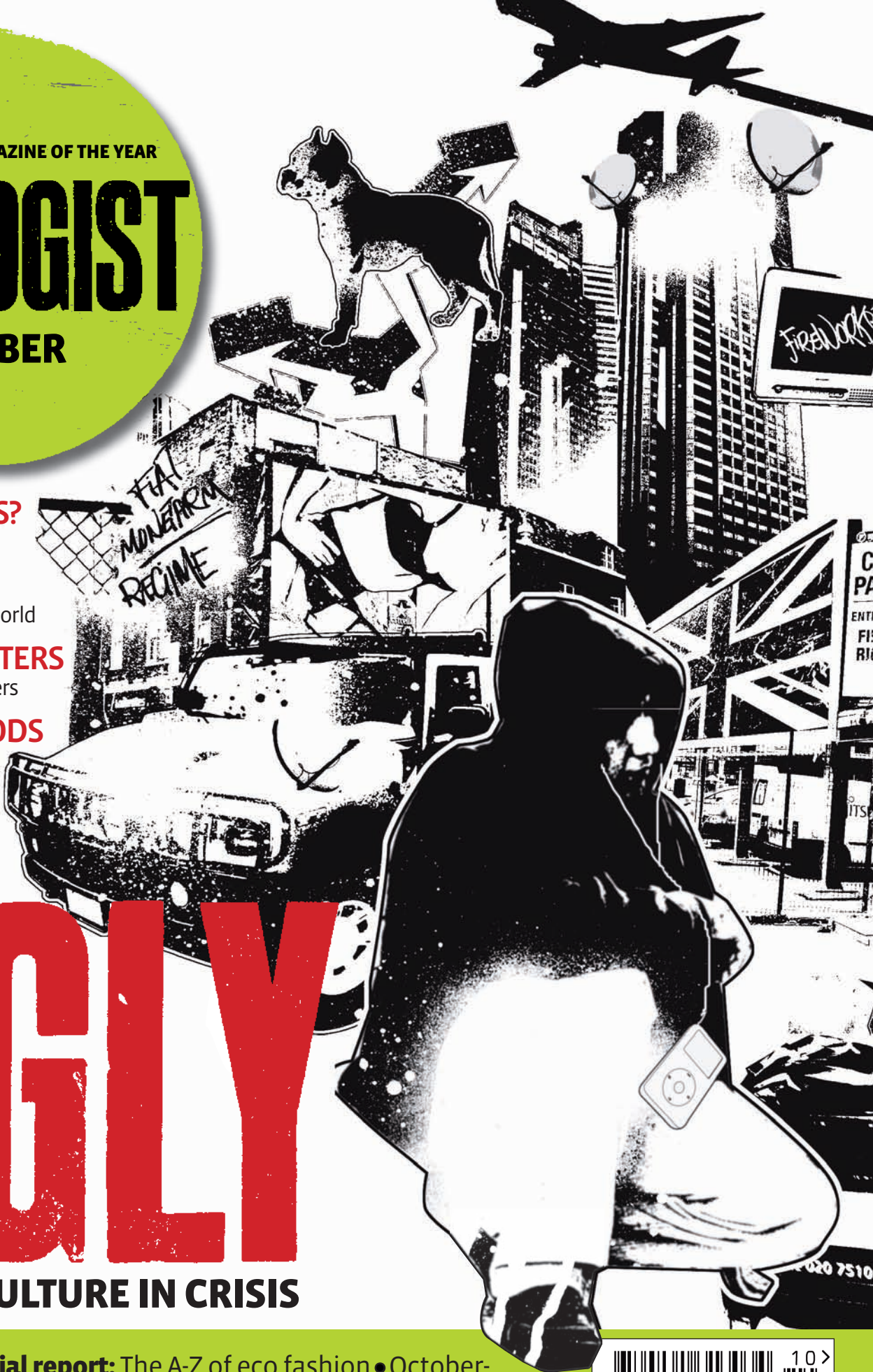


ENVIRONMENTAL MAGAZINE OF THE YEAR
OCTOBER 2007
MODERN UGLINESS • GOING UP AGAINST CHEVRON • THE REAL HEATHROW PROTEST • WHAT CAUSED BRITAIN'S FLOODS? • MASS SOCIETY, MASS DEPRESSION

ENVIRONMENTAL MAGAZINE OF THE YEAR
ECOLOGIST
OCTOBER



POLLUTER PAYS?
Chevron on trial

DEPRESSION
Feeling small in a big world

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Their rainforest roots

UGLY

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*PER A REVIEW OF *WWD BEAUTY REPORT INTERNATIONAL* TOP 100 COSMETIC MANUFACTURER'S CORPORATE WEBSITES IN APRIL, 2007. THE WIND ENERGY GOES INTO A UTILITY GRID FROM WHICH WE DRAW POWER.

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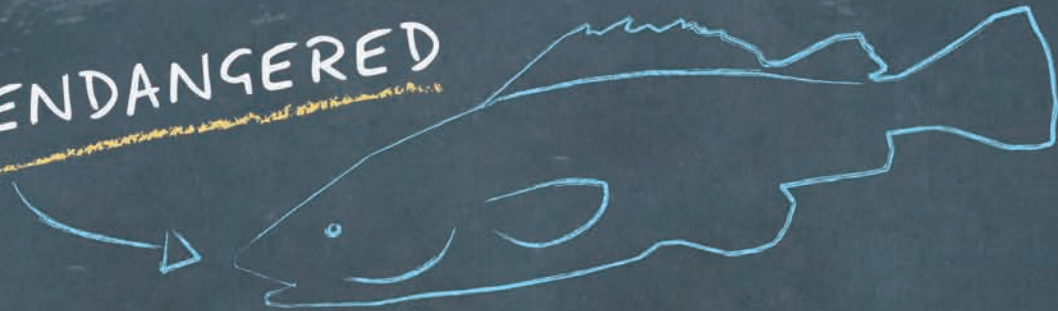
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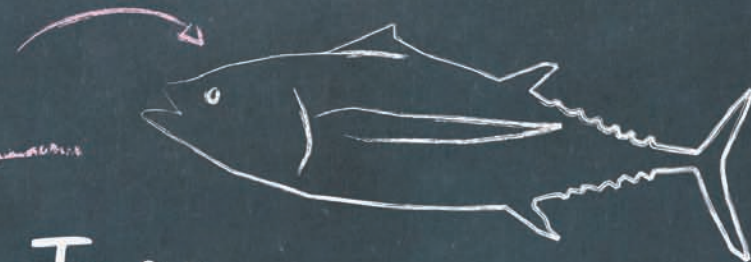
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Editorial

More fun than complaining

Only a year ago I would have said that the day of the protest was largely dead. It seemed that people were too overwhelmed or scared or bored or depressed to take action. That in failing to say 'no' to the things that destroy our world they were also failing to say 'yes' to the things that can build it up again. So it was with increasing joy and a sense of optimism that I followed the reports on the Heathrow protesters in the media and, more importantly, from people I knew who were there.

As the protesters pitched their tents, buoyant about their impact, I recalled the results of a study at the University of Sussex a few years ago. What, the researchers asked, did protesters really get out of protesting? And the answers were surprising. Collective action including marches, mass pickets, fox hunt sabotages, street parties and various forms of direct action didn't just have the potential to change the world. It imbued the participants with an enormous sense of wellbeing, belonging and empowerment.

Interviewing activists of all backgrounds and experiences the researchers found a universal sense of joy, even euphoria, that came with being in the midst of like-minded others. Even talking about events long past brought a smile to protesters' faces. Such positive experiences are as good for the body as they are for the mind. Feeling connected and relevant can translate into less chronic illness, better immunity, a better ability to cope with stress and anxiety. Indeed, as Bruce E. Levine says in this issue, community activism can even punch a hole through the darkness of depression.


In the UK – and elsewhere – collective action is not as common as it once was. In place of protesting we have complaints procedures. There are official channels to go through, forms to fill in, dedicated departments to direct our comments to, customer services phone lines with endless touch-tone menus. The process can be exhausting and

discouraging – and not always productive. Some dissatisfied people turn their frustration inward. Psychologists say, for instance, that the incidence of self-harm amongst teenagers is related in part to a need to protest – and a feeling that there is no one listening. Self-harm makes them feel alive in the same way that the climate campers felt alive.

Frustration with the often lengthy and complex modern procedure of complaining has turned many would-be protesters to the world wide web, where the desire to be heard quickly and by as many people as possible can easily be fulfilled.

Online activism is a powerful and instantaneous thing. Pictures of pollution and human rights abuses can be zipped to any point on the map in minutes. Petitions can circulate many times around the globe in a matter of days. But the electro-protest also loses something in the translation since it is almost entirely disconnected from human relationships. I often wonder if cyber protesters feel the same sense of joy and community as groups of people who inhabit the same physical space.

There is a tendency to believe that there were special circumstances that made protest appropriate to a bygone era – the Vietnam war or the Kennedy assassinations, for instance. But have circumstances really changed that much? In those days, people felt the world was coming to an end and they weren't going to let it go down without a fight. Clearly the threat of climate change has reawakened that fear and dread and moved people to glorious and positive action.

Sad geek that I am, while I cheered the climate campers on, and tried to encourage my teenage son to engage with the issues, I was reminded of a scene from the TV show *The Simpsons*. In it, Lisa Simpson, the squeaky-wheel conscience of the family, flies past her mother on a galloping horse. 'Hey, Mom!' she shouts. 'I've finally found something more fun than complaining!' 

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Letters



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IT'S OUR WATCH

I am a long-time subscriber to the *Ecologist*. It is often where I read environmental news that is never reported in the US corporate media, which thinks it can keep us 'dumb and stupid'.

Paul Hawken's essay 'What do these people want?' (July/August 2007) hits the proverbial nail on the head. The largest social movement, as he writes, is not just 'about the future'. It is also very important because it is about the now. There are millions (perhaps billions?) of people around the world completely disgusted with the Machiavellian corporate and political lies that are endemic. We don't have democracies but rather corporate takeovers (via huge financial lobbying pressures).

In the US our political system is broken. We have an enormous constitutional crisis, yet there is a complete refusal by Congress to act on its 'checks and balances' constitutional role to demand accountability. The corporate media that dominates the US supports this breakdown by refusing to report on vital environmental and political issues. This would then upset the status quo of a broken system. Yet most Americans have yet to connect the dots.

The solution? A grassroots network (with plenty of internet cloud) that would force peaceful change.

Our planet is in grave environmental trouble 'with a huge fever' (as Professor James Lovelock has written). Do we want to be remembered as the generation that failed to drastically slow down and reduce this fever? To have our grandchildren ask, 'What were you thinking?'

We do not have any Star Trek technology to take us to another planet. There is nowhere else to go. This is our home. It is our watch

Dr Ilya Sandra Perlingieri
New Portland, Maine, USA

BURSTING THE BUBBLE

I write in response to your article 'Life in the woods' (July/Aug 2007); specifically, its claim to sustainability and the meaning of sustainability in general. Tinker's Bubble is not sustainable were the whole planet to live that way. There is not enough forest for the

world to live that way. Imagine if enough solar panels for everyone were manufactured, transported, and installed. What quantity of raw materials would it require, how much energy would it take to build, and how much fuel would it take to transport the billions of solar panels?

I understand that there likely must be many paths to sustainability and perhaps our ideas of sustainability must be challenged. If one is comfortable with a human population a fraction of today's value, then there are many ways of life that are 'sustainable'. But if one wants sustainability with today's 6.5 billion and in fact the predicted maximum of 9 billion people, sustainability is a much more difficult challenge.

Tinker's Bubble is one path to sustainability

and fine for a small fraction of the world. But Tinker's Bubble principles shouldn't be trumpeted as the Holy Grail.

David Trigg
via email

LOW-ENERGY BULB DANGER

Please would you do a little more research before you continue to praise low energy light bulbs. You may find that they are about as dodgy as biodiesel.

I know of two major disadvantages. The first is that they contain mercury, which is dangerous to mine and, it seems, too dangerous to make into light bulbs in Great Britain. Also, they should be disposed of as hazardous waste, but most used or broken ones will end up in landfill.

Secondly, they are fluorescent tubes in a bundle, and many of us react badly to the pulse of fluorescent lights. Their wavelength of around 20 hertz is implicated in childhood leukaemia and skin cancer and there is a long-term threat of heart disease, brain tumours and other disorders.

Electro-sensitivity is a real, painful and frightening condition, which the medical profession insist is 'all in the mind'. We are on our own.

It would be wonderful if the *Ecologist* would balance some of the enthusiasm for low-energy bulbs before they become the norm and the world becomes even more dangerous for us.

Lorna Heard,
Mid-Wales

Ecologist poll

Can one person make a difference?

13

percent of you thought that new PM Gordon Brown is green

Senior reporter Mark Anslow replies: Mercury pollution is a huge problem worldwide. However, research has shown that in countries like the UK, where coal-fired generation produces much of our electricity, the extra coal that would have to be burned to run an incandescent bulb instead of an energy-saving one would put more mercury into the atmosphere than is contained in an energy-saving bulb. Research on bulb 'flicker' and EMF output is not conclusive, but you're right – we should be wary. Many hope that emerging LED bulbs will solve some of these problems.

FRIENDS ACROSS THE WATER

A few weeks back, I picked up a stack of old *Ecologist* magazines that were in the shed of the organic garden I am running at my school this year, and cannot tell you how thrilled I am with this find. I consider myself quite environmentally aware, but there are issues that I was not exposed to that your magazine has brought to my attention, such as short-selling stock and thus reducing a company's profits; and the list of books I have to read from your reviews is never-ending. It is also interesting for me to see what other countries are doing besides the US, and see what the opinion is of the American people and government (one that I wish was better, but I agree completely with your opinions). I sincerely thank you and hope that you continue to do a phenomenal job.

Diana Laurentis
Peterborough
New Hampshire, USA

NO LAUGHING MATTER?

I was horrified to note in the letters section of the September edition of the *Ecologist* that 49 per cent of the readers who responded to your poll question 'Would you buy a 2p return flight to France?' answered 'yes'!

My horror was compounded even more by your completely irresponsible response to this results: 'Mon Dieu! Shame on you!'

As an active member of the Aberdeen Campaign against climate change, I took part in the recent Climate Camp near Heathrow and the subsequent protests outside the BAA head office, and as such find it seriously worrying that a number of *Ecologist* subscribers would appear to be willing to directly contribute to the fastest-growing source of greenhouse gases as long as they wouldn't have to pay for their flights.

Your response is even more worrying and suggests to me that you really don't appreciate how significant an effect aviation, and short-haul flights in particular, are having with regard to climate change.

As a result of this I am having serious doubts as to whether I should continue to subscribe to a magazine which appears to not

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.

Are parents who feed their children junk food guilty of child abuse?

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

only have a number of completely irresponsible subscribers, but an editorial team whose understanding of just how damaging aviation is to the environment, is open to question.

Alister Coultis
Inverurie, Scotland

The editor replies: In our July/August 2007 edition we featured an in-depth look at the climate-damaging effects of aviation, as well as a crib sheet on the effectiveness of direct action and a lengthy feature on the power of groups with no centralised leadership – such as the Heathrow protesters – to effect change. All before the Climate Camp erected its first pavilion (see also our photo story this month, page 26). We were appalled, but also intrigued, at the result of that particular poll. As a comment on our unwillingness to sacrifice to save ourselves it is worthy of an article in itself. However I would take great exception to the idea that the *Ecologist* – with 35 years of leading-edge journalism and intelligent campaigning behind it – does not appreciate the rapidly expanding scale or indeed understand the many causes of climate change. As for our comment on the poll, we believe the good fight can be fought on lots of levels and with many weapons, including a little ironic humour now and again.

CARBON RATIONING

Climate change is now big on the political agenda and the idea of 'contraction and convergence', i.e. carbon emissions rationing, is no longer regarded as a totally eccentric idea. If such a rationing system is ever to be fair and feasible, there are two problems which no one seems to be discussing.

First – as everything we do in the modern world uses fuel, our individual 'carbon footprint' comprises much more than heat, light, appliances and transport. How could the ration card include indirect carbon emissions (through shopping, choice of food, etc), which could easily equal or exceed a yearly flight? Or is there a proposal for an 'emissions tax' rather like VAT, a tax increasing with processing and transportation of the item? The latter would obviously give an additional shopping advantage to the rich.

Second – the issue everyone wants to dodge (except, thank you, sometimes the *Ecologist*) Population growth. If you allocate a carbon emissions quota to each adult and a smaller one for each child, how can this be fair to those who limit their families and hence their emissions (it's the equation of population x technology x consumption that has put us in the mess we are in). In fact a carbon allowance per head might be a new incentive for people to have larger families – the last thing we want in this overcrowded world, and which could cancel out the emissions we save.

Frances Oliver
Nelwyn, Penzance

NATURAL HEALTH

When we choose to reject the fount of health that lies in fresh and seasonal foods, we are actively rejecting the 'good life' that is everyone's due. Only those who have had the privilege of living on fresh, naturally-grown food know the difference in flavour... and health.

Aren't we looking through the wrong end of the telescope when we aim to eliminate disease through perpetual medication instead of ensuring that the essentials for health are available to all? If we are full of ill health, are we fit to inhabit the earth?

Mrs A Hanley
London

LAND GRAB

PLANNING DISASTER

REFORMS WILL MEAN MORE ROADS AND AIRPORTS, AND LESS SAY...

A coalition of UK environmental groups has released a map showing exactly where major new construction projects could be fast-tracked if reforms to the planning system go ahead.

The Planning Disaster Coalition, which is backed by the Campaign to Protect Rural England, Airport Watch and Friends of the Earth, among others, produced the map out of concerns over the recent Barker Review of Land Use Planning.

In her review, economist Kate Barker recommended that the planning system for so-called Major Infrastructure Projects be streamlined, with final decisions taken by a central planning committee, rather than a local authority.

The Barker Review was published just days before the Eddington transport review, which recommended an expansion of UK motorways and airports.

This autumn, MPs will vote on whether Barker's recommendations will form a part of the forthcoming Planning White Paper. The Planning Disaster Coalition believes that planning decisions must be made democratically at a local level, and is urging the public to view the map online, learn about the proposals, and write to their MPs asking them to challenge the White Paper. Visit www.planningdisaster.co.uk



WASTE

WE DON'T RECYCLE

High-street chain Debenhams is making no effort to recycle waste in its stores, a whistleblower has revealed.

An employee at Debenhams's Stratford-upon-Avon store, who asked to remain anonymous, told the *Ecologist* that employees are instructed to throw all waste, including cardboard, in the same general rubbish bins. When the employee challenged the management over their waste policies, she was met with 'disinterest'.

In Debenhams's 2003 Corporate Social Responsibility statement, the company says that it is 'careful what materials we use so that we can recycle as much of the packaging as possible,' and claims to have made changes to 'substantially increase the amount of plastic and cardboard that we recycle.' But evidence from the shop floor seems to

indicate otherwise.

We extended our press deadline to allow Debenhams to comment, but had not received a response by time we went to print.

POLLUTION
VETS INVESTIGATE

An *Ecologist* investigation into the use of toxic fire-fighting foam to tackle the Buncefield oil depot blaze in 2005 has sparked off a series of official investigations.



Our story ('Behind the Label Special: PFOS', July/August 2007) reported the string of birth defects and miscarriages suffered by a herd of cattle after

coming into contact with the toxic foam.

The *Ecologist's* involvement prompted local MP Mike Penning to call on the Food Standards Agency to conduct a full inquiry.

Sparked by media coverage of the story, both the Royal Veterinary College and Defra have now asked farmer Christopher Archer for permission to take samples of soil and grass from his fields, and biological samples from his herd.

RENEWABLE ENERGY
LEAKY SUMMER

It's been a bad summer for renewable energy in the UK.

First, a leaked document showed the Government trying to wriggle out of EU requirements for 20 per cent of our energy to come from renewable sources by 2020. The briefing paper admitted that the UK had 'achieved little so far on renewables,' and suggested

GO FIGURE...

Almost **half** of Britons don't know that a poor diet can lead to cancer. The French are **7** per cent more productive at work than Americans, despite working fewer hours. The average Briton now works **one** extra day a week for free. Organic farms provide **30** per cent more jobs and use **30** per cent less electricity than conventional farms. **24** per cent of all diseases are caused by environmental factors. Nearly **1 in 5** UK houses has just one occupant. The Environment Agency spent **£600,000** on consultancy fees during the flooding. **94** per cent of construction professionals believe the future has to be green, but **47** per cent set no green targets last year.

'statistical interpretations' of the target, including investing in offset projects abroad.

Just weeks later, another leak revealed that ministers are preparing to submit to pressure by housebuilding lobbyists to abolish the so-called 'Merton Rule' – a ground-breaking piece of local legislation that requires all new large developments in the borough to generate 10 per cent of their energy onsite from renewable technologies.

Ron Bailey, Organiser of the Sustainable Energy Partnership, described the move as 'nothing short of scandalous'.

FLOODS CUCKMERE VALLEY

While Britain has been battling the worst floods in 60 years, the Environment Agency has been attempting to bring about one of its own.

For the past 11 years, the Agency has invested more than £440,000 of taxpayers' money in investigating the idea of flooding the Cuckmere Valley, an area of outstanding natural beauty.

Although the stated intention is to create salt marsh and mud flats so that the area will return to its natural state, locals suspect that the real reason is so that the Agency would no longer have to foot the bill for the maintenance of the river bank, which costs upwards of £50,000 a year.

Residents have started the Rescue the Cuckmere Valley

campaign, which highlights the proposal's impact on tourism, wildlife and the risk of unforeseen flood damage.

Nigel Newton, a local resident and chief executive of publishing house Bloomsbury, maintains



that merely raising the existing river bank by 300mm would overcome the current problems.

The Environment Agency has rejected his proposals on the grounds that they have not had a proper flood risk assessment.

NUCLEAR ENERGY POWER PLANT RISK

Children aged nine or younger have a 21 per cent greater risk of dying from leukaemia if they live close to a nuclear power plant, a major new study has found.

Research published in the *European Journal of Cancer Care* examined 17 scientific studies covering 136 nuclear sites in the UK, Canada, France, the USA, Germany, Japan and Spain. The scientists discovered that death rates increased by up to 24 per cent in children younger than nine, and by 18 per cent in young people up to the age of 25.

The study was unusual in being

able to measure the health of the populations before and after nuclear facilities were constructed, allowing it to control for natural factors.

BIOFUELS COACHES PULL OUT

Coach firm National Express has pulled out of a trial which would have seen its fleet running on a 30 per cent biodiesel blend, citing 'environmental concerns'.

Richard Bowker, the company's chief executive, said that while biofuels may well have a future role to play, 'what appears to be the green option may not actually be green after all.'

Bowker pointed to the impact of sugar cane and rape on natural habitats and the rising cost of food worldwide.

FRAUD WHITEHALL IN DOCK

The Worldwide Fund for Nature (WWF) is taking the Government to court for financially guaranteeing one of the world's most environmentally damaging oil and gas projects whilst claiming that the decision was only 'under consideration'.

Working in partnership with environmental and social justice group The Corner House, WWF filed a case against the Export Credit Guarantee Department (ECGD), accusing it of underwriting £1bn of contracts for the Sakhalin Energy Investment Company.

A Freedom of Information request gave the campaign groups access to a letter that formed a legally binding commitment to guarantee the project, dated one day before a DTI minister told the House of Commons that no decision had yet been made.

James Leaton of WWF said that the ECGD had merely paid 'lip service' to the environment.



THE BIKE SMOKE

London Mayor Ken Livingstone has shown interest in the Parisian 'Velib' bike hire scheme, which offers 10,000 bikes at 750 city-wide hire-points.

The Mayor has asked Transport for London and the London Boroughs to see if bike hire could work in the capital.

SPACE TO PLAY

TV gardener Charlie Dimmock is asking the public to improve play spaces for children by building a community garden.

Dimmock's Dare to Care campaign has produced a guide, *How to Create a Community Garden*, which provides tips on transforming an overgrown garden or disused piece of land into a wildlife habitat and play area for children.

The guide is available free by calling 0800 284 533, or emailing: daretocare@csv.org.uk

NEW WOODS

The Forestry Commission, United Utilities and the RSPB are planning to replant almost 500 hectares of native oak woodland in the North-West.

The native woodland vanished 150 years ago, but 311,000 new trees will be planted in Lancashire and the Peak District. Juniper and holly trees, which are essential for migratory birds, will be included.

GREENWASH

BHP BILLITON

Global mining giant BHP Billiton has come up with a novel way of offsetting its rising CO₂ emissions.

In a recent interview, a company spokesman explained that although the company's own emissions would continue to rise, the uranium which it extracts from the Olympic Dam mine in Australia would lead to a growth of nuclear power and 'effectively offset the entire greenhouse emissions of Australia'.



Photography: JUPITER IMAGES

NUCLEAR POWER**NUCLEAR FEELS THE HEAT**

SOME LIKE IT HOT, BUT NUCLEAR POWER STATIONS DON'T SEEM TO

On 16 August, US power utility TVA was forced to turn off one reactor at its Browns Ferry power plant and reduce the output of two others, because the Tennessee river, which cools the station, had become too hot.

The situation lasted for more than 48 hours, as river water temperatures rose above 32°C and demand for power across the Tennessee hit an all-time high.

The reactor outage mirrored what happened in 2006, when several plants across the USA were forced to reduce their output, and in 2003, when 14 French reactors suffered in the summer heat wave.

Elsewhere, nuclear reactors have been dogged by heat of a different kind. In Japan, an earthquake measuring 6.8 on the Richter scale brought the world's most powerful nuclear reactor to a standstill, set part of the plant ablaze and caused more than 50 separate malfunctions. It also led to a spill of nearly 1,200 litres of radioactive fluid. The plant had been designed to withstand a 'theoretical maximum' strength quake of 6.5.

And in Germany both the Krümmel and Brunsbüttel nuclear plants had to be shut down because of a fire which broke out in a transformer system, taking nearly two gigawatts of power from the grid in the height of summer.

'Nuclear plants as they're designed now will produce less power in a warming world,' said Dave Lochbaum, Director of the Nuclear Safety Project at the Union of Concerned Scientists.

**MINING
NATURE 'TOO BIG'**

Plans for two new nature reserves in the Indian state of Orissa have been withdrawn in favour of industrial mines.

Proposals for the South Orissa and Bantarani Elephant Reserves had already been approved by the state government, with the aim of improving conservation for thousands of species in the state.

But the plans were suddenly withdrawn, with officials claiming that the planned parks were 'too big'.

Environmentalists have strongly criticised the Orissa state government for succumbing to pressure from the mining and industrial lobbies, a charge which officials deny.

Orissa is home to over 90 per cent of Eastern India's elephant population, and the reserves would have had a huge positive impact on the species.

**CHEMICAL POLLUTION
CATS AS CANARIES**

A ubiquitous fire retardant used in furniture, plastics, electronics and carpets has been linked to an increase in thyroid problems in cats.

Polybrominated diphenyl ethers (PBDEs) were first linked to thyroid disease in 1970s following the chemical's introduction. Now, a new study has shown that cats suffering from hyperthyroidism had correspondingly high levels of PBDEs in their blood.

Linda Birnbaum, co-author of the study conducted by the US Environmental Protection Agency, said that cats and young children would both be exposed to higher levels of PDBE-laced house dust than adults.

The researchers were surprised at the level of hormone-disruption which long-term, low-dose exposure to PDBE caused.

In lab tests, young animals

exposed to PDBEs shortly after birth show signs of brain development difficulties.

**ANTIBIOTIC RESISTANCE
SUDS LAW**

Commonly available antibacterial soaps are no more effective at reducing bacteria than conventional soaps, and may be



contributing to antibiotic resistance, a groundbreaking new study has found.

Allison Aiello and a team of scientists from the University of Michigan School of Public Health found that the concentrations of the antibiotic triclosan in soaps available over the counter did not kill any more bacteria than plain

soap. Aiello also discovered that E. coli bacteria exposed to triclosan soaps in the lab quickly evolved resistance to the drug.

The study advises government regulators to review the claims made for antibacterial soaps.

**HABITAT DESTRUCTION
STEEL AND SODA**

'I want to be able to go to bed at night and say that I haven't hurt anybody,' said Raman Tata, head of the Indian multinational Tata Group, in a recent interview.

His slumbers may be disturbed, then, when Tata begins construction of a giant soda-ash chemical plant on the shore of Lake Natron in northern Tanzania – home to three-quarters of the world's breeding population of lesser flamingoes.

Environmental groups fear that the 500,000 birds which nest at the lake each summer will be driven away by the plant,

associated coal power station and accommodation for 1,200 workers. Tata banned the RSPB from attending a public consultation on the plant in July.

Ramon Tata's dreams might also be troubled by his company's plans to construct a huge deep-water port next to the world's largest breeding ground for endangered Olive Ridley turtles, in his native India.

The port will cover 4,000 acres of land that the Orissa state government has removed from the Bhitarkanika sanctuary – a World Heritage site.

NATURAL SOLUTIONS GOATS BEAT SPRAYS

Californian farmers have a sophisticated new weapon in their fight against fire-starting weeds – the goat.

The threat of wildfires feeding on dried brush means that weeds must be kept under control in the dry Californian farming valleys. Conventional methods have

NOW THAT'S... PROGRESS

- 1** New Zealand coal mining company Solid Energy has tried to sue an environmental campaign group which produced a spoof version of its corporate social responsibility report.
- 2** Children claim that fast food presented to them in branded packaging tastes better than unlabelled food. The children were twice as likely to prefer the taste of branded carrots.
- 3** Heinz is launching a 'pot of beans for one'. The microwaveable plastic tubs are for those with 'time-pressured lifestyles', too busy to open a tin.
- 4** Cattle forced to lie on concrete barn floors are being given special £45 mattresses. 'If you lie in a comfortable bed all night, you'll be in good form all day,' explained the designer.

involved large quantities of herbicides, but now farmers are calling on travelling goat services to munch the weeds into submission.

Dave Cheney, who has run Pine Ridge Goats since 2001, sees the goat as the future of brush control.

MOUNTAIN DESTRUCTION BUSH SCRAPS RULE

George Bush is set to scrap a law which has hitherto prevented some instances of 'mountain-top removal' coal mining.

The 1983 regulation forbade coal companies to disturb the soil within 100 foot of a stream. Now, the authorities want to change the mandate so that in certain cases it can be ignored.

To date mountaintop removal, used on the Appalachian range, has destroyed 500,000 acres of land and buried more than 2,000 miles of streams.

GROWTH HORMONES NO TO RBGH

Responding to a growing consumer demand for natural food, US supermarket supplier Kroger has refused to use any milk which contains the stimulant rBGH.

The announcement by Kroger,

which operates 2,458 supermarkets, 15 dairies and three ice cream plants, will come as a significant blow to Monsanto, the drug's sole distributor.

rBGH, or Recombinant Bovine Growth Hormone, not only makes cows more vulnerable to udder infections and reproductive problems, but can also lead to the increase of another hormone, IGF-1, which has been associated with breast, colon and prostate cancers in humans.

CHERNOBYL BIRDS AIN'T SINGING

It's the argument which nuclear pundits have clung to for years – that plant and animal life has flourished in the fenced-off area around the site of the Chernobyl power plant.

Now a new study, published in *Biology Letters*, has concluded that the ecological effects of the 1986 explosion were considerably greater than previously thought.

The study, which examined 1,570 birds from 57 species, showed that the most contaminated areas now had 66 per cent less birdlife than comparable, non-polluted areas, and half as many different species of birds.



COOL COUNTIES

Some of the largest US counties have pledged to achieve an 80 per cent reduction in greenhouse gas emissions by 2050.

Signatories are pressing the US government to match equivalent emission reduction goals and to raise American fuel economy standards to 35 miles per gallon on all cars and light trucks within a decade.

The initiative, spearheaded by the American environmental group the Sierra Club, is an offshoot of its 'Cool Cities' programme, which to date has attracted 681 US cities to pledge similar emissions reduction targets.

'While our leaders in Washington remain asleep at the wheel, cities, states, and now counties are demonstrating extraordinary leadership,' said Sierra Club spokesperson Carl Pope.

GORE GOOD TO GO

An attempt to have Al Gore's film *An Inconvenient Truth* banned from UK schools has been thrown out of court.

Mr Justice Beatson ruled that 'the fact that the presenter is a public figure and active in US politics does not arguably make the film as a whole one of political indoctrination.'

GREENWASH NO SAABSTANCE

The Australian New South Wales Green Party has complained to the advertising regulator that motor firm Saab is making 'deceptive claims'.

Saab's 'Grrrrreen' advertising campaign informs the viewing public that 'every Saab is green', and that one ethanol model in particular is 'fuelled by nature', giving 'more power with a cleaner conscience'.

Green member of parliament Lee Rhiannon has argued that according to government data, Saabs are some of the least environmentally-friendly cars on the road.



Aluminium tyrants

Big industry is turning pristine Icelandic wilderness into a powerhouse for the world's aluminium.

Jaap Krater, Miriam Rose and Mark Anslow report

The gates of a geothermal power station are not where you would expect to find a group of environmental activists.

But the morning of 26 July 2007 saw the access road to Hellisheidi power station in Hengill, south-west Iceland, blocked off by a group of protesters from the campaign group 'Saving Iceland'. After a brief demonstration, nine activists were arrested and several now face legal action.

Geothermal power in Iceland is big business. Just five plants generate nearly three terawatt hours a year (3,000,000,000 kilowatt hours) – more than the annual output from all the UK's wind turbines combined. Geothermal power also provides at least 85 per cent of Iceland's homes with heat and hot water. This abundance of cheap, largely CO₂-free energy has attracted energy-hungry industries to the country like sharks to a carcass. Of these, by far the most energy-intensive is the aluminium industry.

Killing off democracy

Renewable energy is particularly attractive to aluminium smelters because the process of refining aluminium gives off huge amounts of CO₂, as well as a cocktail of other chemicals, including inorganic and organic fluorines, polyaromatic hydrocarbons and sulphur dioxides, many of which are extremely potent greenhouse gases. By using 'clean energy', such as the terawatts available in Iceland's hot rocks and mountain rivers, the refiners can make the industry appear cleaner.

Such opportunities have led to aluminium giants queuing to get into the country. Alcan opened Iceland's first plant in 1969, in Hafnarfjörður. Originally slated to produce 33,000 metric tonnes of aluminium per year (mtpy), it was subsequently uprated to 180,000 mtpy. Alcan is now pushing for a further expansion of the plant to around 460,000 mtpy, despite a public referendum that voted against the proposals. The Mayor of Hafnarfjörður, Ludvik Geirsson, is backing the company, claiming that the referendum only applied to the existing plans and would not prevent the construction of new facilities on top of the city's landfill site.

'Nietzsche killed God; Ludvik killed democracy,' read one activist's banner at a recent protest.

Iceland's second smelting plant opened in 1998 in Grundartangi, western Iceland. Owned by US-based Century Aluminium Company, the plant began with an output of 220,000 mtpy, but will soon add another 260,000 mtpy. Hungry for more capacity, Century's subsidiary, Norðurál, has announced plans for a new 250,000 mtpy facility at Helgúvík near Reykjavík.

While waiting for an Environmental Impact Assessment (EIA) to be considered, Norðurál has gone ahead and signed a 'memorandum of understanding' with two leading geothermal power generators, and raised some \$360 million in venture capital in the US. This suggests that

Norðurál knows that the EIA will not raise too many awkward questions. Some of this confidence may stem from the fact that the company which undertook the EIA is the construction firm HRV, which has co-built three of Iceland's previous smelters.

HRV's vested interests shine through in its report. In considering the airborne pollution that might result from the plant, HRV advises that any plumes vented from the factory could be expected to 'blow away' in the strong winds of Helgúvík.

Should the Icelandic government give the nod to the Helgúvík project, a correspondingly large-scale increase in geothermal power generation will be called for. While geothermal power can be a clean energy source, time, money and the interests of power-hungry industry can make it substantially less so.

The boiling water that comes out of geothermal boreholes is extremely useful while it spins turbines and heats buildings. After that it becomes a waste product. Laced with various and sometimes toxic compounds from deep within the bedrock, it is either pumped back into the borehole – which can lead to geological instability – or is pumped untreated into streams and lakes - a technique has already created a huge dead zone in Lake Thingvallavatn, leading to a decline in numbers of falcons, greylag geese, harlequin ducks and ravens.

Using geothermal resources so intensively also exhausts them quicker – some spots are expected to be 'cool' within the next three to four decades, possibly at a time when non-fossil energy is needed more than ever.

For the Saving Iceland protestors, the fight goes on. New plans include additional smelters by Alcoa and Norsk Hydro, an anode factory and oil refinery. If these are realised, CO₂ emissions could rise to 63 per cent above 1990 levels – ushering in the absurd situation of a country that generates 99 per cent of its electricity through renewable technologies soaring past its generous Kyoto targets. Because there is not enough geothermal potential to power all new industry, Iceland's glacial rivers would be dammed, destroying the largest remaining wilderness in Europe.

At a recent conference, Saving Iceland set out its manifesto. 'Progress is painted by some as huge projects, large scale development. In all our countries, these have become disasters, socially, ecologically and economically,' it reads. The group's human-scale definition is more accurate: 'Progress is a plenitude of small solutions.' **E**



Forty times Brofiscin...

As we dig deeper into chemical giant Monsanto's practice of dumping toxic wastes into the Welsh and English countryside, it becomes ever-clearer that Brofiscin is just the tip of the iceberg. **Jon Hughes** reports

In the aftermath of the recently-released Atkins report into Brofiscin Quarry in South Wales – the UK's most polluted site – yet another investigation is to be commissioned, to, somewhat unbelievably, determine if there is a threat to public health. It will be the umpteenth report into the site since Douglas Gowan's comprehensive investigations between 1968 and 1972 and the fourth since the Environment Agency took joint responsibility for the site in 2002.

Little matter that two of these reports – from environmental consultants Komex and Celtic, released in 2002 and 2003 respectively – found there was a public health risk. Indeed, the Komex report found PCBs and other quarry contaminants in the executive housing estate built in Groesfaen, overlooking the quarry, in the Eighties.

The investigation now being proposed, which will test quarry vapours to identify possible linkages to human receptors, will take two years to complete. In the meantime, householders will be left in limbo, unable to sell their homes as details of the potential threat from the quarry would have to be listed in their housing information packs; and not knowing whether they are exposing their children and future grand-children to chronic health problems as a result. PCBs have been linked to chronic neurological and respiratory conditions.

But it is not only the PCBs. Dioxins, acrylonitrile and vinyl chloride are also known to be present, both from analysis and confirmation by Monsanto – but it has transpired that no Government investigation has ever been asked to look for acrylonitrile or dioxins. It is known that many of the components used in the manufacture of Agent Orange were produced at Monsanto's Newport plant and these wastes were then dumped in Brofiscin. And it is distinctly possible that coolant wastes from Hinkley B nuclear power station have been dumped there. Monsanto's former chief chemist,

Herbert Vodden, confirmed to the *Ecologist* that he was aware that there had been a proposal for Monsanto to produce such a coolant, although he was unaware whether the project had gone ahead.

The latest investigation is unlikely to be undertaken by Atkins, which is now out of contract. The job will be tendered. The fact that three separate world-renowned institutions – Komex, Celtic and Atkins – have all reported various causes for concern, and concluded further investigations are needed, only to be let go, clearly suggests a revolving-door policy is being pursued, to cloud rather than clarify the outcomes.

Housing go-ahead on toxic site

Meanwhile the Environment Agency and Rhondda Cynon Taf Borough Council (RCT) continue to act like Tweedledee and Tweedledum, blaming each other for the failure to address the issues surrounding the former limestone quarry. Recently it became clear that RCT had kept both the Agency (and its predecessor) and Atkins in the dark about monitoring of the site it undertook through the Seventies to the early Nineties.

This monitoring (which we revealed in last month's *Ecologist*) led to planning officers in the Eighties recommending that the proposed residential development above the quarry be rejected because of the site's dangerous and volatile nature. RCT maintain that they have handed over all documents in their possession to the Agency. The Agency say not. Yet again, the substantive issues and proofs relating to Brofiscin are sidelined by inter-agency wrangling.

Meanwhile, after 18 months of endeavouring to be heard, Gowan's compelling eyewitness evidence and contemporaneous analysis was finally aired to the EAW and Atkins, and seemingly welcomed.

On provision of proofs, dioxins and acrylonitrile, will now be sought for in the forthcoming investigation, and soil, tree bark and house dust samples may be used to

determine the vapour trail. All the things Gowan has been urging the Agency to undertake for the past 18 months, only to be thwarted by the direct intervention of Graham Hillier, the Agency's second-in-command in Wales, and the actions of Natasha Lewis, an Agency lawyer.

Despite the mounting evidence and explicit concern from Komex, Celtic and Atkins, the Agency had not (at the time of going to press) alerted its regional outposts to the potential threat to public health from landfills where Monsanto dumped wastes in England and Wales. There are at least 12 known sites – eight have been identified, four are under 'review' (see list at www.theecologist.org/brofiscin). At one site in Telford, planning permission for a housing development has been given the go-ahead in the face of stiff opposition and eyewitness testimony as to night-time dumping by Monsanto.

Exactly the same *modus operandi* as Gowan witnessed at Brofiscin, and elsewhere. While these 12 known sites are absent from Monsanto's list of environmental legacy liabilities in the US Bankruptcy Courts, in August the beleaguered chemical giant suddenly and unprompted placed Aberystwyth on the list.

How many more such sites will emerge? In total, probably around 40. Not all of these are the responsibility of Monsanto alone, but of the booming chemicals industry that was actively encouraged by government in the UK in the Sixties and Seventies.

Growing anxiety about the way chemical wastes were being dumped and the potential threat to the environment and farmers' livelihoods led the National Farmers Union to send Gowan to Brofiscin, to investigate a succession of cattle deaths below the now notorious landfill site. It also resulted in a *Sunday Times* Insight investigation, which identified 40 such hotspots around the country.

Maybe the potential enormity of the public health threat stemming from this explains why MPs have remained so cravenly silent on this issue. **E**



Petitions

Press for change – using paper and online petitions.

Rachel Clode reports

The image of members of the public arriving at Downing Street with bundles of signatures calling for change is a familiar one, but online petitions have the potential to reach far greater numbers. Which has the greater impact, though?

If you have a cause that you want to promote, or a change that you want to get made, most people are familiar with the paper petition, giving a description of your campaign and asking people to sign their names to support it.

Email users may already be familiar with the forward from a friend asking you to put your name and email address to their cause. While sceptics decry these petitions as

respected no more than a blank sheet by those in power, or claim that email petitions are open to corruption through the programming of multiple false names, government sites are welcoming electronic petitioners. DirectGov in the UK now boasts more than three million visitors per month, a figure that's rising by 10 per cent per month.

It is worth remembering, though, that most successful campaigning is carried out using several methods and to rely on only petitioning may not be getting your cause the exposure it needs to force a change. Using the media, approaching your local ministers for support, affiliation with similar causes and direct protest can do nothing but help you. In campaigning, you can never do too much.

Joined-up campaigning

The DirectGov site is the home of the petition calling for an independent public enquiry into the decision-making process that led to the 2003 invasion of Iraq. You may find it alongside the petition to replace the national anthem with 'Gold' by Spandau Ballet. But, hoaxes aside, the site should be considered as a serious forum for change.

In the UK, Jamie Oliver's Feed Me Better campaign, for an improvement in school meals, received 25,000 signatures in a week. At its peak, 200 people a minute were signing and 116 MPs signed a cross-party motion resulting in £280 million being pumped into changing school meals across the UK and the creation of a School Food Trust. Jamie's campaign was assisted by huge media coverage, visits to the Houses of Parliament and a documentary series investigating the low standards in school meals. It was during the screening of Jamie's documentary that his petition received the most interest.

Another successful and well-publicised campaign was Jubilee 2000 (the predecessor to the Drop the Debt campaign), which collected a staggering 24,319,181 signatures

from 166 countries in online and paper formats. It has now evolved into the Jubilee Debt Campaign.

Or you could take a lead from the Million Faces petition. The world's largest visual petition, made up of photographs of its one million supporters, was presented to UN Secretary-General Kofi Annan last year in front of a giant AK-47 assault rifle made of prosthetic limbs.

The message, representing people in more than 160 countries, called for a worldwide effective control on global arms and was collected by the Control Arms campaign in a joint initiative with Oxfam, Amnesty International and the International Action Network on Small Arms (IANSA).

With 14 billion units of small arms ammunition produced around the world every year – roughly enough for two bullets to every person – this petition was made all the more effective by being delivered by the 'millionth' petitioner, Julius Arile Lomerinyang, a survivor of armed violence in northern Kenya.

BEFORE YOU SIGN UP

'Think like a man of action, and act like a man of thought.' Henri L. Bergson (1859–1941), French philosopher

Is it legitimate?

Who is running the campaign and who will receive the final email? Requests for your email address may be a legitimate check that you are a real person, but they could also be used to send you spam mail. In the UK, the Government has introduced internet petition protocols.

Are they selling you something?

You could sign a petition, only to be taken to a sales pitch.

What are the site's other interests?

Your petition should be on a site that has affinities with your cause; check its placement will not undermine your message. GoPetition.com claims to have 12,000 petitions in more than 75 countries, but posted a story covering a petition that saved two child oncology nurses' posts at Ipswich hospital, next to an advert for BUPA.

Will it reach all interested parties?

There are many potential signatories out there who do not use a computer.

Double your efforts

To ensure you are taken seriously, organise a paper and an online petition. Begin with a request to your potential signatories, followed by well-researched reasons. In your online version, provide links to documents and facts that support your cause.

Find your signatories

At www.pledgebank.com, you can gauge the interest in your campaign by pledging, e.g: 'Glenn Vowles will start a group called the Campaign for the Achievement of Sustainable Knowle (CASK) in my area of Bristol, but only if 10 other people in Knowle will help to set up and run the group.'

Finally, be clear about who you are delivering it to and when, and inform your target and your signatories. Get a receipt and find out any resulting actions. Publicise results online and in the media, thanking any contributors. You may need to call on them again.



Did you know?
 Shopping by car accounts for 20% of all trips and 12% of mileage travelled in the UK?

“
 The Internet Shoppers' Guide to Going Green enables us to adopt a greener and more ethical way of life without compromising our busy lives.”

I'm doing my bit, but...

Eco, Green, Organic, Ethical

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Listing thousands of ideas from carefully categorised trustworthy retailers, the guide helps you find those hidden gems to deliver your green dream direct to your door.

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Research* has shown that Internet retailing can:

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Special offer for Ecologist readers

Especially for readers of the Ecologist, SeeK.net is giving away 25 copies of the Internet Shoppers Guide to Going Green. Simply log on to www.seeK.net/ecologist, order a copy, and if the price is £0, you've won your free copy.



*Sources: IMRG, OECD, Ernst and Young, IBM



HEALTH

Changing climate, changing health

To understand the way climate change is going to affect our health and wellbeing, maybe we need to start looking at the smaller picture, argues **Pat Thomas**

Earlier this year, a team of British scientists announced that they had found the key to halting the spread of malaria, a disease that kills more than a million people a year, mostly in sub-Saharan Africa. All they had to do was release genetically modified mosquitoes, incapable of passing the plasmodium parasite, which causes malaria, into the wild. The GM mossies being a bit fitter than the natural ones, would live longer and lay more eggs and eventually become the dominant species in any mosquito-friendly habitat. Problem solved.

The story was important for two reasons. Firstly, because of its absurd presumptions about the safety of this endeavour. Secondly, because as our climate changes, malaria – along with most other vector-borne diseases – is set to become a worldwide problem.

That climate change will redefine what we know about health and disease is a certainty. Yet our understanding of how it will change everything remains very limited and focused on the obvious.

It's not just that summers will be hotter or that extreme weather patterns such as hurricanes

will devastate communities. It's not even the fact that changing climate will redistribute disease-carrying insects, such as mosquitoes, making their range much wider – though these things are indisputably important.

Dramatic increases in severe weather events such as heatwaves, major storms and flooding will certainly have a dramatic effect on our health and wellbeing. And certainly it is right that governments, scientists and health officials should be thinking about the most effective way to respond to the greater number and wider scope of climate-related health crises that we could be facing.

But to really get to grips with what climate change will mean for human health, we need to be paying attention to what will happen on the micro level – the level beyond that which we can see with our everyday eyes.

For years, we have lived in fear of 'germs' –

bacteria, viruses, fungi and other parasites that can invade our bodies and cause illness. We spend billions each year producing antibiotics to fight bacteria. For decades, we have gulped these magic bullets down by the handful – until we realised that 'germs' are smarter

and much more adaptable than we are and have the ability to become rapidly immune to their effects. The more we attack them, the more invulnerable they become.

If antibiotics have taught us anything, it's that bacteria love a challenge. Likewise our efforts to control influenza, both human and avian. Now, in an era of climate change, we have set a challenge to the world's microbes that may see them evolving faster than we can envisage creative solutions to stop them.

These changes are already happening. Last year, Dutch farmers were surprised to find their animals suffering from blue tongue disease, a viral infection that attacks the blood vessels of ruminant animals, primarily sheep, causing high fever, sweating, swollen feet and, in some animals, a characteristic blue tongue. Elsewhere in northern Europe, cows have come down with it. But what was most surprising wasn't just that until now, the disease was largely unknown in the northern hemisphere (it is most commonly found in Africa, Asia, Australia and the Americas), but the fact that the virus infecting the Dutch animals was a totally different type from the one that is common in the South. It had successfully adapted to our climate.

Scientists in Bangladesh studying *Vibrio cholerae*, the bacterium that causes cholera, have found the same thing. As climate variability in that country increases, the bacterium has rapidly evolved to be less sensitive to climate changes, and thus more robust. In Central Asia, evidence suggests that the *Yersinia pestis* bacterium, which causes

“ We have lived in fear of 'germs' and we spend billions on antibiotics, but have finally realised that 'germs' are smarter than we are



bubonic plague, favours a warmer climate. Just a 1°C increase in spring temperatures is predicted to lead to a more than 50 per cent increase in incidence of the disease (known commonly as the Black Death), which wiped out nearly half of the European population in the mid-1300s.

In January of this year, scientists in Australia warned that climate change could create two flu seasons in southern Western Australia – a phenomenon already noted in northern parts of the country, where milder winters mean there are now two influenza seasons a year. The infections that arise are often less severe and these milder infections can mean that the body does not produce quite enough antibodies to fight off the virus completely. Result? A population with permanent sniffles.

The news from Australia came as researchers at Cardiff University warned that milder winters in the UK could also lead to colds that were less severe but lasted much longer, maybe even permanently. The Cardiff scientists envisioned a British cold season that could last from February through to November.

It may not just be the weather that is influential in creating more adaptable and powerful bugs. Some scientists speculate that rising levels of atmospheric CO₂ can have a dramatic effect on the growth cycles of viruses. The theory is that CO₂ is an acidic gas, and viruses in particular thrive in more acidic conditions. Some evidence suggests that the common influenza virus, as well as the less common Ebola and SARS viruses, prefers this more acidic body environment – just the kind that might arise in the blood and tissues of humans who are inhaling more CO₂ with every breath.

In the same way that viruses can adapt to changing external climate, they can also adapt to the changing internal climate of bodies living in a CO₂-heavy environment. Will it make them stronger and more virulent? No one knows yet, but clearly, whatever the emerging climate can throw at them, microbes will be able to hit back – with force.

Before we try to see the silver lining of how pleasant it will be to be able to sunbathe in Britain in December, and before we celebrate 'breakthroughs' like GM mosquitoes, perhaps we should stop to consider the fuller picture of the potential microbial monsters we have unleashed on the world through our continued selfish, irresponsible and, frankly, antisocial habit of belching out greenhouse gases. **E**

Pat Thomas is Editor of the *Ecologist*.

MAKING DO

Buying happiness

The longer this goes on, the more absurd it becomes. Making a pledge to not buy anything new for myself, for a year. How daft is that? I have had to deal with difficult questions from friends and colleagues and a fair amount of criticism and doubt. Fair enough, it's a daft thing to do and it truly doesn't stand up to much scrutiny.

Do I buy things for other people, like my family? Yes. Do I buy food? Yes. What about medicine? Yes. So what's it all about?

The truth is, I don't really know any more, but now I've started, I really can't stop, or is that start? I am the best cheat in the world, and yet I can say, hand on heart that I haven't cheated. I haven't needed to and it's not anything to do with consumerism or waste or climate change or Fairtrade. It's to do with attitude, it's internal, and it's been a paradigm shift in the way I see myself. For something this tiny – and it is a tiny shift in my behaviour – to have caused such a change in my world view, is something that I never expected.

Maybe it's to do with coming of age in the 1970s. The two things that really impacted my life as a young adult were feminism and anti-consumerism. I lived on a pittance and shared a squat with hard line feminists. For a long time the feminist revolution was the part of that era I remembered most clearly. But recently I have recalled the massive effort we put into not going to supermarkets, not buying new things, not falling for advertising and doing everything we could to opt out of the free market economy.

That's how I have always seen myself, just an old hippie who doesn't buy into consumer culture. The thing is, since I made the decision to stop buying



anything for myself I have realised how casually I used to buy things. Books, probably two or three a week on average and so far this year, I haven't run out of books I haven't yet read. I have so many it's taken me eight months to get through them. Computers and electronic hardware, new software, a lot has come out just recently and I have ogled at it. But I haven't bought it and nothing has happened; I am still OK.

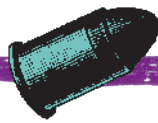
I was always intrigued by the notion of delayed gratification, and working the way I do I have become a master of it. My work schedule is either on or off, that's the way the TV industry works. You are on seven days a week with barely enough time to sleep, or you are 'resting' for months, waiting for the phone to ring. So you mentally save up and relish the moment you have time to go out and buy some groovy, but utterly unnecessary, bit of high-tech gadgetry.

I think I secretly imagined that's what I'd do after this year, but I have just walked past a flashy high-end electronic store and looked at some newly-released High Definition camcorder with all the trimmings. I knew as I looked at it, I wasn't going to buy it, I didn't need it and it was all rather depressing. Buying things, I can now see, is how we cheer ourselves up – no great revelation, everyone in marketing certainly knows that. But I used to think I was immune. When I saw women walking along with a dozen shopping bags full of clothes they may only wear once, I felt sorry for them. I

“Buying things, I can see now, is how we cheer ourselves up. No great revelation... everyone knows that... but I used to think I was immune

knew they were going to be the same person no matter what they wore. I have a feeling that after this year, I am not going to be the same person I was last year. **E**

Robert Llewellyn is an author, actor and television presenter.



ACTIVISM

Bullet-point politics

When the political élite set out to dub as terrorists politically-engaged, environmentally-concerned citizens, we should be afraid, very afraid, says **Jon Hughes**

There were no hoax bombs. There was no attempt to storm the runway. There were no bogus businessmen causing terminal chaos. There were no terrorists. There was, however, a group of nice people with a grave concern: climate change.

By Sunday 19 August, despite the siren voices and use of anti-terror laws, around 1,200 people from across the country had joined the climate camp at Heathrow. All present were alert to the absurdity of Government policy in relation to the converging crises of climate change and peak oil. This is a government that wants to have its cake and eat it too.

On the one hand it actively promotes the need for a third runway at Heathrow (amid other airport expansion across the country) while also saying that the UK is going to cut emissions of carbon dioxide (CO₂) by 60 per cent over the next 43 years. Little matter that a growing consensus from such as the Tyndall Centre for Climate Change Research already says we have to reduce emissions by 90 per cent if we don't want to see catastrophic global warming of the climate above 2°C

The Government figures and thinking, unlike the planes over London, simply don't stack up. They envisage a rate of airport expansion over the next 30 years that would see the sector account for between 25 and 50 per cent of the UK's current total emissions. As we have been unable to cut emissions for all but one year since Kyoto was signed in 1997, it's fair to say the Government is playing fast and loose with our future.

Many of the people at the climate camp were there because they are educated about the subject and have exhausted the political process of trying to effect change. They have done what they have been told to do; they've pursued the increasingly long and winding democratic road. They've joined committees, lobbied Town Halls, appealed to regional assembly members, MPs and MEPs, only to be thwarted by party machines.

And they have done the ultimate; they have

written to the relevant minister to question the inherent contradictions in Government policy and asking for an explanation as to the rationale of policies being pursued.

Eventually, such correspondents receive a reply in the form of a pro-forma letter. This is a thank you and goodnight letter; the inherent message being, will you kindly leave the stage. If you have ever had the misfortune to receive one of these you'll know what they are like. They sympathise with your concerns, pat your pertinence and offer reassurance in the sinister form of telling you that you don't know what they know, and almost wholly ignore the questions and concerns raised.

This pro-forma response is indicative of a pro-forma culture; and a pro-forma, multiple-choice education system. First, calculators made it unnecessary to learn maths (all too evident in Whitehall) and now we've got computers and a multiple-choice lotto. No student of any age need learn past the letter 'E'. And 'E' is the grade you flunk out to.

We have got an 'E' Government. Hot on sex, drugs and rock 'n' roll; paralysed when it comes to climate change, energy and planning for the future. Headless chickens of this calibre have traditionally been Team England football managers.

Within Government, the science of climate change remains in doubt. It's all 'yea, so, if, but, maybe'. As with energy, there's a nudge-nudge wink-wink allusion to a techno-fix not too far away. Or the last chance saloon: offsetting our carbon emissions by making developing countries go green, to allow us to pursue such major infrastructure projects as the third runway in order to underwrite our subprime economic policy. Consumer debt in the UK stands at £1.3 trillion, greater than the total of our gross national product.

This is crazed both in principle and practice

and displays an astonishing arrogance that is becoming the hallmark of public service (so-called). We are all familiar with the we-know-best attitude from 'customer' service that disguises its disinterest in opposing views by accusing you of being aggressive, followed by click... brrrrrrrrrr.

Accordingly, all the scientists in the world are dismissed as being wrong on climate, peak oil and peak everything.

This arrogance manifests itself in other ways. Since the then Chancellor Kenneth Clarke admitted he hadn't and didn't know anyone who had read the Maestricht Treaty, which was signed in 1992, it has become increasingly obvious that many MPs and ministers don't read much. That's because they, and their counterparts in the media, like their information to be bullet-pointed.

Many of the people at climate camp were there because they are educated in the subject and have exhausted the political process

The 'vision thing' has become a V-sign to detail. Little wonder, then, that the Government doesn't understand ecology. Little wonder that its ministers can't engage with the pressing issues of the day.

Both the Thatcher and Blair governments politicised the civil service in order to end what was disparagingly called the 'jobs for life' culture. With it went a tiny minority who abused the system, but also the fastidiousness and continuity that goes with an apolitical bureaucracy. Now we have fly boys and girls whose notion of the future spans about four years – the length of a parliament.

At the climate camp there was a gathering of inherently decent people: the old, the young, families with young children, students, academics, future leaders, poets, musicians and visionaries. They were met with a bullet-point response.

They were dubbed terrorists in press reports that environmental campaigner and journalist

George Monbiot exposed as being, if not fantasy, then political propaganda. Anti-terror laws were used against them; student Cristina Fraser was detained for 30 hours when stopped while cycling past Heathrow, held under section 58 of the Terrorism Act. The protesters were photographed by police photographers armed with paparazzi-style lenses. They were probably videoed by a police camera van as they left the nearby stations. They got used to seeing armed police up close and personal.

In a draconian show of strength, 1,600 police officers were on standby to face down the protestors and give clear warning that nothing will be allowed to interrupt operations at Heathrow, whatever the cost.

That spark that lit the fuse that caused the orange revolution in the Ukraine was not the miners' strike itself, but when the government attempted to brutally disallow them the right to protest. No such response here.

Inevitably, bullet-point politics leads to the politics of the gun. We should have been there in greater number. **E**

Jon Hughes is deputy editor of the *Ecologist*

First they came for the Jews

Pastor Martin Niemoller

First they came for the Jews
and I did not speak out
because I was not a Jew.

Then they came for the Communists
and I did not speak out
because I was not a Communist.

Then they came for the trade unionists
and I did not speak out
because I was not a trade unionist.

Then they came for me
and there was no one left
to speak out for me.

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CLIMATE CHANGE

Keeping critical data on ice

Secret probes beneath the Arctic ice fields have unearthed some disturbing data about the course of climate change. **Mad Scientist** reports

A working scientist often gets phone calls at all hours. Calls in the small hours of the night are not uncommon, usually another scientist with something important and interesting, across thousands of kilometres and several time zones. Excitement makes them forget the time difference. Pilots get jet-lag. Scientists get phone-lag. So the distant call from America was not unusual.

It was my friend 'Dr X', out on the West coast, still at work in his lab; early evening there, but 2am here. But his subject – Greenland and Arctic ice wilderness – instantly grabbed my attention. 'Also,' he asked, 'what do you know about a certain mysterious mission of a British nuclear submarine deep beneath the Arctic ice fields?' Not a lot. But an hour of highly technical discussion later, I hung up, feeling intrigued. I went back to bed, but not to sleep. A restless night then a day of intense activity, emails, phone calls and faxes. Dr X's nocturnal call started to make sense. I scanned pages of notes over supper that night, truth sinking in, wondering what to do.

The wall above my desk now held huge blow-ups of marine charts of the North Atlantic, showing winds and ocean currents, vast white masses of Arctic ice running right across the top. Covered in scribbled comments and yellow post-it notes, I was looking at a future disaster of gigantic proportions.

Staring me in the face was the planet's first big climate change disaster, an environmental apocalypse that might eventually engulf most of the northern hemisphere. Not in a hundred years, but perhaps in as many months. Possibly even less. Beginning, say, 2020, to roughly 2030. It sounded like a Hollywood disaster movie script; I thought of the blockbuster film, *The Day After Tomorrow*, with America and Europe

overwhelmed by ice-catastrophe. But it only sounded like fiction until you checked the meticulous work of the scientists involved, listened to the urgent way they were speaking. Put simply, although most would not go so far in public, they were absolutely dire in their private predictions.

The nuclear sub had been on a critical scientific expedition. The Commander's briefing was that this is 'The most important British naval mission ever, peacetime or war.' So HMS *Tireless* set out last spring from her UK base, heading out into the vastness of the North Atlantic, scientists and instruments on board, diving deep under the sea-ice, then south, very deep, back-tracking along and underneath the massive northwards flow of the Gulf Stream.

Taking dangerous risks, the sub nearly sank during a massive fire to oxygen generators, crashing through sea-ice to the surface with two dead, many injured and crew half gassed. The Navy nearly lost the sub, but, with true grit, brought scientists and precious data back to Britain.

Tracking this tale of secret nuclear sub expeditions, disaster and arctic danger, was pure B-movie script. But the cold reality involved serious scientific discussions with experts.

Experts like Professor Peter Wadhams, senior oceanographer at Cambridge University, who had been chief scientist on the sub expedition. I listened, fascinated, to his explanations of what it all meant. Or might mean.

The problem is, he explained, that Arctic and Atlantic climate change is reaching a critical tipping point. Scientists could make predictions, all of which sounded absolutely frightening, but when it came to timelines, or accurate estimates, all computer models went wobbly, or simply didn't exist.

Science, and the planet, would be entering

unknown seas. I thought ancient sea-charts, with drawings of mythical sea-monsters in vast gaps of ocean where mediaeval geographers could only guess at future voyages and discoveries. Except this time, there were real monsters, called climate-disaster.

Pressed for explanations, the professor was only certain of the sheer scale of future events. Basically, sometime between 2020 and 2030, all of the Arctic Ocean pack-ice cover was going to melt, leaving a vast bare expanse of open ocean, where before there had been only solid white ice. Winters would see limited ice reforming, melting away again like fog in the spring. The ice, now gone, had been vital to the stability of the entire northern hemisphere weather system and climate.

Without it, solar heat, reflected back into space by the expanse of white ice, acting like a giant mirror, would relentlessly heat up Arctic seas. Extra heat would be pure fuel for the polar weather system. It would spawn storms and highly disturbed weather patterns sweeping down on Europe and North America with unprecedented violence. Atlantic Ocean weather would change radically.

The great storm tracks that now swept up the central Atlantic, striking the Arctic in Spitsbergen, would curve further south, hitting the British Isles instead. Everything, from rainfall to floods, would be affected. All this starting possibly as early as 15 years from now, perhaps no more than 20 years in the future? 'Yes', was the grim answer. The changes would be huge, dramatic. The problem was, right now, we could not accurately predict these events. Only pure luck had given us this warning of things to come.

The Royal Navy is now the only one still doing submarine science expeditions beneath the polar ice, charting the relentless collapse of ice-floes and their thickness. Professor Wadhams had watched his research funding being ruthlessly slashed by NERC (The UK Natural Environment Research Council); the submarine's expedition was nearly cancelled. Just in time, last-minute alternative funds

Temperature rises like this meant huge droughts, searing heat, agricultural collapse, waves of desperate refugees – all headed North

were found. Pure luck, or we would have been walking blind to future disaster. Even with future Royal Navy expeditions, we would have only about 60 months' warning before the tipping point.

There is, apparently, very little that can be done to avert this. Climate change feedback loops have been triggered, and will run their course, until the wildly fluctuating climate of our planet finally settles, perhaps in 150 years' time. This forthcoming Arctic ice-disaster is not just a climate catastrophe; it is an advance warning signal, one we had nearly missed completely.

There was, surprisingly, some good news in the form of a 'cooling effect'. Apparently, climate changes would see European temperatures soar in the next few decades – by at least four degrees centigrade, perhaps more. Mark Lynas's book, *Six Degrees*, with its dire predictions, came to mind. Temperature rises like this meant that Southern Europe would become like North Africa. Huge droughts, searing heat, agricultural collapse, and waves of desperate refugees, all headed north.

And in Britain? The Gulf Stream was failing, slowly, as the ice vanished. It would slow down by perhaps at least 20 per cent or more. As that vast invisible river in the sea lost its flow of heat, a strong chill would descend on Northern Europe. Temperatures would go up, but by only one and a half degrees.

This 'good news' meant that Britain would probably escape the heatwaves and droughts destroying Southern Europe – for a time. And after that? The computer predictions did not exist. Things became dark and uncertain. Probably, possibly, things might get worse.

I went for a late-night walk on the beach to clear my head. When I came back, the phone was ringing – again. It was an old friend, prominent in British environmental journalism. He was, he announced, off to Greenland. With the head of the Orthodox Christian Church. Plus assorted Coptic Popes, ayatollahs, cardinals, archbishops and a mass-media circus.

Why? Because religious leaders were convinced that climate disaster was now certain in our lifetime. The key was the Arctic changes. They were going to assemble, out on the Arctic ice, and pray, fervently, for the safety of the world. **E**

Mad Scientist will return next month.

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If I...

...were in charge of transport

we'd all be driving at 30mph, says **Glenn Lowcock**

In the very near future we will all be faced with the fact that there simply isn't enough oil to go around. With domestic demand continuing to rise, and with China and India now claiming a fair cut of the world's finite stock, the supply of oil is already beginning to fall some way short of global requirements. As the number of oil fields yet to come on-stream is ever diminishing, the price per barrel looks set to double and treble, and our oil-dependent economy will soon strain to avoid social calamity.

If we take steps now it may just be possible to make a reasonable transition to an economy that is much less reliant on fossil fuels and the global oil market, but the way we live will inevitably have to change. The rising price of dwindling supplies is one thing, but it should be coupled with the ever-more-pressing issue of the environmental damage caused by our chronic dependency on oil. Given the short time frame available, it seems that now is the time to be asking what sort of change might be desirable, and manageable, and how best to proceed.

In terms of overall oil consumption, our transport system uses a significant percentage. More important, however, is the way the extensive road-based infrastructure affects society. From generation to generation throughout the past century, oil has made it possible for people to travel ever greater distances – and in doing so, almost without us realising it, has given form and pattern to the world we live in – socially, economically, culturally.

While the early days of mass easy travel offered excitement and the possibility of alleviating real poverty, the picture has now

soured. The very technology that enables us to travel is now, in today's centralised society, the very same infrastructure that demands of us the imperative: that for almost all our needs we have no choice but to travel.

The current approach to managing the fuel required for transport is to seek to achieve an extra few 'miles per gallon' from road vehicles. In the oil-scarce future this will simply not be enough. We should instead be looking to question in the broadest terms the ethos behind current transport policy, our expectations regarding travel, and the very wide-ranging effects of travelling longer distances. In short, to the extent that transport has shaped our society today, it is to transport we should look to figure the 'post-oil society' to come.

So if I were in charge of transport, I wouldn't be investing billions of pounds widening the M1 and M6. The lever to pull is not the one labelled 'more' but the one labelled 'less'. Instead, I'd introduce a universal maximum speed limit of 30mph. Motorways included. This in itself would not be the means to reduce oil consumption, though after a period of adjustment this would also be the result. The point is to engineer a shift toward a low oil-use economy and thereby stimulate real and significant social change. This is where the rewards will be found.

How would the result of such a change in speed limit affect us?

We could all still buy cars and travel as much as we wished. As vehicle manufacture stands today, however, the vast majority of motoring technology is geared toward maintaining the current pattern of sales and consumption, tweaked annually to achieve a bit more performance from essentially the same

product. Engineers put their best efforts into designing cars to travel at 180mph and achieve 0-60 in 2 seconds. The industry fixation with speed, status and wealth contrives to distance us from the real practicalities of travel.

The suggested reduction in permitted road speed to 30mph or below would overnight render these goals redundant.

The car's utility value would plummet and we will be forced to think of alternatives. Human nature will also intervene as drivers think twice about purchasing a new Porsche Cayenne or a Ferrari when bearing in mind an urban speed limit of 20mph and the sight of cyclists

merrily passing them by. Instead, other forms of transport would really come into their own as people choose to walk more, cycle more, and to use other 'slow-transport' – maybe cycle plus a small engine for hill climbs. Slower forms of transport would become much safer and viable: cycling at 15mph compares very favourably amongst vehicles travelling at 28mph as against 58mph.

The increase in sales of super-efficient vehicles (already being developed) would accelerate their further research and development. After the initial shock to the system, manufacturers would be more than pleased to offer us a whole new series of minimal-energy vehicles, designed both for sustainability and the new 20–30mph market. Overall, we have to think seriously about the journeys we take, how we travel and how often.

As a reasonable journey time for most of us is around an hour, for daily practicality we would choose to satisfy the bulk of our immediate needs within 25 to 30 miles. Goods sourced locally could compete very favourably without the need for further market adjustment – food especially being a case in point.

The increase in journey time over longer distances would have the effect of increasing the price of goods requiring extended transportation, and sales of such items would fall. There would be a real expectation that durable goods would have a longer lifespan and we would look to repair them rather than buy a replacement. The benefit to the environment is clear.

The trend toward 'distance working' via the internet would be encouraged, and lengthy daily commuting become the exception rather than the norm. Alongside the growth in wireless communication, the increase in journey times would also see many people needing to live closer to their places of work. By reorganising our larger towns and cities for a more integrated residential and commercial mix, the new speed limit would bring about a real and unprecedented level of urban regeneration. Whether considering the health service, education, or the provision of goods or recreation facilities, the sense of increased distance would call for a wide-ranging decentralisation. Though changed somewhat, the life of city, town and country would all remain viable.

The slower life many seek in rural Spain or the Dordogne would be right here at home. Today's overheated pace of urban life would no longer be possible and we would develop our lives more at the local scale, bringing with it a greater level of social cohesion. It would be a

The point is to engineer a shift towards a low oil-use economy and thereby stimulate real and significant social change

real step toward a caring society, with less commuting, locally grown produce, reduced stress, and more time to enjoy life. And just imagine the number of lives saved on our road networks – for ever.

The move toward the new concept of slower travel would probably need to be phased in over the next few years, with speed limits decreasing from 50 to 40 to 30mph. Its implementation could be facilitated by the use of speed limiters fitted onto road vehicles.

The limits to road travel would mean that for longer journeys beyond the local environment the railway would become *the* means of transport. It would of course require a good deal of public investment to deal with the new importance of the railways, and specifically address the system's use of resources and fuel. It is quite possible that in the near future we may see rolling-stock designed to carry some yet-to-be-developed 'small vehicles', which use trains in a 'roll-on roll-off' manner: compact design versions of the Channel Tunnel rail link operating throughout the country.

As an integral part of the new 30mph strategy, air travel should be properly taxed to reflect the true 'hidden' costs it entails. Aviation fuel is already becoming expensive and within a couple of years fuel surcharges by themselves may well bring to an end the era of cheap flights; and should environmental taxes also be included, the aviation industry will face contraction on a massive scale.

It is impossible to guess the future developments that may be made in the area of super-efficient or 'alternative-fuel' vehicles but one thing is sure: if we don't change the overall transport environment there simply won't be the encouragement to stimulate the level of innovation required.

The growing scarcity of oil calls for radical thinking and this can often lead to politically unpalatable policies. But the problem will not solve itself, so we all need to consider the options available. We need to think about it and talk about it in order that something might be done. By accepting a partial reduction in our freedom to travel, could the 30mph speed limit on the one hand reduce our dependency on oil and, on the other, actually provide us with an improved quality of life? **E**

Glenn Lowcock studied architecture and the built environment at the Architectural Association in London. He is a member of the Secular Franciscan Order and is currently an artist living and working in East Sussex.

CASSANDRA

The architecture of life

I have a theological prejudice about beauty; when evoked it signifies to me that the people involved are living in harmony with the purposes for which God evoked the universe.

The architects of medieval Europe built hundreds of cathedrals and thousands of parish churches of a quite miraculous magnificence that still strikes us with wonder.

Of course, these men didn't all live in equivalent harmony. The medieval Church was an ecclesiastical Mafioso; the Inquisition, a land-grabbing exercise in which innocents were tortured; small towns burned helpless women as witches; and Galileo was put on trial for his life for asserting that the earth was not flat but round.

Yet the human genius soared above this moral squalor and created, in architecture, sculpture, painting, music, literature, even in mundane artefacts, a quality of enduring loveliness of iridescent splendour.

Where has it all gone? Why is modern life so ugly? Why are the wellsprings of creativity so tarnished with sterility and falsity? What has died in the human soul that our collective consciousness no longer soars, but wallows in swamps of mediocrity?

We have formed the first ugly civilisation. The seamliness, harmony and exquisite proportions of a straw-thatched African village mocks the vulgar moral incoherence of the modern city; architecture, no longer a civic expression of community concern, is a bleak manifestation of commercially-inspired egoism. The passive indifference of this aesthetic wantonness is frightening.

Why don't people care more? Churchill said, 'We shape our buildings, thereafter they shape us'. One reason why he insisted that the design of the rebuilt House of Commons should continue an emphatic division between the



government and the opposition.

But think what our school buildings are doing to our children! The Victorians, still influenced by the Renaissance, left us structures of civic significance. Yes, they were formalistic and rather pompous; but they expressed that teaching and learning was a very special concern.

Contrast that with what we feed our children's aesthetic instincts: cubic hutments like moronic adaptations of slum clearance housing estates. Over thousands of years, we have progressed from a pyramid to a box: boxes built with no inspiration to convey the spiritual wonder of the promises of the riches of life; calculated by cheeseparing bureaucrats, with all the élan of detention centres for delinquent drug addicts. Is it any surprise when they produce a generation of semi-literate, unemployable hooligans?

We can't say we were not warned; the voices of the poets and artists were as eloquent as they were unheeded; warning us that the prize of industrialised anarchy would be endless degradation of the human spirit. When William Morris sought to elevate the quest for beauty as a major concern of civilisation, the business world went its dominant way with a sneer, and when Ruskin said 'There is no wealth but life', his words were dismissed as sentimental twaddle.

We in the modern age have matchless cathedrals bequeathed to us, built by and to serve communities of only a thousand or so of our forebears, who sacrificed life and limb to assert the essential spirituality of life. Now we scarcely maintain their roofs. We are too busy building motorways and runways, ignoring beauty in a heedless

rush to a destiny of moral incoherence, social devastation and suicidal ecological destruction. **E**

Over thousands of years, we have progressed from a pyramid to a box

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

BEHIND THE LABEL: K-Y Jelly

Want to make sex more sensual and fun? Having difficulty conceiving? Don't reach for a lubricant to boost your love life, says **Pat Thomas**, it could harm your health and fertility

Globally we spend around \$1.32 billion a year on personal lubricants, and the market is growing. There are literally hundreds of lubricants on the shelves. K-Y Jelly – first patented in 1904 as a surgical lubricant – is the oldest and most trusted brand, as well as the market leader, commanding around 52 per cent of the market.

The marketing mythology is that lubricants are largely bought by female baby boomers who are reaching menopause, younger women taking oral contraceptives, and breastfeeding mothers. Certainly at each of these stages in a woman's life, vaginal dryness can occur. However, lubricants are also used by gay couples – of both sexes – and by heterosexual lovers looking to spice up their love lives with new-age lubes that give a warming sensation (K-Y recently expanded its range to include a liquid lubricant, K-Y Liquid, and a warming lubricant, K-Y Warming) or which are, for example, chocolate flavoured.

There may be something luxurious about slathering on sexual lubricant, but the

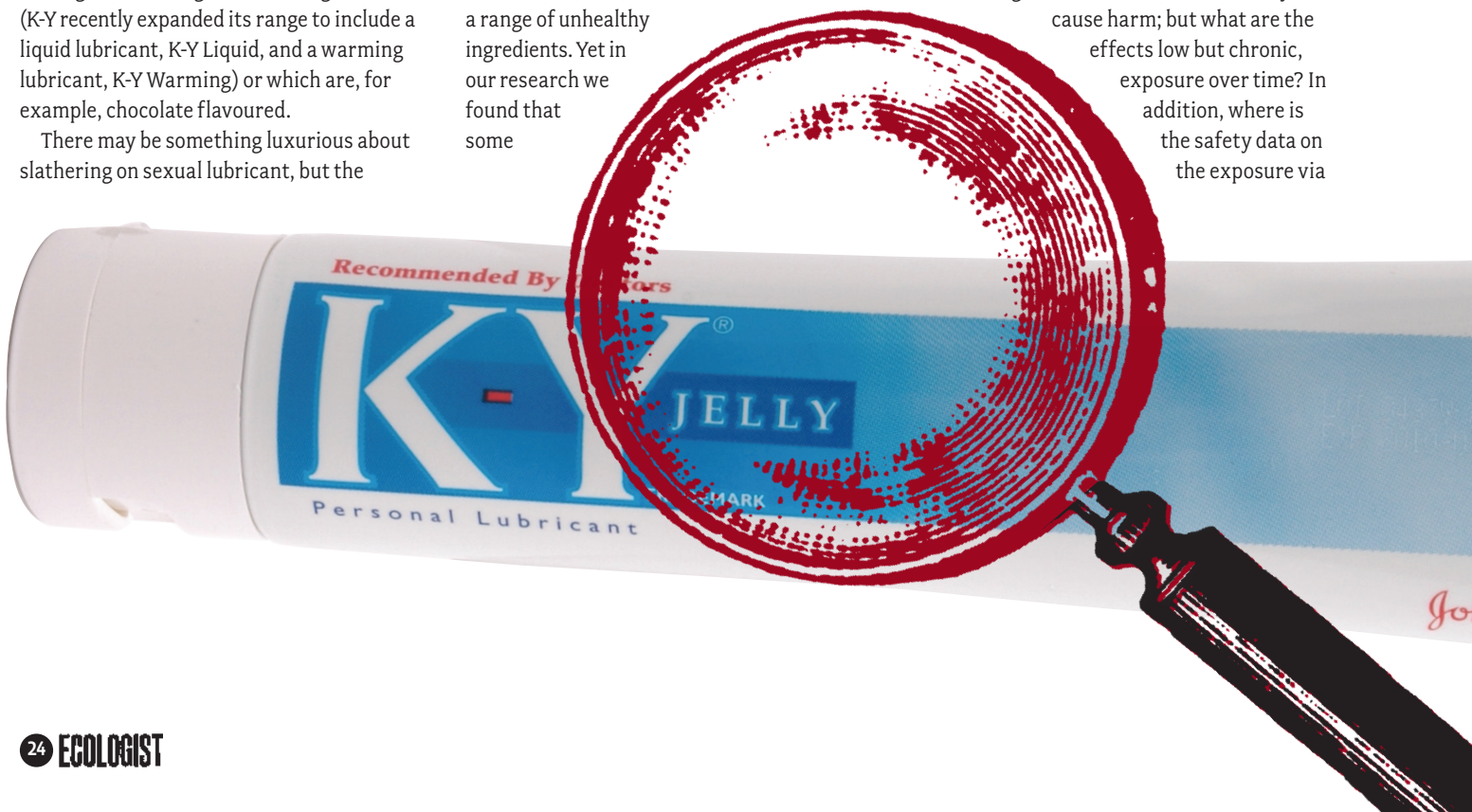
cultural quandaries posed by the increasing use of these products are complex. Why, for instance, would you need your lover to taste of chocolate? And if you do, why not use actual chocolate? Why would a woman who is neither on the Pill, breastfeeding or going through menopause have trouble producing her own lubrication? Most observers link this to a lack of decent foreplay in the rush to get to the 'goal' of penetrative sex. If this is the case, it would seem to link into reports of women's increasing lack of satisfaction with sex in general. Likewise, more and more women are also taking anti-depressants and this can interfere with natural lubrication.

Those thorny questions aside, there are genuine reasons to rethink the use of personal lubricants. Sex should be a healthy act, but lubricants can contain a range of unhealthy ingredients. Yet in our research we found that some

manufacturers of lubricant products (Durex Play, for example) do not even declare the product ingredients on the package, making safe comparative choices impossible.

Because of the way in which personal lubricants are used – in intimate places and in the heat of the moment – most of these ingredients are preservatives such as sodium hydroxide (also known as lye or caustic soda) that can be irritating to the mucous membranes. Some, like parabens, are not only irritating, they are oestrogenic.

Most of the data on skin absorption of these chemicals is based on skin outside the body or on oral ingestion. As always when raising the issue of potentially toxic effects, there will be someone who argues that very large doses of these chemicals need to be ingested or absorbed before they cause harm; but what are the effects low but chronic, exposure over time? In addition, where is the safety data on the exposure via



the mucous membranes to such chemicals?

Mucous membranes are the moist layer of semi-permeable tissue lining the mouth, nose, eyes, vagina and anus. Because they do not have the protective layer (*stratum corneum*) found on the surface of the outer skin, mucous membranes can be damaged, irritated and penetrated by synthetic chemicals much more easily. Rectal and vaginal absorption is, generally speaking, many times greater than oral absorption.

There are other issues with lubricants that are rarely publicised. Most important of these is their effect on fertility. Many studies have found that personal lubricants have a deleterious effect on sperm function, reducing motility and the ability of sperm to penetrate cervical mucus, even in the small concentrations of less than 10 per cent found in these products.

In fact, several studies that have looked at the effects of lubricants like K-Y Jelly and its brand rivals, such as Astroglide and Replens, have found that they can be as lethal to sperm as a contraceptive jelly. For instance, in laboratory data presented to the 28th Annual Meeting of the American Society of Andrology and Andrology Lab Workshops in March 2003, exposure to K-Y Jelly after fertilisation was found to cause a severe decline in the ability of embryos to form *in vitro*.

Personal lubricants can be disastrous for fertility in other ways: for instance, by altering the normal pH of the vagina and cervical mucus. Under normal circumstances, the vagina's natural acidic secretions are lethal to sperm; but, just

before ovulation, vaginal pH becomes more alkaline, providing a more sperm-friendly environment. Data from the World Health Organization says that the optimum pH value for sperm migration and survival in cervical mucus is between 7.0 and 8.5. In contrast, vaginal lubricants tend to have pH values below 7, and often as low as 3.5.

Another fertility-diminishing factor is the syrupy texture of K-Y products and their ilk. Because of their viscosity, personal lubricants can prevent sperm from reaching the cervical mucus quickly. The result is that sperm end up dying in the acidic environment of the vagina before they reach the uterus.

Slowing to a stop

Sperm is also sensitive to chemicals that alter its osmolality (a measure of the total number of particles in a solution such as blood or semen). Osmolality increases with dehydration and decreases with overhydration – the effect on sperm being to cause cells to either shrink or swell too much. Semen has an osmolality around 320 mOsm/kg, which works to keep sperm healthy and active. As osmolality increases, sperm motility decreases, with all motion stopping at 600 mOsm or greater. Lubricants can have osmolality levels three to 10 times that of semen and so cause irreversible damage to sperm motility on contact.

A common misconception is that if a lubricant does not contain a spermicide or if it is water soluble, it will not impair sperm function. However, water-based lubricants often contain glycerine (as in K-Y Jelly) and propylene glycol, both of which are highly hyperosmotic. This results in irreversible damage to sperm and a loss in motility.

This is important information for couples who are trying to conceive; around 75 per cent of these couples report an increased incidence of vaginal dryness due to stress and fertility medications. Data show that around 43 per cent of such couples trying to conceive use personal lubricants to deal with this problem.

Given that infertility rates are at an all-time high, it would make sense if testing were required by the appropriate health authorities to determine lubricant's effects on fertility and, if there is any evidence that a personal lubricant could interfere with fertility, the product should carry a warning to avoid its use while trying to conceive. **E**

INGREDIENTS

Aqua, glycerine, hydroxyethylcellulose, gluconolactone, chlorhexidine digluconate, methylparaben, sodium hydroxide

WHAT'S IN THE TUBE

Glycerine

Emollient

Can cause skin dryness over time and this in turn can make it more prone to absorbing harmful chemicals. Glycerine has been shown to be toxic to sperm and it is also a sugar, so can feed *Candida albicans*. Should be avoided by women prone to thrush.

Hydroxyethylcellulose

Emollient

A cellulose derivative also often found in dry-eye medications. No known toxic effect; however, this ingredient is poorly studied.

Gluconolactone

Antimicrobial, controls pH

Harsh alpha hydroxyl acid often used in the treatment of acne. Can irritate skin and eyes.

Chlorhexidine digluconate

Antiseptic

Often found as the active ingredient in mouthwashes designed to kill dental plaque. Mildly toxic by ingestion; also a skin and eye irritant. Laboratory evidence suggests that it may cause cellular mutations.

Methylparaben

Preservative

Parabens are known to be oestrogenic and exposure has been associated with the proliferation of breast cancer cells in the lab. Irritating to skin and may cause contact allergies.

Sodium hydroxide

Preservative, controls pH

Can cause irritation to the skin and (if it comes into contact with them) eyes.



Climate Camp

The tabloid media had decided to demonise the 2007 Camp for Climate Action even before the first tent peg hit the soil. Here's what really happened. Photography by **Amy Scaife**

'Extrême jobs', 'thugs', 'extreme elements', 'militants', 'hardliners', 'the great unwashed' and 'thin, vegan and humourless'

were just some of the ways in which the tabloid press described protestors at the 2007 Camp for Climate Action.

Desperate for a story, 'undercover' reporters posing as activists sent in one-sided polemics which were then printed as news.

So it was that Rashid Razaq's report for the *Evening Standard* gave rise to the notion of a disruptive faction called 'The Elders' and the much-hyped tactic of leaving fake packages in the airport to cause security scares.

In fact, no-one was planning to leave any such 'fake bombs' – it was an offhand

comment made to a reporter fishing for a story – but it immediately became 'news' and allowed the *Daily Express* to run an article headed, 'Should we lock them up and throw away the key?'

When one activist later contacted the *Standard's* leader writer, Robert Mendick, to ask where the information had come from, Mendick replied that he was 'very constrained about what I can say, for various reasons' and admitted that the story was 'not something I was actually massively involved with'.

But by then the damage was done. The press had decided that this was a violent enclave of disaffected extremists, looking to cause trouble and threaten family holidays.

In the *Daily Mail*, Tanya Gold described the camp as feeling like 'a prelude to the Russian

Revolution of 1917', and Jo Knowsley in the *Mail on Sunday* painted a dystopian picture of 'fires burning in empty kerosene barrels' while the 'great unwashed... drank beer... and smoked marijuana'. But it's notable that at the end of their articles, both Gold and Knowsley expressed empathy with the cause.

Negative reports aside, the camp was a resounding success. It saw dozens of workshops on everything from climate science to food foraging, powered almost entirely by renewable energy. Peaceful protests drew the public gaze towards the Airbus A380 superjumbo, BAA's headquarters, private jets, and even Sizewell B nuclear power station.

Freelance photographer Amy Scaife was actively involved with the camp. These photographs tell her story of the week.



Riot police
protecting an
empty BAA building

Legal team phone numbers being written in permanent marker – in case of arrest later in the day



All ages catered for. The children's revolution starts here



Protestors hold up copies of the Tyndall Centre report on climate change, under a banner saying 'We are armed only with peer-reviewed science'



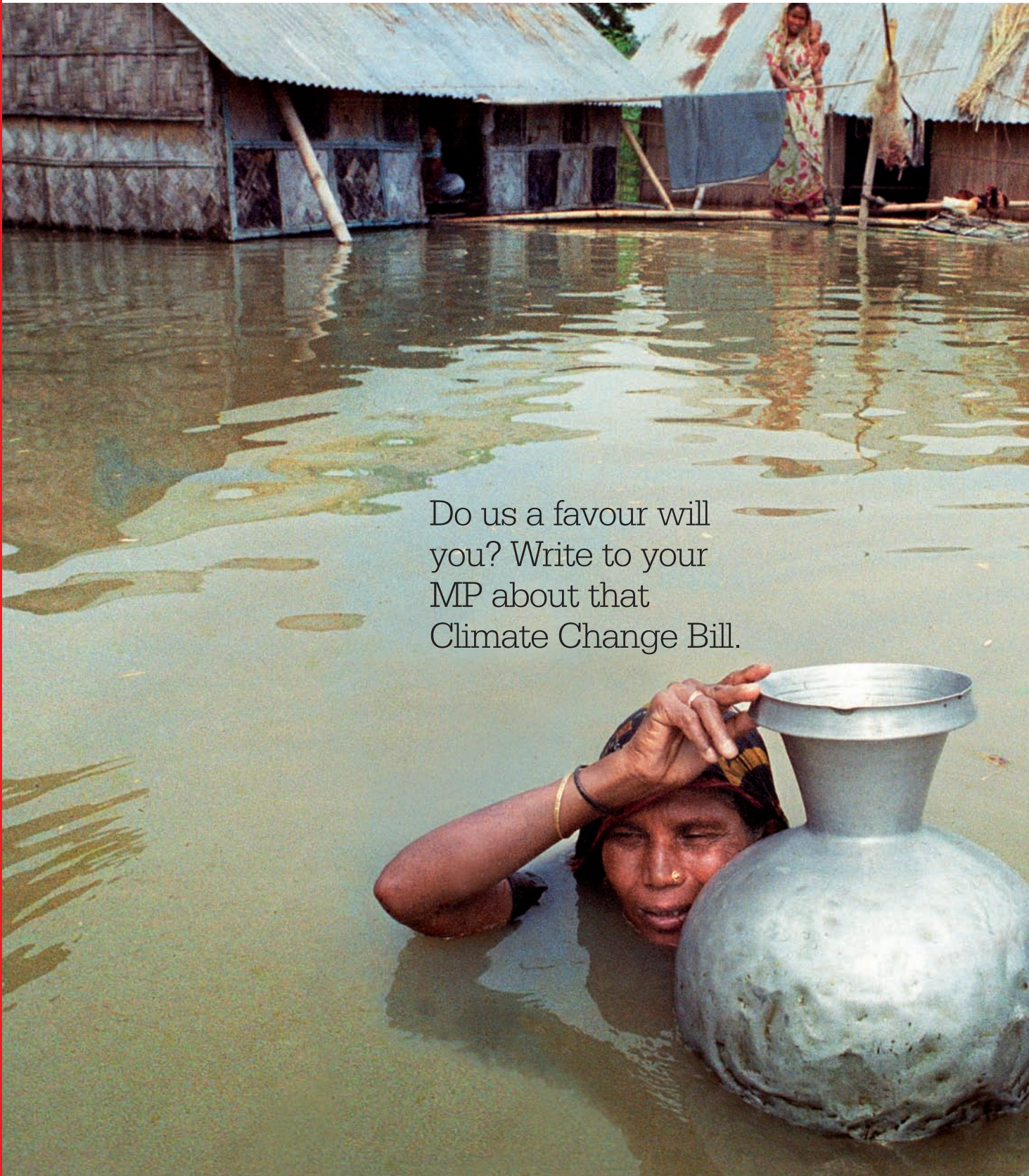
Renewable energy ain't as easy as flipping a switch. A climate-camper puts some muscle to the wood pile



Jazra, aged seven, leads a demonstration chant







Do us a favour will you? Write to your MP about that Climate Change Bill.



Millions of the world's poorest people are already suffering because of climate change. In the Climate Change Bill about to go through Parliament, the UK will pledge to reduce CO₂ emissions by 60% by 2050. But you have to ask/tell/beg your MP to make it at least 80%. Scientists have agreed that the earth must not exceed an average temperature rise of 2°C, otherwise catastrophic climate change will be unavoidable. Drastic measures are needed. 60% isn't drastic enough. You have to ask/tell/beg your MP to make it at least 80%. We make no apologies for repeating that. Text CLIMATE24 to 84880 and we'll send a postcard to your MP on your behalf*, or go to www.christianaid.org.uk/climatebill to send an email yourself. **Climate changed. Let's cut the carbon.**

A giant oil pipeline cuts a swathe through the Ecuadorian rainforest

Jungle law

Pablo Fajardo thought the law was all about justice – until he took the lead on the biggest environmental trial of the century. **Nicola Graydon** meets the humble David to Chevron's Goliath

Pablo Fajardo, dressed in a crisp blue shirt and ironed slacks, is undaunted by the whirlwind of photographers and film crews clattering around the kitchen of Trudie Styler and Sting's apartment on the Upper West Side in New York. He's the stillest person in the room.

It may be because Fajardo has no real idea of who Sting is, but more likely it's an indication of a man not easily fazed. This diminutive Ecuadorean lawyer has overcome dire poverty and scant educational opportunities to find himself at the forefront of the biggest environmental litigation case ever brought against a multinational oil company.

Aguido vs. ChevronTexaco is his very first

trial. Since 1994, just a year after he completed a law degree by correspondence while working two jobs, he has pitted his wits against a variety of career-lawyers with decades of experience between them. Back then the case seemed unwinnable. But now, as the trial enters its third act, it's beginning to appear as if the multinational may be forced to capitulate.

At the core of the lawsuit is the accusation that ChevronTexaco deliberately used substandard technology in Ecuador in order to maximise profits during its oil operations from 1964 to 1992; that while its US wells were using reinjection technology (storing the drilling waste underground, see box p39) to dispose of waste in such a way that it did not impact the

environment, in Ecuador the company was dumping billions of gallons of toxic waste into one of the most fragile eco-systems on the planet; that local residents, mainly peasant farmers and settlers drawn by jobs servicing the oil industry, have been steadily poisoned by the high levels of carcinogenic toxins that have been leaking into the water systems, creating high levels of cancer, respiratory illness and problems with reproductive health.

It's become known as The Environmental Trial of the Century and the stakes are high. If Fajardo wins and the Chevron Corporation is forced to take responsibility (experts estimate clean-up could cost upwards of \$6 billion), it will have reverberations far beyond the sweaty courtroom in Lago Agrio

Aguinda v. Chevron Texaco

November 1993 Aguinda class action filed in New York. It will be nearly a decade before the case is dismissed in the USA and forced into the Ecuadorian courts.

May 2003 The Amazon Defense Coalition files a lawsuit in Succumbios, Ecuador against ChevronTexaco on behalf of more than 30,000 rainforest residents due to the 18.5 billion gallons of toxic waste deposited in the region from 1964 to 1992. ChevronTexaco claim the waste caused no harm, and the areas were properly remediated.

March 2005 A judicial inspection of the area shows the waste sites contain many toxic substances at levels far higher than allowed in Ecuadorian law.

March 2005 ChevronTexaco accused of blackmailing the Ecuadorian government in order to win the case, by threatening that America will revoke Ecuador's preferential trade status.

October 2005 Hints of corruption as a judicial visit to a local Indian tribe is called off at the last minute, due to unfounded claims that the tribe was planning to kidnap Chevron's lawyers.

December 2005 The UN call for the Ecuadorian government's protection of lawyers and leaders in the trial, after claims of threats and harassment.

March 2006 Samples of water and oil in the region show the vast extent of the damage caused by toxic waste.

April 2006 A report submitted to the trial claims that Chevron used deliberately inaccurate methods to estimate the level of contamination.

September 2006 More tests reveal levels of toxic substances in the area are up to 1,000 times higher than that allowed in Ecuador or the USA.

November 2006 A 42-year-old mother of three who testified at the trial dies of cancer, having accused the company of dumping toxic waste near her home.

April 2007 More cases are brought against Chevron, including charges of fraud and liability.

July 2007 The lawsuit is a focus of the Live Earth concerts, as the trial is thought to be coming to its conclusion in early 2008.

(appropriately translated as 'sour lake') in the Ecuadorian Amazon.

If he loses, he loses on behalf of some 30,000 Amazonian settlers and indigenous people suffering the consequences of the irresponsible – potentially illegal and seemingly lethal – practises perpetrated by ChevronTexaco in three decades of oil extraction. For them, this case is a matter of life and death.

Remarkably, this David-and-Goliath struggle has been dwelling in the invisible corridors of labyrinthine legal argument since it was first initiated in 1993. For most of those years, winning the case was 'a long shot', in the words of Steve Donziger, a former Washington DC public defender, who has been involved in the case since its inception. 'We had so few resources and they had so many,' he recalls. 'It didn't feel as though we had a realistic chance. But at the very least we thought if we could present enough evidence we could get Chevron to offer some adequate settlement.'

But now – for a variety of converging reasons – the case is reaching a kind of tipping point: and it's tipping in favour of the plaintiffs. One of those reasons is Fajardo himself. Another is a sharp increase in media attention on the case that began with a 15,000-word article in *Vanity Fair* in May. Today, while Sting prepares to play Live Earth at the Giants Stadium, Styler is wholly focused on Fajardo and bringing his cause to as many people as possible.

Later that day, she will have grabbed precious prime-time seconds on NBC, listing the environmental abuses perpetuated on the

thousands of innocents in the rainforest of Ecuador by the second largest oil company in the USA; the next day she will introduce Fajardo to Al Gore over brunch and make sure she has a photo-op to add weight to the cause. 'I just want to bring a little more light to this situation,' she says.

To prove her point, she plays a short film on the DVD and the room goes quiet as, one by one, people in deep distress talk to camera about loved ones who have died or who are in the process of dying. This is not her film but, ironically, one of her husband's tracks – *Fragile* – plays over footage of sticky oil swamps that have destroyed once pristine rainforest. The most disturbing thing about it is that every one of those people is forced to drink water they know is poisoning them. They have no other choice.

Fajardo, in New York for the first time, is catapulted back to his ravaged homeland. 'When I see these images it rapidly takes me back to where this is happening,' he speaks in quiet, measured tones through an interpreter. 'You see the pain of the people, the injustice and the damage that has been caused by Chevron. It reminds me what we are fighting for.'

By all accounts, it's been a dirty fight and a baptism of fire for Fajardo into a world of power play and corporate machinations for which his legal education did not well prepare him.

'At law school they teach you about justice and how to protect life but what the Chevron lawyers do is manipulate justice, they lie against life. It has been very shocking. Since 1964, when Chevron first came to Ecuador, it



Attorney Steve Donziger speaks with protesters outside the courtroom

Photography LOU DEMATTEIS/REDUX

has always gone against the rights of the indigenous people and the peasants there; now they are running over the rights of the people just as they always used to. They have used many different strategies to avoid justice.

‘For example, this suit was brought here in New York City in November 1993. For nine years, Chevron argued that the case should be tried in Ecuador, not the US; then when the appeals court agreed with them and sent it to Ecuador, they say that the judge here is not competent to judge this case. So we ask, who should judge this genocide?’

Fajardo does not use this word lightly. ‘I am more and more convinced that this is a genocide. In the area where Chevron operated, there were six different Indian groups – the Secoya, the Huaorani, the Siona, the Quicha and the Tetetes – this last one disappeared in the first 10 years that Chevron operated there. All the other groups have diminished populations. Cofan elders will talk about how Chevron stole their liberty; how workers from Chevron raped their women; the ancient Cofan people say they poisoned their people with alcohol – all this just to enter their territory. To listen to these elders is very sad. It all suggests there has been a genocide; maybe not a physical one but certainly a cultural one. The truth is that a people with no land and no culture does not exist.’

According to Amazon Watch, the activist NGO, ‘the idea that the intentional creation of severe environmental degradation can be the basis of a genocide charge under international criminal law, when it was clearly foreseeable that such practices would have a devastating impact on indigenous groups, is beginning to receive serious examination.’ If so, it says, Chevron is guilty of an ongoing genocide in its refusal to clean up.

‘People are dying there,’ says Steve Donziger. He is battle-weary and frustrated by Chevron’s

‘The intentional creation of severe environmental degradation can be the basis of a genocide charge’

attempts to delay judgement. ‘They have been trying to exhaust us – financially and energetically. They thought that if they could move the case to Ecuador we would go away because it would be a huge challenge to re-file the case there. But they underestimated our staying power.’

In fact, in some ironic sense of warped divine justice, the move to Ecuador re-invigorated the case for the plaintiffs and, when the lawyers



Pablo Fajardo grew up in Lago Agrio. Colleagues say he was ‘born to try this case’

Photography SEBASTIAN POSINGIS

for ChevronTexaco walked into the sweaty courtroom at Lago Agrio on 21 October 2003, their hearts must have sunk.

‘More than 60 of the victims, many of them indigenous people in traditional dress, packed the gallery,’ recalls Donziger. ‘There were over a thousand plaintiffs and townspeople outside. Some, like the Hoarani, had travelled for two days by foot, canoe, and bus to attend the trial. Dozens of photographers and television

crews, from Ecuador and around the world, were there and the local radio station broadcast the proceedings live. It was quite a show.’

The Aguinda v. ChevronTexaco trial had come home and, if the grassroots movement had been flagging, this was a shot in the arm for it. But, gratifying as it might have been for Donziger and his crew, it didn’t mean they were even close to the home stretch. He still had to find the money to pay qualified lawyers

and fly them in from the capital, Quito.

‘Quito is a long way from Lago Agrio. It’s like going from New York to the jungle,’ says Donziger, implicitly suggesting a lack of enthusiasm for the case from the sophisticated city lawyers in the capital. ‘And it was expensive for us to fly them in all the time.’

Into this breach stepped Pablo Fajardo, a man ‘born to try this case’, according to Donziger.

To call Fajardo ‘green’ – in the pejorative, lack-of-experience sense – would be to understate his naivety at the beginning of the trial. His ‘law school’ was his desk where he would pour over his papers through the night; a gruelling, lonely study paid for by working jobs for the local Catholic church and by donations from friends. It took him six years to complete – just in time for Aguinda v. ChevronTexaco to hit town.

But what he lacks in experience he makes up for in other crucial ways. ‘First of all, Pablo is local,’ says Donziger. ‘He knows the territory, he knows the stories, he has lived the life. Instinctively, too, he is a very good lawyer. Methodical, with

Chevron on trial

a canny way of reading his audience.' Combine this with a burning ambition to fight injustice and a sense of duty to his community that is, for him, an unimpeachable code of life, and you have the rock which the ChevronTexaco lawyers are finding so difficult to circumvent. 'Pablo is somehow untouchable,' Donziger explains of his partner's impeccable character, 'as well as being incorruptible. Which makes him virtually indestructible.'

Not that their opponents haven't tried. Three years ago, Fajardo's brother was assassinated in a case that still hasn't been solved. At the time it was thought to be a case of mistaken identity. Styler, who's been down to Agrio Lago twice and has a sense of the

lawyers. I can't say it was a death threat but he said something along the lines of "We'll see you outside..." Things like that make you think that this company could do anything they liked. They look for ways to intimidate us. They want us to be afraid. Maybe they want us to leave the case but this will not stop us.'

Meanwhile, Chevron has bombarded the court with documents – 200,000 at the last count – and has spent a great deal of money taking out advertisements in the national Ecuadorean press, trying to discredit the

from the courts.' He laughs at the absurdity of it. 'These are peaceful people, they would never do that. What the Chevron lawyers were really scared of was the testimonies and the press. The judge was cheated. We were all cheated.'

Fajardo has become a hero at home. The local boy made good, fighting the evil corporation. 'For me, this struggle is more than a professional situation; it is a struggle for life. I live in the area; I'm from the area that Chevron contaminated. I know what people are suffering and I suffer just as they do. So to

'After my brother was killed I got used to living with danger, and now I don't fear it any more'



ChevronTexaco sprayed the roads with oil – then told residents it was good for them



Cofan leader Emergildo Criollo on a former Cofan hunting ground

Photography LOU DEMATTEIS/REDUX

lawlessness of the place, hopes that heaping attention on him will offer some protection. Even Amnesty International has expressed concern for his safety. When I ask Fajardo if he thinks his life may be in danger because of this case, he picks his words carefully.

'This is very difficult to answer,' he says quietly. 'Around the time when my brother was assassinated, I was being persecuted very strongly myself. I was followed and our offices were burgled and I do believe they were looking for me, to kill me as well. I don't know who it was and I still don't know who killed my brother. But I got used to living with danger and now I don't fear any more.'

'But it is a little worrisome,' he adds, in a typical understatement. 'On July 5th, we had a discussion in the court in Lago Agrio between Chevron and us and the judge, and one of the lawyers of Chevron threatened one of my

plaintiffs. The most recent tactic was a letter to Trudie Styler, claiming that she was being hoodwinked by money-grabbing American lawyers and her credibility was at stake by becoming involved in the case.

But both Fajardo and Donziger point to a particular incident in 2005 that illustrates the multinational's determination to manipulate the courts by any means necessary.

In October, the courts had arranged a judicial inspection of oil stations within Cofan Indian territory. The local Indians wanted to take the opportunity to testify about their own genocide. The national and world press had been alerted. Then, a day before, the courts called off the inspection. 'How and why did they do this?' asks Fajardo. 'We discovered that Chevron asked the armed forces to create a report claiming that Cofan Indians were going to kidnap someone from Chevron and someone

abandon the struggle would be the most absurd thing for me to do.'

He recalls moving into the area in 1987, when he was 14. 'I saw them watering the streets with crude oil and the gigantic curtains of smoke that they burned,' he says. 'I saw the fish dying in the rivers and saw the people using the contaminated water. It was very sad to see this. But we didn't know then that the petroleum was causing health problems. The people at ChevronTexaco were telling us that the oil didn't cause health problems. They are still saying this.'

As time passed, Fajardo's awareness of the powerlessness of the people around him grew more acute. 'I was working with a machete in the palm-oil grove so I was with the peasant community. I could see what they were suffering. That is when I really made a commitment to get involved. We watched this

The quest for clean water

Trudie Styler may call herself ‘the oldest rock chic on the planet’, but she has become a lightning rod for the plaintiffs in *Aguinda v. ChevronTexaco* in Ecuador.

Earlier this year she spent a week in Ecuador, interviewing local people and elders for an upcoming documentary on the case, which she is producing.

‘I’ve seen some pretty awful human rights cases over the years,’ she says. ‘You know, indigenous people left poor at the hands of a corporate multinational. Be it diamonds, be it logging, be it gold, it is always the same thing: the marauders come in and get their profit and leave the indigenous people with nothing but cancer and poverty.’

‘But I’ve never seen anything as bad as this. Chevron have cut off the local people’s water supply by dumping tonnes of toxic waste. They are dying in great numbers.’

She met with one woman who was forgoing her own treatment for uterine cancer so that the family can afford to treat her 18-year-old daughter who has liver cancer. By the time she left, she was fired up to help.

‘I also met this Cofan lady called Carmen. I said, “What can we do to help?” And she said, “Lady, just get us clean water”’

So Styler left with the determination to do just that. She contacted UNICEF, with whom she has worked to rescue children living off dump sites in the urban sprawl, and she persuaded them that the children in the rainforest needed their help. ‘It sounds strange but, although the situation with the dump site kids is obviously sad, there’s a robustness in those children that transcends their circumstances. But these children in the Amazon are being hammered by huge contaminants. Stuff that really kills you. I was ashamed to bring out my bottle of clean water when I was with them.’

She went back to Ecuador in July with a team from UNICEF, took testimonials from four indigenous leaders and tested surface and underground water. UNICEF immediately declared that they would launch an emergency water remediation programme.

Juan Vasconez, the head of health and nutrition at UNICEF Ecuador, confessed that he was shocked at what they found. ‘At one site we have samples that are 6,000 times above the internationally accepted levels of contamination. Even the municipal water is contaminated. Although this is obviously something that has been around for years, we decided it was chronic enough to treat as an emergency.’

UNICEF is continuing to collect samples from other areas to gain a wider picture of the disaster, but acknowledges that the contamination is undoubtedly causing widespread leukaemia in children and the high levels of spontaneous abortion suffered by the women in the area.

‘In medicine there is no cause and effect, but there is a correlation of risk; and several studies show elevated prevalence of these incidents in the areas with the highest contamination, so it is safe to say scientifically that high contamination is the cause,’ says Vasconez.

UNICEF is currently working on both short- and long-term solutions. In the immediate term its staff are bringing in the

means to collect rainwater; later they will establish alternative and sustainable ways to purify the water sources. In three to six months they hope to be getting clean water to 15,000 to 20,000 people – around 15 per cent of the population.

But in some cases, they are talking about relocation. ‘Where the contamination is 6,000 times the acceptable levels there is nothing we can do. It is one thing where we have biological contamination – which in Ecuador is quite common – but we are talking about hydrocarbons and heavy metals, and these will take maybe 20 years to clear.’

Vasconez admits that when he is in the area he has the ‘uncomfortable sensation’ of drinking water that is chemically unsafe and regrets that UNICEF did not begin to work on the issue earlier. ‘We were dealing with national issues of education and health among children, such as national immunisation programmes, and this was considered a local issue.’

It took Styler’s initiative to get things started and now Vasconez is building an awareness programme to ensure that the issue becomes a national concern. ‘This should be a national priority,’ he said on the phone from Quito. ‘We are talking about vast numbers of children drinking contaminated water. This is not a moment for calm.’

UNICEF is not directly involved in the court case but Vasconez is happy for their findings to be used as part of the legal process. ‘Full scale remediation will take 20 years of investment and someone has to pay for it.’ He believes that the original contamination is linked to Texaco but confesses that shoddy practices continue with present government-owned oil extraction companies like PetroEcuador. He considers a judgement against the original perpetrators will set a good example, as well as providing much-needed funds.

Meanwhile, Styler has been talking with Dean Kamen, the American inventor, who is close to completing his high-tech portable water purifiers. ‘I suggested that we be his pilot project,’ says Styler, who’s tested the purifiers herself. ‘There’s this gunky water on one end, and it comes out clean as a whistle on the other. Don’t ask me how. Wrong girl,’ she laughs. ‘My job is to go and raise a million dollars in the next three months.’

And there’s little doubt she’ll do it.

Hundreds of open pits of toxic waste ravage the once-pristine jungle



Photography LOU DEMATTEIS/REDUX



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powerful company throw oil into our rivers; the animals were dying; we couldn't find clean water; even the rain started to contain black particles but the people couldn't do anything about it. The injustice shocked me.'

So he began to find ways to study, to help, 'to still be an ant,' he says, 'but a little bit different than an ordinary ant.'

Fajardo has given himself over to the fight. As has Donziger, who, despite being connected to the case since the beginning, found his commitment hardening in the summer of 2003, when the case was thrown back to Ecuador. However, Donziger admits that he nearly abandoned the case last June.

'That was my lowest point personally,' he says. 'It was a raw, lonely moment. I couldn't just walk away because people were being killed but at the same time I couldn't see how we could keep going.'

He wrote a seven-page memo to his financier – a Philadelphia-based law firm – explaining the situation. In effect, the plaintiffs (on whom rests the burden of proof) had demanded 80 inspections of the abandoned pits and, three years down the road, only 40 had been completed.

'They are so involved, expensive and time-consuming and we already had the proof that we wanted. So we asked the judge to cancel the rest,' Donziger recalls. 'But ChevronTexaco claimed their due process rights were being violated and asked the judge to continue with the inspections. Those inspections would have extended the trial by five to seven years.'

In the event, however, the judge ruled in favour of the plaintiffs. 'People say that the darkest time of night is just before the dawn

ChevronTexaco covered the waste pits with soil – but the sludge can easily leak out



Photography LOU DEMATTEIS/REDUX

What goes in to get the oil out?

Extracting oil from the ground is not a simple matter of drilling a hole and letting the oil spew out. It is unusual to find a well with any significant natural pressure; so to recover crude from underground the oil industry uses several techniques involving the use of several different chemicals. At many points in the process, these lethal chemicals can come into contact with potential drinking water supplies, wildlife and grazing areas.

Drilling requires numerous substances known as 'muds' to cool and lube the bit, remove fragments, and equalise pressures. Water-based muds are preferred given their disposability, but oil or synthetic-based muds are used for deeper wells. These can include corrosion inhibitors, solvents, defoamers and density-controlling fluids.

Drilled holes must also be stabilised with cement walls to prevent cave-ins and collapses. The cementing process involves the use of chemicals to speed or slow the drying of the cement, along with corrosion inhibitors, density-controlling fluids and dispersants to ensure the even distribution of the cement.

When the well is stable, extraction begins, first by removing the small percentage of oil that comes up under its own pressure. The rest of the extractable oil undergoes 'stimulation', in which the formation is pressurised with pumped-in water and/or chemicals. To do this, the drillers will fracture, or 'frack' the bedrock with water, fuel or synthetic fluids to free up the oil flow.

Many companies use water-based fracking fluids, but depending on well remoteness and geological formation, many potentially toxic substances are involved (see right), often injected into the ground at four to 13,000 times the acceptable concentration in drinking water. Ideally the chemicals are pumped out with the crude oil, but studies have shown that anywhere from 20–40 per cent of fracking fluids can stay in the ground, where they can leech into drinking and irrigational waters.

Oil wastes are often dealt with through reinjection technology. Drill and oil

wastes are slurried; that is, milled and sheared in the presence of water. The slurry is then disposed of by pumping it into a dedicated disposal well, or into a previous non-productive well.

A more controversial method is to store waste in open pits; the idea being that the water will evaporate, leaving behind solid wastes that can be disposed of later. Contaminated water in open pits can seep into groundwater and can be lethal to native wildlife.

Common chemicals used in drilling and fracking include:

- BTEX Compounds: Benzene, Toluene, Xylene – known carcinogens; may affect the reproductive, neurological, respiratory and central nervous systems. Small amounts can contaminate large quantities of water.
- Diesel fuel – contains benzene and PAHs (see below); found in fracking fluids, oil-based drilling muds, released by engines and heavy equipment.
- Hydrogen sulphide – affects respiratory, neurological, cardiovascular and nervous systems; can cause sudden death. Released during venting and flaring of natural gases, if present in the formation.
- Metals (arsenic, mercury, lead) – carcinogenic; can cause skin problems, hair loss, kidney and neurological damage. Found in muds, fracking fluids and diesel exhaust; released from pits, during venting and flaring.
- Nitrogen oxides – react with VOCs to form smog and particulates; cause breathing and heart problems, and atmospheric warming. Released from compressor engines during flaring, and in diesel and natural gas exhaust.
- PAHs (polycyclic aromatic hydrocarbons) – potential carcinogenic, mutagenic and reproductive effects; released in diesel exhaust, during flaring, stored in pits.
- Sulphur dioxides – form particulate matter, affecting respiration and heart conditions. Released from diesel engines, natural gas engines, and during flaring.
- VOCs (volatile organic compounds, e.g. gaseous BTEX compounds, formaldehyde, etc) – form smog, and are released during venting and flaring of natural gas, from engines, and are stored in pits.

Chevron on trial

and that's what happened. Things began to turn around from that moment. We were back in play and it was moving in our direction.'

The Chevron Way

While ChevronTexaco does not deny that billions of gallons of waste water was dumped in the rainforest, the company does argue that it should not be held responsible. It insists that the plaintiffs should be going after PetroEcuador, which has been operating the fields since Texaco (as the company was then called) left in 1992 and with which it was in partnership during its tenure. It also claims that the Ecuadorian government released it from any responsibility it might have had, following a \$40million settlement, when it claims to have 'remediated' the waste pits it left behind.

In all, ChevronTexaco left more than 600 open-air, unlined, toxic waste pits – some as

'ChevronTexaco left over 600 open-air, unlined, toxic waste pits – some as big as football fields'

big as football fields. Most of them are still filled with the ooze of oil muck. At most of the ones it claimed to have cleaned up (a fraction of the 600), Fajardo and his team found that the company had simply poured dirt over the damage. 'Within weeks, the oily waste starts oozing through it,' says Donziger. Amazon Watch called it 'like treating skin cancer with make-up'. In any case, ChevronTexaco never attempted to rectify the water situation, which is the most urgent (see box page 36).

Finally, ChevronTexaco denies that the toxic waste is causing health problems, insisting instead that disease is caused by poverty and lack of sanitation. This last is a point where Fajardo concedes to anger. 'They cause all this contamination and then blame the people for bringing it on themselves because they don't wash their hands before eating. The fact is that 500 people have died from cancer and they are still dying. Nobody died of cancer before Texaco arrived.'

While Chevron goes on at length on its website about the exact levels of poisons found in samples at various judicial testing sites, in a strident attempt to discredit every single one of the scientific findings from the plaintiffs, there is hardly a mention of the eye-witnesses who talk about Texaco's shoddy operations: the common practice of spraying crude oil over the roads to keep the dust down; the mothers who recall the mysterious

rashes and lesions that began to appear on their children's bodies; the free gasoline given out by ChevronTexaco to locals to help wipe off the crude that smeared their skin; or the elders who recall expressing concern when their water began to taste 'salty' and were told that it was 'good for them'.

Although, ChevronTexaco might escape justice in the Ecuadorean courts, it's difficult to see that it would win any public relations battle. As its lawyers offer up more technicalities to the judge in Lago Agrio, the streams continue to poison children.

Since the trial began, Chevron has earned well over \$55 billion; in 2005 alone, the corporation posted earnings of \$193.6 million and cleared \$14.1 billion profit. The company is clearing \$5 billion profit in any one quarter.

But as Chevron continues to withhold a fraction of its profits to clean up the rainforest, The Chevron Way is extolled ostentatiously on

the corporation's website, boasting to the shareholders and the public about how committed Chevron is to the environment and human rights. 'Protecting the earth's natural resources is as important to Chevron as providing the energy sources so essential to improving our quality of life,' says the website. 'Our goal is to be recognized and admired everywhere for having a record of environmental excellence.'

The website tells how Chevron helped save the bald eagle in Wyoming, for example, and create a nature reserve in Canada, while winning an environmental award in Nigeria. 'We learn from and respect the cultures in which we work,' it claims.

Pablo Fajardo saw it differently through the eyes of a 14-year-old boy; and as an adult he will not easily let the truth lie. 'What Chevron did in Ecuador affects the whole planet,' he says. 'This is a third world country struggling against a first world company. Many other companies are watching so it will set an important precedent for the rest of the world. They operated in a discriminatory way; they used the worst technology to save money – because they could. We need to prevent this happening again – anywhere else in the world.'

I ask Fajardo and Donziger if they are optimistic about the case. Donziger's reply is forthright: 'We're not going to lose. It's



Bathing and washing clothes in poisoned water

Photography LOU DEMATTEIS/REDUX

impossible for us to lose. It's just a question of how long it will take us to win.'

Fajardo is more measured: 'If there is such a thing as justice then we should not lose, as the proof is there. We have advanced all the evidence in the case. We have proved everything that we have said in our suit: the damage to the environment, the health risk to the people and the responsibility of ChevronTexaco. If we lose it will be because of the corruption that comes from money and political influence. This is the worst thing that can happen.'

If they should win, what happens then? 'If we win, the most difficult part of the case begins. To establish the damages that have been caused; working with the people to establish what has been damaged and to create a universal health system and get fresh clean water to everyone.'

'There are things that we will never be able to repair. When we talk about reparations, we talk about only what can be repaired. We can never bring back the culture of these indigenous people; and the lives of those who've died will never come back, no matter how much money is given; and we can never do anything about the pain of a child who has lost their mother or father. But we will repair what we can.' **E**

Nicola Graydon is a freelance journalist



Texaco's toxic legacy will last for generations

Photography JOSH SCHACHTER



SILENT BUT DEADLY

Did you know that farmed animals produce more greenhouse gas emissions (18%) than the world's entire transport system (13.5%)? Or that nitrous oxide from animal manure is around 300 times as damaging to the climate as carbon dioxide? Or that methane (cow and sheep farts/burps to you and me) has 23 times the global warming impact of carbon dioxide?

Makes you think doesn't it?

The only genuine way to cut down on these harmful emissions is to stop eating meat.

Find out the facts about 'Why it's green to go vegetarian' at www.vegsoc.org/environment, or order your free booklet on 0161 925 2000, green@vegsoc.org

It's not just a lot of hot air.



UGLY

It started as a bit of an office game. Everywhere we looked we saw the 'creep' of an ugly culture and the devastating impact it can have on all of us. The **Ecologist staff and contributors** point their fingers at a world gone crazy and ask: 'Can we be saved?'

The world gets uglier and uglier, as Alice would have said. And yet how often do any of us stop to consider how living in an ugly world affects our attitudes and actions. How it acts as a kind of creep, undermining our perception of and ability to appreciate the real beauty of the world.

Ugly is a four-letter word. It's also a value judgement. Which means we don't get to use it very often these days. It's not politically correct. Besides, we don't like looking too closely or for too long at things that are... ugly.

And yet the things we perceive as ugly say virtually everything we need to know about where our culture has gone wrong. Even if we don't like to think about them, the ugly things in our world do affect us. They influence how we how we see ourselves and our neighbours, how behave towards each other, and towards the wider environment. How we take care of ourselves and our families and communities.

This was the thought that began circulating around our offices a few months ago. We began to talk about it in meetings and over lunch. Staff and contributors were encouraged to post their 'ugly' thoughts and observations on the walls. Visitors occasionally looked at our lists

of uglies and scribbled their own thoughts on them. Patterns began to emerge. Cars, supermarkets and advertising were the instantaneous responses. The immediate consensual answer to 'why?' – because, for a variety of reasons, they each kill.

Then the dam burst and there was a joyous torrent of beefs about the uglies we see and hear every day, on the street, on the way to work, on the phone, in our neighbourhoods, workplaces and schools and in the news. The bigger, more and faster of the daily grind in a culture on the downhill slide.

We present these in no particular order nor pretend there is a hierarchy. Ugly is ugly. Our list is by no means comprehensive and by necessity much has been left out and edited. These are not cool, calm and considered observations of life. Rather, these observations are an emotional response to an emotive question: what do you find ugly in this world?

We not only welcome but exhort you to add to our list. Don't be scared. You will find that once you start thinking about what is ugly, you will also think about what is beautiful and good in your life. And will be all the more moved to preserve and protect it.

The sanitisation of life

Sometimes I feel my very soul is under threat in the society we are living in and I am hanging on to it by my fingernails.

Our bureaucrats seem determined to factor out everything that they cannot control, all the things that make us human. When I hear them interviewed on TV and they say that they are 'delivering' – how they love that word! – public services and they have 'systems' in place, my skin crawls because the

meaning is clear. They are creating impersonal 'systems' to cover all the eventualities and prevent the public from suing the service providers. But these 'systems', whether for the health service or public transport, aren't created to serve humans and they are only superficially successful provided you don't look beyond the figures. Look beyond the figures and you see loss of community, and people disappointed by they don't quite know what.

Cars

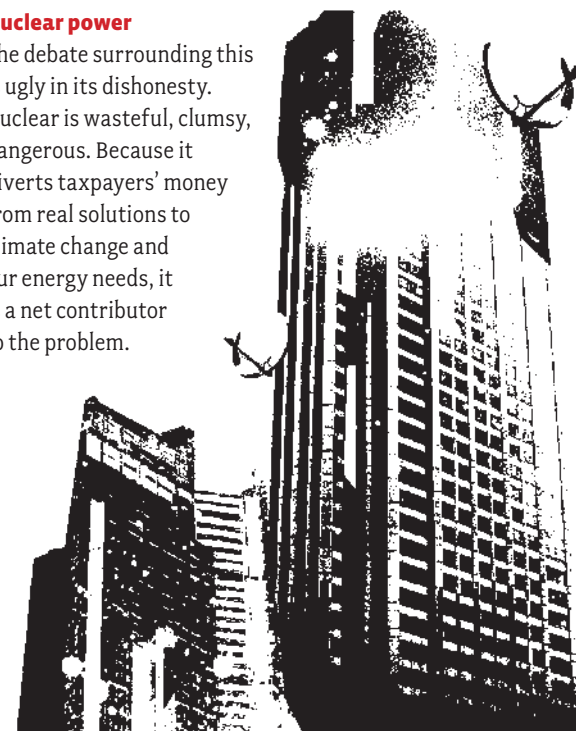
These days our cars speak volumes about us. The Hummer (aka Humvee) was an armoured car and now is the height of urban chic. The new Bentley is straight out of the Politburo armoured car design portfolio. We don't enjoy the open road anymore. When we get into our car we're in alert mode. Ready for the next attack.

Bagged salad

How hard is it to rinse the dirt from a beautiful, fresh head of lettuce straight from the ground? Instead, we've been conned into believing that it's healthier and more convenient to eat bagged salad leaves that have been washed in toxic chemicals and then packed in plastic in modified-atmosphere packaging. Not just lazy, it's ludicrous.

Nuclear power

The debate surrounding this is ugly in its dishonesty. Nuclear is wasteful, clumsy, dangerous. Because it diverts taxpayers' money from real solutions to climate change and our energy needs, it is a net contributor to the problem.



1.35

trillion pounds

The level of consumer debt – more than our GNP, which stands at £1.3 trillion. That's unsustainable.

support such squalor with their money. We continue to buy cheap meat only because we allow the giant food retailers to insulate us from the reality of its origins and context.

Weedkiller wine

The strips of otherwise green grass, burnt brown by wine growers spraying weedkillers under the vines, is modern wine's ugliest sight. Even uglier are the subsequent attempts by winegrowers to tell you their weedkilled wine tastes unique because it 'comes from a living soil'. Ugliest of all are the mindless consumers (and journalists) who believe them.

The Rochdale ASDA

In fact, all ASDAs... and all big supermarkets. The architects behind these monstrosities should be ashamed of themselves. Never has beauty been sacrificed to profit in such a tragic fashion. The Rochdale ASDA

The smoking ban

This is ugly for all that it symbolises; legislation against a soft target while far worse cancer-causing activities – incinerators, NP stations, land-filling PCBs, unnecessary use of PFOS, allowing cars on the road that have a fuel-efficiency of 10mpg – are allowed to prevail. This was a problem that could have been resolved by the market. Any pub or restaurant could have become smoke free and reaped the benefits, as would those who chose to welcome smokers. Exemptions to the ban are the bars at Westminster; i.e., in the bars of the houses of commons and Lords. Where there's smoke there are also people who allow pensions to be robbed and huge bonuses paid while feather-bedding their own retirements.

Human resources

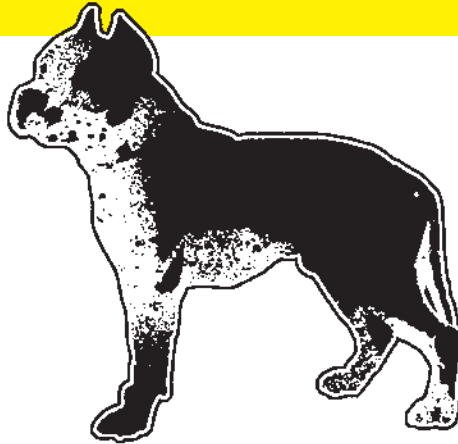
The very term symbolises the worst side of the modern market-economy.

Viewing human beings and their labour as a 'resource' is a gross debasement of a person's humanity. It may be the legacy of the dark satanic mills, but it has been frequently reinforced by more modern thinkers, such as Frederick Taylor at the turn of the last century. Taylor – whose name gave us Taylorism as a school of management – stood by his workers with a stopwatch, dissecting their labour into the smallest distinguishable tasks (such as, in a modern context, steaming the milk in a coffee cup), and developed formulae for how the work could be done more efficiently. His work, though later looked upon sceptically, has given us the

McJob – the labour role so utterly simplified and devoid of intelligent input that one post can be shared between members of the family. The employer does not care which member of the family turns up, as long as they are able to perform the tasks.

'Human resources' is more than this however. It is the practice of erecting a façade of friendliness over the most cold-hearted calculation. A person, in a modern workplace operating under the human resource model, is just a number.

Human beings are amazing, highly intelligent, social, autonomous, creative creatures. Locking them into labour systems, which are deliberately designed to simplify and exploit, is at the root of so much human misery.



eating fresh nutritious food they are given chicken nuggets, fish fingers and turkey twizzlers, Frubes, cheese strings and Dairylea lunchables. Kids' food? Let's call it child abuse! And then let's get it off the menu. Children are the future, yet how can we grow a healthy future on such miserable, nutritionally and spiritually empty fare?

Bike lanes

Nothing more clearly shows the real priorities for transport policy. Cyclists get a whopping 12 inches of pot-holed, drain-lined track and cars get the rest, when they're not parked in the cycle lane or haring into London on the new four-lane M1 that is being constructed. And we want to get cars off the road.

Intensive farming

The surest sign of all that we are a long way from civilisation. I do not believe there are many people who, after visiting a battery chicken or pig factory, would ever wish to

Frowns

Life has become so bleeding hard that we've become fearful of smiling in public. If you do, you're considered a nutter or pervert.

Urban dogs

Pets or protection?

I-podism

It is ugly to live in a world where all you see or connect with is yourself. It is ugly that we no longer talk to our neighbours or help the old lady across the street. It is ugly that we are so plugged into our devices that we can't hear the passer-by ask us for directions, it is even uglier that we ignore them when we hear them ask. It is ugly to stand in silence or turn your face away when a small child asks a question; our individual, self-absorbed worlds have created an ugly silence that people feel is taboo to break.

Children's 'food'

When they should be sucking a breast they are sucking on bottles. When they should be

20 million tons
The total annual weight of killed and discarded fish from drift net fishing, including dolphins, whales and turtles



Fireworks

The worship of artwork crafted from the materials of war is disturbing and a symptom of the loss of our senses. Years of aural vinaloo has deafened us and inured us to the subtle beauty of gentle sound and light: light breezes through tall grass and whispers from our own back gardens pass unnoticed.

A lifetime of 'TV wars', flash photo effects and clubbing has created a craving for fast and sharp sound and light. The excitement of an electrical storm magnified, speeded up and distorted to resemble melting flowers and stars that can never be held in the eye. While the flicker and flare never cease to delight us as we seek, but never quite find, the flowers and stars in the sky.



is on the site of the old local cricket ground, and there is a sad metaphor for you.

Reality television

Since when was reality not good enough? Turn off and tune in to life. The age of the freak show should be long gone.

Motorway services

Pits of over-priced doom, these starkly utilitarian refuelling stations provide frantic snacks and toxic burgers at crazily high prices. Forsake the motorways for the A roads, and instead of service stations stop at those fantastic roadside burger vans, for a 70p cup of tea and a roll.

Legislation

During the past decade, 3,000 new laws have been enacted: nearly one a day. What a state we are in.



Diminishing childhoods

More and more quickly we are expecting children to lead grown-up lives; gone are the days of puddle jumping and playing ball in the street. Society, through hysterical reporting, has created paranoid parents and asks children to deal with paedophiles, children with knives and guns. The disappearance of childhood is ugly because childhood used to be the epitome of beauty.

Consultation

On our nuclear future: pre-empted by Blair, and then Brown. We are going to have a nuclear future whatever the outcome of consultation. On the new European Treaty: abandoned in the face of 'no' votes in France and the Netherlands. A promised referendum in the UK abandoned with a modified treaty now going through on the nod. On planning: What's the Whitehall definition of Nimby? Selfish bastards. Consultation is a sham.

Junk mail

Win, win, win. Free, free, free. Once in a lifetime opportunity. Lose weight FAST. Beat cancer naturally. Does anything say more about the beg, borrow or steal culture that we have allowed to spring up around us than junk mail? This intrusive, often fraudulent daily onslaught fills our homes with waste, overwhelms us with its demands and showcases the worst aspects of humanity.

Mail junk

Specifically, the red elastic bands dropped by postmen on their rounds. To me these represent the dirty underworld of 'official' waste. If you or I dropped litter in the streets we could be fined. But police, military, the Government, companies drilling for oil or

Sexist ads

This is where I feel most powerless, and am reminded daily that I am a second-class citizen in the UK, whatever laws have been passed, however many women have joined the 'suits'. Those women have really joined the suits in a big way, and are often behind the advertising that portrays women as dumb beasts, only good for the sexual playthings of men. There is no more sisterhood. The millions of women who are making a little money posing for advertising that portrays them

mining for minerals are barely accountable for the waste they generate. *Et tu*, Royal Mail?

Women's mags

Full of regurgitated, inane, shallow bollocks, they do more to frustrate and disempower women, and by association the men they live with and love, than almost any other aspect of the media. Real women don't read – or need – women's magazines.

Sirens

The nee-nar soundtrack to urban living. Are there really that many emergencies in a day? Or are they an extreme form of social control? Neither bodes well.

Decking

An anally retentive desire to control nature is today an environmental crime and reveals

Unconsciousness

Most of us walk around in a state of unconsciousness on a day-to-day basis. We are unaware of ourselves and what motivates us, how we affect others and are in turn affected by them. We are insensitive to the needs of the body and the pleadings of the heart. We have no understanding of the self or the psyche and how they work through us, and no appreciation of the way the collective works.

Being conscious is hard work.

When you are awake you see things you sometimes would rather not see. But being unconsciousness is a death sentence. It kills the soul, kills the mind, kills the spirit.

in a constant state of 'gagging for it' are cynical but probably politically unaware, careless that young boys who are still forming opinions regarding sexuality will be influenced by the sight of women being debased as if it were normal. I question what is normal about advertising products using women in demeaning poses. Poses that say, 'I don't value myself unless you want to poke me!' That this has now become normal and acceptable in our daily life is both ugly and frightening.

you to have been rendered mindless. Decking kills the ecology of life, most notably the bumble bee. Chuck out the illegally chopped Amazon wood and let your garden grow.

Fake tans

Nothing rhymes with orange. Nothing looks bad like year-round orange healthiness. If I woke up that 'healthy' colour I'd call an ambulance. Beauty editors say fake tans instantly make you look 6lbs lighter and more attractive by hiding those ugly blemishes. If you don't like being a pale face from the UK (although that's getting harder under the burning sun when it shines), then it's not just the tan that's LA fake.

Champagne

The world's most expensive, overpriced, over-hyped wine comes from soils used for decades as a rubbish tip - although you'd never guess this from the Champagne industry's ultra-chic colour spreads in glossy magazines. From the 1950s to the late 1990s town refuse from Paris was ground up and used to fertilize the Champagne vineyards. That's why so many of the region's vineyard soils contain rich and clearly visible deposits of shredded plastic from binliners, nappies, and plastic bottles.

Work/life balance

For most people it takes two working full time forever (kids or no) to afford to buy a home. Work-life balance is out of kilter with manifest consequences for personal well-being and society

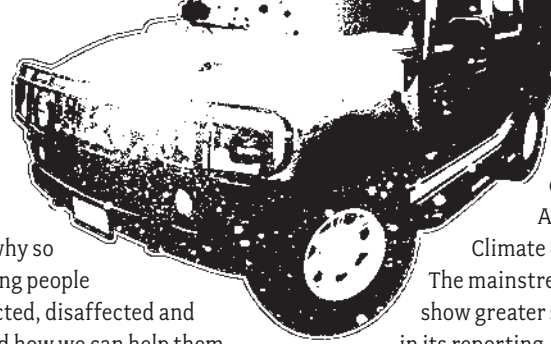
Criminal kids

The increased criminalisation of children is ugly. The ASBO is not an answer, putting kids in youth prison is not an answer, wrap-around care is not the answer, Ritalin is not the

answer. Thinking deeply as to why so many UK young people are disconnected, disaffected and depressed and how we can help them change their lives might be.

Media misrepresentation

Not only ugly, often dangerous. Not all people wearing hooded tops are muggers. It is irrelevant that double child murders – as in Soham – are



committed next to Asian housing estates. Climate change is not fiction. The mainstream media should show greater social responsibility in its reporting.

New housing estates

Often detached from the established community, with no shops, schools and shared services. They encourage car use and are built so close to one another as to incite an anti-neighbour attitude.

FIAT
MONJEOR
REGIME

The fiat monetary regime

This is a fancy name for the monetary system we all live under today. It is paper money created by governments and not backed by anything or convertible into anything.

One hundred years ago you could walk into a bank, hand over a £5 note and ask for five sovereigns. These are beautiful little coins, containing approximately one-quarter of an ounce of gold each. So four sovereigns equalled an ounce of gold. Today those four sovereigns would be worth (in current paper money) about £330. How can this be?

Fairly simple, really. The UK and most other governments abandoned the gold standard around the beginning of World War I. They did so because they couldn't purchase the armaments and finance the war effort without depleting their gold reserves in fairly short order. So they printed paper money and floated bonds, which they sold to their respective populaces to finance a conflict that killed 10 million people. After the war, they tried to go back to a modified gold standard, but that didn't work, so they abandoned it completely.

Today, the governments and central banks are in the business of depreciating the currency without anybody noticing. Since 1910, both the pound and US dollar have lost around 98 per cent of their purchasing power. Each year, the money supply in both countries rises 6–8 per cent (that is the real inflation figure, not the 2 per cent the phoney government statisticians claim). In the USA, the consumer price index now excludes food, transportation and

energy – how convenient! Governments want you to believe inflation is only two per cent. That is what pensioners get and what cost of living rises are based on. But the whole system is a fraud. Most people are worse off than they were even a year ago, not better off.

So if you want to increase your living standard, the answer is to borrow. Every cable station is stuffed with ads that encourage you to borrow on your home, your car, the fact you have a job. Borrow to get what you want or just to stay even.

Under what's called the 'fractional' banking system, banks have to keep only a portion of their deposits as reserves. So if you deposit £100, the bank only has to keep £5 on hand and can lend out the other 95, thus creating money out of thin air. Under a gold standard the money supply is fixed to gold, which, historically, increases about 1 per cent a year. Thus inflation is capped at 1 per cent. Nothing more, nothing less. A pay rise means something in those circumstances.

But banks hate gold and so do governments (the present Prime Minister would love to dump the other half of Britain's gold reserves he hasn't already sold). Gold tells you there is no free lunch.

Under a gold standard, a government cannot spend taxpayers' money and then flood the market with paper to pay for it. It's time to stop the lies and return to a system of honest money. It even says so in Article 1 of the US Constitution... and the founding fathers were a pretty smart bunch.

1149

The number of common species in the UK identified as being in serious decline, including the hedgehog, housesparrow and cuckoo. This amounts to a 100 per cent increase over the past decade.

Nationalism

The subjugation of one group for the improvement of another is abhorrent and tantamount to fascism.

Social and political injustice

Outside the local courts in New South Wales, Australia, all the people awaiting trial are Aborigines. The majority of soldiers fighting in wars around the world are from underprivileged communities fighting a war on behalf of people who will never get hurt or killed. It is the year 2007 and people are hungry and homeless. This is ugly.

Designer labels

Human billboards of the world unite in the ultimate expression of being characterless, unimaginative suckers with zero for style diligence and zero for style ability. They bring zero to the party. They're novelty addicts slavishly greasing the wheels of the global economy.

More than one TV

Why? Are you lonely? Bored? Is the room too quiet without one? Ask yourself why are you so afraid of that silence?

Waste (in all its forms)

Over and above the clear ecological imperative to live within our means, the very concept of waste is idiotic. In a healthy system, there is no such thing as waste – only resources, and to see resources as waste is to behave as if the world is infinite. We must learn to design waste out of our economy. If we don't, we will continue to consume three times more than

the world can sustain, and we will be heading inevitably towards conflict and destabilisation.

Shrink-wrapped swedes

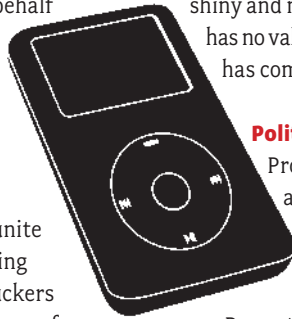
Handling the rough, earthy flesh of vegetables has become alien, dirty even, to the supermarket shopper. Swedes in particular are tough little buggers, with skins like elephant hides. They are not prone to spoilage. Shrink wrapping makes them look bright and shiny and new, but this wasteful packaging has no value to you or the swede. The time has come to demand our veggies naked.

Politics

Promising one thing and doing another. Examples abound: underwriting the Sakhalin oil and gas project, the nuclear consultation, the Energy White Paper, the Tony Blair-Gordon Brown accession, *ad infinitum... ad nauseum*

Stand-by

Wasteful, unnecessary and the epitome of laziness-inducing, time 'saving' gadgets. Sure,



1953

The number of deaths directly related to climate shocks and weird weather this year, at the time of going to press

Billboards

Strategically placed and lit billboards are a blot on the landscape and block our view. I was thrilled to hear that the mayor of Sao Paulo, Brazil, has taken the revolutionary step of banning these eyesores throughout his city. I wrote to London's current Mayor, Ken Livingstone, to ask if he would do the same, but received the inane reply that London's billboards were nothing to do with Ken. Beyond the aesthetics is the cultural devastation. The images that billboards portray have made us insecure about our bodies, our faces, our clothes, our ordinariness and our right to exist in a world of gods and goddesses. Worst of all, they've made our children feel inadequate, unable to measure up unless they have the right trainers, T-shirts or underwear. They've changed the aspirations of the young from achieving something to achieving someone else's 'look'. As a result, many of us don't recognise the person we see in the mirror as 'normal', like 'the rest'. Even when 'the rest' have been sculpted, manufactured and put on show with the express purpose of selling us back to ourselves.

we all love our remotes – but get up off your bum and turn it off when you're done.

The Olympic Games

Huge, flawed state entertainment at everyone's expense. A few days of fun and excitement, and a legacy that will take years to pay for and years to clean up. Surely there's a better way to spend £10 billion?

GM

The belief that we can do nature, better.

Contributors

Pat Thomas, Jon Hughes, Mark Anslow, Kristen Harding, Zac Goldsmith, Monty Waldin, Tom Hodgkinson, Matilda Lee, Zayda Kebede, Rachel Clode, Albert Herskovits, Laura Selvier, Robert Llewelyn, Tyler Moorhead.

You can add our own 'uglies' on our website at www.theecologist.org.

First world ideals

A few years ago, while working in Uganda, I was startled by a series of huge Coca-Cola billboards on the approach to the capital, Kampala. Each depicted a snapshot of the American Dream, four-wheel drive, suburban home, white family smiling blissfully at a newborn baby. Underneath, was the mantra 'Coca-Cola – It's Got What You Want'.

Weeks later, on the same trip, I was not surprised to discover a queue of several hundred people waiting patiently outside the British Embassy for the chance to escape the poverty imposed on their

country by series after series of Structural Adjustment Plans and World Bank loans. I can clearly recall the words of one proud young man I spoke to in the queue: 'First they took our people, then they took our resources, now we have to give our dignity just for the chance to enter your country'.

Is it not time for each of us to take some simple steps towards improving the lives of the majority who are so dependent on our consumer culture? Whether it's subverting a billboard or boycotting a supermarket, everyone's daily life provides endless opportunities to turn 'ugly' into beautiful.



Change power. [Ecotricity.co.uk](https://www.ecotricity.co.uk)

ecotricity

Mass society and mass depression

There is now an epidemic of depression in consumer societies and, says **Bruce E. Levine**, most psychiatrists, psychologists and other mental health professionals have been looking in the wrong places for its root cause

In 1998, Martin Seligman, eminent psychologist and then president of the American Psychological Association, told the National Press Club that there had been more than a tenfold increase in the rate of depression in the USA in the past 50 years. It was, he said, an epidemic.

Today the World Health Organization (WHO) ranks depression as the world's fourth most devastating illness (in terms of total years of healthy life stolen by death or disability). The WHO projects that by 2020, depression will be second only to heart disease as a global contributor to early death and disability. Today, it is already number two for one subsection of the population – people aged between 15 and 44 years, of both sexes.

The roots of depression

Beginning in the late 1980s, many mental health professionals became convinced that depression was primarily caused by a deficiency of neurotransmitters such as serotonin. Neurotransmitters are naturally-occurring chemicals that carry messages between nerve cells. The birth of this idea was a boon for pharmaceutical corporations, making it relatively easy for them to sell a range of neurotransmitter-enhancing drugs

– collectively known as selective serotonin

reuptake inhibitors, or SSRIs – such as Prozac, as a fix for depression.

There are certainly depressed people who believe in the power of their antidepressants. But even antidepressant advocates admit these drugs can bring with them a litany of adverse effects including dry mouth, blurred vision, nausea, sweating, constipation or diarrhoea, rashes, anxiety, tremors, dizziness, drowsiness and sexual dysfunction. Some can also worsen depression and mania over time, as well as triggering hallucinations and increasing the risk of suicide, addiction and accidental overdose.

Then in 2002 *Prevention & Treatment*, an electronic journal sponsored by the American Psychological Association, reported that Prozac, Zoloft Paxil, Effexor, Serzone and Celexa – drugs that together accounted for \$8.3 billion in worldwide sales in that year – failed to outperform placebos in the majority of the trials submitted to the US Food and Drug Administration (FDA) during the drugs' approval processes. In this controversial piece of research, published with the title 'The Emperor's New Drugs', the psychologists conducting the review used the Freedom of Information Act to obtain 47 studies that had been used by the FDA for approval of the six antidepressants prescribed most widely between 1987 and 1999. They found that

of the 47 trials

conducted for the six drugs, only 20 of them showed any measurable advantage of drugs over placebos.

By the mid-1990s, mental health officialdom had begun a slow retreat from the neurotransmitter-deficiency theory of depression. The *American Medical Association Essential Guide to Depression* in 1998 stated: 'The link between low levels of serotonin and depressive illness is unclear, as some depressed people have too much serotonin.' And in February 2007, the director of the US National Institute of Mental Health admitted to *Newsweek* that the primary cause of depression was not low levels of serotonin or any other neurotransmitter.

The focus on neurotransmitter levels was a red herring that diverted all of us from examining those unsustainable aspects of our lives and of our society that create the conditions in which depression can take hold. Even before researchers had disproved the notion that low levels of neurotransmitters caused depression, it should have been apparent that the origin of the dramatic rise in depression rates in so-called developed countries would be rooted in something that had in fact dramatically changed – such as the basic nature of those societies.

I have been a practising clinical psychologist since 1985, but one need have only common sense – something often lost in



professional training – to understand depression. Depression is simply one of many human ‘strategies’ to shut down overwhelming pain. The price paid for the long-term reliance on depression is that it also shuts down energy, enthusiasm, sexual desire, concentration, memory and other cognitive skills, and can lead to guilt, hopelessness, problems in sleeping and eating, immobilisation and thoughts of suicide.

When we habitually employ a shutdown strategy – rather than healing and resolving the source of pain – we develop a tolerance to that strategy, which means that we need increasingly larger doses of it. Shutdown strategies such as depression, alcohol, or other psychotropic drugs can create a vicious cycle in which the very strategy used to shut down pain can create more pain.

Society and depression

While there are no convincing genetic or biochemical markers associated with depression, many studies show a variety of psychological and interpersonal losses and pains that can lead to depression. In his book *The Truth About Depression*, the physician Charles Whitfield reports on more than 200 studies which show that people who have suffered neglect, abuse and other types of trauma have a much greater risk of becoming depressed.

The loss of affection in a marriage is also highly associated with depression. In their book *The Interactional Nature of Depression*, psychologists Thomas Joiner and James Coyne report that in one study of unhappily married women who were diagnosed with depression, 70 per cent of these women believed that the loss of marital satisfaction preceded their depression and 60 per cent believed that their unhappy marriage was the primary cause of their depression.

It’s a similar story with postpartum depression, which occurs in 10 to 20 per cent of women in the UK and the USA, but is considered rare in China Fiji, and some African populations. A raft of studies has found that lack of social support after giving birth – a fundamental human need, often unacknowledged and unmet in modern Western society, with its emphasis on individualism rather than family and community – results in emotional pain followed by depression.

The WHO reports that there is a

significantly higher prevalence of depression in high-income nations compared to low-income ones. There are many reasons why this apparent paradox makes perfect sense.

‘Low levels of social support directly predict depression,’ states the sociologist Robert Putnam. In his book *Bowling Alone*, which details the collapse of community in the USA, Putnam reports, ‘Countless studies document the link between society and psyche: people who have close friends and confidants, friendly neighbours and supportive co-workers, are less likely to experience sadness, loneliness, low self-

‘Societies that focus on production and consumption suffer many losses. One such is meaningfulness’

esteem and problems with eating and sleeping... The single most common finding from a half-century’s research on correlates of life satisfaction, not only in the United States but around the world, is that happiness is best predicted by the breadth and depth of one’s social connections.’

An illustration of this can be seen in Mexican-Americans born in the USA, who are almost three times as likely to have had a ‘major depressive episode’ than recent Mexican immigrants to the USA or Mexicans remaining in Mexico, according to researcher and professor of public health William Vega. Vega found that Mexican immigrants’ rate of mental disorders grew steadily after immigration, so much so that Mexican immigrants who had been in the USA for more than 13 years had nearly the same rate of mental disorders as native-born Americans.

Mexicans tend to come from a much more integrated family system and, Vega concludes, this translates into ‘tremendous benefits of that in terms of everyday psychological resilience... They are much more likely to be in a situation where people

help each other out... There is a cost for this greater personal and economic freedom. The cost is loss of reciprocal support.’

The loss of social support is not the only pain that people in consumer societies suffer. While being poor in economically impoverished nations does not necessarily result in depression, public assistance recipients in the USA have a rate of depression approximately three times as high as the general population. Psychologist and journalist Oliver James points out that affluent, industrialised societies encourage rising expectations that consumption will make us feel better, happier and more powerful but, says James, ‘When expectations outstrip real outcomes, we feel either aggressively resentful or depressed.’

Mass society, mass misery

There are other losses and pains brought about by societies that narrowly focus on production and consumption at the expense of other, more vital dimensions of humanity. One is the loss of human scale. Little remains in consumer societies that is not massive. In addition to mass production, mass marketing and mass media, there are massive universities, shopping malls, airports and hospital complexes; and with corporate mergers and consolidations, large institutions are growing even larger.

Given this lead from the top, it is difficult to blame those young people who believe that mass existence is life itself. It is not, but in 1980, seeing the light of this truth dimming, the historian and decentralisation activist Kirkpatrick Sale published *Human Scale*, in which he observed: ‘The fact is, as common

sense would tell us, that for most of the human period on earth, small arrangements, small groups, small communities and cities have tended to predominate – even within our own recent historical period.'

The economist Leopold Kohr in his 1957 book *The Breakdown of Nations* concluded that misery in society could be explained by a single theory of size. 'It suggests,' Kohr states, 'that there seems only one cause behind all forms of social misery: bigness.'

With this bigness comes another painful loss – autonomy, a sense of control over one's life. Many people experience

'In a society that has become increasingly institutionalised, many people feel isolated, small, angry and scared'

helplessness owing to a society that has become increasingly institutionalised. Institutionalisation consists of the domination by gigantic, impersonal, bureaucratic, standardised entities – visible in large corporations, government and much of our lives. This institutionalisation has made many people feel small, isolated, scared, angry, bored, alienated – and depressed.

What is more, increasingly massive, institutionalised, consumerist societies are the source of not only increasing rates of depression but also 'attention deficit hyperactivity disorder,' 'anxiety disorder' and most other so-called psychiatric disorders.

The faith of mass society – that salvation will come through technology – compounds the problem. Both Kirkpatrick Sale and historian Lewis Mumford have written about our machine-worshipping culture. Once one accepts that our society worships machines and technology more than it does life and biodiversity then it's easy to understand that the goal of society is to become more machine-like, more standardised. As society focuses on that goal, more and more people simply don't fit in. Psychiatry can compound this problem when, instead of concluding that there is a problem with this machine-worshipping culture, it concludes that there is a problem with the individual who does not fit in.

Technology is also about control, and the more we singularly worship technology, the more we singularly worship control. Human

beings pay a psychological price for any technology that controls them more than they control it – they can actually feel more powerless. Beyond its attribute of control, technology has no meaning, and if people singularly worship it, they will have meaningless lives.

Likewise, in the USA, the leading growth area in jobs includes cashiers, janitors, clerks and restaurant servers, and studies show that 80 per cent of Americans find what they do for a living to be utterly meaningless. A meaningless life, like a powerless life, is a depressing one.

There are other reasons why so many people become dangerously depressed in a culture of consumerism. In such a culture, people are forever trying to buy happiness, and sellers are expected to appear happy so as to inspire confidence in what they are offering.

What's wrong with that? As psychologist and journalist Lesley Hazleton in *The Right to Feel Bad* observes: 'Feeling good is no longer simply a right, but a social and personal duty... Seeing depression as pathological – that is, as illness – is a useful way of invalidating it... If we were allowed to be depressed – if we could allow ourselves to be so – we might find it much easier to tolerate.'

We might also find it easier to heal ourselves and our society, for out of the darkness of depression can emerge the answers to many of society's problems.

Building morale

Many mental health professionals, before referring their depressed patients to a drug prescriber, may begin with cognitive-behavioural advice such as 'try to have more positive thoughts,' 'exercise more' or 'make some friends'. Good ideas – however, depressed people are often too demoralised and dispirited to act on almost anything.

Depressed people must first regain morale before they can take any positive actions. The dilemma? The fear of depression and immobilisation is quite reasonable in modern industrial society – where, if you remain immobilised for even a short length of time, you can be made homeless or in some other way disposed of. This fear itself is a source of pain, and some people consequently 'use' a retreat into depression to try to shut down that pain. Thus, one can find oneself self-absorbed in a vicious cycle of depression, immobilisation, fear of depression and immobilisation, the pain of fear – and greater

Depressing facts

- In developed countries such as the USA, UK and Australia, depressive disorders affect approximately nine to 15 per cent of the population aged 18 and older. Further statistics for the developed countries show that:
- The rate of increase of depression amongst under-18s is around 23 per cent per year. Pre-schoolers are currently the fastest-growing 'market' for antidepressants.
- 30 per cent of women are depressed. The percentage of men with depression was previously thought to be half that of women, but new estimates suggest that men suffer nearly as much as women, though they express their feelings differently, often through addictive behaviour such as drugs, alcohol and work.
- 54 per cent of people believe depression is a personal weakness.
- 41 per cent of depressed women are too embarrassed to seek help.
- 80 per cent of depressed people are not currently having any treatment.
- 15 per cent of depressed people will commit suicide.
- It is predicted that depression will be the second largest killer after heart disease by 2020 – and studies show that it is a contributory factor to fatal coronary disease.
- Depression lowers immunity. Studies are increasingly linking other serious illnesses to depression, including: osteoporosis, diabetes, some forms of cancer, eye disease and back pain.
- Depression results in more work absenteeism than almost any other disorder.
- Standard antidepressants, SSRIs such as Prozac, Paxil (Aropax) and Zoloft, have recently been revealed to have serious risks, and are linked to suicide, violence, psychosis, abnormal bleeding and brain tumours.

depression to shut the pain down.

The craft of breaking up this cycle is part of the craft of morale-building. One component of this craft consists of using life-affirming distractions from one's fear and pain. Humour is one of several such distractions that many depressed people – including, famously, Abraham Lincoln and Samuel Johnson – have employed to divert themselves just long enough to take constructive actions.

Voltaire, as wise as he was witty, once declared, 'The art of medicine consists of amusing the patient while nature cures the disease'; and I have discovered that even if what I say isn't funny enough to make depressed people laugh, but just silly enough to distract them from their fear and pain, it is a success. Every second spent outside of painful self-absorption is a good thing.

With morale restored, depressed people often find the energy to begin healing emotional wounds and letting go of other painful demons. With healing comes the strength to distinguish self-acceptance from self-absorption. If the self-absorption associated with an extreme consumerist society is one source of depression, self-

acceptance provides the security necessary for connecting with the whole of life, which is an effective defence against depression.

It is well documented that people who have a sense of connectedness to life, a sense of community, have fewer emotional difficulties. But today, most of us do not live

'Most of us do not live in communities – we live in locations. Real community means interdependence'

in communities – we live in locations. Real community means face-to-face emotional and economic interdependence. In a real community, people decide for themselves what their problems are, and they themselves implement solutions, as opposed to handing them over to distant authorities to decide.

In this respect one of the best long-term antidotes to depression is some form of social activism. The world today, especially in the developed West, seems to contain

many demoralised and dispirited individuals who doubt their capacity to change the world for the better. However, even if the case can be made that it is too late to turn the world around, social activism makes sense in terms of mental health. People who are working toward a better neighbourhood or society may not always have success with their stated endeavour, but routinely they are successful at creating friendships with like-minded people and forming genuine communities.

Local activism can also give people a greater sense of autonomy and a belief that what they say and what they care about actually has some political impact. This feeling, in turn, can be a source of energy and improved morale that can act as a lifelong, and sustainable, antidote to depression. **E**

Bruce E. Levine is a clinical psychologist and author of *Commonsense Rebellion* (Continuum, 2001) and the forthcoming *Surviving America's Depression Epidemic: How to Find Morale, Energy, and Community in a World Gone Crazy* (Chelsea Green, autumn 2007). See www.brucelevine.net



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Trees of life

Climate connections



Is it possible that the destruction of the Amazon rainforest was the cause of this year's floods in Tewkesbury and elsewhere in Britain? **Peter Bunyard** makes the connection.



Cars stalled on the slip roads of flooded motorways, Tewkesbury in Gloucestershire encircled by murky waters, crops ruined in their entirety, thousands of animals drowned, with little to feed the survivors; or, just as extraordinary, England burning up under an April sky, should leave no-one in doubt, at least in the UK, that climate change is upon us. As person after person remarked, the rain (when it came) came down in buckets, just as you would expect were you travelling in the heart of the Amazon rather than through the tranquil English countryside.

While it is true that the developing world is suffering appallingly from extreme weather events, like the recent flooding in Bangladesh and China, or the damage over the Caribbean caused by Hurricane Dean, who honestly thought that climate change would leave the

industrialised world unscathed?

It wasn't just England that suffered such extremities of July weather. In central and southern Europe, countries such as Hungary, Greece, Italy and Bulgaria experienced scalding conditions, with temperatures sometimes in excess of an unprecedented 45°C. While the UK was awash, Greece and Italy had to cope with burning forests. In Greece, Hungary and Bulgaria, hundreds of people died because of heat exhaustion, just as they did across the Channel four years ago, when the toll in France was well over 3,000.

We barely go a week now without one climate record or another being broken, whether it be unprecedented heat, cold, drought or floods. Climate change is clearly manifesting itself through destabilising patterns of weather and 2007 is surely no exception. It is no easy task, not even for the

experts, to distinguish cause from effect; yet what we have been told is that the jet stream, which in mid-summer normally blows to the north of Great Britain, was instead well to the south of its normal trajectory and fragmented into sections, rather than one unified stream. As a result, low-pressure systems, which the jet stream normally keeps at bay, were able to penetrate further to the south and east. To add to that, warm, humid air originating from the southwest tropical Atlantic was able to force its way across England, simultaneously unleashing its load of water. The combined effect of all this, as we saw, was inches of rain falling in a matter of hours.

Do the rains and unprecedented flooding that beset England during June and July, or the heatwaves more to the south, vindicate what the climate models have predicted?

In a word: no. The models predicting climate

Climate connections

change have depended largely on studying the relationship between greenhouse gas emissions from human activity and the amount of heat trapped at the earth's surface as a result. With rare exception do they include a 'living' carbon cycle – nature's ability to pull CO₂ out of the atmosphere and put oxygen back in. When they do – such as do those of the UK Met Office Hadley Centre for Climate Prediction and Research – the

'How many people made the connection between the Amazon drought, the hurricane season and the floods that ravaged England in July this year?'

projections come up with far more severe repercussions for the planet's climate, as a result of continuing global warming, than when ignoring the dynamic of the vegetative carbon cycle.

Lessons from the living

The 'living' models show surface temperatures over the world's continents increasing on average by 9°C – compared with the 5°C to 6°C of the 'dead' models – over the course of the current century. What can explain such a substantial difference? Richard Betts and his colleagues at the Hadley Centre, as well as Peter Cox of Exeter University, invoke plant physiology, albeit crudely, in their models, and it emerges that global warming, once it kicks in, pushes up soil respiration while reducing net primary productivity from photosynthesis – essentially, the biosphere not only loses its ability to absorb carbon, it starts pumping it back out.

Because of such feedbacks, including El Niño-like changes in ocean circulation – which, by impeding the flow of the trade winds, would dry out the Amazon Basin – the loss of carbon from soils and biomass increases exponentially, so adding to greenhouse gases and boosting global warming still further. The loss of carbon from the Amazon Basin

Right: New research has shown that when forest clearings are small, as here, rainfall levels actually increase due to an 'updraft' effect created by the clearing and the encircling forest. However, if these clearings are enlarged beyond a certain point – in agriculture or logging, for example – the updraft stutters and fails, losing power. Rainfall levels then fall off dramatically.

could add at least 10 per cent to the current carbon content of the atmosphere.

What is now happening to the Amazon Basin is thus especially worrying. In 2005, the Amazon Basin suffered a drought as bad as had ever been, with river levels far below the lowest ever recorded. Thousands upon thousands of fish died, suffocated for lack of oxygen, and smoke from countless fires in the western part of Brazil's Amazon and from

Bolivia drifted northwestwards into the Colombian Amazon, preventing planes from landing and making life pretty uncomfortable for the populations of towns like Leticia in Colombia and Tabatinga in Brazil. The smoke hung there, filling the sky with a yellowish haze, and it kept the rains away. Further to the north, along Colombia's Caribbean coast, rain poured down, the flood waters in the Magdalena region surpassing in intensity anything that England suffered in July 2007.

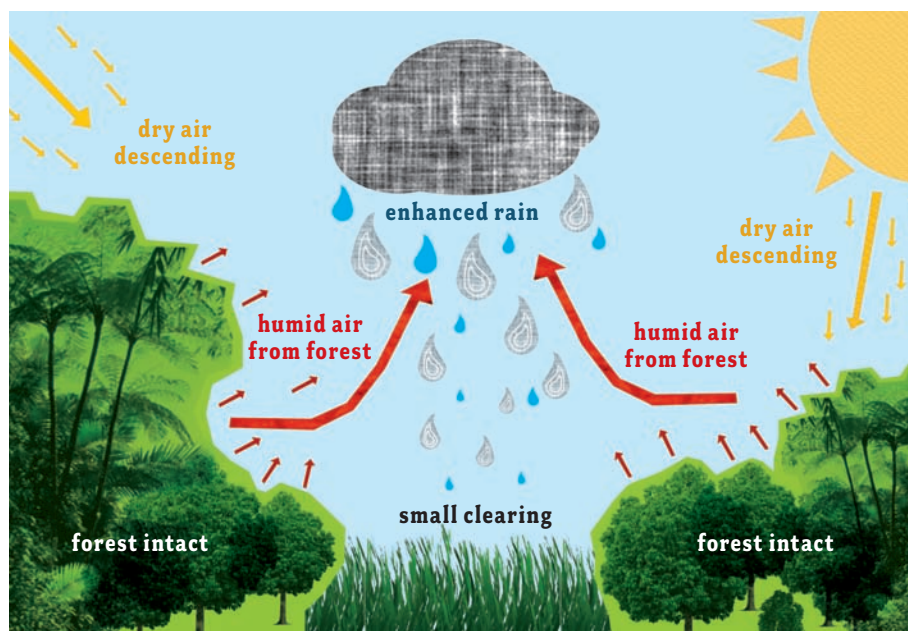
That was the time, too, of the biggest-ever hurricane season, with Katrina and Wilma hammering the US shoreline and laying waste to New Orleans – quite aside from the destruction of more than 100 petroleum installations in the Gulf of Mexico. Scientists now have good evidence that a warmer-than-normal Caribbean coincides with

stronger and more numerous hurricanes – and if 2005 was no exception, it will be interesting to see what happens in 2007. Meanwhile, how many people made the connection between the Amazon drought, the hurricane season and the floods that caused havoc in Rumania, Austria, Germany, Bulgaria and Switzerland in the summer of 2005, or those that ravaged England in July this year?

New in the story is our better understanding of the role of the Amazonian rainforests in sucking in the mighty trade winds that traverse the ocean between Africa and South America.

That drawing-in of the trade winds is a consequence of the powerful convection processes that take place over the Amazon because of the pumping of water vapour into the air mass through evapotranspiration from the intact rainforest. By pumping up water from the soil and forcing it through the small stomata pores in the leaves, the rainforests fuel the air currents passing over the Amazon with water vapour. As the air rises, this vapour condenses, so freeing latent energy and helping to generate a convection system, which in turn results in massive thunderstorms and downpours. Essentially, as a result of the Amazonian rainforest recycling the water derived from the Atlantic Ocean – perhaps as much as six times or more – the same drop of evaporated water is likely to make its way from the Atlantic Ocean to the peaks and plains of the tropical Andes.

As the trade winds traverse the ocean, sucked along by convection over the Amazon Basin, they pick up millions upon millions of





Left: This diagram shows the position of the jet stream in summer 2006 (blue arrows), and summer 2007 (red arrows). Pockets of low pressure caused by a warmer-than-usual Atlantic helped to ‘swing’ the jet stream off course, as well as fragmenting it into different sections. This allowed a low-pressure system normally kept at bay in the North Atlantic to push downwards over the UK, meeting with warm, moist air from the south, which then fell as torrential rain.

tonnes of water vapour. This natural process has the effect of leaving the surface waters off the coast of Brazil saltier and somewhat cooler, because of the evaporation, than they would be were there no such movement of the trade winds. The surface waters therefore become more dense and sink, being replaced by even cooler, though less salty, surface waters from the North Atlantic. All this reduces by a degree or more the temperature of the Atlantic and therefore of the Caribbean.

That sinking was severely reduced in 2005 because of the Amazon drought, leading to a serious reduction in the forest-generated cloud convection. That then caused the tropical waters of the Atlantic to warm more than normal, so feeding the hurricanes – such as Katrina and Dean – with warmer, more humid air. It also affected the air mass circulation over the Atlantic, creating low-pressure zones where normally there would be ‘highs’ and thus having an impact on the positioning and strength of the jet streams. Could Tewkesbury be the result of what has taken place over the Amazon in 2007?

It’s a vicious circle and were anything to prevent the flow of air coming in over the Amazon Basin from the Atlantic Ocean, the forests would be unable to sustain the level of evapotranspiration and, consequently, air mass convection would reduce significantly. Less convection results in less energy being imparted to the trade winds. That in turn leads to a decline in the circulation of the air mass – the Hadley Air Mass Circulation – and consequently to warmer surface waters in the

northern tropics. The result? Stronger, more numerous hurricanes, which provide an effective, albeit destructive, way to get energy out from the tropics to the higher latitudes.

As in 2005, the signs are that the Amazon Basin will suffer drought during 2007. The year began badly, with fires raging in the Venezuelan Amazon during March and filling the air with smoke. For lack of rain, many rivers became unnavigable. In Brazil, a few months later, the burnings began, the number of fires up to the end of June totalling 12,000 – 25 per cent up on the 9,340 fires noted up to

‘Climate projections that include a ‘living’ carbon cycle – nature’s ability to replace CO₂ with oxygen – show far more severe climate repercussions’

the same date in 2006. Just in one day, remote sensing detected 148 new fires of more than 30 square metres in size across the entire country, with the greatest number proportionally in the Amazonian states of Tocantins, with 31, and Mato Grosso, with 26.

In both 2005 and 2006, the combination of drought and forest fires – the latter covering thousands of square kilometres of the Brazilian Amazon – resulted in emissions that might have reached 12 per cent or more of the total carbon emissions from all human activities worldwide. With 2007 showing signs of a 2005 repeat, the emissions could be as bad again and, in per capita terms, put Brazil into the same bracket as the United States.

Refuting that, the Brazilian government

claims that the rate of deforestation has gone down by 30 per cent or more over the year to June 2007, which it heralds as a triumph of better policing. However, deforestation in past decades, with some 600 million square kilometres destroyed since 1970, has made the remaining forest increasingly vulnerable to fires and, perhaps of greater importance, has begun to cause climate change over the region, so that successive droughts are becoming more common.

Ecosystems on the edge

Are we close to a tipping point when the entire Amazon ecosystem will collapse? Daniel Nepstad and his colleagues at the Massachusetts-based Woods Hole Research Center conclude from their field studies that Amazon forest ecosystems can withstand no more than two consecutive years of drought without becoming extremely vulnerable to

forest fires – whether as a result of runaway burnings or because of lightning strikes.

‘Undisturbed forests are resistant to burning because their dense leaf canopy prevents all but a tiny portion of incoming solar radiation from reaching the forest interior, keeping the litter layer too moist to sustain a fire,’ says Nepstad. ‘Now large areas of forest are selectively logged prior to being settled, leaving holes in the canopy; longer, more intense dry seasons provoke leaf thinning; and both of these changes allow the litter to become dry enough to sustain a fire. Once a forest has burned a first time, the combination of a more damaged forest canopy and a stock of larger fuel from trees killed by prior fires make it

even more vulnerable to subsequent fires.’

What should worry us especially is whether the changes that occurred in 2005 across the tropical Atlantic could become a regular feature. Were that to be the case, then we could see the demise of the great tropical rainforests across the Amazon Basin. As the Russian scientists Makarieva and Gorshkov from St Petersburg have shown, in a climate

drying-out of the entire system to the point where agricultural crops can no longer be grown. The Amazon Basin could turn into a Sahel, since, according to the Russian scientists, the Hadley Cell airflow over the tropics depends essentially on the forests to provide the necessary convective gradient. Hence, a swathe of forest destruction up to several hundred kilometres from the Atlantic

‘Research shows that large plantations of soya prevent clouds from forming, so intensifying the shortfall of rain and exacerbating drought’

model that looks specifically at the relationship between rainforests and rainfall, natural forest cover is critically important in maintaining rainfall over a large continent such as South America. Without inland forests to pump water vapour back into the atmosphere, vapour picked up from the ocean and deposited as rain will decline exponentially as the air currents move inland. The natural, broad-leafed forest carries out transpiration through the stomata of leaves at a rate that essentially compensates for the exponential decline in rainfall, and so maintains soil moisture and rates of evapotranspiration in a self-feeding, highly selected system.

Alternative vegetation cannot do the job and, if inland natural forests are replaced by agro-industrial enterprises on a sufficiently large scale, the consequences must be a

could put paid to the forests further inland and lead to dramatic changes in the Hadley Circulation. Recent research also shows that large plantations of soya prevent clouds from forming, so intensifying the shortfall of rain and exacerbating drought.

The more that scientists delve into cloud-forming activities, the more they find life’s ever-ubiquitous presence. Life – whether photosynthesising algae such as the coccolithophores that, in their billions, roam the oceans; whether epiphytic bromeliads clinging onto the great skyscraper trees of the rainforests of Central and South America; or indeed, whether sphagnum moss in the vast expanses of the high latitudes – all these life forms release dimethyl sulphide, which on oxidation transforms to cloud-forming aerosols of sulphur dioxide. In varying

degrees, depending on what kind of forest and where, trees also release cloud-condensation nuclei, the main ones in the Amazon Basin being terpenes and isoprenes, the latter related to rubber latex.

In all, as Stephan Harding points out in *Animate Earth: Science, Intuition and Gaia*, life on earth may currently be responsible for forming clouds that cool the earth overall by 10°C. Climate is clearly affected by the amount of sunlight reaching the earth; but life – in its manifest alterations of the earth’s surface and albedo (the extent to which it reflects light), in its production of cloud-generating chemicals such as dimethyl sulphide and the isoprenes and terpenes – is the manager.

An intimate relationship

The physics, as far as modelling goes, may be relatively sound, whatever else is lacking in the models. Some evidence of that comes from meso-scale modelling, such as has been developed by Roger Pielke, Roni Avissar, Pedro Silva Dias and others. Here, the physics, maths and computing power used to obtain climate predictions for the entire planet are focused down on relatively small regions of the terrestrial environment, like focusing the sun’s rays with a magnifying glass and setting twigs on fire.

To date, climatologists, and therefore conservationists, have been assuming that the amount of rainfall is dependent on the amount of forest and that as more and more of the forest goes, so rainfall will decline proportionately. But by using ‘mesoscale’ resolution, Roni Avissar and Pedro Silva Dias have uncovered a very different picture, with rainfall actually increasing when clearings are not too big, but then after a critical point, dwindling away rapidly and causing the remaining forest to crash.

When a clearing is no more than a certain size, probably no more than a few kilometres across, and if the forest around is relatively intact, then the mass of warm air that rises over the clearing will suck in cooler, more humid air from the surrounding forest. This convection process leads to the formation of thunderstorms. Under those circumstances rainfall will increase, perhaps by as much as 10 per cent. On the other hand, make the clearing relatively large, when the forest is no longer large enough or close enough to moisten the updraft of air, and the convection process literally runs out of steam. Rainfall then declines sharply.



The rainforests to the north and south of the equatorial divide of the Amazon Basin show just how intimate their relationship is to sunlight and the atmosphere and whether or not clouds are present. During the rainy season, which occurs during the winter months of December and January in the northern Amazon and in June and July in the southern Amazon, clouds shield the trees from the sun and, as a result, photosynthesis and net primary production of photosynthetic products, such as carbohydrates, declines. The leaf area covering the region also declines.

That situation switches dramatically during the dry season. Now the skies are cloudless and sunlight can penetrate through the canopy down to the forest floor. The trees, in response, as shown by Ranga Myneni and his team at Boston University, USA, increase the leaf area by as much as 25 per cent, and evapotranspiration goes up accordingly. The increase in atmospheric water vapour, combined with the cloud condensation nuclei from the forest, kick-starts a convection process and hence the formation of the first thunderclouds. As the process gets underway, the clouds once again mask the sun and the leaf

area, in relationship to exposed soil, goes down.

Another surprising discovery is that during the dry season, the trees bring water up through their roots and, instead of it all being carried up the tree trunk and out to the leaves, a significant fraction is pushed out through side roots, thereby keeping the surrounding soil moist and thus productive.

'In the Amazon Basin, the only way to inject heat into higher altitudes of the atmosphere is convection, or thunderstorms,' says Rong Fu, of the School of Earth and Atmospheric Sciences at Georgia Tech. 'But

'In a climate model that looks specifically at the relationship between rainforests and rainfall, natural forest cover is critically important'

how,' she asks, 'can you have a thunderstorm before you have moisture being transported into the Basin?' With her colleagues, she was able to show that once the thunderstorm season comes into effect, the winds dramatically change direction. During January and the northern hemisphere winter, when the Intertropical Convergence

Zone (ITCZ) is south of the equator, the winds flow in a north-to-south direction. That reverses in July, when southerly winds are drawn into the convection process, fuelling it with water vapour.

The rainforests of the Amazon, by increasing and diminishing the rate of evapotranspiration, are effectively managing their local climate. Indeed, with such a powerful process going on in the South American tropics and the tropical Atlantic Ocean, it should be no surprise that our weather, and no less climate, are being profoundly affected by what we are doing to

the Amazon. In laying the blame on greenhouse gases emitted from our factories, transportation systems, electricity production, agriculture and our non-sustainable consumer lifestyle, we neglect tropical rainforest destruction at our peril. **E**

Peter Bunyard is the Ecologist's Science Editor



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George Monbiot
Mayer Hillman
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and others

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Fund performance as at 31 July 2007*

% Change over	1Yr	2Yrs	3Yrs	10Yrs
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Discrete year performance (%) as at 30 June 2007*

	Jun 07 Jun 06	Jun 06 Jun 05	Jun 05 Jun 04	Jun 04 Jun 03	Jun 03 Jun 02
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It's only natural

Biomimicry is a new discipline dedicated to learning from and imitating nature rather than exploiting it. **Jeremy Smith** reports on the science, and good sense, of natural design

A teacher turns to her class and tells them that tomorrow she wants them each to bring in an example of what they consider to be the greatest feat of engineering or design. That night, back home, the pupils search high and low through their houses, unearthing a toy Concorde, a miniature Taj Mahal from a visit to India, a postcard of the Golden Gate Bridge. One bright spark may bring in his uncle's old ZX Spectrum. Another, the keys to her father's car.

Now imagine the reaction when, having seen all that her pupils have brought in, the teacher reaches into her pocket, pulls out a mussel shell and places it on the table amongst these man-made miracles. How would the class react? Laughter? Bemusement? Or

perhaps complaints that she was cheating; that mussels aren't engineered or designed by man?

Look at the so-called 'revolutions' that have moved human development forward, and it becomes clear that each one is a step more removed from the natural world. First came the agricultural revolution – some 10,000 years ago – where mankind learned to domesticate certain crops and animals, thus freeing ourselves from a nomadic existence and, depending on whom you ask, either igniting the spark of human development or committing the biggest mistake ever.

Then came the scientific revolution of the late 16th and 17th centuries where, as Francis Bacon commented at the time, we would 'torture nature for her secrets'. Two hundred years further on and the

industrial revolution brought with it movement, speed, mass labour, pollution and workhouses. This was followed just a few decades later by the petrochemical revolution, during which we learned to turn oil not only into petrol to drive our engines, but into the plastics, polymers and pesticides that have defined much of our over-packaged, over-produced lives ever since, allowing us to make our own materials and grow crops faster than nature.

Now things are so fast we are in the midst of not one, but two revolutions – the genetic and the electronic. We invent whole new life forms, create internets and virtual worlds, and use up so much power doing so that we are melting our planet in the bargain.

The question, perhaps, is where do we go from here? There is now a growing ecological consciousness, spurred undoubtedly by the desecration of our planet we see all around us, that suggests that the next revolution could be ecological. If it is, then we need to stop our relentless march forward; to return perhaps to our teacher and her mussel, since it is the mussel (and

'Biomimicists look to nature not as a raw material to be exploited, but to learn from'

do they stay stuck to the rocks? How do they create a glue that remains adhesive even under seawater?

The mussel's 'glue' is just as strong as any 'super-glue' on the market, is created at low temperature and causes no environmental damage at any point in its lifecycle. By contrast, our glues are mostly made from fossil fuel-based polymers and in many cases are highly toxic.

Mussel glue is so impressive that a group of molecular biologists, led by Frank Roberts at the Idaho National Engineering and Environmental Laboratory, USA, are cloning five mussel proteins for use in a natural, waterproof adhesive.

As J. Herbert Waite, another researcher studying how mussels adhere to seawater-bashed rocks, puts it: 'Nature invents and we invent. I think that humans and all other life forms have been evolving toward similar points, but other organisms are simply farther along than we are. They have already faced and solved the problems we are grappling with. For instance, *edulis*, wanting to eat in the tidal zone, have to manufacture a glue that could stick to anything underwater. We know how tough that is because our adhesive industry has been struggling for years to come up with an adhesive that can work in moist conditions and stick to anything. It's still out of reach. Mussels are light years ahead of us.'

A venerable master

Such words seem almost heresy. Human history has been one of us developing further and further away from our connections with the natural world. We are the pinnacle of evolution, the brainiest, the most able. Or so we like to think.

But it is this inversion of our customary approach that marks out scientists like Roberts and Waite. They look to nature not as a raw material to be exploited, but as a venerable master to learn from and, where possible, to emulate. They are called Biomimicists, and their science is Biomimicry.

Wherever they look, they find amazing things. Everywhere, it seems that nature is doing it better than we do. The inner shell of the abalone, for example – what we know as mother-of-pearl – is twice as tough as our high-tech ceramics. Spider's silk is relatively five times stronger than steel, while also being highly elastic. According to an article from *Science News* magazine back in 1995, if a spider's web was the size of a large fishing net, it could catch a passenger jet in flight.

Elsewhere, rhino horn somehow manages to repair itself, even though it contains no living cells. Yet, oblivious to or uninterested in the potential of such properties, mankind has practically slaughtered the



Above: Mussels have a strong, waterproof glue that enables them to cling tenaciously to rocks

Previous page: Spiders' silk is relatively stronger than steel – and highly elastic

not just the mussel, but the spider, the termite, the abalone and a host of other creatures – many of whom one is more accustomed to stepping on, boiling or spraying into oblivion than ever turning to for advice – that may hold the key to a more sustainable future.

Mussels – *Mytilus edulis* – live on rocks at the sea edge. They are sometimes exposed to the air, sometimes under water, and are regularly buffeted and bashed by waves. And most of us, let us be honest, take these seemingly insignificant creatures for granted, whether we encounter them on visits to the seaside, or piled high in a bowl with some chips for lunch. We never ask – how



rhino to extinction. Why? Because Yemeni men will pay up to \$30,000 for a dagger with a handle made of rhino horn and in certain Eastern medicines rhino horn is seen as a source of virility, as well as a cure for blemishes on the skin, stomach ailments – and having a poor singing voice.

For those willing to look, the answers to some of our most pressing engineering and design dilemmas can be found in the most unlikely, or unregarded, of places. Take Zimbabwe. Few people would look to this volatile African republic for shining examples of how we might live in the future. Thanks to the ongoing turmoil there, few people put its capital city, Harare, on their holiday itineraries. If they did, however, they might have discovered the Eastgate Center, whose passive air-conditioning system is based on the termite mound.

The idea came to architect Mick Pearce of the Arup design consultancy one day while watching David Attenborough on TV. Attenborough was describing the termite mound as a remarkable feat of engineering. Termites need to live at a constant temperature of 30.5°C (87°F), yet they inhabit arid, desert areas, where daytime temperatures soar to 40°C (104°F) yet plummet to 1.7°C (35°F) at night. The insects have miraculously solved this problem by digging a series of chambers out of the mud at the base of their mounds and a flue through the middle. They also continually modify the structure of the mound, digging and blocking tunnels in order to regulate the flow of air around their dwelling.

When building Eastgate Center, Pearce mimicked this system. Inspired by the legendary ancient city of Great Zimbabwe, the oldest urban civilisation in Southern Africa, the outside of the building is constructed of four giant walls – made of concrete and masonry. Inside is a seven-storey-high, naturally lit atrium. The Center uses 35 per cent less energy than equivalent buildings

elsewhere in Harare. Its unique design also reduced the cost of the \$36-million project by \$3.5 million, as no air-conditioning is used in it. When you consider the environmental damage caused by air-conditioning, both from the amount of electricity it requires and the fluorocarbons used to cool the air, Eastgate becomes all the more remarkable, and its approach all the more revolutionary. As Pearce puts it: 'Buildings are living systems, and we have a lot to learn from biologists.'

Rules for sustainability

For all its common sense and increasing importance, the principle of biomimicry is little known outside of specialist circles. Ten years ago, biologist Janine Benyus published the bible on the subject: a book called, appropriately enough, *Biomimicry* (HarperCollins, US). In it she notes that nature has had billions of years to develop a system of rules for sustainability and these are the principles that underlay biomimicry:

- Use waste as a resource
- Diversify and cooperate to fully use the habitat
- Gather and use energy efficiently
- Optimise rather than maximise
- Use materials sparingly
- Don't foul your nest
- Don't draw down resources
- Remain in balance with the biosphere
- Run on information
- Shop local.

Benyus's book is currently out of print in the UK. And this is indicative of one of the problems that has dogged biomimicry – a low profile. All across the world, scientists are working on biomimetic projects, yet few people know about them. As a result, these scientists labour, often for years, on minuscule budgets, hoping

Above: Termite mounds inspired a natural air-con system in a Harare building

Below: The boxfish, whose streamlining has inspired designers working on a bionic concept car





Above: Every creature has something to teach us, if we have the humility to learn. A certain type of beetle can harvest water from fog, and beetles and butterflies' colours are not pigments, but wavelength-amplifying layers – a discovery that can help to develop alternatives to paint; and sharks are covered with V-shaped grooves that enable them to move swiftly through water

one day to be able to bring their projects to fruition.

Another barrier, says Benyus, is the lack of a bridge between scientists and the people who need their information, mainly industry innovators. 'What's needed is far greater interaction between biologists and engineers. Sadly, few people get to work in the fertile estuary between those two intellectual habitats.'

To build this bridge, Benyus has teamed up with Gunther Paulil, founder of Ecover and head of Zero Emissions Research and Initiatives (ZERI). With the support of the World Conservation Union (IUCN), they are launching a project called Nature's 100 Best, which gathers together all the information on what they believe are the most exciting biomimetic technologies being developed around the world. Technologies that could power a clean, naturally-inspired future, and in which any venture capitalist would like to invest. For, make no mistake, the world's burgeoning eco awareness and the need for technical solutions to marry with it, present many opportunities.

The biomimetic revolution is already happening, inspiring products that are sustainable, perform well, save energy, cut material costs and create little waste. For instance, plant biologists and engineers are looking to leaves to help make smaller and more ubiquitous solar cells. A leaf has tens of thousands of tiny, super-efficient photosynthetic reaction centres that capture energy silently with water and sunlight – and no toxic chemicals. Molecular-scale solar batteries based on this natural technology could one day be used to split water into clean-burning hydrogen and oxygen.

Engineers at Mercedes-Benz and DaimlerChrysler Research have combined forces to produce the first bionic concept car. It seats four people, is 40 per cent lighter than comparable cars, does more than 70 miles per gallon, and reduces some emissions by 80 per

cent. Its inspiration was the boxfish, which despite its cube shape is extremely streamlined and stable.

Having discovered that the brilliant colours of various beetles, butterflies and birds' wings are not pigments, but rather, a three-dimensional wavelength-amplifying layer, researchers are developing brighter, longer lasting, chemically-milder alternatives to paint.

Symphony of good sense

Even clothing designers are getting in on the act. Sharks' bodies are covered with V-shaped grooves called dermal denticles; swimsuit designers have teamed with scientists to create tight-fitting swimwear covered in this unique drag- and turbulence-reducing texture (similar technologies have been adapted for cyclists and boat hulls). They work so well that many swimmers achieve personal bests in them, and sports regulatory bodies are considering controlling their use.

Other researchers are developing ways of obtaining water without the use of energy-intensive pumps. Their work is modelled on a beetle found in the Namibian desert that can harvest water from fog.

Learning from nature rather than taking from it is essential not just for the scientists and the venture capitalists, but for all of us hoping for any sort of future on this planet. To do so demands that we all decide to use our ability to act collectively on what we know and move into the 21st century on a different path.

Benyus puts it best towards the end of her book, when she writes: 'We can decide as a culture to listen to life, to echo what we hear, to not be a cancer. Having this will and the inventive brain to back it up, we can make a conscious choice to follow nature's lead in living our lives. The good news is that we'll have plenty of help; we are surrounded by geniuses. They are everywhere with us, breathing the same air, drinking the same round river of water, moving on limbs built from the same blood and bone. Learning from them will take only stillness on our part, a quieting of the voices of our own cleverness. Into this quiet will come a cacophony of earthly sounds, and a symphony of good sense.' **E**

Jeremy Smith is a former editor of the *Ecologist*

Resources

You can find out more about biomimicry through these organisations:

- **Zero Emissions Research and Initiatives**
www.zeri.org
- **The World Conservation Union**
www.iucn.org
- **Biomimicry**
www.biomimicry.net
- **The Biomimicry Guild**
www.biomimicryguild.com

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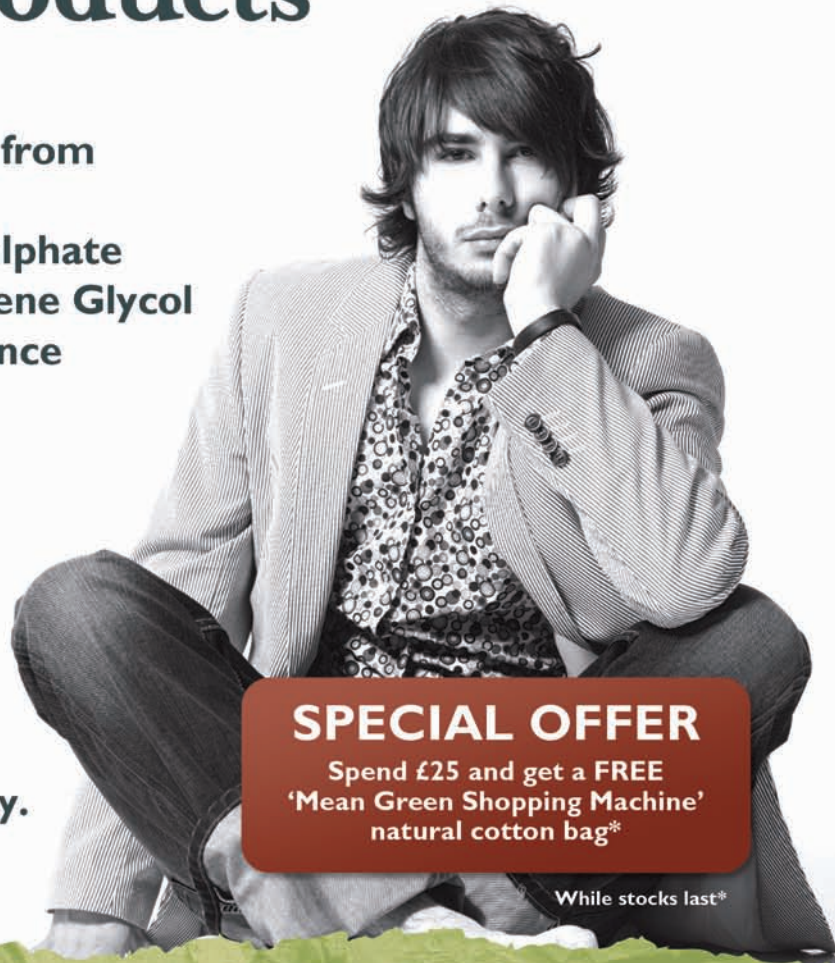
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GREEN PAGES

OCTOBER LIVE

From Apple Day to
Hallowe'en

A CHEF UNEARTHED

Cooking from the
ground up

GREEN CLEAN

Your home

A to Z of eco fashion

PLUS

Ecologist reader offers: £2 off Stony yogurt at your local shop • **Free** organic soap from Natural House • **20% off** all Greenfibres' nightwear • **Free** Wild Wood Groves Facial Serum • **10% off** all you buy at Myriad Toys



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Celebrate Apple Day; get 'Nagged'; spend a weekend in the woods; Jam out with Oxfam and eat biodynamic – all in October. By **Laura Sevier**

70 A-Z of eco fashion
IMPACTS: Clothes and the environment

B is for Banned substances lists; **E** is for Environmentally friendly?; **K** is for Kg of carbon; **P** is for Polyester

DEMAND: Consumer power
A is for A year in eco fashion; **C** is for Conscious consumerism; **R** is for Reduce, reuse, recycle; **W** is for Wash less, wash green

BUSINESS: The industry of fashion
I is for Inexpensive; **J** is for Junior buyers; **M** is for Multi-stakeholder initiatives; **S** is for Schools; **T** is for Triple bottom line

LABOUR: the people crafting our clothes
F is for Fairtrade; **G** is for Garment workers; **L** is for Lead times; **Q** is for Questions to ask your brand/retailer; **X** is for Export processing zones; **Y** is for Yumbo, Colombia

DESIGN: from conception onwards
D is for Design pioneers; **H** is for Hemp; **N** is for Natural dyes; **O** is for Organic cotton; **U** is for Upcycling; **V** is for Vegetable-tanned leather; **Z** is for Ermenegildo Zegna

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London Fashion Week's Estethica exhibition profiles the best in eco design

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Paul Kingsnorth graduates to manhood by learning how to grow and cook his own food... while avoiding doing the washing-up

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After last month's introduction to biodynamic wine, **Monty Waldin** gets down on his hands and knees again

83 Scrumptious reds – Ecologist Organic and Biodynamic Wine Club
The case is delivered direct to your door for only £72 – 15 per cent off the RRP

84 Scrub for victory
Laura Sevier gives the home a once-over with tips on cleaning difficult spaces using natural and non-toxic materials

Editor's letter



Samuel Johnson's *A Dictionary of the English Language* took nearly a decade to complete. In the 18th-century society in which it was written, a decade would have been considered

a relatively short amount of time. With today's rapid pace of change, especially as regards fashion, a decade is like a millennium.

In the past year, as eco fashion has evolved from a trend into a full-scale movement, a vernacular has emerged. Throughout boardrooms, on shop floors, in the media and pursed on consumers' lips, there is a new language being spoken, relating specifically to eco and ethical issues.

From 'conscious consumerism' to 'Fairtrade' to the more obscure but no less important 'upcycling' – these are the ideas and themes that are pushing forward the boundaries of conventional fashion. If these terms are to serve the purpose of reinforcing and not watering down issues, we need to avoid their misuse and misinterpretation.

All of which explains why we felt it appropriate, and indeed necessary, to record this new vernacular in an A to Z of eco fashion.

A common language helps to create a level playing field. Here's to the rise of eco-literacy!

Speaking of common languages... Paul Kingsnorth reveals his repertoire of home-grown dishes, Monty Waldin enlightens on biodynamic wine practices and Laura Sevier tells us how to clean green – all in this month's pages.

Matilda Lee,
Green Pages Editor
greenpages@theecologist.org



Cover image
Model Erin at Independent wears a champagne silk evening gown with Eco Label certified African cotton underlayer by Noir
Photography Matthew Eades
Make-up Kay Montano using Organic Glam
Hair Johnny Sapong using Erin's Model.Me styling products

★ READER OFFERS
88 £2 off Stony yogurt at your local shop **90** Free organic soap when you spend over £10 at Natural House **94** 20% off Greenfibres nightwear **96** 10% off all Myriad Toys **98** Buy a £17.50 Argan Oil from Wild Wood Groves and get a £12.50 facial serum free

Correction In the September issue, the 'Seditious Knitwear' article about graduate fashion designer Lilli Rose Wicks should have said, 'As told to Holly Wicks' at the end. It was incorrectly edited out.

October

BY LAURA SEVIER

Ecotips

- 1 Ditch the plastic – invest in a good shopping bag
- 2 Clean green – see page 84
- 3 Find energy-efficient white goods at www.sust-it.net



16–21 Oct

Bikes on film

Where can you watch a woman dressed as a ninja, strung up in the air, taking ineffective sword swipes at an airborne bike? At the seventh annual BICYCLE FILM FESTIVAL, of course, which comes to London in October at Richmix on Bethnal Green Rd. An arty, raucous celebration of all things bike, there will be parties, performances, music, a 'Joyride Art Show' and bicycle-themed flicks from around the world. See www.bicyclefilmfestival.com/2007_site/london

21 Oct

Apple Day

In 2005, we imported 71 per cent of our apples (source: DEFRA). Yet more than 2,300 varieties of apple and hundreds more cider varieties can be grown in British orchards. Apple Day, initiated by Common Ground in 1990, aims to champion and celebrate the UK's apples and orchards, with an emphasis on local distinctiveness. During October there are more than 120 Apple Day events where you can see, taste and buy hundreds of different apple varieties. There is usually lots to eat and drink, from apple cakes and chutney to juice and cider and often cookery demonstrations with apples. Find an event near you at www.commonground.org.uk



5–7 Oct

The green garden

Sustainability is the central theme of Grand Designs Live this year. One of the highlights of the show has to be The Green Garden, created by Christian Aid in collaboration with the Eden project. Showcasing the latest eco-garden design and planting ideas, renewable energy devices, garden furniture made from everyday throwaway objects, organic edible gardens, recycled paths and 'living walls', all features reflect how Christian Aid is helping poor communities around the world to adapt to climate change. At the NEC, Birmingham. See www.granddesignslive.com

Get nagged

For anyone who'd like to do something about climate change, or sweatshops, or eating better food, but, well, you know... busy, things come up... Here's the deal. Join The Nag, Anti Apathy's sustainable lifestyle campaign for lazy people and sign up to get nagged. The Nag makes it super-easy to do all the green things you mean to do but never actually get round to, one thing a month – and most of them are doable without even leaving your chair. See www.thenag.net

THE NAG



In the wild

October is one of the best times for foraging in the woods for mushrooms. Just make sure you're armed with a good guidebook, such as *How to Identify Edible Mushrooms*, by Patrick Harding, Tony Lyon and Gill Tomblin (Collins, £12.99).

Cooking mushrooms

The basic method is to fry them in butter or oil over a medium heat for about four minutes and add salt, lemon, herbs and spices for extra flavour. Large, firm species can be grilled or stuffed and baked in the oven.



5–7 Oct

Weekend in the woods

Hazel Hill Wood is a Wiltshire-based nature reserve and retreat centre. At its 'Woodland Experience Weekends', you can learn about conservation, wildlife and forestry as well as encounter the reserve's rare wild flowers, butterflies and bugs at close quarters. Go to www.hazelhill.org.uk



Oxfam music festival

Make music, raise money and help end poverty by being part of Oxfam, Oxfam's most ambitious music event. You can do anything related to music that raises money, from live gigs to busk-a-thons and Oxfam house parties, from classical to club nights, folk, funk, punk and more. Whether you can sing, scratch or strum, just do it in October and give the money to Oxfam. Find out more at www.oxfam.org.uk

31 Oct

Halloween pumpkins

Making pumpkin lanterns at Hallowe'en is based on an ancient Celtic custom. Hollowed out, with a candle inside, they were used to welcome ancestral spirits and ward off evil ones. But even if you don't believe in spirits, there are good reasons to hollow out a pumpkin: to make soup from the flesh and to toast the pumpkin seeds – delicious. Just heat them in a hot frying pan brushed with a little oil.



6-21 Oct

Biodynamic food fortnight

Launching at London's Borough Food Market there will be regional events around the UK, from farm open days to Biodynamic Harvest Suppers. www.biodynamic.org.uk

PICK OF THE MONTH

Green oil

If you, like us, are keen cyclists, you'll probably be aware of the eco-dilemma when it comes to lubing the chain. Traditional oils are polluting and frequently refined from crude oil. Spray-on 'Chain-lube' or its variants almost inevitably contain PTFE, or Teflon. Luckily, a new company based in Kent has come up with a solution. Green



Oil is based on a blend of natural oils, supplied in a refillable bottle, and its label is printed on recycled paper! www.green-oil.net

Mark Anslow

READER OFFER! Green Oil is offering *Ecologist* readers 15 per cent off the RRP of £5.50, so it'll cost you just £4.67. Email the discount code: 'ONE LESS CAR' to green.oil@ippimail.com for how to order. Offer ends 31 October.

22-27 Oct

Energy saving week

The Energy Saving Trust is encouraging everyone to save 20 per cent of the energy they use. Learn how on www.energysavingtrust.org.uk/commit or call your Local Energy Efficiency Advice Centre on 0800 512 012.

Also of note

1-31 Oct: International Walk to School Month Children in at least 50 countries will be joining in! www.walktoschool.org.uk

19-21 Oct: The Baby Show

Jill Barker of Green Baby shops will be promoting ways to be a greener parent. Earls Court, London; tickets £12.50 in advance, £14.50 on the door, children under 10 free. More info at www.thebabyshow.co.uk

27 Oct-3 Nov: UK Vegan Week

www.vegansociety.com

9-11 Oct: CIWEM: The Global Environment 2007

Chartered Institute of Water and Environmental Management's annual conference in London. For details, visit www.ciwem.org/events

Seasonal food

Fruit & nuts

Apple and crab apple
Blackberry
Chestnut
Damson
Fig
Medlar
Pear
Quince
Sloe
Tomato
Walnut

Vegetables

Asian greens
Aubergine
Beans (French, runner)
Beetroot
Broccoli
Brussels sprouts
Cabbage
Carrot
Cauliflower
Celeriac
Celery
Courgette
Cucumber
Fennel
Garlic
Jerusalem artichoke
Kale
Kohlrabi
Leek
Lettuce
Marrow
Mushroom (wild)
Onion and shallot
Parsnip
Potato
Pumpkin and squash
Radish
Sorrel
Spinach
Spring onion
Swede
Sweetcorn
Turnip



The **A** to **Z** of eco fashion

A YEAR IN ECO FASHION

During the past year, eco fashion has changed from a trend into a movement. From consumers to the media and the fashion industry itself, the roots of long-term, fundamental change have taken hold. Consumer research shows that there

is an unprecedented surge in concern

with who makes clothes, how they are treated and how the manufacturing process affects the environment. The mass media and high-fashion glossies carry reports on how it is 'cool to care'. Businesses and retailers have also caught on to the fact that it pays to be ethical; while the costs for companies doing nothing get ever-higher.

See **C** for **Conscious consumerism** and **T** for **Triple bottom line**



BANNED SUBSTANCES LISTS

Banned substances lists cut out or cut down on harmful chemicals in clothes, and all retailers and brands should have one.

According to Greenpeace, among the most hazardous substances commonly used in the textile sector are lead, nickel, chromium IV, aryl amines, phthalates and formaldehyde.¹

Marks & Spencer was the first major retailer to set its own standards that ban or restrict chemicals on the products it sells, and has an Environmental Code of Practice for dyeing and finishing. Other retailers, such as H&M, have restrictions on metals such as cadmium, lead and mercury, certain dyes, formaldehyde, PVC, phthalates and brominated flame retardants. In 2006, Mango announced a long-term commitment to remove hazardous chemicals from its entire production worldwide, after talks with Greenpeace. Next has a Restricted Substances List, as does Monsoon. George at ASDA has a policy restricting and banning various chemicals and dyes.

See **E** for **Environmentally friendly** and **N** for **Natural dyes**



CONSCIOUS CONSUMERISM

Over half (23.1 million) of Britain's shoppers think that ethical production of the clothes they buy is important, according to the latest research from global market information company TNS Worldpanel Fashion. Over a quarter (27 per cent) of all people said that they would pay more for ethically produced clothing.²

A 2006 survey commissioned by Marks & Spencer found that 78 per cent of shoppers wanted to know more about the way clothes are made, including the conditions in the factories where they

come from and the use of chemicals in their manufacture. Almost one-third of those questioned said they had decided not to buy an item of clothing because they felt concerned about where it had come from or under what conditions it had been made.³

In 2005, ethical consumerism was worth £29.3 billion – up 11 per cent on the previous year, according to the Co-operative Bank's 2006 Ethical Consumerism Report.⁴ It's no wonder that high-street retailers are rushing to introduce ethical clothing ranges.

'Consumers are steadily becoming more environmentally and ethically aware and retailers know they have to respond,' says Kathy Child, senior retail analyst at Mintel. 'As awareness increases, so does the demand for organic and Fairtrade fashion.'

See **R** for **Reduce, reuse and recycle**



DESIGN PIONEERS

While the past year has been a pivotal period in fashion history, particular designers have been critical in transforming the fashion world. These designers, whom some would call extremists, have for some time been slowly laying the foundations to build the movement for eco fashion, each having carved out their own individual paths for change – from organic fabrics to Fairtrade practices, 'reclaimed to wear' textiles and much more.

An eco designer has to contend with a whole host of challenges and difficulties not encountered by other designers: sourcing fabrics, inventing new processes, and consciously designing with environmental or social issues in mind. From the consumer's perspective, they add a whole new dimension to appreciating the clothes we buy. Be they campaigners, innovators or thinkers – as a whole, through their work and ideas they've led to a sea change in the world of clothing and fashion. For a snapshot of their work, see p 76.

See **S** for **Schools** and **U** for **Upcycling**





ENVIRONMENTALLY FRIENDLY?

Making clothes can be a dirty business – at least 8,000 chemicals are used to turn raw material into clothes.⁵ Many of these cause irreversible damage to people and the environment. The bleaching, dyeing, sizing and finishing of textiles all result in large quantities of effluent, often containing highly toxic heavy metals that pollute the soil and water and damage aquatic life.⁶ Add to that the carbon emissions and impact of growing non-organic cotton, which uses petrochemical fertilisers and leads to reduced soil fertility, soil erosion, water pollution and reduced biodiversity. Then there's the high-energy manufacturing process and the clothes miles in transporting the fibre/textiles/garments around the world.

See **B** for Banned substances lists and **K** for Kg of carbon

Once bought, how an item is cared for and disposed of also has an impact on the environment. See **R** for Reduce, reuse and recycle and **W** for Wash less, wash green

How can clothes be made in a way that is more environmentally friendly and doesn't harm workers?

See **H** for Hemp, **N** for Natural dye, **O** for Organic cotton



FAIRTRADE

As well as bananas, coffee and chocolate, Fairtrade has moved into the clothing sector, with certification for Fairtrade cotton clothes. At the end of 2006, there were 860 products in the UK using Fairtrade-certified cotton, and 27,000 farmers worldwide working on Fairtrade-certified cotton farms.

Fairtrade sets a minimum price paid to producers, based on the costs of sustainable production. Buyers also pay a Fairtrade premium, which is set aside for community, social and environmental projects. The Fairtrade mark denotes that the cotton is certified Fairtrade – not the brand name or the retailer. The rest of the clothes-making supply chain – e.g. the spinner, knitter, weaver, dyer, cut/make/trim manufacturer and their sub-contractors – are not certified but have to 'respect Fairtrade Trading Standards'.⁷ Fairtrade Foundation director Harriet Lamb says they are now looking at how to ensure certified standards across the supply chain, to be put in place over the next three years.

Some businesses – including shops and clothing labels – will say they are 'Fair Trade' because they have been certified by the IFAT, the global network of Fairtrade Organisations, as a Fairtrade business. The term 'fair trade' usually means a company wants to assure consumers its products are made using fairly paid workers.

See **G** for Garment workers



GARMENT WORKERS

Low pay, lack of rights and appalling conditions are the norm for millions of garment workers across the world. Their wages have fallen in every continent. In Bangladesh, the legal minimum wage fell by half in real terms between 1996 and 2006, to £7 per month. The minimum wage, if there is one, is often below the poverty line.⁸

Working hours are excessive: 10 to 12 hours a day, seven days a week; unpaid overtime is compulsory. A War on Want report found workers in Bangladesh regularly work 80 hours a week for 5p an hour, in death-trap factories, to make cheap clothes for British consumers.⁹

Exhausting hours and exposure to toxic chemicals, heat and noise leads to poor health, which may be punishable.¹⁰ Violence is frequently threatened or used against workers.¹¹ Many are denied the right to form a trade union. Many suppliers favour short-term contracts (or none), so they can 'hire and fire' more easily.

See **Q** for Questions for brands/retailers, **Y** for Yumbo, Colombia

Tearfund have broken down the costs of manufacturing a pair of jeans, according to how much each stage gets, based on the retail price:

The workers: 0.5 per cent
Cloth and other materials: 13 per cent

Transport: 11 per cent

The shop: 50 per cent

The brand: 25 per cent

The UK Government:

17.5 per cent VAT



HEMP

Hemp as a sustainable eco-textile fabric has a lot of potential. It 'breathes', so helps to keep you cool in hot weather, and is soft, comfortable and yet hardwearing. And it is a particularly low-input crop, reducing the need for artificial pesticide and fertiliser use.

In the UK, around 2,000 hectares of hemp have been grown every year since the early 1990s, mainly to produce animal bedding, cigarette paper, pulp and fibre or recyclable car interiors.

UK hemp clothes on the high street?

Currently, there are no factories or mills in the UK that have any experience of spinning, weaving or knitting hemp – most hemp clothing is produced in China and eastern Europe.

In an attempt to revive the UK textile market, BioRegional Development Group, an independent environmental organisation that develops commercially viable products and services, has started a research project with Hemcore, the UK's largest hemp-growing organisation. 'We want to see hemp on the high street,' says project director Emily Stott. They are developing a technology to produce a fine enough fibre to be spun in a traditional cotton mill – some of which still exist, although defunct – in the UK. If hemp could be spun and woven in the UK, there would be commercial potential for it as a mainstream fabric.



INEXPENSIVE

Women's clothing prices have fallen by a third in 10 years, while the 'value' end of the market is booming, doubling in size in just five years to £6 billion of sales in 2005.²²

As clothes get cheaper and cheaper, we're buying more than ever, fuelling a trend for fast, disposable fashion. Fast fashion specifically aims at a culture of rapid purchase and disposal.

Not made to last, clothes are produced with little care, using low-quality fabrics – so much so that one may be lucky to get a few wears out of them. As

budget retailers sell jeans for as little as £3, the impacts of cheap fashion increasingly hit those at the bottom of the supply chain.

See **6** for Garment workers and **8** for Reduce, reuse and recycle



Kg OF CARBON

Climate change is the most important issue we face and the world is becoming increasingly 'carbon conscious'. The 2006 report issued by Sir Nicholas Stern made a case for urgent action to reduce our carbon emissions. We in Britain each cause on average 10.92 tonnes of carbon emissions a year – and

indeed, what we wear can be added to that.

For example, conventional cotton is heavily reliant on petrochemical fertilisers, pesticides and herbicides. Fertilisers are the largest source of carbon dioxide (CO₂) emissions in agriculture and the single largest source of nitrous oxide (N₂O) for all sectors in the world. In the textile factories there are carbon emissions from the high-energy chemical processes used to manufacture and finish garments, especially of man-made fibres. Add on the clothes miles: from cotton field to textile mill to garment factory in Asia (the majority of textiles are manufactured in South East Asia, China and India) to retail outlet.

Reducing the carbon footprint of the clothing industry involves using more natural and organic fibres, natural or eco dyes and reducing clothes miles. But it's also down to us to be careful both in what we buy, and how we care for our clothes.

See **6** for Conscious consumerism and **10** for Wash less, wash green



JUNIOR BUYERS

Arguably, retail buyers are one of the most influential groups of people growing the ethical fashion market. They are the direct link between designers and consumers.

Claire Hamer, a junior buyer at Topshop, has been instrumental in getting Topshop to stock its very first Fairtrade clothing line, People Tree, and create its own line of Fairtrade clothes.

'At Topshop, buyers are quite key in the whole thing. Who's going to make the product and where it's going to be made, is down to the buyer,' Claire says.



Green initiatives can also start from the top. Julie Gilhart, fashion director and senior vice-president of Barneys New York, one of the most 'directional' department stores in the fashion world, has introduced green fashion to the store. 'I do not think the eco/organic/fair trade movement is a trend. I think it is the beginning of a major shift in consciousness in the fashion business,' she told the *Financial Times*.



LEAD TIMES

'The reality in the fashion business is, "Right, what's available? I want it quick and I'm not bothered how it gets here?" – Salvatore Pignataro, Traidcraft

Clothing used to be dictated by seasons. A collection was introduced for 'Spring/Summer' and 'Autumn/Winter'. Beginning in the early 1990s, retailers like Gap and Esprit introduced one for each of the four seasons, still within the realms of what 'season' truly means – one of the four natural divisions of the year. This then led some retailers to up the stakes and supply six or eight seasons, then even 10 to 12. Today some retailers have 15 seasons every year. Far from actual seasons, our high streets have now become a constantly revolving carousel of new fashions, changing in a matter of weeks.

The result is that lead times have got shorter and shorter. 'A company puts pressure on the supplier to condense the lead time and it's a one-way discussion. It's all about what the buyer wants. Buyers end contracts if lead times can't

be met,' says Salvatore Pignataro, UK purchasing and sourcing manager of Traidcraft. Retailers and manufacturers both know what allows them to survive the demands of 'fast fashion' retail: a 26-million strong labour force in poor countries; expendable, underpaid and overworked.

See **6** for Garment workers, **1** for Inexpensive and **9** for Triple bottom line



MULTI-STAKEHOLDER INITIATIVES

Multi-stakeholder ethical trading initiatives (MSIs) involve retailers signing up to a Code of Conduct based on International Labour Organization (ILO) conventions.

The largest UK-based MSI, the Ethical Trading Initiative, was set up in 1998; it represents 40 companies with a combined annual turnover of £107 billion.

These come to the table with trade unions, development charities and worker organisations. Sounds good. But do the companies practise the principles they've signed up to?

Primark joined the ETI in May 2006. In December that year, War on Want published a report on workers at factories in Bangladesh that supply to ETI members Primark, Tesco and ASDA/George. These workers were typically paid 5p an hour and worked 80 hours a week.

So is ETI membership a shield – even a selling point? Sam Maher of Labour Behind the Label says, 'None of the companies can guarantee that all parts of their supply chain implement the ETI Base Code. The main issue is that there is no transparency – the reviews, criteria for inclusion and exclusion in the ETI are all confidential, so as a pressure group it is hard to know what to try to hold them to. However, when there is an urgent issue involving a specific violation, it's much easier to get the companies involved to sit around a table and discuss it.'

See **1** for Triple bottom line



ORGANIC COTTON

Cotton makes up 40 per cent of world fibre consumption and is produced in 80 countries.

It is also one of the dirtiest crops in the world, because it is heavily reliant on hazardous chemicals that poison farmers, soil and water. In contrast, organic cotton has outstanding benefits, especially to small-scale

farmers, in terms of improved health, income, livelihood and food security.³³ Farming organically means healthier, stronger soils, increased farm biodiversity and less pollution of water and air.

And organic cotton is on the up. 'Interest in organic cotton is growing. The market is really starting to take off,' says Sarah Compson, business development officer at the Soil Association. 'We're getting an increasing number of enquiries from the big multiple retailers who want to have certified organic ranges.'

Estimated global retail sales of organic cotton products increased from \$245 million in 2001 to \$583 million in 2005. According to the Organic Exchange, global organic cotton product sales are projected to skyrocket to \$2.6 billion by the end of 2008 – an annual rise of 116 per cent.

In the UK, more than 120 brands, 150 retail shops and 170 online shops sell organic cotton clothing. Find one on the Pesticide Action Network's site, www.wearorganic.org.

See **2** for Conscious consumerism



NATURAL DYES

Can dyes ever really be all-natural? Can eco dyes be commercially viable? These are questions that many in the industry are beginning to ask. While there is no push, as yet, to use natural dyes on a big commercial scale, natural dyeing is gaining mainstream significance through the creation of 'eco jeans' that use natural indigo dye.

Natural dyes are based on natural sources such as plants, berries and insects and are inherently biodegradable and carbon neutral.

But they are not without controversy. Some say that eco dyes are a fallacy, because mordants are needed to fix the dyes to the fabric, and these generally include heavy metals. 'The colours aren't always as bright and strong, they're not as colour-fast as we're used to and lots of natural resources are needed to make them,' says Peter Johnson of Huntsman, one of the biggest synthetic dye companies. Huntsman has developed several ranges of dyes suitable for use on organically certified garments, that have eliminated many harmful substances normally used in synthetic dyes.

'Any big company will be sceptical of natural dyeing. It's expensive and can be physically hard work. The only mordant I use is alum, a mineral salt,' says Gracie Burnett, a UK-based natural dyer.



POLYESTER

Hailed as a Utopian fabric in the 1950s, today polyester equals cheap, mass-market clothes. Non-biodegradable, it will be around for another 200 years or so. And as it is mostly blended with other fabrics, it is hard to reprocess.

Producing polyester leads to emissions of heavy metals, cobalt and manganese salts, sodium bromide, titanium dioxide, antimony oxide and acetaldehyde.³⁴

Can polyester be green?

One of the most popular uses of PET (polyester) is for plastic drinks bottles.

Patagonia, a US-based outdoor clothing label, pioneered the use of recycled plastic bottles to make a polyester fleece. Since they started 14 years ago, the recycled plastic-to-polyester fleeces have directed 86 million bottles from landfill.

Marks & Spencer launched its own recycled polyester collection in August 2007. It calculates that with the men's fleeces alone, it will reuse 22 million two-litre bottles.³⁵ Making one fleece takes just 11 two-litre plastic bottles. In time, M&S hopes to produce all the store's polyester clothing from recycled plastic bottles. If other retailers follow suit, it could mark a real turning point in our use of synthetic fabrics for clothes. Eight per cent of the world's annual oil production goes into making plastics. Making recycled polyester clothes will use much less crude oil than producing virgin polyester.³⁶





QUESTIONS FOR BRANDS/ RETAILERS

How can I tell if a garment is made in a sweatshop? There are no easy answers. The sad truth is that even if a garment is relatively expensive it still could have been made in a sweatshop. According to Martin Hearson, Campaign Coordinator for Labour Behind the Label, 'The problems are structural and apply across the board. We need to engage the industry as a whole. The right question for people to ask is: "How can I persuade companies to do more to improve the conditions of workers on the ground?"' It's not just about the particular pair of trousers you buy.²⁷

Before you buy, ask the retailer:

1. How much are the people producing the clothes you sell being paid? A living wage for workers should cover the cost of meeting a family's basic needs in: food and water, housing and energy, clothing, health care, transportation, education and childcare.²⁸
2. What hours do they work? Can the retailer demonstrate that workers are not subject to excessive overtime or bad terms of employment?
3. Can workers defend themselves? Are unions and collective bargaining allowed and encouraged in the factories where the clothes are made and packaged?

See **G** for Garment workers



REDUCE, REUSE, RECYCLE

Between 2001 and 2005, the number of garments bought per person in the UK increased by over one-third.²⁹ We are now buying approximately 2.15 million tonnes of new clothing each year. Estimates differ as to how much is discarded. DEFRA says 1.1 million tonnes of textiles are thrown away in household bins every year, whereas a recent report by the Institute for Manufacturing at Cambridge University put the figure higher, at 1.8 million tonnes. To put it in perspective, a single tonne of textiles fills roughly 200 black bin bags. Imagine 220 million black bin bags sent to landfill and you get an idea of why we should reduce our buying, reuse and recycle. According to Wastewatch, two million shoes are thrown in rubbish bins in the UK every week. Kick the habit. Reduce, reuse and recycle.

See **I** for Inexpensive and **U** for Upcycling



SCHOOLS

The future of fashion lies in the hands of the next generation of industry players: fashion and textiles students. Increasingly, undergrad and postgrad courses across the board, from Textiles Design to Retail Buying to Fashion Marketing, are tackling ethical and environmental issues, and more students are incorporating these into their work.

Fashioning an Ethical Industry (FEI), a Labour Behind the Label project, has compiled a database of eco/ethical elements in fashion courses in the UK: visit <http://fashioninganethicalindustry.org/ethicalcourses>

Courses with ethics and sustainability at their core:

- MA Design for Textile Futures, Central Saint Martins
- BA (Textiles) Design & Technology Management, University of Leeds
- MA Ethical Fashion, University College for the Creative Arts (Epsom)
- The Textile Environment Design (TED) project, Chelsea College of Art and Design. A collective of eco-principled designers/educators.
- New: MA Fashion and Environment, London College of Fashion (will be proposed for validation in 2008)
- London College of Fashion is founding the Centre for Sustainable Fashion (CSF), scheduled to launch in April 2008, to promote sustainability across the entire fashion sector supply chain.



TRIPLE BOTTOM LINE

People, Planet and Profit: that's the triple bottom line. A sustainable business doesn't put social or environmental issues above profits – it combines strategies that meet the business's financial realities with protecting, sustaining and enhancing the human and natural resources needed in the future.

Consultants A.T. Kearney's January 2007 survey of 25 companies found that CEOs believe sustainability is a 'top line' opportunity: as a revenue driver as consumers increasingly search out ethical clothes, and as a help in building brand and communities and improving employee morale.

A report by Goldman Sachs found that companies that are leaders in implementing environmental, social and governance (ESG) policies to create sustained competitive advantage have outperformed the general stockmarket by 25 per cent since August 2005, and 72 per cent of them have outperformed their peers over the same period.²⁰

Reducing negatives

The costs of doing nothing, on the other hand, can be high. Companies that don't implement sustainability measures have higher waste disposal, energy, fuel and input costs (e.g. packaging, chemicals, water). These issues involve companies throughout the supply chain.

Being sustainable also means protecting brand value and managing investor concerns. The percentage of companies that have deselected suppliers for failing to meet sustainability criteria rose from 17 per cent in 2002 to 60 per cent in 2007 – a trend that A.T. Kearney predicts will increase.





UPCYCLING

Recycling textiles saves energy and, if no recolouration takes place, it can save water and chemicals, too. In the case of 100 per cent wool fabric, for instance, the recycling process uses only half as much energy as it takes to produce a fabric from virgin fibre. However, when textile fibres are recycled, they are downgraded almost immediately into low-quality end-uses such as wiping rags or mattress filling.

Most recycling is therefore 'downcycling', because it reduces the quality of the product over time. 'Upcycling' is reuse whereby the item's quality remains the same or is increased, for example by refashioning into another garment.

Research is being carried out in this area. For example, Rebecca Earley at Chelsea College of Art and Design, initiated a Textiles Environment Design (TED) project called 'Ever and Again:

Rethinking Recycled Textiles'; interim outcomes will be exhibited in the College's Triangle Gallery, from 19–25 October.



WASH LESS, WASH GREEN

The only way to really have a green wardrobe is to buy less and wash less.

Buying fewer but better-made clothes may be more expensive initially but will serve you much better in the long term. And as consumers, we can also drastically reduce the global climate-change

Washing green means:

- Washing at lower temperatures: 30°C instead of 40°C or 60°C
- Air drying instead of tumble drying
- Ironing only if necessary
- Using eco-friendly washing detergents, with fewer or no phosphates

impact of our clothes simply by changing the way in which we wash and care for them. A typical T-shirt, if washed at 60°C, tumble dried and ironed, will lead to the release of 4kg of CO₂ in its usable lifetime.²¹ That's the same as a 17-mile/27km aeroplane flight. But if you wash that T-shirt at a low temperature, don't tumble dry (which uses around 60 per cent of the 'use phase' energy) and don't iron it, you will be reducing the global climate change impact of the garment by around 50 per cent.²²

So it ain't (only) what you wear... it's the way that you care for it!



VEGETABLE-TANNED LEATHER

At least 90 per cent of leather worldwide is chrome-tanned. However, chrome may be carcinogenic and studies have shown higher cancer rates in leather industry workers. Although it is an ancient process, vegetable tanning makes up only a very small percentage of tanned leather. It is done by immersing cleaned animal hide in vats of tannin (hence the name 'tanning'), plant polyphenols found in tree bark and other vegetable matter, gradually absorbing these and developing a brown colour. Traditional veg-tanned leather is stiff, and has been used for horse saddles, harnesses and boots for the Queen's guard; but current generation veg-tanned leather is supple and soft.

See **N** for Natural dyes and **O** for Organic cotton

Veg-tanned purse
by Green Shoes



EXPORT PROCESSING ZONES

Export Processing Zones (EPZs), also called free trade zones, are industrial parks offering tax holidays, duty exemptions and investment-allowance reductions. They offer benefit-free, union-free and flexible labour as an incentive to investors – virtually the only thing that companies need to pay is worker wages.

In 2000, Naomi Klein helped to expose EPZs in her book *No Logo*. At the time, there were around 1,000 EPZs in the world, employing roughly 27 million workers. Despite the revelation of the awful conditions at these places, they continue to exist. And not only that – their numbers have expanded. By 2005, according to the International Trade Union Confederation, there were more than 5,000 of them, employing more than 50 million workers globally, and they are a 'fast spreading phenomenon'.

EPZs were promoted as a way to help poor economies way back in 1964, when the UN Economic and Social Council adopted a resolution endorsing the zones as a means of promoting trade. Now, according to both the World Bank and McKinsey, a leading business consultancy, the incentives EPZs provide rarely work, as they set national and provincial governments bidding against each other, giving away many of the gains from trade to be had for workers and for long-term development.



YUMBO, COLOMBIA

On 11 January 2001, a bomb exploded at the home of Ezequiel Antonio Palma Jimenez, a former leader of the workers' union of the municipality of Yumbo, Colombia. Murder, kidnap, harassment, sacking and mistreatment are everyday realities for those defending

workers' rights in many countries. Colombia is one of, if not the worst, places in the world for murders of union members – 84 in 2006. The CUT, Colombia's main union confederation, estimates that 500 people have been assassinated since 2002 – despite Colombia having ratified several freedom of association conventions, and reporting to the International Labour Organization (ILO) supervisory bodies.

Estimates are that fewer than 10 per cent of garment workers worldwide are unionised.²³ One of the most effective ways to improve workers' situation is to encourage collective bargaining and unionisation.

Yet research suggests that only 15 per cent of retailers' audits even take freedom of association into account.

At best, workers are not informed of their labour rights. At worst, there are systematic terror campaigns to discourage union activity. Figures compiled by the International Federation of Free Trade Unions reveal that in 2005, nearly 10,000 workers around the world were sacked for their trade union involvement, almost 1,700 were detained, and 115 trade unionists were murdered.

ERMENEGILDO ZEGNA

'The day that a big brand endorses eco principles and makes it a selling point will be a prized moment for planet fashion and planet Earth.' So said the doyenne of the fashion press, Suzy Menkes, in the *International Herald Tribune* in April 2006.

Well, just over one year later, in June 2007, Suzy Menkes headlined a story on Italy's prestigious Pitti Immagine Uomo fair 'Green is good – by customer

demand', in which she stated that the 'burgeoning demand from a concerned public is creating a change in the fashion climate'.

Notably, the long-established premium clothing company

Ermenegildo Zegna – often referred to simply as Zegna – had created a solar jacket that can recharge electronic gadgets using nature's energy, as well as a collection of leather accessories using non-chemical production. Gildo Zegna has said that the long-term focus of the Zegna family is 'green, clean and environmentally friendly'. So was this the prized day for planets fashion and Earth??



Happy Birthday Estethica

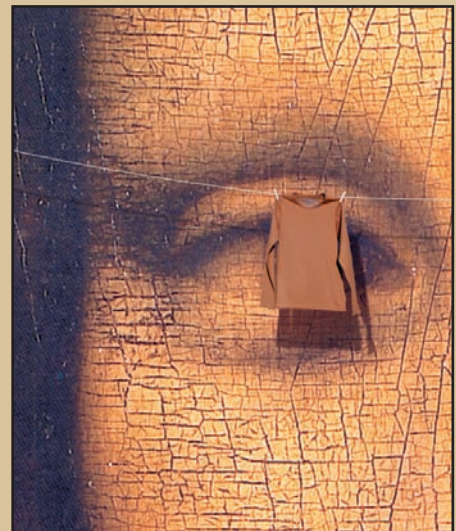


Estethica's first appearance, in September '06, brought together the best designer labels in sustainable fashion and showcased them at the heart of the Designers Exhibition at London Fashion Week.

A year ago, the concept of creating a serious ethical space within a high fashion fair seemed subversive. Now many eco labels have reached global audiences, new ones have the right platform to launch and no longer is ethical fashion associated with mud colours and itchy organic socks.

In a business with so much emphasis on the 'next big thing', Estethica at London Fashion Week has proved that the movement towards sustainability was not a passing trend. We have learned that fashion is ready for a conscience, one that is social, considerate and environmentally friendly. So, if it is true what they say – that a week is a long time in fashion – it seems a logical conclusion that over the past 52, with the right amount of time and talent, Estethica has flowered and become in itself a mini revolution.

Orsola de Castro, Filippo Ricci



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www.bluebretzel.com



CIEL
www.ciel.ltd.uk



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www.davinahawthorne.com



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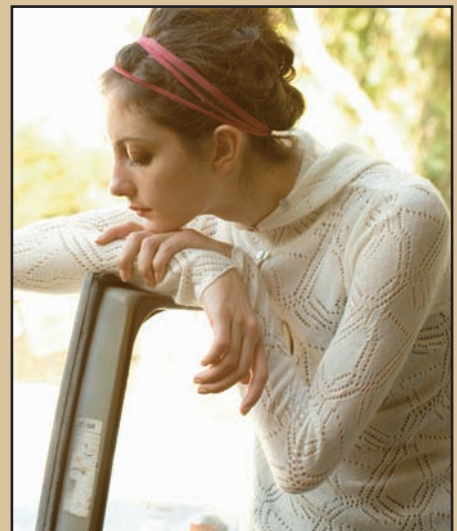
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ny tiède.

Roquefort
Chateau
Redortier
Vin Gigondas
Cotes du Rhône
CANTAL ← LA(GU)IOLE



A chef unearthed

Paul Kingsnorth graduates to manhood when he begins to make the link between growing and making food

I used to be a terrible cook. Ask any of my old housemates or former girlfriends. By the time I went to university at the age of 18, I had, like plenty of men of my generation, been spoiled by my mother. I'd hardly ever cooked anything, except beans on toast, tins of soup and cakes – and that was at junior school. At university, forced to improvise on a minuscule budget, I lived on beans, toast and pasta, usually mixed with something called pesto, to which one of my posher friends had introduced me and which I regarded as extremely exotic.

And for the next decade, nothing much changed. I expanded my repertoire of pasta recipes from one to perhaps three. I learned how to do a stir-fry. But that was about it. People kept giving me cookbooks for Christmas in a series of desperate hints, but the hints were never taken. I was young and free, and there were far more important things to do than learn how to make risotto. Plus, cooking generated washing-up and there was no way I was even going there.

Nearly 15 years on from my graduation, and I still don't do the washing-up unless threatened with physical pain. But I can cook. I don't claim to be Gordon Ramsay (perhaps

that's why I'm still married), but I know what I'm doing in the kitchen. I have a small but manageable repertoire of proper dishes, and it's expanding. I have cookbooks that are thumbed and pencilled. I have a growing file full of scraps of paper printed with recipes downloaded from websites. I make my own jam, chutneys, pickles, liqueurs and beer. I even have an apron, which I only wear when everyone is out because I would like to stave off middle age as long as possible.

A new adventure

There is one simple reason for this turnaround: I started growing my own food. Until I was 30, cooking was a tiresome but necessary evening task. At 30 I got my first allotment, and cooking became an adventure.

This is an aspect of food growing that, if you ask me, is not touched upon enough: what happens to the stuff once you've yanked it out of ground or popped it from the pod. Growing your own food has never been more popular in Britain. You can't open a magazine without reading about allotments or organic gardening. At the same time, we are overpopulated with celebrity chefs



If you have sweated for months to grow delicate corn cobs, you'll want to turn them into something splendid

(surely it must be time for a humane cull?). Few people, though, join the dots.

One of the best things that growing your own food will do to you is improve what you eat – and make enjoyable the experience of creating it. The reason is that you will have a real, almost religious, connection with your ingredients. If you have sweated for months to grow delicate yellow corn cobs or sweet, delicious peas, you are going to want to use them: every one of them. You are not going to want to waste a thing.

So you are going to want to learn how to turn it into something splendid. And you're going to have to learn a few different ways of doing it, because you're going to be faced with what we veg-growers affectionately know as 'the glut'. From November to March, not much grows. From March to June, you plant and sow. From July to October, everything comes at once: this is the glut, and however much you try and stagger your sowing times, you will not avoid it. In June, you will have lettuces coming out of your ears. In July, it will be peas, potatoes, carrots. In August, sweetcorn will be ready. So will the

3 cutlets per person
potatoes
ch beans
zen peas
poons butter
poons finely chopped mint
poon finely chopped parsley
poon finely chopped chives

at the oven to 200C/gas mark 6, season
mb generously with salt and pepper
ast for 20 minutes (pink). Remove from
ven and allow to rest in a warm place.
ook the potatoes in plenty of salted
ng water until tender, about 10-15
utes depending on size, drain and refresh.
the French beans and blanch in the same
ter until just tender, refresh in cold water.
In a saucepan melt the butter and gently
heat the potatoes and beans along with the
zen peas, tossing so nothing catches.
remove from the heat, add the herbs, stir so
everything is coated and divide on to four
lates. Carve the lamb, arrange on top of the
potato mixture and serve.

2 large baking potatoes
150ml milk
150ml extra virgin olive oil
1 large clove garlic
the juice of a lemon
a small bunch of parsley

Soak the salt cod in cold water for
changing the water constantly.
After scrubbing the potatoes
them here and there with a for
bake at 200°C/gas mark 6.
Once the potatoes have b
an hour or so, drain the fish
cover it with cold water the
When the water is bubblin
cover the pan with a lid. L

then drain it and remove
and skin. A messy job, ar
jobs for which I will put
the salt cod into a food
(I use the steam nozzle
the olive oil separately
Peel and roughly
the fish. Blitz gently,
oil in a steady strea
a sloppy cream.
Remove the po
in half, scoop out
tip it into the salt
the lemon juice,
a few grinds of
into the potat
for 15 minutes.

Tomato Relish

3kg RIPE TOMATOES
1kg ONIONS
1kg SUGAR
ENOUGH BREW VINEGAR TO
COVER. (APPROX 1/2 750 MIL BOTT
SLICE TOMATOES + ONIONS
LET STAND OVERNIGHT.
DRAIN OFF LIQUID AND ADD
BOIL FOR 5MINS THEN ADD
WITH COLD VINEGAR.
BOIL 1 HOUR LONGER.
BOTTLE AND SEAL.



Grow your own

Resources

- *How To Store Your Garden Produce*, by Piers Warren (Green Books, £4.95), is an excellent little guide.
- The ever-excellent Hugh Fearnley-Whittingstall's River Cottage website has a great section on seasonal recipes. Sensitive vegetarians might like to beware: www.rivercottage.net/SeasonalRecipes/Default.aspx
- Vegbox Recipes is a good site about seasonal cooking. It even helps you identify veg you're not quite sure about. See www.vegbox-recipes.co.uk
- 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: growit@paulkingsnorth.net



For where to buy organic food and drink, see the listings beginning on p 87 of our shopping guide

beans, beetroot, artichokes and courgettes. Next month, with the potatoes still coming, squashes and pumpkins will be ready. The beans will still be at it, too. After a few months of this, you'll be longing for winter.

Perfect preserves

I've developed three basic strategies for dealing with the glut. The first is to learn to produce foodstuffs that last. Last year, for example, I made green tomato chutney. It's quite common for tomatoes to get blight, a fungal disease that prevents them from ripening. If you leave them on the vine, they go brown and die. But if you pick them early, while they're still green, you can turn them into fantastic chutney. I also pickled beetroot and made jam out of strawberries, raspberries and blackcurrants. I made ice cream out of gooseberries, more chutney out of marrows and marmalade out of onions. And, best of all, I preserved blackberries and plums by dropping them into whisky and gin respectively.

The second strategy is to learn how to store what you don't immediately want. The most obvious way to do this is to freeze your excess. Unless you have a very big freezer, though, this is not going to be good enough on its own. Plus, it's boring. So I bought myself a book (see Resources)

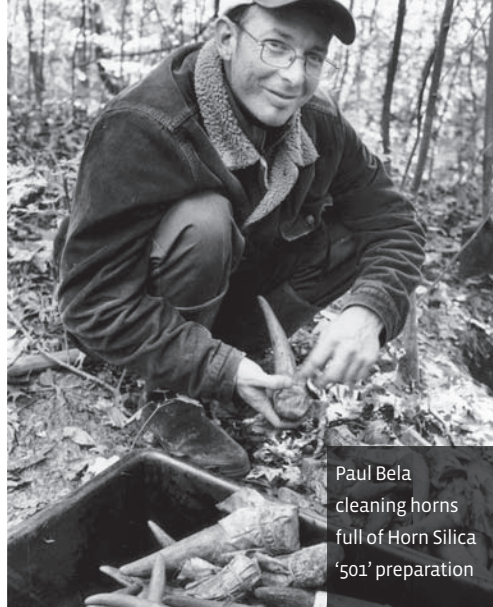
that taught me how to hang onions, store carrots in boxes of sand, keep potatoes without them sprouting, and – best of all – clamp my roots. If you want to know what this means (it's less painful than it sounds), I suggest you buy the book, too.

Finally, though, there is nothing else for it but to think of imaginative ways to cook what I have. This requires something of a mind shift. The standard way of cooking in these seasonless times is to find a recipe you like, then go out and hunt through the supermarket for the ingredients. Want to cook asparagus in December or leeks in June? Never mind what nature's up to – Tesco will provide. It's a way of working that is blind to where you are and what the weather is doing.

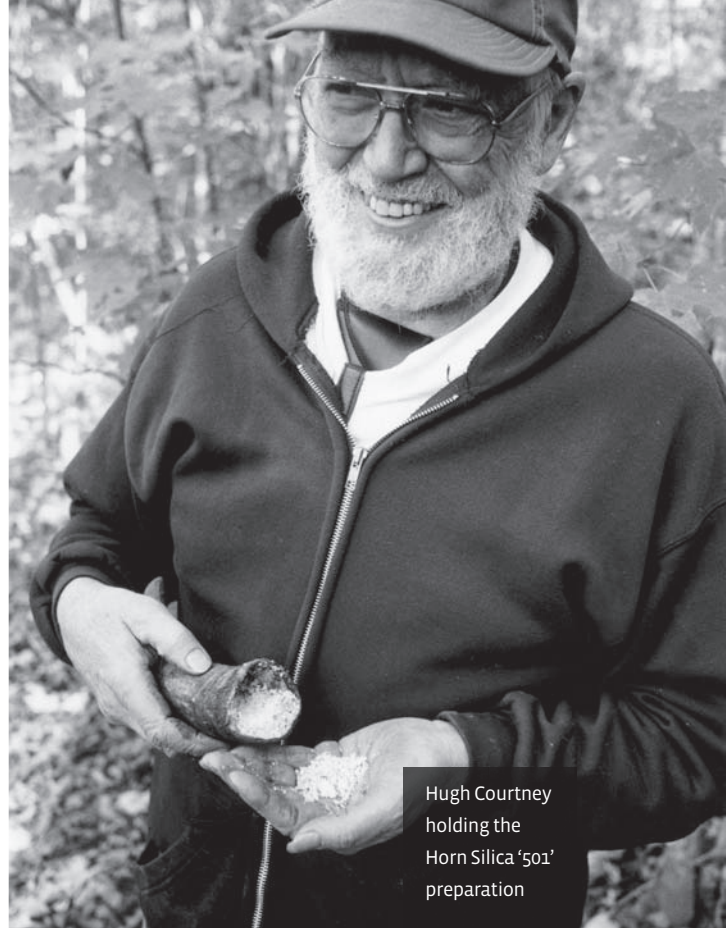
If you grow your own, you learn to look at things differently. First, you look at what is abundant – then you work out what to do with it. As you read this, for example, I might be working my way through a cheese and potato bake, a courgette risotto, an autumn casserole (herb dumplings included), or a beetroot soup (with or without bacon). To finish, I might have blackcurrant ice cream. Then I might wash it down with some plum gin.

I need to stop now; this is actually making me hungry. Tonight, in a nod to the old times, I think I might knock up a pumpkin pasta with rosemary. No pesto required. **E**





Paul Bela
cleaning horns
full of Horn Silica
'501' preparation



Hugh Courtney
holding the
Horn Silica '501'
preparation



Digging for gold

Once again, **Monty Waldin** gets down on his hands and knees to pay homage to the cosmic forces bringing flavour and strength to biodynamic wine

For three days last autumn, during a seminar in Woolwine, Virginia, on how to make biodynamic preparations, I'd been filling cow horns with cow manure for the horn manure or '500' preparation. This earth remedy, used to stimulate the life of the soil and the crops grown in it, is one of nine processes laid out by Austrian scientist Rudolf Steiner, which I described last month.

The fourth and final day, a sun-filled Sunday, I and a group of participants were to dig up horns containing the horn silica or '501' preparation. This preparation's role is to stimulate the cosmic. By that I mean the essential relationship between the plant and the sun and other bodies in the cosmos.

The analogy I use when trying to explain the difference between horn manure and horn silica – use of which on crops is non-negotiable if you want to be considered biodynamic – is that horn manure helps to build the foundations (the roots), while horn silica takes care of the walls and roof

(the trunk, shoots or leaves, depending on what kind of crop you're growing).

Hugh Courtney, our host and the founder-director of the Josephine Porter Institute for Applied Biodynamics (JPI), led the way to where the horn silica horns had been buried, in marked pits, then explained in more detail what we were going to do. 'When you are digging in, we don't want the blade of your spades damaging the horns, otherwise we won't be able to reuse them next year; so go carefully, working from the edge of the pit inwards,' he told us.

I'd always fancied myself as an archeologist, so this was my chance to excavate biodynamic treasure. Except these horns had been buried for a matter of months, not millennia.

Hugh explained that the horn silica '501' prep is made by grinding quartz rocks into a fine powder, usually over the winter, when the farm is relatively quiet. Milky-coloured quartz rocks are fine, crystal-clear ones even better. Quartz, or silica (silicon dioxide), is the main constituent of the earth's crust,

“
Compare soil to a house: horn manure helps to build the foundation and horn silica takes care of the walls and roof

so it's not too hard to find. In spring, you wet the powder with water, preferably rainwater, to a toothpaste- or dough-like consistency and fill the horns, leaving no air pockets. Standing the pointy end of the horns overnight in a sand box allows any excess water to rise to the wider, open end of the horn, ready to be tipped out next day as you are burying them.

The horns are buried in a sunny place in spring and left until autumn; the idea is that during this time, the silica undergoes a transformation to become especially rich in light-giving qualities. It is then dug up, stirred for one hour in water, and sprayed over crops early in the morning as the sun is rising. This helps the ripening and flavour of the crop, and maintains both the health and fertility of plants.

I asked Hugh if there was a risk that using horn silica in sunny regions – like those used for my speciality, winegrowing – may be too much of a good thing, causing sunburn. I'd heard quite a few wine growers, especially in really hot regions like

Tasting notes

Some of these wines have featured in previous *Ecologist* offers, and proved so popular with our readers that they are being offered again.

2) 2006 Navardia, Bodegas Bagordi, Rioja

Bodegas Bagordi lies in the Basque part of Spain's famed Rioja zone. Biodynamic practices are used, and the vines have been certified organic since 1998. This dry red wine is made mainly from Tempranillo, an early ripening grape giving supple raspberry-flavoured reds, with a dash of Merlot and Grenache Noir.

3) 2005 Rioja, Semi Crianza, Usoa de Bagordi

Partial ageing in oak barrels gives this soft red a sheen of vanilla - the kind of flavour Riojas are famous for. It also makes it slightly firmer than the unoaked wine featured left, and means it will age for a couple of extra years in bottle too. A good wine for early autumn and Christmas.

1) 2005 Nature, Côtes-du-Rhône, Domaines Perrin

A smooth red made by the Perrin family, famed for one of the pricy Châteauneuf-du-Pape wines - the organic Château de Beaucastel. But they also wanted to make a more affordable red, so planted a small vineyard in the southern Rhône valley, mainly with Grenache, which gives soft, moreish wines, and a small amount of Syrah for focus. Heating the grapes prior to fermentation allows the wine to be bottled with low levels of sulphur dioxide preservative. Good food pairing includes stews, steaks and pizza.



Argentina, say that their climates were already too rich in the so-called 'light-giving qualities', meaning that it made sense to use mainly the horn manure '500', to bring a more 'earthy' influence into their vineyards, cancelling out excess sun/heat.

Hugh took a deep breath, as if he had had to respond to this kind of scepticism a thousand times already, and explained in his patient way that 'you have to use both horn preps - horn manure and horn silica - in conjunction with each other. They are interdependent.' A kind of yin and yang, I suppose you could say.

Hugh went on to remind us that the Native Americans worshipped the earth (indicating strong earthy forces in North America), while eastern religions worshipped the spirits (indicating strong cosmic forces). Thus not using the cosmic-force-carrying horn silica in North America, and only using the earth-force-carrying horn manure, risked creating the kind of imbalances in plants that chemical agriculture had caused and which

biodynamics is supposed to remedy.

We dug out dozens of horns, cleaning them as we did so, so that when the precious powdery-white material inside was tapped into clear glass jars, no mud would accidentally drop in.

Hugh said horn silica should always be stored in a sunny spot, so now I keep mine on an east-facing windowsill to catch the rising sun.

Hugh's ideas on biodynamics, good farming, and thus good wine, seemed to be all about finding balance. His words certainly made sense to me as I grappled with a shovel, hunting for buried horns, and it sparked another fascinating debate among us as we enjoyed our last moments prep-making at JPI that autumn. **E**

Erratum

Readers with good recall may wonder if Hugh Courtney has been biodynamically transformed since our September issue. Sorry: we'd incorrectly captioned a picture of his colleague Joey Brinkley.

More info

- Biodynamic Agricultural Association (BDAA), The Painswick Inn Project, Gloucester Street, Stroud, Glos GL5 1QG, England. Email office@biodynamic.org.uk, www.biodynamic.org.uk

- Josephine Porter Institute for Applied Biodynamics Inc, PO Box 133, Woolwine, VA 24185-0133, USA Email info@jpi.biodynamics.org

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Wine club case 9:

(See left for full tasting notes)

1 2005 Nature, Côtes-du-Rhône, Domaines Perrin (x2)

2 2006 Navardia, Bodegas Bagordi, Rioja (x3)

3 2005 Rioja, Semi Crianza, Usoa de Bagordi (x2)

(Full tasting notes in September)

4 2004 Les Demoiselles de Falfas, Côtes de Bourg (x1)

5 2004 Domaine de Beaujeu, Vin de Pays du Bouche du Rhône Merlot (x3)

6 2003 Mas de Gourgonnier, Les Baux de Provence (x1)

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Scrub for victory

Clean the most difficult places in a natural, eco-friendly way. **Laura Sevier** explains how

You'll never have to scrub again,' promises one brand. The cleaning-product industry is saturated with 'power' creams, 'dual force' foamers, limescale 'destroyers' and 'triple action' formulas designed to sell us the idea that the tougher the product is, the cleaner and 'safer' your home will be – and the more 'effortless' the cleaning. With just one squirt and wipe you can cut through grease and kill germs dead. A product may be marketed as a miracle cleaner but the back label tells a different story. The clue is in the warning signs: 'hazardous, corrosive, warning, danger or irritant, inflammable'.

Household cleaning products are made using industrial chemicals, often referred to as high production volume, or HPV, chemicals. According to a Friends of the Earth report, *Chemicals in Crisis* (2000), only 14 per cent of the HPV chemicals have a full set of basic safety data.

The majority of household cleaners contain harsh, often toxic chemicals that when flushed down the drain can be highly toxic to aquatic life – the impact of detergents, solvents and phosphates that don't biodegrade have been well documented by organisations such as Greenpeace. Used in the home, the chemicals contaminate the air and surfaces with a mix of carcinogens, hormone

disruptors, neurotoxic solvents and mood-altering chemicals. So much for a safer and cleaner home.

Simpler, safer, greener alternatives

The simplest (and cheapest) way to cut out the chemicals is to make your own cleaning products (see *DIY cleaning cupboard essentials*, right). Another way is to switch to eco-friendly brands like Bio D, Ecover or Natural House whose plant-based cleaners are made from natural ingredients like citrus, essential oils, minerals, salts, sodas and plant enzymes. With washing-up liquid, washing powder and bathroom and kitchen all-purpose cleaners, this is a pretty straightforward switch. But what about the places that are harder to clean, such as carpets, greasy ovens or kettles coated with limescale?

Cleaning tips for the five most difficult jobs:

1. Carpets

- Give the vacuum cleaner a break and use a wooden broom with hard natural bristles instead, then collect the dirt with a dustpan and brush.
- Wash carpets using eco-friendly washing-up liquid. For a deeper clean, go for a carpet steam clean. As well as providing effective cleaning power, the very hot water used in steam-cleaning machines kills dust mites,



“The easiest way to cut out the chemicals is to make your own cleaning products

fleas, bacteria and mould.

- For stains, use soda water or make a spot-cleaning solution of ½ cup borax in 1 litre of warm water. Scrub with a stiff bristle brush; vacuum when dry.
- Disinfect carpets by sprinkling with borax. Wait for two to 24 hours before vacuuming it up. Note: inhaling any powder can cause respiratory problems in some individuals, so make sure you use other rooms while this is soaking in.
- For smelly carpets, make a natural carpet deodorant from plain baking soda with fragranced essential oils. Sprinkle onto the carpet and leave from 15 minutes to overnight, depending on the strength of the odour, and then vacuum.

2. Upholstery

- Spot-clean upholstery with a solution of ½ cup borax in 1 litre of warm water. Scrub with a soft bristle brush and vacuum when dry.
- Washable soft coverings (cushion covers, etc) and throw rugs should be laundered regularly (with eco-friendly washing powder, of course!). Non-washable rugs can be taken outside

Images: MARY EVANS

and beaten with an old-fashioned beater – or old tennis racket.

3. Drains

- Regularly running boiling water down the drain is probably the best way to keep drains clear and running well.
- To clear out a drain, make a foaming drain cleaner with baking soda, table salt and vinegar. This will bubble and fizz, pushing the abrasive salt through the drain, removing deposits. After 20 minutes pour boiling water down the drain to flush it clear.

4. Ovens, greasy kitchens and limescale

- For ovens, sprinkle baking soda in the oven while still warm, to loosen grease, which can then be wiped away with warm water. Or, on the same lines as unclogging a drain, spray a solution of white vinegar into the warm oven. Sprinkle with baking soda, leave it to bubble and then scrub away.
- Make a scouring powder with bicarbonate of soda and a few drops of essential oil – lemon, grapefruit, tea tree, rose, peppermint or lavender.
- Disinfect surfaces naturally by mixing two parts water to one part vinegar or lemon



For ovens, sprinkle with baking soda while the oven is still warm, to loosen grease, then wipe with warm water



Turn to **p 90** for listings of eco-friendly cleaning products

juice. (NB: lemon juice and vinegar are acidic, so remember to wear gloves.)

- To get rid of limescale, soak the kettle/taps/plugs either in equal parts vinegar and warm water or cover with cloths soaked in hot vinegar for an hour.
- Eco-brand alternative: Bio D Multi-Surface Cleanser; Ecover Limescale Remover and Ecover Cream Cleaner.

5. Polishes

- Wood: a dab of vinegar on a slightly damp cloth can be a very effective cleaner and a little light olive oil on a cloth can polish and protect the wood. Beeswax makes a good furniture wax.
- Brass and copper: rub pans with a mixture of salt and vinegar or lemon juice and then wash.
- Chrome: use soap and water removing stubborn stains with a bit of bicarbonate of soda.
- Eco brand alternative: Bio D Household Polish.

Tips are sourced from *What's In This Stuff?* by Pat Thomas (Rodale, £12.99) and Donnachadh McCarthy, eco auditor and author of *Saving the Planet Without Costing the Earth* (Fusion Press, £11.99). Also see: *Natural Stain Remover: Clean your home without harmful chemicals* by Angela Martin (Apple Press, £4.99) **E**

DIY cleaning cupboard essentials

Baking Soda: otherwise known as sodium bicarbonate, this domestic wonder powder is a key ingredient in many home-made cleaning products. As a powder it's a mild abrasive that can scratch off dirt and absorb odours. When dissolved in water it is a mild disinfectant, cuts through grease and softens water. For a stronger version of soda, go for soda crystals (also known as washing soda), which are more effective at getting rid of grease. (Both available from Dri-pak, www.dri-pak.co.uk)

Vinegar: Simply made from the fermentation of ethanol, vinegar is a mild acid that cuts through grease and disinfects by killing many types of bacteria.

Lemons: Lemons are acidic and can provide some antibacterial and antiseptic properties for cleaning. Adding lemon juice to vinegar can help neutralise the vinegar smell.

Soap: Use sparingly as a gentle cleaning agent and a mild detergent. NB: make sure it's made from natural products, vegetable oils and animal fats, rather than synthetic ones.

Borax: A natural mineral compound, borax is an effective cleaner, disinfectant and water softener, but it should be used with caution – it can be toxic at high levels. You can buy it from most chemists.

E-cloth: Made from millions of high-quality micro-fibres, the E-cloth has such a good, natural cleaning effect that you only need to use water. When dry, the cloths have a natural 'positive' charge that attracts dust. (Available from Ecotopia, www.ecotopia.co.uk)



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

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

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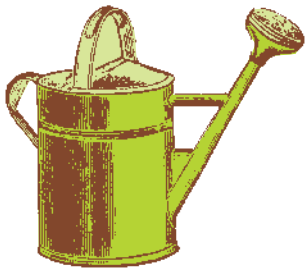
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Home and garden

From garden tools to bed linen, cleaning products and furniture – by simply changing our household buying habits we can reduce our carbon footprint and the chemical cocktail that makes its way into our homes. So visit the online producers below for ideas on how to green your home

★ Natural House

'Our homes should be a haven and I want to do all I can to reduce the number of chemicals we introduce into them,' says Carole Harvey, MD of Natural House products, based in Nottingham.

Natural House products are simply formulated, based on recipes used by our grandparents' generation and made with traditional ingredients such as lemon and vinegar, and additional ingredients such as tea tree oil (renowned for its anti-bacterial properties) and quillaja saponaria, a natural saponin from the bark of the quillaja tree known for its gentle detergent properties.

Their organic certification requires that as many ingredients as possible come from organically grown plants; formulations are simple and natural, containing no ingredients that may harm human health, and no GM

(genetically modified) material and their products do not harm the environment either in their manufacture or in their use. In addition, they don't use materials of animal origin or which have been tested on animals. Their products are fully bio-degradable and packaging is recyclable.

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- Organic Soap Flakes: suitable for washing woollens, silks, down-filled products, lingerie and baby clothing.
- Surface Spa, a multi-surface cleaner made with 83 per cent organic ingredients

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Offer valid until 31/10/07

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www.constructionresources.com

Ecomerchant

www.ecomerchant.co.uk

Green Building Store

www.greenbuildingstore.co.uk

The Green Shop

www.thegreenshop.co.uk

The Healthy House

www.healthy-house.co.uk

Nigel's Eco Store

www.theinsightecostore.com

CONSTRUCTION/ RENOVATION

Cob in Cornwall

www.cobincornwall.com

Concept Timber

www.concept-timber.co.uk

Finch Macintosh Architects

www.finchmacintosh.co.uk

Gale and Snowden

www.ecodesign.co.uk



Eco cleaning alternatives from article on p 84:

Bio D www.biodegradable.biz

Dri-Pak www.dri-pak.co.uk

Ecover www.ecover.com

E cloth www.e-cloth.com

Faith in Nature www.faithproducts.com

Natural House www.natural-house.co.uk

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Clothing

The virtual boutiques and retailers featured on these pages stock a range of well-made, stylish and ethical clothes. Precise sizing charts make it easy to find the right size for you – and if something doesn't fit, or you don't like it, simply return it. Being fashionable and being ethical are no longer at odds...

★ Greenfibres

20% off all nightwear

'There is nothing like touching, feeling and even smelling our organic textiles... many people comment on the smell when they come into our shop – in a positive way!', says William Lana, who set up Greenfibres with his wife Gabriella in 1996.

Swapping from careers in finance, they became pioneers of the UK organic clothing industry. 'When we started we were one of the first companies to offer organic cotton products, organic wool, organic linen and untreated hemp and silk products,' he says.

Now a thriving online shop and mail order business with a small shop in Totnes, Devon, Greenfibres sell everything from socks to bed linen to bath robes made from organic cotton. They also have a more luxurious range of underwear and vests made from natural, untreated fibres including silk, a silk/cashmere blend and a Demeter-certified wool/silk blend. No synthetic chemical finishes or treatments are used (e.g. moth resistant, fire retardant, easycare, anti-pilling, etc). Dyes are either plant- or mineral-derived or, if not of natural origin, are environmentally-responsible low-impact dyes. No heavy metals or other harmful chemicals are used in the dyeing process.

Approximately 30 to 35 per cent of Greenfibres' clothes are made in the UK, mainly in a factory in Plymouth. Close cooperation with manufacturers in Europe means they can influence the

production processes to take account of ethical and ecological issues. Their underwear, for example, is made by a Swiss manufacturer under very fair working conditions.

In 2002, William was appointed Chairman of the Soil Association (SA) Textile Standards Committee and has been instrumental in developing these standards. Certain ranges of Greenfibres underwear, socks, nightwear and towels are SA certified. They also still use other International Federation of Organic Agriculture Movements (IFOAM) registered certifiers (such as SKAL, IMO and Demeter). 'Over the coming years we'd like to do more that is Soil Association certified,' says William, 'and we'd like to open up a few more shops up and down the country.'

In terms of changes they would like to see in the textiles industry, he says: 'I don't see why we shouldn't aim for all the cotton in the world to be organic by 2020. This would prevent \$2 billion of synthetic chemical pesticides from being dumped on the earth's soil and handled by 50 million cotton farmers every year.'



You can order by phone: **01803 868 001** or online at **www.greenfibres.com**, quoting the code **EC09**.

Offer ends: **31/10/07**

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Parenting

The amount of baby gear we buy – such as nappies, wipes, bottles, car seats, pushchairs, clothes, shoes, toys and other nursery items – is staggering. Given the ongoing cost of raising a child and the heavy competition that exists between manufacturers, as consumers we would do well to read and understand labels and buy fewer but better products

★ Myriad Toys

10% off all products

Myriad Natural Toys is a family-run business based in Dorset, selling hand-crafted, organically shaped natural wooden toys that are made to last – and if they do break they can easily be fixed or recycled. The wood comes from European plantations (the wood is indigenous, and the by-products are either recycled or used for heating). The colours used are water-based and the finish is natural oil blends or shellac, not varnish.

With the exception of a range of dolls from a single mothers' cooperative in Sao Paulo, Brazil, all the products in their catalogue are made in Western Europe by people paid a fair wage, working in a

clean, safe environment. Myriad's toys are therefore safe, non-toxic and ethically made.

Myriad's philosophy goes even further: they only choose toys that encourage creative, imaginative play – they also sell plant-dye art materials, craft supplies, books and musical instruments – and they only choose toys that are beautiful and a pleasure to touch. Which is why they believe wood is best for children's playthings. Wood stimulates the child's senses with its texture and its variations in colour; wood smells good and has its own temperature and, intriguingly, bacteria cannot reproduce on it.

You can order by phone: 01725 517085, online: www.myriadonline.co.uk or by post: Myriad Natural Toys, Old Stables, Nine Yews, Cranborne, Dorset BH21 5ND, quoting the promotion code TE10. Offer ends: 31/10/07

READER OFFER



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- Arujo**
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Ecotip Baby Wipes

- Most commercial baby wipes contain alcohol and perfume, which can dry your baby's skin and could aggravate or may trigger an episode of eczema or dermatitis.
- Baby wipes are often also impregnated with chemicals, as well as contributing to the problem of waste.

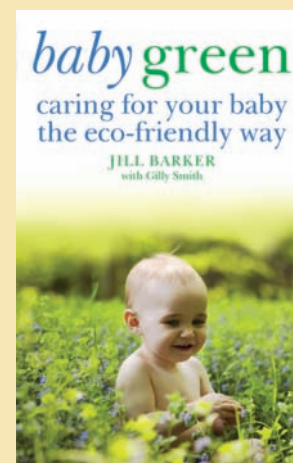
Try these alternatives:

- Use a flannel and water instead of a baby wipe – it can be washed and reused instead of thrown away.
- For newborns, cotton wool and water is all that is needed.
- The best baby wipe for both your baby and the environment is a washable wipe, preferably made from organic unbleached cotton. Buy a dozen or so washable wipes, and use them with a home-made wipes solution or water. Unlike the one-use-wonder wipes, washable ones are wipes for life; once your baby has finished with them they can be used for dusters, floor cleaners and on pets.

Jill Barker set up her shop, Green Baby, when she had problems finding natural baby products. Now an expert in her

field, she runs four Green Baby stores in London as well as a mail order and wholesale business specialising in natural baby products. Visit www.greenbaby.co.uk for more information.

Jill will be headlining The Baby Show, from 19–21 October 2007, Earls Court, London, advising on all things green, from planet-friendly nappies and fair trade clothing, to how to avoid harmful chemical pollutants. At the Show you can find out more about hundreds of natural and organic products for pregnant women and newborn babies, from outlets including Green Baby.



Extracted from *Baby Green: Caring for your baby the eco-friendly way* by Jill Barker with Gilly Smith (Octopus Books, 2007, £7.99)

SKIN & BODYCARE

- Burt's Bees**
www.myburtsbees.co.uk
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www.earth-friendly-baby.co.uk
- Earth Mama Angel Baby**
www.earthmamaangelbaby.com
- Earthbound**
www.earthbound.co.uk
- Weleda**
www.weleda.co.uk
- Ecotopia**
www.ecotopia.co.uk

CLOTHING

- Aravore**
www.aravore-babies.co.uk
- Baby Organics**
www.babyorganics.co.uk
- Belle & Dean**
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- Bishopston Trading Company**
www.bishopstontrading.co.uk
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www.gossypium.co.uk
- Huggababy**
www.huggababy.co.uk



Bodycare & cosmetics

The best way to ensure healthy skin is to maintain a healthy diet, get enough sleep and keep stress levels low. If you do buy products for your face or body, try to make sure they are based on natural ingredients. The companies listed here carry products that have not been tested on animals; they contain no parabens, no petrochemicals and no synthetic ingredients



Wild Wood Groves

In 2000, acupuncturist and Chinese herbalist Ruth Hajioff visited Morocco to study with a famed herbalist in Agadir. Here she discovered argan oil, which has amazing health-giving properties. As a result of the trip, Ruth decided to start selling argan oil in the UK and Europe.

Together with Moulay Hassan Daoui, a Moroccan argan oil expert, she developed an ethical-trade production centre, Bab el Oued d'Argan, between Agadir and Taroudant, in the heart of the Souss Argan region.

Work there remains true to the conservation of the argan tree (which is protected by UNESCO). Berber tribeswomen harvest its fruit, crack open the hard seed-cases and press the oil, all by hand – it can take up to 10 hours to crack enough to

produce one litre of quality oil. The women work and are paid in line with fair trade standards.

The benefits of argan

The Berber women in Morocco use argan oil to nourish their hair, skin and nails. A pure, natural skin food, rich in vitamin E and antioxidants, argan can be used as a nourishing facial treatment and night oil to protect the skin from free-radical damage and reduce fine lines.

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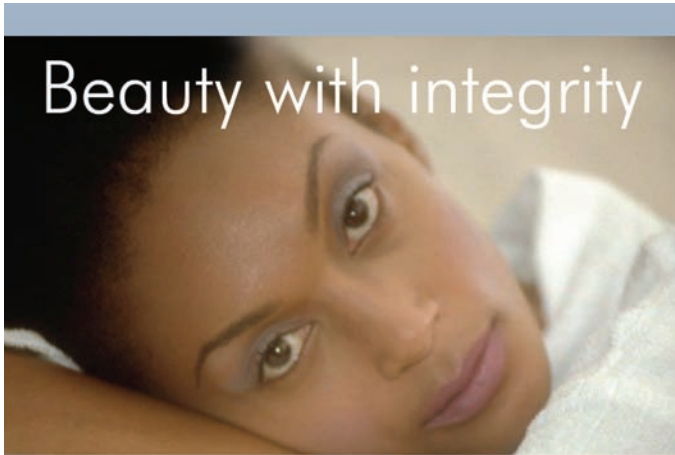
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On these pages you will find products and services that do not fall into our first five classifications, but which are essential to the wellbeing of our planet, and which help you to reduce your carbon footprint. If you think you have something to offer which we have not listed here, please let us know



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Dominant doom

Dr Ilya Sandra Perlingieri reads a sobering analysis of dominant economies

Economics tell a wretched story. Recently, a Harvard budget expert estimated that the US war expenditures will amount to between one and two trillion dollars by the time the debacle is over. This is enough to heavily burden our grandchildren. There are, it seems, unlimited funds to kill people, while social services continue to be drastically cut.

Similarly, the ongoing tragic stories of survivors of the 2005 hurricanes Katrina and Rita and the 2003 one-million-acre southern California firestorm show just how broken the system really is. Thousands of US citizens still have had little to no help in rebuilding their lives, but this rarely gets reported.

For more than two decades, Dr Riane Eisler has been writing about social issues not generally covered elsewhere. Her pioneering books, *The Chalice and the Blade*, *The Power of Partnership* and *Tomorrow's Children*, which focus on the difficulties and

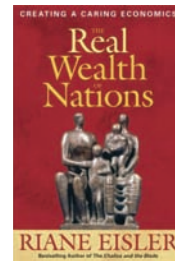
imbalances caused by societies that place domination (and thus much violence) over partnership, are now a clarion call for us all.

In this book she writes about the significant problems of domination societies such as the UK, UK, Russia and China. These are 'top down' societies, where the few control the many. As Dr Eisler writes, 'trust is scarce and tension is high, as the whole system is largely held together by fear and force.' This practice is the *modus operandi* 'in families, the workplace, and society'. It also extends to the entire economic system. Today's economic pie only takes into account our market, government and illegal (drugs, arms) economies. Dr Eisler notes that ours is 'a dysfunctional economic paradigm' and 'perpetuates inequity and inequality'. Furthermore, 'greed...helps fuel dominator economic systems'.

In addition to the awful and telling statistics, the greatest strength in this

brilliant book is the way it gives us a real, workable blueprint for a healthier, sustainable, equitable future. Dr Eisler's partnership model is now a part of many European societies. With the grave dangers we face from changing climate and other environmental calamities, as well as high rates of violence, this book is sobering but also essential reading for everyone.

Dr Ilya Sandra Perlingieri is the author of *The Uterine Crisis* and is listed in *Who's Who of American Women (2006-7)*



The Real Wealth of Nations

Riane Eisler
(Barrett-Koehler Publishers, £12.59)

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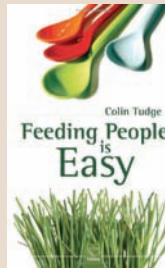


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From profit to prophet?

Charlotte Alfred tucks into a polemic on the food industry's failure to feed people

Based on 30-plus years of studying food and farming, Tudge's book is ambitious in scope. The danger is that important observations get lost among tirades on grandiose

movements with capitalised titles such as 'Enlightened Agriculture' and 'New Agrarianism', and a constant dialectic between 'they' (the 'powers-that-be') and 'we' ('humanity').

But the book is strong in substance. Tudge argues that by following purely economic outcomes, the food industry has failed to simply feed people. With famine and obesity hitting the poor hardest across the world, something is clearly amiss. He proposes a 'renaissance' of traditional food, locally grown, compassionately farmed and home cooked.

Tudge's soundbite style usefully condenses complex science, but can be frustrating when he assumes the role of visionary and prophet of a new food culture. He is probably right that 'the world needs re-thinking from first principles', and laudable in his goal to 'provide good food for everyone, forever'. Some of his proposals for grassroots action might even work. But calling cooking an anarchic act, and lobbying government and corporations a waste of time, may invite raised eyebrows. Just don't let it distract you from the real moments of insight.

***Feeding People is Easy* by Colin Tudge (Pari Publishing, £9.99)**

Economic sense

Local communities anywhere can function as healthy economies, **Mark Anslow** is heartened to learn

It's difficult to write a review of any green economics text without fighting down the urge to quote Bill Clinton's immortal phrase, 'It's the economy, stupid.' Unfortunately, nothing sums up the importance of economics to the environmental movement more aptly.

No-one knows this better than American environmentalist, educator and author Bill McKibben. *Deep Economy* is his attempt to demolish the long-accepted fallacy that 'more' is 'better' – a notion that has led to so much environmental and social degradation.

He begins by spending a year eating only food that can be grown and bought locally. He finds that not only does he survive, but he also makes a whole web of new friends and connections, and becomes acutely aware of what his surroundings are able to provide. 'I'd gotten to eat with my brain as well as my tongue,' McKibben concludes.

What's needed, the book stresses, is a shift to more local economies, which are less resource-intensive, more resilient to external 'shocks' and more sociable. He has a figure to back this up – customers shopping at farmers' markets have 10 times as many conversations as they do when shopping in supermarkets. It's a remarkable statistic.

But McKibben is careful to qualify what he means by 'local'. His vision is not, he stresses, a return to some romanticised 'old-town-green fantasy'.

'Economies can be localised as easily in cities and suburbs as in rural villages,' he writes, 'and in ways... that rely more on the solar panel and the Internet than the white picket fence.'

His pragmatism is reassuring. Nowhere does he become pious or over-zealous, and you won't find McKibben railing anarchically at the engines of capitalism. Instead, he emphasises, small is beautiful, and slowly slowly catches the monkey. In his words: 'There are ways to make economies out of almost anything if you think small and work through communities.'

However, one thing that does rile McKibben is what he sees 'hyper-individualism': the cult of the self, which has driven us into boxes

and resulted – in some parts of the USA – in a ratio of two people per acre. He uses a similarly idiotic situation to put the up-front expense of renewable energy in context. When people are quite willing to spend \$3,000 on a laptop or \$40,000 on an SUV, both of which start to depreciate as soon as they leave the shop floor, why do they pore over the calculator when trying to work out the 'payback' of renewable energy systems? 'In a hyper-individualised world,' laments McKibben, 'cost is everything.'

Deep Economy goes beyond the territory you'd expect from a green economics text. True to his journalistic roots (his career began on the *New Yorker*), McKibben is feverishly interested in the media as a symptom of globalisation. He extols the virtues of his local radio station, laments the growth of standardised, central programming and observes that it is only in the past century or so that we have become used to 'consuming' entertainment from recordings, rather than 'producing' it ourselves.

Like any self-respecting author/journalist, McKibben has recycled parts of this book from his previous articles. Those familiar with his work may not gain anything new. It is also a heavily US-centric text, and relies on anecdote as much as it does on fact.

Although, as he says, 'the modern economic model has spread so far and wide that there are relatively few large-scale experiments testing whether an alternative might actually work', McKibben has encouragement for small ventures. Most importantly, perhaps, he ends with a chapter of hope, citing projects and circumstances worldwide where 'community' has come up trumps. It will cheer the heart of anyone striving to live local.



Deep Economy: The wealth of communities and the durable future

Bill McKibben
(Times Books, £16.99)

Last words? Manchu

Status: Highly endangered; fewer than 20 elderly speakers are fluent in it.

Habitat: The isolated village of Sanjiazi in the Heilongjiang province of Manchuria, far north-east China near the border with Russia.

Description: Manchu was the *lingua franca* of China for more than 250 years, as the native tongue of the Manchus, who conquered in 1644 and ruled the Ch'ing Dynasty. All the more extraordinary then is its dwindling to this far-flung corner of the modern Chinese empire. The vast numbers of state documents, religious scriptures, literary works and public inscriptions recorded in Manchu are now incomprehensible to all but a few. Although there are 10 million ethnic Manchus still living in China, sustained pressure from the Han government has eroded this once-great language to a morbid whisper. The decline has been rapid: Manchu has almost completely collapsed in three generations.

In Manchu, which is of Tungusic descent, nouns have an unusual number of possible cases, denoted by suffixes. These include initiative (suffix *-deri*), terminative (*-tala/-tele/-tolo*), formal (*-gese*), translative (*-ri*), indicating a change in something's state) and indefinite allative (*-si*, regarding a place or situation, when it is unknown whether the action actually reaches it). It also has a beautiful written script, which looks a little similar to Tibetan turned on its side, moving in vertical columns from top to bottom, from right to left.

Recently some efforts have been made to preserve the language, but with so few speakers left these look futile. The passing of Manchu (except as a relic in the halls of linguistic academe), as it is finally dragged under by rising homogeneity, will serve to remind us of the transience of all empires and civilisations and the limited echoes of what they said.

David Hawkins

How to be free

The failure of failure

The best way to judge the success of a campaign, says **Tom Hodgkinson**, is to stop yourself thinking in out-dated terms like ‘success’ and ‘failure’

I had a wonderful summer speaking at festivals and meeting people and hearing their stories. For example, at Shambala, a wild family festival in Northamptonshire, I met people who had been involved in the recent Climate Camp at Heathrow. I was speaking at an area called Rebel Soul, whose organisers had pulled together a wonderful programme of speakers and music, including Peter Harper of the Centre for Alternative Technology and the Bristol rapper Clayton Blizzard.

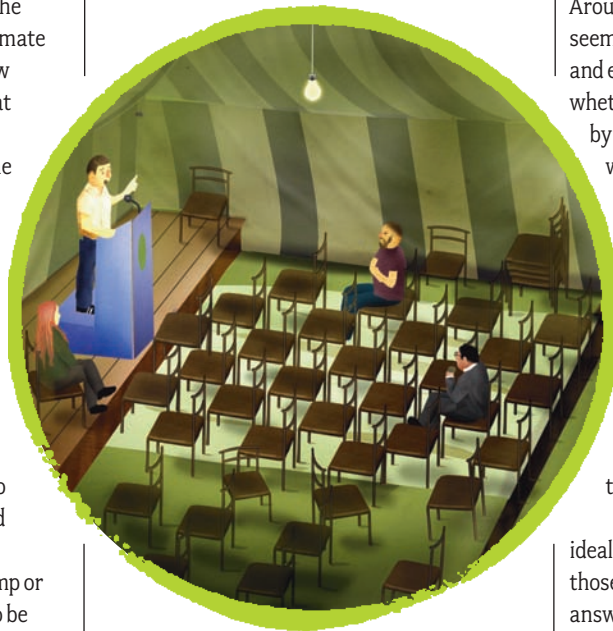
But there was one question that niggled me, and it was the question of failure. I got the sense that many of those involved in Climate Camp had been disappointed at their low turnouts. One audience member felt that those involved should be doing more to push the agenda. He found the fact of the low numbers dispiriting.

I agreed that sometimes it worried me that the history of Utopian schemes seems dotted with failure. From the Diggers to D.H. Lawrence, and from John Ruskin's communal set-ups to the living experiments of Clive Ashbee or Edward Carpenter, none of the ideas could be said to have succeeded in terms of longevity. Something always seemed to go wrong. The founders would fall out and the project would crumble away.

However, in another sense Climate Camp or Ruskin's St George's Guild could be said to be great successes even if small numbers were involved and the time frame was short, for the simple reason that they opened dialogue and expanded the minds of those involved and the minds of the far greater number of people who read about them or heard about them or talked about them. All demonstrate the wonderful nature of possibility. These experiments have an influence that stretches far beyond their immediate scale. When we hear the stories of the courage of the people who quit their jobs to go and live in tents or trees, it inspires us to make changes in our own lives. You can set

a good example without being downhearted if the whole world doesn't follow it.

And why should everyone follow your ideology? There is always the possibility that you might be wrong. We must realise that in pursuing an anarchic planet-saving agenda, people involved in these sorts of issues cannot impose their ideology on others. That would be a sort of Blairism at best or Stalinism at worst. It was Raoul Vaneigem, the Situationist, who wrote that ‘all ideologies are totalitarian’, and it's a warning that is worth bearing in mind as we pursue our Utopian schemes. Your idea of the ideal world



‘Lying around in fields seems an eminently practical and enjoyable way to promote your chosen issue’

may be quite different from somebody else's.

Even to talk in terms of failure or success doesn't make much sense, because who is making the judgement? If we talk of failure then we may be making the danger of slipping into using the same language as the ‘enemy’, with its targets, Powerpoint presentations, philosophy of limitless growth and a crazy lust for quantity rather than quality.

Modest projects may have an unexpectedly large influence. Another group I met at the festival, as I was sitting in the sun on a straw bale outside a fantastic mead bar, was the Lying Around In Fields Society. Lying around fields seems to me to be to be an eminently practical and enjoyable way to promote your chosen issue, whether it be peak oil or climate change, because by lying around in fields you are doing no harm whatsoever to the planet and you are undoubtedly doing yourself a whole load of good. Through that simple act you are connecting yourself with the earth and giving yourself time to reflect. I think the Lying Around in Fields Society is a great antidote to the ‘something must be done’ school of environmental action, some of whom would simply love to be in the Prime Minister's shoes so they could force their wisdom on everyone else.

No, coercion and the imposition of your own ideals on others – however benign and worthy those principles might appear to be – is not the answer. The answer lies simply in people talking to each other. And this is why a real dialogue with one other person that helps that person could be counted more successful than a sellout show at Wembley that merely diverts for a couple of hours. Quality, not quantity, that is the key. Pleasure in the process. Abandon targets and goals and growth and enjoy the moment. Build your own paradise and don't worry so much about others. That's the key to success. **E**

Tom Hodgkinson is the Editor of *The Idler* and author of the book *How to be Free* (Hamish Hamilton, £14.99).

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