

ENVIRONMENTAL MAGAZINE OF THE YEAR
JULY/AUGUST 2007
ALICE WALKER • ROBERT KENNEDY JR • PAUL HAWKEN
JAY GRIFFITHS • LEO HICKMAN • MONTY DON • CARLO PETRINI • ROBERT LLEWELLYN

ENVIRONMENTAL MAGAZINE OF THE YEAR
ECOLOGIST
JULY/AUGUST

MARLEY AND ME
Alice Walker defines one love
YOU'RE NOT ALONE
Paul Hawken hails the movement of movements
MUDDIED WATERS
Robert F Kennedy Jr on keeping the rivers flowing
VIVE LA DIFFERENCE
Nick Rosen celebrates all the people who are living off-grid
PLUS Jay Griffiths, Carlo Petrini, Monty Don, John Bird, Leo Hickman, Tom Hodgkinson, Robert Llewellyn

BREAK OUT

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July/August 2007

Volume 37, Issue 6

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**Work
Consume
Obey
Be silent
Die**

**Everything
must go**

Editorial Game on

I'm not a group person. This was made plain from a very early age, when I was kicked out of Brownies for organising a very vocal protest against arbitrary age restrictions on camping trips. The troop leader called my mother in and solemnly suggested that another after-school activity might suit me better. Start as you mean to go on, I suppose, but it's always been hard to reconcile my love of people with my dislike of highly structured groups.

The notion of why we join groups and take part in movements has been brought home to me with great force with this issue. Traditionally, we join groups to find a sense of belonging and purpose. To align ourselves with their histories and ideologies, to feel tied to a thread that runs through past, present and future. We join groups because we believe that there is strength in numbers.

But as with so many things today the concept of 'group' is changing and I am indebted to Paul Hawken (p24) for his clarity and vision about the global group, the 'movement of movements' that so many of us have intentionally or unintentionally become a part of.

This movement, which is clamouring for environmental sustainability, social and economic justice and health and wellbeing for all, is a true bottom-up phenomenon. It is defined not by a charismatic leader, a catchy name, an 'ism' or 'ology', but by the unique non-traditional way in which it approaches the task of changing the world – with a focus on fluidity and connectivity, and the complex process of relationship.

If life is a game then the participants in this new global movement are helping to reinvent the rules of play to be more appropriate to the world we live in today and the complex problems we are tackling. No single group would be able to tackle effectively the diverse problems – CO₂ emissions, a sustainable food supply, child poverty, animal rights, the destruction of indigenous cultures, crime and toxic chemicals in the

environment, to name but a very few – that we are confronted with every day. Positive change can only be achieved through a fluid, connected network of groups and individuals able to see the smaller and bigger pictures simultaneously. And the concept of playing is appropriate – because, far from of being the isolated, backwards-looking Luddites they are often portrayed as, members of the new global movement find joy in embracing change because that's the only way to keep the game going.

Contrast this with the games that most of us have been brought up with, the ones that define modern culture: economic growth, politics, war and exploitation of the natural world. All these games are built on the premise that there will always be winners and losers. Survival of the fittest rules OK.

People playing these kinds of games say things like 'These are the rules', 'This is how it's always been done', 'Nobody has ever complained before' and "We were operating within the law'.

But members of the movement of movements play differently. They love complexity. They see all the glorious shades of grey. They like to ask 'Why?' They are inclined to say 'Show me how it works', and when something doesn't make sense they are not embarrassed to say 'I don't get it'. Most importantly, they aren't afraid to suggest 'Why don't we try it another way?'

That last bit is important because try it another way we must. If we are to keep the most important game of all going, our habits, our relationships with each other and the world we live in must change – and be all the better for it. The people writing for this month's *Ecologist* have all joined the movement of movements. But more participants are urgently needed, because saving the planet, preserving its beauty and fragility and complexity, really is the only game in town.

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AGENCY GETS VOCAL

I write in response to your article 'Silenced witness' (June 2007), which includes a number of unacceptable allegations against the Environment Agency and its staff.

Your suggestion that the Environment Agency is involved in illegally intercepting emails and telephone calls is both unfounded and offensive. We can categorically state that we have never taped conversations between Douglas Gowan and staff, although Mr Gowan has on a number of occasions left extended voice mail messages on staff mobile phones that have been copied down in order for staff to follow up. We have also received a considerable volume of email correspondence from Mr Gowan over the past few months, including much correspondence that Mr Gowan emailed to third parties and 'cc' to Environment Agency staff. Often this information was then forwarded to the appropriate person within the Environment Agency. This includes emails that you refer to as 'intercepted'.

We deny emphatically that the Environment Agency has ever been involved in 'covert', 'invasive' or 'illegal' activities against Mr Gowan. Furthermore, your publication did not even take the obvious precaution of checking these serious allegations with the Environment Agency before publication. The police have not launched an 'investigation', they simply contacted the Environment Agency to establish the truth about these allegations – which we provided to them, as above.

Our priority since taking the lead on this site in 2005 has always been – and shall remain – to protect the environment for people and wildlife. A report assessing the current state of controlled water pollution on the Brofiscin site will be published in July. This will provide the technical data needed to establish the extent of pollution at the Brofiscin site and the best way of remediating the site. The report will provide vital information in order to determine what remediation costs needs to be recovered from liable polluters. Enquiries to determine these appropriate persons are continuing, independently of this report.

However, as we have responded to the

Ecologist previously, the Environment Agency has had continuous US legal counsel acting on our behalf in the United States Bankruptcy Court. We anticipate filing an objection to Solutia Inc.'s disclosure statement and reorganisation plan in the USBC during June.

In distinct contrast to your claim that the Environment Agency has 'never brought a prosecution against a major polluter', we have an excellent record of bringing legal action against environmental polluters, with a 98 per cent success rate across all prosecutions. In 2005 alone, we brought 744 prosecutions, resulting in more than £2.7m in fines. A summary of 2006 prosecutions by the Environment Agency will be available in our annual Spotlight on business report, due out in July.

Environment Agency Wales and Rhondda Cynon Taf County Borough Council organised

information sessions during June to update local residents in the village of Groesfaen, near Llantrisant, on the investigations into the Brofiscin Quarry site. We are committed to determining the best way forward to protect the local environment and to recover costs from those liable.

Barbara Young, Chief Executive, Environment Agency

Jon Hughes replies: In response to complaints from Douglas Gowan, Countess Mar, Paddy French and Ian Panton, Norfolk police are investigating the seeming illegal intercept of emails. This investigation, police confirmed to the complainants, was ongoing as of 20 June. The question remains, how did emails addressed to the above recipients and not CC-ed to the Agency end up in their files? Furthermore, documents released under Freedom of Information requests seemingly show the Agency had knowledge aforesought of Mr Gowan's intended actions. Since 26 April, Mr Gowan has at Baroness Young's request communicated only with Viscount Mills, barring a couple of exceptions. He has disclosed these communications to the *Ecologist* to corroborate the fact.

In response to our Editorial, Baroness Young disputes our contention that the Agency has failed to pursue major polluters. The statistics quoted show a recovery of just £3,629 per incident. The meetings with local residents Baroness Young refers to had yet to take place at the time of receiving the letter (19 June) and astonishingly pre-empt the publication of the long-awaited Atkins report. We address this and its legal ramifications in the US bankruptcy courts on page 15.

Ecologist poll

Would you buy a return flight to France for 2p?
(See News, page 8)

79

per cent of you would support fortnightly waste collections if they increased the rate of recycling

BEE DIABETES

What are the universals in Colony Collapse Disorder ('Give Bees A Chance', June 2007)? It appears in different regions of different countries and therefore the most likely candidate (as in humans) is food/fuel.

Feeding bees sugar increases the possibility of sugar toxicity and potential for stress-induced

inhibition of glucose disposal, whereas honey, the insects' natural food, contains a powerful package of antidiabetic properties that allow for improved disposal of glucose in all cells.

During periods of stress, glucose disposal is inhibited by the stress hormone cortisol, glucose concentration builds in the cell and this inhibits transport of fats into mitochondria for oxidation (burning). The increased glucose concentration prevents glucose from being transported into the cells via insulin signalling, leading to insulin resistance.

Thus we have a model for diabetes type 2 and obesity and this may apply to all glucose-using creatures, including insects, and this is directly related to stress. In insects, some of the stress hormones differ from humans but the overall stress response is similar.

We humans have lost our ability to regulate metabolism of fats, because we have first lost our ability to optimally metabolise glucose. As a result of chronic overproduction of stress hormones we have a modern epidemic of infertility, and bees will be no less vulnerable.

A combination of stress and poor diet is killing humans and very probably bees.

May I respectfully suggest that bee biologists direct their attention to feeding bees with refined sugars, which do not possess any protection against api-diabetes?

Mike McInnes, via email

SOS ADDIS

I cannot thank you enough for the wonderful long article in the *Ecologist* ('Reuse, recycle, revitalise', May). SOS Addis members will be thrilled and will feel high after reading it. A friend kindly lent me the magazine and I read it this morning. But before this, I received a number of emails from readers in the UK who wanted to put in small contributions in support of SOS Addis and enquiring how to send the donations. I was amazed. I will let you know of the new developments as time goes on. But to date we have opened two new sites and one of them will have training soon.

This afternoon, I have an appointment with the Indian Ambassador's wife. She has a youth group voluntarily cleaning up rubbish in their own neighbourhoods. We will discuss how we

Daily dilemmas

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

Is it possible for 60 million people to live 'off-grid'?

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

could strengthen the programme if we were to get together. Keep your fingers crossed, it may be another opening for us!

Thank you again and may God bless you.

Kiros Wolde-Giorghis
SOS Addis
haki@ethionet.et

FAIR TRADE PREMIUMS

The feature on ethical shopping in the *Ecologist* (May) states that 'the Fairtrade mark ensures we pay a fair price to those who produced'. My question remains unanswered: how much of the price premium we pay in a UK shop for a Fairtrade product goes to the producer – and how much to middlemen through extra mark-up on a higher producer price? For example, suppose that for a quantity of coffee selling in the UK for £2, the producer receives 40p, and various middlemen including the retail outlet add on £1.60 for their margins, so that the final selling price is five times the producer price. Then, if the Fairtrade premium increases and the producer gets 50p (10p more), does the selling price in the UK shop become £2.10 (original price plus premium) – or £2.50 (the premium price, times five)? If the latter, is Fairtrade largely just a marketing dodge to boost middlemen profits?

Steve Plater,
Germany

ETHICAL LEATHER

Lots has happened since you wrote about us in your February issue. We had so much positive feedback, but the question that people asked most was 'Why can't you get organic leather?' We have actively sought this for many years, but the leather industry has been slow to catch up with this demand. At present, leather from organically reared cattle is still not commercially available due to problems with supply, traceability, and infrastructure with the leather industry to support it. However, we have now found an organically tanned leather we can work with. The hides are from European herds, with a high standard of animal welfare, and tanned using natural plant leaves and seed pods that are a renewable resource. Vegetable and plant oil mixes condition the tanned hides, making the leather truly gorgeous and very soft.

Becky Marshall,
Green Shoes, Totnes

LOCAL CHARCOAL

Last summer, frustrated with the poor quality of charcoal in the shops (to use on my barbecue), I sought out the highest quality charcoal I could find, which was lumpwood charcoal made in the UK using British hardwoods.

The difference in quality was huge, but what impressed me most was the truly sustainable process involved in this traditional product, and that it was a dying rural craft because most of the charcoal used in the UK is imported from Latin America, South Africa and the Far East. Unfortunately, this charcoal is often made at the expense of the environment, causing deforestation and contributing to climate change as it's transported around the world.

It struck me as plain wrong to import an inferior-quality charcoal that damages the environment, instead of supporting sustainably made charcoal local to us in the UK, and I wanted to do something about it. So I contacted a local charcoal producer and learned how to make it myself. I now produce it for local sale and have set up a website (www.localcharcoal.co.uk) to raise awareness and put people in touch with their local charcoal producer.

Eric Anderson, via email

GENETIC MODIFICATION

DAWN OF THE DEAD

BIO-TECH COMPANIES BRING SEED BACK FROM THE DEAD



Biotech companies part-funded by British taxes are developing 'zombie seed' to bypass a ban on terminator gene technology – where crops are genetically altered to produce sterile seed, forcing farmers to go back to their supplier for new seed.

The new technology also yields sterile seeds but these can then be 'revived' by use of a special chemical – hence the 'zombie' tag – only available from the seed company. A 'clever' difference.

The new GMOs have been developed through a three-year EU research programme known as 'Transcontainer', which has tried to find ways to allow controversial GM crop trials while preventing cross-pollination and spreading of altered genes into the environment.

But environmentalists have already slammed the new GM strains as 'a dream scenario for Gene Giants'. Hope Shand, a researcher with Canadian group ETC, described the situation as 'outrageous'.

'A scenario in which farmers would have to pay for a chemical to restore seed viability creates a new perpetual monopoly for the seed industry,' she said. 'Zombie seeds are no more acceptable than the suicide seeds that have been banned.'

The official Transcontainer website acknowledges that the 'zombie' process – officially 'reversible transgenic sterility' – may 'become a problem for farmers in developing countries, where seed markets are often not functioning well'.

If successful, the zombie process is likely to become widespread. A new report by Exeter University has concluded that many GM field trials 'underestimate' the potential for cross-pollination, making zombie technology highly attractive.

Photograph CORBIS

NUCLEAR CRISES

THE CRUCIAL THREE

'Incoherent and opaque'. That is how the House of Lords Science and Technology Committee described the Government's proposals for dealing with its burgeoning stockpile of nuclear waste.

The Committee described progress so far as 'years of procrastination followed by... unseemly haste'.

But the Committee's call for more investment came as new reports showed that budget cuts have set back planned decommissioning for Harwell and Winfrith power stations from 2018 to 2023. Reduced revenue from the several UK plants that are either shut down or running at reduced capacity has meant belt-tightening on behalf of nuclear operators, and redundancies are expected.

Even if money is found, decommissioning goes ahead

and new plants are built, nuclear power may find that climate change is its Achilles heel, rather than its saviour. Scientists are worried that the huge bodies of water used to cool nuclear reactors may dry up or become too warm during progressively warmer summers, forcing power-station operators to either reduce output or risk breaking environmental rules.

'We're going to have to solve the climate-change problem if we're going to have nuclear power, not the other way around,' said David Lochbaum, a nuclear engineer from the Union of Concerned Scientists.

ECO-TOURISM
CAMPAIGN CHARLIE

Prince Charles plans to open a sustainable bed-and-breakfast on his Llwynywormwood Estate in Wales.

The B&B, designed by Powys-based architect Craig Hamilton,

will be housed in renovated farm buildings. Sewage will be processed through a reed bed system, and guests will be offered a menu of organic food with garden-grown fruit and veg.

Rainwater tanks will be used



to flush toilets, and sheep's wool and hemp insulation will reduce energy use. Plans are also in place to generate electricity through a small-scale hydro-power system.

SUPERMARKETS
SHORT SHELF-LIFE

Climate change could sound the death knell for supermarkets, says the UK's Food Ethics Council (FEC) in conclusion to a wide-

GO FIGURE...

Modern houses have **twice** as many plug sockets as they did 30 years ago. **44.8** per cent of employers have an 'environmental policy'. Only **17** per cent of Britons are willing to wash clothes in cold water. Sales of hybrid cars **doubled** in the UK last year. **30** percent of young people are 'too busy' to recycle. Nearly **three-quarters** of families would boycott companies that don't go green. **1 in 2** businesses say that global warming is not a serious issue. **77** per cent of energy experts believe that world governments won't listen to Stern. Talking to your neighbours is, in terms of wellbeing, worth **£40,000**

ranging investigation, published in its current newsletter (see www.foodethicscouncil.org). The Council warns that the 'big retail' model simply isn't set up to reduce energy use and shrink waste production.

'Supermarkets add value from "food miles" and from sourcing out of season. Will doing the same thing more efficiently cut our food's environmental footprint by enough?' asks Dr Tom MacMillan, Executive Director of the FEC.

MacMillan also worries that the cost of 'going green' will be clawed back from migrant labourers. 'They're the weak link in the chain,' he said.

CHEAP FLIGHTS FRANCE FOR 2p

Faced with flagging profits, budget airline Ryanair announced one million free flights, with all taxes and charges paid. The airline's website crashed repeatedly as four million visitors flooded online to take advantage of the offers.

Phil, an *Ecologist* reader, bagged return flights to France for himself and his wife for two pence each. Their baby son, however, was stung for £5.

Friends of the Earth described the promotion as 'grossly irresponsible'.

BIO-DIVERSITY SUNKEN TREASURES

More than 200 different species

of fish, invertebrate and marine plants now inhabit Cornwall's first artificial reef in Whitsand Bay, created when HMS Scylla was scuppered there in 2004.

Biologists have recently discovered a rare species of sea slug living on the reef (below), which very rarely makes an



appearance in UK waters. Following two years of fluctuations, marine life on the wreck is now achieving a productive equilibrium.

WORK-LIFE BALANCE CULTURE CLASH

'Office culture' is the main obstacle in moving towards home-working and 'green' practices in the workplace, according to research by IT company Interwise.

Thirty per cent of office workers surveyed blamed current working practices for slow uptake in remote and flexible working.

The survey was released just days before Britain's biggest bank, HSBC, pledged to halve the number of the 8,000 employees who daily commute to its London headquarters, by 2014. Within seven years, the bank expects at least 4,000 to work from home.

INCINERATORS BIRTH DEFECTS

Birth defects in the London Boroughs of Hounslow and Hillingdon tripled between 1990 and 2002, and health campaigners are pointing fingers at a nearby incinerator which is being used to burn radioactive waste.

The Grudons incinerator in Slough has been used for 14 years to burn clinical radioactive waste, during which time rates of birth defects have increased by 300 per cent, against a general 'background' increase of six per cent.

Health campaign group Slough Anti-Incinerator Network (SAIN) has described the incinerator as condemning parents and children to 'a lifetime of misery'. Thirty-two other incinerators that burnt such wastes in 2002 are listed at www.greenhealthwatch.com

MOBILE PHONES ISLE OF MAN MAST

Manx Telecom, the Isle of Man's mobile communications operator, has been banned from putting up masts on any building owned by the Public Works Committee.

There is also talk of removing masts currently erected on street-lamps. The Committee says it has acted because of health concerns.

FOOD GM-FREE MONSANTO

Where can you get GM-free food these days?

How about the staff café at Monsanto's British headquarters, where catering firm Granada Food Services has reportedly taken all GM-food products off the menu because of 'customer concerns'?

Pointing out that this was a decision taken by the caterer, Tony Coombes, Monsanto's Director of Corporate Affairs, told Associated Press: 'It has nothing to do with us really.'



PACK IT IN

Lib Dem MP Andrew Stunnett has put forward a bill that would force supermarkets to provide recycling facilities in-store for all the packaging sold with their goods.

But his proposals are facing a backlash from retailers, who view it as expensive and want local authorities to pick up the tab. Write to your local MP now and ask him or her to support the Retail Packaging Recycling Bill.

The bill is expected to receive a second reading in October.

CLIMATE CAMP

This summer, the 2007 Camp for Climate Action will tackle the fastest-growing source of greenhouse gas emissions in the UK – aviation.

Based at Heathrow, the camp will be a 'community of resistance', combining grassroots solutions to climate change with a



demonstration of low-impact living.

One day will be devoted to disruptive radical action at Heathrow airport, although runway sit-ins will be avoided on grounds of safety.

For more information, see www.climatecamp.org.uk

GREENWASH?

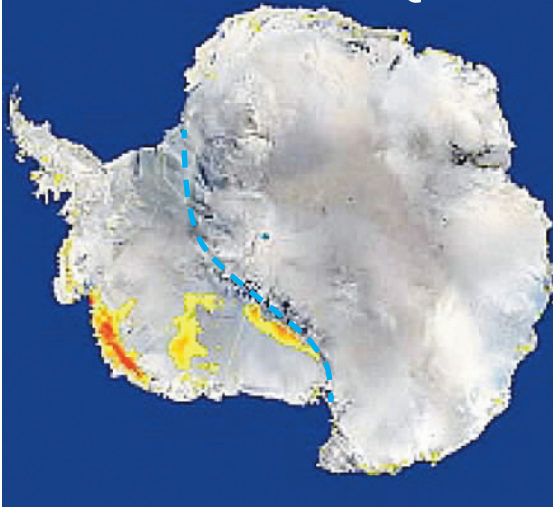
FLY BOY TO TURN RAF GREEN

'Attention! The Royal Air Force has just taken receipt of its first Toyota Prius. Corporal Mark Willis, the personal chauffeur to Air Marshall Steven Dalton, described the environmental benefits as coming 'at no cost to the driving experience'.

Air Marshall Dalton described the acquisition as an 'important milestone' and a step in a new 'environmentally conscious direction that we are now going'. What next? Bio-fuelled bombers?

CLIMATE CHANGE

HOW THIS EQUALS... THIS



This shocking satellite image from NASA (above left) reveals the imminent and catastrophic collapse of part of the West Antarctic ice-sheet, an event that threatens to take predicted sea-levels to as much as 15 metres by the end of the century.

On the picture, the blue line describes the mountain chain that runs across Antarctica. The predominantly yellow and red colours to the left of the ridge show where the ice sheet is melting and breaking up. A huge crack is clearly developing that will cause a vast expanse – approximately the size of Western Europe – to break off. This will then follow the pattern of Greenland, with internal ice-quakes precipitating break-up, resulting in the dumping of mega-ice-bergs into the Antarctic Ocean. James Hansen, director of NASA's Goddard Institute

for Space Studies, recently wrote a paper on Polar Melting, sea-level rises, and scientific reticence, suggesting that the disappearance of the world's polar and glacial ice cover could lead to 15 metres of sea-level rise by the end of the century. To reach this estimate, Hansen calculated that the looming Antarctic event alone could cause sea levels to rise five metres by 2100 – just 90 years away. Add to that a predicted seven-metre rise in sea-levels from the collapsing Greenland ice sheet (now considered by many to be past tipping point), two metres from the collapse of the world glacier system and one metre for

thermal expansion, and you achieve the 15 metres Hansen is talking about. Such a rise equates to an average 150cm for each decade (five feet, approximately) or 15cm (approximately six inches) a year. The rise might be very uneven however, starting slowly and then speeding up.

Last year, the Marshall Islands tide gauge in the Pacific (run for the UN climate change monitoring programme) measured a sea-level rise of around 22mm. By way of comparison, the official IPCC estimate for annual global sea-level rise is less than 3mm, some seven times less. The picture on the right shows the UK as it would be in the event of a major sea level rise, if both polar caps totally collapse over the next two to three centuries; in this projection causing sea levels to surge, flooding up to 100 metres above today's shoreline.

INVESTOR POWER EXXON MUTINY

Is the world's dirtiest oil company facing a mutiny? In May, Exxon-Mobil investors, owning more than 100 million of the company's shares, joined forces to fight the reappointment of board member Michael Boskin because of his position on climate change.

A month later, 31 per cent of Exxon's shareholders voted in favour of a resolution to force the corporation to set greenhouse gas emissions targets for its products and operations.

Exxon has recently been forced to admit the realities of climate change and revise its funding of self-styled think-tanks that have consistently set out to deny climate change and undermine climate science.

BIO-DIVERSITY DEADLY TRADE

The tiger tops a new list compiled by WWF of the world's 'most traded' species, at risk of being hunted for their meat, fur or other body parts.

The tiger is now facing a new threat with the anticipated reopening of the Chinese tiger trade. Already threatened by habitat loss, a new tiger market will encourage poachers to capture wild animals, lured by the fees paid for 'farmed' tigers.

Red and pink corals also figure on the list. These are endangered not only by intensive harvesting for jewellery but also by bottom trawling for scallops and by dredging.

Great apes reach number nine in the ranking, threatened by the

pet trade, poaching and the destruction of their habitat, frequently through the clearing of land for biofuel crops.



HEALTH CAUSES OF CANCER

Soaring cancer rates in China have been attributed to pollution and the increased use of chemicals in food, the country's state-owned media have reported.

A study by the health ministry found that cancer deaths in rural

areas had risen by 23 per cent, and by 19 per cent in urban areas.

The report blamed the rise on the use of fertilisers and pesticides, livestock growth enhancers, air pollution from power stations and industry and the use of formaldehyde cleaning products in the home.

NUCLEAR WASTE LANDFILL SCAM

Radioactive waste from old nuclear weapons is being sent to domestic landfill sites across the USA, the country's Nuclear Information and Resource Service (NIRS) has revealed.

In a new report, the NIRS traced the legal and technical routes that have allowed the Department of Energy to dump radioactive, plastic and chemical

waste into unsuitable landfills.

The authors found that the Department was auctioning waste to 'processors', who are then free to ignore radioactive handling requirements and treat the waste as domestic rubbish.

INDUSTRIAL FISHING OCEANA ATTACKED

Campaign group Oceana has released images showing that a significant number of French fishing boats are continuing to flout EU law and fish with banned driftnets.

The driftnets, which can be deployed to lengths of 10km, not only threaten any hopes of recovery for endangered species such as tuna, but also snare dolphins, sharks and juvenile fish.

Confronted by the campaigners' boat, one ship caught using a driftnet fired a flare-gun at the Oceana and threatened to board the ship, after sabotaging the vessel by tangling ropes around its

GREENWASH? SWISS CHEESE

Chemical giant Unilever has been rated as the most ethical corporation 'across all sectors' by Geneva-based company Covalence. Gosh. Unilever must really have cleaned up its act since it was wrist-slapped for misleading advertising on packs of Flora Pro-Activ, forced the Indian government to drop the price of tea through a market monopoly, employed child labourers in fields sprayed with pesticides, and underpaid farmers who had cut down rainforests to grow massive palm oil plantations.

NOW THAT'S... PROGRESS

- 1** 1 in 5 Britons don't know that sausages come from farms, according to survey by Linking Environment and Farming (LEAF). 29 per cent of adults asked had never been to a farm.
- 2** Airline passenger numbers may be flagging, but sales of private jets are soaring. Production rates have doubled, with 18,000 new jets slated for the next decade.
- 3** Bio-tech firm ViaLactia has bred cows that give skimmed milk straight from their udders. Butter from these cows is spreadable straight from the fridge.
- 4** Japanese scientists have built a robot toddler that moves like a real child. The researchers hope that 'CB2' will give them a better understanding of child development.

propellers. The fishermen fled when the French authorities arrived in helicopters.

CHEMICALS WEEDS' REVENGE

'Biodegradable, leaving no soil residues,' is how Monsanto markets its lucrative weedkiller, Roundup. Now, research by scientists at the University of Caen in France has shown that Roundup can kill human cells at very weak doses, and disrupt sex hormones at non-toxic levels.

The scientists concluded that the herbicide was far more toxic than its main ingredient, glyphosate. They discovered that the product was cytotoxic [toxic to cells], endocrine-disrupting and could affect reproduction and foetal development.

PROTEST GM LAND-GRAB

Swiss agribusiness giant Syngenta is trying to force farmers from land where it wants to conduct trials of GM crops in Para, Brazil.

The 120 farmers settled in the area a year ago in protest at Syngenta's GM experiments within the boundaries of the Iguacu National Park, and are self-sufficient in food for

themselves and their families.

Syngenta wants the State Government of Paraná to order police to remove the farmers from the land. The farmers are first demanding that Syngenta meet a still-unpaid £465,000 fine imposed on the company by the state environment agency.

CLIMATE CHANGE HISTORIC SHIFT

China is set to overtake the United States as the world's biggest emitter of greenhouse gases within months, Dr Fatih Birol, chief economist of the Paris-based International Energy Agency, has predicted.

He said the country's economic growth had been so fast in the past year that the historic global shift of climate-changing emissions from west to east that was previously predicted for 2009 or 2010 could now happen by November.

At current rates of growth – around 10 per cent for the past four years – he said, China would be emitting twice as much CO₂ as the world's 26 richest countries together within 25 years.

China is a signatory to the Kyoto Protocol on climate change, but as a developing country does not have a cap on its emissions.



IN GREAT VOICE

Arctic communities and Small Island Developing States (SIDS) from the Caribbean and Pacific have united as the Many Strong Voices (MSV) campaign, to counteract the threats posed by climate change. MSV has two aims: to strengthen and maintain current ecosystems; and to lobby those countries



most responsible for climate change to cut their emissions of greenhouse gases and help fund 'natural' coastal defences.

GOLDEN 'NO'

To mark the golden anniversary of the pro-nuclear Euratom Treaty, 782 organisations and 634,686 individuals have signed a petition demanding it be abolished. Campaigners say the Treaty gives 'unjustified and undemocratic preferential financial support for nuclear power' at the expense of renewables. Alongside the petition, a recent Eurobarometer poll found that 61 per cent of Europeans are opposed to nuclear power.



BEHIND THE LABEL FOCUS

PFOS

Firefighting foam laced with this toxic chemical was used to extinguish the Buncefield oil depot inferno, leaving a deadly legacy. Was it necessary? **Mark Anslow** investigates

In February this year, cattle breeder Christopher Archer entered the barn where one of his pedigree British White cows was calving. He found the calf dead; its paralysed hind legs were crumpled underneath its body and an open red sore, clearly visible at the base of its spine (see page 14), showed where the vertebrae of its spine had failed to fuse together.

In other circumstances, Archer, a farmer with more than 23 years' experience of breeding rare cattle, might not have given this a second thought. But this was his ninth miscarried or stillborn calf in two years. The year before, out of nine pregnant cows, six had miscarried, two had given birth to bull calves with unusually large heads, which died during calving, and one had been born healthy but smaller than expected. His farm's calving success rate, which was normally between 50 and 70 per cent, had dropped to an inexplicable 11 per cent.

A little over a year previously, in December 2005, a strange dirty-white snowfall had begun to float down onto Archer's land: the airborne residue of the fire-fighting foam being used to tackle the inferno raging at the Buncefield oil depot in Hertfordshire, two-thirds of a mile away. The foam contained a chemical known as perfluorooctane sulphonate, or PFOS, which works to increase the spread of fire-fighting liquids, making them more effective. Feeding his cattle that day, Archer watched as his cows mistook the foam for food and went to eat it.

Any misgivings he might have had about the foam were allayed over the days and weeks following the fire, when a succession of public bodies – namely the Environment Agency, the Health Protection Agency (HPA), the local authority and the fire service – issued advice saying that the foam was no cause for concern. The only consistent advice in the event of any accidental contact was to wash the affected area.

That any one of these public bodies



could have been unaware of the toxic and carcinogenic properties of PFOS is inconceivable. In 2001, under pressure from environmental bodies and mounting evidence that PFOS was accumulating in human bodies and the environment, US chemical giant 3M voluntarily ceased manufacture of PFOS – a highly lucrative compound that was used in everything from greaseproof food packaging to Scotchgard fabric treatment. In 2004, the Environment Agency produced a thorough risk analysis of the chemical. Its researchers concluded: '...PFOS should be classified as 'Toxic' and carry the Risk Phrase R48 [danger of serious damage to health by prolonged exposure]. There is also support for

classification as toxic for reproduction.'

Following this research, which also showed a link between the chemical and bladder cancer in humans, the Government drafted proposals to restrict the sale and use of PFOS in the UK, and to phase out the chemical from fire-fighting foams. Yet at Buncefield – the fuel depot for Heathrow – 50,000 litres of foam containing PFOS were sanctioned for use.

Gold Command

When the kerosene tanks at Buncefield exploded, Hertfordshire Police convened a strategic command team, known as Gold Command. At the table were representatives from the police, the fire service, central

Government and the Environment Agency. Confronted by the biggest industrial blaze in peacetime Britain, firefighters on the ground were quick to realise they lacked both an adequate supply of water and stocks of foam, and called for reserves to be trucked in.

It took more than eight hours, however,

associated restructuring programme. This is more than political posturing. Nearly every fire service in the county that put out a news item on the fire referred in full to the use of the HVPs, used the same photograph, and acknowledged the importance of the New Dimension programme. Extinguishing

how old or what chemicals they contained.

Of the 786,000 litres of foam concentrate supplied to the site, at least 600,000 litres was supplied by fire-services company Angus Fire, and was PFOS-free. Angus Fire's Technical Specialist, Mike Willson, estimates that of the remainder, most would have been supplied to other fire services by his company, and only 50,000 litres of foam used in the blaze would have come from old stocks containing PFOS.

Had there been more haste and less speed, it would seem that the fire could have been controlled and extinguished PFOS-free.

'The fire was not going anywhere. The buildings around it were destroyed. Again I asked, do we really want to put this out?'

before Gold Command agreed to the use of foam, which hints at the contentiousness of the decision. One fear, voiced by the Environment Agency, was that the contaminated firewater – the chemical soup comprised of water, foam and fuel chemicals – would enter the water courses and contaminate the water supply to north London. Yet the go-ahead was given, seemingly as a result of political pressure.

Kelvin Hardingham, a firefighter with 30 years' experience, who was drafted in to provide expert advice, was baffled by the decision. 'The fire was in the middle of a field and not going anywhere,' he told trade magazine *Industrial Fire World*. 'The buildings around it were already destroyed. There were eight or nine tanks that weren't on fire that we could protect. Again, I asked, do we really want to put this out?'

Conservative MP for Hemel Hempstead, Mike Penning, who was himself a firefighter for eight years, was equally perplexed by the decision to tackle the blaze and is certain political pressure was being brought to bear.

When the fire erupted, the Government and Fire Brigades Union were in dispute. In urban areas, fire stations were being proposed for closure; while 20 high-volume water pumps (HVP) had been bought as part of a £188m programme known as New Dimension – set up in the aftermath of 9/11 to provide a rapid response in the event of a terrorist attack, and used to justify the controversial restructuring of the brigade. Disputes between the fire brigade and the effects of New Dimension were being addressed by the now defunct Office of the Deputy Prime Minister (ODPM).

Penning says that the ODPM pressured Gold Command to request 15 of the New Dimension pumps to assist with extinguishing the fire, to prove the value of the investment and

the fire certainly offered the opportunity to present the new flagship anti-terrorism initiative in the best light.

These super-pumps – each of which can supply 8,000 litres of water every minute – require a correspondingly vast supply of foam concentrate. Their introduction to put out the Buncefield fire led to an increasingly frenetic dash for firefighting foam. Supplies came from every available source, no matter

Danger signs

The actions taken in those smoke-filled December hours might have been justified if everything had gone according to plan and the PFOS-contaminated firewater had remained safely sealed within the confines of Buncefield oil depot. But the sealants connecting the bunds (dams) erected to catch the run-off melted in the heat of the fire.

The PFOS-contaminated firewater gushed

How PFOS slipped through the safety net

PFOS was first manufactured in 1948 by the 3M Company. It is now a ubiquitous environmental pollutant.

For more than 40 years it was used in a wide variety of products. Firefighting foam was perhaps the single biggest use of PFOS. But its water- and oil-repellent properties meant that the chemical found its way into a plethora of commonly-used products: for example, coatings for candy wrappers, fast-food boxes and bags for microwave popcorn. It was also used in waxes, polishes and cleaning products, window treatments, carpets and furnishing fabrics, mattresses and shower curtains. It was used as a stain and water repellent for clothing, footwear and accessories and on upholstery in private cars, planes and trains. It was utilised in the metal plating industry, in photographic products, in mould release agents, paints and varnishes.

Logic would have dictated that such a widely used chemical would find its way into the ecosystem and into animals and humans. But traditional testing methods for persistent pollutants missed it entirely because, unlike the majority of industrial chemicals, PFOS doesn't

accumulate in fat, it binds to proteins.

This unique characteristic meant that it was 40 years before researchers found PFOS in supposedly clean samples from blood banks all over the world. It was subsequently found in polar bears in the Arctic, dolphins in Florida, seals and otters in California, albatross in the mid-Pacific. By 2000 3M had voluntarily withdrawn PFOS from the marketplace – all the while maintaining that this was purely a precautionary measure and that there were no known health hazards from exposure. Subsequent data has proven them wrong.

In mammals in the wild, chronic PFOS exposure has led to disturbances of the hormone and immune systems, and vitamin A levels, as well as reduced bone mineral density. It is also a reproductive toxin.

Long before Buncefield, the US Environmental Protection Agency observed: 'PFOS accumulates to a high degree in humans and animals. It has an estimated half-life [the time it takes to clear half the ingested PFOS from the body] of four years in humans. It thus appears to combine persistence, bioaccumulation, and toxicity properties to an extraordinary degree.'

Behind the label focus

through the cracks and formed into a pool 200 metres long and 20 metres wide in nearby Cherry Tree Lane, directly above a borehole that leads to the area's chalk aquifer – the source of north London's drinking water.

By May 2006, test boreholes dug by the Environment Agency were showing PFOS contamination of groundwater in the area around Buncefield.

Before Buncefield, there was no safe limit set for PFOS contamination levels in UK water. However, in May 2006, the Drinking Water Inspectorate (DWI) set a limit of

observes: '...the Inspectorate understands that there is considerable uncertainty in estimates of dietary exposure to PFOS for young children. Uncertainty in these estimates suggests childhood exposure from drinking water may be appropriately restricted to a value in the range zero to 2.5 micrograms per litre.'

Water coming out of a tap is not divided into 'child' and 'adult' streams. According to these regulations, children could quite easily be consuming levels of PFOS, the effects of which are 'uncertain' before either

'Your doctor might know that you have been drinking water laced with PFOS for months, but neither the regulator nor public would'

three micrograms per litre. Yet in 2005, the Environment Secretary Margaret Beckett had drafted legislation that would see anyone importing PFOS into the UK serving a two-year prison sentence, Penning wanted to know why the chemical had suddenly been given a 'safe limit' in water: 'I cannot see the logic that says that, on the one hand, this stuff is so dangerous that it should be a crime to import it into the country at all and, on the other hand, it's all right for my constituents to drink it, albeit in very limited quantities,' he told reporters at the time.

Safety confusion

A year on and the advice as to what levels of PFOS contamination are safe has changed again, becoming more complex in the process. In May this year, the limit of PFOS in water above which the supply is considered 'unwholesome' had dropped to one microgram – a third of the level identified a year previously. Yet measuring levels of PFOS in water was not made a statutory duty. Rather, water companies are only required to inform the DWI of PFOS contamination if levels rise above nine micrograms per litre. At lower levels of contamination, water boards are expected merely to 'put in place measures to reduce concentrations below one microgram per litre as soon as is practicable' and to 'consult with local health professionals'. In other words, your doctor might know that you have been drinking water laced with PFOS for months, but neither the regulator nor the public would have any idea.

More disturbingly, the DWI guidance

the plume of contamination, sucking contaminants down through the aquifer. The question is, will we be any the wiser about safe levels of PFOS when that happens?

Archer asked a simple question: is PFOS safe? The array of answers he has received is alarming.

The Environment Agency sent him a CD-ROM containing an Excel spreadsheet depicting the results of their chemical monitoring, and a letter. Unable to use a computer, let alone decipher a chemical analysis, the CD meant nothing to him. The letter told him that the groundwater quality was 'generally OK'; levels of PFOS were below those set by the DWI for tap water.

The letter went on to assure Archer that 'the results do suggest that no plume of contamination has moved under the site in the period February 2006 to the present'. The letter is dated 11 May 2007.

Less than a month earlier, however, a news release on the Environment Agency's website clearly stated: 'The results [from our boreholes] suggest that the groundwater under and up to 2 kms to the North, East and South East of the [Buncefield] site has been contaminated with hydrocarbons and fire fighting foams.'

Archer also sought assurance from the Food Standards Agency (FSA), setting out what had happened, including his cattle's exposure to the foam and their subsequent reproductive problems. He received a letter from the FSA on 17 May 2007, to reassure him that PFOS 'is not highly toxic', and that, as it had been used in winter, his cattle must have had limited exposure to the foam as they would have been inside – which they weren't, as it was a mild

the 3mcg or 9mcg triggers are reached.

The local water company, Three Valleys Water, says that the only borehole used for drinking water near to Buncefield had been closed for maintenance work before the explosion and has not been reopened, and a spokeswoman said that the company had 'no immediate plans to return the source back in to supply.'

But eventually, the borehole will be reopened. A spokesman for the Environment Agency told the *Ecologist*, 'I'm sure they'll want to, just because of their water resources. This year has seen one of the wettest winters on record, but last two years we've had a drought, and they [Three Valleys] were under a lot of pressure to reopen the borehole.'

Abstraction poses further risks. The act of drawing water from the borehole can shift



One of Archer's calves, paralysed with a deformed spine, which died shortly after birth

winter and the Environment Agency had indicated to him that it wasn't necessary.

The FSA continued: 'With regard to possible contamination of meat, it is unlikely that PFOS would be detectable and exposure to low levels of PFOS over a short period would not be a concern... If you are still concerned, I can suggest where you might have samples of your meat tested but I think you would be incurring an unnecessary expense.'

Regulatory failure

PFOS is known to accumulate in proteins; PFOS is known to have effects through the second generation of offspring, can cross the placenta and is bio-accumulative. PFOS is known to cause foetal defects, including 'delayed ossification [forming of bones] and skeletal variations' – symptoms seen in Archer's calves. The FSA's own document published last year observes that it may be 'more appropriate to relate the toxic effects [of PFOS] to a body burden rather than to a daily dose.' And yet it saw no need to recommend tests or express concern over the fate of Archer's calves.

Consequently, Christopher Archer has little hope of winning any compensation for the loss to his herd, despite a vet's report that praises his 'level of management and stockmanship' and blames 'the explosion and subsequent chemical fallout' as the 'likely cause' for the disastrous calving record. Archer is sad but pragmatic about his chances. 'I can't prove PFOS did this to my cows,' he sighs, 'but in 23 years of farming I've never seen anything else like it.'

The fire service exists to put out fires, pretty much by any means possible. The FSA, DWI, Environment Agency, HPA, our local authority and government departments are public bodies and have a statutory duty to protect the public. Yet it would seem other concerns took precedence that night.

Buncefield depot is the heart of Heathrow, keeping the planes in the air. In the aftermath of 9/11 it is feasible that the government wanted to show the world it was prepared. According to some experts we made a potentially deadly mistake in defeating a dying fire. Now we have contaminated ground water in an aquifer from which the drinking water for three million customers is drawn.

Are the levels of PFOS in the water safe? Maybe your GP knows, because the agencies established to protect our interests are clearly at sixes and sevens. **E**

The £1bn PCB question

Who will pay to remediate Brofiscin Quarry? **Jon Hughes** previews the end-game set for the US Court

After two years of standing on the sidelines and with only four working court days remaining (at the time of going to press, 22 June), the Environment Agency is set to raise the issue of Brofiscin quarry in the US Bankruptcy Court (USBC), where Monsanto's environmental legacy liabilities are being determined. While this news is to be welcomed it is by no means clear that the intervention will be successful. If it fails the cost of any remediation will fall on the government.

In a statement to the *Ecologist* on 19 June, the Agency said: 'We anticipate filing an objection to Solutia Inc's disclosure statement and reorganisation plan in the US Bankruptcy Court (USBC) by June 28.' This was the deadline set for final objections to the statement at a sitting of the USBC on 18 May, and the disclosure hearing is scheduled for 10 July.

At a disclosure hearing, a company, such as Solutia, lists its assets and liabilities as the basis on which to progress its plan of reorganisation and exit from administration. The alternative is liquidation. Up until recently, Solutia's disclosure statement was being contested by its sister company, 'new' Monsanto (the two companies, along with Pharmacia, were born out of the break-up of Monsanto in 1997, when 'new' Monsanto agreed to indemnify Solutia against future environmental legacy liabilities). New Monsanto was claiming that the disclosure statement did not truly reflect Solutia's liabilities.

An amended disclosure statement now before the Court shows, however, that this dispute has been resolved. Also, for the first time Solutia lists its UK assets in its financial disclosures, but it does not admit to having any UK liabilities. This supports the *Ecologist* contention that no claim for UK liabilities has been made by the Agency.

Nevertheless this is clearly grounds on which to object; with Brofiscin and

potentially nine other sites where Monsanto dumped wastes to investigate and remediate, these liabilities could eventually top £1bn. Such a sum could topple both Solutia and 'new' Monsanto, or cost us, the tax payer, dear.

The critical question is: Can you object to a disclosure statement without having filed a proof of claim against the company's assets? Douglas Gowan has always maintained that you cannot – a contention he makes as a former trustee and examiner working in the USBC for nearly a decade. If you have no recognised financial interest in a matter, what does your objection count for? Nothing; as it does not have any bearing on the financial resolution, or the reasonableness of the approval or not of the Disclosure Statement and Plan.

Gowan has pressed this point for months and he has supplied the Agency with countless documents that he says are sufficient on which to stake a claim; these include his contemporaneous reports into the dumping that took place between 1965 and 1973; test results and analyses undertaken by ICI from samples taken over the same period; and Monsanto documents acknowledging the problems associated with landfilling PCBs and dioxins, and specifically admitting to liability for UK sites.

Throughout, the Agency has rejected this evidence and said it was waiting on its own consultant's report into Brofiscin from environmental engineers Atkins before identifying who to pursue for remediation costs. The Atkins report was due first in March, then 18 June, and now is scheduled for release on 9 July. The 'draft' is currently being reviewed.

The Agency declined to respond to questions posed by the *Ecologist*. The case (hopefully with the Agency at the table) continues.

Reports of proceedings from the USBC can be found www.solutiareorg.com



Taking the direct approach

Non-violent direct action can be an effective, and sometimes necessary, part of a campaign. Go on, says **Ed Hamer**, dare to throw a spanner in the works

It is nearly 200 years since the working-class hero Ned Ludd inspired a campaign of social discontent from the heart of the Black Country. The Luddites saw the dismantling of the newly mechanised cotton mills as their only defence against the job losses and poverty that accompanied the advancing industrial revolution.

Today, the kind of inequalities that first inspired Ludd are growing daily, and on a global scale. Fortunately, so too are the numbers of individuals willing to throw a spanner in the works. From the high-profile road protest movement of the 1990s to recent climate change demonstrations at Britain's airports, direct action is alive and very much kicking.

The objective of direct action is immediate

and effective change; in some cases this involves civil disobedience which may be illegal. Says John Sauven, Executive Director of Greenpeace, 'Non-violent direct action enables the stopping of wrongs and the highlighting of solutions. Concerned people taking non-violent direct action is exactly how Greenpeace was founded.'

Renowned environmentalist Jonathon Porritt is also a believer in direct action: applied intelligently and effectively, it can strengthen conventional campaigns. 'Historically, non-violent direct action has always played an important part in the UK environment movement, and, in my opinion, always will,' he says. 'Those who claim this undermines the credibility of mainstream environmental organisations are plain wrong.'

ON THE BARRICADES

Faslane 365 blockade

Faslane nuclear base on the west coast of Scotland has been subjected to a number of high-profile blockades ever since the UK's trident submarine fleet moved there in 1994. To date, 82 blockading groups have maintained a continuous presence outside the base, disrupting work shifts and inspiring renewed legislation in the Scottish Parliament. See: www.faslane365.org

Genetics action

Since the first trial of GM oilseed rape was established on a field in Berkshire in 1993, environmentalists and farmers have felt duty-bound to contain the spread of this potential biohazard. The past 14 years have seen 'de-contaminations' gain momentum. In 2003, the Green Gloves Pledge to peacefully remove GM crops was launched in response to the planned commercialisation of genetically modified organisms (GMOs) in

the UK. The pledge received more than 4,000 signatures before the Government abandoned its plans due to public opposition. See: www.geneticsaction.org.uk

Greenpeace

Many of us were first introduced to 'direct action' by images of the Rainbow Warrior and the Ocean Defenders dodging harpoons in their pursuit of an international ban on commercial whaling. Since 1986, however, Greenpeace has broadened the scope of its actions to include climate change, nuclear power, genetic engineering and illegal logging. Today Greenpeace has a network of trained activists willing to undertake illegal non-violent direct actions including blockades, banner drops, lock-ons and occupations. In November last year Didcot coal-fuelled power station was occupied and shut down for two days while Tony Blair was in town. See: www.greenpeace.org.uk

EVERY ACTION COUNTS

'You may never know what results come of your action, but if you do nothing there will be no result' - Mahatma Gandhi (1869–1948), political and spiritual leader, pioneer of the non-violent direct action movement.

- Research is essential. You can motivate others if you are well informed, passionate and confident about the issues involved.
- Identify the objective of the action: whether it's dropping a banner overnight or attracting and maintaining national media coverage, show why your action is necessary, why now and what you aim to achieve.
- Plan well. Essentials include how many people will be involved, where and when the action will take place, what skills you have as a group and what materials are needed.
- Be prepared: It doesn't have to be illegal to be effective, but all participants must be comfortable with the potential outcomes of the action. Know your rights and which laws you may have breached. Keep a contact number for a legal aid solicitor.
- Network with other organisations or groups who may be able to support or even join your action.
- Training can also build confidence for larger actions or inexperienced members. Five minutes' practice with a length of PVC pipe and a karabiner (useful for locking arms together) can extend an occupation by several hours.
- Choose a plan and stick to it. Keep your cool and deal with all confrontations calmly. If possible, make your own video recording of the event for your records.
- Debriefing helps refine improvements for future actions. It is also a time to congratulate each other and indulge in the satisfaction of making a real difference.

Essential resources

www.earthfirst.org.uk
www.schnews.org.uk
www.indymedia.org.uk

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FINANCE

The green hare and the tortoise

City folk have long believed that caring for the environment is bad for business. Mostly, not so, says **Nick Robins**

A rather powerful, but mostly benign virus is currently doing the rounds of the world's financial markets. Just like the much-feared Y2K bug that threatened global computer networks at the turn of the millennium, this infection has the potential to overturn existing assumptions that drive share prices. Known simply as 'green', the symptoms of exposure are varied. On the surface, the clearest indicator of infection is the volume and depth of reports from once-conservative investment banks lauding the financial gains to be made from clean technology. With catchy titles such as *Carbon Trading – The Sky's the Limit* and *Green is the New Black*, these analytical blockbusters have helped to cure City folk of some hoary old myths – not least that the environment is bad for returns.

But a more impressive signal that the virus has really caught hold is the volume of hard cash flowing towards green investments. In 2006, a record \$100 billion was invested worldwide in the alternative energy sector alone, according to New Energy Finance. In terms of venture capital, clean tech investments have quadrupled in the past four years, climbing 78 per cent in 2006 alone. According to Nicholas Parker from the Cleantech Group, 'venture capital investments are a primary

leading indicator of future economic growth', and are forecast to surge from \$2.9 billion last year to \$19 billion in 2010. The world carbon market has also expanded massively, from \$10 billion to \$30 billion in 2006, with \$5 billion of this flowing to emerging markets to back the Clean Development Mechanism. And, for long-standing green investors, all this excitement is a vindication of their belief that planetary environmental crisis is bringing an unprecedented reallocation of capital, heralding a dazzling commercial sunrise for new sectors and spelling a gloomy corporate sunset for others.

One of the most positive aspects of this new situation is the greater choice that investors have at their disposal. Back in 2004, when Mark Thompson, sustainability specialist at Canaccord, first put together his Resource Optimisation and Sustainability Index of companies listed in London, he could find only six stocks that met the grade; now there are more than 75. In an initiative that gives greater transparency to the general public on this new investment sector, UK CEED has constructed its own EnviroDAQ, which contains UK-listed

companies that generate at least 60 per cent of their turnover from environmentally-focused goods and services (www.envirodaq.com). Within the index, a few are well-established 'blue chip' firms such as catalyst-maker Johnson Matthey; others are much smaller and embryonic.

In some cases, investors have made eye-watering returns. Chinese solar wafer manufacturer, Renesolar, listed in August 2006 on London's Alternative Investment Market with a market capitalisation of \$150 million, is now worth over \$1 billion. Climate Exchange plc has been another star performer, with its share price multiplying five-fold in the past year on the back of increasing interest in the burgeoning carbon market. But 'green' is not a one-way bet, and clearly not all of these investments will prove sustainable in either environmental or economic terms.

One of the big themes of 2006 was corn-based ethanol, which attracted huge flows of finance in the USA on the back of President Bush's increasingly lavish subsidies. One year on, and there are few in the City who are not aware of the stark 'food vs fuel' conflict, and

“The hunt is on for investors who see through the froth of the current 'green' sector to opportunities that lie beyond-

August 2006 on London's Alternative Investment Market with a market capitalisation of \$150 million, is now worth over \$1 billion. Climate Exchange plc has been another star performer, with its share price multiplying five-fold in the past year on the back of increasing interest in the burgeoning carbon market. But 'green' is not a one-way bet, and clearly not all of these investments will prove sustainable in either environmental or economic terms.

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the reality that ethanol has got much more to do with boosting agri-business than combating climate change. The share prices of new listings such as Aventine and Pacific Ethanol have more than halved over the past year while, in the UK, the value of Teeside-based Biofuels Corporation has been decimated. In spite of the impeccable logic of Jeremy Rifkin's argument in favour of hydrogen as the necessary storage medium for intermittent renewable technologies, financial markets have been harsh, with Canada's iconic fuel cell manufacturer, Ballard Power, falling by almost two-thirds in the past 12 months.

No surprise, then, that there's mounting talk of a 'green bubble' on the markets, with rising volumes of cash chasing a still relatively small set of companies. Some of today's stock market stars – such as Danish wind technology company, Vestas – are still below their share-price peaks at the end of the last 'technology' bubble around the turn of the century. Certainly, share prices of many solar and wind stocks are being held up by bottlenecks and shortages that will eventually be eroded as new capacity comes on stream. Set against this is the impressive growth potential for energy efficiency and renewable generation as Government targets tighten and the costs of technology continue to slide. Canaccord's Mark Thompson points to the well-worn 'hype cycle', with investors tending to over-estimate prospects over the next 12 months, but under-estimating the potential over the next five years. The entry of hedge funds playing the 'green' momentum theme has certainly contributed to the 'bubble' fears, but also provided considerable liquidity to the market.

So, the hunt is on for those elusive providers of 'patient capital', who see through the froth of the current 'green' sector to the long-term opportunities that lie beyond. This imperative is more important than ever with global markets showing signs of nervousness as interest rates rise. In the past, increasing investor aversion to risk has hit fledgling sectors, such as clean technology, hard. If the world does enter a downturn, it will be critical that more, rather than less, is invested in these sectors to a truly sustainable rebound in jobs and development. The green virus still has a lot more capital to infect.

HEALTH WARNING: The value of investments can rise as well as fall. **E**

Nick Robins is author of *The Corporation That Changed The World* (Pluto Press, £15.99).

MAKING DO

The consuming classes

I hadn't thought about it for years. Like most people, I'd forgotten there was one, but deciding to stop consuming for a year has reminded me that there still is a class system living healthily under view.



This not-so-stunning realisation came when I was smoothing along the M4 in my hybrid, one eye on the petrol consumption as always, and was overtaken by a red Hummer. Often known as a Humvee, the military vehicle used by the US army, this big baby drinks gas. I drove one in the USA a few years back, and it managed an impressive nine miles to the gallon – if I drove it carefully.

From the perspective of my newfound frugality this seems a lifetime away. But the point is, I know how much they consume, how much they cost and how utterly 20th century they are. The driver was a geezer: designer peak cap, earring and football shirt complete with logo. (The traffic was slow, so I had time to check.) Now, I don't like the term 'chav'; when my children use it they are severely reprimanded. Nevertheless, the term collects the cultural nuance of dress code and outlook. I prefer to use the word 'geezer', and as the traffic crawled along I decided that this geezer probably owned an electrical supplies warehouse in Reading.

Imagine suggesting to this geezer that he take a break from buying new stuff for a year, to give himself time to evaluate his position and role as a consumer. It's not going to happen, is it? He works hard for his money, after all. He's going to buy the latest and biggest flat-screen TV, a Hummer and the full quota of US imported white goods that he can squeeze into his house.

Notice how my middle-class snobbery was getting the better of me? So did I. So far this year,

my 'making do' regime has been a very inner journey; something I have imposed only on myself. My wife and children haven't joined in. I also haven't looked at other people with any judgement; if I see someone walking down the street with a load of plastic shopping bags I don't walk up to them

and say, 'Hey, I've stopped consuming for a year, maybe you should try it.'

But the sight of the Hummer changed all that. I understand shopping from a middle-class perspective. I left home when I was rather young and I lived in abject poverty, out of choice, for many years. In later life I have earned some good money and I have bought loads of new stuff, but being a 'consumer' never really worked for me. It never made me feel better, or happier. If anything, I always got slightly depressed afterwards.

Casual observation of the one or two truly upper-class people I know, suggests a similar attitude seems to apply in their case, too; they don't seem to buy much new stuff. Old things have much more value to them. Our local jumble sales are very popular with mums who live in the kind of houses the rest of us have only seen in pictures, or maybe, as is the case with one family I know, as backdrops in *Jane Eyre* TV movies.

So does this mean my attempt at 'making do' is actually a bid to join the upper class? I certainly hope not, but from what I can see there might be a new class system emerging.

Heavy consumers (working class); medium-consuming recyclers with extra guilt (middle class); and non-consumers who don't have to buy stuff, because they inherited it all when they were born (upper class).

For me, at least, the struggle continues. **E**

Imagine suggesting that this Hummer-driving 'geezer' take a break from buying new stuff and evaluate his role as a consumer

Robert Llewellyn is an author, actor and television presenter.

Six months ago my third wife and I had a daughter called Ishpriya. It made me wonder; will the destruction of our high streets be complete by the time she is an adult? And will chain stores be the only place from which you can buy? In order to head off this horrible thought my daughter Diana and I decided that it was necessary to fight back.

On 1 December last year, we launched a cultural revolution in a fascinating market street in central London. Lambs Conduit Street is one of those streets you find by mistake. You come across it, probably, when you have lost your way coming out of Russell Square tube station, or got confused heading north from Kingsway in Holborn. But once you discover it, you soon realise that it is an oasis of sanity. A place where shops and community have come together. And because of that we felt it was the best place to launch our revolution – the Wedge Card.

This little plastic card is a tool, a simple and practical way to help you support your local high street. It gives you the means to help by giving you extra reason to shop locally. It gives you breaks, offers and discounts only open to Wedge Card members. And as well as supporting your high street through shopping there, a substantial part of the monies raised go to support your community's social programmes.

As the writing on the card says: 'Wedge Card is a new way to get discounts and special offers from local and independent businesses. From bookshops to butchers, cafés to carnivals – buy your favourite things and help re-energise your local community.'

Fifteen years ago I launched *The Big Issue*. There are many similarities. But the principal one is that they are both about the marketplace. *The Big Issue* is about bringing homeless people to the marketplace so that they can earn their own money. So that they can learn to become independent of the handouts given to them and to help them sustain themselves. The marketplace helps the homeless become, like the rest of us, the individuals that we want to be. Rather than have other people decide what is best for us.

The Wedge Card sees the marketplace as a place to sort out social justice issues. Small and independent shops are our only defence to ensure that our communities continue. That we don't end up in a dystopia already hinted at by the speed at which our high streets are dissolving.

We have to arrest the destruction of the local high street, otherwise we will end up with a lifeless world full of vast warehouses. A world where we are encouraged to over-shop and then return defeated to our homes. What a recipe for social disaster. A recipe, in fact, to make the community more and more a place of antisocial behaviour.

The fight for our high streets is similar to stopping the destruction of the rainforests, the mass pollution of rivers, and the wars over oil and scarce resources. All these issues are one and the same thing.

If my campaign to be the next Mayor of London is successful, I will be issuing ASBOs to any business that destroys neighbourhoods and effaces communities.



COMMUNITY Wedge

How can we stop the juggernauts of so-called progress from sweeping away every bit of individualism and community that well-run high streets bring us? **John Bird** wants to give you his card

Planning applications will have to pass a new social audit. Urban planning should be about protecting communities and high streets from destruction by badly monitored commercial forces, not about giving an extra leg up to big and often socially thoughtless businesses.

The destructiveness of these monopoly businesses is motivated by profit rather than common sense. They must put the needs of financial investors first, in order to maximise shareholder value. They must continually grow and create ever more profits. They are driven by a zest to get every last morsel of value out of the marketplace, even if it means destroying our civilisation. And the local high street is one of the most tangible means by which we measure our society.

What is so strange about the growing

pressure of supermarkets to spread everywhere is that the spread will eventually harm not just us, but them.

Without community you have no sociability. Without sociability you have no personal safety. The anonymous landscape of supermarkets and national chains will increase the alienation of people. And that alienation will make the world a much riskier place for everyone, including the shareholders of the supermarkets, to live in.

On an environmental level, these massive supermarkets and chains encourage us to live way beyond our means. Our global environment is being run like a business in liquidation. If the supermarkets were to run their business with no idea of what their cash flow and asset base was, they would very quickly become bankrupt. But that is how they use (and encourage us to use) our natural resources.

Since launching the Wedge Card, we have received an overwhelming response from the independent shops we've been in contact with. They have signed up in their droves, and all of them report that this is a timely intervention. After years of bombardment by multi-million dollar advertising and PR campaigns, it is not surprising that the common, automatic choice is to step into a chain store. What we need to do now is get people to re-evaluate their shopping habits. To think about where they spend their money, and the significance of those choices. Because today, where you shop is equally as important as how you vote. Shop locally and you are voting for community, for enterprise and for a better quality of life.

A little over six months after our beginning, the Wedge Card name is everywhere. What started on a small street in Bloomsbury has now spread through Hackney, Peckham, Islington, Marylebone, Soho, Southwark and all across the capital.

Gradually we will spread around the country and give people the incentive to make a change by supporting the backbone of our community, our high streets. We are coming to a high street near you! So look out, and check out: www.wedgecard.co.uk **E**

John Bird was born in Notting Hill in 1946 to a London Irish family. He spent much of his youth homeless on the streets, and in and out of prison for theft. Fifteen years ago he founded *The Big Issue* and he is now running for Mayor of London.



SOCIAL ECOLOGY

Identity and place

Our sense of place defines the landscape of who we are, says **Monty Don**

When I visit a garden for the first time I always hunt for the place where it exists. This might sound obtusely metaphysical but I mean it literally. For any space to have meaning it must have a sense of identity that makes it unique and recognisable.

It could be a street. It might be a dip in the road where a single tree marks the horizon. It could literally be anywhere. The point is that it must be somewhere and it seems to me that one of the dramatic leakages in the quality of our current lives is that loss of sense of place.

Places have to have names. You need to know them like family or friends. They have to have histories – most probably not your own and mostly unknown, but the past has to live there alongside your own incoherent present. Places need inside information. There are languages to be learnt and rhythms to tune into that are strange and in all probability much slower than any driven by the rest of your life. In short, places are as rich with identity as any person and by knowing and absorbing this we all become richer, better people.

So far so obvious. But it is drifting away. Places with meaning and real identity are disappearing in the mush of homogeneity. Some of the culprits are tediously familiar. Shopping malls, chain stores, the hideous ubiquity of coffee chains and fast ‘food’ outlets all conspire to make our towns and streets nowhere at all. We all know and deprecate this but let it happen, either through apathy or lack of real concern. It’s too bad. That’s modern life.

But it is a series of modern deaths too. Only the particular has any meaning. Locality means talking about us – the people and places we know by name. By the same token identity has to do with celebrating differences. Our places are not better than other people’s – just better known and loved by us. I have spent much of the

past year travelling in every continent and have invariably found that the happiest, most generous people are those with a rich sense of local identity. Interestingly, these people invariably are generous and welcoming, too. It seems that the more removed we become from our sense of place, the more begrudging we become about sharing it with others of different races, colours or creeds.

“Places are as rich with identity as any person – by knowing and absorbing this we all become richer, better people”

Childhood and familiarity are clearly immensely important in a sense of identity with place. I was brought up on the chalk of Hampshire with beech woods and fields of barley. From young childhood I walked every day for hours through that local landscape, breathing in every season, knowing it as intimately as a lover’s flesh. I hardly saw a sheep when I was growing up, but the hot breath and sweet smell of cattle was never far away. Primroses shone from the shade of hazel copices and lapwings and skylarks could be found above me like old friends.

I have not lived there for 30 years now, but recently I went back and was astonished by the intensity of emotion – what can only really be described as homesickness – that I felt as I saw the fields of green barley ripple like silk. How had that lain dormant for so long? What piece of place had entered me so powerfully? And yet when I went for a drink in the local pub used by myself and my family for generations, there was no one there that I knew and more than one person treated me with curiosity, wondering why I should come and visit the place where they lived – their home. To them I was an outsider.

A sense of place does not have to be a birthright. You can recognise places just as you can fall in love at first sight. There is a kind of homecoming when you arrive at somewhere that has identity and meaning to you. That can happen anywhere in the world and at any stage of life. The important thing is to recognise and celebrate it.

Surely we can combine all the accumulated

meaning of place – of house, garden, landscape and the people that we share them with – that inevitably happens when we are brought up or live for more than a few years in one house and also be open to the way that we can learn about new places or even create them, albeit with a simple seat in an alcove in a garden.

Field names, dialects, local food, weather, festivals and customs have real and profound meaning over and above any notion of a quaint or nostalgic past. They are part of the living, modern pulse of a successful life. This is why the blur of anonymity that huge corporations and government smears across our lives is a disaster. It is impoverishing us all. A sense of place in which we feel at home with all its profound layers of meaning is as important as the love of family and friends. **E**

Monty Don is a journalist and author currently helping to rehabilitate drug addicts through contact with nature.

Modern Stupid By Michael Leunig

It’s much easier to be stupid these days than in previous times.

Back in the old days they had to do it all by hand. It was sheer drudgery.

Now we can do it faster and with more comfort, thanks to modern methods.

You can fit it into a busy life, it’s available to everyone. It’s right there at your fingertips.

From *Poems 1972-2001* (Penguin, 2003)



If I...

was Energy Minister

I'd make good the Government's commitment to renewable energy, says **Jeremy Leggett**

If I was Energy Minister, I'd be arguing fiercely with Cabinet about the Government's nuclear U-turn and its failure to address the enormous potential of renewable energy in the UK.

I'd ask the Prime Minister what precisely has changed since our 2003 Energy White Paper concluded that nuclear power was 'an unattractive option for new, carbon-free generating capacity' and that 'there are also important issues of nuclear waste to be resolved.' It's disappointing but not surprising to discover, four years on, that the only people who think that these cost and legacy issues have miraculously been addressed are the nuclear lobby and its friends in Government.

Contrary to the impression given by Ministers in recent months, the 2003 White Paper did address long-term issues such as security of energy supply, and what Ministers then referred to positively as our 'interdependence' with regions such as the Middle East and Latin America. But clearly one man's 'interdependence' is another man's 'over-dependence' if you're 'reviewing' your way to a new nuclear programme.

There are many areas where the 2007 Energy White Paper has somehow succeeded in being a retreat, compared with the 2003 one, despite all the strengthened concern about climate change in the interim. One of these concerns solar photovoltaics (PV). The 2003 White Paper emphasised, above all else, the importance of urgent measures to boost energy efficiency and renewables. This included the pledge to a

2002–2012 solar programme 'in line' with our competitors. These, we were told were 'key dates on the critical path' to future 2010 and 2020 targets. So whatever happened to that rather modest PV commitment?

The policy has quite simply been ditched, a decision that appears to be based largely on a lack of understanding of the technology in some parts of the DTI. This is surprising as PV is the most tested, reviewed, measured, analysed and utterly reliable 'micro' renewable available in the UK market. The Government's own PV performance figures, published last year, show that a domestic solar PV installation can contribute more than 140 per cent of a dwelling's electricity demand; while, on average, PV systems can cut a household's carbon emissions by more than 40 per cent.

Nevertheless, we are told in the latest DTI Renewables Obligation consultation that PV in the UK can only make a minimal contribution to future Government targets, as it is constrained by the 'lack of natural resource' – code for 'it's not very sunny in the UK'. But what matters, as the figures above demonstrate, is the absolute performance of PV in the UK, not its performance relative to 'sunnier' countries. Yes, the UK is less 'sunny' than southern Europe, but that's not the point; and the fact we have to engage in this debate at all tells you a great deal about the unnecessary barriers still facing this technology within parts of Whitehall.

While the past four years have clearly been fruitful for those who set out to undermine the basis of the 2003 White Paper, for the rest of us, the period 2003–7 has been hugely frustrating. A series of minor steps forward, often

followed swiftly by a stumble backwards and precious little evidence of what the Prime Minister once termed the 'long-term' strategy to give industry the confidence to invest to help us deliver our goals – a truly sustainable energy policy.'

The crying shame is that, four years on, so little progress has been made on either energy efficiency or renewables – the essential twin pillars of a genuinely sustainable energy policy.

On energy efficiency, there is no reason why the 2006 Part L building regulations review could not have included a requirement for on-site renewables, as part of a much bolder package to deliver a 50 per cent plus energy efficiency

improvement in all new-build housing. And there is still literally nothing being done to address the scandalously high percentage of new-build houses that fail to meet minimum Part L standards, through inadequate insulation for example. A 2005 BRE study for the Energy Efficiency for Homes Partnership showed that nearly half of all new-build housing failed to meet minimum energy-efficiency standards.

On renewables, at the heart of the mismatch between the Government's rhetoric and the policy reality lies a stifling inability throughout Whitehall to do anything other than 'think big'. This theme runs through the 2007 White Paper at every turn. There is clearly a view at the highest levels of Government that 'grown ups' don't get their energy from renewable, community or micro-generated sources.

When I was a member of the DTI's Renewables Advisory Board, I sat through numerous meetings where it became obvious that too many officials found it impossible to just take a deep breath and accept that when it comes to renewable energy policy, maybe, just maybe, the UK had much to learn from our more successful European neighbours. This is surprising given the contrasting records.

It's baffling, for example, why the Government remains so utterly obsessed with the UK's hopelessly inefficient and ineffective Renewables Obligation (RO). And I'm not the only one who can't understand it. In recent months, Ofgem, The Carbon Trust, the IPPR and green NGOs have all criticised the RO and urged its replacement with more efficient and cheaper support mechanisms. It is hardly surprising that there is a mounting chorus of concern. The DTI itself admitted in the recent Energy White Paper, that renewables will deliver just 15 per cent of total electricity by 2020, well below the Government's own 20 per cent 'aspiration'.

But the Government's standard answer remains that for onshore wind at least, the Renewables Obligation established in 2002 is 'working.' The 'proof' lies in the fact that the UK wind industry capacity now stands at just over 2GW. That's impressive. But Germany reached that total fully 10 years ago. Germany installed 2GW of wind capacity in 2006 alone, and today has 10 times the wind energy capacity of the UK. (2GW is, coincidentally, the amount of PV installed to date in Germany. That's the equivalent of 800,000 domestic solar PV roofs, with the bulk of capacity installed since 2002.)

By contrast, the UK PV capacity is just 13MW, the equivalent of 5,000 domestic solar roofs. Was it really only six years ago that the then

There is clearly a view at the highest levels that 'grown-ups' don't get their energy from renewable, or micro-generated sources

Energy Minister Peter Hain committed the Government to a 100,000 solar roofs programme designed to help the UK catch up with Germany? The reality is that the UK has been going backwards ever since.

But it doesn't have to be like this. In particular, there is no practical reason why the UK should not introduce a feed-in tariff (FiT) for renewable energy at the earliest possible opportunity.

Across Europe, the FiT pays renewable energy generators, including micro-generating householders, premium tariffs, fixed typically for 20 years and paid for from a levy or premium charged to all energy users. In Germany, the global leader in wind and solar PV power, the total additional cost of supporting the German feed-in tariff scheme was 0.56 Euro cents per KWh in 2006. For a typical German household consuming 3500 KWh per year, this adds up to a monthly bill of 1.63 Euros for all renewable energy technologies.

In terms of transparency, cost and delivery of a wide portfolio of renewable energy technologies, feed-in tariffs are now recognised as a more effective support mechanism than the UK's Renewables Obligation.

So we need desperately a cultural shift in Whitehall if we are truly serious about fighting climate change and delivering a low-carbon economy by 2020. The 2007 Energy White Paper betrayed a staggering complacency of approach right across Whitehall, matched only by the failure to signal urgent action to boost the uptake of proven renewable energy technologies, far higher energy-efficiency standards and wider sustainable energy measures such as combined heat and power.

Instead, the White Paper's attempts to pull a 'low-carbon' rabbit out of the hat involved the suggestion that the UK take a long term 'punt' on carbon capture and storage, an unproven technology at least six years away from possible commercial roll-out, and a new generation of nuclear power stations, the first one of which will take approximately 10 years to build and commission, even with the Government's proposed new undemocratic planning regime.

But we don't need to pull rabbits out of hats or wait 10 years for expensive unsafe nuclear power. The proven technologies and necessary policy frameworks are there now. We just need to grab them with both hands and get on with it. **E**

Jeremy Leggett is an environmentalist, author and CEO of Solar Century.

CASSANDRA

Who makes the news?

A photographer friend recently copied me a letter he sent to the BBC news service to complain about the extravagant emphasis they have given to the abduction of a small child. He was right to complain, of course. The personal tragedy of one family, however distressing, is hardly world news, or even national news. The way the mass media has exploited this particular family kidnapping tragedy in a quest for higher ratings or circulations is its own mordant comment on the current state of the media.

But the unease expressed in his letter points to a more general problem: who decides what is news?

As I write at my kitchen table, the 'news' bulletin on BBC TV leads with, well, what do you suppose?

Was it the gigantic stock-market fever of takeovers and mergers currently mounting to an almighty crash? The energy and oil crisis? Global warming? Rising crime rates? The extermination of increasing numbers of species on which our own lives depend?

No. Why bother with such trifles when an aeroplane develops a technical fault preventing hundreds of Liverpool football fans from flying across Europe to watch a game in Athens? There's news for you!

Who decides? What values relating to 'news' are currently on the table? Such questions only indicate that our news service is itself in a state of crisis, one reflecting the increasing crisis of our general lifestyle.

The media today is run by the boardroom boys, who control the gigantic international trade and manufacture of arms, they control the oil, the banks, insurance, transport, political party funding (yes!) and more. And still there are innocents who believe that if



“The media is run by the boardroom boys, who control the arms trade, oil, banks, insurance, political party funding and more-

we just garner enough votes for one reform or another, our elected wonders can prevail against these powers.

Before we can see the answer we must see the problem: a public consciousness with a totally false conception of public affairs; affairs so out of control that they threaten our survival.

The media is itself part of the machinery of this catastrophe and the short answer is, as it is for so much else, do it yourself, do it local and do it small. This is the soft underbelly of the monster; create your own newsheet, one that emphasises the real news

and how it affects local life; use it to promote the abolition of needless car driving and waste; meet your basic needs from local sources, and from local resources.

The continuance of mass terms of living – the most dangerous, degenerate and destructive lifestyle ever to have erupted on this planet – is now clearly a precondition for mass suicide and social collapse.

In former times the Church, aware of the enormous dangers of linking the baser, human propensities to the market, had assumed responsibility for doing just that. But things began to fall apart when money-lending was given free rein, about four centuries ago, with the relaxation of the laws against usury. That is when the modern boardroom monster we are currently wrestling with was born.

We have to turn our backs on mass living as much as possible, to abandon mass newspapers, shops, food consumption and entertainment. Right at the heart of this crisis is the urgent need to restore a moral basis to economic activity. **E**

At age 85 Cassandra has lived, and continues to live, a full and varied life.



What do these people want?

Around the world, from the rainforests and favellas of Brazil to the runways of England, change is happening. **Paul Hawken** celebrates the movement of movements

I was once watching a large demonstration, trying to join up with a friend. Tens of thousands of people carrying a variety of handmade placards strolled down a wide boulevard, to the accompaniment of chants, slogans, and song.

The signs referred to politicians, different species, prisoners of conscience, corporate campaigns, wars, agriculture, water, workers' rights, dissidents and more. Standing near me, a policeman was trying to understand what appeared to be a political Tower of Babel. The broad-shouldered Irishman shook his head and asked rhetorically, 'What do these people want?' Fair question.

Two million strong

Over the past 15 years I have given nearly 1,000 talks about the environment, and after every speech a smaller crowd would gather to talk, ask questions and exchange business cards.

I would get from five to 30 such cards per speech, and after being on the road for a week or two would return home with a few hundred of them stuffed into various pockets. Over the years, the number of cards mounted into the thousands and whenever I glanced at them, I came back to one question: Did anyone truly appreciate how many groups and organisations were engaged in progressive causes? At first, this was a matter of curiosity, but it slowly grew into a hunch that something larger was afoot, a significant social movement that was eluding the radar of mainstream culture.

So, intrigued, I began to count. I looked at government records for different countries and, using various methods to approximate the number of environmental and social justice groups from tax census data, I initially estimated a total of 30,000 environmental organisations around the globe. And when I added social justice and indigenous peoples' rights organisations, the number exceeded 100,000. I then researched to see if there had ever been any equal to this movement in scale or scope, but I couldn't find anything, past or present. The more I probed, the more organisations I unearthed, and the numbers continued to climb as I discovered lists, indexes and small databases specific to certain sectors or geographic areas. In trying to pick up a stone, I found the exposed tip of a much larger geological formation. I soon realised that my initial estimate of 100,000 organisations was off by at least a factor of 10, and I now believe there are over one – and maybe even two – million organisations around the world working toward ecological sustainability and social justice.

By any conventional definition, this vast collection of committed individuals does not constitute a movement. Movements have leaders and ideologies. People join movements, study their tracts, and identify themselves with a group. Movements, in short, have followers. This movement, however, doesn't fit the standard model. It is dispersed, inchoate and fiercely independent. It has

no manifesto or doctrine, no overriding authority. It is taking shape in schoolrooms, farms jungles, villages, companies, deserts, fisheries, slums and, yes, even fancy hotel conference centres. One of its distinctive features is that it is tentatively emerging as a global humanitarian movement arising from the bottom up.

Historically, social movements have arisen primarily in response to injustice, inequities and corruption. Those woes still remain, joined by a new condition that has no precedent: the planet has a life-threatening disease, marked by massive ecological degradation and rapid climate change. As I counted these vast numbers of organisations it crossed my mind that perhaps I was witnessing the growth of something organic, if not biologic. Rather than a movement in the conventional sense, could it be an instinctive, collective response to

Opposite: Anti-globalisation activists symbolically rescue the world during protests in Rostock, Germany **Below:** 'Code Pink' – a movement of women calling for peace – rally in Washington DC, USA



Photographs SB/KEYSTONE USA / REX FEATURES

'What unifies this movement is ideas, not ideologies. Ideas question and liberate, while ideologies justify and dictate'

threat? Is it atomised for reasons that are innate to its purpose? How does it function? How fast is it growing? How is it connected? Why is it largely ignored? Does it have a history? Can it successfully address the issues that governments are failing to address: energy, jobs, conservation, poverty and global warming?

Invisible and unreported

I sought a name for the movement, but none exists. I met people who wanted to structure or organise it – a hard task, as it is easily the most complex association of human beings ever assembled. Many outside the movement critique it as powerless, but that assessment does not stop its growth. When describing it to politicians, academics and businesspeople, I found that many believe they are already familiar with this movement, how it works, what it consists of and its approximate



Cyclists take to the streets of Manchester in the 2006 World Naked Bike Ride to highlight the negative impact of car culture

Photographs MARK CAMPBELL / REX FEATURES



Above: Young protesters from the Shundahai Network – a campaign dedicated to stopping nuclear tests and weapon development

size. They base their conclusion on media reports about Amnesty International, the Sierra Club, Oxfam, or other venerable institutions. They may be directly acquainted with a few smaller organisations and may even sit on the board of a local group. For them and others, the movement is small and circumscribed, a new type of charity, with a sprinkling of ragtag activists who occasionally give it a bad name.

People inside the movement can also underestimate it, basing their judgment on only the organisations they are linked to, even though their networks can only encompass a fraction of the whole. But after spending years researching this phenomenon, including creating with my colleagues a global database of its constituent organisations, I have come to this conclusion: this is the largest social movement in all of human history. No one knows its scope, and how it functions is more mysterious than what meets the eye.

When discussing the movement with academics or friends in the media, the first question they pose is usually the same: If it is so large, why isn't this movement more visible? By that they mean, why isn't it more visible to news media, especially TV? Although global in its scope, the movement generally remains unseen until it gathers to take part in demonstrations, whether in London, Prague, or New York, or at annual meetings of the World Social Forum, after which it seems to disappear again, reinforcing the perception that it is a will-o'-the-wisp. The movement doesn't fit

neatly into any category in modern society, and what can't be visualised can't be named. In business, what isn't measured isn't managed; in the media, what isn't visible isn't reported. Media coverage of the death of Pope John Paul and the election of Pope Benedict easily surpassed all coverage devoted to this movement over the past 10 years, yet the number of people directly working and indirectly involved with this movement is greater than the number of people active in the Catholic Church. The papacy has history and specificity; the movement is about the future.

The force of truth

If you look at the values, missions, goals and principles of the movement you will see that at the core of all organisations are two principles, albeit unstated: first is the Golden Rule, to treat others as you would like to be treated; second is the sacredness of all life, whether it be a creature, child, or culture. What unifies it is ideas, not ideologies. There is a vast difference between the two: ideas question and liberate, while ideologies justify and dictate. One of the differences between the bottom-up movement now erupting around the world and established ideologies is that the movement develops its ideas based on observation, whereas ideologies act on the basis of belief or theory.

Are there ideologues in the movement? To be sure, but fundamentally the movement is that part of humanity that has assumed the task of protecting and saving itself. If we accept that the metaphor of an organism can be applied to humankind, we can imagine a collective movement that would protect, repair and restore that organism's capacity to endure when threatened. If so, that capacity to respond would

function like an immune system, which operates independently of an individual person's intent.

Just as the immune system is the line of internal defence that allows an organism to persist over time, sustainability is a strategy for humanity to continue to exist over time. The word immunity comes from the Latin *im munis*, meaning 'ready to serve'. The immune system is usually portrayed in militaristic terms: a biological defence department armed to fight off invading organisms. In the textbook case, antibodies attach themselves to molecular invaders, which are then neutralised and destroyed by white blood cells. Simple and elegant, but the process of fending off invaders and disease is more complex and interesting.

The workings of the immune system sound orderly and precise, but they are not. Rather than 'inside cells' automatically destroying 'outside cells', there is a mediatory response to pathogens, as if the immune system learned millions of years ago that détente and getting to know potential adversaries was wiser than first-strike responses, that achieving balance was more appropriate than eradication. The immune system depends on its diversity to maintain resilience, with which it can maintain homeostasis, respond to surprises, learn from pathogens and adapt to sudden changes. The implication for medicine is clear: to fend off cancer and infection, we may need to understand how to increase the immune network's connectivity rather than the intensity of its response.

Similarly, the widely diverse network of organisations proliferating in the world today may be a better defence against injustice than F-16 fighter jets. Connectivity allows these organisations to be task-specific and focus their resources precisely and frugally. Incremental success is achieved by consensus operating within informal structures, where no one person has all or much power. The force that such groups exert is in the form of dialogue and truthfulness.

Computers, cell phones, broadband, and the internet have created perfect conditions for the margins to unify. These enable big corporations just as much as small NGOs, but the latter gain greater advantage because these new technologies amplify smallness more effectively than largeness. Large organisations don't need networks; small ones thrive on them. Webs are complex systems of interconnected elements that link individual actions to larger grids of knowledge and movement. Websites link to other sites with more links to other sites *ad infinitum*, creating a critical, fluid mass of information that evolves and grows as needed – very much like the response of our immune systems.

The ultimate purpose of a global immune system is to identify what is not life-affirming and to contain, neutralise or eliminate it. Where communities, cultures, and ecosystems have been damaged, it seeks to prevent additional harm and then heal and restore the damage. Most social-change organisations are under-staffed

and under-funded, and nearly all are negotiating steep learning curves. It is not easy to create a system that has no antecedent, and if you study the taxonomy of

'The movement is that part of humanity that has assumed the task of protecting and saving itself... like an immune system.'

the movement you will see a new curriculum for humankind emerging, some of it corrective, some of it restorative and some of it highly imaginative.

Fighting for humanity

In many countries, participation in the movement can be dangerous. We memorialise the well-known murders of South African black consciousness activist Stephen Biko and rubber tapper and environmentalist Chico Mendes, yet people in this movement are killed and intimidated every day. When you see images of Amazon Indians marching in full regalia in São Paulo to protest at Brazilian government policies, they are individuals who are as courageous as they are terrified. I still recall a photograph of a small Mayan girl holding her mother's hand, looking up in disbelief at a phalanx of black polycarbonate shields and masked police gripping their batons in Guatemala.

When the Revolutionary Association of the Women of Afghanistan march for women's rights without their burqas, they display an extraordinary valour, because they know there will be reprisals. When the Wild Yak Brigade was formed in Zhidou, China, to protect the endangered Tibetan antelope, poachers murdered its first two leaders. Most movement activists start like Chico Mendes, believing they are fighting for a specific cause, in his case rubber trees, and realise later they are fighting for a greater purpose: '... then I thought I was trying to save the Amazon rainforest. Now I realise I was fighting for humanity.'

To deal with the pathogens, the movement has had to

Below: A demonstrator at the Faslane Naval Base in Scotland, the home of Britain's nuclear missile system, Trident.



Photographs RAY TANG / REX FEATURES

Below: The Revolutionary Association of the Women of Afghanistan (RAWA) campaigns for democracy and women's rights



become an array of different types of organisations. But the fact that the movement is made up of pieces does not mean that it can only work piecemeal.

Some would argue that it is counterproductive to conflate all the different organisations and types of organisations into a single movement, that it is self-evident that such divergent aims cannot create an effective, unified body. It's true that pluralism, the *de facto* tactic of a million small organisations, functions best in a society that cultivates diversity, dialogue and collaboration. In a you're-either-with-us-or-against-us



Above: Buddhist monks march through the streets during elections in Phnom Penh, Cambodia, to call for peace

society, small, single-issue organisations are effectively marginalised. In the USA, the environmental and social justice movements emerged in what was then a pluralistic society. Because that is increasingly not the case, the stratagems and goals of the movement may be inadequate to the increasing centralisation of power.

Nonetheless, if anything can offer us hope for the future it will be an assembly of humanity that is representative

but not centralised, because an ideology can never heal the wounds of this world. History shows all too eloquently that no ideology has ever amounted to more than a palliative for any dire condition. The immune system is the most complex system in the body, just as the body is the most complex organism on earth, and the most complicated assembly of organisms is human civilisation.

Some people think the movement is defined by what it is against, but the language of the movement is focused on keeping the conversation going, because ideas that inform it never end: growth without inequality, wealth without plunder, work without exploitation, a future without fear. There are two kinds of games – games that end and games that don't. Philosopher James Carse called these finite and infinite games.

We play infinite games to play; they have no losers because the object of the game is to keep playing. Infinite games pay it forward and fill future coffers. Sustainability, ensuring the future of life on earth, is an infinite game, the endless undertaking of generosity on behalf of all. To answer the policeman's question, 'these people' are reimagining the world. **E**

Paul Hawken is an environmentalist, entrepreneur, journalist and author. His latest book is Blessed Unrest (Viking Press, 2007)

Photographs LEON SCHADEBERG / REX FEATURES

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CRIMES AGAINST DOG

Love, in whatever form it comes, brings many subtle lessons. For **Alice Walker**, the love of her dog Marley taught her compassion and patience and strengthened her resolve to live a more genuine life



My dog Marley was named after the late music shaman, Bob Marley. I never saw or heard him while he was alive, but once I heard his music, everything about him – his voice, his trance-like, holy dancing on stage, his leonine dreadlocks – went straight to my heart. He modelled such devotion to the wellbeing of humanity that his caring inspired the world; I felt a more sincere individual had probably never lived. Considering his whole life a prayer, and his singing the purest offering, I wanted to say his name every day with admiration and love. Marley has grown up on his music; Bob, leaning on his guitar in a large poster on

friend was about to go away on a journey of unknown length. I would be unbearably lonely for her. I needed a companion on whom to lavish my overflowing, if at times distractible, affection. I needed a dog.

On entering a place where animals are bred, my first thoughts are always about enslavement. Force. Captivity. I looked at the black and the chocolate Labs who were Marley's parents and felt sad for them. They looked healthy enough, but who knew whether, left to themselves, they would choose to have litter after litter of offspring? I wondered how painful it was to part with each litter. I spoke to both parents, let them sniff my hand. Take in the quality of my being. I asked permission to look at their young. The

shrugged. They never spot, she said. That's the nature of the purebred Lab.

Well, I thought. Mother. Once again, doing it just any old way you like. 'Mother' is my favourite name for Nature, God, All-ness.

I settled on a frisky black puppy who seemed to know where she was going – toward a plump middle teat! – and was small enough to fit in my hand. I sometimes wish I had chosen a chocolate puppy; in the Northern California summers the dust wouldn't show as much, but I think about this mostly when Marley rolls in the dirt in an effort to get cool.

After seven weeks I returned alone to pick her up, feeling bereft because my friend had already gone on the road. It didn't seem right to pay money for a living being; I would have



my living room wall, is regularly pointed out to her as her Spirit Dad.

Marley was born on 19 December, 1995. She shares a birth sign, Sagittarius, with my mother and several friends and acquaintances. At times I feel surrounded by Sages and enjoy them very much: they are fun to be with, outspoken, passionate, and won't hesitate to try new things. They also like chicken. Marley has all these qualities, though I didn't know that the morning I drove out to the breeder to look at the litter of Labrador retrievers I was told had arrived.

Crossing the Golden Gate Bridge, a friend and I joked about whether I was in fact ready to settle down enough to have a dog. Who would feed it when I was distracted by work? Where would it stay while I was away on book tours? Had I lined up a reliable vet? I had no idea what would happen. I only knew this

mother moved a little away from her brood, all crawling over her blindly feeling for a teat; the father actually looked rather proud. My friend joked about offering him a cigar.

I was proud of myself, too, standing there preparing to choose. In the old days of up to several months before, if I were going to choose an animal from a litter I would have been drawn to the one that seemed the most bumbling, the most clueless, the most unamused. I saw a couple like that. But on this day, that old switch was not thrown: I realised I was sick of my attraction to the confused. My eyes moved on. They all looked much alike, to tell the truth. From a chocolate mother and a black father there were 12 puppies: six chocolate, six black. I'll never get over this. Why were there none with spots?

I asked the woman selling them, whom I tried not to have Slave Trader thoughts about. She

been happier working out some sort of exchange. I paid, though, and put Marley in my colourful African market basket before stroking the faces of her wistful-looking parents one last time. In the car, I placed the basket in the front seat next to me. I put on Bob Marley's *Exodus* CD and baby Marley and I sped away from Babylon.

We wound our way back through the winter countryside toward the Golden Gate Bridge and the bracing air of San Francisco. Before we had gone 20 miles, Marley, now about the size of my two fists, had climbed out of the basket and into my lap. From my lap she began journeying up my stomach to my chest. By the time we approached the bridge she'd discovered my dreadlocks and began climbing them. As we rolled into the city she had climbed all the way to the back of my neck and settled herself there between my neck and

the headrest. Once there she snoozed.

Of the weeks of training I remember little. Dashing down three flights of stairs in the middle of the night to let her pee outside, under the stars. Sitting on a cushion in the kitchen, before dawn, her precious black body in my lap, groggily caressing her after her morning feed. Walking with her zipped up in my parka, around and around the park that was opposite our house. Crossing the Golden Gate Bridge on foot, her warm body snug in my arms as I swooned into the view. She grew.

Today she is seven years old and weighs almost 90 pounds. People we encounter on walks always ask whether she's pregnant. No, I reply, she's just fat. But is she really? No matter how carefully I feed her or how often

a disturbing movie? Was I a little short on the foodstuffs and forgot to give her a cube of dried liver? Well. And what about that walk we didn't do and the swim we didn't take and why don't I play ball with her the way I did all last week? And who is this strange person you want me to go off with? It doesn't matter what it is, what crime against Dog I have committed, she always forgives me. She doesn't even appear to think about it. One minute she's noting my odd behaviour, the next, if I make a move toward her, she's licking my hand. As if to say: Gosh, I'm so glad you're yourself again, and you're back!

Dogs understand something I was late learning: when we are mean to anyone or any being, it is because we are temporarily not ourselves. We're somebody else inhabiting

to be reliable and how to serve without judgment or complaint. They depend on us for food and shelter, exercise and affection, and we commit ourselves to the discipline of never letting them down. They teach us humility.

Consider how you feel when you are cleaning up after your dog or cat. There you are, plastic baggie or scoop in hand, not knowing where the poop is going to drop, but knowing you will have to find it and remove it out of regard for others (and of course for yourself and Mother Earth). It may be firm and easy to collect, or there may be evidence of diarrhoea. This is a moment of deep learning of how to be. Patient, compassionate, prepared. In this moment we glimpse our own possible infirmity, as we age; our own

'Animals teach us to be reliable and how to serve without judgment or complaint. They depend on us... and we commit ourselves to the discipline of never letting them down'



I downsize her meals, she remains large and heavy. And she loves to eat so much that when her rations are diminished she begs, which I can't stand. I've settled it lately by taking her off any slimming diet whatsoever and giving her enough food so that she seems satisfied. I did this after she was diagnosed with breast cancer, had surgery, and I realised I might lose her at any time. I did not want her last days to be spent looking pleadingly at me for an extra morsel of bread. To make up for giving her more food, I resolved to walk her more.


The friend who went away never really returned. Marley and I ceased expecting to see her after about the first year. Marley was an amazing comfort to me. What is it about dogs? I think what I most appreciate in Marley is how swiftly she forgives me. Anything. Was I cool and snooty when I got up this morning? Did I neglect to greet her when I came in from

these bodies we think of as us. They recognise this. Oops, I imagine Marley saying to herself, sniffing my anger, disappointment, or distraction. My mommy's not in there at the moment. I'll just wait until she gets back. I've begun to feel this way more than a little myself. Which is to say, Marley is teaching me how to be more self-forgiving.

Sometimes I will say something that hurts a friend's feelings. I will be miserable and almost want to do away with myself. Then I'll think: but that wasn't really the you that protects and loves this friend so much you would never hurt them. That was a you that slipped in because you are sad and depressed about other things: the state of your love life, your health, or the fate of the planet. The you that loves your friend is back now. Welcome her home. Be gentle with her. Tell her you understand. Lick her hand. Animals teach us

decline and mortality. We understand the importance of being able to help our ageing parents or grandparents, or ill and incapacitated relatives and friends, in just this accepting way.

Cats, in particular, teach us to be ourselves, whatever the odds. A cat, except through force, will never do anything that goes against its nature. Nothing seduces it away from itself.

Contemplate ways we can strengthen our resolve to live our lives as who we really are. See the beauty, for instance, in forgoing an 'important' meeting or gala event in favor of a warm fire at home and a restorative nap. What makes us purr with contentment? Find it and let it, easily, find you. 

© Alice Walker, 2007. Extracted from *We Are The Ones We Have Been Waiting For* by Alice Walker (Weidenfeld & Nicolson, £9.99).



Watching the river flow

From its humble origins in 1966, the Waterkeeper movement has evolved into a powerful, protective force for nature.

Robert F Kennedy Jr tells the story

Environmental injury is a theft, it is the destruction of human rights, and it always lands hardest on the underprivileged. Four out of every five toxic waste dump sites in America are in poor black neighbourhoods. The largest toxic waste dump is in Emelle, Alabama, where 90 per cent of the residents are black. The highest concentrations of toxic waste dumps in America are on Chicago's South Side. The most contaminated zip code in California is poverty-stricken East Los Angeles, and so on and so on.

Why? Because polluting industries go where they can most easily dominate the local political landscape and where they can treat communities, or developing nations, as if they are a business in liquidation. Liquidate those natural assets and impose the costs of clean-up onto the backs of the weakest people. Polluters make themselves

rich by making everybody else poor.

Pollution is a crime. Public assets are held in trust by the government for the people. These shared assets of our communities include the air we breathe, the water we drink, the rivers, the aquifers, the fisheries, the wandering animals, the parks and public spaces. They are the things that define us as a community, that underlie our economy and prosperity. The theft or destruction of these assets, and our government's complicity in privatising them for private gain, is the gravest threat to human rights.

Conversely, the best measure of how a democracy functions is how it distributes the goods of the land. Does it keep the public trust assets, the commons, in the hands of all the people, rich and poor alike, or does it allow them to be privatised and concentrated in the hands of a few wealthy or influential individuals? The fundamental responsibility

of government is to protect the public trust assets on behalf of all the people.

This is what the Waterkeeper movement is all about. We recognise that we're not protecting these waterways for nature, or for the fishes, or the birds. We're protecting them for our own sake. Because we can see that nature is the infrastructure of our communities. If we want to meet our obligation as a generation, as a nation, as a civilisation, to provide our children with the same opportunities for dignity and enrichment as our parents gave us, we ought to start by protecting our infrastructure: the air we breathe, the water we drink, the wildlife, the public lands that enrich us, that connect us to our past to our history, that provide context to our communities, that are the source ultimately of our values, our virtues and our character as a people.

For those who are not that familiar with the



Hudson Riverkeeper patrol vessel on Newtown Creek, a tributary of the East River between Brooklyn and Queens, NY, and the site of a 17 million gallon oil spill in 1966

Waterkeeper movement, here is a little bit of history. Hudson Riverkeeper was established back in 1966 by blue-collar commercial and recreational fisherman who mobilised to reclaim the Hudson River from the polluters. We have on the Hudson one of the oldest commercial fisheries in North America; it's 350 years old, many of the people that I represent come from families that have been fishing the river continuously since Dutch colonial times. They use the same traditional methods that were taught by Algonquin Indians during the original Dutch settlement throughout New Amsterdam and then passed down through the generations.

Crotonville is a little village 30 miles north of New York City, on the east bank of the Hudson. The people who live there are not prototypical affluent environmentalists; they are factory workers, carpenters, labourers and electricians. In 1966 many of the people

Could you be a waterkeeper?

There is currently only one waterkeeper in the UK – the London Canalkeeper (www.thames21.org.uk). We could use more.

If you believe that pollution and/or irresponsible management is threatening your community's water resources, or if you are fortunate to live near a water

body that is not impacted by major pollution sources and want to ensure its future protection, establishing a local waterkeeper programme may be a good idea. To find out more about becoming a waterkeeper, log on to www.waterkeeper.org or phone the organisation's US headquarters on 001 (914) 674-0622.

in Crotonville made their living, or at least some part of it, fishing or crabbing the Hudson. They had little expectation that they would ever see Yellowstone, or Yosemite, or the Everglades. For them, the environment was their backyard. It was the bathing beaches, their swimming and fishing holes of the Hudson River. Richie Garrett, who was the first president of Riverkeeper, used to say about the Hudson, 'It's our Riviera, it's our Monte Carlo.' Richie Garrett was a gravedigger from Ossining, NY. He also used to say, 'I'll be the last to let you down.'

In 1966, Penn Central railroad began vomiting oil from a four-and-a-half foot pipe in a Croton-Harmon rail yard. The oil went up the river on the tides, it blackened the beaches, it made the shad taste of diesel so that it couldn't be sold at the Fulton Fish Market in the city. And all the people of Crotonville came together in the only public building in the town, which was the Parker-Bale American Legion Hall. This was a very patriotic community; in fact, Crotonville had the highest mortality rate of any community in our country in World War II. Almost all the original founders, board members and officers of Hudson Riverkeeper were combat veterans. Richie Garrett was a Korean War vet. These were not radicals, they were not militants, they were people whose patriotism was rooted in the bedrock of our country.

But that night they started talking about violence, because they saw something that they owned – the abundance of these fisheries that their parents had lived on for generations, the purity of the Hudson's waters – being robbed by corporate entities over which they had no control.

They had been to the government agencies that are supposed to protect America's waters from pollution – the Corps of Engineers, the state Conservation Department and the Coast Guard – and had been ignored. Richie Garrett and another marine, Art Glowka, paid 27 visits to the Army Corps Colonel in Manhattan,

begging him to do his job and shut down that Penn Central pipe. Finally, that Army official told them in exasperation, 'These are important people,' speaking of the Penn Central board of directors, 'we can't treat them this way.' In other words, we can't force them to obey the law.

By 18 March 1966, virtually everybody in Crotonville had come to the conclusion that government was in cahoots with the polluters. And that the only way they were going to reclaim the river was to confront the polluters directly. Somebody suggested that they put a match to the oil slick coming out of the Penn Central pipe and burn up the pipe. Somebody said they should jam a mattress up the pipe and flood the rail yard with its own waste.

'We shouldn't be talking about breaking the law,' said Bob Boyle, 'but about enforcing it'

And a guy stood up, another marine named Bob Boyle, who was the outdoor editor of *Sports Illustrated* magazine. He had written an article for *Sports Illustrated* about angling in the Hudson in August 1966. In researching that article he had come across a federal navigation statute called the 1888 Rivers and Harbors Act. That law said that it was illegal to pollute any waterway in the United States and that you had to pay a high penalty if you got caught. The law included a bounty prevention that said that anybody who turned in a polluter would keep half the fine. He sent a copy of the law over to the libel lawyers at Time, Inc. and asked, 'Is this still a good law?' They sent him back a memo saying, 'It's never been enforced, but it's still on the books.' And that evening when all the men were talking about violence he stood up with a copy of that law and a copy of the memo and said, 'We shouldn't be talking about breaking the law, we should be talking about enforcing it.' They

Waterkeepers

resolved that evening to organise themselves as the Hudson River Fisherman's Association and to track down and prosecute every polluter on the river.

Eighteen months later they collected the first bounty in United States history under this 19th century Rivers and Harbors Act. They shut down the Penn Central pipe. They used the money that was left over to go after Ciba-Geigy, Standard Brands and American Cyanide, many of the biggest corporations in America. One after the other they shut those polluters down. In 1973, they collected the highest penalty in United States history against a corporate polluter; they got \$200,000 from Anaconda Wire and Cable for dumping toxins into the river in Hastings, New York. They used that money to build a boat and hire a commercial fisherman, John Cronin, as the first full-time paid Riverkeeper. John Cronin hired me using bounty money in 1984 to be the Riverkeeper attorney.

Since then we've brought 400 successful lawsuits against environmental polluters on the Hudson and we've forced polluters to spend almost \$4 billion on remediation. We made the Hudson an international model for ecosystem protection. This river was a



Photograph BILL ABRANOWICZ

Robert Kennedy helped establish the Waterkeeper movement in the US in 1999. There are now 156 waterkeeper programmes around the world

national joke in 1966, with dead water for a 20-mile stretch north of New York City. Today it's the richest waterbody in the North Atlantic. It produces more pounds of fish per acre, more biomass per gallon, than any other waterway in the Atlantic Ocean north of the equator. It's the only river system on both sides of the Atlantic that still has strong spawning stocks of all its historical species of migratory fish.

The miraculous resurrection of the Hudson River has inspired the creation of more than

155 Waterkeepers – Riverkeepers, Baykeepers, Soundkeepers and others – all across the USA and around the world. Each Waterkeeper has a patrol boat, they have a full-time paid Waterkeeper and they sue polluters. They make sure nobody steals our water from our communities and that those waterways stay in the hands of the public, where they belong. **E**

Robert F Kennedy Jr is President of Waterkeeper Alliance. This article is reprinted from *Waterkeeper* magazine.

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Going off-grid

No water? No electricity? Most of us would say 'No way'. But, says **Nick Rosen**, you can gain a freewheeling sense of self-sufficiency by living more *al fresco*

I was searching for something different when I found the off-grid way of life, but I didn't know what.

I was a journalist, specialising in environmental stories. But it was the 1990s and mainstream media had little or no time for subjects like pollution caused by transport, or the dangers of pesticides. 'Why don't you, just for once, bring us a story about a kidnapped baby, or something simple?' an embittered news editor once snarled as he spiked my carefully researched and potentially libellous article about pollution from a factory making a well-known brand of photographic film.

Things are better now. Global warming gets plenty of press – partly because you can't pin the blame on any one organisation. But newspapers and TV current affairs programmes still fight shy of anything that might accuse a specific business or product of damaging the environment. And in the perfect storm of climate-change articles and documentaries that tell us how to turn off lights, turn down thermostats and prepare for the bad times ahead, there is still little or no mention of any need to radically change our lives or rethink our habitual over-consumption; it's still all about maintaining what we've got but with just a little belt-tightening.

Back then I was out of step with mainstream concerns but I didn't let this bring me down

(and I still don't). I lived in a squat in central London. Freebies, from sample products and launch parties to foreign junkets, rained down on journalists. Had I really put my mind to it, I could have lived for free. Each winter I escaped the freezing flat by writing travel articles.

Then my focus shifted. I started a relationship with a fashion designer who had a holiday home in northern Majorca. This was long before leisure flights were identified as eco-sinful, so we flew off for weekend breaks with not the slightest cloud over our conscience. Our favourite village was Deia, international summer playground for writers, actors, models, businessmen and artists. The parade of vain people was a comical backdrop, but not the main attraction. I loved the area for the same reason they did: it's one of the most beautiful places in the world.

My relationship with the fashion designer lasted slightly longer than a vapour trail, and after it ended, the thing I missed was the soft air tinged with the scent of orange blossom and the sweep of the mountains down to the Mediterranean. I wanted my own home there. But this was 1995 and my savings were just £10,000, from

my first TV documentary. Staying on the sofa beds of friends, I searched fruitlessly around the outskirts of the village. These days there's a German estate agency every 500 metres, but before the local government tunnelled a fast road through the mountains, property deals were rarer.

I was getting nowhere until a friend introduced me to Senor Bisbal, known to us all as Baseball. Among his many activities, which included farming and antique dealing, Baseball was a registered real-estate broker. A wizened 70-year-old for whom no deal was too small, he drove me around the area for weeks, his narrow, tanned face showing no emotion as I rejected one option after the other. We shuttled between Deia and the richer and less ostentatious neighbouring village of Fornalutx, viewing a range of shepherd's huts. At least a century old, they were all perched on ancient rights of way, had one room, no water, no electricity, and were

inaccessible except in the tiniest of cars, or by motorbike (or on foot – an option I never attempted). But none of them matched my fantasy.

I was considering applying for a mortgage to buy a sensible house in a lower-priced area when Baseball contacted me again. The latest place was the most inaccessible of the lot, inconceivably high up a ridiculously rutted mountain track. But with each hairpin bend

my heart leapt higher, and as we hit 700 metres above sea level, before I had even seen the place, I had decided to buy it.

'It' turned out to be a tiny structure built of dry-stone wall on three sides, the fourth 'wall' being the face of the mountain cliff that towered over it. To this day I still wonder why I bought it. Did I really need a 20-minute hair-raising drive up and down the mountain every time I wanted supplies or company? The answer was 'yes'. Here was a place where I could raise the virtual drawbridge and chill out; somewhere hard to enter, and therefore hard to leave.

There used to be a Sixties phrase, 'only connect'. Get stoned, talk all night, and merge your mind with the collective unconscious. The 21st-century challenge is how to disconnect, how to pull back mentally and physically from the endless merry-go-round

We are entering a post-consumer era where owning stuff and being busy and working too hard will seem very unfashionable

that is modern life. I wasn't looking for a simpler, eco way of living. I wanted to grab back what social change has stolen from us – or, rather, what we have stolen from ourselves – a sense of place, of being here and now.

The Majorcan hut was my way of disconnecting. No utility bills or maintenance charges or mortgages. No sense of obligation to go there regularly. The smallholding had survived for a thousand years; it would continue on its humble way whether I was there or not. There were hundreds of trees on the mountain: gnarled olives, statuesque pines and reassuring figs and tamarinds. Each winter the wind blew hard, and one or two fallen pines would fulfil my heating requirements for the following year. Below ground level, the hut sat on top of an amphora – not a natural spring, but a rainwater receptacle the size of another room.

The water ran down the mountain onto the roof of the hut, through the gutter and into the amphora.

It is harder work, for sure, than just turning up at a luxury villa and flopping down by the side of the pool, but

more of a change and a break for that.

You won't find the phrase in the Oxford English Dictionary – yet – but what I was doing in the Majorcan mountains was 'going off-grid'. During an internet search for a wind turbine to power a heater (and the solar panel for my laptop), I discovered that, literally, the word 'off-grid' refers to places, buildings or people without mains water, power or a phone-line. Until recently it was largely an American phenomenon, and something of a subculture. In 2005 there were approximately 180,000 off-grid homes in the US, according to *Home Power* magazine, and by 2006 this number had grown to 250,000, according to *USA Today*.

The locations range from country houses and old farm huts to tree-houses, container dwellings, and tents and their ethnic variations, such as benders (shelters made by covering a framework of bent branches with canvas) and

Mongolian yurts (circular tents of felt or skin). The people living there might be backpackers or right-wing survivalists, international business travellers with their own private islands or groups of friends who decided to start a commune; they move around in buses and four-wheel-drives, yachts and houseboats, caravans and Winnebagos. They are all outside, or in between, the criss-crossing lines of power, water, gas and phone that delineate the civilised world.

I learned that as well as this physical sense of off-grid, there also seemed to be another meaning – an off-grid attitude that you could take into the local park or your own back yard, a sense of feeling at ease in the world, of reclaiming your independence and individuality. A practical, freewheeling kind of self-sufficiency.

I began to study books about building cob houses, and the skills of foraging for wild food. I came across the philosophy of Freeganism, which advocates an existence completely free from shopping, cars and utility bills, but this amounts to a boycott of the economic system, whereas I want to drop in and out of 'the system'.

To me, going off-grid

is pro-environment and pro-consumer. It's a positive message, not oppositional. Part of the attraction is enthusiasm for a bargain and the new trend towards buying cheap or second-hand goods is part of the off-grid philosophy. Forget Top Shop. Say hello to Oxfam and Freecycle. The international Freecycle movement has a different website for each city and allows members to post up things they want to give away, from old railway sleepers to their ex-lover's entire wardrobe.

We are entering a post-consumer era where owning stuff and being busy and working too hard will seem very unfashionable. Even so, for a newcomer to the off-grid world, the price can appear high. I knew from my time in Majorca that if I was to live this way, even part-time, I would suddenly have to think about things I had hitherto taken for granted. Where would the power and water come from? How much would I be using? Was I about to run out? On the other hand, once I had the basics of heat, light and water under control, the payback would be instant and valuable: greater peace of mind, a feeling that I had partly freed myself from the commercial world and gained the power – the ultimate power – of control over my own life.

I decided to visit as many types of off-grid dwellers in the UK as possible and write a book about what I learned. There are already thousands in the UK who are living off-grid or who have incorporated off-grid into their lives in a combination of ancient wisdom and new technology. By my reckoning there are at least 25,000 households living off-grid all year round – perhaps 75,000 people. But this number certainly doubles and probably quadruples in the summer months.

Many of those UK off-gridders are in conventional houses – conventional, that is, except for one thing; they are too remote to have their own power or water. There are 300 of these houses in Northumberland alone. But I came across remote old houses in almost every county, but mostly in rural corners of Scotland and Wales. My conservative estimate is that there are 5,000 off-grid houses.

Next are the people living in

static homes that are not conventional; yurts, benders, tree-houses or caravans whose wheels have long since rusted over, as well as those living in tents or shacks of one sort or another. I met literally hundreds of people in this category, and my journey was not in the least exhaustive. So another 5,000 unconventional homeowners is surely an underestimate.

Then there are, according to official British Waterways estimates, 3,000 homes on boats living off-grid. In addition there are perhaps another thousand boat-dwellers on our coasts, people not living on canals or rivers but on the high seas, sailing down to the Med for the winter and coming back here for the summer.

There's that other great class of off-gridders, too: mobile home and van dwellers. There are 130,000 camper vans in the UK, and many more parked overseas that are British-owned. I am not including foreign vans, but there are easily another 5,000 van dwellers in the UK.

And that does not include the most feared and controversial of van dwellers, the gypsies (who may live close to the land, but – as sites littered with broken fridges, old sinks and nameless pieces of metal testify – don't always take care of it).

The old image of gypsies in wagons pulled by carthorses is no more; these

days they are as likely to have a Mercedes Sprinter as their main vehicle and a Mitsubishi 4x4 as a runaround for the wife. But the carhorse-owning fraternity still exists. They refer to themselves as 'horse-drawn', and they are the least visible residents of the off-grid virtual city, hidden down green lanes and other ancient rights of way. A few are probably gypsies, but most are radical ex-squatters and road protesters, or simply the rural poor.

Finally there is the present generation of homeless and squatters, living in empty industrial buildings, decaying flats or old farm buildings. Many of these people care about the environment, contribute to the community in which they live and go to great trouble to leave no trace of themselves when they depart. There are 10,000 squatters in the UK and perhaps 3,000 completely homeless

types who are not even kipping down on a friend's floor but are sleeping rough.

The grid silently and invisibly underpins modern life. I'm talking about the simple, literal grids of the power and water networks, roads as well. But these physical networks are also a metaphor for all the big, impersonal systems and organisations that circumscribe

At least 25,000 households are living off-grid all year round – perhaps 75,000 people. But this number doubles, probably quadruples, in summer

our lives. Fuzzier grids include government computers and ID cards; cell phones, the internet and satellite TV; plane routes and the delivery routes of supermarket lorries, as well as retail outlets; brands; and even schools and universities. They are more subtle, less escapable than the simple, physical tentacles of power and water, sewage and roads. We can rarely get away from these metaphorical grids for long – unless we completely step away from society.

But the grid doesn't extend to every part of our lives. There are still vast areas of human experience it can't touch, from meditating in a city park to roaming the wilderness; from making your own music or poetry and performing it among friends, to illegal workers in the black economy or surviving in a field with a solar panel and a vegetable patch.

Don't get me wrong, I'm not harking back to the pre-grid days as some kind of Utopia; I simply want to try to define what we lost when we gained the grid. We still hear the occasional story about a remote village that used to have to provide its own power but is now at last connected. I have

filmed in such places myself. As the villagers blink into the cameras, and the electric power arrives, their own power is sapped away. Now there is a move in the opposite direction. Whole new villages are being planned off-grid.

Even so the politics of going off-grid are more complex than they at first seem. It is a personal choice, but it also has repercussions for the big, powerful utility companies. Moreover, virtually every aspect of modern life – planning permission, school inspections, transport, water, food, to name just a few –

is surrounded by a well-developed set of regulations. In some countries, like France, the law goes so far as to prevent individuals from providing their own electricity.

There is a charming convention some top academics still observe: if members of the public contact them with a question they find interesting, they will discuss it. I phoned

Avner Offer, Chichele Professor of Economic History at All Souls College, Oxford, seeking his reaction to the idea of going off-grid. 'Maybe we just end up exchanging one grid for another,' was his reply.

He has a point. Broadband Internet, mobile phones, a car to take you along a road to and from your off-grid haven ... it's not the purest form of off-grid living. But then I have no obligation to be consistent – I just like the idea of living out of sight of the nearest electricity pylon; far enough off the beaten track that the water pipes don't reach me; away from advertising, newspapers, and all the other distractions of modern living. For the moment I also like the idea of dropping back into modern life whenever I fancy.

James Lovelock, the scientist who devised the Gaia theory of Earth as a self-regulating system, believes that before long

the grid will start breaking down; that within our lifetime most of us will face rationing of water, food and energy.

Individual countries, especially islands, will have to become self-sufficient for food and energy. A wartime mentality will prevail. It is not good enough just to ignore Lovelock's warning in the hope it won't happen. But you don't have to believe he is right to want to change the way you live right now.

Embrace what that future may hold, acquaint yourself with the off-grid life, and you will fear the future less. **E**

Nick Rosen is a journalist and broadcaster. In 2005 he launched the website www.off-grid.net. His book *How To Live Off-Grid* is published by Transworld, £12.99.

Sustainable living

'It is my intention to live a frugal lifestyle by reducing the expenses of my family to the minimum without lowering our standard of living... to give my family healthier food... [with] the minimum damage to the global environment.'

Mrs Frugal

Frugalism

Frugals are making an anti-

consumerist commitment towards a more sustainable future by making do with what they've got. Do you need it, or want it – and how much will it really cost? For more advice on how to reduce your buying habits, save money and clear debt, check out these websites: www.moneysavingexpert.com www.mrsfrugal.co.uk www.totallyfrugal.com

'I went to the woods because I wished to live deliberately, to front only the essential facts of life and see if I could not learn what it had to teach, and not, when I came to die, discover that I had not lived.'

Henry David Thoreau

Cave Living

If you aren't claustrophobic, or afraid of the dark, there are hundreds of ready-to-move-



into caves around. A new report by Bradford and Sheffield Universities lists the setting and dimensions of your potential rock des-res. capra.group.shef.ac.uk

Another life is possible

If you've ever thought there may be more to life than this, think on. If you're sick of the status quo and living for the weekend. If the kids aren't all right and you wonder why, and you feel like a hamster in a wheel, but dream of breaking out, it may not be just a faint idealistic hope. It's possible that you could do something right now to turn your life around, to live in your own place, with your neighbours rather than just beside them, to feel useful and put something back, to feel you belong, pass on your knowledge and create a better world.

Rachel Clode reports

'A man is rich in proportion to the number of things which he can afford to let alone'

Henry David Thoreau

A growing number of people are breaking out by living their lives in a different, more involved and satisfying way. According to the report *Are you Happy?* by the New Economics Foundation, despite the UK economy having doubled since the 1970s, people's satisfaction with their lives has remained stagnant. With 87 per cent of Britons believing that today's society is too materialistic, with a lack of emphasis on the things that really matter, and the level of trust we place in others halved since the 1950s, it couldn't be a better time to change your lifestyle.

Work from home

With more than 3.3 million people home-working, the benefits of home-based work include: the use of one property, community renaissance and diversity, reduction in commuting time, increased security of occupied homes and more time with your family. Make a start by finding out if your company has a work-life balance policy. For starting your own sustainable business, see the following websites for advice on development, funding and further links: www.homebusiness.org.uk www.businesslink.gov.uk www.egeneration.org

Build your own home

Rising population and house prices mean many people can't get on the property ladder. Consider building your own, sustainable home using environmentally friendly, reclaimed materials and local labour. Policy and regulatory pressures are turning even the most mainstream builders green. For inspiration check out the following links: www.irresidence.com www.newbuilder.co.uk www.greenbuildingstore.co.uk www.greenbuildingpress.co.uk

'The real science of political economy... is that which teaches nations to desire and labour for the things that lead to life: and scorn and destroy the things that lead to destruction.'

John Ruskin



Time Banks

Feeling useful is a human need. With time banking, you trade your time and skills for things others can provide. Users are happier, healthier and increase the trust in the local community. www.timebank.org.uk www.neweconomics.org www.fairshares.org.uk www.taffhousing.co.uk

'Very few people understand the land, or even know what grows in their gardens or on the bit of wasteland behind their back fence.'

Fergus Drennan – Forager

Foraging

Get out in the fields, use natural resources and put wild foods on your table. There are plenty of foraging courses to help you. See:

www.countrylovers.co.uk

www.woodsmoke.uk.com

www.wildmanwildfood.co.uk

Freeganism

Half the food we discard is edible, and freegans raid bins to save what they can eat. If you're not brave enough to ingest that, you could stick to finding thrown away household items. See: www.dumpsterdiving.net

'TV addicts could use the tips they learn from makeover shows to renovate a community centre, shopaholics could help a disabled person with their retail needs, dog lovers could walk dogs for elderly or terminally ill people, tea drinkers could organise intergenerational tea parties and gamblers could be helping children with numeracy skills.'

Gladeana McMahon (Life coach), CSV's *The Great British Time Survey*

Volunteering

Around 68 per cent of people believe they haven't enough time to volunteer; many others think they don't have enough skills to be useful. But through volunteering, you may discover hidden skills that can enrich others' lives. With 62 per cent of

'The origin of the word "community" comes from the Latin munus, which means the gift, and cum, which means together, among each other. So community literally means to give among each other.'

Bernard Lietaer

Eco communities

There is an ever growing number of communities throughout the UK that address threatening social, environmental, political and economic conditions. They have come up with solutions that are practical, scalable and lasting effect. To find out more about living in an inclusive, sustainable environment, take a look at the resources on the website: diggersanddreamers.org.uk

'Money is like an iron ring we've put through our noses. We've forgotten that we designed it, and it's now leading us around.'

Bernard Lietaer

LETS

Local Exchange Trading Schemes keeps trade in your community with the exchange of goods and services. An initiative that began before the USA-born time bank, LETS has approximately 30,000 member groups in the UK, all encouraging cooperation and community participation.

www.letslink.org

'The peaking of world oil production presents us and the world with an unprecedented risk management problem... without timely mitigation, the economic, social and political costs will be unprecedented.'

Hirsch Report 2005

Transition towns

It started in Totnes but now it's estimated that a town a week in the UK is committing itself to a future without oil. If you would like to make your community oil-free, see: www.transitiontowns.org www.coinet.org.uk

'Whilst not all of the idealists' ideas turn out to be a model for wider changes in the short term, they are important sources of innovation.'

Dr Adrian Smith, University of Sussex

Community engagement

Got an idea for local projects and actions towards a more sustainable future? According to Defra, in 2004–2005, £4,494,750 was given out in community fund grants. Get your neighbours together to hear each other's innovative ideas and act upon them. See: www.ceap.co.uk www.sus-uk.com www.futureforests.co.uk www.greenphase.com www.arcvillage.org

people reporting that they have stressful or uninteresting jobs, volunteering could be a way to liberate yourself and find out what else you can do. See:

www.do-it.org

www.csv.org.uk

www.volunteering.org.uk

Community currencies

Last year's Nobel Peace Prize went jointly to Muhammad Yunus



and Grameen Bank for their efforts to create social and economic development. Nearer to your home, growing numbers of people anxious to keep local businesses thriving and support economic diversity are creating their own local economies. See: www.transaction.net www.ratical.org

Home education

Disillusionment with a target-driven education system and over-filled classrooms are only some of the reasons an estimated 1.5 per cent of children are now educated at home, compared with only 0.5 per cent of children in fee-paying education. Educating your children at home will stretch your mind and theirs. See: www.home-education.org.uk www.he-special.org.uk (for special educational needs) www.witsendcs.com



Life in the woods

Tinker's Bubble is proof that sustainable low-impact living is not a pipe dream but already a reality. In 1993 a group of 10 friends, including former *Ecologist* editor Simon Fairlie, shared a vision of a place where people could live and work in harmony with the land, 'organically, sustainably and collectively'. This utopian ideal led them to establish the cooperative trust of Tinker's Bubble.

The site's name is not simply a romantic

evocation of this world away from the urban grind but depicts the bubbling spring at its centre, where in times past travellers would break their journey.

These bygone visitors would appreciate the commitment to sustainable living that lies at the heart of the modern Tinker's Bubble. The use of fossil fuels is avoided on site and what little energy is required is instead generated via a few solar panels and a small windmill. Only horse miles are incurred in providing fuel for heat and cooking, as residents source

the timber from their own sustainably managed woodland, where no tree is felled unless there is a clearly defined purpose for it, be it commercial or domestic.

The 40-acre site now combines meadows, orchards, gardens and woodland, providing as far as is possible a truly local and organic diet for its community. Each resident helps to cultivate their home: coppicing the woodland, picking apples, or selling surplus organic vegetables at a nearby farmer's market, as the seasons dictate. This hard-won self-sufficiency

Photographs ALLY NELSON



Living in harmony with nature, along with your friends, sounds idyllic – but (planning battles aside) a collective in Somerset is doing just that. **Shannon Carr-Shand** reports

keeps living costs in the community very low and residents need only work outside of the idyll for a day or two per week, supplying the local area with a range of gardening and handyman skills alongside produce, sawn timber and Windsor chairs.

A fundamental ingredient for the success of this sustainable community is the emphasis on social cohesion, encouraged by the combination of communal and private spaces. The impressive roundhouse (built from timber grown, hewn and milled on site) houses the

communal kitchen and sitting areas, while individual residents have the satisfaction of living in dwellings lovingly hand-built from biodegradable or recycled material.

This tranquil lifestyle has not, however, been easily won, especially when modern life encroaches. Throughout its history, the Trust has had to fight the planning system for the privilege of living symbiotically with its environment. Fourteen years on, despite these challenges, this innovative community has demonstrated that an environmentally

sensitive initiative can support its inhabitants and that, given time, the local community will come to understand and appreciate it. It is a testament to Tinker's Bubble that former residents have gone on to establish other low-impact initiatives, at Fivepenny Farm and the Trading Post.

In a final fitting tribute to the site they inhabit, the residents' houses are built to biodegrade naturally once they're no longer inhabited, ensuring that this collective truly does tread lightly on the earth. **E**

Final call for long haul

The concept of 'growth' is a double-edged sword for the UK's aviation industry. Airlines, airports and tour operators may celebrate the potential financial gain. But, as **Leo Hickman** argues, there is a heavy environmental price we have to account for

In 2006, for the first time in history, the world's aviation industry carried more than two billion passengers by air, according to the International Civil Aviation Organization, the UN's specialised agency for aviation. With a predicted annual global growth rate of 3.5 per cent, it forecasts that by 2015, 2.5 billion passengers will be travelling annually on scheduled flights alone. Airbus, one of the world's two largest aircraft manufacturers (alongside Boeing), says that in 2005 the number of passenger aircraft in the world with more than 100 seats stood at 12,676. By 2025, it says, 27,307 such aircraft will need to be in service to meet predicted demand.

In 2003, the UK Government published an aviation white paper which set out the aviation needs of the country for the next 30 years. It said UK airports should be handling between 350 and 460 million passengers by 2030. An updated forecast three years later put the mid-range forecast at 465 million, and the high end of the range at 490 million. No wonder the airspace planners are unwilling to draw up plans for our skies beyond 2012.

What is causing this growth? As globalisation continues, business, trade and commerce are all going to drive demand, but the main cause will be aspirational travel. 'This increasing desire and propensity to fly can be explained by the growing affordability of air travel,' said the white paper's 'progress report', published in late 2006. 'Rising incomes, lower air fares, a greater choice of ticketing options and a greater range of services from UK regional airports are all

contributing to making air travel a more realistic option for people across the UK.'

In some other countries, of course, growth is much less about holidaying and more about economic development as they play a rapid game of 'catch up' and emulate the transport infrastructure of developed nations. For example, in 2006 China announced that it planned to build 48 new airports by 2010. This ambition, though, needs to be put in perspective: even once these new airports are completed there will still be fewer than 500 paved airports in China, compared to more than 5,000 in the US, the most air-dependent nation in the world.

Should we accept the assumption that all this projected growth will

materialise? After all, the aviation industry is notoriously vulnerable to sudden drops in demand, caused by factors such as SARS, 9/11, the Gulf Wars and high-profile crashes. There is a view, however, that as long as flights are comparatively cheap, the demand will be there; the question is how to meet it.

This is why governments such as the UK's use a 'predict and provide' strategy – consulting widely on what the various interested parties say they both need and expect, then attempting to deliver this. Some see this as simple common sense, whereas others see it as a self-fulfilling prophecy, especially when viewed against the environmental negatives associated with air travel – the unholy trinity of greenhouse gases, poor local air quality and noise pollution.

The issue has parallels with road building: to

ease a congested road, the answer most often put forward is to widen it, or simply to build a bigger and better road. But increased capacity invariably invites further demand, and before you know it the new road is full of traffic and you are back to square one, albeit with much more net pollution. Would concentrating on demand management and investing in alternative forms of transport be wiser? A similar quandary now faces global aviation.

The heart of the issue facing aviation – and tourists deciding whether they should fly to a destination – is that of establishing just how polluting aviation actually is, especially

set against all this projected growth.

It helps, first, to consider exactly what it takes to lift a plane full of passengers and luggage 35,000 feet into the air, propel it through the upper limits of the troposphere at speeds of up to 900 kmph, and then land it safely at a destination that can be thousands of kilometres away from its starting point. Conveniently putting aside the physics of aerodynamics, the simple answer is kerosene – and lots of it. In 2005, aviation accounted for eight per cent of global oil usage – 83 million barrels of oil a day. For example,

according to Boeing, one of its 400-tonne 747-400 jumbo jets covering a 5,630-kilometre route (equivalent to London–Dubai), carrying almost 57 tonnes of kerosene in its wings and tail, will consume on average 12 litres of fuel per kilometre travelled. If it gets instructed to enter a holding stack while awaiting clearance to land, it will burn 100 kilograms of fuel for every minute that it is being held.

With this in mind, it isn't surprising that there are doubts as to whether aviation can continue to grow if oil supplies soon start dwindling, as peak-oil forecasters believe. That said, it is what happens to this fossil fuel as it is combusted in an aircraft's jet engines that is of most significance in terms of pollution.

Put very simply, a jet engine mixes compressed air (drawn in through fans at the front of the engine) with the fuel, and then combusts this mixture at a temperature of around 1,500°C. The resulting flame and exhaust plume are expelled at a velocity of around 400 metres per second, whereby Newton's third law of motion ensures that the aircraft is thrust in the opposite direction. As the plane pushes through the air – ascending to a high altitude because the air is thinner there

and therefore less fuel is required to propel it forward – it leaves behind it a long trail of polluting emissions, which are often visible from the ground and are known as contrails.

The exhaust from a jet aircraft contains many pollutants. The most

commonly discussed is carbon dioxide (CO₂), but in addition to this are water vapour, nitric oxide and nitrogen dioxide (known together as ozone-forming NO_x), soot and sulphate particles, and a range of other compounds such as sulphur oxides, carbon monoxide and hydrocarbons. Each causes its own unique problems, but CO₂ and water vapour are thought to have the greatest impact in terms of climate change.

Air travel is the world's fastest-growing source of anthropogenic (man-made) CO₂

emissions, the pollutant that is understood to cause our greatest cumulative impact on the climate. For every kilogram of kerosene burnt, 3.155 kilograms of CO₂ are produced; thus a jumbo jet flying from London to Dubai would emit 180 tonnes of CO₂ during its one-way trip. That's equivalent to the lifestyle-related emissions – driving, domestic heating, food, etc. – of 18 average UK citizens in an entire year.

In 1999, the Intergovernmental Panel on Climate Change (IPCC), a UN-convened panel consisting of around 2,500 of the world's leading climatologists, published a special report on the effect of aviation on the global atmosphere. It said that aviation was responsible for around two per cent of total anthropogenic CO₂ emissions in 1992, or about 13 per cent of CO₂ emissions from all transportation sources. But aviation has grown considerably since this date, and even accounting for advances in fuel efficiency over this period, CO₂ emissions from aviation have still increased significantly.

In 2006, the EU said that aviation accounted for three per cent of Europe's CO₂ emissions. In the UK, the figure is even higher – around six per cent. However, these figures are often criticised by environmentalists as being misleading because they can exclude emissions from charter flights and omit some international routes, due to the vagaries of national and regional governments often not collecting data beyond their borders.

The confusion is muddied still further by the fact that an aviation lobby group such as the International Air Transport Association

(IATA) still quotes the global figure of two per cent in some of its literature, even though this dates from 1992 – an age ago in aviation terms, even before the advent of Europe's budget airlines.

The common cry by the aviation industry is that aircraft still only account for a tiny portion of global CO₂ emissions when compared to other polluters, such as cars, factories and homes. This isn't denied by environmentalists, but what they point to, as ever, is growth. While these other sectors have enormous opportunities to make significant reductions in their emissions, and some are already doing so (largely through technological advances and efficiency savings), aviation, due to growth, remains almost the only sector within the

economies of most developed nations whose emissions will continue to vastly outstrip any efficiencies or technological advances it manages to achieve.

This theory is best rationalised by the Tyndall Centre for Climate Change Research, the internationally respected independent climate-change research network of scientists across the UK. In 2006 it examined the future growth of aviation emissions set against the UK Government's own commitment, made in 2003, of achieving a 60 per cent reduction in annual carbon emissions by 2050. This target was set to try to stabilise the concentration of CO₂ in the atmosphere at 550 parts per million (ppm), which is seen by the Government as a concentration that should spare us from 'dangerous climate change'.

The consensus among climate scientists now, however, is that 450ppm is the target we should really be aiming for if we don't want to see global average temperatures rise by more than 2°C over this period. If this is the case, then we really don't have much time: in 2006, the concentration stood at around 380ppm – 36 per cent above pre-industrial levels – with a current rise of around 2.5ppm a year.

For this reason, many scientists, including those at the Tyndall Centre, are now saying that, no matter how politically unpalatable the message may be, a 90 per cent reduction by 2050 is required across the developed nations.

Such an ambitious reduction will be next to

impossible if aviation is allowed to grow as predicted,

says the Tyndall Centre. If all other sectors achieve their 60 per cent reduction targets – a huge task in itself – and aviation continues to expand unchecked, then it would account for between 24 per cent and 50 per cent of the UK's 'carbon budget' by 2050. If the government was to adopt the 90 per cent target many now say is needed to stabilise emissions at 450ppm, and aviation continues to expand unchecked, then aviation would account for 50 to 100 per cent of the carbon budget by 2050. If this happens, we face a worst-case scenario where, to avoid the extremes of climate change, the rest of the economy would have to be completely carbon-free in order to allow us still to fly at the volumes predicted.

The message in the Tyndall Centre's report must have been drowned out by the roar of jet engines. Just a few months after it was

Final call

published, the UK Government reaffirmed its commitment to expand the country's airport capacity by confirming that it still supported a third runway at Heathrow airport – which would allow an additional 500 flights a day to pass over London – and a new runway at Stansted, despite opposition from environmental groups, local residents and opposition parties.

Somewhat anomalously, transport secretary Douglas Alexander defended the announcement, saying that it was the Government's intention that aviation 'should meet its climate-change costs', without offering much in the way of explanation. Keith Jowett, the chief executive of the Airport Operators Association, welcomed the news, adding that the aviation industry 'can be green and still grow'. Again, there was no accompanying evidence for such an extraordinary claim.

The view out of the aircraft window now suddenly seems very bleak indeed, but there is still an important wild card yet to throw into the mix – contrails. These thin trails of ice particles and exhaust fumes left behind a plane as it passes through the sky might have a certain beauty, but there is growing evidence that they may have a more significant climate-change impact than even the aircraft's CO₂ emissions.

When hydrocarbons such as kerosene are combusted, water vapour is a by-product. Burn a litre of kerosene and some 1.1 kilograms of water vapour is produced as a result. When this is emitted at the sub-zero temperatures found at the highest altitudes commercial planes travel at (28,000 to 40,000 feet, where temperatures range from -30°C to -60°C), it condenses on the various nucleating aerosols found in the exhaust, such as soot and sulphuric acid droplets, and then freezes. If the atmospheric conditions are right – low temperatures and high air humidity – a visible contrail of ice particles forms behind the plane and can survive for hours.

Whereas the impact of increased levels of atmospheric CO₂ is now well

understood by comparison, our knowledge of how clouds – contrails being man-made cirrus clouds – interact and affect the climate is at best patchy and at times contradictory.

Clouds certainly play a crucial role in determining how much solar radiation – heat – remains within the atmosphere and how much is reflected back into space. On a basic level, we see every day that clouds have an impact: if a cloud masks the sun on a hot day we notice the temperature drop; conversely, a clear night is much colder than one with plenty of cloud cover. But the density and altitude of a cloud appears to have a huge bearing on its impact, too. For example, a thick, low-level cloud such as a cumulus is thought to have an overall cooling effect on the climate because it blocks most of the sun's rays, whereas

'Night flights account for only 22 per cent of air travel over the UK, but up to 80 per cent of the greenhouse effect is attributed to contrails'

a thin, high-level cloud such as a cirrus allows the sun's radiation to pass through, giving an overall warming effect.

The radiative differences between various types of cloud cover and cloudless skies are collectively known as 'cloud radiative forcing' and are assessed by climatologists using a measure known as albedo, which calculates the percentage of radiation a surface reflects back. The albedo of snow is 90 per cent (which is why we don't want the ice caps to melt), whereas the average albedo of the Earth's surface is 30 per cent. But the albedo of clouds ranges from 0.1 to 80 per cent, which is why clouds create such variables in climate-change analyses.

Establishing the precise impact contrails have on the climate has proved notoriously hard. The most debated study on the subject in recent years was published in the science journal *Nature* in 2002; it examined the skies over the USA in the unprecedented three days after 9/11, when all commercial planes were grounded and for a short period of time the skies were totally free of contrails. Scientists compared ground temperatures for those three days with the same dates in previous years, using meteorological records. The findings appeared to suggest that daytime contrails might reduce

ground temperatures, whereas night-time contrails have an opposite effect. Another study, also published in *Nature*, in 2006, looked at the impact of night-time contrails over the UK and concluded that night flights 'are twice as bad for the environment' as daytime flights. Its authors said that night flights account for only 22 per cent of air travel over the UK, but contribute as much as 60 to 80 per cent of the greenhouse effect attributed to contrails. Flights during the winter also had a greater impact, too.

When the IPCC studied aviation's impact on climate change in 1999 it acknowledged that the influence of contrails is little understood, but it did say that they 'tend to warm the Earth's surface, similar to thin high clouds'.

Of more significance is that contrails can 'seed' much larger cirrus clouds and be quickly dispersed by winds to form thin cloud cover across many hundreds of square kilometres.

But the golden bullet from the IPCC report was the following sentence: 'Over the period from 1992 to 2050, the overall radiative forcing (artificial impact on the natural climate) by aircraft (excluding that from changes in cirrus clouds) for all scenarios... is a factor of two to four larger than the forcing by aircraft carbon dioxide alone.' The so-called contrail 'multiplier' has since been interpreted to be 2.7 times larger than the CO₂ impact. Think back to what the Tyndall Centre report was saying about aviation's CO₂ impact on climate change and multiply this by 2.7, not forgetting of course that we still don't know what further impact contrail-induced cirrus clouds may have, even though some studies published since the 1999 IPCC report that examined this phenomenon indicate the impact could, indeed, be significant.

Whatever measure you choose to use, it is increasingly obvious that aviation is having a considerable impact on climate change – and is likely to get much worse as we continue to fly more, all the time urged on by the Government's obsession with chasing the fool's gold of airport expansion. **E**

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Extracted from *The Final Call: In Search of the True Cost of our Holidays* by Leo Hickman (Eden Project Books, £12.99)

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Wish you were home?

If you're sick of flight companies trying to woo you with 1p flights that you know cost the earth, stay put by holidaying in the UK. You might not get guaranteed sunshine but, says **Gillian Hovell**, there are many beautiful and interesting places to explore without getting out your passport. What could be more relaxing than enjoying your holiday environment with the knowledge that you're not contributing to its erosion? Additional reporting by **Rachel Clode**



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Cornish Tipi Holidays, tel: 01208 880781, www.cornish-tipi-holidays.co.uk; Tipi West, Cardigan Bay, tel: 07813 672336, www.tipiwest.co.uk; Eco Retreats, Powys, tel: 01654 781375, www.ecoretreats.co.uk; and Isle of Wight Tipi Holidays at Upton, tel: 01522 545088; www.tipiholidays.co.uk.

Thrillseekers who might otherwise head for Alton Towers can get their kicks at BeWILDerwood. This newly-opened forest playground is packed with treehouses, aerial ropewalks and zipwires, all made from sustainable, naturally treated wood and surrounded by 14,000 newly planted broadleaf trees.

BeWILDerwood, Norfolk, tel: 01603 783900, www.bewilderwood.co.uk



Use traditional skills and resources to produce a rush chair in a medieval farmhouse. Housed in an area of outstanding natural beauty, the Yarner Trust has been teaching rural skills and self-sufficiency for almost a quarter of a century. **The Yarner Trust, Bideford, Devon, tel: 01288 331692, www.yarnertrust.co.uk**

Mushrooms are the beauties and the beasts of the natural world. Learn how to identify and gather them, on a Mushroom Foraging Weekend.

Gavelmere House, Crieff, Scotland, tel: 01764 655721, www.gavelmere.co.uk



Take more than a tan back from your holiday by going on a Permaculture Design and Sustainable Land Use Course. Learn how to best use and preserve environmental resources on a two-week or nine-week intensive residential school.

Ragmans Lane Farm, Forest of Dean, tel: 01594 860244, www.ragmans.co.uk

Identify seaweeds for food and cosmetic use, prepare soups, scones, breads and pesto, plus body creams and face packs, at a Seaweed Extravaganza weekend.

The Organic Centre, Co. Leitrim, Ireland, tel: +353 71 985 4338, www.theorganiccentre.ie

Exchange some of your holiday time and you could be learning beekeeping, milking goats, building a sustainable house or picking plums in return for your food and board, by signing up with WWOOF (World-Wide Opportunities On Organic Farms) or HelpX. Accommodation can range from a spare room with your own loo to a tipi by a lake. Seasonal harvesting can even earn you a bit of holiday spending money.

Throughout England, Wales and Northern Ireland, www.woof.org or www.helpx.net

Preserve our landscape with conservation projects for coastal paths or get involved with surveys to protect UK beaches by volunteering your time and skills to the National Trust, who'll put you in touch with projects for the Marine Conservation Society and National Nature Reserve.

The National Trust, UK, tel: 01793 817400, www.nationaltrust.org.uk



We are what we eat – so learn to cook wholefood, organic and nutritional foods with award-winning chef and nutritionist Daphne Lambert.

Green Cuisine, Penrhos Court, Herefordshire, tel: 01544 230720, www.greencuisine.org



It might be raining outside but you don't have to sacrifice an exotic atmosphere if you stay in a Mongolian yurt in Cornwall. Choose from elaborate or simple interiors to suit your budget. If you get hooked, order your own bespoke design to take home, or move into, from the on-site design and manufacturing business.

Yurtworks, Cornwall, tel: 01208 850670, www.yurtworks.co.uk

Go green fingered with a Going Wild in the Garden or Big Composting Day course and turn fleece into felt on a Felt All Over break at this restored Victorian railway station set in woodland gardens.

The Garden Station, Hexham, Northumberland, tel: 01434 684391, www.thegardenstation.co.uk



Spend six days on an 11-metre yacht in the Hebrides for a wildlife conservation project. Basking sharks can be 12m long and weigh up to seven tonnes. Get up close and help save the biggest fish in UK waters.

The Wildlife Trust, Basking Shark Project, Scotland, tel: 01636 677111, <http://baskingsharks.wildlifetrusts.org>

Discover the survival skills of the world's oldest tribes, on a bushcraft course. Learn Stone Age technology, how to find wild food and track like an Aborigine.

Woodsmoke Bushcraft, Lake District, tel: 01900 821733, www.woodsmoke.uk.com



If you prefer to feel the earth beneath your feet, stride out with like-minded souls and take the time to really see, feel and hear the sights and sounds of Britain's countryside.

Countrywide Holidays, tel: 01707 386800, www.countrywidewalking.com



Need to store things? Plastic is out, plants are in – escape to the peaceful Irish island of Aran and learn to make useful, beautiful baskets.

Celtic Spirit, 00353 99 61424, www.irish-culture.ch

Why go to Hawaii when you can surf in Britain? There are beautiful beaches and surf schools all around the coast, especially in Devon, Cornwall and along the Welsh coast. All ages can learn a new way to play in the water.

Discovery Surf School, tel: 07813 639622, www.discoverysurf.com; Outer Reef Surf School, tel: 01646 680070, www.outerreefsurfschool.com; Big Blue Surf School, tel: 01288, www.bigbluesurfschool.co.uk

Help clean up Britain's derelict canals on a canal camp or a weekend working party. It's dirty work but you will be helping to restore a little piece of history.

Waterway Recovery Group, tel: 01923 711114, www.wrg.org.uk

The ancient art of dry-stone-walling is dying out, with structures crumbling into ruin and being lost to fencing and concrete. Keep this skill alive on a Wild About Walls course in the Durham Dales.

British Trust for Conservation Volunteers, tel: 01302 388 888, www2.btcv.org.uk



Places of note

There was a time when journeys had meaning and significance and strange lands were negotiated not by guidebooks and web pages but by song. **Jay Griffiths** laments what we have lost in embracing the monoculture known as mass tourism

Australia is renowned for its songlines. Lines of music criss-cross the land, making invisible paths that Aboriginal people can travel along. To me, the idea of the songlines is one of the most exquisite concepts I've ever come across and arguably there have been versions of it around the world.

The songs tell of the ways the Ancestors took in the Dreamtime: here Caterpillar crawled round this rock, there Possum pissed by the creek. These paths are memorised in the form of songs that describe the land, providing a map in music so you can find your way for hundreds of miles. The line of the story will describe the lie of the land precisely, and people can even travel across country they've never seen, provided they know the song, for it will guide them like a map. Thus wild land is negotiated by song.

The songlines are a reciprocal enchantment: the singer sings or chants the land, and is enchanted by it in turn. Partly, this is a literal *en*-chantment. The land acts as a mnemonic, reminding the singer of the next part of the song. There is subtlety here: the songlines not only tell of melody, map, land, and so survival; but also of belonging, language, memory, nomadism, law, knowledge, medicine, meaning – and guidance for the heart and the feet.

Possibly the idea of songlines is as deep within the human psyche as the impulse to nomadism itself. Our eyes are alive to paths on the land and we find them visually irresistible. Similarly with stories, which make paths in the mind to which all humans instinctively respond. All cultures have a long nomadic shadow; our feet

were made for walking, our uprightness gave us height to see into the distance. New horizons for the eyes liberate the mind, and to be a nomad in the mind is still within our gift, to move and learn, to be a student always, to discover new lands and leave behind some rock of certainty. And whether it is literal nomadism or the curious, questioning nomadic mind, there is a depth of thinking behind them both: the enchantment of the songlines, singing the path you take, learning the right song for the way.

In mass tourism, modernity has manufactured its own kind of nomadism in the

'Our feet were made for walking, our uprightness gave us height to see into the distance'

movement of people from one place to another, identikit, place. The travels undertaken for tourism are an inverse opposite of songlines. Whereas songlines celebrate specificity – that exact rock which Caterpillar crawled around – tourism celebrates monoculture, wanting exactly the same burgers and the same beers on the same beach. Songlines can only be sung in one particular place. Tourism delights in universal pop songs, songs of no particular abode, transported on i-pod to Thailand or Kenya, melody applicable anywhere. Although tourists get everywhere ('like ants', say Aboriginal Australians), they perversely get

nowhere, as they shuttle from same to same, a journey without significance, a road without its own specific song.

Anthropologist Steven Feld describes the songlines of the Kaluli people of Papua New Guinea. 'Tok means "path", "road", or "gate", but as it is used in song, the sense is more that of "map". The device refers to the way that a song, from start to finish, projects not merely a description of places, but a journey. The song is successful when listeners are totally suspended into a journeying mood, experiencing the passage of song and poetic time as the passage of a journey...'

West Papua is resonant with song. The country was invaded by Indonesia in the early Sixties and since then there has been a genocide, probably the most under-reported genocide in the world. I went there to research a chapter of my book, and I spent weeks crossing part of the Highlands. The guides with me sang day and night, they sang 'to the mountain', they sang the paths across the hills, and they sang the stories of how people originally came to be there. They also improvised songs of that day, describing people falling over, funny remarks and good, big fires. ('Our destination was very hard but we made it, over mountains and swamps, with the girls in grass skirts.') Song in West Papua can also be political. In 1978, the musician Arnold Ap formed a band called Mambesak, which played wildly popular songs of freedom. In 1983, Ap was seized by the Indonesian military, imprisoned without charge, taken to a beach and machine-gunned to death.

The Kogi people of Colombia also have a



version of songlines, subtle songs of the spirit world. Alan Ereira, maker of the stunning documentary film about the Kogi, writes: 'The song leads along a path in "aluna" – the spiritual world – in the maze of memory and possibility to a point in the real world.'

For the Sámi people of Norway, Sweden and Finland, the yoik was a kind of songline – a way of singing the land that to an initiate could evoke a landscape or people, animals or moods. The song was part evocation and part intercession; for Sámi people, believing as they traditionally did that nature had 'soul', would sing a yoik, asking mountain-passes or lake-ice to be kind to a traveller. But when the missionaries came, they said yoik was of the devil, and these good Christians killed people for it. Sámi poet Nils-Aslak Valkeapää writes: 'Even an old man of more than 80 years of age was executed because he was irresponsible enough to yoik.'

In Australia, I met Jackie Margoungoun, who described a song he could follow from Doomadgee to Mataranka, a distance of about 385 miles, and also one he could follow from Katherine to Borraloola, and from Borraloola to the Queensland border. 'Only three people left can follow that song,' he said. 'The Church stopped the ceremonies so people couldn't practise them and they were forgotten. Four or five songs are gone now and no one can ever find them again.'

Some birds and mammals have their kind of songline. The migratory marsh warbler, a bird of passage, is a singer of passages of other birds' songs. With an exquisite capacity for mimicry, it learns and repeats the songs of birds whose

lands it passes through. Thus in its song it tells the story of its journey, an avian songline, where music makes the map of the bird's path. Whales navigate through sound, they express themselves in sound, they think with musical meaning and remember in song: it seems to me more likely than not that their maps are nothing less than songlines, which they can follow from the Arctic to the Galápagos Islands.

For Aboriginal Australians, songlines are Law. 'The Law is in the ground,' I was told. Both law and song, so different to the Western mind, provide order and harmony. The idea of a Universal Law or Way of nature – the Dreaming for Aboriginal people, Wouncage for the Oglala Lakota, Dharma for Buddhists and Hindus – are all expressions of a profound law in nature, a way of being, and a way of thinking. The purpose of indigenous law throughout the world is essentially to ensure that the natural world remains the same.

In contemporary Euro-American law, however, exterminating life on earth is legal. Genocide may be officially outlawed (though in West Papua, both Britain and the US condone it by supplying Indonesia with the weapons for it), but acts that destroy the very climate of the earth are not considered crimes at all. If songlines are lines of invisible enchantment, the vapour trails of planes scar the sky in visible destructiveness.

For Aboriginal Australians, the songlines, and the story they contain, illustrate morality, and thus they are like parables knitted into the land itself, telling people how they should act.

There is something similar among the Western Apache: stories are frequently moral, detailing a wrongdoing and a comeuppance, and each story is tied very precisely to one place – a hill, for example – so whenever you look at that hill, you remember the story that took place there, and its moral. One young woman commented that the site of one story 'stalked' her every day. Morality is permanent here because it is located in the land.

The Amazon has its songlines too, sung by shamans. Each plant, say shamans, has its own song, and to learn about and use that plant for healing you must learn its song. The songs come to you in dreams or in trances induced by certain drugs, shamans told me. The songs are a guide, a map: not a map of land but a map of knowledge.

Joseph Conrad did the world's forests a terrible disfavour with his insistence on how they can confound the mind and confuse comprehension. Indigenous people know how to 'think' the forests, know that the paths can be songs, making a thread of light, a path of the mind. Each song may tell of a plant's relationship to other plants, and may distinguish between the uses of a stem or leaf or root. There is practical doctoring wisdom here but also psychological wisdom: you find your way and learn how to live unlost, not through the wild

Songlines

forest but within it. The songlines harmonise people and environment.

I went to the Amazon suffering from deep depression. I went to see shamans who use ayahuasca, a strong hallucinogenic drug, to treat a wide variety of things including depression. (Ayahuasca is one of the plants which they say can 'teach' them the songs and uses of different plants.) I felt the healing power of both the songs and *la medicina*, as they call ayahuasca, and, together, the experience was an unforgettable *en-chantment*. The shamans used chants and songs called *icaros*, an ethereal, wild music. Quiet, occasionally almost inaudible, they are sometimes whistled, sometimes voiced, music half-heard from a source unknown, where melody is more like scent, a sweet resin in the air from an unseen tree, wakeningly strange, dreamingly familiar, airs of music, soft as smoke, curling and rising in the air.

A shaman in trance often draws on a reefer of pure tobacco and whistles out the smoke, so you can almost see the shape of the melody in the smoke he breathes. They say that the songs themselves can heal, consoling the mind and creating harmony in the psyche and in the body.

The *icaros* that the shaman sang were of his

locale, the particular stream, particular hills and particular plants he knew. In singing them, he made his land literally *en-chanted*. The Kuna people of Panama similarly have songs that describe real places in the jungle and they also have 'curing chants', which contain their most secret and most profound knowledge.

But the younger generation are no longer learning the songs. They have little knowledge of

'To foster its illusions of carefree sun, sea and sex, tourism must discourage a true relationship to place'

the forests, so the chants are almost meaningless. And without the songs, the land in turn has little meaning. Wastelands are places where there are no songlines, devastated places unpathed with song, unenchanted, the wastelands of missionary activity silencing earth wisdom, the devastated land whose meaning is destroyed by tourism and other extractive industries.

Tourism has an omnivorous immortality;

always moving on to the next pristine beach, a new 'unspoilt' tribe to be chewed up and spat out. Whereas songlines are associated with belonging, language, tribal memory, law, knowledge and meaning, tourism is characterised by the opposite: a contrived unbelonging, visitors relentlessly unable to speak a word of the local language, a wilful ignorance of the significance of the places they visit. In order to foster its illusions of carefree and simplistic irresponsibility (sun, sea and sex), tourism must discourage a true relationship to place: complex, profound, demanding.

In wild land, by contrast, songlines offer meaning not only to locale but also to mind, an inherent reminder that humanity's highest purpose is to be fluent in the streaming cadences of all our world's languages, making our earth more vivid and realising it in song. For that is how the spirit deep within all life leaves the unforgeable signature of its wild authenticity, in the songlines of this wild world. **E**

Jay Griffiths is a journalist and adventurer, and the author of *WILD: An Elemental Journey* (Hamish Hamilton, £23.50)

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Lookout Tower, Korkkensaari Zoo, Helsinki. Architect: Ville Hara/HUT.
Image: HUT Department of Architecture Photolab



The turtle king

Leatherback turtle populations are in critical decline. **Patrick Steel** spends an inspiring night with one man determined to save these awesome creatures



It was Easter Day when I caught the plane to Capurganá, on the Colombian border with Panamá, and – perhaps appropriately – I was going in search of eggs. I was headed for La Playona, a stretch of beach in the Gulf of Urabá where each year, from February to June, hundreds of pregnant leatherback turtles – a species in critical danger of extinction – leave their watery habitat to crawl up the beach and deposit their eggs in the sand.

But it wasn't just the turtles that interested me. I had heard that there was a man who lived on the beach whose life's work was to conserve the giant reptiles and their eggs, and that it might be possible to watch him at work.

A short boat ride later and, guided by Edgar – a 14-year-old whose teachers, still drunk from their Easter celebrations, hadn't turned up at school that day – I walked to the beach from the local town of Acandí, reassured by a giant statue of a turtle on the shoreline that we were headed in the right direction. Three hours after that, we saw a vast jungle canopy stretching over the horizon. This was Parque Los Katíos, famous for housing many rare species of orchid, as well as armed guerilla groups and paramilitaries. Separating the canopy from the sea, stretching for 12 miles

as far as Triganá, was La Playona: beautiful but utterly desolate, a feeling that was reinforced by the brooding, nebulous sky.

I began to worry that the beach might be completely deserted, when we came across a wooden *cabaña* where a man and woman were watching us from a hammock. As we approached, the man leapt up and took my hand, shaking it warmly and welcoming me. This was my first encounter with Feliciano 'Feliz' Chaverra, the man I'd been seeking.

Wearing just a pair of shorts, he looked completely at home on the beach. Barefoot, muscled and sporting a dark, sun-kissed tan, he blinked as he came out of the shade. His sunken, sleepy eyes made him look almost turtle-like himself. As he greeted me with a brilliant smile, I felt instantly at ease.

Over a lunch of fried fish in coconut milk – freshly caught by Feliz and something of a staple in La Playona – I learnt a little about his life. Born in Acandí, he had become fascinated by the turtles as a child and, as there were few employment opportunities in the town, he had decided to dedicate his life to protecting the enormous reptiles and their eggs. '*Tengo las tortugas en mi corazón,*' he said. The turtles are in my heart.

With this realisation he had moved to the

beach and built the *cabaña* with his own hands: a kitchen leading out to a wooden patio with an attic roof, where he sleeps under a mosquito net. The patio has a view out to sea, and directly in front of it is a fenced-off plot of sand with little red flags marking where Feliz has buried the turtle eggs to protect them from what he describes as 'the enemies of the turtle': dogs, crabs and people.

He is based here, he explained, because although the beach is 12 miles long, the turtles only come to the soft sand that can be found in the first three miles. The rest is overgrown with vegetation and difficult for them to navigate. The sea is shallow here, the waves are relatively gentle, and there are rapid currents that will take them in and out (I discovered these for myself when I went for a swim and, as I walked out, the inshore current was so strong that it swept me off my feet).

After lunch, Feliz took to his hammock again. The turtles only come at night, in darkness, and he and his team of volunteers work from eight in the evening through to three or four in the morning, when it gets light again. The daytime is for rest and recuperation. While he slept, Liz Montoya, a biologist from Medellín and one of several volunteers helping him with his work, offered



Feliz carefully transfers turtle eggs from sand to bag, for transfer to a safer spot

to take me down the beach to see the area that we would be covering that night.

Liz has come to La Playona for the past three years, she said, because there was always a need for volunteers. Acandí is in Chocó, the poorest region of Colombia, where many people do not have running water or electricity. This poverty is combined with a lack of education: something that can be fatal for the turtles when mixed with what Liz described as the mentality of the *costeños* (the Colombian word for the people living on the coast). 'If you have money here,' she said, 'you spend it on rum and dancing.' And the turtles are, for impoverished locals, an easy way to make some fast money, by selling the eggs, meat or shells. An important part of Feliz's work has been trying to educate local people that the turtles will not survive if this practice continues, but it is a difficult thing to explain to people who are poor and hungry.

Feliz said that the eggs are often taken simply to feed the family, or sold to local restaurants for a few thousand pesos – enough to feed a family for several days. And although the meat of the leatherback turtle is not as sought after as that of the hawksbill, it can often end up in stews or soups in the same way. Some 80 per cent of people in Chocó live below the poverty line, according to the United Nations Development Programme, and unemployment on the coast is rife. Any extra income is welcomed.

I asked him later if the government had ever contributed anything towards his work, and he simply replied: '*Nunca*'. Never. For 15 years Feliz has worked without any access to

government funds, relying on volunteers and, occasionally, the input of Fundación Darién (Darién Foundation) a local NGO, which has helped him to equip the Grupo Investigadores Locales Acandí (GILA), his name for his team of volunteers.

Liz and I returned to the *cabaña* as it got dark, to find that Feliz had lit an oil lamp and was making mushroom soup, quietly cursing two of the volunteers, who earlier had killed and eaten a chicken that he had earmarked for our dinner. As we sat down, an army of insects swooped and crawled around us, attracted by the glow of the lamplight. Fireflies flickered above our heads and we had to shield our bowls with our hands to prevent

Completely at home on the beach, his sunken, sleepy eyes make Feliz himself look almost turtle-like

winged cockroaches from screaming out of the darkness to commit suicide in our soup.

Four volunteers arrived from a *cabaña* further down the beach as we were eating, and Feliz offered us all a *tinto*, a small cup of strong, black coffee, which, I discovered, was the key to being able to work all night. It was the first of many.

Over coffee, Feliz went over the preparations for the work ahead, and split the group into two. He, Liz and I would cover the first mile of the beach, while the four volunteers would

cover the next two. He laid out the equipment that we would need on the table: black sacks to collect the eggs in; syringes to inject a chip the size of a grain of rice into the turtle's skin so that it can be identified if it returns to the beach; chip readers; logbooks, pencils, radios and torches. Because white light confuses the turtles, this last item would be used as little as possible; this was also why everyone was wearing dark-coloured clothing.

Keeping in touch by radio, we split up and began patrolling our section of the beach. The sky was black, with no stars or moon. Feliz and Liz strode ahead as I stumbled along the sand, my eyes struggling to become accustomed to the dark. We didn't talk to each other so as not to frighten the turtles; only the noise of the sea swishing next to us broke the silence, until a crackle of the radio indicated that the other team had found their first turtle of the night.

Suddenly Feliz held up his hand, motioning us to stop, and flicked on his torch. I strained to see what he had found and, following the beam of light, could make out some strange markings in the sand. He slowly tracked up the beach, following the markings, and turned off the light as it fell on a shadowy presence lying on the beach.

The sight of a leatherback turtle out of the water was incredible. I knew that leatherbacks were the largest turtles in the world, but the first thing that struck me was just how enormous it was. At nearly two metres long and a metre wide, with a leathery carapace the size of an upturned bath tub, flippers like canoe paddles, and a bulky, wizened head, it looked to me like a creature from another time (the species is estimated to be more than 100 million years old, so this wasn't actually that far from the truth).

The second thing that struck me was that it was giving birth – or, to be more accurate, laying. This wasn't lost on Feliz, either: he whipped out a black sack and placed it in the hole that the turtle had dug in the sand. Squatting behind it, he acted as midwife, guiding the eggs out of the turtle's rear into the sack, counting them as he did so. In between, he patted its flanks and muttered encouragement as the eggs kept coming. The turtle, perhaps because it could not see what was going on, appeared sanguine about this process. Liz sat nearby, filling in the log with the date and time, how far down the beach we were, the weather conditions, the size of the turtle, and how many eggs it had laid. Feliz held up the sack and proudly told us it had

delivered 95. The average is between 80 and 100, so this was a good yield.

After it had been tagged, the turtle filled in the hole, flicking sand up the beach with its powerful flippers, before it began its slow and meandering journey back to the sea, circling a couple of times before committing to the water. It took this spiralling route so that predators could not easily follow its trail to the eggs, I learned, but we could do one better: we took the full sack up the beach to the fenced-off area in front of the cabaña. Feliz dug a hole and placed the eggs carefully inside before filling it in. Around 60 days later, he said, the eggs would hatch and the baby turtles would head out to sea.

In all, the two teams took eggs from five turtles that night, the last one returning to sea at around 3am. But, walking along the beach next day, I found signs of a turtle that the team hadn't reached in time. Its circling tracks led up the sand to a spot littered with broken white shells. Small telltale holes in the sand indicated that crabs had burrowed down, dug up the turtle eggs and eaten them.

It is difficult to save every egg, Feliz told me, with the limited resources that they have at La Playona. A few years ago he invited tourists to come to the beach, but he stopped after the groups of people got in the way and too many of them ignored the prohibition on flash photography. In the future, he said, he would like to develop the beach to become a centre for eco-tourism – a place where small, supervised groups can see the turtles at close quarters – but that would take more resources than he can currently provide.

Perhaps he won't have to wait too long, though. GILA is taking part in talks with

Fundación Darién, representatives from the municipal government in Acandí, and WWF Colombia, over proposals that La Playona should be declared a 'protected area'. One of the aims of the declaration, according to WWF Colombia, is that it will impress on the local community the importance of protecting the turtles. The declaration has not yet been rubber-stamped, but Feliz is encouraged that the government, among others, finally seems to want to help his life's work.

He would be more encouraged still were he to have heard the words of my 14-year-old guide as we left La Playona and walked back over the hill to Acandí. When I asked Edgar casually what he wanted to do when he grew up, he thought for a second, then declared that he wanted to work with the turtles, like Feliz. **E**

Patrick Steel is a freelance journalist



Markers in this fenced-off area indicate safely 're-laid' eggs.

Above: Feliciano 'Feliz' Chaverra



The leatherback

At one time abundant throughout our oceans, the majestic leatherback turtle is now classified as critically endangered, following years of exploitation and habitat loss. While adult turtles have few natural predators, the leatherback's prized shell has for years been the cultural accessory for tourists visiting islands in the Indian Ocean and Pacific, leading to a sharp decline in populations over recent decades.

The fourth largest reptile in the world, leatherbacks can grow up to 2.7m in length and weigh up to 900kg. Commonly migrating up to 7,500 miles annually in search of food and nesting sites, they are exposed to a wide variety of man-made threats throughout their 80- to 100-year lifetimes.

Although their size makes them vulnerable to overfishing, leatherbacks are most commonly caught accidentally, in drift nets laid by deep-water trawlers. It was recently estimated that 55,000 sea turtles are killed each year as by-catch in US waters alone.

The females generally return to the same beaches year after year to lay their eggs. Unfortunately, the beaches preferred by Leatherbacks – sandy and shallow-sloping – are also popular with humans. As a result, coastal developments have had a direct impact on both breeding sites and the harvesting of turtle eggs as a delicacy.

Due to its critical status, the leatherback has been the subject of several successful conservation initiatives. However, there is a long way to go until this unique species is secure. Global populations are now estimated at 30,000 individuals.

For more information:

WWF Colombia

www.wwf.org.co

Fundación Darién

www.trail2.com/fundacion/

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Wondering how to deal with cuts, grazes and lacerations? Forget all you've been told and keep them moist while they heal, says **Pat Thomas**



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



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From Somewhere, the 'designer rubbish' clothing label, has just opened shop in London's Notting Hill. Retail property is a risky business, and From Somewhere's doing so after 10 years in business suggests a confidence in the market – actual and potential – for high end 'eco clothing'.



Stuart Rose of Marks & Spencer – the high street king, selling 300 million items of core clothing a year – shares this view. 'Does eco clothing have some risk involved? Yes. But is it the right thing to do? Absolutely,' he says. Twenty million M&S T-shirts are now made of Fairtrade cotton.

Equally, internet 'eco boutiques' selling designer wear keep popping up, as do innovative eco-fashion lines such as Mumo and Wildlife Works. Many of these ventures involve ex-bankers – people generally able to sniff out a good investment.

At the Association of British Suppliers to the Clothing Industry's (ASBCI) recent conference 'Fast, affordable and sustainable fashion: can we really have it all?', the sustainability issue generated 'crucial' long-term business considerations. It was pointed out that there are handsome returns to be made for companies investing in sustainability initiatives: the Dow Jones Sustainability Index has outperformed the rest of the stock market for the last five years. From the high-end to the mass market, there is a strong case to be made for clothing retailers going eco. Green sleeves are the latest must-have.

Matilda Lee, Green Pages Editor

★ READER OFFERS ★

- 78** 15% off Who Cares Food products
- 81** Free E-cloth pack when you spend £60 at Ecotopia
- 85** Ecologist cloth nappy trial pack for just #26
- 86** A hemp 'Bag for Life' for only £9.99
- 88** 15% off all Neal's Yard products

July/Aug

BY LAURA SEVIER

Go festival hopping; learn how to cook mystery vegetables; head for the hills during National Parks Week; join the Christian Aid Cut the Carbon march and make the most of the berry season

13-19 August National Allotments Week

Renting an allotment is a way to grow your own fresh, local and affordable fruit and veg. If a whole allotment is too much, rent half a plot or share with a friend. Contact your council for details. More info: www.nsalg.org.uk, www.allotments-uk.com and www.theecologist.org (Paul Kingsnorth blog)

Three energy-saving ECO TIPS

1. Dirty fridge coils use up to 30 per cent more energy. Dust your coils.
2. Turn off appliances on standby – save eight per cent on home energy.
3. Go the whole hog: invest in a solar water heater – save a quarter of home energy.



Photo: Christian Aid/M Gonzalez-Noda

14 July-2 October Cut the Carbon march

Christian Aid's 1,000-mile Cut the Carbon campaign march will be the longest protest march in UK history, highlighting the devastating impact global warming is having on developing countries and putting pressure on the Government to reduce the UK's carbon emissions by five per cent year on year. Join the 20 core walkers for part of the route or attend one of concerts throughout UK cities. For details, visit www.christianaid.org.uk

Growing green Wild gardens

Make your garden wildlife friendly:

- Go organic – avoid synthetic pesticides and help support birds, bees and butterflies.
- Plant wildflowers and nectar/pollen producing plants. If you have room, plant a native tree and hedge.
- Make a wildlife pond. Even an upturned dustbin lid with fresh water will encourage birds to drink and bathe.
- A few logs in a cool place will encourage wildlife.
- Relax! Stop tidying and trimming the lawn every few days.

In bloom: wild flowers

- Along sunny hedgerows, look out for the pale mauve cushions of field scabious, which attract a good range of butterflies.
- Lesser knapweed is a sturdy purple flower found in meadows, which both butterflies and bumblebees love.
- Around wild ponds and lakes the wetland flora will be flourishing. Purple loosestrife should be in full flower, its tall spires of dark pink flowers attracting many bee species. By Jenny Steel, author of *Wildflower Gardening* (Webbs Barn Designs, £9.50, see www.wildlife-gardening.co.uk).



Photo: JENNY STEEL

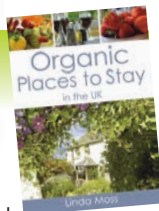
Website of the month Veg Box Recipes:

www.vegbox-recipes.co.uk

'Not knowing how to use the mystery vegetables that arrive in the veg box is the number one reason people cite for giving up on a box scheme,' says Clare Jaques, who set up the Veg Box Recipe website. 'I wanted to make it easier for people.' If you're faced with a kohlrabi, a black radish or a white aubergine and don't know what to do with it, look it up on the 'Rogue's Gallery'. With more than 250 recipes that show multiple ways of enjoying each vegetable, this is the resource for veg boxes.

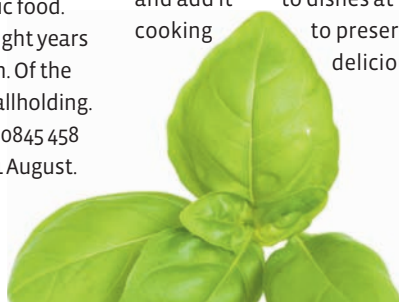
Pick of the month Organic holidays

What do a remote B & B on the Shetland Isles and an 18ft tipi near the Black Mountains have in common? Apart from being in beautiful countryside, they serve or provide access to organic food. Author Linda Moss started collating information eight years ago for her website www.organicplacestostay.com. Of the 500-plus entries, half are on an organic farm or smallholding. **Reader offer:** Buy the book for £8.95 (free p&p). Tel: 0845 458 9910, quoting 'Ecologist Reader Offer'. Valid until 31 August.



Herb of the month Basil

One of the easiest herbs to grow, basil will taste great if there's a lot of sun. Use basil immediately after picking and add it to dishes at the end of cooking to preserve its delicious aroma.



Seasonal food

Fruit

Apple
Berries
Black, Redcurrants
Cherry
Cobnut
Elderflower
Pear
Plum
Rhubarb
Tomato

Vegetables

Artichoke (globe)
Aubergine
Bean
Beetroot
Broccoli
Cabbage
Calabrese
Carrot
Cauliflower
Chard
Courgette
Cucumber
Dandelion
Endive
Fennel
Garlic
Kohlrabi
Leek
Lettuce
Onion
Pea
Potato
Pumpkin
Radish
Rocket, wild
Sapphire
Shallot
Sorrel
Spring onion
Squash and pumpkin
Sweetcorn
Turnip
Watercress
Wild mushroom



Photo: E.R.J. DAVEY

30 July–5 August National Parks Week

Head for the hills, the coast, the moors, or the woods! Havens for rare species and people alike, the UK's 14 National Parks are also the ultimate green gym. Special events include sailing trips in a traditional Broads Wherry, and a picnic in the Park on the North York Moors. For the kids, there's a seaside safari in the rock pools of North Devon (left), led by a Ranger from the Exmoor National Park. www.nationalparks.gov.uk

12–18 August Eco course

Biodynamic Agriculture: Beyond the invisible is a one-week study of biodynamics, at Emerson college, East Sussex. Tel: 01342 822238, email info@emerson.org.uk or visit www.emerson.org.uk



Photo: DOMINIC SEARCH

Green festivals

5–9 July Blissfields Festival

Music, woodworking, tractor rides and permaculture display. Bradley Farm, Hampshire. www.blissfields.co.uk

1–5 Aug The Big Green Gathering

Everything from a permaculture plot to a children's fun fair, hip hop to tribal music, and burlesque cabaret. Panellists include Tony Juniper and Brigit Strawbridge. Near Cheddar, Somerset. www.big-green-gathering.com

16–19 Aug Green Man Festival

In the beautiful setting of Glanusk Park, Brecon Beacons, Wales. www.thegreenmanfestival.co.uk

24–27 Aug Greenbelt Festival

Europe's largest Christian arts and music festival. Music line-up includes Billy Bragg and Soweto Kinch; speakers include FoE's Tony Juniper, and Ann Pettifor of Operation Noah. Cheltenham Race Course. www.greenbelt.org.uk

7 July

Live Earth: Concerts for a Climate in Crisis

'The Climate Crisis will only be stopped by an unprecedented and sustained global movement,' says host Al Gore. With nine concerts, 100-plus headlining music acts, 24 hours of music and more than 100 simple actions and tools to make a difference today, tune in to watch or hear the concerts on BBC TV and Radio or on MSN. Visit www.LiveEarth.MSN.com and www.liveearth.org



LIVE EARTH

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11 August

National Moth Night

Britain's annual celebration of moths and moth recording. www.nationalmothnight.info/

Photo: VICTOR ADAMS



LOCAL HERO

Tony Spacey of Littleover Apiaries

Tony Spacey is a former paratrooper turned expert beekeeper with decidedly un-honeyed words for just about everything. No matter, argues **Jeremy Smith**, when the real proof is in the honey

Maybe I'd seen a few too many episodes of *Miss Marple*, but I was really excited. I've never been up close to a beehive, never handled the honeycombs, never worn the protective gear while surrounded by Tennyson's 'murmuring of innumerable' bees. I had images of croquet and freshly squeezed lemonade in the vicar's back garden.

Bees may be just insects, but their social structure of queen, drones and workers is remarkably complex. They have been shown to be able to learn at a level normally associated with vertebrates. Famously, they communicate direction and distance from the hive to nectar sources using a mysterious dancing sign language known as the 'waggle dance'. Karl von Frisch earned a Nobel Prize in 1973 for correlating the patterns of the dance to the location of food from the hive, discovering that the dance's orientation correlates to the position of the sun, while the length of the waggle correlates to the distance from the hive. A form of bee semaphore.

It was this fascination that set me off last month to meet Tony Spacey, owner of the largest honey business in the UK. Winner of multiple awards. Sole producer in the country of active honey, our equivalent of New Zealand's famed superfood manuka honey.

'I'll be in the car park,' said Tony,

'You can't miss me. Blue Range Rover. Number plate 400 BEE.' I jumped in, and as we sped off in clinically clean, plush leather interior (striped in decidedly bee-like way), I have to ask. 'BEE I understand, but why 400?'

'Cheap,' comes the reply, with a brusque practicality to which I am about to get accustomed. A little more than five minutes later he swings the car not onto a rutted track to some windswept field of heather, but into a small industrial estate, stopping in front of the sign that reads 'Littleover Apiaries – the home of English honey.' Not a bee in sight. And it's raining.

No sweet talk here

Sitting in his small office a couple of minutes later, clutching a cup of tea made by a member of his mostly Polish workforce ('we pay them more than the English, because they work harder'), trying not to look at a scantily-clad Miss May on the 'Birds and the bees' calendar hung behind his head, I begin digging for a life story, wanting to find a romantic image under the gruff, functional surface.

'I got into bee farming because my hands won't fit up their arse,' Tony tells me by way of introduction. 'I come from a farming background in southern Africa. When I was four I saw my grandfather's arm well and truly buried in an uncomfortable place in a cow and the old boy turned and smiled at me and said, "One day, you can do this." From then on I decided to become a soldier.'

He spent 18 years as a paratrooper,

leading bayonet charges in Angola, winning several medals and generally being 'not really a pacifist'.

On leaving the army he came to England. He'd had some dealings with honey in the past, as his family kept 1,000 hives (which wasn't much by way of size in southern Africa but is huge by UK standards). He says he looked around the UK sector and felt the general standards were 'absolutely appalling'.

In particular, he was stunned at the lack of technical knowledge. 'British honey has evolved over the years to be a choice of runny or set,' he explains. 'Everything's mixed together, the cropping methods used by the average beekeeper are laughable, appalling, the quality control is non-existent, hygiene control in the industry is the worst in the world. Sixty per cent of the members of the BBKA [British Beekeepers Association] are operating in a totally illegal manner, and they call themselves the trade organisation. I wouldn't join that organisation if it came to me on bended knees.'

So, seeing an industry ripe for improvement, just five years ago he set up as a beekeeper. He didn't hang around. Within a year he was the biggest producer in Derbyshire. Within two years he was the biggest in the East Midlands. Four and a half years later he was the biggest producer in the UK, with more than 1,000 hives, handling between 250 and 300 tonnes of British honey each year.

And not just the biggest, but quite

“

I got into keeping bees because my hands won't fit up their arse



possibly the best. All of Littleover's honey is cold extracted and filtered without the need for additional heat, protecting and keeping intact the natural enzymes and proteins that make honey such a healthful food. He shows me a test certificate revealing that the equipment he uses to bottle his honey is exceeding legal minimum hygiene standards by a factor of 1,000. It's not that he thinks what he is doing is particularly impressive, rather that it 'just shows how slack the industry is. If we can do it, everyone can'.

Most importantly, though, Littleover doesn't attain these standards through the use of untold amounts of chemicals to keep its machinery clean, but through manpower and high pressure steam cleaning, which creates no residue. 'People know that even though you wouldn't taste the chemicals, if they eat our honey they aren't there anyway. People want as natural a product as you can get and

Top: Each honey is labelled with the name of the flower it comes from.

Above: Mixing honey with distilled water to measure its electroconductivity, and hence its mineral content – which in turn is a gauge of its quality.

that's what we provide them with – single flower honey, the way the bees have produced it.'

Everything for Tony is about reducing the amount of human interference after the honey leaves the hive. We can't improve the honey, is his argument, but we can do everything possible to keep it as close to what it was when it left the hive. Bees do their utmost to avoid mixing honeys brought in from different flowers, and Tony shows me the different coloured strata from a hive to prove it. So he produces single flower honeys rather than the blended honeys many other producers create (if the honey you see in the shops doesn't name the flower in the title, such as borage, nettle or heather, it's blended). It's harder work, and his honey costs more to produce, but it means the end result is 'as the bees intended'. It's similar to the difference between a single malt whisky and a blended one. Each honey has a unique taste, depending upon the flower involved.

Not that he stops there. He's also the UK's only producer of active honey, a superfood considered to have remarkable healing properties. All honey has some antibacterial activity, the result of hydrogen peroxide, which forms due to the presence of the enzyme glucose oxidase. However, how antibacterial honey is can vary hugely, with some no more

so than sugar, while others can be more than 100 times more potent. Around 18 years ago, researchers in New Zealand discovered that some samples of honey formed from bees visiting manuka plants has remarkable healing properties, especially applied topically for skin disorders and wounds that are not healing properly. Applying honey direct to the wounds allows them to remain moist, which makes for easier, less painful, removal of dressings, and scar-free healing. When eaten, active honey is said to help digestive disorders and stomach ulcers.

Active honey also contains nearly every known nutrient required for a balanced human diet. Other than roughage and water, it contains everything needed for complete and balanced human nutrition.

For reasons as yet unknown, it is not possible to know whether honey is 'active', or to what degree, until one has tested it. It neither tastes different, nor looks different. It is only after expensive laboratory testing that one can be sure how 'active' the honey is and then legally claim to be selling active honey.

Pure, natural and tasty

There's something disarmingly honest about Tony. He's vociferous about how open he is, about his best practices, telling me he made enemies in the honey industry for speaking the truth, and that he was threatened by bigger honey producers when he started. He states clearly that he'll show anyone any part of his industry, and challenges anyone to show him a better product. He may be brash, but he's won awards for the honeys' quality: perhaps most significantly, in the past two years they have won eight Gold, Silver & Bronze awards at the Great Taste Awards, the UK's premier fine food awards.

Not that he holds great stock by these (despite promoting his victories prominently on Littleover's website). He may have won them eight times, but he says he won't support the Great Taste Awards any more because they have too many categories, thus



Above: Tony checks the drone brood for signs of varroa mites.

Below: Full of wild flowers, this conservation margin in Shardlow, Derbyshire, is one of Tony's 300 hive sites in the UK

debasement. As he sees it, it's just a marketing con, trying to get the Great Taste Awards logo on as many products as possible. As he tells me this, I start thinking about the number of products I've seen bearing the logo, and wonder if he might not have a point.

Devalued awards are only one of the many problems Tony is more than willing to hold forth on. There's been a lot in the press in recent years about the dramatic decline in bees in the UK and abroad. [The *Ecologist* wrote about it last issue.] Yet, as Tony sees it, bees aren't in trouble in the UK because of global warming (which he's not sure is down to fossil fuels) or Colony Collapse Disorder ('complete bunkum'). No. It's amateur beekeepers. Tony tells me we are the only major country allowing amateur beekeepers to make and sell their honey. I've always thought it seemed rather a nice thing, all part of the village fête approach to life I cling to nostalgically. Tony's having none of it.

He explains that thousands of amateur beekeepers nationwide have overused the treatment to combat a disease called varroa, and the end result, over a period of time, has been the development of treatment-resistant mites. 'For every good amateur beekeeper there's thousands that shouldn't be allowed to keep goldfish, let alone bees. People just don't realise the potential damage that they are doing.'

His argument bears some weight. If you keep cattle or pigs and keep them badly, you're being cruel. But without direct contact you don't affect the farmer five miles up the road. But bees fly for up to seven miles, so if

you keep them badly and they are infected, they could infect bees from colonies up to 14 miles away. He cites several different instances of bad management to back up his case, such as one in Staffordshire last year where a senior amateur beekeeper was selling nucleus colonies (starter colonies) which he knew had foul brood, a disease so contagious that, once proven, DEFRA come along and dig a hole three foot wide by three foot deep, light a bonfire in the bottom and tip the hive into it – 'foot and mouth for bees', as Tony has it.

'We are the last Western country that allows unlicensed beekeeping,' he explains. 'The sooner we ban it the better for the environment, the better for the bees and certainly the better for the honey industry.' He adds that just a couple of weeks earlier, DEFRA's senior bee inspector told him that 85 per cent of British bees should be put down because they are so badly bred.

In fact, Tony explains, the situation is now so bad that most commercial

honey producers in the UK are having to import their queens, either from Scandinavia, or more typically from the Greek Islands. It's a system that has little of the romance of local beekeeping. They find an island too remote for bees to reach other islands, eradicate the native strain of bee, and then breed a stronger strain of bee – ironically, originally an English variety, the Buckfast, but bred in Greece to ship to the UK for our hives.

Tony may not conform to my cherished beekeeping stereotype. But then, so what? He strives to deliver a pure and natural product, 'as the bees intended'. He provides a natural pollination service to farmers for miles around. He is the only producer in the UK of active honey, thus providing a locally grown product to UK shoppers that previously they could buy only from the other side of the world, in New Zealand. He even pays his workers well. What more do I have the right to judge him on? **E**



For every good amateur beekeeper, there's thousands that shouldn't be allowed to keep goldfish



Where the wild things are



Paul Kingsnorth tears himself away from damselflies and frogs to explain the benefits of encouraging wildlife onto your plot

I can barely move in my orchard at the moment without stepping on a frog. Just walking from tree to tree is a nerve-racking experience. I haven't cut the grass for weeks, you see, and it's going crazy. The reason for this is that I've been too busy. Too busy on my next-door allotment, frantically growing food and fighting off all the beasties who want to eat it before me. And too busy writing columns about being too busy. I've come up with a solution, though: I am pretending that the grass is knee-length deliberately, because I'm really creating a hay meadow for wildlife.

Which, as a matter of fact, I am: just by default rather than design. It turns out to be one of the best things I've done in a while, because the hay meadow that was once my orchard (and still is, once you plunge in and hunt down the trees) is proving a haven for any number of wild and wonderful creatures.

The frogs are the most obvious. I have no idea where they came from: there's no pond within hopping distance. But they're everywhere, bouncing about in the long grass. Bumblebees love it too, because

wild flowers – again, who knows where they came in from? – have started growing amongst the waving fronds. There are crickets and grasshoppers, lacewings and sparrows, slow worms and blackbirds, hoverflies and millipedes and beautiful, metallic-coloured weevils crawling laboriously up the stalks. Rarest of all is the dipping, shrieking green woodpecker that sometimes visits, though he never stays long. He looks at my dwarf apple trees with contempt, then takes himself somewhere older and woodier.

It's easy, when you grow your own food, to neglect the environment that you grow it in; to overlook it or to see it as something to be beaten down, as you hack out a space for your carrots or sweetcorn. But encouraging wildlife as you grow can be as important as what you grow for yourself, and it's a key part of practising what you preach. An environmentalist tries hard to see the links between people and the rest of nature, to strengthen and understand them, and to help them survive and flourish.

This is why growing with chemicals is so destructive. It severs that link: sees the soil as just a machine to produce food for us, rather than a place, harbouring life, some of which we can use to our advantage if we do so with respect and understanding.

I don't want to come across as

“It's good to ensure that you, and not the slugs, aphids, carrot flies and flea beetles, get to eat your crops

some ageing hippy here, especially as I'm not that old – but these links are important. This is why any self-respecting food grower should try to make some space within their growing area, however small it may be, to encourage wildlife to survive and flourish.

There are any number of reasons to do this, but here are just three. First, to make sure I've got your attention, the personally useful one. Wildlife – of the right kind – is good for you, and for your crops. Specifically, it's good for ensuring that you, and not the slugs, aphids, carrot flies, cockchafer and flea beetles, get to eat those crops. Encourage the right kind of predators, and your work as an organic gardener becomes a lot easier.

For example, ladybirds, lacewings, spiders and harvestmen will consume tons of aphids and other little pests. If you have the money and inclination you can buy yourself a fancy ladybird nesting box, but an easier way to encourage them is not to clear your plot or garden completely in autumn: leave some old dying plants or plant litter lying about over winter, so they have somewhere to hibernate.

Or what about hedgehogs, or those friendly frogs? They can get through whole bucketloads of slugs. A few undisturbed piles of wood, stones, planks or corrugated iron will provide them with good hibernation sites. Does your shed have holes in it that



For where to buy organic food and drink see the listings beginning on p77 of our shopping guide

you've been meaning to patch up? Don't. Spiders, beetles and maybe even queen bumblebees will find them perfect overwintering sites, and will emerge next April, with a spring in their step, to feast happily on your pests.

The second reason to encourage the wildlife on your plot or garden is not quite so self-centred. Wildlife, as we all know by now, has been having a hell of a time of it in recent decades. Intensive farming has caused a virtual holocaust in the countryside: so much so that urban gardens and allotments are now prime sites for species that were previously found only in rural areas. Climate change is set to make this problem worse. So the more havens you can provide, the better. Areas of long grass, uncut hedges, piles of old rotting wood, bird nesting boxes – it's all good.

Best of all is a pond. I have a small, postage-stamp-sized back garden, but I still have a pond, and it is teeming with frogs, toads, newts, pond skaters, damselflies and the most weird and wonderful microscopic freak creatures. None of it is due to me; they just arrived, somehow, and colonised it. A pond mostly looks after itself, and if you can create one (on your own, or perhaps with others if you share an allotment or can find some unused communal space), it will attract everything from bats to waterfowl.

All this, of course, can be a bit of



work, and it's not always successful. You're trying to create, or restore, an ecological balance which will be useful for you, and that's going to take you some time.

I still have slugs by the million on my allotment, and about a zillion flea beetles seem to have reduced my young broccoli and kale to dust this year. Trying to encourage the right wild beasties is a tough call, but when you're successful, it will fill you with joy, even when the frogs get between your toes.

Which brings me neatly on to the final reason for donating some space around your growing site to wildlife: simply because it's wonderful. Yesterday I sat and watched a large red damselfly hover above my pond. I didn't move for five minutes, I was so transfixed, just gazing at it. Its wings moved so fast that it looked like it was suspended in air with nothing to support it. It looked utterly alien, and utterly magnificent.

As far as I am concerned, I need no other reason to share my vegetable patch with other creatures. They make it all worthwhile. As long as they leave the broccoli alone. **E**



Trying to encourage the right beasties is a tough call, but when you succeed it will fill you with joy

Useful resources

- The Chiswick Horticultural and Allotments Society are creating a wildlife allotment. Read more about it here: www.chsw4.org/mainpages_files/page0008.htm

- Wandsworth Council have a useful month-by-month guide to encouraging wildlife: <http://www.wandsworth.gov.uk/Home/EnvironmentandTransport/Parks/Allotments/SeasonalWildlife.htm>
- Froglife is the ultimate resource for encouraging and protecting amphibians: <http://www.froglife.org/>

- The RHS book *Wildlife Gardening for Everyone*, by Ecologist writer Malcolm Tait (Think Publishing, £12.99), is highly recommended.



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

Contact me

With questions, comments or anything you think I should know. Email: growit@paulkingsnorth.net





Bacchus' warning

It's hardly a life of exotic travel and long lunches. According to **Monty Waldin**, today's wine writer is preoccupied by climate change and how growers can help to combat it

Wine writers are often thought to lead glamorous lives, jetting off to California, Chile and Champagne to quaff priceless bottles over legendarily long lunches.

In reality, most wine writers spend much of their working lives at their laptops, often trying to make sense of statistical spreadsheets covering, say, how much wine the world is drinking (rising), producing (more than we can drink) and, latterly, how much hotter the world's wine regions are getting.

During a seminar last year at one of the foremost wine universities, UC Davis near San Francisco in California, US climatologist Greg Jones of Southern Oregon University revealed that vines in many European regions are budding, flowering and ripening weeks earlier than just a few decades ago.

In other words, while some scientists continue to deny that global warming exists, vines know the truth.

Jones predicted that all of the 27 major wine regions he analysed will

grow significantly warmer over the next few decades. Only areas like South Africa, whose vineyards are already among the hottest in the world, will show relatively minor temperature rises. But Portugal, whose coastal vineyards are cooled by the Atlantic, will show some of the most significant rises, partly as the ocean itself warms, causing prevailing winds to heat up.

Indeed, the 2006–2007 'winter' has caused near-panic in some European wine regions. Instead of the freezing temperatures during which growers usually prune their vines wearing thermals, ear muffs and thick gloves, many regions were so warm that the job was done in shorts and T-shirts.

Many Mediterranean regions, the south of France especially, also had abnormally low rainfall. Winter rain is needed if the vines are to produce economically viable yields of grapes – and, unlike in New World countries like Australia, Argentina, South Africa and Chile, irrigation is banned in Europe for the vast majority of vineyards.

Winter rains allow vines to 'fill up

“
While some scientists continue to deny that global warming exists, vines know the truth

the tank' for the summer ahead. But when the rain finally arrived – in mid-February – wine growers were worried that because it was still so warm the vines would start budding, thinking it was spring already.

Spring rains falling onto soils that are starting to warm up after the winter is usually what kick-starts the vines into growth: bud burst, then growth of green shoots and their tiny, embryonic grape bunches, then flowering (when the grape bunches are fertilised), then ripening of the grapes ready for autumn harvesting.

Luckily, what little rain did fall coincided with a cold snap; but had the vines budded in mid-February rather than late March, it would have meant a grape harvest as early as July.

Now, growers are worrying that as the vines had so little winter rainfall, they will stress if the summer is hot. Overly stressed vines produce poor quality wines: raisin-tasting reds and flabby, hard-to-digest whites. So how can growers combat global warming?

Firstly, they can stop using chemical



Tasting notes

1) Pacina 'Chianti Colli Senesi' 2003, Tuscany

A bright but firm red fermented with natural yeasts and bottled unfiltered. A 'Colli Senesi', i.e. from the Siena hills, it is made from mainly Sangiovese, plus a dash of cherry-scented Cilieggiolo and mulberry-scented Canaiolo. 2003 was a hot year, so drink now or at least before Christmas, to capture its bright fruit at its clearest. Pacina's owners also offer guest accommodation: see www.pacina.it for details.

3) Tonon, Villa Teresa, Prosecco del Veneto

A semi-sparkling white combining tart green apple and sweet peach flavours, made by the Tonon family from organic Prosecco grapes grown in Treviso province, near Venice. The price is kept down by using a beer-style cap (rather than more expensive cork). Drink on its own, as part of a Kir Royale, or blend with puréed apricot or peach as a smoothie. See www.vintonon.it for more details.



8) Gagliasso, 'Ciabot Rus, Dolcetto d'Alba DOC', 2004, Piemonte

Luca Gagliasso has taken his family's traditional winery into the modern, by adopting organic methods in the vineyards (this wine is in conversion to organic) and a more technical approach in the cellar. This dry red wine is made from the Dolcetto grape (Dolcetto means 'the little sweet one'). Luca captures the Dolcetto's bitter-sweet berry character by fermenting it cool and refusing to blast it with oak.

Drink during the next 12 months with quiche, pizza and simple pasta dishes.



2) Tomas & Giesen 'Shabaka', Primitivo di Puglia IGT Rosso, 2004

Full-bodied dry red from the cult Primitivo grape, grown on 40-year-old vines in Puglia, southern Italy. A winemakers' collaboration by German Stefan Giesen, Italian Fabrizio Tomas and the Pacina estate's Stefano Borsa, they fermented the grapes at lower than usual temperatures to keep the wild plum flavours fresh. A touch of French oak rounds out these flavours. Drink from now until 2009.



fertilisers, which are environmentally costly to produce and use, aside from the energy used to transport them. Organic growers are encouraged to use compost made from locally produced manures. Composting is a great way to recycle biodegradable materials – such as grape skins, stalks, even paper and cardboard from winery offices; adding a bit of manure helps it all degrade in the right way. Thus a waste stream becomes a fertility source.

Secondly, organic growers try to keep their vineyards as green as possible, either by allowing native grasses and flowers to grow on the earth between the vine rows, or by sowing seeds there (clovers, barley, vetches and beans are popular choices). Keeping the earth grassed

means that when tractors do pass, there is less risk of dust eroding up into the atmosphere – which may unlock carbon buried in the soil.

The mania for ungrassed, 'weed-free' vineyards – a look often favoured by ignorant wine journalists – encourages growers to use weedkillers or to plough far too often. Each time vineyards are ploughed, carbon, as well as dust, flies up into the atmosphere.

Carbon is best left in the soil, both to minimise global warming and because it is a key building block for soil micro-organisms. And if soil is full of soil micro-organisms, when rain does fall, it is absorbed more easily.

One reason flash floods are increasing is because farmland has lost its capacity to soak up rainfall, due to industrial-style farming. Floods have devastated parts of famous wine regions in the Rhône valley, Provence and Languedoc-Roussillon in recent years. So organic growers have a positive part to play in reducing the wine industry's environmental footprint.

Wine writers critical of organics should consider this the next time the jet fuel burns on their way to another glamorous vineyard location... **E**

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See left for full tasting notes

- 1 La Schiaccionaia 'Trasubie' Sangiovese 2004, Tuscany
 - 2 Rovero 'Barbera del Monferrato' 2005 Asti, Piemonte (x2)
 - 3 San Martino 'Tito, Terre di Villa Rovere Sangiovese' 2003
 - 4 Il Conventino 'Rosso di Montepulciano' 2004, Tuscany
- (Tasting notes in July/August issue)**
- 5 Pacina 'Chianti Colli Senesi' 2003 Siena, Tuscany
 - 6 Tomas & Giesen 'Shabaka', Primitivo di Puglia IGT Rosso 2004
 - 7 Tonon, Villa Teresa, Prosecco del Veneto (x3)
 - 8 Gagliasso, 'Ciabot Rus, Dolcetto d'Alba DOC' 2004 Piemonte (x2)

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The little black dress goes green

It's amazing just how 'eco' dressing up for the proverbial night on the town has become...







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Vintage, £8 from [www.
absolutevintage.co.uk](http://www.
absolutevintage.co.uk).

'Alicia'
vegan leather bag in ink by
Matt & Nat, £45 from [www.
mattandnat.com](http://www.
mattandnat.com)



Tiffany dress
by People Tree,
£150. Handmade
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embellished with beads and
knotted metal thread across the
bust and straps. Ties high on the
waist with a silk sash. Available
from www.peopletree.co.uk



'Bapti' dress
in PLA (corn) by
Rianne de Witte,
£222 from [www.
thenaturalstore.
co.uk](http://www.
thenaturalstore.
co.uk).

Recycled wooden-box-and-
leather on gold necklace by
Kirsty Kirkpatrick, £35 from
www.kirstykirkpatrick.com



**Fairly made
cotton dress**
by Maria Gracia
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Available at The
Dispensary, 200

Kensington Park Road, London
W11. Polka-dot tights, £8,
available from Absolute Vintage,
www.absolutevintage.co.uk



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5DX, tel: 020 7434 9666



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enamore.co.uk](http://www.
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042 for stockists.



Celia dress in
organic cotton
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Hamnett, £195.
Also in white.

Available from
www.katharinehamnett.com.
Kirsty Kirkpatrick shattered star
leather mustard mixed chains
made from recycled materials,
£30. Available from [www.
kirstykirkpatrick.com](http://www.
kirstykirkpatrick.com)



**Juniper three-
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Terra Plana,
£95. Made from
recycled quilts
and chrome-

free leather uppers. From [www.
terraplana.com](http://www.
terraplana.com) and shops at 64
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**Organic cotton
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Natural Collection,
£27.50. Available
from [www.
naturalcollection.
com](http://www.
naturalcollection.
com). Kirsty Kirkpatrick wooden/
circular blue single red stitched
necklace, £14. Available from
www.kirstykirkpatrick.com

**Organic cotton
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'Lola' dress**
by Katharine
Hamnett, £175
from [www.
katharinehamnett.com](http://www.
katharinehamnett.com). Wool
Spider web shrug by Ivana Cavallo,
£140 from [www.thenaturalstore.
co.uk](http://www.thenaturalstore.
co.uk). Sandur Slouchy bag by
Ciel, £48, call 01273 720 042 for
stockists. Striped cuff bracelet
by Beaucoco, £32, available from
www.beaucoco.co.uk



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**Piebald Western
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Seashell Anchor
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Jakester organic
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Howies, available from
www.howies.co.uk



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cravat, refashioned
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both by Junky Styling. Available
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Ollie Trolly, £22; Ragga Muffin,
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Available from
www.thtc.co.uk



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Fashion Direction:
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Fashion Assistant:
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Junk interiors

Oliver Heath tells **Laura Sevier** how scouring scrap yards and flea markets got him a houseful of wasted treasures

I got into finding and reusing things from an early age,' says designer, architect and founder of Ecocentric, Oliver Heath. 'When I first moved to East London after six years of studying I was penniless and jobless – but I did have the time and resources of being near Brick Lane. I wanted to furnish the flat on a very low budget but in an exciting way.

'The key to the reused aesthetic is being open – it's about not being limited to the conventional idea of what something is for. This house has developed over a number of years. The idea that a home can be completely filled with new things is ridiculous, our lives are not like that. They're made up of layers of things from a series of ages. New items have a place alongside second-hand, vintage and items from your family and friends.'

Last year, the UK threw out 1.8m tonnes of bulky household items, mostly furniture and white goods. In our throwaway culture we've got used to binning things when they're broken or unwanted. Almost 2m tonnes of wood waste is sent to landfill each year in Britain. Reusing saves raw material and the energy used to process and transport new goods. It also reduces landfill waste. What may be useless to one person may still be useful to someone else.

Reuse, reclaim or recycle

Furniture Reuse Network (FRN)

Over 300 reuse organisations in the UK, which collect and redistribute unwanted furniture and electrical goods, selling it at affordable prices: www.frn.org.uk

Good Wood Guide

Choosing and using timber: www.goodwoodguide.com

SALVO

Online directory of antique, reclaimed, salvaged and green materials: www.salvo.co.uk

Waste Resources Action Programme (WRAP)

Wood recycling service – where to buy and what to use it for: www.recyclewood.org.uk

Free Cycle Give or take for free: www.freecycle.org



Above: The mirrors and frames are from local markets. I think this flat has got a sense of fun and ingenuity about it. In my mind it marks the early stages of my sustainable design.

Right: I found this old army barber's chair in pieces in a Brighton scrap yard. I fixed it and took it to an upholsterer. I like the idea that you can mix and match different ideas to create a unique piece.

Far right: All glass tableware is made of recycled glass. Salt and pepper shakers made from old snooker balls. Ecocentric, www.ecocentric.co.uk





Above left: These wood panels above the bed were old fencing panels I found in a reclaimed wood yard.



Above right: The work surface is recycled aluminium print sheet from a local printers. The cage was a Post Office sorting box.



Below left: This enormous table is an old leather-cutting table. I redesigned it so it could seat eight to 10 people. The upper rim can either be lowered to make it bigger and seat 20, or act as a Japanese-style bench, or the whole table can be hoisted up to make space.



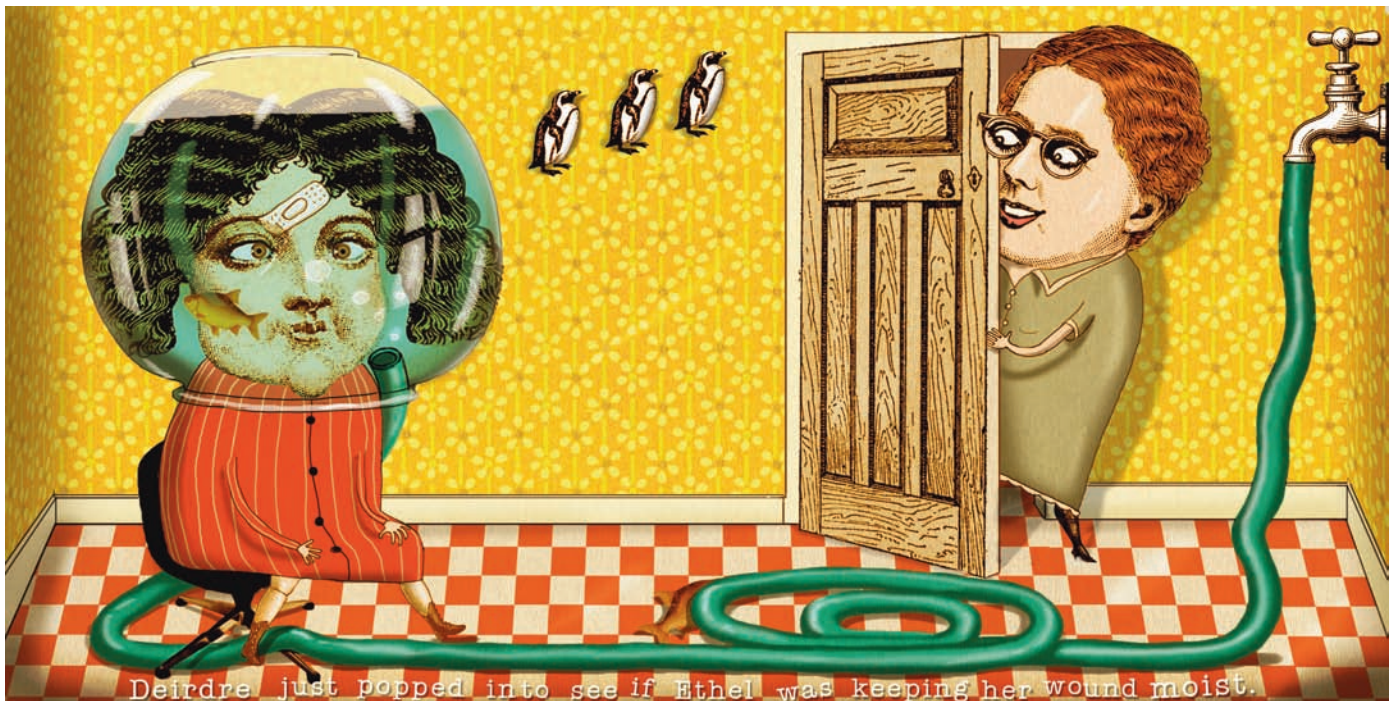
Below right: I dragged this chair out of the sea in Brighton in the early Eighties. I painted and covered it and here is over 20 years later. The jukebox is second-hand



How to be healthy

Wound healing

Wondering how to deal with cuts, grazes and lacerations? Forget everything you've been told and keep it moist, says **Pat Thomas**



Your skin is your body's biggest organ and plays a large role in keeping you healthy. It helps to regulate body temperature and acts as a barrier, keeping body fluids in and bacteria out. The skin also acts as a first-alert system by registering heat or pain – signals that can spell risk of injury. Given optimum conditions, the human body is remarkably efficient at repairing injuries to this amazing wraparound material.

Yet for years, as in so many areas of medicine, we have tried to improve on nature by applying sutures, harsh antiseptics and lots of dry, absorbent bandages to 'help' wounds heal better. In recent years these practices have been put under scrutiny – and many of them have been shown to be more destructive than helpful.

For instance, even though a

healthy body is well equipped to fight off invading bacteria, wounds have been rubbed with alcohol, antibiotics, iodine, mercurochrome, merthiolate, hydrogen peroxide and other medications to keep them 'clean'. Today, antiseptics such as hydrogen peroxide, povidone iodine, acetic acid, chlorohexadine, cetrinide and Dakin solution (sodium hypochlorite) all find a place in many a family medicine cupboard.

Unfortunately, many of these strong antiseptics can also interfere with the body's own healing mechanisms. Cleaning a wound is often the first hurdle at which we fall, since antiseptic solutions can interfere with the process of wound healing in several important ways.

All wounds need to be cleaned before they are treated. The problem is that antiseptics don't just kill germs, they also kill beneficial leucocytes,

“
Current thinking is that all but the worst wounds can be effectively washed with a saline solution

the body's own bactericidal cells, as well as fibroblasts – cells that eventually form new skin.

Current thinking is that all but the worst types of wounds can be safely and effectively washed with a simple saline solution. Very dirty wounds can be cleaned with water pressure – in hospitals, staff may use special equipment; at home, running water or a showerhead may be just as effective.

Likewise, attitudes to 'simple' bandages – used to keep the wound clean and dry – are changing. No one would argue over the benefits of keeping a wound clean. But keeping it dry, usually with a gauze bandage that allows air to get to the site, and allowing a scab to form, can actually slow the healing process and is more likely to leave a scar.

As far back as the 1960s, research was showing that wounds that

were kept moist healed twice as quickly as those left to dry. However, only relatively recently have gauze-based bandages given way to 'semi-occlusive' bandages that effectively maintain the moisture balance on the wound site by sealing it off, all the while allowing the transmission of oxygen, nitrogen and water vapour.

Perhaps the most important benefit of a moist bandage is that it provides an optimum environment for cells to stay alive and replicate. The natural environment of the cell is moist. Dry cells – for instance, hair and nails – are dead cells, incapable of reproducing at their point of origin.

And while traditional thinking is that the scab is nature's own barrier to moisture loss, newer thinking sees the scab as an inefficient barrier to moisture loss. Scabs also prevent new cells from colonising the wound area. When a scab is allowed to form, epidermal cells have to penetrate deeper into the dermis – where the environment is moist – before they can proliferate. This means that the wound will only heal from the bottom up. In a moist environment the wound heals from the sides and bottom simultaneously.

Newer dressings such as polymer films and foams, hydrocolloids, hydrogels and calcium alginates allow much less evaporation of moisture, leaving the cells responsible for the filling and resurfacing the wound in an environment in which they are able to live and replicate. These dressings may also act as insulation, helping to maintain the optimum temperature of the skin.

(However, some researchers, using laboratory tests, have found that some types of synthetic dressings can be toxic to developing cells – a problem similar to that experienced when such materials are used as prosthetics. This area is poorly researched and few people have actively questioned the use of potentially carcinogenic materials such as polyvinyl

pyrrolidone as 'healing' dressings.)

Moist dressings are also many times more effective than dry dressings in preventing infections. This is as important an aspect of healing to the child in the playground as it is to the patient in hospital, where opportunistic antibiotic-resistant bacteria can so easily enter a wound site.

In this respect, moist healing is something of a paradox. Most of us would assume that a moist environment would be a breeding ground for germs, but this belief does not acknowledge how efficient the body can be at fighting infection. Nor does it acknowledge that a wound colonised by bacteria is not necessarily a risk for infection. All wounds, no matter how carefully cleaned, are colonised by bacteria. The problem arises when bacteria are given the opportunity to multiply. In a properly nourished body, natural infection-fighting mechanisms can effectively keep bacteria in check.

A great deal of data has been amassed on this subject and the overall conclusion is that moist healing actually decreases infection rates significantly. One reason for this may be that a moist dressing helps to maintain the slightly acidic condition of the skin. This too may inhibit certain types of bacteria, including *Staphylococcus aureus* and *Pseudomonas aeruginosa*.

Patients also report less pain when wounds are kept moist. Newer dressings are thought to protect nerve endings from the environment and keep them moist, again reducing the perception of pain. With gauze dressings, nerve endings may be damaged during changes. Numerous studies involving people from all walks of life and all occupations, including footballers and industrial workers, attest to the fact that patients treated with hydrocolloid dressings experience less pain.

Moist dressings may also benefit patients aesthetically: studies show, for instance, that they can help lessen the appearance of scars. **E**

Try these first

Taking care of a wound or cut is largely a matter of common sense. When self-treating, consider these options to help support the body's own efficient healing process.

Keep it clean From time to time during the healing process, clean the wound with a gentle saline solution: put two teaspoons of salt into a litre of boiling water and allow to cool.

Use natural antiseptics A good first choice is *Echinacea angustifolia*, which fights infection and promotes healing. Others include calendula, tea tree and lavender.

Boost your protein intake Skin is made of protein and extra is required when you are injured. This is especially true for those having an operation, as surgery increases calorie and protein needs by 20-50 per cent.

Take supplements Vitamin A helps to form scar tissue; B1 deficiency can interfere with collagen synthesis; vitamin B5 accelerates the healing process. Vitamin C promotes the formation of collagen and elastin; deficiency can slow the healing process. Vitamin E aids in the healing of skin grafts; zinc stimulates wound healing. Essential fatty acid deficiencies are associated with poor wound healing.

Heal it with honey, which contains enzymes and anti-viral substances. In studies, honey-impregnated gauze promoted faster healing and resulted in less infection than synthetic semi-occlusive dressings. Honey has also been found to promote the growth of new skin cells.

All wound areas are colonised by bacteria such as *Pseudomonas aeruginosa*



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Just 16 months later, Who Cares is now a thriving shop in Melksham, Wiltshire, and an online store.

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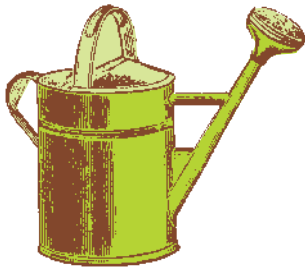
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e

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Bodycare & cosmetics

The best way to ensure healthy skin is to maintain a healthy diet, get enough sleep and keep stress levels low. If you do buy products for your face or body, try to make sure they are based on natural ingredients. The companies listed here carry products that have not been tested on animals; they contain no parabens, no petrochemicals and no synthetic ingredients

★ Neal's Yard

Ever since I bought my first pot of rose and marrow moisturiser over seven years ago I've been hooked on Neal's Yard. Going to a Neal's Yard shop is like a trip to an ultra-healthy sweet shop with all the big jars of herbs behind the counter and there's often a pot of herbal tea brewing to try a sample of. Then there's the rows of trademark blue bottles filled with divine-smelling creams, oils, shampoos and even sunscreen scented with essential oils – and all containing only natural plant based ingredients. You can even buy the plain oils or cream bases and make your own.

Neal's Yard has always opposed the synthetic chemical approach to skin and health care. Romy Fraser, the founder, opened the first shop in Covent Garden, London, in 1981. He

was interested in alternative medicine and wanted to bring together dried herbs, homoeopathic remedies, essential oils and flower remedies all in one shop. A range of skin and body products was developed, based on herbs and essential oils and packed in blue bottles to preserve their quality (the glass cuts out 97 per cent of UV light.)

Nowadays Neal's Yard have 28 stores across the UK and are based in Dorset in an eco-factory where they've planted a new herb farm. Many of the medicinal herbs and flowers used in their products are grown on their nearby farm, also in Dorset. Where possible they source from the UK and they're working with various fair trade projects abroad.

Laura Sevier

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e **Ecotip**
Make-up tip
If you don't need to wear make-up, don't. Get used to the way you look without make-up and give your skin and system a break. Beauty really does come from within. It starts with a nutritious diet, adequate rest and periodic breaks from stress. Drink plenty of water and get some exercise daily.

BODYCARE ESSENTIALS

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www.aromasciences.com
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www.hayspace.co.uk
 - Doima**
www.veganvillage.co.uk/dolma



... and the rest

On these pages you will find products and services that do not fall into our first five classifications, but which are essential to the wellbeing of our planet, and which help you to reduce your carbon footprint. If you think you have something to offer which we have not listed here, please let us know

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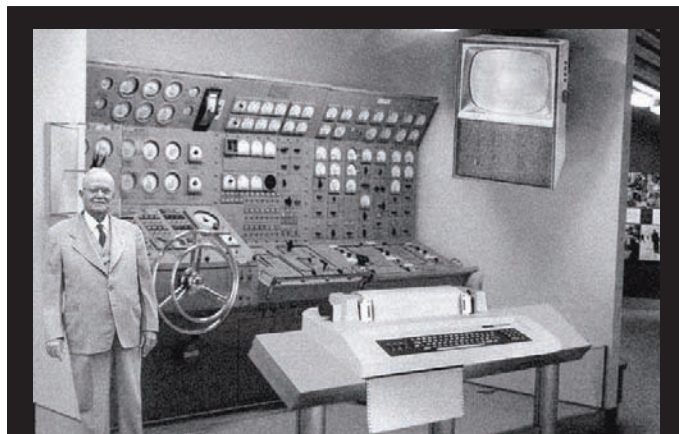
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Rural generosity

Founder of the Slow Food Movement **Carlo Petrini** recalls the tradition of hospitality and community spirit that was a central feature of his upbringing in rural Italy

When I was a child, it was the custom in my family to invite members of the local community who lived in poverty to lunch at religious holidays. The practice was so natural to my mother that it never occurred to me to wonder about the reason for these curious acts of hospitality.

In fact, I think my mother had adopted the habit from the peasant world into which she was born: it was a spirit of generosity to others which, as I later learned from friends of mine who were experts on rural Italian society, was the norm. In the Piedmontese countryside, it was common practice to leave an empty place at the patriarchal table, ready for any eventuality and reserved for a guest.

These 'guests' were wayfarers, people who roamed the countryside living on their wits – beggars, destitutes, people who had fallen on hard times for health or financial reasons. The empty place was also next to the man of the house; it didn't matter whether the 'guests' were shabbily dressed or even bad-smelling. In all this, it is true that there is much of Christian culture, which is deeply rooted in the Italian countryside – it was important to show that you could be a good Samaritan – but I think there is actually something more, something profoundly ingrained in the country life.

I had confirmation of this when I interviewed the poet Wendell Berry for a dialogue published in the cultural pages of *La Stampa*, and we turned to the subject of the economy of rural communities. He explained to me that in order to make a local economy work well, one must first think about subsistence and then, if there is any surplus, 'use it for charitable work or

trade'. This seemed to me a rather idealistic idea, but Berry persisted:

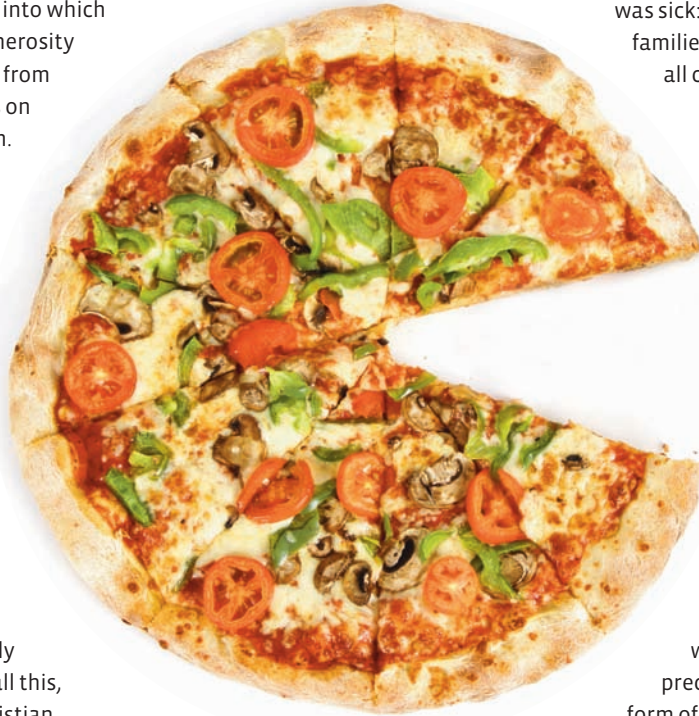
'In the past, before agriculture was so industrialised, before we had all these tools to reduce the workload, we did our duty in our families and exchanged work with our neighbours. The rule was that no one stopped working until everyone else had finished their harvest. I knew people who

of interviews for the *Atlante delle granche vigne di Langa*, the words of the old country people always expressed this aspect of rural society, which was sincerely imbued with a sense of generosity and readiness to give freely, without expecting anything in exchange. I remember in particular one woman, a small trader, who told me: 'We used to help each other; I remember there was a family of 12 people and the mother was sick: so we, the women of the other families, did her washing and then we all cooked lunch together.'

That place at the table at Christmas and Easter was a legacy of that culture, in which people were always ready for mutual help with food and work. I am increasingly convinced that these forms of generosity were not merely dictated by a sort of peasant morality, not just a sort of religious precept that one had to obey, but that they were an integral part of the economy of those communities.

Generosity as an economic form: it was a way of coping with social positions of poverty, with forms of hardship, and it had a precise meaning. As Berry said, it was a form of investment. Nowadays, the order of values is the exact opposite. I don't want to sing the praises of the old days (for, apart from anything else, poverty was much more common in those days), but I do think that if I look at the present situation with the same pragmatism with which, in recent years, I evaluated those extra places at my table as economic acts, I would be firmly convinced that there is still a great need for such acts – for new and old forms of rustic generosity.

© Carlo Petrini, 2007. Extracted from *Slow Food Nation* by Carlo Petrini (Rizzoli International Publications, £11.95)



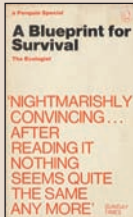
'It didn't matter whether the "guests" were shabbily dressed or even bad-smelling'

were proud of having worked in all the farms of the area without ever receiving a penny. This is not capitalism; at most, it can be seen as a strange form of investment: investing in the body of the community.'

Indeed, when I worked on my collections

Classic book club

Revisiting the books that shaped the environmental movement



A Blueprint for Survival

The Ecologist
(Penguin, out of print but try Amazon and AbeBooks)

Reading *A Blueprint*

for *Survival*, written by *Ecologist* founder Edward Goldsmith, is at once incredibly refreshing and incredibly exasperating.

Refreshing because his grasp of global social and environmental problems is so piercingly accurate and concisely written; exasperating because this is a collection of wisdom published over 30 years ago, upon which the world has still failed to act.

Like a lone Cassandra, Goldsmith sings of the perils of runaway economic growth, the insanity of built-in obsolescence and throwaway products, the contamination of our food chains with pesticides, the failure of over-fertilised crops, the fragmentation of our social networks, and our extravagant use of energy. All of this while 'climate change' was just one of the seven plagues whispered by bearded visionaries in the corridors of Greenpeace.

It is hard to underestimate the *Blueprint's* impact. First published as an issue of the *Ecologist*, it led to the formation of the Green Party (initially known as the Ecology Party), it rocked the establishment, and gave a fledging environmental movement one of its early gospels.

Few works of non-fiction, 35 years after their publication, can challenge the status quo quite as well as this.

Mark Anslow

Log onto www.theecologist.org and contribute to the *Ecologist* book club forum. Happy reading!

Proof against GM lies

Claire Robinson applauds the definitive reference book on the health risks of genetic modification of food crops

What's your response when someone comes out with a statement they've picked up from somewhere, to the effect that 'There's no evidence that genetically modified (GM) food is harmful'?

If you have time and energy, perhaps you manage to scabble together bits and pieces from memory, the web, or an article. But considering the number of calls that the business of living places on us, perhaps you just shrug your shoulders and muse that the

An exemplar of clarity... Smith is the best science communicator alive today

world is going to hell in a handbasket of Bush, Blair, and Monsanto's making and there's nothing you can do about it.

Well, now there is. Just point them to Jeffrey Smith's latest book, *Genetic Roulette*.

A must-read for policy-makers, educators and journalists, it's also invaluable for anyone who wants to sharpen their weaponry in the battle against the imposition of GM foods. And, judging by emails I've received from students asking about the risks of GM food, every educational institution and public library needs a copy.

Those who enjoyed Smith's previous book, *Seeds of Deception*, should be warned that this isn't the same sort of read. *Seeds* laid out the fraud of GM through its stories: the honest scientists who were gagged, threatened and persecuted; the consumers who got sick and died from eating a supplement produced with GM bacteria, only to have their suffering covered up by a government protecting industry interests. *Genetic Roulette* is not a book of stories, but an easy-to-use reference book of scientific and other documented findings on the risks of GM foods.

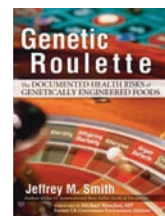
Contrary to what the industry would have us believe, a considerable number of findings show that GM causes harm; they are clearly presented in this book. Given the worrying lack of substantial published research, Smith also draws upon unpublished studies, case studies, medical reports, media reports and

eyewitness accounts. Unlike the notorious pronouncements of biotech industry supporters, statements of opinion are never misrepresented as scientific fact. The author has gone to great lengths to maintain accuracy, having each section of the book checked by at least three scientists.

Conspicuous by their absence are follow-up studies to those that show harm from GM foods. The book details tactics that industry uses to bury inconvenient research: such as ignoring it; trying to discredit the research or its authors; and funding competing studies so poorly designed that no meaningful findings can be extracted. If all else fails, industry-aligned researchers discount deaths of experimental animals or claim that statistically significant results have, magically, no significance at all.

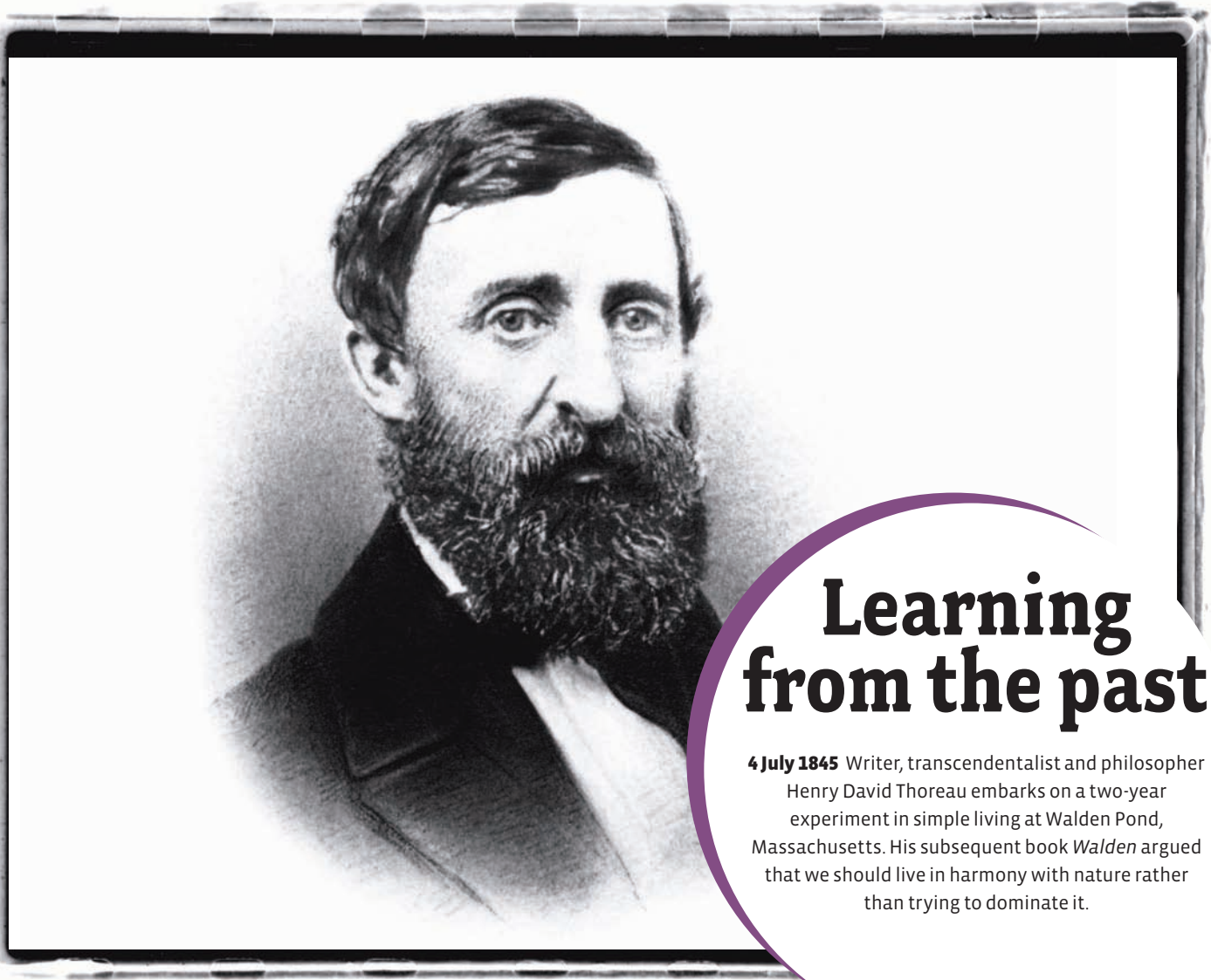
The book's layout is an exemplar of clarity. It is designed to make the material accessible to three levels of reader: scanners, casual readers, and those who want detail. Each double-page spread is devoted to a problem with GM foods: the left-hand page has the topic heading, a quote by an expert, and a few summarising bullet points; the right-hand page gives technical detail. You don't need a science background to understand it. While the book is not bedtime reading, terms are defined and the boggle factor is kept low. The table of contents enables the reader to scan the problems with GM food and quickly to access the evidence on each.

Smith has to be the best science communicator alive today, and this book stands as the final word on the health risks of genetically modified food. It's the definitive answer to those who don't know, those who don't want to know, and those who know but don't want anyone else to know.



Genetic Roulette:
The documented health risks of genetically modified foods

Jeffrey M. Smith
(Green Books, £15.95)



Learning from the past

4 July 1845 Writer, transcendentalist and philosopher Henry David Thoreau embarks on a two-year experiment in simple living at Walden Pond, Massachusetts. His subsequent book *Walden* argued that we should live in harmony with nature rather than trying to dominate it.



Film Grow Your Own

Director: Richard Laxton; 95 min

An allotment is a plot of land rented to a gardener. *Grow Your Own* grows a mix of smiles and sympathies. It unfolds to show that beyond plot-care rules are real people with real stories, and that going back to basics can bring happiness and a sense of community.

Helpful pointers for your own garden are cleverly intermingled with the battle between what is traditionally British and the refugees who are given a second chance through their own allotment. As the newcomers quietly settle in, their neighbours hesitantly begin

to see the benefits of their arrival.

A set of unlikely friendships, challenged by ignorance but reinforced by new discoveries, blossoms alongside the pumpkins and cauliflowers. The arrival of a mobile phone conglomerate could destroy everything, but through love, loss and deportation the gardeners show their true colours and find that while one ballot doesn't always rock the vote, one man can stand tall with the help of his friends, even when his world is demolished.

As *Grow Your Own* shows, an allotment is more than a plot of land: it is a chance to rebuild, learn to ask for help, realise your strengths, admit your weaknesses and stand up for what you believe in.

Kristen Harding

Film Black Gold

Filmed, directed and
produced by Marc and
Nick Francis



Coffee is the second most traded commodity in the world (after petroleum). But since the International Coffee Agreement collapsed in 1989, coffee prices have, for the most part, been in freefall. One of the problems the coffee industry faces is too much supply. But there is something more disquieting,

too: though retail sales of coffee worldwide have steadily risen to an estimated \$80 billion a year, coffee-producing countries are earning less money than ever from their coffee beans (about \$8.6 billion per year).

In this beautifully-shot and compelling documentary, Ethiopian coffee activist

Tadesse Meskela takes us to visit members of the 74,000-strong Oromia Coffee Farmers Cooperative Union he manages, and shows us the real-life consequences of these low prices. Farmers say they are forced to accept untenably low prices and have no power to negotiate. They cannot send their children to school or improve their housing. In some communities that do have schools, unpaid teachers struggle to write up equations on warped and chipped blackboards.

As Meskela takes us also to processing plants, government coffee auctions and international trade fairs, we begin to understand how coffee prices established on the New York or London markets are crushing hundreds of thousands of Ethiopian livelihoods and destabilising a whole national economy.

On a trip to the UK, Meskela makes a poignant trip to a supermarket where he struggles to find a single Ethiopian coffee blend. Back home, growers in the prime coffee-growing region of Yirgacheffe are filmed chanting to God for a fair price.

Black Gold is out in UK cinemas in June.
www.blackgoldmovie.com

Giovanna Dumall

Power to the people

Consumer power really can make a difference, points out **Laura Sevier**. And this book puts it in your hands

When Julia Hailes co-wrote the original *Green Consumer Guide* in 1988 it was the first book of its kind on the market. Although at the time there were barely any 'green' products available and environmental issues weren't so publicly debated, it sold a million copies worldwide. Twenty years on, climate change is headline news, cutting carbon emissions is on political agendas and 'Reduce, Reuse and

Recycle' has become a mantra. There is also more choice for green consumers.

But some green products are greener than others. And with more choice often comes confusion. Which eco paint or insulation material is most effective and eco friendly? What are the pros and cons of a ground source heat pump? Full of information, tips and web links, *The New Green Consumer Guide* can lead you through the eco-labyrinth of choosing everything from a carpet to a laptop, batteries to barbecue fuel. Hailes assesses many of the products available, in a way that is both informative and readable. She often refers to her own experience and confesses to preferring baths to showers – 'but I don't mind sharing them', she adds.

Surprisingly, she does not automatically recommend the 'organic or natural' option. With regard to washing clothes, for example, she thinks that 'the most significant issue

now is the temperature of your wash' rather than using a 'green' detergent brand, which is 'perhaps not [good enough] in terms of washing at the lowest temperature possible.'

But even if you don't always agree with her, as a resource this book is almost unbeatable. And, as Hailes says, consumer power really can make a difference – not only to minimise our own environmental footprint, but to send a strong message to manufacturers and politicians about what we do and don't want.



The New Green Consumer Guide

By Julia Hailes
(Simon & Schuster,
£14.99)

The state we're in

Civilisations always fail to see the end is nigh. That's why *The Upside Of Down* is required reading, says **Jon Hughes**

If there is to be much hope for this world, then Thomas Homer-Dixon has soon to become a household name, much as in the Nineties *The State We're In* propelled journalist Will Hutton into the bestseller lists and sparked debate about the social cost of our market economy.

In *The Upside Of Down*, Homer-Dixon has delivered a super-synthesis of the growing crises that we (the world) face. In a brilliant analogy he describes these as being tectonic stresses; while everything on the surface looks OK, the pressure below is building up and we won't be any the wiser until the earthquakes strike. And he leaves us in no doubt that strike they will, unless we start

It's a picture that most politicians would prefer to keep in the attic, like modern-day Dorian Grays

to think – and act – radically differently.

Homer-Dixon identifies five stresses – population, energy, environment, climate and the economy – each of which, independent of the other, threaten our civilisation. However, if, as is increasingly likely, more than one of these issues reaches crisis point around the same time, then we face catastrophe.

Consider the following: to keep the wheels on the global economy, at current levels of growth, output will have to quadruple in value from \$60 trillion in today's money to \$240 trillion by 2050. That at a time when we will be coping with rising energy prices as a result of peak oil, more people chasing fewer resources, from the basics of food and water through to raw materials for production, a growing chasm between rich and poor, and climate shocks, to name a few.

So here we are, but where are we going? Homer-Dixon offers two visions. First, we can continue as we are, creating increasingly complex and energy-intensive systems in a doomed effort to deny the truth of impending shortages. He uses the decline

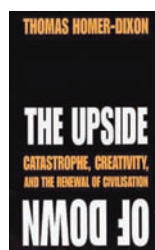
of the Roman Empire to draw parallels and make a compelling argument against pursuing this course.

While we might think our civilisation is fire-proof, the collapse of an equally great one shows us it isn't. Homer-Dixon says Rome fell when energy (food) shortages struck. In order to address the problem, a succession of emperors addressed the problem through expansionist policies. The policy raised the cost of supplying energy and ruling an ever-increasing and disparate empire with enemies within. Sound familiar? Ultimately the complexity of the systems resulted in diminishing returns and decline.

The alternative is to reimagine the world. And Homer-Dixon writes with verve about how exuberant experimentation and adventures in living are essential to future social resilience – a decoupling from the global economy wherever possible; and adoption of an adaptive cycle where limits to growth are accepted and not milked dry to the point of collapse.

Homer-Dixon – Director of the Trudeau Centre for Peace Studies and adviser to the CIA and National Security Council – unflinchingly presents the big picture about our parlous future; a picture most politicians would keep in the attic, like modern-day Dorian Grays.

Five years in the writing, the book has been impeccably researched – the author and his publishers are to be applauded for the 100 pages of notes and references. Perhaps Homer-Dixon's greatest achievement is to have made his analysis accessible to all readers, whether light green or deep ecologist. *The Upside Of Down* has the pace of a thriller and is poetic, philosophical and political by turn. Required reading.



The Upside Of Down

Thomas Homer-Dixon
(Souvenir Press, £15)

Last words? Southern Sámi

Status: Highly endangered – fewer than 500 speakers left.

Habitat: The rural municipalities of Snåsa and Hattfjelldal, central Norway.

Description: Southern Sámi is one of a group of Sámi languages found in the Sápmi, the Sámi lands that span northern Norway, Sweden, Finland and the near edge of Russia. These twigs on the Finno-Ugric branch of the Uralic language tree are rarely mutually intelligible. Many Sámi lived as reindeer herders in the past, but nearly all are modernised now. An old saying goes: 'rievdadeapmi ieš ii rievdaduvvo' – 'change is the only thing unchanging'.

The language is being celebrated by a two-person folk band, Adjágas. No ordinary Norwegian folk outfit, they sing in the 'yoiking' tradition of the Sámi people. When you yoik something you don't sing *about* it, you inhabit it and evoke its very essence. The throaty, glottal sounds common to the language add to the sense of something being brought up from the depths.

Adjágas means 'the state between sleeping and waking'. It's an appropriate name for a band communicating via a language in terminal decline, but which is thousands of years old and thick with myths. Between songs, lead singer Lawra Somby explains that being one of the last few speakers 'has the feeling of being in a pond that's drying up...' and that he has made these yoiks 'to bring some comfort to this pit of pain'. He ends one yoik with a screaming crescendo of 'li manne goarka' – 'I don't understand'. Later, when I learn what these words mean, the irony of singing this to audiences around the world becomes apparent.

Adjágas deliver their sparse country from the deep north with impassioned intensity. It's unlikely that this band can save Southern Sámi, but at least they are making its swansong strident, brave and impossible to forget. Visit www.myspace.com/adjagas

How to be free

How does your garden grow?

Weeding, digging, trimming, mulching... if it all seems too much like hard work, says **Tom Hodgkinson**, it probably is

The problem with gardening is that it seems like such hard work. The garden and the vegetable plot hang around in our minds, admonishing us, urging us to get out there and tidy up. When I look at other people's neat allotments from the train window and reflect on the unruly mess of my own vegetable garden, I hang my head in shame. But this is not how it should be. Gardening should be a joy and the amount of work we put into it should be a personal decision.

That's why I've decided to develop a new approach: easiculture, or idle gardening. I'm not keen on the Calvinist strain in the self-sufficiency movement. Permaculture – while a wonderful, positive force – can seem too much like hard work and even the great John Seymour constantly regales us with stories about the serious effort his smallholding requires. But there is another way. My principal text and guiding force in this project is *The One-Straw Revolution*, that wonderful 1976 book on 'no-work farming' by Masanobu Fukuoka.

Fukuoka began his experiments in what he calls 'natural farming' in the 1930s. Japan, like many other countries, was being swept along in a wave of enthusiasm for artificial fertilisers and ploughing by machinery. Fukuoka had a different idea. Observing how nature gets along with things on her own, he decided to develop an approach to growing rice and vegetables that required minimum intervention from man.

Instead of ploughing, he adds straw and poultry manure to the ground, and sows clover as a green manure. He doesn't even bother making compost:

'Using straw, green manure, and a little poultry manure, one can get high yields without adding compost or commercial fertiliser at all. For several decades now I have been sitting back, observing nature's

method of cultivation and fertilisation. And while watching, I have been reaping bumper crops of vegetables, citrus, rice, and winter grain as a gift, so to speak, from the natural fertility of the earth.'

In organic gardening, the equivalent is the idea of mulching, as opposed to digging. I recall the joy in my heart when I first read that it was better to lay straw and manure on the ground than to dig it all over, having just spent a winter strenuously digging over a plot.

There are various other hard-work gardening jobs that Fukuoka can help us to avoid. Weeding,

for example. Now, there is no doubt that our attitude to weeds in general is far too strict. When you look at the pictures of the medieval garden, weeds grew freely as ground cover and indeed many of them had medicinal uses, as was the case with chickweed, dandelion and groundsel. Weeding was a Puritan invention: the native Indians were shocked when they saw the weeding zeal of the founding fathers. The Victorians later took weeding yet further, as a tidy garden was evidence of hard work and toil.

Fukuoka argues that deep cultivation itself causes outbreaks of weeds. Thus, no digging will save you two lots of toil: the digging in the first place and the weeding in the second:

'The usual way to deal with weeds is to cultivate the soil. But when you cultivate, seeds lying deep in the soil, which would never have germinated otherwise, are stirred up and given a chance to sprout. Furthermore, the quick-sprouting, fast-growing varieties are given the advantage under these conditions. So you might say that the farmer who tries to control weeds by cultivating the soil is, quite literally, sowing the seeds of his own misfortune.'

Well, hallelujah to that. Now, behind Fukuoka's 'no-work farming' philosophy lies a fundamental conviction that man's meddling creates more problems than it solves. 'Leave well alone' would seem to be his attitude to life in general as well as to his garden. It's a sort of cheerful nihilism based on the ancient idea of the futility of action: 'There is no intrinsic value in anything,' he writes. 'Every action is a futile, meaningless effort.'

A belief in the futility of everything is a paradoxically liberating and joyful notion. In life as well as in the garden, it leads to less work and more fun. **E**

Tom Hodgkinson is the Editor of *The Idler* and author of the book *How to be Free* (Hamish Hamilton, £14.99).



I've decided to develop a new approach, which I call easiculture, or idle gardening



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