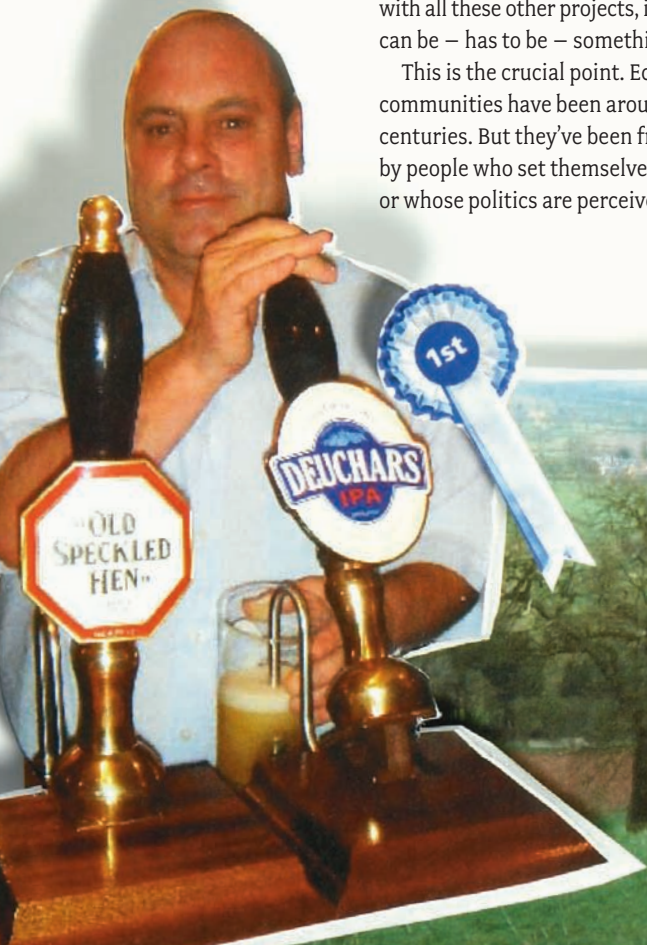
Chew Magna's international links are even more intriguing. A couple of years ago, one of GoZero's founders came across an Indian grassroots charity called Social Change And Development (SCAD). SCAD began life over 20 years ago, when an Indian priest decided to give up worldly things and do something for the poor. 'Doing something' involved listening to what the villagers wanted and needed, and working with them to enable them to get it. These days SCAD, which works in the Indian state of Tamil Nadu, supports more than 300,000 people as they struggle to drag themselves out of grinding poverty.

GoZero decided to set up a link with SCAD, to bring together the interests of both communities. What they came up with was a scheme to reduce carbon impacts and

Blisland, a small Cornish village, has opened a village centre, shop, post office and cafe that is entirely carbon neutral

seem to need little encouragement. Blisland, a small Cornish village, has opened a village centre, shop, post office and cafe that is entirely carbon neutral, inspiring villagers to try similar projects. Belstone, on Dartmoor, is doing an ecological audit on the entire village. Harlow North, near Chester, is to be the country's first carbon-neutral town. In Nottinghamshire, the Sherwood Energy Village has been underway for years. Constructed on a former pit site, now owned by a cooperative of former miners, this too is to be a carbon-neutral community – a genuine green village, for ordinary people. The aim, as with all these other projects, is to show that being green can be – has to be – something that everyone can do.

This is the crucial point. Eco villages and alternative communities have been around for decades – indeed, centuries. But they've been fringe concerns, inhabited by people who set themselves apart from wider society, or whose politics are perceived to be extreme. The people



poverty at the same time. A charity called The Converging World was set up in Chew Magna. The Converging World approaches large businesses and wealthy individuals for funds to erect wind turbines near SCAD's communities. The turbines generate electricity and thus income. That income is spent on sustainable livelihood projects in SCAD's villages, and carbon credits generated by the fossil fuel that is offset are sent back to Chew Magna. The Converging World then distributes them to its paying members. Thus, SCAD gets income for its projects. Paying businesses get carbon credits with which to offset their fossil fuel use. And the money raised from those businesses is spent both on more community turbines in India, and on carbon-reduction projects in the UK.

The Converging World hopes to expand its activities, linking with other communities in India and elsewhere – Africa is a target for future years. The process sounds complicated, but the principle behind it is beautifully simple. Communities from different countries and cultures, thousands of miles apart, cooperate to tackle both poverty and climate change. The initiative comes purely from local people in both countries.

When you look, you find many more projects like this, on virtually every continent. The scale and the level vary, but the intention is always the same: to act now before it's too late. And to do so regardless of the position and policies of national government.

Take the USA. The world's most polluting nation by far, the USA produces 25 per cent of the world's greenhouse gases, despite having less than five per cent of the global population. It is home to some of the world's largest and most rapacious fossil fuel corporations, many of whose ex-board members make up the current government – an administration so representative of the oil industry's vested interests that it only recently, reluctantly, accepted the existence of climate change. But there is hope to be found there – it all depends on where you look.

The decision of the governor of California, Arnold Schwarzenegger, to take climate change seriously, despite what his political allies in the White House might think, is well-known. But other states are following on. California and Oregon are working together to reduce their greenhouse gas emissions. New Mexico has set strict emissions targets at state level. The governor of North Dakota has signed an executive package encouraging the creation of renewable energy technologies. Massachusetts aims to reduce its emissions to 1990 levels by 2010. And nine states in the north-east are working together on a carbon trading scheme.

Meanwhile, action at lower levels than this is becoming increasingly common across America – a nation which, whatever the many iniquities of the Bush administration, has a strong and proud tradition of independent local government. US mayors have considerably more power than any of their equivalents in the UK. In 2005, Seattle Mayor Greg Nichols took advantage of this, launching the US Mayors Climate Change Agreement. In March that year 10 mayors, representing more than three million citizens, signed a pledge to take action on climate change in their areas. As well as promising to put maximum pressure on the

There is a groundswell of opinion that it's time to take control ourselves, instead of waiting for others to do it

Federal government to get moving at international level, they promised action locally, from doing audits of their areas' greenhouse gas emissions, to investing in clean energy, energy efficiency measures, recycling, green transport and education in schools about climate change. The Mayors Agreement has taken off across the United States – at the time of writing, 402 mayors, representing almost 60 million American citizens, have signed up.



At even more local level, nationwide organisations like the Network for New Energy Choices, the Small House Society and the Institute For Local Self-Reliance are helping to link up communities and families who are greening their lifestyles. Tens of thousands of people are involved all over the country, and numbers are growing. Austin, Texas, plans to go carbon neutral. Salt Lake City is aiming to become the first genuinely 'green city' in the USA. None of this will gladden the heart of George W. Bush, but he is going to have to live with it.

Elsewhere in the rich world, you can find similar initiatives. A good guide to their scope is the growth of an organisation called ICLEI – Local Governments for Sustainability. Founded at a UN conference in 1990, ICLEI has as members more than 475 cities, towns and local councils all over the world. All of them commit to reducing their climate impacts, and together, each small action adds up to something bigger. The city of Kobe in Japan aims to make its annual street festival energy-efficient. Greater Geelong in Australia aggressively promotes cycling. Ponferrada in Spain has a citywide environmental education strategy. And more than 650 local governments around the world – from Australia, Canada, the USA, Japan, New Zealand, Sweden, France, and plenty more – participate in ICLEI's 'cities for climate protection' programme, committing to genuine local action on climate change.

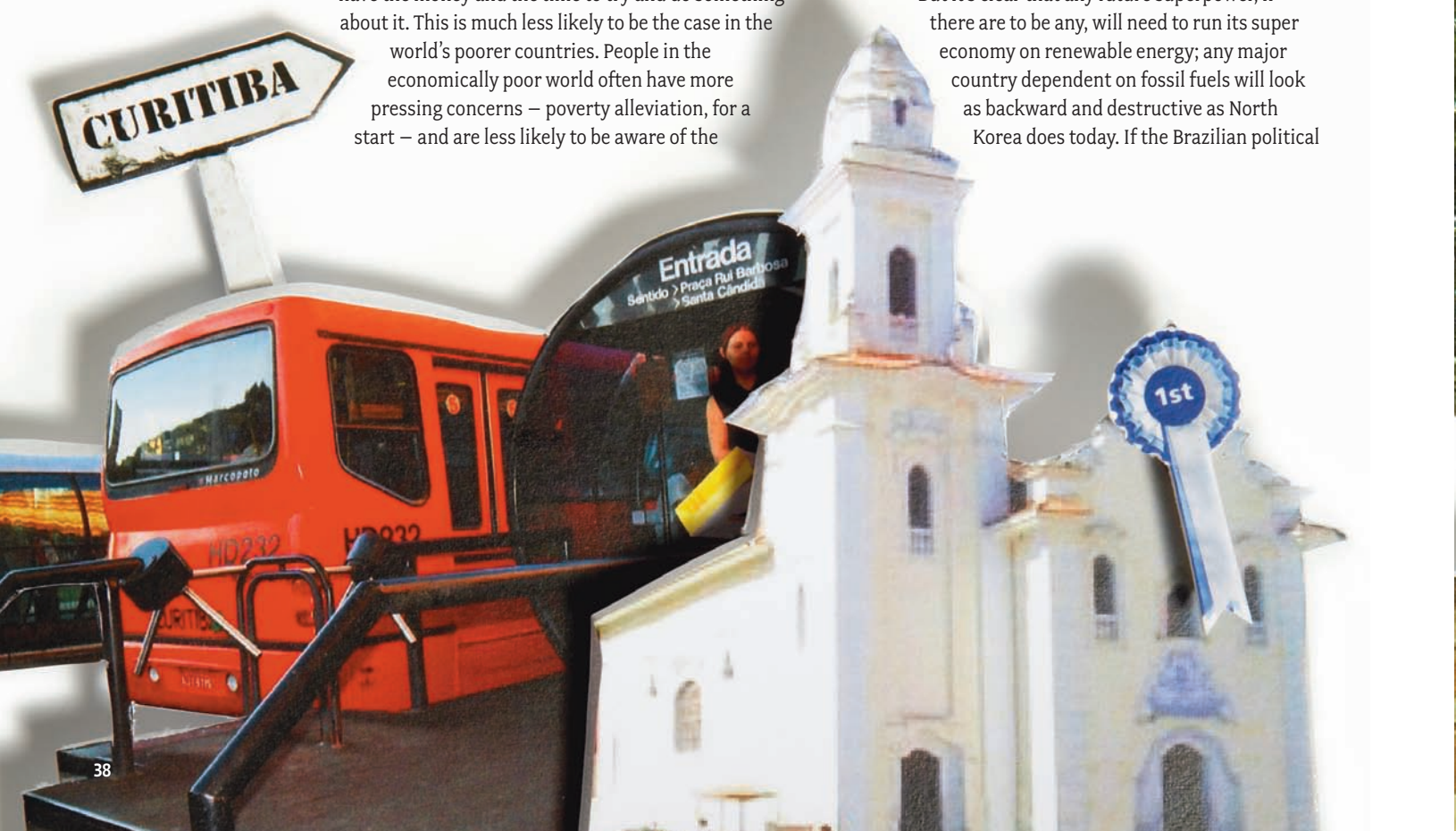
These, of course, are all examples from what we still call 'developed countries'; the countries responsible for the problem. Their populations are widely educated and increasingly aware of climate change, and they have the money and the time to try and do something about it. This is much less likely to be the case in the world's poorer countries. People in the economically poor world often have more pressing concerns – poverty alleviation, for a start – and are less likely to be aware of the

problem at all, as a result of limited access to information, and weak education systems. They have less money and time on their hands.

But this is not the whole story. Take India. In most rural villages, the concern is getting access to electricity at all, not where it comes from. Yet some communities are trying to leapfrog the West and move directly to renewable energy, and the communities in Tamil Nadu working with The Converging World are not the only examples of this. In Andhra Pradesh, for example, the appropriately named village of Powerguda has managed to make a profit from selling carbon credits to the World Bank. The villagers have set up a business making local biofuels from the Pongamia trees that surround their village, milling it themselves. The project is controlled by a village-based charity, and the profits go to its people. Elsewhere, micropower projects, owned and controlled by villages, are providing local electricity through waterpower and even small hydrogen power plants.

This kind of response to climate change is increasingly common across the poor world. Providing electricity at a very small, low-core level from renewable resources is often cheaper and more efficient than massive fossil fuel power stations. From China to Bangladesh, Sri Lanka to Indonesia, such projects are taking root. Solar panels, waterwheels, community biogas plants, compost-fired power stations – all are ways of avoiding the carbon trap that the industrialised world walked into, which the rest of the world could perhaps still avoid. Brazil is often touted as a future superpower by the sort of people who do that sort of thing.

But it's clear that any future superpower, if there are to be any, will need to run its super economy on renewable energy; any major country dependent on fossil fuels will look as backward and destructive as North Korea does today. If the Brazilian political



Getting started: useful resources

The Plunkett Foundation

An educational charity focused on reviving rural communities; provides advice, training and information. www.plunkett.co.uk

VIRSA

The Village Retail Services Association is very involved in promoting community shops and locally-owned services in villages. www.virsa.org

GoZero

Chew Magna's project has links with many others and is a mine of information. www.gozero.org.uk

Going Carbon Neutral

All about the Ashton Hayes project. www.goingcarbonneutral.co.uk

Community Wind Power

Small-scale community wind farms around the UK – and how to get involved in your area. www.communitywindpower.co.uk

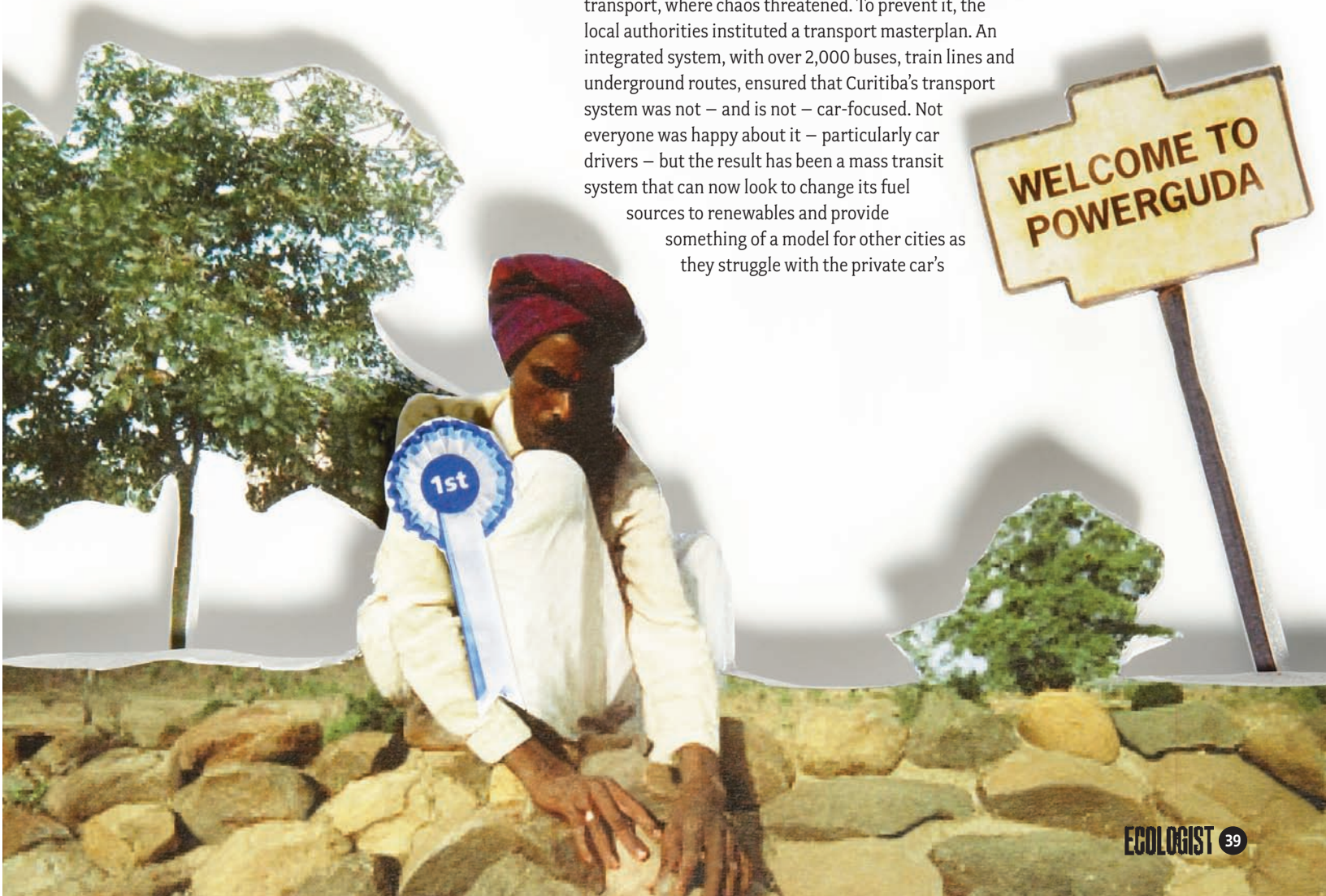
Local Works

The campaign for the Sustainable Communities Bill, which aims to make local action on climate change much easier. www.localworks.org

establishment is not showing many signs of doing much about it, again, at a more local political level, things are sometimes different.

Two Brazilian cities show what might be possible with a little imagination and – crucially – the intelligent use of genuine local power. Porto Alegre has been a revolutionary city for decades. When the Brazilian Workers Party (PT) – now in government, but then a very radical opposition – took power in the city in the 1980s, it introduced what it called a participatory budget. Nothing quite like it had been seen before; the city's spending was to be decided not by elected officials, but by the people, through a series of public meetings, votes and discussions about priorities. One of those priorities was energy, and discussions about making Porto Alegre renewable and more climate-friendly have gained pace in recent years. So has the participatory budget process itself, which has now spread to 500 cities across Brazil, and is being touted in Europe, the USA and elsewhere as a way to rejuvenate local democracy. As such budgets spread, you can bet that local action on climate change will spread with them.

In another Brazilian city, Curitiba, the local authorities have long focused on sustainable transport. Until the 1980s, Curitiba was one of the fastest-growing cities in Brazil, its population booming beyond sustainable rates. One of the many problems this causes is in the area of transport, where chaos threatened. To prevent it, the local authorities instituted a transport masterplan. An integrated system, with over 2,000 buses, train lines and underground routes, ensured that Curitiba's transport system was not – and is not – car-focused. Not everyone was happy about it – particularly car drivers – but the result has been a mass transit system that can now look to change its fuel sources to renewables and provide something of a model for other cities as they struggle with the private car's



growing impact on the climate.


You could find, if you choose to look, plenty more examples of local power being used at any number of different levels all over the world to tackle climate change. There is no overall plan, and sometimes not even a real idea of where such initiatives will end up. They often have little in common with each other except a desire to do something about the most pressing problem that humanity has probably ever faced.

All these distant, different and small-scale activities help restore faith in the power of individuals and communities

And they are easy to criticise. After all, climate change is a global issue that requires global action, and no amount of small local initiatives on their own will prevent its disastrous impacts. But this is not really the point. No one is suggesting that Curitiba's bus system, Tamil Nadu's windmills or Chew Magna's community group are, in themselves, going to save the world. That's not what they're for. They exist to give ordinary folk a say in what happens. They exist to push the agenda forwards – taking the initiative from reluctant or downright

resistant politicians and corporations and bringing it home. As they do so, they inspire others. The thing begins to snowball, and community responses to climate change start to become unstoppable. As they do, those politicians and corporations still reluctant to act have much less room to manoeuvre, because the will of the people is increasingly shown in the actions of the people.

In other words, all of these distant, different and small-scale activities are more than the sum of their parts. The actions that people take, the links they make, and the awareness that they raise, among themselves and others, add up to much more than any number of placard-waving marches, petitions or UN meetings between bureaucrats or low-level ministers. They add up to more because they are empowering. They give people permission to do things. To take control of their lives, and the lives of their communities, rather than petitioning, pleading or demanding that those higher up the political food chain do it for them.

They also help to restore faith. Faith in the power of individual action, of action by communities and groups of people – of action by you and me. We don't need to wait for Tony Blair, Kofi Annan, Sir Nicholas Stern or – God forbid – the President of the United States of America to get their acts together. After all, it's not as if it's just their problem. It's ours – and so can be the solutions. 

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Photography: Mark Cawardine

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THE BAIJI IS EXTINCT. WDCS, THE WHALE AND DOLPHIN CONSERVATION SOCIETY WANTS TO ENSURE THAT NO OTHER SPECIES GOES THE SAME WAY.

It's happened. It's actually happened. For the first time in recorded history, a dolphin species has been declared extinct.

Late last year, the baiji, or Yangtze River dolphin, was declared functionally extinct after a six-week survey of its habitat failed to find a single individual.

Tragic though this news is, the situation could soon get even worse as many other species could suffer the same fate.

We must act NOW to save these animals if they are to escape the fate of the Yangtze River dolphin.



We need your help to make sure the baiji is not the first of many!

THERE ARE SEVERAL PROJECTS THAT WE URGENTLY NEED TO GET UNDERWAY, AND DONATIONS FROM YOU WILL HELP US LAUNCH THEM. WE NEED WHATEVER YOU CAN AFFORD, BUT HERE'S AN IDEA OF WHAT YOUR MONEY COULD BUY:

- If 200 readers each gives **£12** it could help buy badly needed equipment for a ground-breaking study on a newly discovered blue whale nursery ground.
- If 200 readers each gives **£25** it could fund a project in the Amazon River for one year teaching local fishermen how to use sustainable and dolphin-friendly fishing gear and methods.
- If 300 readers each gives **£35**, we could convene a workshop for ALL scientists working on the Gangetic River dolphin to combine their expertise.
- If 300 readers each gives **£50**, we could organise training workshops on research methods to conserve cetaceans in the South Pacific.
- If 100 readers each gives **£100** it could fund a workshop for scientists and researchers working on the Indo-Pacific humpback dolphin, to share information, concerns and instigate initial protection measures.

There is no time to lose. We must act **NOW** if we are to save species like the Mediterranean common dolphin and the Gangetic River dolphin.



Please call 0870 870 5001 and give what you can, or go to www.wdcs.org/donate and quote "The Ecologist". Thank you.

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Playing GOD

Scientists are on the brink of creating the world's first artificial life form – a living organism never before found in nature. They promise solutions to everything from malaria to climate change.

Salvation? Or a step too far?

By **Hope Shand, Jim Thomas** and **Kathy Jo Wetter**

Transgenics, the kind of engineering you find in genetically modified crops, is suddenly so last-century. As recombinant DNA-splicing techniques pass the 30-year mark, researchers are moving at breakneck pace to the next frontier in the manipulation of life: building it from scratch. It's called synthetic biology, and it's poised to revolutionise our 'life sciences'.

Under the paradigm of transgenics, genetic engineering was a cut-and-paste affair. Biotechnologists manually shuffled pieces of DNA – the self-assembling molecule that instructs living organisms how to carry out every biological process – between existing species. Over much of the past 20 years, genetic technology has focused on deciphering DNA code – the sequence of base pairs that make up DNA's double helix – in order to identify genes and understand their role in plant and animal life. As a result of this race to read and map genomes, it is now possible to decode, or 'sequence' tens of thousands of base pairs per minute, and to do it relatively cheaply.

Synthetic biology represents a seismic shift in this landscape. Attention is being switched from reading to writing genetic code, with synthetic biologists beginning to scorn nature's designs in favour of made-to-order life forms. At the core of synthetic biology is a belief that life's components can be made synthetically (that is, by chemistry), engineered and assembled to produce working organisms.

Born in the dot-com communities of Boston and northern California, much of the vision of synthetic biology is articulated via computing metaphors. Using concepts borrowed from electronics and computing, synthetic biologists are building simplified versions of bacteria, re-programming DNA and assembling new genetic systems. DNA code is now regarded as the software that instructs life, while the cell membrane and all the biological functions within the cell are seen as the hardware that must be snapped together to make a living organism. Using gene synthesisers, they write the 'text' of DNA code one 'letter' at a time – sometimes inventing their own 'alphabet' – to come up with new 'genetic networks' bundled together in an artificial 'chassis' – a living, self-replicating organism made from scratch.

The world's first synthetic biology conference, Synthetic Biology 1.0, convened in June 2004

at the University of California at Berkeley. Two months later, Berkeley announced it was establishing the world's first synthetic biology department. In 2005, three synthetic biology start-ups attracted more than US\$43 million in venture capital, and in late 2006 there was talk of establishing an industry trade group for gene synthesisers. While most of the formal activity self-identified as synthetic biology has taken place on US soil, such extreme genetic engineering is happening all around the world. 2007's conference (SynBio3.0) will be held in Zürich, hosted by the Swiss Federal Institute of Technology (ETH).

Millions of dollars of government and corporate funding are already flowing into synthetic biology labs. Venture capital and government funding have nurtured the field

Within a decade, a single person could synthesise all the DNA describing all the people on the planet, many times over, within a day

and the first pure-play synbio companies are now open for business. They hold growing patent portfolios and foresee industrial products in fields as diverse as energy production, climate change remediation, toxic cleanup, textiles and pharmaceuticals. Indeed, synthetic biology's first commercial products may be only a few years from market.

IN THE BEGINNING...

It's not quite the biblical feat described in Genesis; but if you give \$1,000 to Epoch Biolabs of Houston, Texas they can make an entire gene and post this little bit of life to you within seven days. From Moscow to Montreal, Norway to Nashville, a young industry of gene synthesis companies crank out the main ingredient for artificial life one chemical at a time and ship it to research labs that are pushing the limits of what is possible in the biotech field.

Building synthetic DNA isn't new. In the 1960s an Indian-American Nobel Prize winner, Har Gobind Khorana, first developed a chemical protocol for building chains of DNA to order – arranging its four compounds,

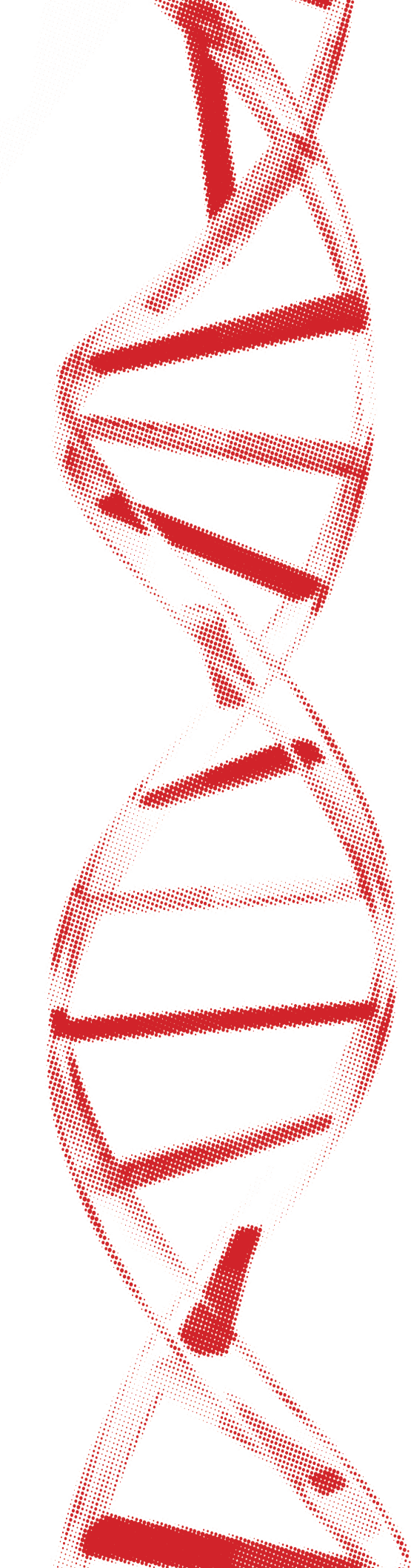
known as the nucleotide bases (adenine, cytosine, guanine and thymine, represented by the letters A, C, G and T) into the spiralling ladder of the DNA molecule via some fairly slow, complicated chemistry. Back in 1973, it would take one scientist a whole year to make a length of DNA of 11 base pairs long. Today it would take minutes and cost around \$200.

For the past 30 years the primary use of custom gene synthesis technology has been the production of oligonucleotides ('oligos') – short strands of DNA that genetic engineers use as 'hooks' to copy the natural DNA of interest, in order to decipher a sequence and amplify it. Oligos usually have fewer than 200 bases and are single-stranded (DNA is double-stranded). The DNA itself is constructed from cheaply-produced sugar isolated from sugar cane. Although do-it-yourself desktop DNA synthesisers are used in laboratories to make short stretches of DNA, it is more common for researchers to go on the internet and order a desired DNA sequence from one of dozens of commercial 'oligo houses' worldwide.

'Gene foundries' – around 66 commercial firms worldwide – produce longer pieces of double-stranded DNA (including whole genes or genomes). According to one industry estimate, the market for gene synthesis in late 2006 was only \$30 to \$40 million per year – a tiny fraction of the \$1 to \$2 billion spent on acquiring and modifying DNA. Although the USA is currently home to more gene foundries than any other country, the industry is rapidly spreading. According to Hans Buegl of GeneArt (Regensburg, Germany), the market for gene synthesis has doubled in the past year.

As the industry grows, its products become cheaper. In mid-2006 most gene synthesis companies were charging between \$1 and \$2 per base pair (around 'a buck a base', as they like to say). At a synthetic biology conference in May 2006, gene synthesis companies were confidently predicting that the price would drop to \$.50 per base pair by the end of 2007.

Some companies boast that there are no technical limits to the length of DNA they can produce (although most synthesised sequences are not



error-free). GeneArt claims that it can produce 500,000 base pairs of DNA per month. In July 2006, Codon Devices manufactured and sold a strand of DNA exceeding 35,000 base pairs – what they then claimed was the largest commercially produced fragment to date.

Synthetic biologists predict that a one-million base pair bacterial genome will be constructed within the next two years, that a yeast genome of around 12 million base pairs could be synthesised in 18 to 24 months, and a plant chromosome would not take much longer. Rob Carlson, a synthetic biologist at the University of Washington (USA), says gene synthesis machines are improving in efficiency so fast that, 'Within a decade, a single person could sequence or synthesise all the DNA describing all the people on the planet many times over in an eight-hour day, or sequence his or her own DNA within seconds.'

FUTURE PERFECT?

The grand vision of synthetic biology is to create a novel, living system. The work of two US-based research teams illustrates two different approaches to realise this goal.

At the University of California at Berkeley, the synthetic biology department led by Jay Keasling is engineering cellular genetic pathways to produce valuable drugs and industrial chemicals. 'Chemical engineers are good at integrating lots of pieces together to make a large-scale chemical plant, and that is what we're doing in modern biological engineering – we're taking lots of little genetic pieces and putting them together to make a whole system,' explains Keasling.

Keasling's team has synthesised around a dozen genes that work together to reproduce the chemical pathways behind a class of compounds called isoprenoids – high-value compounds important in drugs and industrial chemicals. Isoprenoids are natural substances produced primarily by plants. Because of their structural complexity, chemical synthesis of most isoprenoids has not been commercially feasible, and isolation from natural sources yields only very small quantities. Synthetic biologists at Berkeley hope to overcome these limitations by designing new metabolic pathways in microbes, turning them into 'living chemical factories' that produce novel or rare isoprenoids.

Most notably, they are focusing on a powerful anti-malarial compound known as artemisinin. Backed by a \$42.5 million grant from the Bill and Melinda Gates Foundation,

BUILDING A BETTER BIO-WEAPON

'I expect that this technology will be misapplied, actively misapplied and it would be irresponsible to have a conversation about the technology without acknowledging that fact.' – Drew Endy, Synthetic Biologist, MIT.

Gene synthesis technology vastly enhances the potential to construct deadly, designer pathogens in the laboratory using mail-order DNA. In 2002, a team of researchers at the State University of New York at Stony Brook, led by molecular geneticist Dr Eckard Wimmer, mail-ordered synthetic DNA strands (oligonucleotides) and pasted them into a functional poliovirus. 'This is a wake-up call,' Wimmer told the *Washington Post* in July 2006.

In 2005, another team of researchers announced that they had resurrected the lethal H1N1 flu virus that killed up to 50 million people worldwide in 1918-19 (the 'Spanish flu'). Although the H1N1 strain had vanished from the earth with its last victims, researchers were able to recover and sequence fragments of the viral RNA from preserved tissues of 1918 flu victims buried in the Alaskan permafrost. Today, the full genome sequences of the H1N1 flu virus and the poliovirus are publicly available on the Internet-accessible database, GenBank.

Eckard Wimmer bluntly describes the potentially deadly combination of accessible genomic data and DNA-synthesising capabilities: 'If some jerk then takes the sequence [of a dangerous pathogen] and synthesises it, we could be in deep, deep trouble.'

the Berkeley team believes that synthetic biology is the tool that will allow unlimited and cheap production of a currently scarce natural compound to treat malaria in the developing world. In 2003, Keasling and colleagues founded a synbio start-up called Amyris Biotechnologies, to bring the project to fruition. The promise of unlimited supplies of a drug that can roll back a global killer has become the *raison d'être* for synthetic biology and given the field a philanthropic sheen. Though they've produced only tiny quantities of artemisinic acid so far, Jay Keasling's bacterial factories



When an interviewer asked Hamilton Smith if he and Venter were playing God, Smith gave a characteristically hubristic response: 'We don't play.'

are already churning out copious amounts of priceless PR for the fledgling synbio industry. The December 2006 issue of *Discover* named the Berkeley professor its first-ever Scientist of the Year and the magazine's editors oozed with admiration: 'Through his significant synthetic biology advancements, Keasling is changing the world, making it a better place with every new discovery he makes.'

In reality, large-scale production of synthetic artemisinin still faces significant technical hurdles. What's more, a 2006 report by the Royal Tropical Institute of the Netherlands points out that it is technically possible to cultivate sufficient amounts of wormwood to produce enough artemisinin to treat all the malaria patients in the world. An estimated 17,000-27,000 hectares of *Artemisia annua* would be required to satisfy global demand, which could be grown by farmers in suitable areas of the South. The Institute's report warns, however, that the prospect of synthetic artemisinin production could destabilise a very young market for natural artemisia, undermining the security of farmers just beginning to plant it for the first time: 'Growing Artemisia plants is risky and will not be profitable for long because of

the synthetic production that is expected to begin in the near future.'

Will betting on synthetic biology's medicinal microbes to tackle malaria divert attention and resources from other approaches that are potentially sustainable and decentralised?

Amyris hopes to use the same technology platform to produce drugs far more lucrative than artemisinin. 'We've essentially created a platform that will allow you to produce many drugs cheaper,' explains Keasling. 'Down the road, we will be able to modify enzymes to produce a number of different molecules, even some that don't exist in nature.'

According to the company's website, Amyris 'is now poised to commercialise pharmaceuticals and other high-value, fine chemicals taken from the world's forests and oceans by making these compounds in synthetic microbes.' Amyris plans to use synthetic biology to produce commercial drugs, plastics, colorants, fragrances and biofuels. The Berkeley lab is also attempting to re-engineer the metabolic pathways that produce natural rubber. If commercially successful, rubber-producing microbes could dramatically impact the demand for natural rubber and the livelihoods of people and

economies that depend on this commodity.

Pathway engineering is already being used for commercial applications. For example, California-based Genencor has been working with chemical giant DuPont to add synthetic genetic networks to the cellular machinery of *E. coli*. When mixed with corn syrup in fermentation tanks, their modified bacterium produces a key component in Sorona, a spandex-like fibre. DuPont hopes that its new bio-based textile will cause as much fuss as the introduction of nylon back in the 1930s. DuPont plans to build additional Sorona production factories, probably in the global South. According to John Ranieri, Dupont's vice-president of bio-based materials, 'one thing is for sure: we need to be close to the agricultural producing centres, in Brazil, India or the USA.'

DR FRANKENSTEIN, I PRESUME?

In the race to synthesise life, the genomics mogul J Craig Venter often overshadows the rest of the pack. Venter, dubbed 'Biology's Bad Boy', led the private company Celera in the race to map the human genome. Venter is notorious for pushing the boundaries on the commercial exploitation of life. His newest

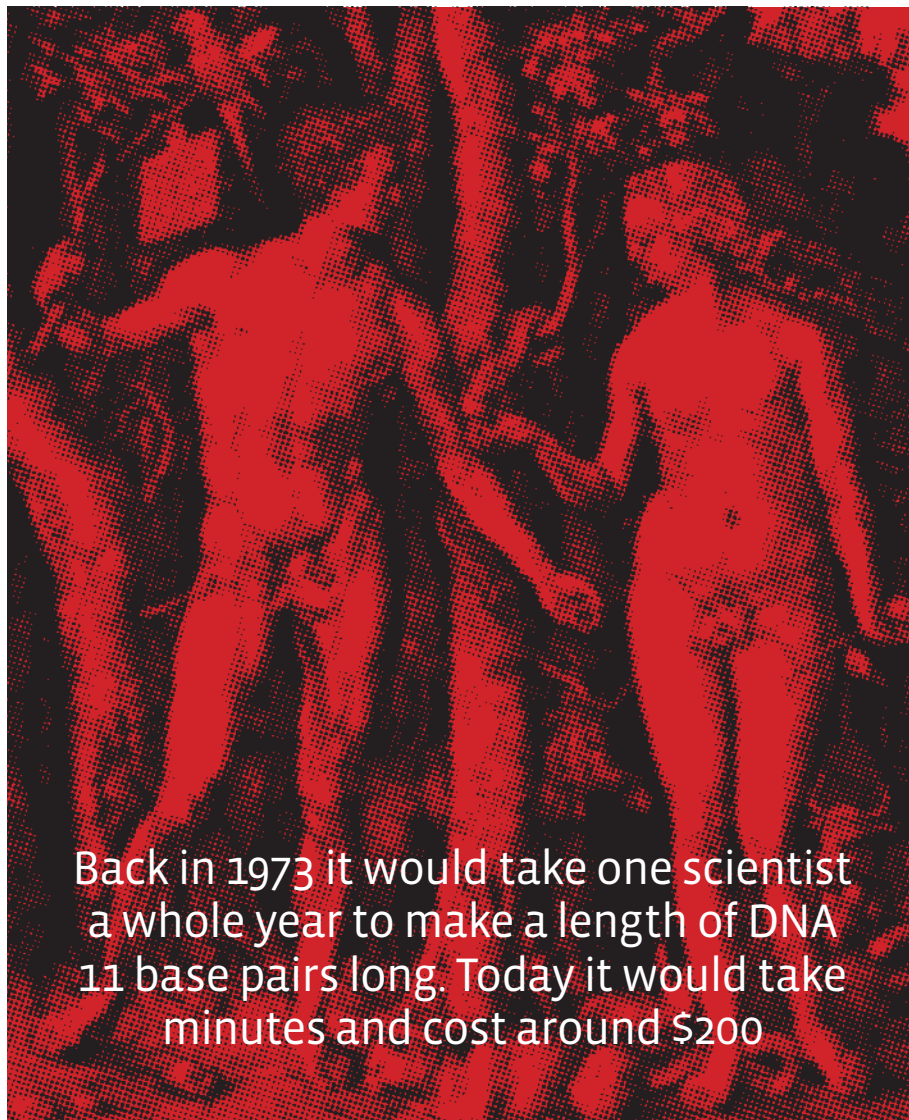
Artificial life

commercial venture, Synthetic Genomics Inc., founded in 2005 with \$30 million of venture capital, aims to commercialise a range of synthetic biology applications, starting with energy production. The company received half its start-up capital from Alfonso Romo Garza, the Mexican billionaire who owns agribusiness giant Savia.

In the mid-1990s, Venter's non-profit outfit, The Institute for Genomic Research (TIGR), pursued a Minimal Genome Project to discover the fewest number of genes necessary for a bacterium to survive. The bacterium they chose was *Mycoplasma genitalium*, a bug that causes urinary tract infections. It has one of the smallest known genomes of any living organism (517 genes, made up of around 580,000 DNA base pairs). By contrast, the human genome is estimated to comprise around 22,000 genes, made up of some three billion base pairs. The yeast genome (*Saccharomyces cerevisiae*) has around 6,000 genes and 12 million base pairs. For Venter's team, the ultimate goal of creating a minimal microbe is to use it as a platform for building new, synthetic organisms whose genetic pathways are programmed to perform commercially useful tasks – such as generating alternative fuels.

Venter and his research team, which includes Nobel Laureate Hamilton Smith, are now attempting to synthesise their streamlined version of the *Mycoplasma genitalium* genome so it could be used as a 'chassis' for novel, synthetic organisms. If it can operate as a viable, self-replicating organism, their synthetic microbe, dubbed *Mycoplasma laboratorium*, would amount to an entirely new species of bacterium – the first fully synthetic living species ever created.

Venter calls *Mycoplasma laboratorium* a 'synthetic chromosome' and his intention is to use it as a flexible bio-factory into which custom-designed synthetic 'gene-cassettes' of four to seven genes can be inserted, genetically programming the organism to carry out specific functions. As a first application, Venter hopes to develop a microbe that would help in the production of either ethanol or hydrogen for fuel production. In the case of ethanol production, for example, the synthetic biology approach is to custom-design a microorganism that can perform multiple tasks, incorporating built-in cellulose-degrading machinery, enzymes that break down glucose, and metabolic pathways that optimise the efficient conversion of



Back in 1973 it would take one scientist a whole year to make a length of DNA 11 base pairs long. Today it would take minutes and cost around \$200

cellulosic biomass into biofuel. With more than \$12 million in funding from the US Department of Energy, Venter expects to harness the mechanisms of photosynthesis for ways to more effectively sequester carbon dioxide, ostensibly as a means of slowing climate change.

In May 2006, Venter predicted that his team would deliver a living *Mycoplasma laboratorium* in two years, but he admitted that its ETA has been 'a rolling two years' for some time now. When an interviewer asked Hamilton Smith if he and Venter were playing God, Smith gave a characteristically hubristic response: 'We don't play.'

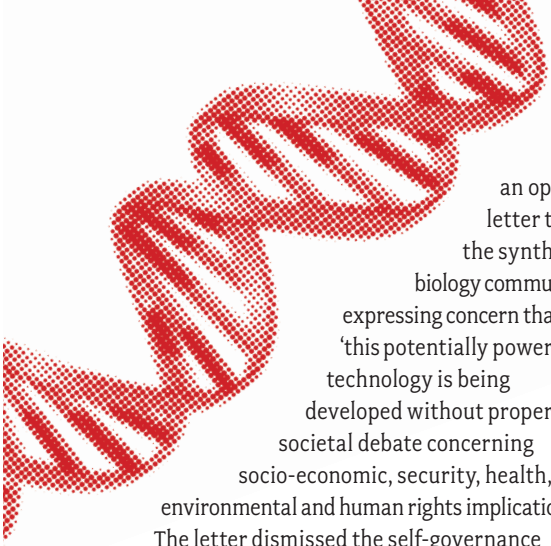
SYNTHETIC GOVERNANCE?

Advocates promote synthetic biology as the key to cheap biofuels, a cure for malaria, cheaper drugs and climate change remediation – a strategy that aims to

preempt public concerns about a dangerous and controversial technology.

However, a growing number of civil society organisations and social movements, particularly those that have campaigned against genetic engineering and the patenting of life, recognise that such 'extreme biotech' is a technology that could pose grave threats to people and the planet, despite its media-friendly gloss. For some, the quest to build new, living organisms in the laboratory crosses unacceptable ethical boundaries – the ultimate reductionist science.

Concerns were heightened in May 2006 when proposals for self-governance were put forward by synthetic biologists meeting at Syn Bio 2.0 in Berkeley – measures that would serve as pre-emptive action to avoid potentially more stringent government regulations. In response, 38 civil society organisations from around the world signed



an open letter to the synthetic biology community, expressing concern that 'this potentially powerful technology is being developed without proper societal debate concerning socio-economic, security, health, environmental and human rights implications.' The letter dismissed the self-governance proposals as inadequate and noted that 'the implications are too serious to be left to well-meaning but self-interested scientists.'

Synthetic biologists counter that 'the field of synthetic biology is one of the most open, outgoing and self-critical fields of research that's ever existed,' citing wiki discussions (editable web pages), lectures and 'town hall meetings' (one held at MIT, the other at Berkeley) as examples. While these attempts at openness are important, the discussion of synbio's impacts has yet to extend much beyond a small circle of scientists, many of whom are invested in the unfettered development of the field, both professionally and often financially through

their own or colleagues' start-up companies. Synbio's self-governance has focused primarily on biosecurity threats, especially the potential for a rogue scientist to cause harm. In fact, the 'mad scientist' scenario is evoked as an argument for governments *not* to regulate the industry – because, synthetic biologists argue, efforts to control the technology will drive it underground. The more likely scenario is that risks to society will come from unforeseen and unintended consequences.

Ultimately, it is not for scientists to control public discourse or determine regulatory frameworks. Whether by deliberate misuse

or as a result of unintended consequences, synthetic biology will introduce new and potentially catastrophic societal risks. In keeping with the Precautionary Principle, synthetic microbes should be treated as dangerous until proven harmless. At a minimum, environmental release of *de novo* synthetic organisms should be prohibited until wide societal debate and strong governance are in place. Public debate must go beyond biosecurity (bioweapons/bioterrorism) and biosafety (worker safety and environment). There must be a broad societal debate on synthetic biology's wider socio-economic and ethical implications, on control and ownership of the technology and whether it is socially acceptable or even desirable. **E**

For some, the quest to build new, living organisms in the laboratory crosses unacceptable ethical boundaries

Hope Shand, Jim Thomas and Kathy Jo Wetter work with the Ottawa-based ETC Group (Action Group on Erosion, Technology and Concentration). This article is based on ETC's new report, *Extreme Genetic Engineering: An Introduction to Synthetic Biology*, available at www.etcgroup.org, where more information and advice for concerned citizens can be found.

"Before, we didn't grow enough to feed ourselves. There were too many chemicals in our food and our diet was poor. Now we easily produce enough."



Alejandro Vieda Urbina, a farmer from San Marcos, Atlántida, Honduras

HOW? Farmers like Alejandro in Honduras – supported by the development charity, Progressio – are learning the benefits of sustainable, organic food production.

WHY? Small-scale food production for local markets is the best way to provide lasting food security for people in poor and rich countries alike.

SO WHAT? If you buy local, organic and/or fair trade food, you are supporting a worldwide movement for sustainable food production – one that promises a better future for people in developing countries, and for the planet as a whole.

LEARN MORE Read our booklet *Food sovereignty* – download free or order a copy from www.progressio.org.uk/food

DO MORE Take the *livesimply* challenge: a call to Christians and all people of good will to live simply, sustainably and in solidarity with the world's poor. Find out about it at www.progressio.org.uk/action

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livesimply is an initiative of 40 Catholic organisations, including Progressio. Progressio works with people of all faiths and none to tackle poverty and injustice in developing countries.



Shelter for the soul

Why should beautifully designed, environmentally friendly homes be only for the rich? The work of one American architecture firm proves it's possible for more people to enjoy the benefits of sustainable design. By **Maggie King**

Samuel Mockbee dedicated his life, as a teacher and as an architect, to the goal of providing 'shelter for the soul'. His aim in life was to provide inspirational and authentic architecture to improve the lives of the most impoverished residents of rural Alabama. So committed was Mockbee to this pure act of service that, in 1991, he abandoned a full-time architectural practice with Coleman Coker and the firm Mockbee Coker Architects to accept a position at Auburn's School of Architecture. It was there that he and his long-time friend and Auburn professor D K Ruth conceived of and founded the Rural Studio.

A fifth-generation Mississippian, Mockbee was born on 23 December, 1944 in Meridian. Because of his love for drawing, he knew by the time of his ninth birthday that he wanted to become an architect. However, upon graduating from high school and before beginning the formal study of architecture, Mockbee served two years in the US Army as an artillery officer at Fort Benning,





Despite its mere \$12,000 budget, the Goat House, an 800 sq ft construction, feels palatial. The hardwood floors were created from refurbished planks from the old wood roof of the house. Large glass doors and windows at both ends create a spacious effect by opening completely to the outside air

The Rural Studio was set up to raise the spirits of the rural poor through creating buildings to the same standard as those for prosperous clientele

Georgia. At the conclusion of his armed service, he enrolled at Auburn University and graduated from its School of Architecture in 1974. After an internship in Columbus, Georgia, he returned to his native Mississippi in 1977 to form a partnership with classmate and friend Thomas Goodman. Their firm quickly established a regional reputation for outstanding design that utilised local materials and vernacular imagery. Mockbee Goodman Architects won more than 25 state and regional design awards during their short affiliation.

However, it was his partnership with Coleman Coker in 1983 that established Mockbee's reputation as one of the nation's premier regionalists, and as a strong and important new voice coming from the South. In 1990, Mockbee Coker Architects was selected by the Architectural League of New York to participate in its prestigious Emerging Voices series.

In 1995 Princeton Architectural Press published *Mockbee Coker: Thought and Process*, a monograph recognition of their important, but unusual body of work. The book documented the manner in which Mockbee Coker challenged the preconceptions and definitions of the normal process of creating architecture. It was during this time that Mockbee began to bring into focus a personal understanding and recognition of the social, economic, and cultural inconsistencies that existed in the late-20th-century South. That collected knowledge, coupled with the existing cultural heritage of mystery and mysticism in the region, became a framing device that established both boundaries and opportunities for his work. It was this experience that led to Mockbee's early interest in working to improve the living and working conditions of the South's most impoverished citizens.

The Auburn University Rural Studio became the vehicle through which Mockbee would be able to realise his personal aspiration: that architecture would become, for him, a work that was true to the heart. The Rural Studio was conceived as an opportunity to raise the spirits of the rural poor through the creation of homes and community facilities that aspired to the same set of architectural ideals and virtues as those



The Rural Studio builds communities between families and neighbours. The Carpet House was built for a married couple, both of whom grew up in Rural Studio houses down the road from their new home with their children




Samuel Mockbee had an amazing talent for design, but his uniqueness came from his compassion for people, especially the socially disadvantaged

buildings which have substantial budgets and prosperous clientele. Mockbee once said, 'Everybody wants the same thing, rich or poor... not only a warm, dry room, but a shelter for the soul.'

The Rural Studio epitomises that aspiration. Working from this ideal, students enrolled in the Rural Studio are exposed to the concept of 'context-based learning' where they live in and become a part of the community in which they are working. Through this process, they learn the critical skills of planning, design and building in a socially responsible manner. More importantly, Mockbee's social ethic is imbued in the students by instilling professionalism, volunteerism, individual responsibility and a commitment to community service.

In that context, Mockbee and the Rural Studio faculty have involved the students with materials, investigations and technologies that have mitigated the effects of poverty upon rural living conditions. Mockbee presented architecture as a discipline which is rooted in community... a principle that must be committed to environmental, social, political, and aesthetic issues. The Rural Studio is a demonstration to students that they can make a difference.

In September 1998, Mockbee was diagnosed with leukaemia. The illness slowed him down, but he nonetheless remained committed to the aspirations and ideals of the Rural Studio. He and his students began experimenting with recycled goods, such as discarded cardboard and carpet tiles, as potential low-cost building materials. On 30 December, 2001 he died of complications from the disease.

Samuel Mockbee was a rare hybrid who was truly loved and admired by all who came in contact with him. He had an amazing talent for design, but his uniqueness came from his compassion for people, especially those who were socially and economically disadvantaged. He cast a spotlight on an aspect of our culture that most avoid... and he demonstrated that socially responsible architecture can delight the senses, inspire the masses, and serve the soul. Through the Rural Studio, his work and inspiration lives on. 

For further information, see www.ruralstudio.com





The walls of the Haybale House were constructed from 24in-thick bales of hay, stacked and stuccoed with concrete for insulation. Ventilating awnings on the windows at the front of the house keep the house cool, despite hot temperatures in Alabama

Living by the light

Since his enthronement as Archbishop of Canterbury in 2003, **Dr Rowan Williams** has made concern for the environment a central focus of his role. He tells Jeremy Smith why he might just like to go down fighting.

Ecologist: How serious do you think the environmental crisis is?

Archbishop: I'm not a scientist, but it looks pretty bad. It certainly looks as if there are some kinds of degradation of the environment that are more or less irreversible, and a lot of what we are talking about in terms of what can realistically be achieved is limiting damage rather than reversing trends. We are poised on that difficult point of balance. We've got to get people to take it seriously. And we must not make people paralysed with panic.

Ecologist: What is the worst problem confronting the world today?

Archbishop: Short-term vision. Whether it's in terms of the environment, or departing from the Middle East, or anything else. It's as if what matters is to get through the next 48 hours and no further. That seems to be the curse that afflicts us all under a short electoral cycle. Added to this, our attitude to consuming. We are so focused on the idea that a person is essentially somebody who consumes. In a society that is very focused on consumption, you lose sight of what it is to be a producer, and the much longer-term disciplines and training and patience and skill you need to produce actual things.

Ecologist: Where do you see the root of this consumer mentality?

Archbishop: There's never just one thing that you can point to in human history, but I think there was a phase around the beginning of the industrial revolution where everyone became absolutely intoxicated with the possibilities of what you could do with the stuff around you. And that intoxication led to a predominance of the problem-solving, quick-fix mentality.

In some ways of course that's been hugely good, we can produce more food for more

people, we can develop medical skills and technology. The downside is that everyone looks for a quick fix. The idea that there might be something to be said for learning how to be a part of a limited environment that puts its own constraints on consuming – well, that just fades away. And what you get is a kind of picture of human beings as only rather tangentially related to their bodies and their material environment. The real you is this kind of avid, rasping will and appetite that's reaching out to conquer the world. It's not about living in something, embedded.

Ecologist: With climate change, we are now seeing a reaching of limits. Yet at the same time, enough seems to be a word lacking in society. When will we say, enough is enough?

Archbishop: It does seem as though we need some fairly stark crisis to reign us in. If, let's say, natural fuel supplies are as fragile and running out as fast as I am increasingly told, then that's one of the things that's going to hit us immediately in terms of how we have to adjust. The trouble is, it's not likely to hit us without a lot of conflict over the remaining supplies. And my anxiety is again the balance between saying, well, there might come a crisis that would be really good for us and drive us to think that we can't do this; and yet, before we get to that point, there could be a stage where levels of competition over scarce resources in some parts of the world – whether it's natural fuels or water – so push up the temperature of armed conflict that we actually get further away from a reasonable settlement.

Ecologist: I interviewed Ken Livingstone a few years ago and he talked about the need for some sort of environmental 9/11 to wake us up. Since then we've had the tsunami, the Bam earthquake in Iran, Hurricane Katrina –

so what, exactly, do we need? To flood the Netherlands? Do we need to lose Bangladesh?

Archbishop: That's the fear, isn't it? Because most of the people who make decisions for the world are still safe in an area of the globe where this doesn't happen very much. Other people have tsunamis. It probably is only if the Thames floods, if Lambeth Palace is under water, that it might concentrate peoples' minds a bit more.

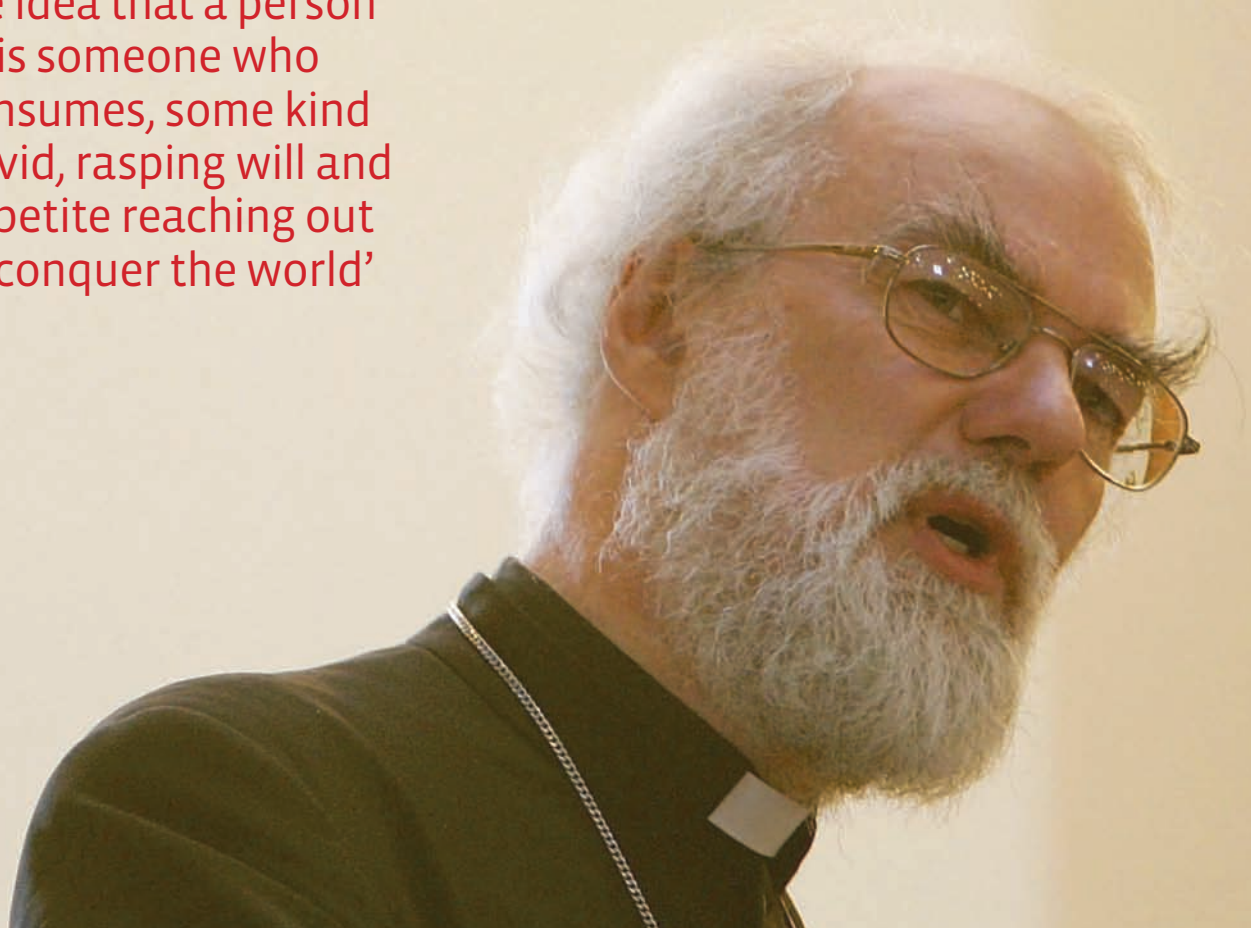
Ecologist: It often seems that it's only when people have children that they really sit up and take notice of the problems in the world.

Archbishop: Yes. You're responsible for another life. I think that one of the great tools of raising awareness is to hammer away that point of responsibility for somebody else's life. Those of us who are parents know what it is like. Those who aren't, have some inkling of it. To try to get that sense of holding responsibility for other lives in your hands: that's crucial. And, against that of course, come all those forces that are trying, as you might say, to bring up our children for us, so that now at three years old, more children know the McDonald's logo than know their own surname. That indicates that our responsibility for our children is constantly rubbing up against all the people who are really too eager to take responsibility for all the wrong ways for inducting children into a faster and faster cycle of consumption.

Ecologist: Often, the problems seem so vast that the natural response for a single person is to pass on the responsibility, to say this is too big for me to deal with. Are we too small to make a difference as individuals?

Archbishop: The individual has some leverage. This is the reverse side, the less destructive side, of the consumerist mentality. You have

‘We are so focused on the idea that a person is someone who consumes, some kind of avid, rasping will and appetite reaching out to conquer the world’





power. Although consumerism is a disastrous and destructive thing overall, it can be turned to good, if we assume that every individual consumer has at least some leverage.

But in addition, we need to say: your own integrity and self-respect are somehow bound up in this. At the end of the day, even if you knew for certain that climate change was irreversible, there would be a better or worse way to live in the environment. There would be a way more or less congruent with human dignity and responsibility.

That's not an easy message. That's a message that has a lot to do with spiritual responsibility in the wider sense. One thing I've often quoted that I really love is Martin Luther saying, 'if I knew the world would end tomorrow, I would plant a tree'. The right thing to do is the right thing to do. There are good ways of living in this environment. And they are just good. They are in themselves healthy. And you might just want your life to bear witness to that. You might just want to go down fighting.

Ecologist: You've said before that humans can imagine three responses to evil: violent opposition, surrender, and the third way, of

militant non-violence, that articulated by Jesus, Ghandi, et cetera. Yet you have said that modern society conditions us to choose between only the first two. So where does this space for militant nonviolence come in?

Archbishop: We talk about the cross of Jesus and the resurrection. And it's not just 'a terrible tragedy, poor old chap, he suffered a miscarriage of justice'. It unleashes something that changes how human beings see themselves: you don't know the scale of the change that your actions may make possible... and you don't need to know.

It means a freedom from being obsessed about results. Jesus says in the gospel that you mustn't be anxious about tomorrow. By which I don't think we should hear him saying 'don't worry about the environmental crisis'. He means don't be anxious about yourself. You know what you've got to do today. Do it, today, while the light lasts. And what results will come, who knows?

Today we instinctively justify ourselves by results, the effects of our actions. 'It's worked, I'm all right, I've made a difference. Phew.' To believe that we don't have to justify ourselves, that's the big religious step. I don't have to

justify my existence. God's done it, by putting me here. That's all I need to know.

I think that does two things in this particular context. It gives me grounds for saying, obstinately, that even if we know that in 30 years there will be irreversible change, there are things I should do now, just to be true to who I am and where I am. Secondly, it gives me an attitude to the whole world around me that says, it's not just there for me to milk, squeeze and exploit. It's also there for its own sake, not to be justified. Things exist not just for my purposes. I think the heart of the religious approach to the ecological question is that sense that the world is not just for me.

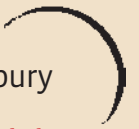
Ecologist: Do you think then that there is now, in this increasingly materialistic world, a real space and a need for religion and the environmental movement to learn to speak with a shared voice?

Archbishop: Absolutely. There's an assumption that some religious people make – Christians especially – that 'oh, environmentalism is New Age-y and dangerous'; and there's an assumption that some people in the environmental movement make, that Christianity is all about exploiting the environment. And we've been trapped with these stereotypes and we really need to engage more directly.

I think what both would recognise very clearly now is that the more artificial our environment, the more artificially controlled, the more policed, the less likely we are to feel our lives moving in rhythm to something else. The more we have 24-hour business practices, the more we assume that a global connections network dictates an unstoppable flow of information and business, the less we get any sense of being in another sort of flow. It's a deeply secular mindset.

We ought to be looking at this. What do artificial environments do to our sense of belonging to something greater – be that the rhythms of the world, Gaia, whatever – or maybe, as a Christian, the patterns in which God has fixed the creation, what the Old Testament calls the wisdom of God? What matters about all of it is that it's a move away from the sense that you've got to be in a controlled environment, to the sense that you've got to listen for the drum somewhere else.

Ecologist: Speaking of our relationship to the world, within the arrangement of the



'Even if you knew that climate change was irreversible, there would be a better way to live. The right thing to do is the right thing to do'

church and its parishes we still have local organisations that are connected to a wider sense of responsibility. Is there something here, some model of the think global, act local dynamic?

Archbishop: It's important that the Christian church is not a global franchise with outlets. It's a network of essentially local communities, which have found ways of connecting and interacting. It's a good example of what a local community can do. The church is a pool of skills and volunteers ready to be at service to the community around it. So, I think local churches can do a great deal in raising awareness and good practice. And there is a move to encourage congregations to designate themselves as eco congregations, to sign up to a set of protocols which will have to do with using fair-trade products, with attitudes to waste, with commitments to the use of energy in church buildings, which is a sore point sometimes given the heating problems of many of the buildings. As I've said repeatedly in the last couple of years, it's no good my going on about ecology unless we're looking at how many lights and computers you switch off at night in Lambeth Palace.

Ecologist: Yet you've also said before how you're uncomfortable with the notion of the hierarchical leadership set-up, where the Archbishop is seen as someone who makes pronouncements.

Archbishop: On this one actually, I feel much less inhibited than in some other areas. Precisely because it's one of those areas where,

if the Church doesn't take responsibility for talking about it, can we expect others to? And I would really hope that the major leaders of the Christian Church can speak together on this. The Greek Patriarch in Istanbul has made this a huge priority and organises a lot of activities around this. I don't think it has been very high on the Pope's agenda so far, but it was one of the things we discussed in passing when we met recently. The idea that somehow the Archbishop and the Patriarch and the Pope might be able to say things together on this from time to time... just imagine the impact of the senior figures of the world's Christian communions getting together.

Ecologist: ...and other faiths?

Archbishop: Of course. For example, there is a huge amount of Christian-Muslim dialogue going on about the environment. A lot of Muslims say that if we read the Koran carefully there's a fair amount there that would encourage us to have the same kind of respect, the same kind of long-term vision of the creation we're in. There's a very similar sense that, yes, humanity is a key element in the structure – but a key element in the structure, not something which, from the distance, manipulates the structure. And to be in that key position means precisely being attuned to and aware of all the rhythms of the world around us. There is also a fascinating verse in the Koran, which I came across some months ago: 'God has made some creatures whose purpose is obvious and God has lots of other creatures whose purpose you will never

know'. It's a way of saying: stand back, don't assume that if you can't understand what's going on, there's no meaning there.

Ecologist: Talking of meaning: we talk of saving the environment, but do we not really mean saving humanity's opportunity to keep living in the environment? Why do we matter?

Archbishop: For me as a Christian, it's about humanity being in the image of God. Which means that, on the one hand, we're always worth respecting and saving; and on the other, it's a call to exercise a bit of wider moral responsibility. Humanity is worth saving, but the saving of humanity actually involves a restoration and a re-energising of the capacity to engage properly with the rest of creation.

And it's not as if we are looking at survival or non-survival as something that happens tomorrow, when a great catastrophe wipes everybody out. It's a whole series of generations condemned to conflict and degradation if we don't do something. That's where I think, pragmatically and morally, the argument ought to grab us. It's about the image of God being honoured tomorrow and the day after and the day after. And avoiding those situations of collapse of states, and conflict over natural resources, and uncontrolled degradation, environmental disaster, the disappearance of Bangladesh or the Netherlands. That's what we're looking at in a 100-year timescale, I'd say. And that's why we ought to be concerned. We owe humanity more than that. **E**



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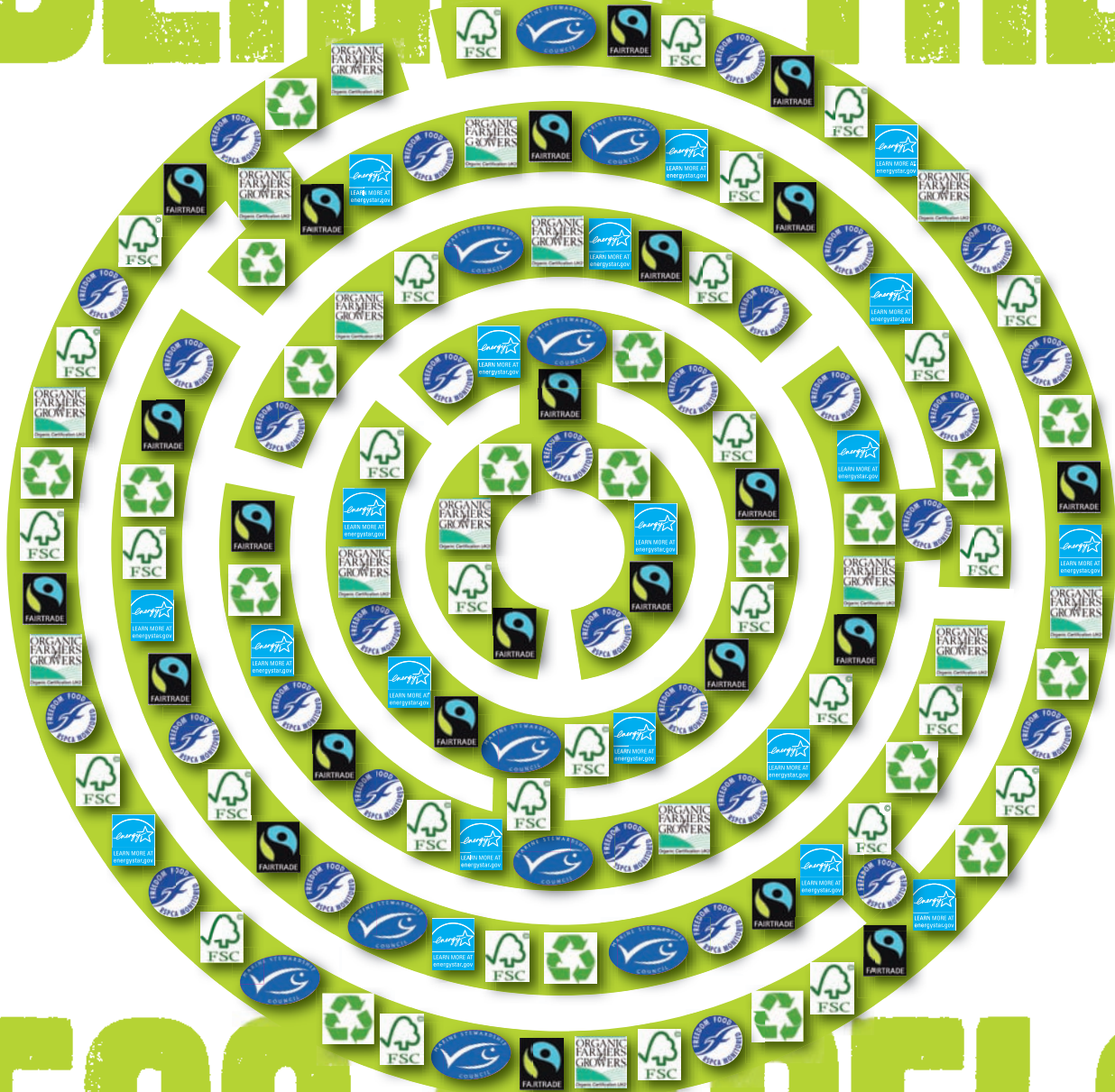
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BEHIND THE



ECO LABELS



Ethical consumerism in the UK is currently worth £29.3 billion, yet 60 per cent of us feel we don't have enough information to make an ethical decision. There is an ever-growing array of eco labels, but what do they tell us? Or fail to tell us? **Pat Thomas** explains

It used to be easy to shop. The bottom line of being a 'canny consumer' was a simple matter of getting the stuff you wanted at the best possible price. Informed choice was simply about knowing which shops had the cheapest prices.

Today things have changed because we know that everything we buy, everything we use and dispose of, leaves a mark on the world. The mark can be pollution caused by manufacture or disposal, the health consequences of using products that are made with and contain toxic chemicals, or the furthering of animal cruelty or human cruelty in the form of sweatshop labour to produce ever cheaper and more abundant goods. Or it can be a combination of all these and more.

Instead of one bottom line, many of us now negotiate at least three or four more, for instance: Is it organic? Is it ethically traded? Is it cruelty-free? Was it produced locally? At times, exercising informed choice can feel like a full-time occupation. Yet informed ►

FREEDOM FOOD

Freedom Food was set up in 1994 by the RSPCA as the first farm-assurance scheme to concentrate primarily on animal welfare. The Freedom Food mark found on eggs, dairy, meat, poultry and salmon products means the animals involved have been reared, handled, transported and slaughtered to standards devised and monitored by the RSPCA.

Sadly, these standards are aspirational rather than strict requirements. Freedom Food certification won't be withheld if these aspirations are not met to the letter. This was amply illustrated a few years ago when reports came to light of Freedom Foods pigs and chickens being raised in cramped conditions, and subjected to tail docking (in pigs) and beak trimming (in chickens). So much for freedom.

According to Viva!, Vegetarians

International Voice for Animals, the Freedom Food animal welfare standards fall well short of the Soil Association's standards and are usually little better than the legal minimum requirements. The RSPCA says its welfare standards are deliberately practical and achievable, thus they can be implemented on both large- and small-scale farms, and cover indoor and outdoor systems.



The Ecologist says

Freedom Food does little to challenge the orthodoxy of intensive farming and because it focuses simply on basic animal welfare, it does nothing to address the environmental impacts of this kind of farming.

FSC

One of the major causes of rainforest destruction and biodiversity loss in tropical zones is the illegal logging of hardwoods. The Forest Stewardship Council (FSC) label, broadly speaking, exists to address this by promoting environmentally appropriate, socially beneficial and economically viable management of the world's forests.

FSC accreditation certifies wood against 10 basic criteria that include the environmental, social and economic impacts of the forest industry. Biodiversity is encouraged and the legal and customary rights of indigenous peoples to own, use and manage their lands is recognised. Workers on FSC schemes have the right to organise.

Because the principles of the scheme are very general, loopholes can be exploited. For instance, although genetic engineering is not allowed, clear-cutting,

use of chemicals (including herbicides) and preservation of old-growth forests are only addressed in a general way, without specific requirements.

Labels on FSC-certified products sometimes include a statement regarding the percentage of FSC wood in the product. However, the FSC label standards have shifted since the programme began. For example, prior to February 2000, chip and fibre products had to contain at least 70 per cent FSC-certified wood to qualify for the label. In February 2000, the minimum dropped to 30 per cent, only to be raised again in 2005 to 50 per cent. Drastic changes to standards like this can mislead consumers.

Last year, organisations from eight different countries requested the FSC withdraw certificates awarded to a number of large-scale tree plantation companies in Brazil, Chile, Colombia, Ecuador, Ireland, South Africa, Spain

and Uruguay. The organisations said the certifications violated the FSC's mandate of promoting 'environmentally appropriate, socially beneficial, and economically viable management of the world's forests'.

The Ecologist says

A recent comparison of forestry certification programmes concluded that FSC is probably still the best of the existing labels. When buying wood products in particular, beware of cheap goods that are not meant to last. Consider also natural products that are wood-free. Best of all, buy second-hand furniture – apart from meaning no new trees need to be cut down, if the furniture has lasted a few years, it's already proved its durability and should last a fair few more years, too.





choices are more important than ever before.

There are shortcuts that can help.

Eco labels such as the Soil Association logo, the Fairtrade mark and the European Energy Savings symbol exist to provide a snapshot of the kinds of products we buy, how they were produced and their impact on the planet. But the ever-increasing number of eco-labels can easily lead to customer confusion.

Shopping by labels is a frustrating process that has come about in part because of how we have learned to produce goods (by strangers in faraway countries) and shop for them (disconnected from the producer and the production process). The complexity of the global marketplace means there is still no all-encompassing label to guarantee, for instance, that our clothes and other non-food items are not made with sweatshop or slave labour. Likewise, although organic produce commands a higher price at the checkout, there are no guarantees that workers on organic farms are benefiting.

Buying Fairtrade may help support industry in the developing world, but it can leave local communities in tatters, produce pollution through air miles and manufacturing effluent and emissions, and promote waste in the mountains of primary, secondary and shipping packaging required to move goods around the globe and get them on the shelves.

The loopholes and missing information of eco labelling are important to know about, because if we make our shopping decisions based on a single variable we can only ever ►

EUROPEAN ECOLABEL

This is a Europe-wide label for non-food products including copy paper, dishwashing detergents, indoor paints and varnishes, hard floor coverings, textiles, televisions... even tourist accommodation. It covers a variety of environmental impacts such as production energy use, waste generation and recyclability, across the product's whole life cycle. Products must be independently certified and meet strict criteria for all the main environmental impacts. In the UK the scheme is administered by DEFRA; its flower label can be found on toilet tissue, kitchen rolls, paints and clothing. Some countries have national eco-label schemes, eg the Nordic Swan and the Blue Angel in Germany.



The Ecologist says

Because it aims to account for the entire life cycle of the product, goods carrying this label will be significantly 'greener' than most other similar products and will consume less energy, pollute less, or create less waste at the end of its life cycle.

ORGANIC

All organic food must meet a common set of minimum standards, as defined by the EU. Each EU member state has a national control body; the United Kingdom Register of Organic Food Standards (UKROFS) regulates the activities of six certification bodies in the UK. The oldest and largest, the Soil Association (founded in 1946), currently undertakes 80 per cent of all certification in the UK and is arguably the organic label most trusted by consumers.

As a label and a concept, 'organic' has hit problems recently. Ideally, organic food should be locally produced, but around 56 per cent of organic food sold in the UK is imported. Organic food shunted through conventional supermarket systems can be stored for extended periods before being put on the shelf, and thus may be less nutritious. The Soil Association recently announced its intention to withdraw certification from imported foods, in a bid to address the problem of organic air miles.

To cash in on a growing market, many large corporations have bought up small organic producers or begun producing and selling own-brand organic food. These corporations, dealing in high-volume goods, have exploited loopholes in the standards that, for example, allow them to raise dairy cows and chickens in confinement.

In the USA, for example, producers only need to give animals 'access' to outdoors; they don't actually have to let them go

out. Large producers are also allowed to feed animals on less than natural diets (such as prepared pellets) and use massive acreages to plant crops (thus encouraging monoculture). Things are better in the UK, but according to Viva!, the only organisation to set markedly higher standards for animal welfare is the Soil Association.

Finally, organic standards do not address the issue of worker welfare. According to a 2005 report by researchers at University of California Davis, a majority of 188 California organic farms surveyed did not pay a living wage or provide medical or retirement plans.

The Ecologist says

In the main, organic standards are among the highest available. You still have to read the label carefully, though. Generally, organic food labelling falls into one of two categories. Category 1 Organic products contain a minimum of 95 per cent organic ingredients by weight. Most organic products on sale in the UK fall into this category. Category 2 Special Emphasis products contain 70 to 95 per cent organic ingredients by weight. These products (e.g. tomato ketchup) can be labelled 'Made with organic ingredients'. These percentages reflect the fact that some ingredients need not be or cannot be organic (e.g. water, yeast and salt).



FAIRTRADE

At heart, fair trade is a strategy for poverty alleviation. It creates opportunities for producers in the developing world who have been economically disadvantaged by the conventional trading system and ensures they receive a fair price for their goods, and support and education for sustainable farming practices.

Fairtrade is not the same as organic, though many farmers in the scheme do use traditional, and thus organic and sustainable, techniques. Some Fairtrade labels volunteer information on how the product (such as coffee or chocolate) was grown organically, to help consumers decide, though this is not required.

A Fairtrade mark will tell a consumer whether a commodity is fairly traded or not, but it does not guarantee fair trade throughout the supply chain. For instance, a T-shirt could be made with Fairtrade cotton, but still be sewn in a sweatshop. Neither does it help

consumers distinguish between companies that are entirely committed to fair trade and those, like Nestlé, that have simply added a Fairtrade product to their range. This is one driving force behind the Fair Trade Organisation mark, launched in 2004 by the major fair trade certification body, the International Federation for Alternative Trade (IFAT). The FTO mark is given to organisations (as opposed to products) that operate according to fair trade principles. Organisations carrying this logo practice fair trade principles from the ground up.



The Ecologist says

When buying goods not produceable in the UK, such as coffee, the Fairtrade mark ensures we pay a fair price to those who produced it. However, scaling down your purchases of exotic goods may be of more general benefit to the environment.

RED TRACTOR

The food industry's attempt to get in on the green labelling act was launched in 2000 to reassure consumers that a range of food products meet independently inspected standards. Compassion in World Farming has criticised the scheme's animal welfare standards, saying that it gives few assurances that animals are treated any better than the minimum legal guidelines – and in some cases even these don't apply.



The Ecologist says

This label cannot be used to assess the ethical or environmental criteria of British food.

MARINE STEWARDSHIP COUNCIL

The Marine Stewardship Council (MSC) began in 1997 as a joint initiative between the World Wildlife Fund (WWF) and Unilever, a multinational company and one of the world's largest buyers of fish. Its aim was to help preserve our dwindling fish stocks by certifying well-managed and sustainable fisheries. Unilever and WWF are no longer on the MSC management board. MSC is officially an independently-run non-profit organisation, with the bulk of its funding coming from charitable

trusts and foundations and government agencies, though Unilever continues to provide funds as well.

The MSC has been criticised for not applying its standards evenly. It has also come under fire for its inability to certify fisheries in developing countries to the MSC standards and its lack of attention to labour problems in the fishing industry. To remedy the first concern, the WWF is now working with the MSC in community-based certification for developing countries, but the issue of fair labour practices remains unresolved.

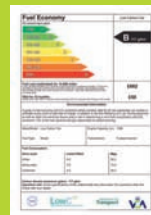
UK FUEL ECONOMY LABEL

This labelling scheme, introduced in October 2001 and found on all new cars, indicates how much carbon dioxide a car emits. It also gives estimated fuel costs for 12,000 miles and the vehicle excise duty for 12 months, so car buyers can see how much these will cost before they buy.

Although it looks like the European Energy Label the similarity ends there. The Fuel Economy Label, for instance, does not indicate that the car has been subjected to any particular criteria. Critics argue that the label puts the onus on the car buyer to choose a low-emissions vehicle, instead of on the automotive industry to improve CO₂ emissions across the board.

The Ecologist says

We don't recommend buying cars. If you are considering doing so, look at all the options. Around 25 per cent of the environmental pollution and 20 per cent of a car's lifetime energy expenditure occurs during manufacture. See if you can cut costs and impact by sharing the ownership of the car with a friend. Where available (London and other urban centres), look into car clubs. And if you are buying new, electric or hybrid cars are improving by the year.



The Ecologist says

The MSC label is of limited use to most consumers, especially if standards are not applied evenly. Where possible, avoid pre-packaged, supermarket fish; go a local fishmonger and learn to ask questions about where the fish came from and how it was caught – and refuse to buy until you get answers you desire. You can also easily learn which varieties of fish are sustainable and which are not. The Marine Conservation Society produces a Good Fish Guide (see www.fishonline.org).



Ethical shopping

fulfil a single goal. Apples are good for you. But if you eat only apples, you will not have a well-balanced diet. It's much the same with using eco labels to define our choices.

Ethical shopping is now a part of the mainstream. Intriguingly, the number of ethical or political consumers – people who make consumption choices informed by values and concerns – is increasing even as faith and interest in other traditional forms of political activity are on the wane.

Eco labels have become a kind of everyday ballot and shopping ethically a statement of intent for many individuals, an immediate way of saying 'these are things I care about'.

In a world where the ethical production and sale of goods was a true priority, our governments would respond to this ballot. They would ban products that waste or pollute. Making the world better by restricting consumer choice may be anathema to many, but consider what's happening in Australia. Last month, the government there announced that from 2009 it will ban incandescent light bulbs in favour of more energy-efficient, compact fluorescent bulbs.

It's a bold and positive move. And we need to respond, perhaps by facing up to the fact that an ethical life and, by extension, an ethical world, will not evolve out of ethical shopping. It works the other way round. To really make a difference through our shopping requires, paradoxically, that we buy less and that when we do make a purchase it is based on values that mean something to us, rather than just hollow promises of good value.

EUROPEAN ENERGY LABEL/ ENERGY STAR

All European manufacturers and retailers must tell you about the energy efficiency of household 'white goods' such as fridges, freezers, washing machines, tumble driers, dishwashers, air conditioners, ovens and lightbulbs. The European Energy Label is certified by the Energy Savings Trust (EST), in conjunction with industry and the government. On these labels, products are rated from A to G, with A being the most efficient. .

In 2004, the most efficient fridges and freezers were given additional 'star ratings' of A+ and A++ to differentiate them from less efficient A-rated models.

Certification is left to the manufacturers, and independent analyses have revealed a tendency for some manufacturers to overestimate the energy efficiency of their products, leading to a false classification of some appliances.

Energy efficiency is a relative term – in the context of the European Energy Label, it is not about absolute energy use but is defined as the demand for energy per unit of 'service', for instance the volume of a refrigerator or the weight of clothes washed. As the equipment gets larger, it is easier to achieve a high level of energy efficiency. Under this rating system, a small fridge may appear to be

less energy efficient than a larger, more expensive model.

The Energy Star, which originated in the US, means that an appliance's energy consumption is below an agreed level in standby mode. The criteria for this agreed level varies from product to product. In the UK, the Energy Star is most likely to be found on TVs and computer monitors, printers and fax machines. Within the EU, Energy Star is a voluntary labelling scheme and its use is controlled by an agreement between the USA and the European community. See www.energystar.gov for details.



The Ecologist says

The policy for energy efficiency white goods is due to be revised again in 2008 possibly to include the removal of current B rated appliances from the marketplace. Refrigerators are designed to last 15 years or so and should not be treated as impulse buys. Likewise it may be time for us to end our love affair with all things electric – such as toothbrushes, shavers, and kitchen gadgets of every conceivable purpose.

LEAF MARQUE

Linking Environment and Farming (LEAF) is an industry-funded certification scheme, with standards aimed at encouraging efficient farming systems that look after the land and the rural community. Its underlying objective is to develop farming standards that are above baseline levels, but these are not aimed at meeting organic standards.

The standards are based on what LEAF regards as a common-sense approach, combining modern technology with basic principles of good farming practice. It covers areas such as soil management, crop nutrition, pesticide use, pollution control, waste management, water and energy efficiency and the protection of wildlife and landscape. It doesn't guarantee that food will be organic, non-GM, UK-produced or that animals will have not been intensively reared.

The Ecologist says

The Leaf Marque cannot be reliably used as an assessment of superior ethical or environmental criteria of any food.



CONFIDENCE IN TEXTILES

Launched in 1992, the Oeko-Tex

standard indicates that the textile has been extensively tested for the presence of harmful chemicals. Fabrics carrying this logo have been subjected to laboratory tests based on international test standards and other recognised testing procedures. These include simulation tests, which take into account all possible ways by which harmful substances could be absorbed into the human body (orally, via the skin, or by inhalation).

The Ecologist says

Textiles carrying this label may be free from harmful chemicals but this does not guarantee an ethical supply chain. They may still, for instance, have been made in sweatshops.



MOBILUS LOOP

This widely-used label can indicate both recycled content and that the product is recyclable.

When a product is described as 'recycled', this means that it contains some material that has been recovered or reprocessed. This does not necessarily mean that it is made from 100 per cent recycled material, but could contain any proportion of recycled and virgin material.

The symbol has different implications for different products. Glass, paper and cans are recycled into similar products so can be used and recycled repeatedly. Most plastics can be recycled just once, and not in the same form. Soda bottles might become carpet or sleeping bag stuffing. Milk bottles might end up as building materials, recycling bins and toys.

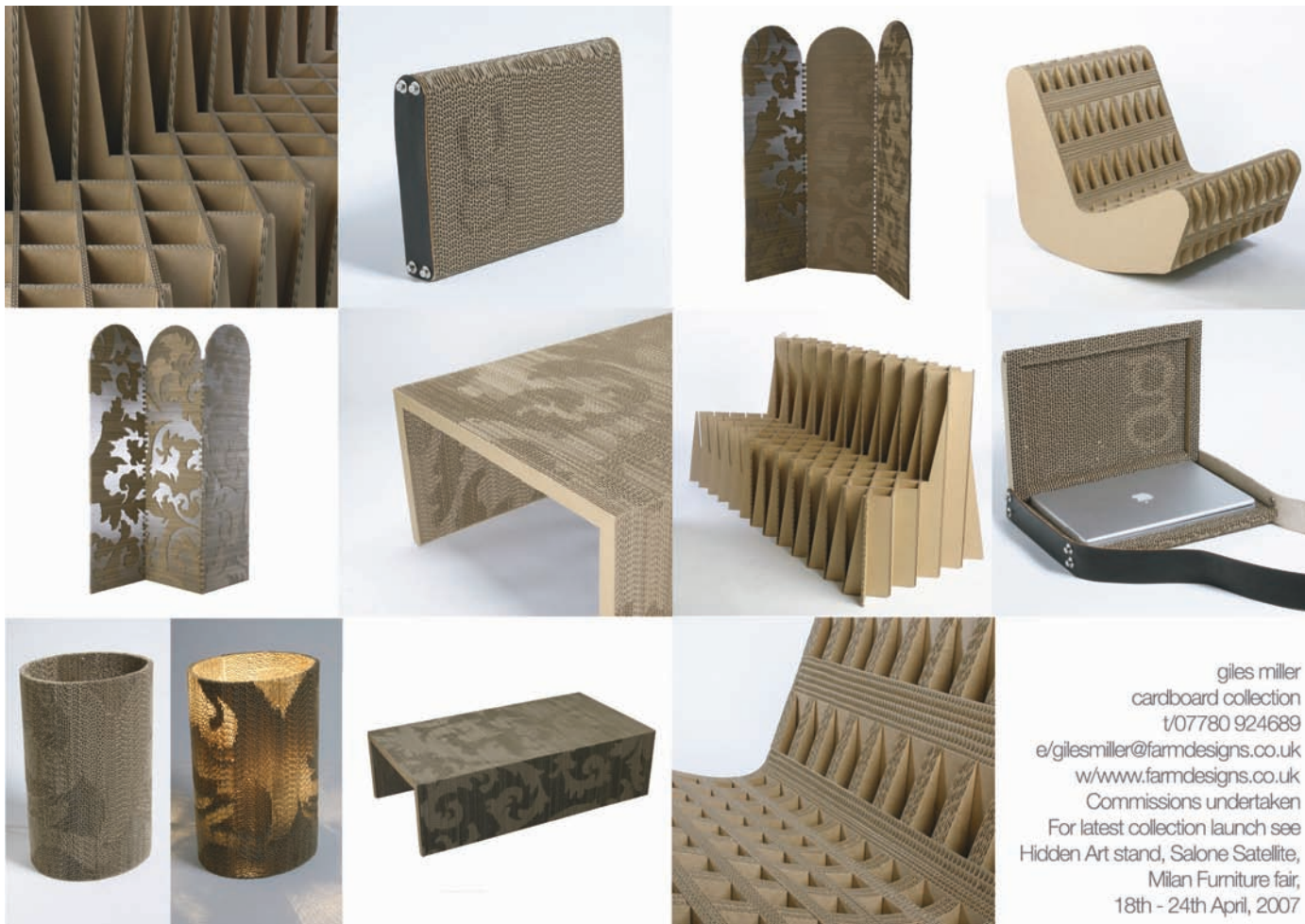
Currently only about 3.5 per cent of all plastic generated is recycled, compared to 34 per cent of paper, 22 per cent of glass

and 30 per cent of metals. Critics say the environmental impact of plastics regeneration is quite high in terms of energy use and hazardous by-products.

Also, the presence of the mobilus loop does not necessarily mean the product will be accepted for recycling locally. Producers increasingly manufacture their goods for a European or worldwide market and are obliged to include a variety of symbols, some of which are not for the benefit of the consumer but for the waste handling/disposal industry.

The Ecologist says

The most efficient thing consumers can do to reduce waste is to buy less, reuse where possible and refuse to buy over-packaged goods.



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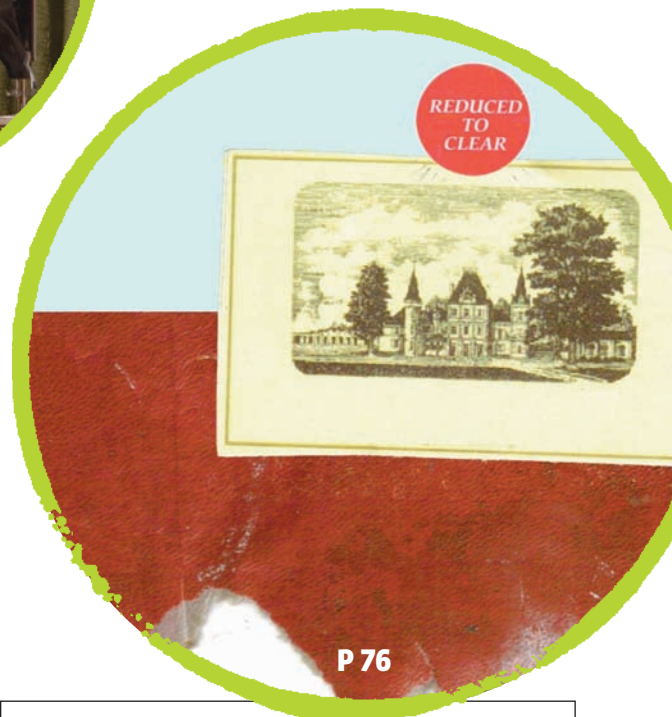
Pat Thomas helps us break out of the vicious circle that leads us to reach for painkillers when a headache occurs – only to find that they themselves can cause headaches too



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



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★ READER OFFERS ★

- 88** Ditch the plastic with Onya Bags – buy three, get one free
- 90** 50 per cent off finished oak floors from Christina Meyer
- 96** Hemp your wardrobe with THTC's three-for-two T-shirts offer
- 98** 10 per cent off My Being Well's range of bodycare products and cosmetics
- 99** Ecologist Cloth Nappy Trial Pack

It's a fact that all of us – whether campaigners, bankers, gardeners, or stay-at-home parents – impact on the world through our everyday decisions. More than ever before, we need to be armed with



information if we want to make a positive difference. The *Ecologist*, in its 37 years of existence, has always informed us why we need to change the world. How to do it, on an individual, practical level has largely been left implicit. This is why the Green Pages – the *Ecologist's* own 'how to' manual – were introduced three years ago: as a kind of helpful release valve for those of us looking to make an impact through our daily lives. Green consumerism is one answer - simply changing what we buy and who we buy it from has ripple effects throughout our society. But green consumerism has its limitations. Self-empowerment also comes from aspiring to less and from simplifying what you need. In these pages you'll find ideas and people that inspire and practical information to do it yourself.

email: greenpages@theecologist.org

April

BY LAURA SEVIER

Spring now arrives around two weeks earlier than it did 30 to 50 years ago. Help to record how climate change affects wildlife: join the UK Phenology Network, www.naturescalendar.org.uk



The great outdoors: get out more

Three better ways to work out:

- Quit the gym (and its energy-intensive machines) and go for a run in an open green space.
- For more of a challenge, British Military Fitness runs 50-minute outdoor fitness sessions in parks across the UK: www.britmilfit.com
- Improve your health and the environment at a Green Gym. A typical session lasts three hours and consists of warm-up exercises followed by gardening or conservation work. And it's free! Visit the BTCV website, www2.btcv.org.uk/display/greengym_how



Earth Event

An eight-week programme of activities built around the spectacular photography of Yann Arthus-Bertrand's *Earth from the Air*. Based in Norwich, Earth Event showcases local organisations in the campaign against climate change with activities for all ages. www.theforumnorwich.co.uk/earthevent

BIRD OF THE MONTH

Swallow

When? Between April and September

Look out for • Swooping, graceful flight

• Long wings; long, forked tail • Dark-red throat and forehead, cream underside

Listen Their call is a cheerful 'vit, vit' in flight and a rapid twittering song.

Where Open country, usually near water and houses; nests on ledges in outbuildings.

See www.naturescalendar.org.uk/identify/birds



April flowers

Bluebells start to bloom in early April in woods and hedgerows, often so close together they form a blue 'carpet'. Seeing a wood greening and 'blueing' is one of nature's best spectacles and Britain has the finest bluebell carpets in the world. To find one near you, contact The Wildlife Trusts on 0870 0367711, www.wildlifetrusts.org

Dandelions, often thought of as weeds, have many medicinal and nutritional qualities. Dandelion leaf is a rich source of beta-carotene and contains more iron and calcium than spinach. Used for centuries as a spring tonic, it helps to purify the body and is good for the digestion, the liver and the skin. The young leaves can also be used in salads, boiled as vegetables or made into soup.



ECO EXHIBITION

Alvar Aalto: Through the Eyes of Shigeru Ban

Finnish architect Alvar Aalto (1898-1976) was a modernist who was inspired by nature. His approach has influenced many contemporary innovators, such as Japanese architect Shigeru Ban, who is curating this retrospective of Aalto's work. Ban himself is an icon of green architecture: he uses natural and everyday materials, from bamboo to cardboard. Until 13 May, Barbican, London, www.barbican.org.uk

20 April

Food for free

Ever wondered what woodland berries you can eat without getting poisoned? Learn how to forage for edible roots, leaves, berries and flowers – and how to cook them – at Assington Mill in Suffolk, www.assingtonmill.com



In season

PICK OF THE MONTH

Suki pure

Oil straight on my face – how would my skin breathe? A few squirts of Suki’s facial serum with blue chamomile and echinacea (£25 for 22ml) put that anxiety to rest. Light, refreshing and nourishing, Suki’s delicate infusions of essential oils and other natural ingredients are easily absorbed and leave the skin radiant. Suki – motto ‘know your beauty’ – produces a range of all-natural, minimally processed, organic and biodynamic skin and hair care products. www.touchmyface.co.uk **Matilda Lee**



Stars in your eyes

Don’t know your Orion from your Plough? Look up ‘sky tonight’ and ‘current sky diary’ on The Society for Popular Astronomy website for information on moon phases, meteor showers, eclipses and other celestial events. www.popastro.com

TREE SPOTTER

Ash

Name From *aesc*, Anglo-Saxon for ‘a spear’.

Appearance Grows to 40m; elegant deciduous tree.

Lifespan 400 years

Foliage Flowers appear before the leaves in April, near the twig tips. The leaves are ‘pinnate’: a central stem and nine to 13 toothed oval leaflets in pairs, with a single one at the tip.

Sex life Dendrologist Alan Mitchell called it a tree of ‘total sexual confusion’. Its flowers may be male, female or bisexual and vary from year to year, branch to branch. Male parts are purple pollen-filled clusters; female parts dangle to pick up wind-borne pollen.

Where? Woods, hedgerows, streets, parks. Royal Forestry Society: www.rfs.org.uk



Grow your own strawberries

Strawberries can be grown almost anywhere: they’re not fussy about soil type and they survive weather conditions ranging from cool damp Scotland to fiery Spain. April is the time to plant bare root strawberries, once the soil starts to warm up. Garden Organic has a step-by-step guide: visit www.gardenorganic.org.uk and type ‘grow strawberries’ into the Search box.

21–27 April Downshift

Life is not a race, nor are we rats. So slow d...o...w...n... during National Downshifting Week. Downshifting is about living a simpler, greener, less cluttered and less stressful life – you don’t have to move to a river cottage and keep pigs in the back yard. To take part, you only need to commit to downshifting one aspect of your daily schedule. For ideas, visit www.downshiftingweek.com



Email: laura@theecologist.org with upcoming events for In Season

8 April Easter chocs

8 April is Easter Day, an excuse for Cadburys, Nestlé and Mars to sell even more chocolate. Around 80 million full-size Easter eggs are sold in the UK as part of this annual nationwide chocolate binge. Go for organic and fair-trade instead: www.divinechocolate.com, www.hotelchocolat.co.uk, www.montezumas.co.uk



April food in season

- Brussels sprouts
- Carrots
- Chervil
- Chicory
- Coriander
- Dandelion
- Garlic
- Kale
- Lettuce
- Morel mushrooms
- Parsley
- Parsnips
- Potatoes
- Purple sprouting broccoli
- Radish
- Rhubarb
- Rocket
- Rosemary
- Sorrel
- Spinach
- Spring cabbage
- Spring cauliflower
- Spring greens
- Spring onion
- Swedes
- Tarragon
- Watercress



5 ways to cook kale

Trim the stringy stalk, wash well and coarsely chop the leaves.

1. Steam or boil it in a pan for 3–5 minutes. Season and serve with butter.
2. Wilt the leaves in a pan with a little hot butter and garlic.
3. Stir-fry in hot oil with garlic, mushrooms and broccoli (or any spare veg). Add tamari, sesame seeds and serve with noodles.
4. Kale and mushroom risotto: see www.rivernene.co.uk
5. Kale pesto pasta: see www.vegbox-recipes.co.uk



LOCAL HERO

Barney Haughton

Paul Kingsnorth meets the Bristol-based chef with an eco-friendly restaurant and a mission to take real food to a wider community

Bristol has changed. When I lived near the city a decade ago, its old docks were run-down and crumbling, their water murky, their buildings empty. These days they're fronted by pubs, bars and restaurants, spanned by a swanky new footbridge, moored with narrowboats and widely visited. Regeneration has arrived.

It's quite a transformation, but not the only one going on here. For it's

on this reborn harbourfront that Barney Haughton runs Bordeaux Quay.

At first glance, Bordeaux Quay doesn't look out of the ordinary. It fits in well with its transformed, upmarket surroundings. It's a huge, white ex-warehouse at the end of the docks that has been converted into a restaurant, bar and brasserie. Inside, it's spacious and open-plan; all light wood and high ceilings. A well-stocked bar lines one wall; the other features a mouthwatering cheese counter, a deli and open



What we're doing here is massively different from an ordinary restaurant

hatches in the wall through which you can see white-clad chefs at work in a stainless-steel kitchen. The staff are friendly and efficient and the food is great.

So far, so familiar, perhaps: another new gastro-eatery serving extra-virgin olive oil to the bourgeois foodies of a major city. But all is not as it seems. Bordeaux Quay is different. It is the result of almost a decade of work by its founder, award-winning chef Barney Haughton; and it's not just



a restaurant: it's a mission.

For a start, the food served here is organic, and the vast majority of it will be sourced from named and monitored producers within a 50-mile radius. The building itself is as green as they come. All the building and refitting materials have been sustainably sourced, its carbon footprint has been reduced to its smallest possible size, natural airflow is harnessed in place of air-conditioning, rainwater is used to flush the toilets; and everything that can be will be reused, composted or recycled. Even the wooden spoons come from sustainable forests.

But even more, Barny Haughton's mission is to bring good, local organic food to the people. To take it beyond middle-class foodies. To give people on income support, young carers and the disadvantaged the practical skills to feed themselves with real food. To explode the current myth that good food is only for the rich. And Bordeaux Quay is the base camp from which he is going to do it.

He's well-qualified for the task. Brought up in Yorkshire, Barny was taught to be 'aware of the value of things' by his green-minded family. 'It's been in my blood for as long as I can remember,' he says. A chef for a quarter of a century, he first had a policy of using organic and local

ingredients in 1988, long before most chefs had even heard of them. In 1992 he became chair of the judges for the Soil Association Organic Food Awards and in 1995 was elected to the Academy of Culinary Arts. He's run event catering for the royals at Highgrove and Clarence House.

Over this time he's also been developing ways to take real food to the wider community. He's opened and run cookery schools for adults and children, developed a training programme for primary school cooks and piloted food education schemes for low-income families and young carers. Bordeaux Quay is the latest phase in his mission – the biggest so far, and the most ambitious.

'What we're doing here is massively different from an ordinary restaurant in so many ways,' says Barny, as we sit at a table on the upper floor of Bordeaux Quay, looking out over the docks. 'Even if you just took the core business of the restaurant, brasserie and bars – the way we're sourcing our food locally, and only going for the really good stuff, that's different. And we're doing it for real. There's a lot of talk from a lot of restaurants these days about doing things organically, but there's not a lot of evidence to support it really happening.'

The point, says Barny, is to link all



It's a way of thinking. We source our food locally, use only really good stuff and ensure nothing is wasted

As well as cookery classes for children and adults, Barny has pioneered a training programme for school cooks and piloted food education schemes

aspects of the process together, and make them work as a whole.

'It has a certain integrity,' he says. 'I don't mean that in a moral sense, I mean as part of the overall food concept. If, for example, we buy in a whole carcass of pork then we want to be able to use every bit of it. So it will be used in all these different areas. We can sell stuff in the shop, in the brasserie and in the restaurant, the cookery school can use other parts of it for demonstrations, and so on. It's really a way of thinking – ensuring that nothing is wasted, and everything fits together.'

This part is challenging enough, even before Barny's wider ambitions are taken into account. This is why Bordeaux Quay has taken the unique step of employing a Sustainable Development Manager, Amy Robinson, whose job is to oversee and continually improve the sustainability of the whole operation.

'What she's having to do,' says Barny, 'is take into account every aspect of this business, from the sustainability of the building itself to what comes in and out of it, from developing policy on environmental issues all the way down to the organic linen for the tablecloths, the staff education, our links with community groups, energy use, etc. And there are no models to follow,

Local hero

because no one else is really doing all this.’

As if on cue, one of the staff brings us a bottle of sparkling water. This, Barny tells me, is actually Bristol tap water – de-chlorinated, carbonised and as good as any expensive mineral water you’re likely to find. It’s locally-sourced, high-quality, and customers can drink as much as they like without paying a penny. But there’s nothing on the bottle that advertises this fact, and most people drinking it probably have no idea. It’s a good example of his preferred approach – don’t boast about it. Just do it.

It’s also a good example of what has made Barny successful over the years. Because it tastes good; delicious, in fact. And what is at the heart of all of this is precisely that: the enjoyment provided by good food and drink. For Barny Haughton, it’s central to a good life.

‘Before I was aware of any bigger environmental issues, I was interested in food,’ he says. ‘And if you become

passionate about food and ingredients – well, I defy anybody to be a real chef and not care about where it comes from. That’s what it’s all about.’

It’s certainly been in his bones for a long time. Barny cooked his first major meal – *coq au vin* – at the age of nine. If it tasted anything like as good as the *moules frites* and home-cut chips that I had for lunch at Bordeaux Quay, it would be well worth eating.

‘Everybody loves food,’ he says with certainty. ‘Even if they think they don’t. It’s like the kids we have coming here for cookery classes. You ask, “What don’t you like?” So they give you a list as long as your arm, and we say, “Right, we’re going to use those ingredients.” And when they start playing with those things themselves, most of them – 80 per cent – will eat what they cooked, and love it.’

His passion for food is clear, but Barny is also passionate about Bordeaux Quay being a real, working part of the local community. ‘I wanted this place to be for Bristol,’



Food-buying groups can save money on organic essentials. For details, see **p 87** of our shopping guide

he says. ‘It was about the Bristol community rather than simply about a grand restaurant with aspirations towards sustainability.’

This is where the community work comes in. The Bordeaux Quay cookery school (which, like the restaurant, opened last autumn) is a not-for-profit venture. All the revenue it generates will be returned to a community fund, which will allow low-income families and underprivileged children to attend specially-designed, free courses. Barny and his chefs will give hands-on lessons for small groups, teaching them how to cook, how to source food, where to buy it – and how to enjoy it.

‘In May,’ he says, ‘we’re launching our Community Food Education Programme. Part of it will be offering training at primary school level, showing school cooks how to make decent food with decent ingredients at a low price. We’re talking about cooperatives of schools clubbing together in a small catchment area

Most of the food cooked and served at Bordeaux Quay comes from within a 50-mile radius





Food is a class issue. There's no reason why people with less money should have to eat rubbish

the wider availability and increased popularity of organic and local food, and in the prominent campaigns of celebrity chefs like Hugh Fearnley-Whittingstall and Jamie Oliver. Is he heartened by this development?

'I think Hugh would not thank you for calling him a celebrity chef,' Barney chuckles. 'I think he's great, and so is Jamie, but you can't depend on them to lead the way in terms of how we eat. You know, if you want better food in schools, you're going to have to train cooks, you're going to have to spend money. Two years ago, after what Jamie exposed in *School Dinners*, there was this great outrage, politicians were harping on about how something must be done – but it hasn't been followed up. The commitment isn't there.' It frustrates him, he says, this lack of interest from government, in what should be a crucial subject – the health and nutritional needs of its citizens, especially the poorer ones.

'We get people writing in after our classes, saying "it's changed my life". And what's frustrating is that we know what's possible. But the city council, the Education Department and Department of Health, they need to wake up. The change is all coming from smaller groups, from charities, from places like this, from community organisations. It's not coming from government, and they need to buck their ideas up.'

Yet Barney is, he says, optimistic about the possibilities. Things are finally moving in the right direction. 'If this kind of exposure for Bordeaux Quay plants seeds, and if other people can be encouraged or inspired by it – fantastic,' he says. 'It's really about spreading the message. Now we need that message to be taken up by those in power. Think what that could achieve.' **E**

Contact details

Bordeaux Quay, V-Shed,
Canons Way, Bristol BS1 5UH
Reservations 0117 9431200
General enquiries 0117 9065550
www.bordeaux-quay.co.uk

of the city, facilitated by Bordeaux Quay, to train and coordinate producers, growers and farmers.'

A few years ago, staff working for the Princess Royal Trust Carers Centre in Bristol spotted an advert for one of Barney's cookery courses. Wouldn't it be great, they thought, if he could do something like that for our young carers – under-18s from poorer families, burdened with the task of caring for adults, siblings or ill relatives. So they called Barney, who was more than keen to help. He offered free places on the cookery courses at his previous restaurant, and obtained sponsorship to take 12 young carers on a day course to teach them about a fresh, healthy food.

'It's been terrific,' says Jo Holborn, Senior Carers' Support Officer at the Carers Centre. 'Often, the kids we work with eat a lot of takeaways and ready meals, because they have really busy, difficult lives. What Bordeaux Quay does is give them the awareness of how easy it is to cook a real meal – and what fun it is. We asked Barney at the outset not to do fancy wholefood stuff. We wanted stuff that they could make at home – shepherd's pie, soup, meatballs – and he was on exactly the same wavelength. It gives them a real boost, knowing they've done it themselves, and we've had fantastic feedback. We've had families ringing up, saying, "Jamie cooked a whole roast dinner all on his own!" Some of them have even



said they want to go on to be cooks.'

For Barney, this proves an important point. 'Food is a class issue,' he says firmly. 'There's no reason why people with less money should have to eat rubbish. It's all about information and confidence and access to ingredients. If this very small model enables people to come away understanding how to get five meals out of a chicken, what to do with the vegetables that they see in the farmers' market but don't even know the name of, how to shop seasonally, and – very important – to know that it's cheaper to do it that way... if this can help to spread that message, then that's got to help.'

Barney has been trying to spread this message for two decades. Recently it's a message that has become much more common, in

An estimated 50,000 young people in Britain take care of a relative. Barney's classes teach them that home-prepared food is a cheaper, healthier option than ready meals



‘Where do I start?’

Paul Kingsnorth answers the oft-asked question of those who want to grow their own food – organically, of course – but are lacking in knowledge, time, space, or all three. No problem. Read on...

Recently I received an email from Cornwall. ‘I wonder if you might be interested in this?’, wrote

Robert Cox. It turned out that I was. From a series of old Victorian greenhouses in the West Country, Robert is part of a team that runs Rocket Gardens, an online mail order scheme designed to make life easier for people who want to grow their own organic vegetables. The reason it caught my imagination was that it helped to answer a question I am often asked by people who want to grow their own food for the first time.

The question is: ‘Where do I start?’ Often it’s accompanied by a nervous tone of voice or one of those anxious-looking email smilies. Usually, it’s then followed by a supplementary question: ‘And how will I find the time?’ It’s a fair question. Most of us lead busy lives, often busier than we would like, and growing vegetables is time-consuming.

In my book, this is a plus. We live in a society in which everything is a commodity and in which we demand and expect everything instantly. This attitude is not going to wash on your potato patch, and a good thing too. Personally, I can think of few better ways to consume my time than pottering about among bean flowers and sunflowers under the evening sun.

Still, it remains the case that a lot of busy people are interested in growing food. Fortunately, there are a few shortcuts you can take that will allow you to grow your own food and spend a bit less time, and perhaps effort,

doing it. The most obvious of these arises when you think about where and how you’ll grow it.

Recently in this column we’ve looked at how to grow your own food if you have a small flat or a tiny container garden. If you want to be a bit more ambitious, the obvious next step is to get an allotment. I’ve had one for the past four years, and it’s changed my life. However, it can, if you let it, be a hell of a lot of work. An allotment is a big piece of land and, unless you have a large family to feed or a lot of time on your hands, you are unlikely to actually use all of it. Just looking at it lying there untended, huge and intimidating, can make you want to go home and watch the telly instead.

So why not share it? This is a great solution both to the lack of allotment plots in some parts of the country and your lack of time. I know many people who share a plot. Depending on how much land you want, and how much you want to grow, you could have three, four or even five of you on one plot. The advantages are many. It saves you money – not that an allotment will cost you much in the first place (from around £10 to £20 a year in most parts of the country). It means you have a small and more manageable piece of land to work. Most of all, though, it





in. If you're short of time and expertise, they will sell you ready-grown organic vegetable seedlings, raised in their greenhouses from seed. You can either order individual veg from their list, or get yourself a ready-put-together selection: an instant herb garden, salad garden or vegetable garden. You'll receive it through the post, and all you need to

means that you share things. Knowledge, equipment, tools, tips, seeds – a shared allotment means a lot more than simply shared soil. It means you have access to other peoples' skills, minds and flasks of tea. It means that you can panic together, console each other and share your triumphs. Share an allotment and you all save time and energy. It can be the perfect introduction to veg growing.

The next step would normally be to buy yourself some seeds and tools and get planting. This can be tricky in itself, though. Where you start? What to grow? Crucially, how to grow it? Some veg are more accommodating than others. Get yourself some seed potatoes, for example, stick them in the ground and a few months later, you can dig up enough to keep you in mash for the rest of the year. Something like broccoli, on the other hand, is trickier. You need to sow it in a delicate bed, thin it, transplant it, ensure that it's fed and watered at the right time... it takes a while to understand the rhythms of these plants, and what exactly to do with them.

This is where Rocket Gardens comes

do is plant it out according to the instructions. Hey presto: you're already halfway to feeding yourself for the next year.

I don't want this article to turn into a plug for this one company, particularly as they're not paying me anything, but I do think that this is a great idea. There may well be other companies like this out there – and if not, I'm sure there will be soon. The appetite for self-growing is increasing fast in this country. It's a real reason to be cheerful. And the more initiatives that exist to allow busy people to grow their own, the better things will get.

Yet despite this, the key message is that getting started remains up to you. It's not up to companies like Rocket Gardens to get you out there and digging; and despite such helping hands, it's never going to be as easy as buying your veg from Tesco. But who wants it to be? This is a hundred times cheaper, a million times healthier and a billion times more fulfilling. Find a few other like-minded, busy-but-keen potential growers, and off you go. Share, plant, harvest and enjoy.

The soil is the limit. **E**



A shared allotment means more than shared soil. It means shared skills, tools, tips, seeds and flasks of tea...



At a loss for finding organic meat and fish to go with your veg? See the listings on **p 87** of our shopping guide

Useful resources

On the web

Rocket Gardens can be found at www.rocketgardens.co.uk

The Shared Garden Project 12 families share four allotments and grow biodynamically. You can read all about it at www.sharedgarden.co.uk

My Tiny Plot is a great blog about allotmenting, with recipes, tips, stories and links. www.mytinyplot.co.uk

National Society of Allotment and Leisure Gardeners

All you ever needed to know about allotmenting. www.nsalg.org.uk

HDRA/ Heritage Seed Library www.gardenorganic.org.uk

Organic Gardening Catalogue www.organiccatalog.com

Allotments UK How to get started, where to find allotments in your area, plus links and tips from other ploholders: www.allotments-uk.com

Books

The Allotment Handbook by Sophie Andrews (Eco-Logic Books, £6.95, www.eco-logicbooks.com)



The Royal Horticultural Society Fruit & Vegetable Gardening by Michael Pollock (Dorling Kindersley, £20)



Bob Flowerdew's Organic Bible by Bob Flowerdew (Kyle Cathie, £14.99)



All my columns on allotments and food are on my website, www.paulkingsnorth.net Email me with questions, advice, tips or moans: growit@paulkingsnorth.net



REDUCED TO CLEAR



Trouble in Bordeaux

A press conference scuffle confirms **Monty Waldin's** belief that sexy marketing campaigns won't save Bordeaux wines

If prizes were given to people in positions of leadership who stick their heads in the sand when confronted by crisis – no, I'm not talking about the US President – then my vote as a wine writer would go to the people running Bordeaux wine.

Bordeaux is the world's biggest and most famous fine wine region. Yet it is in a state of collapse.

Around 10,000 wine growers make wine in Bordeaux, but of these, only a

select few carry world famous chateau names like Lafite-Rothschild, Margaux, Latour, Mouton-Rothschild and Pétrus. Their wines have never been in such demand, or fetched such high prices (hundreds of pounds per bottle of the latest 2005 vintage, for example).

However, the less famous Bordeaux growers – the majority – have rather carelessly lost their market and are going bankrupt at an unprecedented rate. Of course, Bordeaux's marketing 'experts' say the reason for this is simply, er, poor marketing.

I pointed out more than 10 years ago, in a book called *Bordeaux Unfiltered*, that Bordeaux was facing meltdown if it did not change how it grew grapes. The book was unpublished because I worried that my exposé would land me with hefty legal bills (I was confident in what I wrote, but the French legal system can be financially draining before even reaching court).

The thrust of the book, apart from exposing how some famous Bordeaux chateaux illegally blended their wines, was that industrialising the vineyards with weedkillers, chemical fertilisers and sap-penetrating sprays was killing the very thing that made Bordeaux wines so great: the soil.

When Bordeaux's sales figures first started to slide into the red, a British

press conference was called. Britain has been Bordeaux's biggest customer pretty much since 1152, when Eleanor, Queen of the Bordeaux region, married the future English King Henry II and brought barrels of her local red to London for the nuptials. The fashion for Bordeaux red wine ('claret') caught on.

The press conference was the most depressing moment of my wine career. One broadsheet journalist wondered if Bordeaux's then-new marketing campaign, consisting of two pretty ladies sitting close to each other on a vineyard wall, sipping Bordeaux, was in some way suggestive of a new, sexy, lesbian marketing theme. It wasn't.

Stopping myself from choking on my pen, I addressed the meeting by stating that the reason Bordeaux wines were no longer selling was not due to a marketing campaign not being heterosexual enough, but that the wines tasted thin, green, bitter, unpleasantly tannic, unripe and harsh.

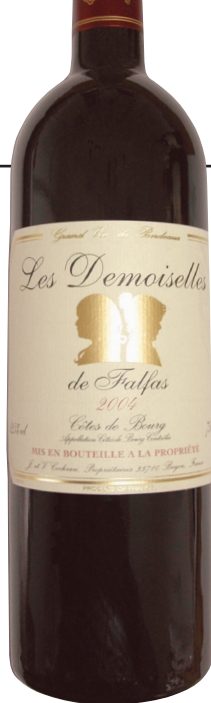
Bordeaux's decision, I said, to turn its once friable soils into cement by poisoning the soil life with too many sprays was bad enough, but redesigning the vineyards both for mass spraying and picking by machine instead of by hand was a disaster.

The vines, which are like mini-trees, were allowed to grow up to half a

Tasting notes

2004 Les Demoiselles de Falfas, Côtes de Bourg (red)

We are often told to 'lay down' bottles of red Bordeaux wines for several years before drinking them. There's no need with this wine, which is already drinking beautifully, and will continue to be full of vital, red fruit flavours for several more years if you do want to lay it down. A refreshing, smooth-drinking red, it can be sipped on its own, but goes into an extra gear at the dining table. It's made from the youngest vines on the Falfas vineyard.



2004 Château Falfas, Côtes de Bourg (red)

If all red Bordeaux wines were as generously textured and had as much energy to the black fruit flavours as this, the Aussies and Chileans would have found it much harder to steal Bordeaux's market. If you want to drink it now, open it a day (yes, a full day) beforehand. If you want to store it, put the bottle in a coolish, dark place on its side and drink it any time before 2011.

metre higher off the ground, to be at the right height for modern tractors, spray rigs, and mechanical harvesters.

At this point, one of Britain's most famous wine writers seized the microphone to say that 'the height of the vines has nothing to do with Bordeaux making unripe wines.'

I seized it back to say that 'everything written on Bordeaux highlights the fact that in its wet climate, the gravelly limestone soils play an important role by soaking up the heat of the sun's daylight and reflecting it onto the ripening grapes at night, like a heat blanket, making the grapes taste soft, ripe and sweet. If grapes are forced to grow higher to take account of modern farming, then of course they will not ripen as well and consumers will switch from Bordeaux to places like Chile and Australia, which do produce soft, smooth wines due to their consistently hotter climates.'

What's all this got to do with organic and biodynamic wines?

Quite a lot, because of how important the 'nuts and bolts' of the vineyard are in producing good wine.

Ten years ago, when I was hurtling around Bordeaux for research, I visited Madame Véronique Cochran at the biodynamic Château Falfas. Château

Falfas is a non-famous estate in a non-famous Bordeaux sub-region (the Bourg hills, or 'Côtes de Bourg'); but the wines Véronique was making there with her American husband, John, were head-and-shoulders above some of Bordeaux's most famous estates.

Their success is based on common-sense good winegrowing, such as pruning the vines according to moon cycles, which preserved their inherent vitality; and picking grapes by hand, so that any unripe bunches could be left out (for composting, in Falfas's case).

Falfas reach an extra level of quality through biodynamics: respecting the soil by feeding it living compost and not dead chemicals, and respecting the vines by spraying them with herb and mineral teas as often as possible.

The fact that Falfas has been a really consistent performer over the past decade shows the benefits of biodynamic farming. The biodynamic vines at Falfas are able to cope much better with the extremes of temperature, rainfall, wind and sun that we are now seeing almost daily.

So perhaps, rather than giving prizes to people in positions of leadership who just love to stick their heads in the sand when confronted by crisis, we should give them some biodynamic herbs and mineral teas instead? **E**



Bordeaux's demise isn't due to poor marketing, but to the spoiling of the soil. Now the wines taste bitter

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Wine club case 7:

See left for full tasting notes:

- 1 2004 Les Demoiselles de Falfas, Côtes de Bourg (x2)
- 2 2004 Château Falfas, Côtes de Bourg (x1)

Full tasting notes next month:

- 3 2004 Merlot Domaine de Beaujeu, Vin de Pays du Bouche du Rhône (x2)
- 4 2005 Soave 'Borgoletto', Fasoli Gino (x3)
- 5 2005 Domaine Clos de Caveau, Côtes du Rhône (x2)
- 6 2005 Nature, Côtes du Rhône, Domaines Perrin (x2)

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A new line in knickers, thanks to Sarah Lucy Smith (right) and Rose Cleary-Southwood

Good clean fun

It began as a student project: environmentally-friendly underwear with a message. But Green Knickers has taken off – to the delight of its founders. **Matilda Lee** reports



From Ann Summers to Victoria's Secret, we're spilling over in big-name lingerie brands. But look behind the push-up bras and lace-edged slips: underwear – a £3 billion market in the UK – is not so upfront about the sustainability of its fabrics or the ethics of its labour practices. Enter Green Knickers.

Sarah Lucy Smith, a recent graduate of Goldsmiths university's Eco Design course, originated the label as a final course project (with website) in 2005. She uses environmentally-friendly fabrics – organic cotton, silk and hemp – to create sexy, comfortable knickers that make you think. For example, there is a range of 'understatement' knickers with 'Stop Deforestation' and 'Cycle More' embroidered on them, and 'Love the World' hearts on globes.

It was only when hundreds of emails began flowing in to ask when

the knickers would be on sale, Sarah recalls, that it seemed 'worth the while' to put her designs into production. She recruited an old friend from secondary school, Rose Cleary-Southwood, whose background is in fashion merchandising. Together, they started Green Knickers.

'Green Knickers proves that eco design doesn't have to be about things you don't do; it can be a giggle, if that's all you want,' Sarah says. 'The hardest part was ensuring an ethical supply chain, which I hadn't thought about when first designing. Now, every step of the production chain is considered.'

Four of her styles are made from organic cotton grown in India and made up there by small, fair trade women's cooperatives. 'Eighty to 90 per cent of the wholesale value goes to the suppliers,' Sarah says. Six other styles – four hemp/silk blends from China and two of organic cotton from Turkey – are made in the UK by a Bristol

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Eco design doesn't have to be about things you don't do; it can be a giggle

women's charity. Manufacturing in the UK is a nod to preserving traditional skills in the UK's manufacturing industry and reducing knicker miles. But it is reflected in their retail price: £25 versus the £12 styles manufactured in India.

In September 2006, with their supply chain in place, Sarah and Rose began selling from their website. 'Some customers say they are the comfiest knickers they've ever worn,' Rose says. As of this month (April), they will be in boutiques across the country.

Green Knickers' size range goes from 8 to 18. Many lingerie lines only go up to size 14 – a bit silly, given that the average woman in the UK is a size 16. 'So many of us feel uneasy in underwear designed for someone with a size 8 figure,' says Sarah.

With a range of bras now in the works, Green Knickers is quickly pioneering a sustainable path out of the nether world of underwear. ▶



Eco clothing



Some customers say that ours are the comfiest knickers they've ever worn



Clockwise from above left: Sarah stitches up a prototype on her trusty sewing machine; good workmanship and lovely fabrics; some of the knickers even have a hidden message





Spring into action

Clear out your wardrobe and give those familiar clothes a spring makeover... **Eithne Farry** has some bright suggestions

Around this time of year I get bored with wearing jumpers, scarves and coats that double up as duvets. I long to be lounging around in summer outfits, paddling in the sea and eating candy floss. And although it's brighter and the days are lighter, it's still too nippy to abandon layering for short sleeves and sunglasses. So I put my wishful forward-thinking to good use and spring-clean my wardrobe. Not only is it satisfying and fun; by the time summer is here, I'll be the proud possessor of lots of new stuff that's been refashioned from old. Here are my tried-and-true tips for spring wardrobe surgery.

First, take a good look at the woolly jumpers you've been wearing for the past few months. Are they a tad raggedy at the elbows? If the holes are tiny and delicate, as if moths have elegantly nibbled on them, darning is the answer. There's nothing small and sweet about the holes in my jumpers, though: the moths have been indulging in a medieval banquet, so a little darning isn't going to do it; for me, patching is the way forward. If you're handy with knitting needles, plain and purl a replacement area, and use a contrasting colour and yarn to make a feature of the repair. Otherwise, make a fabric patch. You can, of course, make this blend in beautifully with the colour of the jumper, but I like to get playful with my make-do-and-mend frugality. Flowered patches culled from Seventies' cotton shirts, lush velvets from salvaged dance frocks, ploughed field corduroy ovals from some beaten-up trousers and squares

of weird tinselly fabric from the dressing-up box can all be put to inventive use in repairing.

If the weather's chilly, keep wearing the newly mended woollies. Otherwise, fold them up and put them away for next year. Store with a lovely hand-sewn lavender bag, so that when you take them down in eight months' time they'll smell of summer meadows.

Next up, a little shirt surgery. Last year's favourite blouse may be looking lacklustre, but a bit of scissors action can give it a whole new look. Snip off the buttons and replace them with new neon ones. Don't throw away the old buttons; pop them into a button jar, so that you can re-use them. On a rainy day, when the sky's overcast and cloudy, tip out your stash of saved buttons and create a sprawly bower bird necklace, a pearly King and Queen choker and a cuff with some velvet ribbon and a handy hook and eye.

Back to operation shirt. Chop the sleeves off just below the elbows. Turn a little hem under the chopped edge so that it looks less messy. Carefully cut the cuffs away from the chomped sleeve, undo the buttons and refasten the cuffs around the wrists for an instant bracelet. Save that gap material and use it to clean your glasses, or cut it into strips 40cm x 5cm, add a line of running stitch and transform it into a corsage, and then decorate it with some spare buttons. Add a safety pin and attach it to your recycled shirt. And if the sleeves are very, very baggy you may even have enough leftover fabric to make a small drawstring bag, handy to store make-up, chess pieces, sweets...

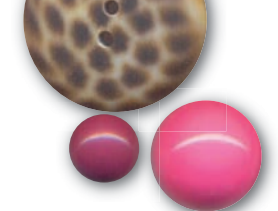
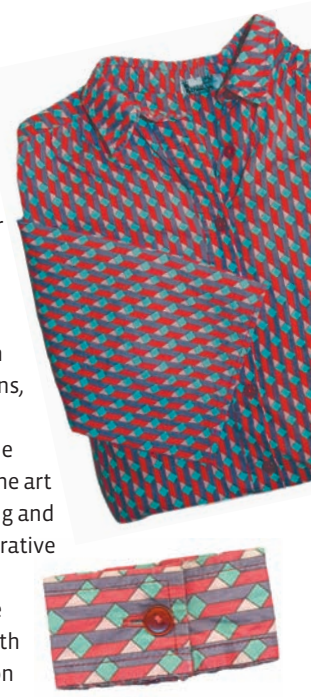
Apply the same scissors-happy logic to old T-shirts. With a few swift cuts, a needle and thread and a bit of

imagination, you can banish bagginess and make a shapelier garment. Regard it as an excuse to get crafty. Embellish it with beads and sequins, melt some wax crayons down the front, or revive the art of potato printing and add a bit of decorative stamping.

You see where this is going – with bit of imagination and some fairly shonky sewing skills, a weekend spent crafting rather than traipsing around the high street can revitalise your wardrobe. Even simple things like adding some pretty ribbon around the neck of a dress, or piping the seams of a lightweight coat with cheery bias binding, adds a light-hearted touch of individuality. Dresses can become skirts, skirts can be transformed into beach bags, and old scarves are just waiting to be made over into summer sunshine tops. Even scraplets of fabric can be made into something unique and quirky. So what are you waiting for? Spring-clean your wardrobe now and you'll be all set for summer.

Need more ideas?

For snip tips: www.ohmystars.net/craft; *Save This Shirt* by Hannah Rogge (Stewart, Tabori & Chang, £10.95); *Generation T: 101 ways to transform a T-shirt* by Megan Nicolay (Workman Publishing, £9.99).





House of bamboo

It's used for kitchen wares, flooring, furniture and textiles. It's natural, fast-growing and versatile. Is bamboo the green gold of furnishing materials? **Laura Sevier** reports

Bamboo is a miracle plant – a member of the grass family with more than 5,000 uses, from scaffolding to surfboards, fuel to furniture, musical instruments, food, cosmetics, aphrodisiacs and medicine. It's part of the daily lives of up to half of the world's population and more than a billion people overseas live in houses made from it. Bamboo – it's one of the fastest growing plants on Earth, and adaptable enough to grow on every continent except at the Poles.

Bamboo is rated highly among architects and designers. 'Bamboo is strong, flexible, durable and beautiful,' says American architect Gale Beth Goldberg. Colombian architect Simon Velez, who has built sports stadia and enormous factory roofs from bamboo, calls it 'steel from nature'. But it's lighter than steel or concrete, and has a natural flexibility that they lack – which is why bamboo buildings fare better in earthquakes and hurricanes. 'Bamboo is subtle, elastic and tenacious,' says Goldberg. 'It's a survivor. It bends but it doesn't break.'

The market for bamboo products

in the UK is small, but a number of companies are pioneering its use...

Floors

At least six companies in the UK now offer bamboo flooring. Paul Robertson of London-based Urbane Living says, 'It's a fantastic product and it's eco. Bamboo floors are easy to install and very durable: harder than oak and half its price.' (His prices for bamboo start at £16.49 per square metre, compared to £31.64 for sustainable oak.)

David Burns, who runs Panda Flooring near Newcastle, says that 'the biggest advantage is its sustainability. Nearly every customer is interested in that aspect.' Housing developers are also catching on: Burns recently supplied 8,000 sq m of bamboo flooring for 110 new apartments in Manchester.

Furniture and furnishings

Bamboo furnishings are cheap and widely available: you can pick up a Bambu roll-up blind at IKEA for £1.59, or a Ken Hom Connoisseur Bamboo Steamer for £9.99 at Argos. Further upmarket, London-based designer





Oliver Heath, renowned for his 'urban eco chic' approach, sells bamboo towels (spun in the UK) and chopping boards in his online store Ecocentric.

Other stockists include Urbane Living (worktops and rugs), BambooZed (beds, coffee tables, chairs, shelves and stools), OKA (bathmats), One Village (placemats and lampshades), Nigel's Eco Store (towels), The Pier (placemats, rugs, bowls and vases) and UK Bamboo Supplies (tables, indoor screens and more).

Textiles

The bamboo textiles market is growing. Bamboo fibre works well for towels as it is soft, durable, anti-bacterial and three times as absorbent as cotton. Interest in bamboo clothing is mushrooming. 'We've had over 1.5 million hits on our website since launching in July last year,' says David Gordon from Bam: Bamboo Clothing, who sells bamboo fibre T-shirts in the UK.

'In theory, bamboo fibre can be spun anywhere,' says Graham Berry of Yorkshire-based company Camira, which is developing a 'very durable' bamboo/wool mix for office furniture.

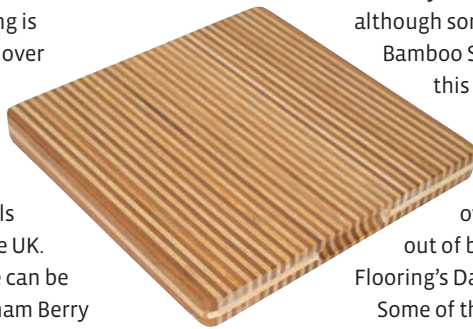
Outdoor furniture

'In the garden, bamboo furniture will last at least 10 years if looked after properly,' says Chris Tilly of UK Bamboo Supplies, near Newcastle. He sells outdoor tables, screens, garden benches, planter boxes, gazebos and bamboo poles online. Many garden and outdoor centres sell bamboo screens and fences.

Gracing your garden

Paul and Diana Whittaker have more than 15 years' experience of growing

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Bamboo flooring is very durable – harder than oak and half its price



bamboo, and have 200-plus species at their Hardy Bamboo nursery in East Anglia. 'It's relaxing to have around as it's so soft, graceful, light and airy – it's always moving in the wind,' Diana says. 'And birds love it – it's a bird haven.'

You can frustrate nosy neighbours by growing a living privacy screen – watch and be amazed at how much the plant can grow in just 18 months. But, living screens aside, you can't build with bamboo grown in this country.

'Nobody in the UK is growing bamboo for anything other than ornamental living plants,' says Paul. 'Here you can only grow temperate bamboo – you'd be lucky to get a diameter of two to three inches. You can't grow the tropical bamboo that's needed for construction.'

Downsides

Herein lies the biggest obstacle to bamboo being a totally green option in the UK. To build anything you have to import 40ft container loads of the thick, tropical variety. Most of the bamboo used here comes from China, where it's been grown for thousands of years and they are experts in its use. And although some companies, such as UK Bamboo Supplies, manufacture in this country, most bamboo products sold here are also made abroad. 'The cost of manufacturing over here would put me out of business,' says Panda Flooring's David Burns.

Some of the processes used to transform the plant from its raw state to products such as floorboards (eg. laminating or sometimes bleaching) are further potential flaws on bamboo's otherwise sustainable CV. Some adhesives used for floorboards contain the toxic chemical formaldehyde, although Panda Flooring and Urbane Living both use non-toxic alternatives.

So, bamboo may not be the future building material of the temperate world. However, as an aesthetically-pleasing and sustainable alternative to wood, plastic and metal, it's hard to beat. Whether we admire it as a living plant or use it as a fibre, flooring, furniture or a fence, bamboo deserves to be called a miracle plant. **E**

Bamboo facts

- Giant bamboos shoot up at the rate of more than a metre a day, reaching heights of 30m (98ft) or more and diameters of up to 25cm. An 18m (60ft) bamboo cut for market will take a mere 59 days to replace, whereas the same size oak tree will take from 40 to 70 years.



- Bamboo releases 35 per cent more oxygen and absorbs at least four times more carbon dioxide than a forest of trees.

- Construction-grade bamboo is ready to harvest in just three to five years, compared with 10 to 20 years for timber; and its yield is up to 25 times more. A single bamboo clump can produce up to 15 kilometres of usable pole (up to 30cm in diameter) in its lifetime.

- Harvesting bamboo does not kill the whole plant, so there's no need for replanting – it just grows back.

- It's good for the soil: the underground network of bamboo stems knits it together and prevents soil erosion. Bamboo can even grow in soil that has been damaged by erosion, overgrazing or commercial agriculture and is typically grown without fertilisers or pesticides.



For bamboo stockist information, check out **p 93** of our shopping guide



How to be healthy Headaches

Pat Thomas looks at this common complaint – and how the most common treatment for it may just pile on the pain



In the mid 1970s, US Federal Communications Commissioner Nicholas Johnson proposed a ban on over-the-counter (OTC) drug commercials, arguing that they were no different from ‘pushers’. ‘We’ve got a drug problem in America,’ he stated. ‘It’s called television.’ Of course, the idea was considered absurd – mostly by drug companies. But the point, which was well made then, is still relevant.

Encouraged by advertising that often depicts pain as an enemy that stops us from living life at full tilt, we down handfuls of analgesics (painkillers) each year. In fact, 85 per cent of all analgesics are sold over the counter, and are the biggest sellers in the OTC drugs market. Up to 70 per cent of the population in the West uses analgesics regularly, primarily for headaches, but also for other pains and to reduce fever.

Women consume more painkillers

than men by a huge margin. But so confident are people generally in the pain-deadening properties of analgesics that they are widely, but wrongly, used to treat other types of ‘pain’ for which they are not recommended – such as bad moods, anxiety, sleep problems and stress.

Around 20 per cent of adults suffer from chronic headaches; migraines comprise eight per cent of all headaches. Headaches are responsible for more presentations to general practitioners, and more drugs are prescribed, or bought over the counter, for headaches than for any other condition. Because chronic headaches tend to strike people during their ‘productive’ years (ages 20 to 50), they are also among the most common reasons for days off work.

In truth, we do not really understand the mechanism of headache well. A headache can be muscular, spinal or

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Eighty-five per cent of painkillers are sold over the counter and form the largest part of the OTC drugs market

circulatory in origin. It can also be caused by different external triggers including chemical sensitivity, changes in weather or in sleeping patterns, stress and particular foods, for instance artificial sweeteners like aspartame and sucralose, or foods containing amines (such as pickles, caffeinated drinks, flavour enhancers such as MSG, chocolate and processed meats).

Coffee consumption and daily smoking also make regular headaches more likely. Women on diets (around 50 per cent) take greater amounts of OTC analgesics, to combat the headaches that result from lack of proper nutrition.

Women are also three times more likely to suffer from severe headache (eg. migraine) than men, as are those who have a family history of migraine. Taking the birth control pill can raise a woman’s risk of chronic headaches. There is some evidence to suggest

a link between a woman's normal monthly hormonal fluctuations and headache, while in men hormone levels do not appear to play a role. In short, the causes of headaches may be as individual as the people who suffer from them.

On the rebound

Headache is now so common that, without careful diagnosis, it is hard to separate primary headaches – eg. those caused by the conditions listed above – and secondary headache, caused by over-consumption of headache medication. This phenomenon is known by the medical profession as medication overuse headache, or MOH. Around 20 per cent of people with chronic headaches and most with daily headaches suffer from analgesic rebound headaches, and this is five times more common in women than men.

Overuse of painkillers often has an addictive, psychological component. Without addressing this, it can be hard to convince sufferers to stop taking the pills. But other factors can turn analgesics into problems. For instance, many headache medications are combinations of ingredients. A common additive is caffeine – usually around 30–60mg per tablet. Caffeine enhances the painkilling actions of many analgesics, but can cause a rebound headache.

Rebound headache is just one of the trade-offs for 'fast relief'. A large 1994 study comparing the treatment of tension headaches with paracetamol, or paracetamol plus caffeine, or aspirin, found significantly more side effects (eg stomach discomfort, nervousness and dizziness) with the paracetamol preparations containing caffeine. The authors noted that this resulted from an unintended interaction of the ingredients, since neither paracetamol nor caffeine would be expected to produce such side effects by themselves at the doses used.

Sometimes the adverse effects are more serious. Studies show that one to seven days of treatment with aspirin



Around 20 per cent of those with chronic headaches, and most with daily headaches, suffer from analgesic rebound



or ibuprofen produces lesions (scars) in the gut lining in 20 to 50 per cent of otherwise healthy individuals.

While paracetamol does not cause gastrointestinal problems, it can cause liver damage, even at therapeutic doses, because metabolising paracetamol requires the enzyme glutathione, produced in the liver. Large regular doses of paracetamol deplete the liver of glutathione, leaving it vulnerable to cellular damage. Because of this damage, a paracetamol overdose can be fatal. This can be prevented if an antidote is given within 16 hours of taking the drug, but there's a catch. The first symptoms of overdose –

gastrointestinal pain, vomiting and loss of appetite – may not appear for 24 hours, and abnormal liver function may not be apparent for 48 hours.

Other evidence indicates that almost any analgesic, if overused, can cause kidney damage. The absolute risk of end-stage renal disease for an 'abuser' of OTC analgesics is in the same range as the risk of lung cancer for a smoker: 1.6 in 1,000 people per year for those who abuse analgesics versus 2.1 in 1,000 for those who smoke.

Overuse is drug abuse

Abuse of OTC analgesics is widespread. Many users are in denial about the amount they take. For example, studies looking for the presence of painkillers in the urine of people whose guts have been damaged by aspirin show that around 10 to 13 per cent of regular users denied using aspirin at all.

While tackling individual causes can be effective, the medical treatment of headaches is often hit and miss. Medical literature is full of survey data showing that people with difficult-to-treat pain are perceived in a negative light by healthcare professionals who find their symptoms hard to understand or treat. But while encouragement to use OTC painkillers may get these patients out of the waiting rooms, it doesn't contribute to good health in a positive way. It can also lead to unsupervised overuse of these medications and cause more problems than it solves. **E**



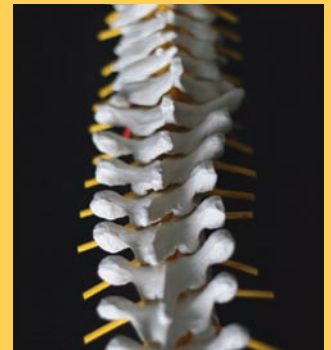
See **p 97–98** for listings of natural bodycare and cosmetics companies

Self-help for headaches

Headache is a complex health condition, with many different types. Labelling the types and causes isn't an exact science but (very) broadly speaking, chronic headaches are an expression of 'stress': physical, environmental, metabolic/digestive, emotional/psychological. The causes can become more obvious if you keep a 'diary' of the what, when and where of your headaches.

In addition to those in the main article, consider these common causes of chronic headache:

- Start with your back. Poor posture and/or any trauma to the spine or elsewhere can turn into headache pain. Chiropractic or osteopathy will be more effective than a pain reliever.



- Toxic air. Is daily exposure to old carpets, dust, cigarette smoke, mould, cleaning products or other chemicals causing a sensitivity or allergic headache?

- Is it eyestrain? Does the lighting in your office or home need improving? Is it time to have your eyes checked?

- Muscle tension can cause or result from headache pain. If you don't unwind regularly, start now. Exercise, yoga, hobbies, socialising – anything that wholly absorbs you and makes you lose track of time will also relax you and reduce the likelihood of headache.

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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



★ Christina Meyer wood products

50% off finished* oak rustic floors

Made from 100% Forest Stewardship Council (FSC) certified European hardwoods

*Finished with a natural eco-friendly hardwax oil

From £40 per sq m + VAT (RRP £85)

Available in four widths: 120mm, 140mm, 160mm and 180mm, they are 20mm thick, and come in 2,000mm length packs.

Why FSC certification is important

The multi-million dollar international trade in illegally sourced timber and timber products is uncontrolled and unregulated, threatening some of the world's most vulnerable forests. In Brazil as much as 80 per cent of logging is thought to be illegal. Studies indicate that the EU imported at least €3 billion of illegal timber and wood products in 2004. (Source: EIA www.eia-international.org). FSC certification ensures that wood has been sourced from responsibly managed and renewable forests.

All Christina Meyer wood products are sourced from FSC certified forests and factories in South Eastern Europe (Christina's husband, Petar Malic, has family in the Balkans.) 'The regional environmental conditions – soil, climate, forest characteristics and a history of conservation and management – have all contributed to create some of the best quality timber in the world,' she says. Since Christina and Petar entered the business four years ago, they've been an integral part of persuading their producers and factories to go for full FSC certification. As a result, says Christina, 'we were one of the first to get FSC 100% proven chain of custody on European hardwoods in the UK.'

This commitment to producing a product that is sustainable and environmentally sound extends to the way the wood is finished. The oils and stains are the most eco-friendly on the market: they're made with natural ingredients such as beeswax, linseed oil and sunflower oil (fair trade where possible) and they contain the least solvents.

What else do they sell?

- By special order: flooring produced from ash, beech, hornbeam, walnut and cherry hardwoods.
- Unfinished flooring
- Flooring finished in different colours
- Different dimensions of flooring such as parquet strips.
- Doors, beds, drawer chests and wardrobes.



White hardwax oil stain Oak



Dark brown hardwax oil stain Oak



Medium brown hardwax oil stain Oak

To order Tel: 0845 644 6588 quoting 'Ecologist offer'. Offer ends: 31 April 2007 www.christinameyer.com



GREENFIBRES
eco goods and garments

- organic cotton bedding and clothes for adults and children
- Soil Association certified organic cotton towels
- biodynamic & organic cleaning products - Sonett
- Demeter certified & natural skin care range - Tautropfen

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Totnes TQ9 5ZZ
tel. 0845 330 3440 www.greenfibres.com

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...absolutely free.

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FREE SUBSCRIPTION TO THE ECOLOGIST WORTH £35

TERMS & CONDITIONS APPLY

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www.econatural.com
Email: info@econatural.com



Hi, I'm Nigel. At my eco store we love things that make a real difference, like this Bamboo computer kit...

To find it, and lots of other great eco products, visit us online at...

* enter code ECOLOG11 on checkout

www.nigelsecostore.com
or call us FREE on 0800 288 8970

10% off to Ecologist readers*



BUILDING & MAINTENANCE

DIY ESSENTIALS

Construction Resources
www.constructionresources.com

Ecomerchant
www.ecomerchant.co.uk

Green Building Store
www.greenbuildingstore.co.uk

The Green Shop
www.thegreenshop.co.uk

The Healthy House
www.healthy-house.co.uk

Nigel's Eco Store
www.theinsightecostore.com

CONSTRUCTION/ RENOVATION

Cob in Cornwall
www.cobincornwall.com

Concept Timber
www.concept-timber.co.uk

Finch Macintosh Architects
www.finchmacintosh.co.uk

Gale and Snowden
www.ecodesign.co.uk

Insideout Buildings

www.iobuild.co.uk

Nicholas Hare
www.nicholashare.co.uk

Mike Wye and Associates
www.mikewye.co.uk

Quattro Design
www.quattrodesign.co.uk

PAINTS

Auro Organic Paints
www.auro.co.uk

Earth Born Paints
www.earthbornpaints.co.uk

Ecomerchant

www.ecomerchant.co.uk

Ecopaints
www.ecopaints.co.uk

Eco Solutions Ltd
www.ecosolutions.co.uk

Nutshell Natural Paints
www.nutshellpaints.com

TIMBER

Altham Hardwood Centre
www.oak-beams.co.uk

Victorian Wood Works
www.victorianwoodworks.co.uk

Looking for green & ethical products & services?



thegreen shoppingguide

your guide to green and ethical shopping

“ the green shopping guide is a free, impartial directory for a wide range of green and ethical product and service providers in the UK ”



Get Involved!

Write business reviews, suggest new ideas, categories or businesses, and tell your friends! Its your guide.

If you need it, you can find it.

www.thegreenshoppingguide.co.uk

Natural choices at

eKernel

- Organic cotton baby clothes
 - Barefoot books • Natural health
 - Slings and carriers • Toys
 - Simple Green eco cleaners
 - Lotions and potions
 - eco friendly sanitary products and nappies
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natural paints

timber finishes

paint strippers

timber preservatives

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ultra-efficient WCs

bathrooms

water-saving fittings

natural insulation

steel rainwater drainage

and more...

At Green Building Store we only sell building products which promote healthy, environment-friendly homes. Whether you are redecorating, building or refurbishing we can help you do it safely and sustainably.



- Ecoplus System. High performance timber windows, doors and conservatories, with a unique environmental specification.
- Ifö ultra-efficient WCs. Elegance and water conservation combined.

- The Natural Paint Collection.* Natural ingredients; healthy, effective paints and woodfinishes.
- Lindab rainwater drainage system. The solid steel alternative to PVC guttering.



* Some products contain some non-natural ingredients.

To find out more, visit our website or call our sales team:

www.greenbuildingstore.co.uk
01484 854898

WOULD YOU LIKE TO IMPROVE THE ENVIRONMENT WITHOUT A LOT OF FUSS ?

www.envocare.co.uk

This site is designed to provide information

* Tips, suggestions and links on a wide variety of environmental issues

* Reference articles on a range of selected topics

* Send virtual cards, download high-res backgrounds

envocare

the information website that promotes care of the environment



Unwanted furniture?

Emmaus, the charity

that provides shelter and employment for the homeless run recycling schemes throughout the UK. They will come and collect, restore and re-sell furniture, and appliances at an Emmaus run second hand shop. Find your nearest: www.emmaus.org.uk

home cleaning without home pollution



Earth Friendly Products give you 100% natural cleaning.

For more information visit www.earthfriendlyproducts.co.uk or tel 01892 616871

Perspex growing tubes with stand, compost and seeds to grow an onion, carrot and radish.



For kids who still think all fruit & veg comes from Tesco.

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ecotopia.co.uk
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Energy saving gadgets
Organic body care products
Gifts made from recycled materials
Eco-friendly alternatives for cleaning and laundry
Organic baby care products

www.thegreenstoreonline.co.uk



cebra

fair trade crafts from Africa
www.cebraonline.com
t. 020 7870 6437



Bamboo stockists (see our feature on pages 82-83) Books

Bamboo Style by Gale Beth Goldberg. *Taming the Dragon* by Paul Whittaker.

Websites

- Bamboozled
www.bamboozled.org
- Ecocentric
www.ecocentric.co.uk
- Hardy Bamboo
www.hardybamboo.com
- Jungle Giants
www.junglegiants.co.uk
- Nigel's Eco store
www.nigelsecostore.co.uk
- One Village
www.onevillage.org
- Panda Flooring
www.pandaflooring.co.uk
- UK Bamboo Supplies
www.ukbamboosupplies.com
- Urbane Living
www.urbaneliving.co.uk
- Further information**
Environmental Bamboo Foundation
www.bamboocentral.org

INTERIORS

BEDDING & LINEN

- Albatross**
www.albatross-global.com
- Green Fibres**
www.greenfibres.com
- Liv**
www.liv.uk.com

NEW FURNITURE

- Arbor Vetum**
www.arborvetum.co.uk

Rawnsley Woodland Products
www.cornishwoodland.co.uk

RECYCLED & SALVAGED FURNITURE

- Reclaimed Pine Online**
www.reclaimed-pine-online.co.uk
- Treesave Reclamation Ltd**
www.buresreclamation.co.uk
- Viking Reclamation**
www.reclaimed.co.uk

CLEANING PRODUCTS

- Ecotopia**
www.ecotopia.co.uk
- Ecover**
www.ecover.com
- Greenlands**
www.greenlands-env.co.uk
- Natural Collection**
www.naturalcollection.com
- Vertue**
www.vertue.com



Energy

No matter where you live, you can switch to Ecotricity for your electricity supply. And we'd encourage you to do so. We can't rely on an energy market that profits from rising energy prices and increasing demand. This is why The Ecologist and Ecotricity have teamed up to help reduce your energy bills and ease the transition to clean, locally supplied energy

Eco power campaign

AIM To meet the UK's energy needs from local, clean, renewable sources

In the UK we need to move from our dependence on non-renewable, air-polluting, climate-changing, centrally generated, hugely inefficient and increasingly expensive sources of energy – gas (40 per cent), coal (30 per cent), nuclear (20 per cent), oil (five per cent) – to non-polluting, small-scale energy sources generated as close to users as possible, eg wind, hydro, tidal, solar, biofuels, ground source heat, etc.

HOW? Supplying the current (and expected increased) energy demand in the UK, while keeping prices for energy low, is IMPOSSIBLE. We either confront this and start to adapt, or we stick our heads in the sand and moan about the inexorable rise in our energy bills. Each one of us, starting at home and then moving out into our local communities and workplaces, needs to:

- 1 SWITCH to Ecotricity as our energy supplier
- 2 REDUCE our energy demand
- 3 LOCALISE our energy supply... individually, and in our communities.

ECO-POWER CAMPAIGN SWITCH TO ECOTRICITY

No matter where you live, you can switch to Ecotricity for your electricity supply. And we'd encourage you to do so...

Why Ecotricity?

Since it was founded in 1995, Ecotricity has built 26.3MW of new wind turbine capacity, and currently supplies enough electricity to power around 19,000 homes. It retains ownership of every wind turbine it erects, ensuring:

- Total community support for each turbine
- Optimal siting – minimal environmental/community impact
- Best turbine technology on the market – to minimise its operating costs and noise impact
- Long-term commitment to wind energy and the community the wind turbine supplies

Ecotricity refuses to invest in non-renewable energy sources, eg coal, gas or nuclear power.

Why switch now?

For 2007, Ecotricity has approval to build 27 new turbines, totalling 30MW of clean energy – enough to power 20,000 more homes. All it needs is as many of us to buy our electricity through the company – thereby giving it the financial leverage to put this additional renewable capacity in place. Together we can fill the gap threatened by nuclear and coal decommissioning while the grey suits in Westminster fiddle.

Switch to Ecotricity today and get a FREE annual subscription to *The Ecologist*.

Sign up today and quote 'Eco Offerz' to get this great offer.

To make the switch, call free on 08000 326 100

Mon to Fri 8.30am–5.30pm, or visit www.ecotricity.com/ecologist
Terms and conditions apply.

ELECTRICITY RENEWABLE ENERGY TECHNOLOGIES

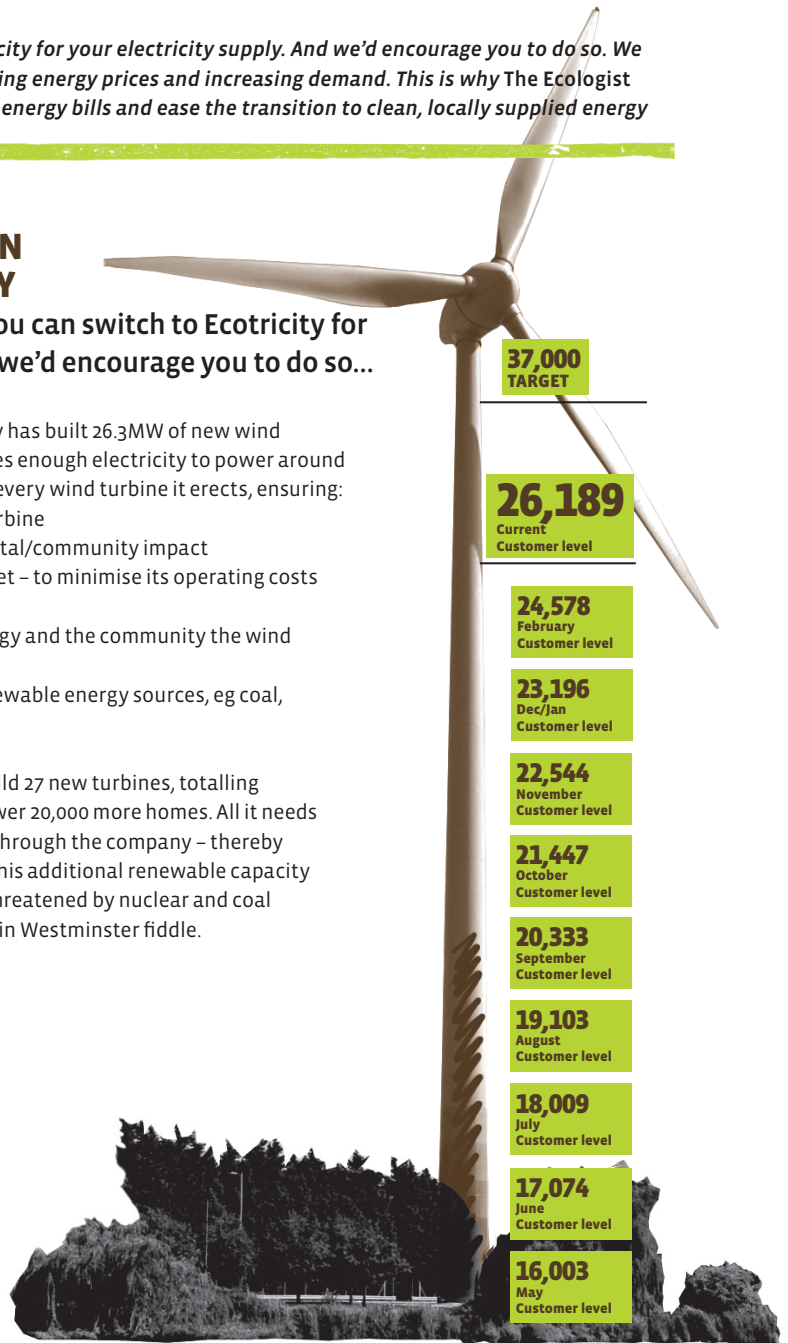
Dulas Ltd
www.renewable-resources.com
HiTech Energy Ltd
www.hitechenergy.co.uk

British Eco
www.britisheco.com
LIGHT BULBS
Energy Saving World
www.energysavingworld.co.uk

Energy Savers Direct
www.energysavers-direct.com
Nigel's Eco Store
www.theinsightecostore.com
SUPPLIERS
Ecotricity
www.ecotricity.co.uk

GROUND SOURCE HEAT PUMPS
Conservation Engineering Ltd
www.heating-designs.co.uk

Eco Heat Pumps
www.ecoheatpumps.co.uk
Geothermal Heating International
www.geoheat.co.uk
Green Systems
www.greensystems.net
Groenholland UK Ltd
www.groenholland.com
Kensa Engineering Ltd
www.kensaengineering.com
Powertech Solar
www.powertech-solar.com





Clothing

Shopping guide

GREEN PAGES

The virtual boutiques and retailers listed below 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 it doesn't fit, or you don't like it, simply return it. Being stylish and being ethical are no longer at odds.



ecobtq

Ethical fashion boutique **ecobtq** was launched in July 2006 and has so far been featured on **Hippyshopper**, **Treehugger**, **The Guardian's Green Guide** and **The Ecologist** magazine.



ecobtq is a boutique that cares about where it's purchases come from. Our customers want to look stylish but at no cost to the world around us. We want to support designers who are challenging fashion and create a platform to promote them. We have created a boutique where you can find innovative design and desirable fashion made from sustainable resources.

Designers currently featured are: **CIEL** womenswear, **CIEL** Bath and Body range (right), **VINTAGE** jewellery, **ROSIE WEISENCRANTZ** jewellery (above), **TRAID** shopper, **THE MOHAIR WOOL SCARF ENTERPRISE** (main picture), **TING** accessories and **ORINOCO** womenswear



Visit www.ecobtq.com
or tel: 07966 369 499

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OR VISIT
WWW.FAIRDEALTRADING.COM

ETHLETIC

CLOTHING DESIGNERS

Adili

www.adili.com

Ciel

www.ciel.ltd.uk

ClothWorks

www.clothworks.co.uk

Ecobtq

www.ecobtq.com

Enamore

www.enamore.co.uk

Equa Clothing

www.equaclothing.com

Junky Styling

www.junkystyling.co.uk

Natural Dye Company

www.naturaldyecompany.com

Natural Store

www.thenaturalstore.co.uk

Pachacuti

www.pachacuti.co.uk

Pierre Garroudi

www.pierregarroudi.com

Sari

www.saricouture.com

MEN & WOMEN'S CASUALWEAR

Bishopston Trad. Comp

www.bishopstontrading.co.uk

Ecotopia

www.ecotopia.co.uk

Green Fibres

www.greenfibres.co.uk

Howies

www.howies.co.uk

Inbi Hemp

www.inbi-hemp.co.uk

Natural Collection

www.naturalcollection.com

Pakucho

www.pakucho.co.uk

People Tree

www.ptree.co.uk

Schmidt Natural Clothing

www.naturalclothing.co.uk

Seasalt

www.seasaltorganic.co.uk

Terramar

www.terramar.co.uk

The Green Apple

www.the-green-apple.co.uk

ACCESSORIES

Design Africa

www.artworksforafrica.com

naturalclothing.co.uk

- Organic underwear & sleepwear for children & adults
- Fairly traded blankets, bedlinens, towels & soft toys
- Allergy & eczema specialists

Free catalogue (0845) 345 0498
online shop now available

Ganesha

www.ganesha.co.uk

Matt and Nat

www.mattandnat.com

★ THTC

5 Reasons to wear THTC

1 Urban cool: Many of THTC's designs have been created by some of the UK's leading street artists and graffers. The range is worn by urban artists including De La Soul, Wu Tang Clan, Goldie, Morcheeba and the Asian Dub Foundation.

2 Doesn't harm farmers: the T-shirts are an ethical blend of 45% organic cotton and 55% grown hemp (grown organically on small family farms in north-eastern China.)

3 Fair labour: the factory pays its workers an average of \$140 a month (the regional average wage is just under \$100) and works an eight-hour shift pattern with no forced overtime and minimal voluntary overtime.

4 Eco dye: THTC now uses water-based inks in the printing process for almost all new designs.



How to order:

- Visit the online shop at www.thtc.co.uk
- Choose which T-shirt(s) you would like
- Enter the code of choice
- For offer 1, type in 'Ecologist 1'
- For offer 2, type in 'Ecologist 2'
- Hit 'Redeem'.

Offers can be used as many times as desired.

Ends: 31 April 2007

Offer 1: Buy any two THTC T-shirts and receive a third for free

Offer 2: 15% off any THTC T-shirt of your choice



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www.izzylane.co.uk

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- kids tops
- womens wear
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or call 07999 613982
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online at www.terramar.co.uk

our stock includes



certified clothing



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 below carry products that have not been tested on animals; they contain no parabens, no petrochemicals and no synthetic ingredients.

onevillage.com One place, many ideas

What's in a bar of soap?

Instead of the latest chemical compounds, choose natural **NEEM**: 4x1 25gr bars neem soap, only £10 (with free delivery) when you order online from ONEVILLAGE.COM

Or send £10 to **ONE VILLAGE CHARLBURY OX7 3SQ** ☎ 01608 811811

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www.mybeingwell.com
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World's first internationally certified organic skin, hair, body, cosmetic, oral and health products

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Telephone enquiries: FREECALL 0800 074 8703

www.earthbound.co.uk

Organic Skin care
Suitable for all skin types
Tel: 01597 851157

Don't panic – it's organic

Natural bodycare and cosmetic products are just as effective as their conventional counterparts but, because they don't rely on plastics, synthetic colours and chemical preservatives, you will find that their range, application and usage can be different. Tips on using natural products:

Natural cosmetics

- Lip glosses are safer than lipsticks because they contain less potentially-toxic colour, but they won't last as long, because they don't contain plastics and film formers.
- Mascaras won't dry as quickly, lengthen or be waterproof like conventional mascaras because they don't contain synthetic fibres or ingredients such as plastics.
- Eyeshadows will come in a more limited range of 'earth' colours because they will be based on a palette of mineral and plant dyes.
- Choose cream blush instead of powder blushers, to avoid potentially cancer-causing talc.
- Avoid sparkly make-up, which can contain ecologically unsound mica.

Natural bodycare products

- Choose moisturisers based on single oils (plant or animal based) rather than complex mixtures of oil, water, preservatives and film-forming ingredients. These may feel more oily on your skin at first but will be fully absorbed fairly quickly.

BODYCARE ESSENTIALS

- Akamuti**
www.akamuti.co.uk
- Barefoot Botanicals**
www.barefoot-botanicals.com
- Earthbound Organics**
www.earthbound.co.uk
- Ecotopia**
www.ecotopia.co.uk
- Essential Care**
www.essential-care.co.uk
- Jo Wood Organics**
www.jowoodorganics.com
- Life Giving Organics**
www.LifeGivingOrganics.com
- My Being Well**
www.mybeingwell.com
- The Organic Pharmacy**
www.theorganicpharmacy.com

- Pure Nuff Stuff**
www.purenuffstuff.co.uk
- Pure Skin Care**
www.pureskincare.co.uk

HEALTH & HOMEOPATHY

- Ainsworths**
www.ainsworths.com
- Helios Homeopathic Pharmacy**
www.helios.co.uk
- Optima**
www.optimahealthcare.co.uk
- Pure Potions**
www.purepotions.co.uk
- Revital**
www.revital.com
- The Organic Health Shop**
www.baughdell.co.uk

MAKE YOUR OWN

- Aromatic**
www.aromatic.co.uk
- Bay House Aromatics**
www.bay-house.co.uk
- Cosmetics at Home**
www.cosmeticsathome.co.uk
- New Directions**
www.newdirectionsuk.com

PERFUME

- Aromasciences**
www.aromasciences.com
- Ascent**
www.hayspace.co.uk
- Dolma**
www.veganvillage.co.uk/dolma
- Primavera**
www.primavera.co.uk

★ My Being Well

Mybeingwell was conceived as Verity Cunliffe helped her husband Jonathan rebuild his health, following his recovery from chronic fatigue syndrome. They looked at how to minimise their intake of potentially harmful toxins and discovered that even some of the most luxurious skincare products are not what they seem.

As a result, every single product in their online catalogue is 100% free from all petrochemicals and artificial or synthetic preservatives, colours and fragrances. They stock **Trevarno**, **Living Nature**, **Weleda**, **Mother Earth**, **Lavera**, **Aubrey Organics** and much more.



How to order:
Call 01326 377 555, quoting 'ecooffer0407' or via www.mybeingwell.com and typing 'ecooffer0407' in the promotional code box and clicking 'update' at the checkout.

Offer ends: 30 April 2007
www.mybeingwell.com

**Offer
10% off all
products**

**READER
OFFER**



Fairly Traded Handmade Soap

When you buy our soaps you are supporting and empowering communities in Africa by funding outreach work in AIDS and malaria treatment, and educational scholarships as well as enjoying soap made from the most wonderful natural ingredients.



www.cornwallsoapbox.co.uk
01736 758 358

Don't know your Glyceryl laurate from your Decyl glucose?

Find out what the words in your bodycare products really mean...

The 'BEHIND THE LABEL' series is now online!
Go to www.theecologist.org/behind_the_label.asp



Ecologist action Make your own

Everyone's skin is different, so why not make your own bodycare products and cosmetics at home to suit your needs? The websites listed below will help guide you through ingredients that work for your skin and hair type, and offer a range of ideas for customising your favourite natural scents.

Aromatic

www.aromatic.co.uk

Bay House Aromatics

www.bay-house.co.uk

Cosmetics at Home

www.cosmeticsathome.co.uk

New Directions

www.newdirectionsuk.com

The Soap Tub

www.meltsandpoursupplies.com

Make your own dandruff remedy

Dandruff shampoos are made with detergents to which antiflaking agents such as coal tar (a known carcinogen), and zinc pyrithione are added. All anti-flaking agents have some side effects. They can be irritating to both skin and eyes.

For a natural anti-dandruff lotion, mix 1 tsp each of rosemary and thyme essential oils into 100ml (3.5fl oz) of apple juice and 2 tbs (30ml) of cider vinegar. Apply at bedtime or on days when you can let your hair dry naturally. From *What's in this Stuff?* by Pat Thomas (Rodale, £12.99)





Parenting

Shopping guide

GREEN PAGES

The amount of baby gear we buy – such as nappies, wipes, bottles, car seats, pushchairs, clothes, shoes, toys and other nursery items – is staggering. Given the ongoing cost of raising a child and the heavy competition that exists between manufacturers, as consumers we would do well to read and understand labels and buy fewer but better products

Ecologist cloth nappy trial pack

Cloth nappies are easy to use and clean and best for your baby. These ones are: **SOFT** Even after washing; **SECURE** Cinched legs prevent leaking; **BREATHABLE** Keeps bottoms cool and dry; **ECONOMICAL** Saves you money over your child's time in nappies

STEP 1 Lay open baby-shaped cotton nappy



STEP 2 Place flushable liner on top for easy removal of poo



STEP 3 Close using adjustable poppers

STEP 4 Add the waterproof wrap

£26

25% OFF THE RRP (INC VAT)

Your trial pack includes:

- 3 leading brands of cloth nappies: Motherease, Tots Bots and Popolino
- 1 pack of flushable and bio-degradable liners
- 1 waterproof outer wrap

SIMPLY CALL 01582 520037

Mon to Fri 9.30am to 5.30pm
quoting: Cloth Nappy Trial Pack



The Natural Nursery for ethical families

Organic cotton clothing
Cloth & eco-nappies
Gentle toiletries
Maternity wear
Breastfeeding aids
Slings and baby hammocks
Fairly traded toys
Beautiful books
Treats for daddies too!

Visit our Bristol shop or for a free catalogue call 0117 966 8483

www.naturalnursery.co.uk



Available in selected stockists and online at: www.aravore-babies.com, +44(0)20 8347 5752

BABY ESSENTIALS

Born

www.borndirect.com

Ecotopia

www.ecotopia.co.uk

Green Baby

www.greenbaby.co.uk

Greenfibres

www.greenfibres.co.uk

Hejhog

www.hejhog.co.uk

Little Green Earthlets

www.earthlets.co.uk

Natural Collection

www.naturalcollection.com

Natural Nursery

www.naturalnursery.co.uk

See Saw

www.seesawnappies.co.uk

Smile Child

www.smilechild.co.uk

CLOTHING

Aravore

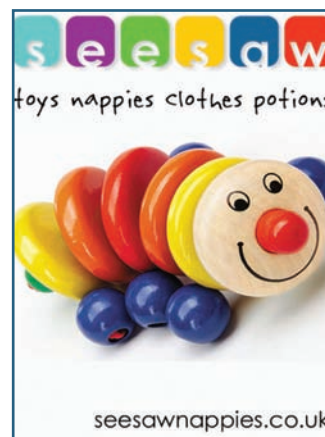
www.aravore-babies.com

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A partnership between the Centre for Human Ecology and the Department of Geography & Sociology, University of Strathclyde

Classic book club

Revisiting the books that shaped the environment movement



The Marvellous Adventure of Cabeza de Vaca

Haniel Long (Souvenir Press, £7.99)

We are always encountering people who are amazed at the wealth of literature written on our subject. Because many of the books we review don't even make the mainstream paper's reviews or the 3-for-2 sections of bookstores, most people are unaware they exist. So, this month, the *Ecologist* launches its own online book club dedicated to sharing these hidden gems, ignored classics and occasional 'so seminal it's worth reading again' books that have defined the way this magazine thinks.

The process is simple. Go to our homepage – www.theecologist.org – and click on the button marked 'book club'. This will take you to a page where you can discuss this month's book choice (and, as the library builds up, all the previous ones) with other readers.

Our first book is *The Marvellous Adventure of Cabeza de Vaca*. To understand its significance, one need only read Henry Miller's prologue, which is so powerful in its own right that we've reprinted it on page 17. This little book is a gem like John Giono's *The Man Who Planted Trees*, Saint-Exupéry's *The Little Prince* or Jim Dodge's *Fup*, that through the force of its brevity remains with you far longer than many much lengthier books.

Log onto www.theecologist.org and contribute to the *Ecologist* book club forum. Happy reading!

A wealth of troubles

Oliver James' new book asks if we need a new definition of success to help us find happiness. Pat Thomas agrees

The concept of 'affluenza' did not originate with Oliver James. It has been in the psychological and sociological lexicon for more than a decade. There are websites devoted to it; TV programmes have been made about it. However it has for the most part been associated with American consumerism and the way the American Dream has become a red, white and blue psychosocial nightmare.

In essence, to be infected with affluenza is to be infected with a painful, contagious, socially transmitted condition of overload, debt, anxiety and waste, resulting from the dogged pursuit of more.

The criticism of the modern consumer lifestyle, however, goes much deeper than

Affluenza is a painful, socially transmitted condition of overload and anxiety resulting from the dogged pursuit of more

simply tut-tutting at the vulgar nature of materialism. It suggests that such a lifestyle makes us more vulnerable to psychological disorders and, in spite of the promises of advertisers, does not make us one iota happier. As James notes, people living in affluent countries such as America and Britain have the highest rates of mental illness in the world.

What this book does, through interviews with the affluent in the USA, UK, New Zealand and Australia as well as in Singapore, Shanghai, Moscow and Copenhagen, is show that the problem is endemic in most of the English-speaking world and won't get better until we acknowledge how virulent it is and begin taking steps to protect ourselves from it.

The personal interviews around which much of the book is structured, while interesting, reveal nothing particularly new about the problem. Anyone with the eyes to

see can find empirical evidence that in spite of having more, we are less happy than ever before. Endless stories of the world-weary wealthy don't make this more true. Where James really shines is when he begins to talk about the solutions, or 'vaccines' – the antidotes that save us from the affluenza virus and its effects on our lives.

In the main, the affluenza 'vaccines' he proposes are common-sense concepts – build communities, learn to love yourself, love and engage with your children, avoid idolatry, broaden your view of what is beautiful and worthwhile, and learn to distinguish between needs and wants.

Such ideas echo the philosophy of Thoreau and, more recently, the concept of voluntary simplicity. But the writing is passionate and convincing; and by the time James reaches the final chapters, where he unashamedly becomes the verbose taxi driver of most of our nightmares, he presents a very engaging and personal case for what these more sustainable attitudes to life could actually mean to us personally and politically.

Most of us feel we have to choose between success and satisfaction. It is the neurotic drive that forces most of us to get up each morning and engage in work that does not fulfil us so that we can buy things that don't make us happy (at least, not for very long).

What this book reinforces, through intelligent analysis, is that such a choice is only necessary when you define success by external cues such as the car you drive or the size of your mortgage or your breast implants. Redefined as being happy within yourself and genuine in your relationship with your community, your family and friends and to the work you do, success is not only attainable, it is sustainable.

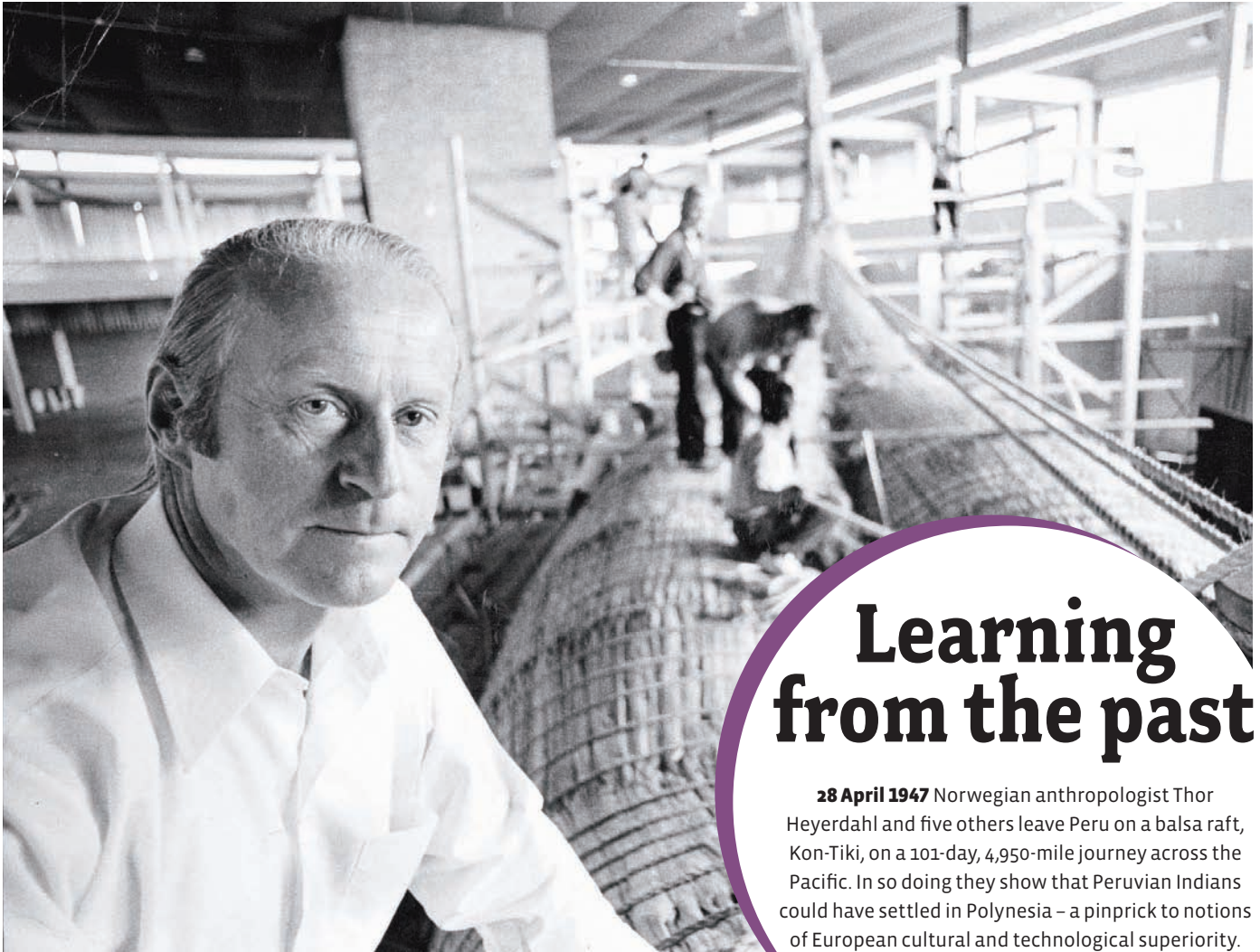


Affluenza

By Oliver James

Vermilion, £17.99

ISBN: 0091900107



Learning from the past

28 April 1947 Norwegian anthropologist Thor Heyerdahl and five others leave Peru on a balsa raft, Kon-Tiki, on a 101-day, 4,950-mile journey across the Pacific. In so doing they show that Peruvian Indians could have settled in Polynesia – a pinprick to notions of European cultural and technological superiority.

Poverty for under-12s

A novel for a younger audience approaches issues about development in Africa, finds Clive Dennis

Mulumbe lives in a storybook vision of a poor African village. Her mother is dead, her father is lost to alcohol, and her scheming stepmother hates her. Plans are afoot to marry off Mulumbe to Olinji, a repulsive man who owns land near the local lake, and who lives off the misfortune of his people as they struggle to raise crops in the face of endless drought. Fortunately, Mulumbe is protected

by her grandmother, and she, in turn, does what she can to look after her brothers and sisters. As times get harder, Mulumbe goes without her own food so that her brothers and sisters can eat, but even this is no solution for the problems that her family, and her people, face.

But the lake has not always been there – it is the water reservoir for a hydroelectric dam, built when Malumbe's grandmother was a girl, when rising waters forced the people out of the fertile valley and up onto the parched land beyond the new waterline. Even as famine descends on the people, nobody dares go fishing, since doing so without a permit means death.

When one little boy starves to death, Mulumbe swears never to let such a terrible thing happen again. Then, when Olinji seems to have her trapped, she sets off on a dangerous journey, with only a riddle of

her grandmother's for a guide.

This book examines the plight of a real people, who are starving because of a dam built to supply electricity to people they have never met and fishing trips for government officials who don't care. The writing style is too obvious for older readers, but for children between 11 and 13, this is an engaging way to learn something of how the world really works, the causes of poverty, and how, as the grandmother says, 'real strength is found in those who might be thought to be weak.'



I Am a Cloud, I Can Blow Anywhere

By Jonathan and Shirley Tulloch

Egmont Books, £6.99

info@egmont.co.uk

ISBN13: 9781405223256

ISBN10: 1405223251

Exhibition Tate Britain until 27 August

Mark Wallinger's latest show uses modern art's greatest coup – recontextualisation, by moving something from one place to another (in this case, Parliament Square to the Tate Britain art gallery). But State Britain is not an exhibition with an abstract artistic agenda, and its subject matter transcends its form and location. Wallinger addresses real issues of humanitarian and political urgency – namely, the illegal war against

Iraq, and the right to protest against it.

Brian Haw's long-running anti-war protest was banned last May, and no 'unauthorised' demonstrations are now allowed within one mile of Parliament Square. The boundary of this exclusion zone passes through the heart of Tate Britain. Completely reconstructing and re-presenting Haw's protest, Wallinger places it half in and half out of said area.

In doing so he raises many questions. Isn't he technically breaking the law? Is this really art? Is it protest? Is it a felicitous conjunction of the two? How does the legal bisection affect the content? And how should we react?

Haw's work was always a collaborative effort, comprising banners and signs from a great variety of sources – some with disturbingly graphic images of war's horrors, all relevant, pertinent, direct. Wallinger has carried the collaboration one step further, and into a new arena.

Ultimately, what we are dealing with is space, and how it is filled. Both Haw and Wallinger have used their respective spaces imaginatively and to great effect.

David Hawkins



Who killed the electric car?

Jeremy Smith views a documentary that claims the auto industry sabotaged its own electric car programme



Ten years ago, to combat its ever-worsening smog, California introduced zero emission requirements, saying that over the following years, auto manufacturers would be compelled to sell an increasing percentage of 'clean' cars if they were to continue selling in the State. Around the same time, GM introduced the EV1, a slick, fast electric car. Other auto manufacturers followed suit. It seemed to be the dawn of a new electric era.

It didn't last. The oil and automobile industry took the State to court, and won. The requirements were dropped, the electric cars taken off the roads and, supported by the Bush administration, attention shifted to the far-off hope of the hydrogen car. A solution that was on the road was binned in favour of something that for the past 10 to 15 years has always been 10 to 15 years away.

Why? One interviewee in this excellent film says it's a case of 'who controls the future, whoever's got the biggest club; one they can bash you with, and one they can belong to.' An electric car driver turned activist, comparing it to David versus Goliath, adds: 'But if there's enough Davids in the world, we can win.'

Who Killed the Electric Car? is available to buy (RRP£19.99) and rent courtesy of Sony Home Pictures Entertainment



MUSIC Merdeka

£9, www.dancingturtle.co.uk

'Good causes' albums

can be worthy, but musically drab. Not Merdeka. This eclectic CD aims to raise funds for the people of West Papua, who have struggled under brutal Indonesian occupation for 40 years.

It opens with the traditional throaty singing of Papuan villagers; mournful songs, for there are few other kinds in Papua these days. Papuan music tops and tails the album, in reminder of what all the artists are here for, but in between are Irish folk pop, mellow African roots music, jazz funk, alt.folk, a beautiful Madagascan acoustic guitar song and (my favourite) Italian foursome Amycanbe, who sound like Joanna Newsom backed by Belle and Sebastian. A great buy.

Paul Kingsnorth

Chocolate and creation

Malcolm Tait celebrates the wisdom, wit and breadth of vision of popular scientist Stephen Jay Gould

If you haven't read Stephen Jay Gould, you should. Rare among scientists, he possessed the ability to communicate his powerful intellect with a twinkling writing style and compelling prose that made him respected enough to be canonised by US Congress as a 'living legend', but popular enough to be

It's impossible to feel lukewarm about Gould – and he had enemies as well as friends

make an appearance on *The Simpsons*.

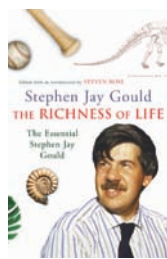
Before his death in 2002, Gould clocked up an extraordinary run of essays in *Natural History* magazine – 300 in all – and it is partly from this unbroken sequence that the editors of this book have made their choice.

It's a pretty good choice, too. There are some typical mischievous Gouldian touches, such as the comparison of the evolutionary observation that more recently evolved members of a family group tend to decrease in size, with the more prosaic observation that chocolate bars tend to get smaller over the years, yet still maintain their price. There are the perfect Gouldian nutshells that get to the heart of his thinking – 'we misidentify the protagonists of this battle in the worst possible way when we depict evolution

versus creationism as a major skirmish in a general war between science and religion. Almost all scientists and almost all religious leaders have joined forces on the same side – against the creationists.' And, 'The enemy is not religion, but dogmatism and intolerance, a tradition as old as humankind, and impossible to extinguish without eternal vigilance, which is the price of liberty.'

All of this is peppered with samples of the magnificent breadth of Gould's knowledge, from paleontology to baseball, from the punctuated equilibrium of evolution to Beethoven's patron.

Steven Rose sums up the man's position among his peers when he writes: 'in some ways Gould's own felicity with words, his hugely popular essays and – to put it positively – self-assurance, won him enemies as well as friends'. As Rose points out, it's impossible to feel lukewarm about Stephen Jay Gould. If you're planning to discover him for yourself, this book is a good place to start. Plenty more pleasure lies ahead.



The Richness of Life

The Essential Stephen Jay Gould, Edited by Paul McGarr and Steven Rose, with an introduction by Steven Rose
Jonathan Cape, £25
0-224-07607-8



This Poem is Sponsored by... Poems in the Face of Corporate Power

Edited by Claire Fauset, Corporate Watch, £8.99

Sadly, much of the writing in *This Poem is Sponsored by... Poems in the Face of Corporate Power* falls prey to the hackneyed couplets of ballad-meter or the breathless verbosity of the protest rant, sacrificing poetic nuance and rhythmic complexity for the sake of expedience. Basically, we've heard it before, it's boring, and it sounds curiously adolescent. Still, the quality work in this collection, of which there is some, reminds us that it is possible to write shrewd, acute social commentary at the same time as writing good poetry. For example, Alistair Noon effectively deploys the metaphor of the body-politic, in language both corporate and corporeal (see page 21 of this issue). Offerings by David Bateman, Ken Champion and Rachel Pantechinon also succeed in being amusing and thought-provoking, while Helen Moore's ecologically conscious writing merits a mention. **David Hawkins**

Last words? Kawesqar

(pronounced Kæw'eskæ)

Status: Seriously Endangered
– around 15 speakers left in 2006.

Habitat: The remote Puerto Eden, Wellington Island – among the icy fjords and moss-deep islets of the Chilean Tierra del Fuego, the most southerly inhabited place on earth.

Description: Since their language has no numbers and no words for 'rich' or 'poor', it seems that the unhierarchical Kawesqar people (who believed the world was ruled by malign elemental spirits) saw everything as a continuum. There was no need for 'civilised' concepts associated with wealth and status.

'Kawesqar' itself means 'human'. But soon this aboriginal name may be the only relic of another language driven to extinction by a colonising superpower – in this case, Spain. Economic and communicative need for the conquistadors' most lasting legacy has caused a regression of Kawesqar into the ever-decreasing spaces of home and private life. The prospect of Kawesqar's disappearance is all the more troubling because it is a 'language isolate' – one not related to any other known tongue.

For several thousand years, the Kawesqar were marine nomads, living in tents, wearing blubber for warmth and never cultivating the land. This ongoing struggle for survival meant the Kawesqar didn't have much time to think about the future, and their language lacks a future tense. Yet their approach to the past has four subtle gradations, with verbal suffixes denoting the immediate, recent and distant, as well as a mythic past. This last tense deals with events and ideas from time immemorial, a special storytelling tense. The loss of such a language is the loss of another way to comprehend what it means to be human.

David Hawkins

How to be free

Make less mess

Tom Hodgkinson has a much simpler solution to dealing with our waste than all the government's recycling schemes – stop making so much

The creation of waste must be one of the most absurd lunacies of our age. Think of the unnecessary work involved, for example, in plastic wrapping. There's its production, its transportation, and the process of wrapping stuff. There's the work we need to do to get the money to buy the thing and unwrap it, put the wrapping in the bin and carry the bin-bag to the dustbin. Finally, a lorry full of paid employees must drive down the street, pick up your rubbish, throw it in the back of a petrol-guzzling beast, then drive it to a dump where it is further compacted and then driven out to a toxic dump somewhere in the middle of nowhere. Toil and trouble, and all a waste of effort.

The recycling mania is just as bad. Trotskyite councils now fine people who don't recycle in the approved fashion. But recycling, like all government solutions to everyday problems, involves a huge amount of unnecessary work. Given a walnut to crack, the government will create a walnut task force, employ expert walnut consultants flown in from South America, build a computer-operated walnut-cracking machine, locate it on an industrial estate outside Swindon, hire specially-trained walnut machine managers, buy a fleet of trucks with a giant cartoon walnut painted on the side, alongside the legend 'passionate about walnuts', and spend millions of pounds on marketing, only to find that their system does not crack walnuts but pulverises them instead – requiring an investigation, reports, sackings, the hiring of a new team of walnut consultants, and culminating in triumphant press stories about the fantastic new walnut-cracking machines, which have none of the problems of the first generation of walnut-cracking machines. Meanwhile, the hermit on the hillside cracks a walnut by squeezing it against another walnut and chuckles to himself.

No, the answer is not in national recycling schemes, but in not making the rubbish in the

first place. Then you avoid all the unnecessary work. I have a neighbour in Devon who produces no rubbish. That's right – no rubbish at all. In the first place she avoids buying stuff that is wrapped in plastic, and she takes her own basket when shopping. Anything woodish or papery is either burned or put on the compost heap. Food waste is composted or given to animals.

Yes, animals. God's own garbagemen. Medieval cities had no rubbishmen because members of the community took responsibility for their own waste. In 14th-century Florence, pigs roamed the streets, eating up old food. Their manure was then collected to

fertilise the garden. Each household had a duty to keep the area in front of their house clean and tidy. And of course, there was no plastic.

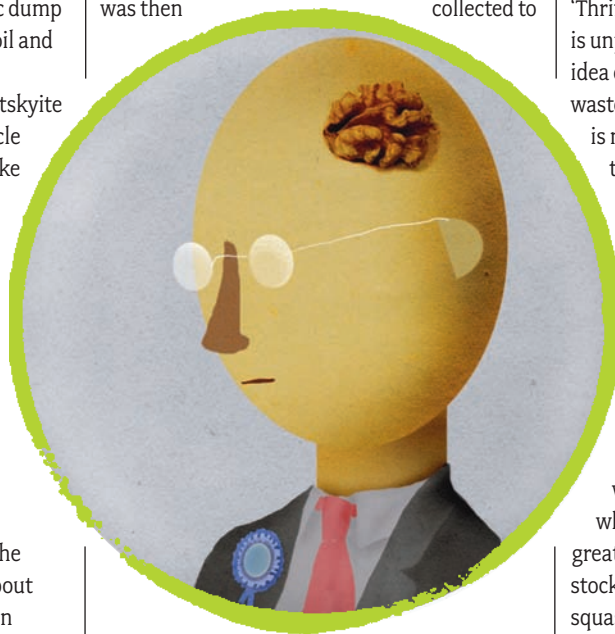
The problem again with government schemes is that they treat us like children, making rules and punishing us for infractions. While possibly well-intentioned, the authoritarian nature of such diktats only produces a grumpy, moaning populace, unable to look after itself and inclined to small acts of rebellion to assert some control.

Rather than this, we need quietly to get on with our own lives, and when it comes to waste the solution is thrift. Making and mending. 'Thrift is creative,' wrote GK Chesterton. 'Waste is unpoetic.' Etymologically it is related to the idea of 'thriving'. Any creative person will abhor waste because it shows a laziness of spirit. Thrift is not self-denying; it is resourceful, making the best of what you've got. Everything has a use. 'I'm a farmer,' says my landlord. 'I don't throw anything away.'

At home, financial circumstances lately forced us into being thrifty. At first, thanks to our conditioning, we viewed ourselves as unlucky. But as we gradually took control of the reins, we found a great joy in thrift. We bought some chickens to save buying eggs. Then we found that chickens eat a lot of scraps, which they process into poultry manure – great for the garden. The Sunday roast made stock and soup. We drank water instead of squash and juice. We made bread and pickles. It was deeply satisfying. It was – is – fun.

And we feel there is a long way to go. We still produce an absurd amount of rubbish, mostly plastic-related. Then there are all our beer bottles for recycling. Well, I've got an idea on that one: home brew. I'm told you can make fantastic beer at home. And reusing the same 40 or 80 bottles, or a barrel, creates no waste. Watch this space.

Tom Hodgkinson is Editor of *The Idler*. His most recent book is *How to be Free* (Hamish Hamilton, £14.99; due to be published in paperback by Penguin, £7.99, in June) £

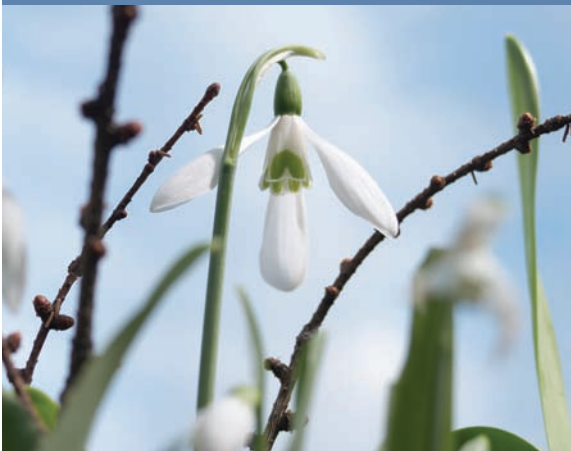


Given a walnut
to crack, the
government will first
create a walnut
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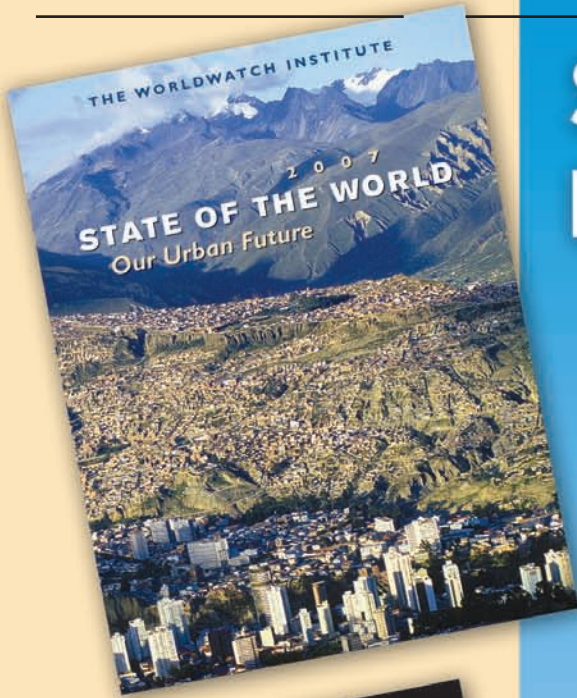
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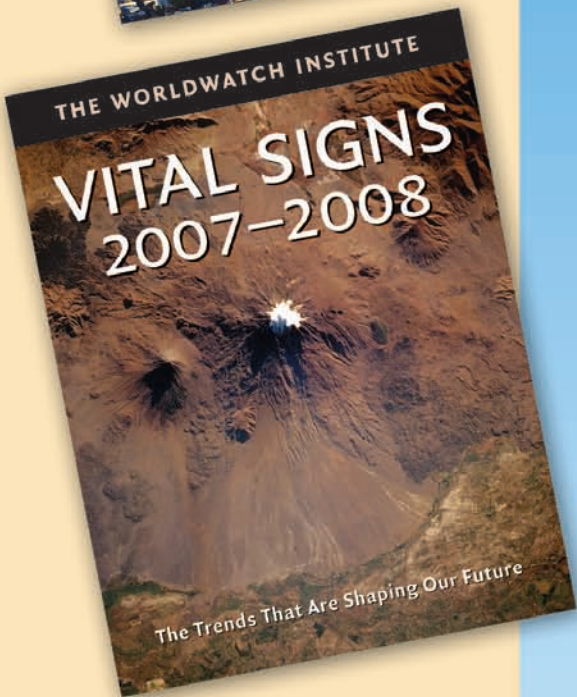
—GlobeScan survey of sustainability experts

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