

THE ECOLOGIST JUNE 2004

PLANET • PEOPLE

# THE ecologist

JUNE 2004 • £3.50

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## Candles or the wind?

Immediately following last year's New York blackouts, it seemed inconceivable that the cause was not terrorism. Why else would the leading city in the world's leading economy suffer anything so third-worldly as a power cut? As it happens, terrorists were not involved, and now, according to leading experts in Britain, we face the prospect of a runaway energy crisis of our own.

According to the giant accountancy firm, PricewaterhouseCoopers, Europe needs to spend £5.6 trillion on improving its 'crumbling' energy infrastructure just to ensure a continuous supply. And to make matters worse, the actual gas supplies that we in Britain depend on for a third of our energy are perilously close to exhaustion.

So we face a crisis not only of distribution, but also of supply. And all this at a time when energy demand is becoming less, not more predictable as a result of increasingly volatile weather patterns.

It's not surprising

then that energy is becoming a much-debated issue. But as ever, the arguments have stuck to the polarities like a damaged CD. On the one hand, we're told, Britain's unpopular nuclear energy programme needs to be



revamped if we're to have any chance at all of filling what the Institution of Civil Engineers predicts will be a staggering 80 per cent energy shortfall by 2020. On the other, we're told that Britain will need to sacrifice great swathes of countryside to the ubiquitous wind turbine.

But it's a manufactured debate. The turbines-in-every-field argument is largely the work of a nuclear industry in the final spasm of a struggle to survive. Nuclear after all has been roundly discredited on every level. By far the most expensive form of energy ever to have been generated – even excluding the hundreds of billions of pounds now required to clean up its toxic legacy – it is beset with problems. Each installation is surrounded by a cancer cluster many times the national average, and an accident with any one of them would render whole regions permanently uninhabitable. Nuclear, then, is an unattractive option, unless you happen to belong to Al Qaeda and want to close down an economy overnight. So for the nuclear industry to be given a life-extension requires belief that the 'only' alternative – a vast wind farm monoculture – is unacceptable.

No one wants Britain to be coated in wind

turbines. But equally, no one is suggesting it should be. For one thing, such a scenario assumes demand will always be as high, if not higher than it is now. It also assumes that wind is the only alternative.

In truth, demand need not grow. One recent US study conducted by Pacific Northwest National Laboratories demonstrated that spending \$5.2 billion on energy conservation in the federal government's 500,000 buildings would lead to savings of more than \$1 billion each year, indefinitely – an enormous return by any standard. It's quite clear that with serious investments in energy conservation, energy consumption would shrink dramatically without the need for sacrifice of any sort.

Equally, whole villages in Britain's West Country are on the verge of being powered by environmentally benign small hydro projects. Biomass is emerging as the answer for others. Solar power is becoming cheaper by the year, and more

**The wind turbines-in-every-field argument is largely the work of a nuclear industry in the final spasm of a struggle to survive**

efficient. All these alternatives exist, and with modest investment will continue to improve. So wind is just one solution among many. But because the government remains fixated on massive, centralised, one-size-fits-all projects, and because of its refusal to let local people have a say, people who might very well have been champions of wind energy are being turned against it. After all, how dangerous would it be to let local people decide for themselves on their energy source? In every locally-organised vote to date, people have given a green light to wind. And if for whatever reason local people do reject wind power, then it is for them to choose an alternative, as long as that alternative does not encroach on others, as nuclear surely would.

Fortunately the anti-wind energy campaigners are a minority, largely supported by the nuclear industry. But, unless the government democratises and improves on its pitiful renewables commitment, we face the frightening prospect of a revitalised nuclear programme, or almost as bad, dependence for nearly four fifths of our energy on gas imports from such countries as Algeria and Iran. In such a scenario, the opportunities for disruptive terrorism would prove too tempting by far, and Britain would find itself teetering permanently on the edge of blackout... or total contamination.

**Zac Goldsmith, editor**

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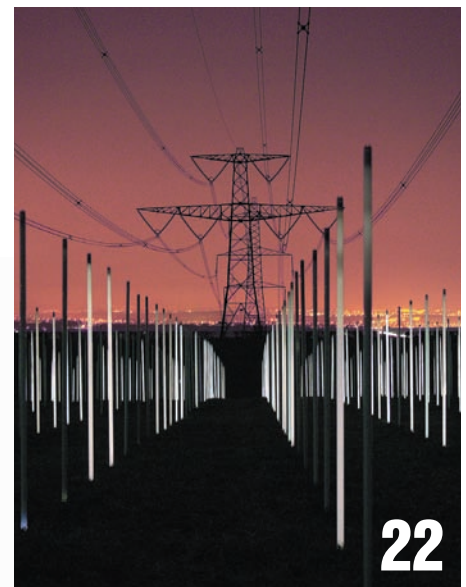
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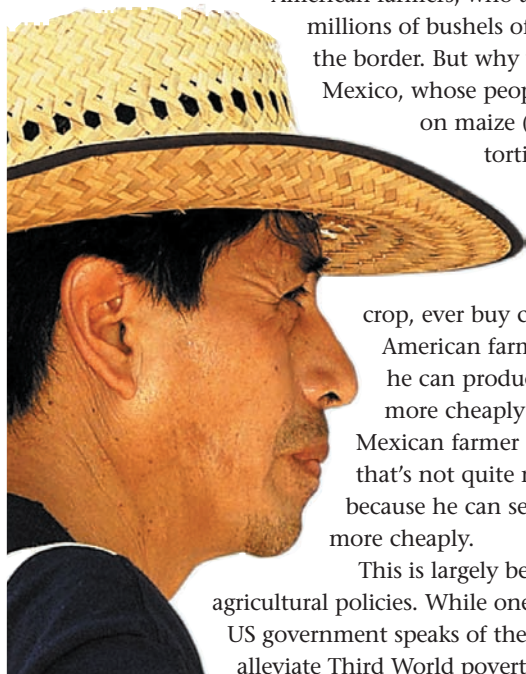


# A flood of US corn rips at the heart of Mexico's farms

The effect of free trade in corn is the decimation the farming communities south of the Mexican border

By **MICHAEL POLLAN**

One of the ballyhooed successes of the North American Free Trade Agreement (NAFTA) has been the opening of Mexico to



American farmers, who are now selling millions of bushels of corn south of the border. But why would

Mexico, whose people still subsist on maize (mostly in

tortillas), whose farmers still grow more maize than any other

crop, ever buy corn from an American farmer? Because he can produce it much more cheaply than any Mexican farmer can. Actually that's not quite right – it's because he can sell it much more cheaply.

This is largely because of US agricultural policies. While one part of the US government speaks of the need to alleviate Third World poverty, another is

writing subsidy cheques to American farmers, which encourages them to undersell Third World farmers.

The river of cheap American corn began flooding into Mexico after NAFTA took effect in 1994. Since then, the price of corn in Mexico has fallen by half. A 2003 report by the Carnegie Endowment says this flood has washed away 1.3 million small farmers. Unable to compete, they have left their land to join the swelling pools of Mexico's urban unemployed. Others migrate to the US to pick our crops – former farmers become day labourers.

The cheap US corn has also wreaked havoc on Mexico's land, according to the Carnegie report. The small farmers forced off their land often sell out to larger farmers who grow for export, farmers who must adopt far more industrial (and especially chemical- and water-intensive) practices to compete in the international marketplace. Fertiliser runoff into the Sea of Cortez starves its marine life of oxygen, and Mexico's scarce water resources are leaching north, one tomato at a time.

Mexico's industrial farmers now produce fruits and vegetables for American tables year-round. It's ridiculous for a country like Mexico whose people are often hungry to use its best land to grow produce for a country where food is so abundant that its people are obese – but under free trade, it makes economic sense.

Meanwhile, the small farmers struggling to hold on in Mexico are forced to grow their corn on increasingly marginal lands, contributing to deforestation and soil erosion.

Compounding these environmental pressures is the advent

## Climate-change monitor

### POLLUTION COULD CAUSE ASTHMA EPIDEMIC

Global warming will exacerbate asthma and other respiratory illnesses, according to a report by the Harvard Medical School's Centre for Health and the Global Environment. The report claims that rises in temperature are causing an increase in airborne allergens like pollen and mould. When these allergens mix with urban pollutants, they will only make worse what is already an epidemic of asthma.

In the US, incidences of asthma among children aged three to five grew 160 per cent between 1980 to 1994, says the report.

'This is a real wake up call for people who think global warming is only going to be a problem way off in the future', said a senior researcher.

### UK AT GREATER RISK FROM FLOOD DANGERS AND COSTS

According to an expert government panel, the cost of physical and psychological damage from floods in the UK is likely to rise from \$1.8 billion a year now, to some \$35.5 billion a year over the next century, thanks to climate change. Even if substantial international efforts are made to curtail greenhouse-gas emissions, states the report, costs will still double.



### MELTING OF GREENLAND ICE SHEET FORECAST

The second largest ice sheet in the world will begin melting by the end of the century if current global warming trends continue. The study in *Nature* adds that over the course of the next 1,000 years Greenland's ice sheet will melt entirely, raising ocean levels across the world by some 23 feet. 'We conclude that the Greenland ice sheet is likely to be eliminated by anthropogenic climate change unless much more substantial emission reductions are made than those envisaged by the [Intergovernmental Panel on Climate Change],' say the authors.

of something new to Mexico: factory farming. The practice of feeding corn to livestock was actively discouraged by the Mexican government until quite recently – an expression of the culture's quasi-religious reverence for maize. But those policies were reversed in 1994, and, just as it has done in the United States, cheap corn has driven the growth of animal feedlots, sewage concentration and water and air pollution.

Cheap American corn in Mexico threatens all corn – *Zea mays* itself – and by extension all of us who have come to depend on this plant. The small Mexican farmers who grow corn in southern Mexico are responsible for maintaining the genetic diversity of the species. While American farmers raise a small handful of genetically nearly identical hybrids, Mexico's small farmers still grow hundreds of different, open-pollinated varieties, commonly called landraces.

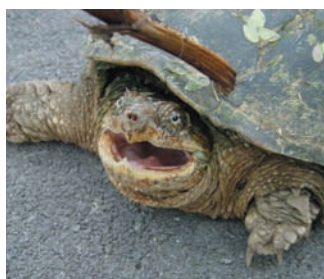
This genetic diversity, the product of 10,000 years of human-maize co-evolution, represents some of the most precious and irreplaceable information on earth, as we were reminded in 1970 when a fungus decimated the American corn crop and genes for resistance were found in a landrace in southern Mexico. These landraces will survive only as long as the farmers who cultivate them do. The cheap corn that is throwing these farmers off their land threatens to dry up the pool of genetic diversity on which the future of the species depends.

Perhaps from a strictly economic point of view, free trade in a commodity like corn appears eminently rational. But look at the same phenomenon from a biological point of view and it begins to look woefully short-sighted, if not mad.

*Michael Pollan is the author of three books, including The Botany of Desire. This article was first published in the LA Times.*

## The least responsible company in the world?

British American Tobacco (BAT) has been slammed for its appalling health, environmental and development record in a new report. *BAT's Big Wheeze*, published by Action on Smoking and Health (ASH), Christian Aid and Friends of the Earth, accuses BAT of damaging the health of rural communities in Brazil and Kenya through encouraging the use of dangerous pesticides, in many cases without proper protection; encouraging forest destruction in Uganda, through heavy use of dry wood to cure processed tobacco; and flooding Pakistan and Russia with advertising and sponsorship designed to addict a new generation of young people to its cigarettes. *The report can be found at [www.ash.org.uk/html/conduct/pdfs/batbigwheeze.pdf](http://www.ash.org.uk/html/conduct/pdfs/batbigwheeze.pdf)*



## Pollution turning turtles from boys to girls

Male snapping turtles in the US Great Lakes are suffering from reduced penis size and showing signs of ovulation, say researchers from the Canadian Wildlife Service of Environment Canada. Only turtles in heavily polluted areas of the lakes display the changes. Over 50 synthetic compounds have been found to affect hormone systems, among them dioxins, polychlorinated biphenyls, pesticides and certain plastics.

## Frogs no match for euro stork

By Malcolm Tait

Do the baby-bearing birds carry an ill-omen for Tony Blair?



There was much excitement this spring when two white storks migrated further than usual and began to build a nest in Britain. Potential new breeders are always treated with respect and awe, but such huge and handsome birds lift the story from the ornithological journals to the national press.

There's something about storks that inspires Europeans, probably because, despite their great size, they're comfortable living close to people. Right on top of their roofs, in fact. The arrival each spring of these patron birds of babies brings new life to hearths and homes, and their social ways of life remind people of the way their own families can work. Now, this magnificent bird has popped across the channel to see if Britain's worth living in.

Did Tony Blair make a connection? In the same week that the mighty European birds were seen collecting nesting material in Yorkshire, he announced, out of the blue, that there would be a referendum on whether the UK would join Europe.

## Frankly, building your European policy on the nesting habits of storks isn't without precedence

Unfortunately for Blair, however, the storks couldn't quite make up their minds about the whole thing. First there were two of them, then a third turned up. The nesting became more erratic. Then they all went into hiding. At the time *The Ecologist* went to print, uncertainty reigned.

The government picked up on the chaotic mood. The referendum would be soon, but, ooh, clarification on its terms could take a long time. If the outcome is no, then the terms could be changed, and a revote called. No, hang on: the first referendum will be definitive after all.

Frankly, building your European policy on the nesting habits of storks isn't without precedence. In 1415 Henry V thumped the French at Agincourt, ushering in a brief period of dominance over that land. The next year, a pair of storks nested on Edinburgh's St Giles Cathedral. As if inspired by this unusual event, the Dauphin turned to his Auld Allies for help, and within a few years, the Scots had bought enough time for the French to regroup. Storks have not nested in Britain since.

So what significance should we draw from this year's natural phenomenon? How should it guide us in our European voting? Perhaps the answer lies in the ancient fable of King Log and King Stork:

*The frogs had elected a log as their leader. King Log gave them somewhere to sit on peaceful days, somewhere to hide on stormy days, and a place from which to hold their meetings. Yet after a while, the frogs wanted more. 'Our life is fine,' they said, 'but it could be finer. We want a leader who is bigger than King Log, who can travel to distant lands and represent us there.'*

*The next day a stork flew in from a distant land. 'This is the leader we want,' croaked the frogs. 'He will make us great across the lands.' They swam in their hundreds towards the stork, who simply gobbled them up one by one.*

Malcolm Tait's new book *The Wildlife Companion* will be published this summer by Robson Books.



## The world's worst pudding

By Mark Daniels

The 156,000 Mile Dessert

Let me make this clear. I love the food of foreign lands. I travel the world, rejoicing in the diversity of nature's benisons and the ingenuity with which man has married them and nurtured their offspring. But am I really to admire a concoction on no better grounds than that its creation required 156,000 miles' travel?

This, certainly, is how Messrs Haagen-Dazs, manufacturers of tolerable, mass-produced, medium-quality sundaes, have elected to market their latest product, 'The 156,000 Mile Dessert'.

What we have here, not to put too fine a point on it, is a sort of crazy, mixed up tutti-frutti trifle, but, of course, when it is 'designed' by Raymond Blanc, such terminology is anathema. First, we have a scoop of Haagen-Dazs's Banoffee ice-cream, then a 'tiramisu' ('pick-me-up' in Italian), soured in coffee, then a fruit 'compote', the whole sprinkled – sorry, 'drizzled' – with an 'aged Jamaican rum sabayon', infused with 'kalamansi limes' and encased in a globe of spun sugar.

If this description has a mildly emetic effect, you have missed the point. You have not reflected that, apart from the Jamaican rum, the West African cocoa and the limes (which are not limes, by the way, but calamondins) from the Philippines, that fruit compote contains mangoes from Burma, baby bananas from Malaysia, passion-fruit from Brazil, pomegranates from Iran, pineapples from Uruguay, pitaya (here, wrongly, rendered 'pitahaya') from Vietnam, longan from the Philippines, tonka beans from Grenada and, believe it or not, 'the juice of an orange' from Asia. There, now. It wasn't *mildly* emetic after all, was it?

### 'Look guys! Pollution pudding! Fill your boots!'

Let us consider the less common of these ingredients. The longan, for example, is an inferior lychee, until now almost invariably bunged into cans in its native lands; the pitaya is a Latin American cactus fruit, hitherto, because of its want of distinctive flavour, used for colouring sweets; the tonka bean's sole value lies in the fact that it contains coumarin, once a popular flavouring which, in Alan Davidson's words, "has an aroma between those of hay and of vanilla". Coumarin, however, is a liver toxin. Its use in human food has been banned or restricted in most western nations for many years. It is now chiefly restricted to perfumery and snuff-blending.

Of course, such a thing could never have happened at so reputable a firm as Haagen-Dazs, nor at the behest of so distinguished a chef as Raymond Blanc. But the picture this recipe conjures up for me, far from being one of glamour, is of the board of a confectionery company which, somewhere back in the 1940s, acquired hundreds of acres of plantations of mediocre and unfashionable plants and now seeks to bring them back into service.

But I am atypical, and, I confess, have always had a sneaky admiration for counter-trend, slap-in-the-face, ranch-mink-in-Glastonbury-style marketing. Other companies may disguise their intentions and principles. Supermarkets and even multinational burger-chains acknowledge that the 'buy local' movement reflects a deep-seated and widespread desire for integrity in food – not so Haagen-Dazs. Here there is not so much as a mealy-mouthed mention of Fair Trade or ecological responsibility. Here is a brazen, brave, in-your-face, 'Look, guys! Pollution pudding! Fill your boots!'

Mark Daniels is a freelance journalist

## More hot air on the BBC

George Marshall and Oliver Tickell challenge the media's continued portrayal of climate change as a 'debate'

By GEORGE MARSHALL and OLIVER TICKELL

When *Newsnight* dedicated a special feature to climate change last month it concluded with the familiar format of a live debate. On one screen an environmentalist warned of global calamity. On the other, Patrick Michaels, Professor of Environmental Studies at Virginia University, claimed that 'there is not much we can do about it' and that taking action is not 'economically feasible'. Michaels spoke with a calm confidence and authority that left no doubt that his was the voice of reason.

In its respectful presentation of Michaels as an independent academic *Newsnight* omitted a crucial piece of information – that for the past decade he has been funded by the US fossil fuel industry to undermine action on climate change. From 1991 onwards he was chief spokesperson for the Information Council for the Environment, a public relations front created by the US Western Fuels Association and National Coal Associations to undermine US involvement in the Kyoto Protocol. He is now a Senior Fellow of the Cato Institute, a libertarian right wing think tank funded by, among others, Exxon, Shell and Chevron.

Lobbyists like Michaels thrive in this debate environment. It gives them publicity and gives their claims equal status with those of the scientific establishment. Their arguments are chosen with the sole purpose of undermining the consensus on climate change – so as the science develops, so do their arguments. In the early 1990s, Michaels argued that climate change did not exist or is unproven. Now he argues that it is inevitable and we need to adapt. No surprise then that his work

### Companies 'supressed' negative research into child drugs

When researchers looked at unpublished, as well as published trials of antidepressant use among children, revealed *The Lancet*, the risks were shown to have 'exceeded the benefits'. The review found evidence that pharmaceutical companies 'had been aware of problems but did not reveal them', with a leaked memo from GlaxoSmithKline advising that 'negative trial results could not be released' in case they damaged the drug's 'profile'. The results support an earlier review of cancer drug trials, which found that while only five per cent of pharmaceutical industry studies reported negatively on the drug under examination, 38 per cent of studies carried out by independent labs did so.



### BP 'illegally' bans shareholders from AGM

Climate change activists Rising Tide have lodged a complaint with Companies House after BP security barred three campaigners, who had travelled from Azerbaijan and Georgia, from entry to its AGM. BP barred the campaigners despite their status as proxy shareholders. Meanwhile, a shareholder resolution asking the company to respect wildernesses received just 6.5 per cent support.

[www.risingtide.org.uk](http://www.risingtide.org.uk)

is described by Tom Wigley, one of the leading scientists in the Intergovernmental Panel on Climate Change, as 'a catalogue of misrepresentation and misinterpretation'.

During August 2003, as temperatures across Europe rose far above previous records, broadcasters repeatedly gave a small club of self-styled 'climate sceptics' equal billing in media debates. On the BBC evening news on August 10, freelance meteorologist Piers Corbyn claimed that the heatwave was solely due to 'particles from the sun'. On both *Channel 4 News* and the Radio 4 *Today* programme Bjorn Lomborg, author of *The Sceptical Environmentalist*, was set up in debate formats to argue that there was 'a lot of hysteria' about the heatwave, and that climate change would save lives – it killed nearly 15,000 people in France alone. Britain's homegrown sceptic Philip Stott wrote leader columns in *The Times* to claim that 'I do not believe in climate change' and that 'a little warming can only be a good thing'. The BBC now pays him to peddle his views weekly on the panel of Radio 4's *Home Planet*.

The prominence given to the sceptics in media coverage is a source of immense frustration to climate scientists, who long ago reached an overwhelming consensus that human emissions are rapidly altering the climate. The Intergovernmental Panel on Climate Change produces its findings following the peer review of over 2,000 climate scientists. Its findings are endorsed by every major scientific institution in the world. In scientific terms, the fact that human emissions of greenhouse gases are causing global warming is no more contentious than that the earth is round, or that smoking tobacco causes lung cancer. Yet in media-land, the reality of global warming somehow remains a matter of hot debate and topicality. Why should this be so?

One reason is that there are enormous financial interests in the denial of global warming, for example in the energy, automotive, chemical and aviation industries. They are willing and able to pay for the best spin-doctors in the business – like

the calm, authoritative Michaels. The corporate-controlled media – and in the UK, that means most media – will tend to reflect that prevailing economic interest which is also that of proprietors. It should be no surprise that figures such as Lomborg should find themselves fêted in publications such as *The Telegraph*, *The Spectator* and *The Economist*. Nor that the excellent science writer Nicholas Ridley should adopt the stance of climate sceptic when writing in *The Telegraph*.

But why should other media independent of proprietorial pressures – such as the BBC and Channel 4 – also pander to global warming sceptics? When challenged, editors provide two answers. One, they need to provide 'balance' in their coverage. But what is balance? On global warming they derive their sense of balance not from the scientific community, but from the media itself. Editors and managers are invariably liberal arts graduates whose sense of balance in matters scientific derives principally from what they read in newspapers. The second response is that 'controversy' is an essential part of reporting, needed to maintain viewer and listener interest. However, the global warming controversy they present is a wholly artificial one.

In repeatedly thrashing the dead horse of a non-existent scientific controversy over the reality of global warming, the British media are doing us a substantial disservice. They are misinforming their readers, viewers and listeners. They are publicising and promoting scientists and pseudo-scientists with no credibility among their peers. They are pandering to well-funded lobby groups representing narrow sectional interests. They are retarding the prospects of action to prevent or mitigate global warming and its impacts. And they are stifling a host of genuine debates about the way in which anthropogenic climate change will affect the world, and how humanity should best respond.

George Marshall works for climate activists Rising Tide.  
Oliver Tickell is a candidate for the Green Party.

## PR Watch

### HOW TO SAVE THE TREES – CUT MOST OF THEM DOWN

An increase in logging will benefit Sierra Nevada forests, according to a controversial PR campaign by the US Forestry Service. According to a *Forests With a Future* promotional pamphlet, the risk of fire has risen as the Sierra's forests have grown



more dense over the past century. According to the Associated Press, 'Six small black-and-white photos spanning 80 years appear beside descriptions of how the 'forests of the past' had fewer trees and less underbrush, making them less susceptible to fire... However, the 1909 photo does not depict natural conditions – it was taken just after the forest had been logged. And the pictured forest is nowhere near the Sierra Nevada. It is in Montana.' The Forestry Service defended the use of the photos, saying they represented typical conditions across much of the West. 'We needed to be accurate, but not necessarily precise to the 99th degree,' said a spokesperson.



### CHILDREN A FAIR TARGET, BELIEVES AD WORLD

PR and advertising professionals believe that while children are 'unable to make intelligent choices as consumers' until they are nearly 12 years old, it is acceptable to aim marketing to seven-year-olds, according to a survey of youth marketers in the US. Many consider that 'educational purposes' and brand loyalty justify targeting three-year-olds. According to the president of youth-marketing agency The Wonder Group: 'When we do research, the parents want the child to know about the product.'

# Outsource your boss

Is your US CEO costing too much?  
Replace him with a cheaper Asian model

By **KEVIN DANAHER** and **JASON MARK**

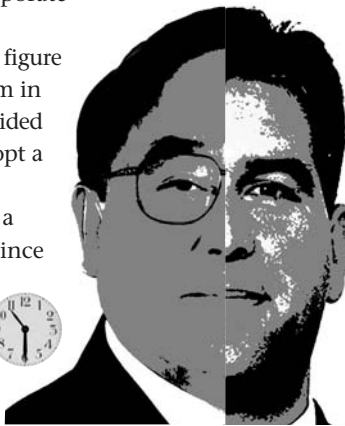
As veteran corporate accountability activists, we both have spent years challenging big business to be more responsive to the needs of workers, communities, and the environment. We have picketed outside corporate headquarters, organised sit-ins, sponsored shareholder resolutions and bird-dogged company executives. When it comes to pressuring Corporate America, we've done it as much as anyone.

But the protesting thing is getting old. We figure it's time to give up our placards and trade them in for some PowerPoint presentations. We've decided to drop our commitment to advocacy and adopt a more lucrative career – consulting.

With long histories as gadflies, we bring a unique perspective to business consulting. Since we've never been inside the box, we think outside the box as a matter of course. Our unique point of view can provide shareholders and management with solutions that will dramatically cut costs and raise revenues.

In this era of ruthless competition, we deliver ideas that will boost a company's earnings and productivity. We can show you how, by firing a single individual, you can save millions of dollars. We show you how to outsource your CEO.

In recent years, hundreds of companies have generated significant savings by sending high-skilled, well-paid positions to countries such as Singapore, India and the Czech Republic. The economics are clear: if a job can be done equally well somewhere else for less money, then it should be sent abroad. Our consulting firm takes this concept to the next logical step by outsourcing all the way to the top of the corporate ladder.



Why not? After all, equally skilled and experienced chief executives in Europe and Asia earn a fraction of what our executives take home. The average chief of a major US company receives \$10.83 million in compensation per year. The typical CEO in Europe receives about \$2.7 million. Japanese CEOs are a downright bargain: your company can expect to pay as little as \$300,000 to \$500,000 per year for an executive based there, with year-end bonuses averaging just 10 per cent. Even if you exclude the value of stock options and bonuses – which account for the bulk of American CEO pay – CEOs in the US on average receive twice as much as executives in other industrialised nations.

The prospective savings to your company's shareholders are huge. You get the same quality of corporate performance, but at a much more reasonable price. Remember Michael Eisner, hello Gunter Thielen and Masayoshi Idei.

We understand that your company may be concerned that off-shoring the CEO could impact performance. That's why we have a 24-hour plan. For the same salary you pay one CEO in the US, you can get a CEO in Europe and Asia. By having an executive on each side of the globe, you get uninterrupted service – corporate performance around the clock. Instead of putting your front office in Bangalore, you put your front office in London and Tokyo.

The benefits to your company go beyond cost savings alone. When you outsource the boss, you get rid of the person that hourly workers and management employees alike love to hate. Just think how it will boost worker morale to see the CEO booted out of the door. The resulting increases in worker productivity will pleasantly surprise you.

What's good for the goose is good for the gander. If it makes sense to increase profits by outsourcing skilled labour, let's save big money by outsourcing the most uncompetitive worker in the corporate hierarchy – the CEO.

*Jason Mark and Kevin Danaher are the authors of Insurrection: Citizen Challenges to Corporate Power. This article first appeared on [www.alternet.org](http://www.alternet.org).*

## GM Watch

### MICHAEL MEACHER SLAMS GOVERNMENT'S PRO-GM BIAS

'A recent study found that of the five scientific committees advising ministers on food safety, 28 of the 70 committee members investigated had links with the biotechnology industry, and at least 13 were linked to one of the Big Three – Monsanto, Zeneca or Novartis. Nor is this an accident,' wrote former UK Environment Minister Michael Meacher in *The Times*. 'The civil servants who select

for these bodies tend to look for a preponderant part of the membership, and particularly the chairman, to be "sound", safely relied on not to cause embarrassment to the government or industry if difficulties arise.'

### US TAKES EU TO WTO COURT OVER GM BAN

The US is seeking \$1.8 billion compensation from Europe over its ban on growing GM foods. The US is seeking the figure as compensation

for claimed loss of exports over the past six years. The affair has worldwide significance because if the US can force the EU into submission, then no country will be able to keep GM out without facing trade sanctions. Several countries have introduced rules banning imports of individual GMs, either for growing or in food. These countries – Austria, France, Luxembourg, Germany, Italy and Greece – are all cited by the US in the case presented to the WTO.



For more on these and all o



## United States world's least generous donor

Despite having the world's largest economy, the US gives only 0.12 per cent of its national income to overseas aid. Europe provides twice as much. Furthermore, rather than being motivated by humanitarian impulses, claims *The Guardian*, most US aid programmes are used to break open new markets for US corporations.

## Millions at risk from antibiotic laced eggs

Three million eggs eaten every day could contain residues of a dangerous drug, according to government figures seen by the Soil Association. The drug, lasalocid, is an antibiotic that can legally be used in the ready-made feed of chickens, turkeys, pheasants and quail sold for meat. However, it is not licensed for use for chickens that lay eggs.

'Too hard to crack? The problem of drug residues in eggs' by Richard Young and Collin Nunan is available from the Soil Association Mail Order Department on 0117 929 0661, or from [www.soilassociation.org/antibiotics](http://www.soilassociation.org/antibiotics)

Other GM issues, visit: [www.gmwatch.org](http://www.gmwatch.org)

## AMERICAN COURT REJECTS MONSANTO DAMAGES CASE

An appeals court in St Louis, Missouri has thrown out the \$780,000 in damages a farmer from the state was ordered to pay Monsanto in a seed-patent dispute. The judge said the biotechnology giant's formula for calculating such damages was 'unenforceable' under current Missouri law.

# The rough guide to economic nonsense

By Andrew Simms

Why does the price of cheese matter more than the cost of climate change?



Remember those people who think the world is run by giant lizards? How we laughed. But what if the truth was much darker? What if an underground movement of organised dishwasher tablets, turkey steaks and regional cheeses staged a quiet coup over how this country is run, what would it mean? In

February 2004 something just like that actually happened. How? Because someone decided that these things must be included in how we measure inflation.

For at least the last three decades, fear of inflation has haunted Western governments. 'An anti-inflationary viewpoint has become something like an obsession,' point out economists Lester Thurow and Robert Heilbroner. It matters to you and me because of a disturbingly simple economic assumption that you can either have inflation or unemployment. The argument runs that if too many people are in work, it reduces the competition for jobs and hence the ability of employers to keep wages down, and inflation is bound to go up. People in power generally prefer unemployment because they think it protects the wealthy and keeps the masses on their toes. Paul Ormerod, author of *Butterfly Economics*, writes, 'A great deal of sophisticated mathematical, statistical work is done within the cramped confines of conventional economics to try to establish this result – without much success.'

More recently, many have looked back over the last century and come to the conclusion that the opposite – deflation and depression – are both more normal and more threatening conditions for a market economy. But, the closer you get to the subject, inflation itself becomes a chimera, a product more of imagination than rational science. It becomes harder and harder to ever really know what the inflation rate is, let alone how much of it is a good or a bad thing.

Inflation is conjured up by measuring the change in price of a fairly random basket of goods. This creates the Consumer Prices Index. Each year the Government's Office for National Statistics chooses which things

should be included.

In February, out went frozen turkey, mini disc players, cheese slices, PC printers, and children's fleece jackets. In came the collaborators mentioned above, along with manicures, kitchen roll, fishing rods and

men's sports sweatshirts (as well as acoustic guitars and fabric conditioner). Some of our biggest household costs, such as mortgage interest payments got left out.

It sounds bizarre and, although each change is explained, it is. It means, for example, that figures are not truly comparable over time. It also cannot take account of changes in the quality and performance of goods that profoundly affect our quality of life. Computers are the classic case. They always seem to cost the same in newspaper adverts, but every 18 months or so they double in power and do more things.

Another is the car. The superficial cost of motoring has gone down considerably over the last few decades and vehicle reliability has improved. But the real price of cars in terms of time lost stuck in traffic congestion, pollution and global warming has gone up hugely.

Consumption patterns also vary according to region, ethnicity, class and also family by family. Although there may be a headline inflation rate, it might not exist in real life. The idea of inflation also fits into other tidy economic theories about how individuals behave, making rational personal choices.

Reality, again, is very different. Consumers are volatile and affected as much by fashion as price. It would be better, given the challenges the planet faces, to stop worrying about whether frozen turkey or turkey steaks should go into the basket. Instead, we could worry about our natural resources accounts and start managing the economy to stop the real inflationary consequences of our lifestyles, namely the greenhouse gases going into the atmosphere. That's the sort of overheated economy that needs tackling.



**'What if an underground movement of organised dishwasher tablets, turkey steaks and regional cheeses staged a quiet coup over how this country is run?'**

Andrew Simms is policy director for the New Economics Foundation

# Nanowatch

By Jim Thomas



Who will prove to be the Monsanto of nanotech?

'Nanotechnology is not, and never will be, an industry. It is a technology and no more an industry than physics or chemistry,' claims Tim E Harper, head of the European Nanobusiness Association. The news that chemistry is not an industry may surprise the victims of Bhopal trying to sue that industry, so too the news that there is no Nanotech industry has to be one of the more audacious attempts at a PR smokescreen. Google certainly thinks it exists – around 11,000 search results quote investors, press, companies and lawyers commenting on the nanotech industry. Really, the question is not whether there is a nano industry, but who is in it and what it's going to look like.

The Who's Who of the nano industry increasingly looks like somebody has cut and pasted the Fortune 500 list and then added some. Topping the list of companies with the most patents on nanotech are familiar electronics names such as IBM, NEC, Xerox, Intel, Hitachi, Hewlett Packard and Motorola.

Kodak, L'Oreal, Dow, Exxon, BASF and Du Pont are also right up there, while food companies such as Kraft, Unilever and Nestlé are firmly in on the act along with

pharmaceutical names such as Johnson and Johnson, Pharmacia and Merck. In fact, the breadth of areas represented by nanotechnology patenting is a clue to both its central importance and the future shape of the industry. As Michael Rocco, head of the US National Nanotechnology Initiative, recently emphasised, 'If a company does not enter nanotechnology now, in five years it will be too late – it will be out of business.'

One of the most common questions asked by civil society is about who will prove to be the 'Monsanto' or the 'Microsoft' of nanotechnology – which greedy shark will come to dominate the field? The answer to that also lies in the nano patents currently amassing in corporate war chests. The number of nanotech patents filed has soared in the last few years to more than 5,500 in 2003. Nano-patents, which can grant their holder a monopoly over very fundamental atomic structures, are useful in more than one industrial area. Carbon nanotubes, for example, regarded as the so-called miracle molecules of nanotech, are potentially important in pharmaceuticals, materials, computing, electronics, aerospace, energy and textiles just for starters. A company with key patents on nanotubes will find itself as much more than just an 'electronics' or 'materials' company, but with significant

power over all these other sectors too. In turn, such wide monopolies will bring about profound changes in industry structures. In the late 1980s the ability to patent a gene applicable in both agriculture and pharmaceuticals gave rise to a new class of 'life sciences' corporations such as Monsanto and Novartis. Tomorrow, broad patents on nanostructures will see the birth of 'matter moguls' scooping up control in several sectors at once.

One obvious contender for mightiest matter mogul is IBM. The company owns over 2,000 nanopatents, including a monopoly on the atomic force microscopes necessary to see the nanoworld and important claims on nanotubes. Similarly emerging is NEC, which holds over 600 nanopatents, including what the company claims are two essential patents on carbon nanotubes. Alternatively, a third option might be the latest darling of the nanotech world, a small company from California called Nanosys, which holds over 200 patents covering nanosensors, nanotubes

and nanostructures that emit or interact with light. Nanosys has signed technology deals with IBM, Du Pont, the US military and the CIA and recently announced that it intends to float itself as a

public company in the near future, much to the excitement of the investment community.

Corporate ownership of matter does not stop at nanotubes. Patents have been assigned to natural compounds, such as a nanoscale version of red ginseng owned by Pacific Corporation of South Korea, as well as nanoparticles of ancient Chinese medicines. There is even a precedent for patenting elements of the periodic table with the patenting of americium and curium by Glenn Seaborg half a century ago. Meanwhile, the Biotechnology Industry Organisation of America (BIO) has stated that as far as it is concerned existing elements such as neon can be patented and owned if purified in some useful way. For over a decade, civil society groups and people's movements have protested against corporate ownership of genes, demanding 'no patents on life'. That rallying cry is now so last century. Thanks to nanotech, corporate ownership has stretched its grasping fingers to the smallest parts of matter, living and non-living. Time to amend those banners: No Patents on Nature!

Jim Thomas is the European programme manager of the technology watchdog the Action Group on Erosion, Technology and Concentration ([www.etcgroup.org](http://www.etcgroup.org))

## Eco-mafia on the rise

Environmental crime is thriving in Italy, according to a new report by that country's most prominent environmental organisation.

According to Legambiente's report, a network of criminal gangs are profiting from illegal construction and illegal disposal of hazardous waste. The organisation says the eco-mafia's profits rose 14 per cent last year, to nearly \$23 billion. Common practices include removing hazardous waste from industrial sites at cheap prices, and then burying it in national parks or selling it on to unsuspecting farmers as fertiliser.



## Children damaged by pesticide exposure

Children exposed to high levels of pesticides suffer from poor memory and impaired analytical and motor skills, according to a new Greenpeace report. The study compared children from villages in the cotton-cultivating northern states of India with a control group of children not exposed to pesticides. The control group outperformed the children exposed to pesticides by 80 per cent on a series of tests.



## UK considers its options for nuclear waste dumps

'The pursuit of "the best" in the long-term management of radioactive waste [is] an illusory concept,' admits a report to a UK government commission. The commission, set up to study the country's ever growing problem of what to do with its nuclear waste, considers that the best it can do is to look for 'the identification of the acceptable'. The UK currently has almost 500,000 tonnes of nuclear waste. Some of the hopefully unacceptable options considered include firing it towards the sun and burying it below the ocean.

# Jim Baker moves into the White House

Ex Bush senior Secretary of State working to steal Iraqi profits for the US

By GREG PALAST

In 1990 Saddam Hussein invaded Kuwait with US permission. US permission? That's right. On July 25, 1990, the dashing dictator met in Baghdad with US Ambassador April Glaspie. When Saddam asked Glaspie if the US would object to an attack on Kuwait over the small emirate's theft of Iraqi oil, America's Ambassador told him, 'We have no opinion... Secretary [of State James] Baker has directed me to emphasise the instruction... that Kuwait is not associated with America.' Saddam taped her.

Glaspie, in 1991 Congressional testimony, did not deny the authenticity of the recording which diplomats worldwide took as a Bush Senior's OK to an Iraqi invasion.

So where is Secretary Baker today? On the lam, hiding in deserved shame? Doing penance by nursing the victims of Gulf War Syndrome? No, he is a successful lawyer, founder of Baker Botts of Houston, Riyadh, Kazakhstan. Among his glinting client roster are Exxon-Mobil oil and the defence minister of Saudi Arabia. Baker's firm is protecting the Saudi royal from a lawsuit by the families of the victims of September 11 over evidence suggesting that Saudi money ended up in the pockets of the terrorists.

And Baker has just opened a new office... at 1600 Pennsylvania Avenue. This is a White House first: the first time a lobbyist for the oil industry will have a desk right next to the President's. Baker's job – to 'restructure' Iraq's debt – how lucky for his clients in Saudi Arabia. The Kingdom claims \$30.7 billion due from Iraq. Apparently this includes their \$7 billion send to Saddam to fund his bomb.

How, you might wonder, can Baker serve the Saudis, Exxon and our president at the same time? To get around the wee issue of conflicts galore, the White House has crafted a neat little subterfuge. The official press release says the President has not appointed Baker. Rather, Bush is 'responding to a request from the Iraqi Governing Council'. That is, Bush is acting on the authority of the puppet government he imposed on Iraqis at gunpoint.

Why is our President so concerned with the wishes of Baker's clientele? What does Bush owe Baker?

It was Baker, as consigliere to the Bush family, who came up with the strategy of



manoeuvring the 2000 Florida vote count into a Supreme Court packed with politicians.

As Senior Counsel to Carlyle, the arms-dealing investment group, Baker arranged for the firm to hire both Bush Senior after he was booted from the White House and President Bush Junior while his daddy was still in office.

We know why Jim Baker is in the White House. But what are our troops doing in harm's way in Iraq? Saddam is already in the slammer and Iraq 'liberated' nearly a year. The answer came to me in a confidential document, one hundred pages from the State Department's secret 'Iraq Strategy'. It's all about the 'post-conflict' economy of Iraq written well before America was told we would have a conflict there.

There's nothing in the 'Strategy' about democracy or voting. But there's plenty of detail about creating a free-market Disneyland in Mesopotamia, with 'all' state assets – and that's just about everything in that nation – to be sold off to corporate powers. The Bush team secret programme ordered 'asset sales, concessions, leases and management contracts, especially those in the oil and supporting industries.'

The 'Strategy' lays out a detailed 270-day schedule for the asset grab. And that's why our troops are there: to prevent or forestall elections. Because no democratically elected government of Iraq could ever sell off its oil. Democracy would have to wait, at the point of a gun, for the 'assets sales, concessions, leases' to Bush's corporate buck-buddies.

There you have it. The secret 'Strategy' tells us that, if Bush didn't go into Iraq for the oil, he sure as hell ain't leaving without it.

Excerpted from expanded election edition of Greg Palast's bestseller *The Best Democracy Money Can Buy*.



## NUCLEAR POWER EXPANSION TO FUEL ENERGY DEMANDS

China plans to increase its nuclear power capacity by 400 per cent to more than 32,000 megawatts by building on average two plants a year over the next 16 years, compared with eight nuclear reactors over the last 20 years.

## GAS LEAK SHOWS DANGERS OF THREE GORGES DAM

The gas leak that caused an explosion in April at a chemical plant in Chongqing, killing nine people and forcing 150,000 to flee the area, highlighted the dangerous conditions that prevail in many outmoded factories in the Three Gorges Dam area. It was the third leak of deadly chlorine gas at the Tianyuan Chemical Industry Plant since last year, according to the Chinese news agency, Xinhua.



## BEIJING SKIES TURNED GREY BY INDUSTRIAL POLLUTION

Air pollution has meant that there were only six days in April with clear skies over Beijing. Already the number of days with gray overcast weather so far this year has exceeded the total number in 2003.



**In our September 2003 issue, we published a feature on the Bushmen of the Kalahari and voiced our concerns about the plight of these people being removed from their native lands. Our front cover showed a diamond dripping with blood, under the strapline 'Dying for De Beers'. We did not intend to suggest that De Beers was involved in genocide, and we are happy to clarify the position.**

**The September feature made a number of allegations about the De Beers Group which they do not accept. For this reason, we invited De Beers to publish in this issue their perspective on the facts about diamond mining in Botswana and its effect on the Bushmen communities. They accepted and an article by Nicky Oppenheimer appears below.**

# The Ecologist and De Beers

by NICKY OPPENHEIMER

**D**e Beers recognises and applauds the significant contribution that *The Ecologist* continues to make in focusing attention on the unfair treatment of minority peoples, as well as highlighting the damage done to the planet by inappropriate or greedy exploitation of the Earth's resources. We welcome the existence of *The Ecologist's* independent conscience on these matters.

However, I believe that an objective and honest approach when addressing environmental and social injustice is essential. Simplistic, inaccurate or untruthful representation of what can often be complex humanitarian concerns undermines and impedes the confidence so necessary in developing real understanding of and a multilateral approach to these important issues. Therefore, I am pleased to have this opportunity to respond to the feature that appeared in the September 2003 issue of *The Ecologist* and to address some of the most serious inaccuracies and false allegations made within the three articles entitled 'The bushmen of the Kalahari', 'Why are the bushmen being evicted?' and 'Masters of illusion'. De Beers vigorously denies the many inaccuracies contained within the articles and, in particular, the grossly misleading front cover headlined 'Dying for De Beers'.

First, and most importantly, nobody is 'Dying for De Beers'. The suggestion that lives are being lost in order to benefit De Beers or that De Beers is in any way complicit, either directly or indirectly, in a policy of genocide or violence is categorically untrue. It is an accusation

which De Beers finds abhorrent and deeply offensive. Indeed, the articles do not even attempt to justify the cover's outrageous allegation. It is made clear in the first paragraph of Janine Roberts' article, under the headline 'Masters of illusion', that what is said to be dying is the oldest culture on the planet. Even if this were true, it is a very different thing from the suggestion of actual loss of life, implied by the front cover. De Beers, in all its commercial activities and in its social development programmes, has as its paramount concern the health and wellbeing of the people and communities in which it operates. If there is any basis for the suggestion that the culture of the Bushmen is dying then this is of great concern to De Beers, but it is not in any way caused by any activity of De Beers.

The articles suggest that De Beers dishonestly stated that the Gope 'mine' in Botswana was uneconomic in order to deprive the local Bushmen of profits from the mine that they may rightly have considered theirs. Again, this is wholly untrue. There is no mine at Gope. This is a clear example of the factual untruths contained in the articles. When prospecting activities began in the area in 1981 to investigate the possibility of future mining, there was no-one living at Gope. In fact, geologists from a Canadian exploration company, and not the Bushmen community, first bestowed the name 'Gope' on the area. 'Gope' is a word in Setswana (which is not a Bushman language) meaning 'nowhere'. A small number of Bushmen were drawn to the area by water which became available as a result of the evaluation activities at the site. Personnel at Gope allowed those

Bushmen that had moved into the area to draw water from the site's borehole until the site was closed and completely dismantled in 2003. Furthermore, potable water, shipped in by the company, was also shared with the Bushmen. The reason that there is no mine at Gope is, quite simply, because those prospecting activities revealed that the site was not viable. There is nothing dishonest or underhand about De Beers' explanation that the site is uneconomic. None of the prospects in the area currently show any sign of generating a viable diamond deposit and at present there is no further activity taking place.

There is no connection whatsoever between diamond exploration or mining and the policy of the Government of Botswana in relation to the Bushmen. This fact has been confirmed by many different sources, including British and European Parliamentarians who have visited Botswana to investigate the claim. The President of Botswana, Festus Mogae, has also said that the London based NGO Survival International is '...alleging, quite wrongly, a connection between diamond exploration in the CKGR [Central Kalahari Game Reserve] and the relocation of Bushmen'. He goes on to say: 'the programme of assisted relocation of Bushmen from the CKGR... is in no way related to any plan, real or fictional, to commence diamond mining in the CKGR'.

Neither De Beers' prospecting nor any mining activity would ever require the arbitrary resettlement or removal of people or any community. To put this debate further in perspective, the Central Kalahari Game Reserve covers an area of 52,000

square kilometres – larger than Denmark or Switzerland. The diamond mine at Jwaneng, 170 km west of Gaborone (and not in the CKGR) and one of the biggest in Africa, is just 52 hectares in area – the size of an average farm in Botswana – and equivalent to 0.001% of the area of the CKGR. So, even if a viable diamond deposit were ever found and mined successfully, there would be absolutely no need arbitrarily to remove or resettle any communities – let alone communities as small and nomadic as the Bushmen.

To satisfy both its own and others concerns, De Beers has also sought, and received, assurance from the Government of Botswana that its relocation policy is not linked to any past, present or potential mining activity, of any kind, in the area. The Government has given further assurance that the resettlement programme is designed to give the Bushmen access to health and educational services available to all other Botswana people. Whilst we acknowledge that the policy is controversial and may not be welcomed by all parties, this is the decision of the democratically elected Government of Botswana.

As far as I am aware, Survival International is the only non-governmental organisation (known as an 'NGO') directly involved in the issue that refuses to accept that diamonds are not behind the relocation of the Bushmen. Local NGOs, whose views and activities Stephen Corry, the London based Director of Survival International, has described as 'irrelevant', have been attempting to pursue constructive negotiations with the Government of Botswana on behalf of the Bushman communities for many years. Although they may share the same objectives as Survival International, their strategy, assumptions and conclusions differ greatly.

In 2002, the Botswana Centre for Human Rights, Ditshwanelo, said it could 'find no evidence' that diamonds were behind the CKGR evictions.

Ditshwanelo is not alone in its judgement on this matter. Other local NGOs, members of the CKGR Negotiating Team, which includes The First People of

the Kalahari, the Working Group for Indigenous Minorities in Southern Africa and the Kuru Development Trust, supported Ditshwanelo when it stated in a press release of 7 November 2002 that it was 'not convinced that diamonds are the reason for the relocation of the Basarwa'.

It went on to state:

'Since the confrontational intervention of Survival International in 2001, the negotiation process between the CKGR Negotiating Team and the Government of Botswana has effectively stalled'.

Furthermore, John Simpson, the renowned international journalist who has investigated and reported on the situation affecting the Bushmen, was



quoted in the *Evening Standard* on 22 November 2002:

'Personally, although I have the greatest respect for Survival International, I tend to believe De Beers' increasingly anxious denials. The diamonds could perfectly well be mined in the Central Kalahari with the Bushmen still in place... and since the Central Kalahari is about the size of Wales, there would have been no need to shift a few thousand people who, anyway, are used to moving around'.

More recently, members of the Botswana All Party Parliamentary Group, led by Liberal Democrat MP Nigel Jones, paid an independent visit to the Bushmen communities. They concluded that there was no connection between diamond prospecting and the relocation policy. The irony of Survival International's campaign is that, were there to be a diamond mine in the CKGR at any time in the future, far from threatening or displacing any

vulnerable individuals or groups, it would in fact be a valuable source of revenue and employment to the benefit of the entire community.

Investment in sustainable social and environmental development has always been, and will continue to be, central to De Beers' commercial activities. This ethos was best articulated by my grandfather, Sir Ernest Oppenheimer, chairman of De Beers, when he stated as long ago as 1954: 'The aims of this group have been, and remain, to earn profits, but to earn them in such a way as to make a real and permanent contribution to the well-being of the people and to the development of southern Africa'.

In the space available here we have concentrated solely on comments by *The Ecologist* about the Bushmen, and we have not dealt with the numerous other inaccuracies about De Beers in the September issue.

As regards the environment, our concern extends beyond our own operations, as demonstrated, for example, by our participation in the World Parks Congress in 2003 – unique among South African mining companies. There we were able to illustrate our relationship with South African National Parks and the Peace Parks Foundation, and the development of the Vhemba/Dongola National Park in which De Beers played a key role. In addition, all of De Beers' major mines are ISO14001 compliant and four of our operations received 'Excellence' in the Mining Environment Management awards in 2003.

De Beers' operations in Botswana are a good example of Sir Ernest's philosophy at work. The partnership between the Government of Botswana and De Beers in diamond mining has been responsible for the development of the country's physical and social infrastructure that has turned Botswana into one of Africa's few success stories. I am proud that De Beers has an established and recognised record in social investment and sustainable development, both in Africa and elsewhere. Untrue and ill-considered comments unfairly undermine this proud record.

Nicky Oppenheimer is chairman of the De Beers Group

by ERIC S MARGOLIS

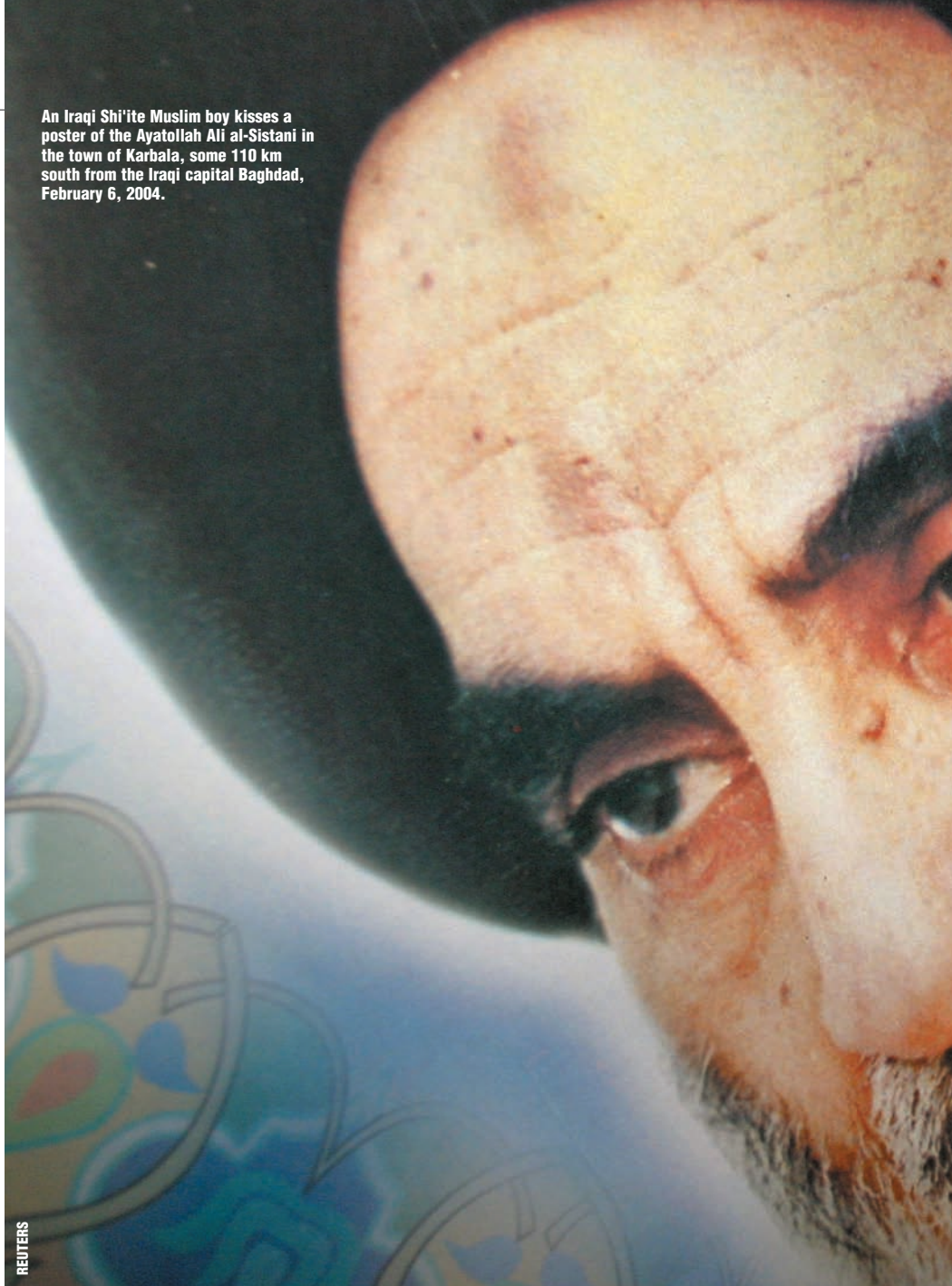
In a remarkable example of historical irony, a scowling, black-turbaned Shia Ayatollah has emerged from obscurity for the second time in a quarter of a century to vex and confound America's plans for the mid-east.

Twenty-four years ago, the US encouraged Iraq's ruler, Saddam Hussein, to invade Iran and overthrow the new revolutionary Islamic government of Grand Ayatollah Ruhollah Khomeini. The US and Britain secretly aided Iraq with arms, finance, chemical and biological weapons, intelligence, military advisors, and diplomatic support in its bloody war against Iran, which lasted eight years and caused one million casualties. But when Saddam Hussein grew too big for his boots, his former US and British patrons brought him down. Now, over two decades later, another powerful Muslim cleric, Grand Ayatollah Ali el-Sistani, is challenging America's mid-eastern Raj, and Washington has reacted to this perfectly predictable event with deep consternation and confusion.

The Bush administration was assured by the neoconservatives, who engineered the Iraq War, that a co-operative, turban-free regime of pro-US Iraqis would quickly be installed in Baghdad, led by convicted swindler Ahmad Chalabi. However, if Chalabi and his Iraqi National Congress cronies failed, so much the better, went neocon thinking. Their primary objective was to destroy Iraq, not to rebuild it; for Iraq, once the Arab world's best educated, most industrialised nation, had to be expunged as a potential military and strategic challenge to Israel. So now the US has its own West Bank in Iraq.

In the 1920s, Zionist leader Vladimir Jabotinsky called for Israel to rule 'from the Nile to the Euphrates', as the famous slogan went, by smashing the fragile mosaic of its Arab neighbours into ethnic fragments, then seizing the oil riches of Arabia. So Israel's far Right and its American neocon fellow travellers are perfectly happy to see Iraq divided *de facto* into its three component ethnic parts: Shia, Sunni Arab, and Kurd. Better a feeble Iraq broken into weak cantons –

An Iraqi Shi'ite Muslim boy kisses a poster of the Ayatollah Ali al-Sistani in the town of Karbala, some 110 km south from the Iraqi capital Baghdad, February 6, 2004.



REUTERS

# Another

## Once again a Shia Ayatolla

like post-1975 Lebanon – than a nation united, even under a US-run regime.

But while Likudniks rejoice at the destruction of their ancient enemy, the United States faces the conundrum of how to forge a seemingly democratic government in Iraq in the face of the

nation's impossible ethnic-religious calculus. Installing a brutal general to run Iraq would be far more convenient. But having found no weapons of mass destruction, the embarrassed Bush administration is now touting creation of democracy as its *casus belli* and so



# Ayatollah

## is spoiling America's plans

must go through the motions of democratisation.

Enter Grand Ayatollah Sistani. After his rival Ayatollah Hakim al-Bakr was blown to bits by a huge bomb, Sistani emerged as the leading voice of Iraq's Shia. He has so far played a cautious

game, urging elections but rejecting calls by his followers for a more overtly anti-American line or armed resistance. Any fair election will give power to Iraq's Shia, who are 60 per cent of the population. If this does not happen, there will be a possible recourse to arms.

Washington has now inherited the identical problem faced by imperial Britain when, in order to control the region's recently discovered oil, it stitched together three disparate Ottoman *vilyats* to create the Frankenstein state of Iraq.

Britain, following its usual colonial practice of putting compliant ethnic or religious minorities in power, filled the army, police, and government with Sunni Arabs, who made up only 20 per cent of the population. Sunnis ruled Iraq from the 1920s until the US overthrew the regime of Saddam Hussein.

Shia were repressed, often savagely, and economically deprived. Iraq's ever-rebellious Kurds were kept under control by frequent punitive expeditions and regular bombing of insurgents by the RAF from its main base at Habibanyah. Iraq's post-1958 regimes followed this practice. Today, US occupation forces in Iraq are also conducting air pacification, this time against rebellious Sunni Arabs.

Interestingly, Britain's arch-imperialist, Winston Churchill, authorised the RAF to drop poison gas on 'primitive tribesmen', meaning Iraq's Kurds and Afghanistan's Pashtun, a fact conveniently forgotten by Tony Blair and George W Bush when they excoriated Saddam Hussein for 'gassing his own people'.

Having been excluded from political power, Iraq's well-organised Shia are understandably clamouring for empowerment. Most, though not all, appear to desire what they call Islamic democracy: an Iranian-style combination of elective and consultative assemblies with strong checks and balances, overseen by a supreme religious leader – Grand Ayatollah Sistani.

For Washington, which seeks to run Iraq through a small group of handpicked satraps, an Islamic government is anathema. But the Bush administration is very eager to proclaim some sort of 'democratic' Iraqi government after a 'handover of power' next June – in time for the US autumn elections.

US proconsul Paul Bremer's attempt to cobble together a Rube Goldberg system of political caucuses, which are designed to check Shia power, assure Sunni, Kurd, and Turkoman minority



## Polar bears don't live in houses, so why have chemicals from houses been found in their bodies?

Polar bears live in the Arctic, about as far away from your average semi-detached as you can get. So why do chemicals more commonly found in carpets, curtains, cleaning products and even games consoles contaminate their bodies?

Well, it's pretty straightforward. These chemicals are persistent and bio-accumulative. Put simply, that means they don't easily break down, and worse still, they build up in living things via the food chain. If they're turning up in polar bears thousands of miles away, it's no surprise that humans are being contaminated as well.

**What you can do** - Reduce your exposure to these chemicals in your home. For hints and tips of what to avoid and what to use, visit our website.

**What we are doing** - The Co-operative Bank is the only high street bank with a published Ethical Policy. We refuse to invest in companies that manufacture persistent and bio-accumulative chemicals, we are phasing them out of our branch fixtures and fittings and we're also campaigning for positive change with WWF-UK.

**What we can do together** - The Government is currently consulting on its EU chemical strategy. If, like us, you believe certain man-made chemicals should be phased out and replaced with safer alternatives, please spend a few minutes now to help safeguard our future at [www.saferchemicals.co.uk](http://www.saferchemicals.co.uk)

rights, and keep the regime under US control, has failed. Ayatollah Sistani has rejected this clumsy, unworkable plan and calls for direct elections as soon as possible. UN advisors, brought in by the US in an effort to paper over differences with the Shia, have backed Sistani's call for direct elections. Ironically, after proclaiming the dawn of democracy in Iraq, the US is now trying to block direct elections, thwart any form of Islamic government, and deny office to Iraqis opposed to US occupation.

At the same time, Iraq's Kurds, who now have two virtually independent mini-states in the north, are determined to create an independent nation in northern Iraq that controls the rich Kirkuk oilfields. They are dead set against losing their newfound political and economic autonomy and refuse to place themselves under either Shia or Sunni Arab rule. And having waged a bloody, two-decade struggle against their own independence-seeking Kurds, the increasingly angry Turks are not about to countenance the emergence of a Kurdish state right across the border that controls major oil fields that once belonged to the Ottoman Empire. But Kurds are America's closest allies in Iraq, and their voices ring loud in Washington. While Kurds may agree to pay lip service to some powerless national body in Baghdad, they are unlikely to cede political rights or control of customs and oil revenues, or to cease driving ethnic Arabs from the northern regions. They may also fall to tribal feuding at any time, as so often in their past.

This leaves the Sunni Arabs, who are waging a robust insurgency against occupation forces. A new cadre of Sunni Arab nationalist leaders is emerging in the anti-US underground, in tandem with small but lethal numbers of militant Islamic jihadists. They, not the old, discredited Ba'ath Party, will challenge US rule of Iraq. If the insurgency continues – and it shows no signs of abating – Iraq could become a second Afghanistan, an incubator for a new generation of anti-Western militants from across the Muslim world.

A resolution to Iraq's ethnic problems defies easy answers. A Swiss-style system, with a weak central government and powerful cantons, is probably the best solution. But long-term, Iraq's dissolution into three nations may be inevitable.

Meanwhile, the Bush administration is faced with a basic contradiction between its claims of forging a truly democratic Iraq and US strategic ambitions in the region. A free vote in

**The United States has not enough men, treasure, or intellectual energy to struggle through the morass of Mesopotamian politics and ethnic strife.**

Iraq will produce a Shia-dominated government sympathetic to neighbouring Iran. And the ultimate test of any genuine democracy in Iraq will be its ability to order US forces out of Iraq, something the Bush administration will not allow.

The Pentagon plans three major military bases in Iraq from which to control the oil-producing Mid-east and to protect the new 'Imperial Lifeline', the pipelines bringing crude westward from the Caspian Basin. Britain used Iraq for the same purpose. In all but name, the US has become heir to the old British Empire.

Washington wants a compliant regime of Iraqi yes-men – what Algerians used to call 'beni oui-ouis' – running internal affairs under the stern gaze of American garrison troops, who will intervene, like the British imperialists, whenever the locals get out of hand or Iraqi politicians grow too independent-minded.

But Ayatollah Sistani and the Shia will not accept a Vichy Iraqi government that excludes them from running Iraq's foreign and domestic affairs. However, that is precisely what Washington plans in June when it 'hands over power to Iraqis' – most likely by expanding the existing US-appointed Governing Council of Iraqi collaborators or by staging a rigged national tribal assembly, as was done in Afghanistan. Unfortunately for the Bush administration, it has not yet located in

Iraq a glib figurehead like former CIA 'asset' in Afghanistan, Hamid Karzai.

So Iraq's Shia will most probably find themselves on a collision course with the US occupation. Younger Shi'ites may disregard their elders' calls for caution and, not to be outdone by their Sunni rivals, take up arms. If this happens, the current insurgency in the Sunni Triangle (actually a rectangle) will appear modest by comparison. In fact, as Shia anger and frustration surges, Iraq is increasingly resembling Lebanon during its long civil war, and there appears an inexorable slide towards both a wider insurgency and inter-ethnic strife.

What should the US do? The most sensible course: hand Iraq to the UN and pull out. This would produce intense neocon wailing about loss of credibility and giving in to terrorism. But in fact, the longer the US stays in Iraq, the more credibility it loses, and the more it stokes terrorism.

If a total pullout is not in the cards, then the best option is to co-operate with Iraq's Shia majority and show that the US can work fruitfully with an Islamic regime. Co-operation with Islamists in Baghdad opens the way to good relations with Tehran and a major lessening of anti-American feelings across the Muslim world. But of course, the neocons will do their best to thwart such détente.

The United States has not enough men, treasure, or intellectual energy to struggle through the morass of Mesopotamian politics and ethnic strife. Governments can usually only think of two or three things at a time, and the mess in Iraq should not be one of them. Otherwise, it will come to bedevil us and sap our energies, just as Iran did in the late 1970s and 1980s. Unless we learn from our errors and work to co-operate with the latest problematic mullah, Ayatollah Sistani, he could well be come the nemesis his predecessor, Imam Khomeini, did just two decades ago.

*Eric S Margolis is the author of *War at the Top of the World: The Struggle for Afghanistan and Asia* and a columnist, commentator, and war correspondent. This article first appeared in the *American Conservative* magazine.*

# It's the pits

Whether you regularly use a stick, solid or spray antiperspirant/deodorant, the chances are that it contains a cocktail of chemicals that can lead to mental decline, migraine, and breast cancer

by PAT THOMAS

Through clever marketing Lynx antiperspirant/deodorant promises much more than dry, sweet smelling pits. On the long-held advertising premise that you can sell anything to a man if you can link it to sex or sport, this product promises amazing success in both areas.

Lynx was first launched as a men's body spray in 1985 and the range has since expanded to include antiperspirant/deodorants, shower gels, hair care and skincare. The brand maintains pole position in the marketplace by reinventing itself each year with a new fragrance variant and new advertising celebrating the urban legend known as the 'Lynx effect'.

The concept of the Lynx effect – underarm dryness and a date on Saturday night – has proved very seductive, especially among younger men. This is all the more amazing considering that underneath it all Lynx is a fairly bog standard antiperspirant/deodorant. While antiperspirants don't usually contain the

laundry list of ingredients that other toiletries (such as shampoos) do, the few ingredients they do contain are worrying and include neurotoxic solvents, toxic metals and potential carcinogens.

## A GLOBAL MARKET

Lynx is produced by Lever Fabergé, the UK arm of consumer goods giant Unilever. In the UK deodorants and body sprays are now worth over £400 million a year in total sales. Lever Fabergé's share of the deodorants and body sprays market stands at a whopping 54 per cent – over three times greater than its nearest competitor. Sales of Lynx make up the greater proportion of this along with Impulse, Sure and Vaseline Intensive Care.

Today Lynx is the UK's biggest male toiletries brand, accounting for around 35 per cent of all male toiletries sold in this country. It is used by 60 per cent of all boys aged 16 or under. Indeed, half of all users are under 24 and a further quarter are aged 25 to 44. Lynx, which is known in other countries as AXE, can also claim to be the world's biggest selling men's deodorant.

## Safer alternatives

For a list of simple effective alternatives to commercial deodorants, see Pat Thomas's book *Cleaning Yourself to Death* (New Leaf, £9.99).



**Green People** – [www.greenpeople.co.uk](http://www.greenpeople.co.uk)

**Weleda** – [www.weleda.co.uk](http://www.weleda.co.uk)

**Tawas** – <http://crystal-deodorant.com>

**PitRok** – [www.pitrok.co.uk](http://www.pitrok.co.uk)

**Toms of Maine** – [www.tomsomaine.com](http://www.tomsomaine.com)

**Tisserand** – [www.tisserand.co.uk](http://www.tisserand.co.uk)

## Butane, Isobutane and Propane

### Purpose:

- Propellants

### Health effects:

- Headache
- Breathing difficulties
- Mood swings
- Nausea, vomiting, dizziness
- Symptoms of drunkenness
- High doses can cause convulsions and coma
- Symptoms of mild frostbite (numbness, prickling and itching under the arm) are also possible.
- These highly flammable volatile organic chemicals (VOCs) are popular with solvent abusers (note the warning on the can) because they produce a quick 'high' – however they can also produce quick death. VOCs also accumulate in human breast milk.
- While these particular propellants don't destroy the earth's ozone shield, they do contribute to the formation of ground level ozone, or smog, which can cause serious breathing problems.

## Aluminium Zirconium Tetrachlorohydrate GLY Aluminium chlorohydrate

### Purpose:

- Clogs pores to prevent sweat leaking through.

### Health Effects

- Skin irritation
- Mental decline. Aluminium is absorbed through the skin and there is evidence that a lifetime's use of aluminium-containing deodorants may lead to the development of Alzheimer's disease.
- Cancer. In women, a combination of underarm shaving and aluminium-containing deodorants has been linked to breast cancer. Aluminium salts are also linked to an increase in male breast cancer. This may be because they damage the DNA of breast cells and have a potential hormone disrupting effect.
- Spray formulations mean you inhale, as well as absorb these compounds. Inhaled aluminium has fairly direct access to the brain via the nasal passages and chronic occupational exposure has been associated with pre-clinical signs of Alzheimer's.

### PPG-14 Butyl Ether

**Purpose:**

- Preservative, solvent, antibacterial

**Health effects:**

- Skin irritant
- Neurotoxin

PPG-14 butyl ether is a relative of propylene glycol and potentially toxic to the kidneys and liver. In the US it is a pesticide component used in sprays to protect animals from flies, gnats and mosquitoes. It is poisonous in high concentrations and can enhance the skin penetration of other more toxic chemicals.

### Stearyl Alcohol

**Purpose:**

- Emollient, moisturiser, stabiliser

**Health effects:**

- Can cause allergies or contact dermatitis.

### BHT – Butylated Hydroxytoluene

**Purpose:**

- Antioxidant

**Health Effects:**

- Contact allergies/contact dermatitis
- Cancer suspect
- May cause reproductive defects

Once absorbed, BHT can accelerate the breakdown of vital nutrients such as vitamin D (which maintains immunity and healthy bones and teeth).

### Parfum

**Purpose:**

- To mask body odour.

**Health effects:**

- Skin irritation, allergic reaction
- Breathing difficulties (including asthma)
- Headache (including migraine)
- Dizziness, nausea
- 'Parfum' is a collective name given to hundreds of different chemicals used to produce a fragrance in cosmetics and toiletries. Many of these chemicals are persistent (ie, they don't break down in the environment and they accumulate in human tissue and breastmilk).
- Of the top 20 most common perfume ingredients, four – acetone, ethanol, ethyl acetate and methylene chloride – are classified as hazardous waste by the EPA.
- Other commonly-used chemicals in perfume include propylene glycol (see PPG-14 above); cyclohexanol, a central nervous system depressant; linalool, which can provoke depression, loss of equilibrium and respiratory disturbances; methyl ethyl ketone, toxic to liver and kidneys, irritating to eyes, nose, and throat; and formaldehyde, a known carcinogen. Spray formulations mean you – and those around you – inhale more of these toxic chemicals.

### PEG-8 Distearate

**Purpose:**

- Moisturiser, emulsifier, emollient and antioxidant. Adding PEG to a product will prevent moisture loss during storage. The lower the number the more liquid the product is.

**Health effects:**

- Cancer – Polyethylene glycol (PEG) compounds can be contaminated with various carcinogens, including ethylene oxide, 1,4-dioxane and polycyclic aromatic compounds (including benzene, benz(a)pyrene, DMBA, and 1-nitropyrene) – potential breast cancer triggers.
- Neurotoxin. PEGs can be contaminated with heavy metals such as lead, iron, cobalt, nickel, cadmium, and arsenic, which are toxic to the central nervous system.

### INGREDIENTS

**Butane, Isobutane, Propane, Cyclomethicone, Aluminium Chlorohydrate, Parfum, Distearidmonium Hectorite**



### INGREDIENTS

**Cyclomethicone, Aluminium Zirconium Tetrachlorohydrate, Glycerin, PPG-14 Butyl Ether, Stearyl Alcohol, Hydrogenated Castor Oil, Talc, PEG-8 Distearate, Parfum, BHT**



# An invisible electrosmog engulfs us, destroying the health of many who do not even know why they have fallen ill. Why is no one listening to the mass of evidence telling us we are frying our brains?

by **ARTHUR FIRSTENBERG**

**T**oday I am homeless. My money does not provide me shelter. My good health does not ensure my survival. My friends are unable to help me. I am being killed, but the law offers me no protection.

For eight years I have provided advocacy and support in North America and worldwide for people in similar circumstances. Some have epilepsy, or heart disease, or diabetes, or cancer. Some have allergies or asthma. But most, like me, are in good health. The assault we are all suffering is a radical increase in electromagnetic pollution, or electrosmog, that is engulfing the earth.

In 1982 I was in my final year of medical school, a promising career ahead of me. For several months I had been having headaches and difficulty

concentrating and remembering things.

Then, while on a surgery rotation, I suffered crippling pains in my hips, making it difficult to assist in operations.

My heart rate slowed to less than

50. One day I collapsed

and was unable to get up.

My chest hurt, and I could not get enough breath. I was sure I was having a heart attack.

During the next two weeks I lost 15 pounds. And I was a slim man to begin with.

It wasn't a heart attack, but it was still six months before I could walk up a flight of stairs without becoming short of breath. It was

three years before I was strong enough to ski again. It was seven years before I met someone who validated my own experience that being near certain electrical appliances, such as television sets and computers, made me ill, and that staying away from them kept me healthy. However, having discovered how to remain healthy, I gradually found that I was being effectively disabled by my society.

Having stumbled upon an obviously well-kept secret, I researched the world literature on bioelectromagnetics, (or the biological effects of electromagnetism), and made myself an expert. I learned that electro-cautery machines, used in every modern surgical operation to cut through tissue and to stop bleeding, expose surgeons to much higher levels of radio frequency radiation than is permitted for workers in any industry. I learned that there was a disease thoroughly described in the Russian and Eastern European medical literature called radiowave sickness, the existence of which was usually denied by western authorities. This description made me remember my 'unknown illness', the one that had derailed my medical career. Bradycardia, or a slow heart rate, was said, in these texts, to be a grave sign.

Because there are virtually no workplaces without computers any more, I have not held a job since 1990. I had resigned myself to living on Social Security

# Killing

Disability, and learned, together with other members of a support group I had found, how best to live with my disability. This mostly meant learning to avoid exposure to electromagnetic fields. But in July 1996, to my dismay, I learned that an innovation was coming to my city, which threatened to make it impossible to avoid exposure any more.

**A**t that time, cell phones were still a luxury item that only worked in some locations.

People were not accustomed to staying connected whenever they left their home, and even at home most still had a cord, not an antenna, attached to their telephone. Most were not accustomed to holding devices that emit microwave radiation next to their brain. In 1996, the telecommunications industry began a marketing campaign designed to change all that. For Christmas that year, all over the country, digital cell phones were going to be on a lot of shopping lists. And to make them more practical, tens of thousands of antennae were going to be

erected on towers, buildings, church steeples and lampposts all over the country before Christmas, and hundreds of thousands more during the next few years.

In response to this emergency, a few friends and I created the Cellular Phone Task Force, and contacted all the public officials we could think of, and the press, to warn them of the danger. But on November 14 1996, Omnipoint, New York City's first digital cellular provider, did open for business, broadcasting from thousands of antennae newly erected on the rooftops of apartment buildings. According to the health authorities, an early flu hit New York City – but not Boston, and not Philadelphia – on about 15 November. The flu was severe and ran a prolonged course, often dragging on for months instead of the usual two weeks.

At Christmas time, the Cellular Phone Task Force placed a small classified ad in a free weekly newspaper. It read: 'If you have been ill since 11/15/96 with any of the following: eye pain, insomnia, dry lips, swollen throat, pressure or pain in the chest, headaches,

122 US cities. Each of dozens of cities recorded a 10-25 per cent increase in mortality, lasting two to three months, beginning on the day in 1996 or 1997 on which that city's first digital cell phone network began commercial service. I published both the raw data and the complete analysis, with graphs. This appeared in *No Place To Hide*, an investigative journal published by my organisation and I am presently working with scientists in Europe to expand this study to other countries.

I learned that in February 1996, Congress had passed a law prohibiting local governments from denying permits for cell phone antennae because of environmental concerns – so long as they comply with Federal Communications Commission (FCC) rules. I

also learned that the FCC had just issued regulations setting public exposure limits for microwave radiation at levels at least ten thousand times higher than

levels which, according to the Environmental Protection Agency, were causing reports of illness from all over the world. Levels that are at least ten thousand times higher than the levels that had forced me to leave behind my home, my family, and my friends, and to run for my life, never to be able to return home again.

The Cellular Phone Task Force, along with over 50 other grass roots organisations and individuals around the US, became involved in a legal challenge of the FCC's absurd standards and its pre-emption of local control. This was taken all the way to the US Supreme Court. Dozens of cities, towns and public officials, including several US senators and representatives, submitted briefs urging the High Court to hear our case. But in January 2001, the Supreme Court, without comment, declined.

You will hear statements by supposed experts – always the same few, in the pay of the telecommunications industry – to the effect that cell phones/cell towers/microwave radiation have been proven safe in countless studies. It is an easy lie, one that the news

# Fields

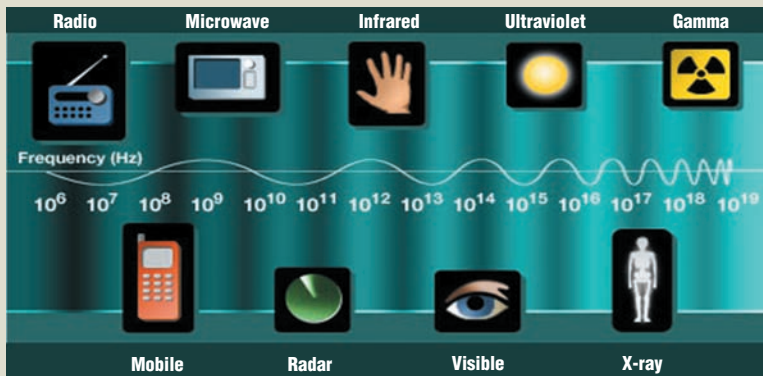
dizziness, nausea, shakiness, other aches and pains, or flu that won't go away, you may be a victim of a new microwave system blanketing the city. We need to hear from you.' And we did hear from them. Hundreds called, men, women, whites, blacks, Asians, Latinos, doctors, lawyers, teachers, stockbrokers, airline stewards, computer operators. Most had woken up suddenly in mid-November, thinking they were having a stroke or a heart attack or a nervous breakdown, and were relieved to know they were not alone and not crazy.

Later, I analysed weekly mortality statistics, which the Centres for Disease Control publish for



## What is Electromagnetic Radiation?

- Whenever electric current flows through a conductor – a power line, a toaster element, or even a star – it creates a magnetic field.
- Interaction between this magnetic field and the flowing electricity produces electromagnetic radiation (EMR).
- EMR takes the form of waves, spreading outwards from its source in concentric circles. Imagine the pattern of ripples when you drop a pebble into calm water – they decrease in strength the further they are from the energy source (in this case, the pebble). The water slows the waves down by absorbing their energy. EMR is similarly weakened as it spreads through air.
- EMR waves are characterised by their wavelength (the distance between each wave, measured in metres) and their frequency (or waves-per-second – one wave-per-second = 1 Hertz)
- EMR is composed of energy-carrying particles called photons. The shorter the wavelength, the higher the frequency and the more photons – and therefore energy – the waves contain. The whole range of EMR wavelengths is called the Electromagnetic Spectrum.



## What does EMR do?

- All matter is made of vibrating molecules. When the molecules of a particular substance oscillate (vibrate) at the same frequency as an EM wave, they are said to resonate with the wave. This causes the energy in the wave to be absorbed by the molecules, instead of passing through them.
- When a soprano shatters a crystal glass with a high C, the sound wave's particular frequency has caused the molecules in the glass to resonate so violently that their chemical bonds are ripped apart.
- Radio tuners act in a similar way, but radio's low frequencies and long wavelengths – anywhere between a metre and a kilometre – mean they contain little energy. Information can be carried on the wave, but there aren't enough photons to cause any damage to the tuner.
- Our retinas are 'tuned' into the visible light section of the EM spectrum; everything we see, we see because our eyes interpret the varying EM wavelengths within this section as different colours.
- Microwaves, on the other hand, have shorter wavelengths. Microwaves at a frequency of 2.5GHz cause water molecules to resonate, converting the waves' energy into heat. This is how microwave ovens cook food.
- In theory, EMR can act on bodily tissue in the same way.
- A 1999 study showed that mobile phone use causes a part of our brains to heat up. Not enough to damage the tissue, but enough to produce an inexplicable effect: the subjects' reaction times were slightly increased. This baffled the experts: 'In theory,' said *New Scientist* magazine afterwards, 'mobile phone emissions shouldn't do anything to living tissues.'
- In the same year, researchers in Sweden exposed rats to two minutes of mobile phone radiation, and found their blood-brain barriers – a mechanism that prevents harmful proteins and toxins in the blood from entering the brain – had been disabled. It is not yet known whether this is harmful, but in theory proteins crossing into the brain could mean a higher risk of Alzheimer's, Parkinson's and multiple sclerosis developing.

media have been eager to propagate. Such studies don't exist. Quite the contrary: it has been shown that, just as for X-rays, there is no safe level of exposure to microwave radiation, and it is so easy to demonstrate harmful effects that it takes some skill to design experiments that don't show them. It is harder to show effects today than 10 years ago because now the entire planet is exposed, making it impossible to do experiments with 'unexposed' controls. But most experiments still show effects anyway – effects on heart rhythms, on brain waves, on the blood-brain barrier, on sleep, on the eyes, on the gonads, on the skin, on hearing, on calcium, on melatonin, on glucose, on metabolism, on human well-being. If you look, you will find. Zorach Glaser reviewed over 5,000 such studies for the United States Navy during the 1970s alone. After 1982, the United States ceased funding Glaser's cataloguing work. But the flood of alarming research occurring all over the world continued.

From the volume of literature I have seen, certain results stand out in my mind.

In the 1960s, Allan Frey was the first to discover that people and animals can hear low-energy pulsed microwaves. He also did some of the earliest work showing how heart rhythms are disturbed by microwaves, and how the blood-brain barrier is compromised, letting large molecules leak across, exposing the brain to potential damage. Ophthalmologist Milton Zaret was the first to describe cataracts caused by low-energy microwaves. Canadians Tanner, Romero-Sierra and Bigu Del Blanco worked with parakeets, chickens, pigeons and seagulls. Birds avoided microwave fields if they could, and collapsed within seconds if they couldn't. Defeathered birds showed no such distress, and these researchers then showed that feathers act as antennae conveying microwave energy to the birds. Thirty years later, Alfonso Balmori Martínez has carefully documented the decline and disappearance of white storks, house sparrows, and free-tailed bats from the vicinity of cellular phone base stations.

The idea that there is an exposure threshold, below which microwave radiation can be considered safe, has been disproven many times over. In Moscow, Igor Belyaev has found resonance effects on bacterial DNA that occur at exposure levels 10,000,000,000,000,000 times less than the average exposure from a cell phone. W Grundler, in Germany, has found effects on the growth of yeast cells, also at near-zero levels of exposure.

In the early 1990s, the government of Switzerland commissioned a study in response to people's complaints of insomnia near the shortwave transmitter at Schwarzenburg. Residents kept sleep diaries and did

not know when the transmitter was on or off. The investigators found that the transmitter was disturbing sleep up to several miles away, and because of this finding that particular radio station was permanently shut down.

An early warning radar station was due to be decommissioned at Skrunda, Latvia after the end of the Cold War. Before it was shut down, a coordinated effort was made to determine whether the station had had any environmental effects. Teams of researchers found such effects wherever they looked, even at extremely low levels of exposure: smaller growth rings in trees, premature ageing in pine needles, chromosome damage in cows, decreased memory, attention, learning, and pulmonary function in school children, increased white blood cells in adults, and an altered sex ratio (more girls) in children born during the years of the radar's operation.

In Germany, Wolfgang Volkrodt linked forest die-back to microwave radiation rather than acid rain. Wolfgang Löscher and Günther Käs documented illness in dairy cows caused by cell towers. This included decreased milk production, infertility, abortions, birth deformities, behavioural problems and early death. Autopsies revealed that the cows died of acute circulatory collapse and bleeding from several organs.

In France, Roger Santini has found that the closer people live to a cell tower, the more likely they are to experience dizziness, nausea, memory loss and other neurological symptoms. Claudio Gómez-Perretta has obtained similar results in Spain. The Dutch government sponsored double blind experiments in a laboratory. People exposed to a cell tower signal experienced dizziness, nervousness, chest pain, shortness of breath, numbness and tingling, weakness, and difficulty concentrating.

The late Neil Cherry found that childhood cancer rates in San Francisco were a function of proximity to the antenna-laden Sutro Tower. Olle Johansson and Örjan Hallberg showed that the rise and fall of asthma and certain cancers during the 20th century closely paralleled changes in public exposure to radio waves in every country they looked at. They showed that radio waves are as big a factor in causing lung cancer as cigarette smoking.

Leif Salford's recent work on the blood-brain barrier has verified the earlier work of Allan Frey and others, but with additional, ominous findings. First, sometimes, decreasing the amount of radiation 1,000 times increased the damage to the brain (demonstrating the 'window' effect). Second, animals exposed to a cell phone once for two hours were found to have areas of brain cell death two months later. Salford has called cell phones 'the world's largest biological experiment ever'. His work provides solid support for those who warn that every cell phone call damages brain cells, and that cell phones, like cigarettes, harm both users and nearby non-users. His findings are particularly alarming in light of surveys – by Santini in France, and by Sandström and Mild in Sweden – which

show that up to 25 per cent of cell phone users experience neurological symptoms such as dizziness, headache, memory loss, fatigue, and tingling sensations.

To date, 1,200 physicians in Germany (2000 worldwide), have signed a petition (the Freiburger Appeal) calling for severe restrictions on wireless technology because they are seeing such a dramatic increase in certain diseases and symptoms in their patients – symptoms which they can only attribute to ambient microwave radiation. The diseases include: attention deficit disorder, extreme fluctuations in blood pressure, heart arrhythmias, heart attacks and strokes in young people, Alzheimer's disease, epilepsy, leukaemia and brain tumours. The symptoms

### Electromagnetic Fields

- We are all exposed to brief doses of EMR – when we use a hairdryer, for example, or make a call on a mobile phone. Constantly operational sources of EMR, on the other hand – such as power lines and mobile phone masts – emit EMR ceaselessly and steadily, creating a 'field' of low-frequency radiation.
- Phone masts and the health concerns associated with them are a recent phenomenon, but complaints of debilitating illnesses from communities living under high-voltage power lines have been made for many years (*The Ecologist* published an article on this as long ago as 1979).

### Household sources of EMR



- EMR is generated by anything electrical, e.g. electric blankets, food processors, hairdryers, refrigerators, microwave ovens and vacuum cleaners etc. Using them for brief periods and keeping your distance – their EM field strength is considerably reduced at a distance of two feet – will minimise exposure.



- Visual Display Units that use cathode ray tube technology – computers, televisions, video game screens – emit both low and high frequency EM fields. At a distance of two feet from the screen, the levels of EMR become negligible. Newer LCD screens produce almost no EMR.

For more information see:

*The World Health Organisation's EMF report: [www.who.int/peh-emf/en/](http://www.who.int/peh-emf/en/)*

*Simon Best's excellent bi-monthly news report Electromagnetic Hazard and Therapy at [www.em-hazard-therapy.com](http://www.em-hazard-therapy.com)*



DIANA PORTER

**In February this year Richard Box, artist-in-residence at the University of Bristol's physics department, installed hundreds of fluorescent light tubes in a field underneath power lines. The tubes came on at dusk, powered solely by the EM field generated by the cables above.**

include: headaches, migraines, chronic fatigue, agitation, sleep disorders, tinnitus, nervous and connective tissue pains of unexplained origin, and susceptibility to infection. The appeal calls for a massive reduction in exposure limits; no further expansion of cell phone technology; cell phone-and antenna-free zones; a ban on

cell phone use by children; and a ban on cell phones and digital cordless phones in schools, hospitals, nursing homes, public buildings and public transportation.

The California Department of Health Services has concluded that, on the basis of a telephone survey, 120,000 Californians – and by implication one million Americans – have left their jobs because of electromagnetic pollution in the workplace. The people who have left their homes for such a reason are not being counted by anyone.

'Electrical sensitivity' is a popular, but inaccurate, term for suffering caused by this universal pollutant. The problem is much more widespread than is commonly assumed, and growing daily. By the time people realise that electromagnetic fields are directly causing their pain or illness, their lives are often already ruined. They find that reliable information is hard to come by and harder to understand; that there is little support for them, and no solutions offered; and that when they finally learn what they have to avoid, it is nevertheless impossible to do so.

The highest profile person yet to announce that cell phones, cordless phones and computers make her ill is none other than Gro Harlem Brundtland, a medical doctor, master of public health, former Prime Minister of Norway, and until 2003 the Director General of the World Health Organisation. Yet even so public a figure on the world stage has been unable to draw the world's attention to our collective plight, or in any way slow down the growth of telecommunications, or even to put it on the

### The following are urgently needed:

- **Sanctuaries.** Radiation-free zones. Places without radio antennae, cell phone service, or television cable (cable is often a significant source of radiation). These sanctuaries are needed right now, to save lives.
- **Legal help.** Environmental and disability rights attorneys who are able to take on this issue.
- **Funding** for land acquisition and legal expenses.
- **Volunteer help** for phone calling, letter writing, grant writing, and so on.

### Keep in mind these two principles:

- **Distance counts.** The power drops off as the square of the distance. Antennae should be few, and as far as possible from people and environmentally sensitive areas.
- **Digital hurts.** Digital (pulsed) technology is more harmful at lower levels of power than analog. The mandated replacement of all analog TV, radio, and telecommunications transmissions with digital during the next few years is very dangerous.

map as an environmental issue.

This must happen. Too many intelligent, professional, useful people are wandering this country's barren deserts, homeless, ostracised, robbed of their civil rights, with no place to land. Too many have committed suicide because they have lost all hope, have suffered too long, have had to pick up roots and flee for their lives once too often.

Within the telecommunications industry, too many equipment testers, installers, and repairpersons with radiowave sickness are afraid to speak out, or do not even know why they are ill.

So many radars, antennae, and communication devices are being deployed for government, military, emergency, commercial, and personal uses in both the developed and developing worlds, and in space, that there is nowhere left to hide. Even radio astronomers are seriously talking about the far side of the moon as the only place left that is quiet enough, in the radio spectrum, to still be able to see the stars.

Arthur Firstenberg is a founder and director of the Cellular Phone Task Force, a non-profit organisation that disseminates information about electromagnetic pollution and provides advocacy and support for victims of this pollution. He is editor of the Task Force's publication, *No Place To Hide*, and the author of *Microwaving Our Planet: The Environmental Impact of the Wireless Revolution* (1996). He can be contacted by mail at PO Box 1337, Mendocino, CA 95460, USA, or by phone at (707) 937-3990.

### Things that individuals can do:

- **If you have a cell phone**, cancel your service. Cell towers and antennas degrade the environment for miles around. They kill and injure more people than they save in emergencies. In use, a cell phone pollutes its own environment for a distance of 100 yards. Even when not in use, cell phones emit radiation if they are turned on to receive calls.
- **If you have a cordless phone** in your home or business, trade it in for one with a wire. For the sake of convenience you are microwaving your brain and polluting your neighbourhood.
- **Never expose your baby** to a wireless baby monitor.
- **School administrators:** Developing children should not be exposed to wireless computers, keyboards, or mice.
- **Concert and event organisers:** Make your event safe and accessible by banning cell phones and doing security without two-way radios.
- **Wildlife scientists:** Radio collars pollute the wilderness and injure the animals you are tracking. Please don't use them.
- **Park administrators:** Keep our parks and wilderness areas as sanctuaries. Keep antennae out of them.
- **Public officials:** Public health must come first. Vote against proposals to put towers and antennae in your community.



## www.powerwatch.org.uk

Since investigating the 'zapping' of the women at Greenham Common 20 years ago, Powerwatch has become the foremost independent UK source of:

- Publications about all aspects of electromagnetic field (EMF) issues, including Electrical Hypersensitivity.
- An inexpensive meter hire service. You can measure how your family is exposed to microwave and power frequency radiation, so you can take action to protect yourselves.
- Protective net curtaining and bed canopies to shield your family from mobile phone mast radiation coming through your windows and walls.



We know that your health and that of your family are of the utmost importance to you. Our books are written to be understood by the non-scientist. Our instruments are easy to use and come with instructions and guidelines to compare your exposure. The materials are easy to fix.

**See the website, or phone 01353 778814 for a catalogue**

**Powerwatch** - The best UK source of EMF information, measurement and protection

**As well as being MEP for the South East of England, Caroline Lucas is a regular face at demonstrations and protests against issues from the war in Iraq, to nuclear power and GM foods. She talked to *The Ecologist* in the run up to the June 10 European elections**



## **INTERVIEW** Caroline Lucas MEP

***The Ecologist:* Why have you been involved in direct action even as an elected member?**

**Caroline Lucas** I passionately believe that being a politician shouldn't stop you from being an activist – it's one of the best ways of ensuring you don't get so immersed in parliamentary detail that you forget why you were elected. By taking part in peaceful direct action, I have tried to demonstrate solidarity with the thousands of brave people up and down the country who feel so strongly about the threat of nuclear weapons, for example, or the risk of war, that they are prepared to be arrested for their beliefs.

At the same time, I see myself as a bridge to the parliamentary process. After I was arrested for a so-called

major block to achieving this are the free market policies promoted by all parties except the Greens.

The Green Party's detailed set of 'localisation' policies, with its core value of protecting and rediversifying local and national economies, can enable climate change to be fundamentally addressed. Import controls and 'site here to sell here' policies mean that companies have to stay in Europe in order to sell in Europe. With relocation an empty threat, big business can then be made to pay the energy tax increases central to dealing with climate change.

**Where do you stand on the European Union, the Euro and the constitution?**

On balance, I believe that membership of the EU offers us a better chance of achieving peace and sustainability than leaving it – but only just. The EU is undemocratic, untransparent, remote, and urgently needs radical reform. While the EU is responsible for some of the best environmental policy-making in the world, it is also responsible for the social and environmental disaster of the Common Agricultural Policy – and all too often, its drive to achieve ever greater international competitiveness is put before efforts to achieve sustainable development and social justice.

Yet only the EU is politically and economically powerful enough to be a potential counterweight to the major beneficiaries from economic globalisation – transnational companies, international capital and their present White House mouthpiece, the Bush administration. Unfortunately, it's clearly a very long way from fulfilling that role at the moment, with many in the EU wanting to see European institutions trying to rival US military and economic power, rather than developing alternatives to it.

The single currency accelerates the process of economic globalisation, and is fundamentally undemocratic. Being in the Euro zone acts as an economic straightjacket, curbing the power of elected

**By taking part in peaceful direct action, I have tried to demonstrate solidarity with the thousands of brave people up and down the country**

'breach of the peace' at the nuclear submarine base at Faslane, for example, I was able to trigger a debate in the parliament about the threat posed by nuclear weapons. In Seattle, having taken part in the protests outside the World Trade Organisation meeting, I was able to go inside and speak directly to government participants about why people were protesting outside.

**What do you think is Britain's most pressing environmental problem, and what would you do to tackle it?**

Climate change is clearly the most urgent environmental problem facing Britain and the rest of the world. We need a revolution in the way we use energy, together with a massive investment in renewables and energy conservation. Energy taxes will have a key role to play in helping to bring about this shift. However, the

governments to spend what they choose on social or environmental improvements. This has crippled efforts by France and Germany, for example, to deal with unemployment through more labour intensive public spending.

The process of drawing up a constitution should have been an opportunity to bring the EU closer to the people, to make it more democratic and accountable – as well as addressing some of the things that are wrong with it – for example, the Common Agricultural Policy, the Common Fisheries Policy, and Euratom. But none of this has happened.

Worse, by enshrining in a constitution some of those EU policies that concern us most – such as those that reinforce its role as a vehicle for accelerating corporate globalisation – it will make it much harder to reform them. We need a constitution for a European Union that has sustainability, local economic control and social justice at its heart – but this isn't it.

#### **What should we do about obesity?**

As a mother of two, I hate the way children are relentlessly targeted by TV advertisers peddling junk food and drinks. A first step must be to ban junk food advertising to children.

Individual action can also play an important part, ranging from doing more exercise to showing you care for your children by guiding their food choices. Someone who gets a lot of exercise and who, judging by the coverage he gets, cares a lot about his own children is David Beckham. This man is an idol for my sons and millions of other young people, and he is clearly also incredibly wealthy. So I would like to ask him to make a phone call (or text) from Beckingham Palace cancelling the shameful contract that sees him pimping for Pepsi. Please David, act responsibly and stop peddling fizzy sugared water to vulnerable youngsters. To its credit, the Broadcasting Commission for Ireland is attempting to put a stop to such shabby marketing by proposing that no children's advertising for food or drink can use celebrities, sport stars or children's heroes, unless the advertisement is part of a public health or education campaign.

Finally, a serious debate has to be started about introducing 'fat taxes' to increase the cost of unhealthy food so that eating habits are changed to help combat obesity. However, this policy must not be regressive, hitting the poorest hardest, and addressing the cost of junk food is only part of the solution. Significant investment must be channelled into increasing access to healthier food products, and to making them more affordable. The re-introduction of free school meals, with an emphasis on sourcing fresh food wherever possible from local farmers and producers, would be a step in the right direction.

#### **Are you for or against water fluoridation?**

The 'fluoride' that's added to drinking water is hexafluorosilicic acid – a hazardous toxic waste product of the phosphate fertiliser industry derived from the pollution scrubber liquor from its factory chimneys. It is not of pharmaceutical grade, and has never been safety-tested for human consumption. Fluorosilicates are listed under the Poisons Act 1972, and cannot be prescribed by a doctor.

Mass studies from Canada, New Zealand and the USA have shown little or no difference in levels of tooth decay between fluoridated and non-fluoridated areas. In England, fluoridated Gateshead has as much tooth decay as non-fluoridated Liverpool.

Meanwhile, scientific papers from around the world

### **I would like to ask David Beckham to make a phone call (or text) from Beckingham Palace cancelling the shameful contract that sees him pimping for Pepsi.**

have linked fluoride with a huge range of health problems, which include increases in cancer and thyroid disorders, brittle bones, problems with the immune system, irritable bowel syndrome, and genetic disorders, as well as dental fluorosis, and pitting and cavity formation on the surface of tooth enamel.

For these reasons Greens, myself included, have been in the forefront in the campaign against water fluoridation.

#### **Wouldn't the Greens have a better chance of winning more seats if they had an identifiable leader? If so, are you available?**

Greens are rightly suspicious of power and how it is exercised. For that reason, the Green Party has not had a single leader, but rather a 'leadership team' in the form of an elected Executive, along with two national 'speakers', a man and a woman.

However, my own view is that the public and media would respond to the Greens more easily if we had a recognisable leader. For me, the Green message is so important and so urgent, that this compromise in terms of process is essential. It would not mean having a leader in the conventional sense of someone who had disproportionate power over the rest of the Party – it need not involve the granting of any more powers to that person at all. As Greens, I believe we should have more confidence in our ability to hold each other to account, and to manage power in a democratic, transparent, and accountable way.

Am I available? Well, I'd certainly seriously consider putting my name forward, if the Party were to change its policy on this issue.

**Since colonising Tibet in 1959, China has ripped out virgin forests, dug up minerals and metals, and dumped nuclear waste with little regard for the fragile ecology of the Tibetan plateau.**

# Thirst fo

**To date, warnings from Tibetans and their advocates abroad about the damage caused by half a century of unchecked exploitation have so far been largely unheeded by the international community, but the latest stage of China's development is set to end the silence the Chinese Communist Party has interpreted as global approval for its quest for wealth and power.**

by LYNNE O'DONNELL

**T**here's not much left in Qinghai these days. Gone are the roaming herds of Tibetan antelope, white-lipped deer, Mongolian gazelle, wild oxen and donkeys. Deep craters scar the earth, which is no longer a lush carpet of grass and wildflowers. Few birds wing across the deep blue sky and any water that is left in the mostly dried-up river beds is black and deadly.

There are hardly any people here, apart from a few poachers on motorcycles who slaughter the remnants of the once-great herds of Tibetan antelope, or chiru, for the fine fur that makes illegal shahtoosh shawls for the graceful necks of the fashionable demi-monde.

Springs that used to refresh nomads and their herds of sheep, goats, yaks and horses have disappeared, grassland has been replaced by rocky desert, mountainsides have collapsed and the surface of the arid earth is pockmarked with abandoned excavation sites. Indeed, large swathes of Qinghai, which



# or power

have been part of China's far south-west since an armed invasion in 1959, look like the moon.

This is the obscene legacy of China's modern gold rush on one of the most sensitive and important environments on earth – the Tibetan plateau, where 10 of the great rivers of Asia begin their journey through 11 countries.

Those rivers – Mekong, Indus, Brahmaputra, Salween, Karnali, Sutlej, Arun, Manas, Yangtse and Yellow – provide water for more than 85 per cent of Asia's people and almost 50 per cent of the world's population. The Dalai Lama said in a speech marking the turn of the millennium, 'Thus, the health of Tibet's environment is not an inconsequential regional issue; it has a huge global significance warranting international attention.'

Now, the development drive that has brought China double-digit economic growth, record foreign investment and unheard-of mortality rates from air pollution is threatening the livelihood of those two billion Asians who depend on

the mighty rivers sourced on the Tibetan Plateau that have nurtured and nourished great civilisations for millennia.

**H**aving already logged Tibetan mountainsides bare, encouraged a mining boom that turned the land upside down and poisoned rivers with cyanide and arsenic, the Chinese government has embarked on a frenzy of dam-building that is squeezing the lifeblood of many of its close neighbours. Doris Shen, of the International Rivers Network in California, says up to 300 dams are planned for China's south-western region alone, from rivers that flow into Burma, Cambodia, Laos, Vietnam and Thailand.

Dams, built to provide the fuel for the Chinese industrial revolution, have compounded deforestation, desertification and grassland degradation, soil erosion and landslides, mining and pollution that were already afflicting the river economies of Asia. Floods are increasing, fish and animal stocks are decreasing, water levels are fluctuating. The experts blame China.

'China holds all the trump cards,' *The Guardian* recently quoted an anonymous water analyst as saying in an article examining the impact on the Mekong of dams on the upstream Lancang, in China's Yunnan province, which borders Laos, Burma and Vietnam. 'If all these dams go ahead, the river's hydrology will be significantly altered and no one can begin to understand the social or ecological consequences. China can do what it wants with impunity. It is a dangerous situation.'

The damage to downstream river ecologies from unregulated tree felling in the upper reaches of the major Asian rivers was becoming clear to experts outside Tibetan exile circles by the early 1990s. Sam Portch, a Canadian scientist who until 2002 ran the China and India programmes for the Potash and Phosphate Institute of Canada and won a Chinese Friendship Award for his work with Chinese farmers on balanced fertilisation, expressed his concerns about the Mekong tributaries to me in 1994.

Working with some of the poorest

# The Tibetan Plateau is the principal watershed for Asia. What the lives of nearly half the world's population – who live

farming communities in south-western China, he was able to travel to areas few western researchers had access to at that time. He noted that riverbeds were rising, floods becoming more frequent, and farming land eaten by the widening waters.

There could be only one reason, he said: logging. As the forests of Tibet were felled, topsoil had nothing to adhere to, the rain had nothing to soak into and so the earth's epidermis was swept into the rivers by the spring snow melt and summer rains, raising the riverbeds and reducing their capacity to hold the water.

This process is most obvious in the Chinese city of Wuhan, capital of Hubei province, which sits on the confluence of three rivers, including the Yangtze, and is protected from water higher than street level by dikes that need constant reinforcement. Until recently, this was historic, slow and manageable but in the 1990s, as the forests disappeared, the floods became more regular and severe.

After devastating floods on the Yangtze in 1998, which claimed many more lives than the 4,150 the government admitted at the time, logging was banned. In a clandestine reporting trip to Hubei the following year, I interviewed many villagers in one area outside Wuhan near a dike that was famously breached by the swollen river. Without exception, the people I spoke with said they had counted their dead in the hundreds, but that officials had lied about the casualties and reported them in single digits and the calamity had been turned into a successful propaganda exercise that rehabilitated the People's Liberation Army for a population that had hated the military since it killed unarmed demonstrators in Beijing and other cities in 1989.

I was shown the gleaming marble monuments to a handful of teenage soldiers who died fighting the rising waters. Nearby, where their homes used to be, villagers eked out their lives in unfinished brick huts that had been built to replace the homes swept away in the floods. Money had run out before building was complete, probably, like the funds allocated to flood prevention the



Beijing's obsession with harnessing nature for profit has, according to Elizabeth Economy in her new book *The River Runs Black: The Environmental Challenge to China's Future* (see Reviews, page 66), ensured that most of the country's 1.3 billion people do not have access to water suitable for human consumption, and six of the world's 10 filthiest cities are in China.

The UN's Food and Agriculture Organisation has said that 80 per cent of Chinese rivers are so polluted fish cannot live in them. The Tibetan government-in-exile reports that water in 54 out of 134 Chinese rivers tested in 1994 was unsuitable for agricultural or even industrial use.



## PRINCIPLE RIVERS OF THE REGION

	NAME	SOURCE	LENGTH
1	Yellow River	Amdo Bayanhar (5266m)	5464 km
2	Yangtze	Mt Thangla (6328m)	6380 km
3	Mekong	Mt Thangla	4500 km
4	Salween	Mt Thangla	2800 km
5	Brahmaputra	Mt Tesi Range	2900 km
6	Karnali	Mt Tesi Range	1609 km
7	Sutlej	Mt Tesi (Kailash)	1450 km
8	Indus	Mt Tesi (6638m)	3100 km
9	Arun	Mt Shishapangma (8012m)	1207 km
10	Manas	Mt Zholchen (6106m)	380 km

SOURCE: DORJEE 1996; DIIR 1992; SCIENCE PRESS, BEIJING 1990; DIIR TIBET 20008

# happens to the waters of the Tibetan plateau directly impacts on down stream in China, Southeast Asia, and South Asia

## MEKONG DAMS

With the completion of the Manwan dam in 1995, China realised the first step of an eight-dam cascade dreamed up in the 1970s for the Mekong. In 1996, work started on the Dachaosan dam and construction of the Xiaowan dam started in 2001. The Xiaowan dam will be one of the highest in the world, at 292 metres, and will retain a reservoir 169 kilometres long.

Already the dams are having a major effect on the downstream Mekong. Fish feeding and spawning conditions have been disrupted, leaving river fisheries devastated along with the communities that depend on them.



China's official English-language newspaper, *China Daily*, reports that two-thirds of China's 600 major cities suffer water shortages, which cost the country \$14.5 billion each year.



BEIJING (PEKING)

Wuhan

Chengdu

LHASA

KATHMANDU

BHUTAN

Calcutta

DACCA

MYANMAR (BURMA)

RANGOON

HANOI

VIENTIANE

THAILAND

BANGKOK

CAMBODIA

PHNOM PENH

Ho Chi Minh (Saigon)

SOUTH CHINA SEA

ANDAMAN SEA

Gulf of Thailand

SRI LANKA

INDIAN OCEAN



## THREE GORGES DAM PROJECT

The Three Gorges Reservoir, whose completion is projected for 2009) will inundate 632 square kilometres of land causing an estimated 1.2 million people to be resettled.

'China's plans to build eight large dams on the upper reaches of the Mekong in Yunnan Province (known as the Lancang river in China), threaten this complex ecosystem. The scheme will drastically change the river's natural flood/drought cycle and block the transport of sediment. These environmental changes will affect the livelihoods of millions of people living downstream in Burma, Thailand, Laos, Cambodia and Vietnam. Despite these serious potential impacts, construction of the Upper Mekong dams has proceeded without consultation with China's downstream neighbours, and without any real assessment of the likely impacts to the river and its people.'

Source: International Rivers Network

## TONGLE SAP LAKE

The massive Manwan Dam on the Lancang hundreds of miles upstream in Yunnan has cut the numbers of fish that make it downstream to spawn in the lake. Annual spring floods and autumn droughts are essential for bringing billions of fish to the dense swamps around the lake, but the Chinese dams are effectively smoothing the river's flow, eradicating those seasonal highs and lows.

year before, pocketed by party flunkies.

If the Chinese authorities cynically used the floods to rebuild the army's image, the floods had also provided a sharp wake-up call for the central government and local officials along the 6,380km length of the Yangtse. Having long denied that upstream logging was a problem, and having spent decades extolling the virtues of the Three Gorges dam, the ferocity of the 1998 summer floods spoke for itself.

The stripping of the Tibetan plateau was to blame, the government-controlled media conceded like wide-eyed neophytes who'd never dreamed that trees had any use beyond chopsticks and matches. In one of those instantaneous policy strokes peculiar to autocratic regimes, logging was banned and the

woodsmen were put to work replanting forests that had been almost totally destroyed to provide raw materials for the economic boom of the eastern provinces. 'The Yangtse floods of 1998 really brought home to Beijing the consequences of deforestation on the upper reaches of the Yangtse. They really started to make that connection then,' said Kate Saunders, an independent researcher on Tibetan affairs. '[Then-prime minister] Zhu Rongji was sent to Sichuan to investigate the environmental situation soon afterwards, in an indication of the Party's concern.'

The communist rulers also started to proclaim even louder the virtues of dams

as cure-alls for floods to justify their hydroelectricity schemes. And the next phase of China's assault on the vital water resources of half the globe was launched.

It is difficult to overstate the importance of dams to the Chinese Communist Party's (CCP) vision. Dams mean power – power to keep the sweatshop factories churning out goods for export to the

wealthy west, and enduring power of governance for the CCP. The highest echelons of the party are stacked with engineers, many of whom take a personal interest in massive hydraulic projects – like the former premier, Li Peng, whose life dream is being realised with the completion of the Three Gorges dam which will, it is claimed, generate power equivalent to that of a dozen nuclear reactors.

Such huge, high-profile undertakings play into the patriotic pantheon of a government that has expertly tied itself to the nationalistic concept of what it means to be Chinese, a process that was accelerated after the Tiananmen Square demonstrations and murders of 1989. Officials who hitch themselves to big infrastructure projects – especially those with superlatives listing them among the world's biggest, longest, highest, most expensive – can bolster their political and financial ambitions and help line the pockets of all those who walk in their shadow.

In Yunnan, there's plenty of money in dam building. Two large dams have been completed on the Lancang, upstream of the Mekong, a third is

underway and another six are on the drawing board. Aimed, as officials claim, not only at generating electricity but also preventing floods, the dams have a profound impact on the rice growers and fishermen of downstream communities.

The tenth largest and twelfth longest river in the world, the 4,800km-long Mekong begins in Qinghai's Three Rivers' sources area near the provincial boundary of the Tibet Autonomous Region, or TAR, as it was renamed when Beijing incorporated Tibet into the People's Republic and redrew the borders. The Mekong traverses six countries – China, Burma, Laos, Cambodia, Thailand, and Vietnam – before emptying into the South China Sea. It supports 250 million people, has a biological diversity comparable to the Amazon, and supplies one of the world's most diverse fishing industries.

On the banks of Cambodia's famed Tongle Sap lake, a wizened fisherman extends his arms to show the size of fish that didn't get away in his youth, but which are now a dim memory. Today the fish are smaller, he says, though he has little clue that the massive Manwan Dam on the Lancang hundreds of miles upstream in Yunnan has cut the numbers of fish that make it downstream to spawn. Annual spring floods and autumn droughts are essential for bringing billions of fish to the dense swamps around the lake, but the Chinese dams are effectively smoothing the river's flow, eradicating those seasonal highs and lows.

'The two existing dams on the Mekong, Manwan and Dachaoshan, have impacted the upper lower Mekong. Water levels at Chiang Saen are subject to irregular fluctuations since Manwan was closed – presumably caused mainly by the operation of Manwan as a peak load power station, so more water is released whenever there is an increased power demand and reduced whenever there is less demand for power. It also seems that flow in the river was cut off completely for a few days in May 1993 to allow work on the dam or power station,' Dr Ian Campbell, of the Mekong River Commission in Thailand, told me by email.

'Manwan Dam has caused a drop in river-suspended sediment concentrations



A Chinese boy hugs his dog in front of his family home, marked with the Chinese character for 'Demolish'. China has moved some 720,000 of a total of 1.3 million people who are to be relocated from areas affected by the mammoth Three Gorges dam project.

following its closure and that impact was detectable as far downstream as Pakse in southern Laos,' he said. Attention is now focusing on the impact of the yet-to-be-completed Xiaowan dam, 15 times the size of Manwan. 'It may affect flows, especially in the dry season, down in the lower Mekong countries including Cambodia. The fishery is crucial here since it provides 80 per cent of animal protein in the diets of people in the basin.'

As the Chinese economic juggernaut rumbles on, demand for electricity is soaring beyond the bullish estimates of the Chinese authorities, who are now worried by power cuts in inland factory belts that are essential for absorbing surplus labour, as farmers leave the land and tens of millions of school-leavers enter the job market each year. The government had predicted 2003 electricity usage would climb by five per cent; instead it grew by a massive 15 per cent, leading to forecasts that the north-eastern industrialised provinces will exhaust current generating capacity by 2010.

Figures like these create the urgency for new power sources and while there appears to be a growing awareness of the need to marry quality to quantity across the industrial landscape, one contact – who has long worked with the Chinese government in formulating production policy – said, on condition that he wasn't named, that 'they have too much jockeying between internal regions and ministries to even be united for their own national good, let alone embracing Southeast and South Asia.'

Of China's 80,000 dams nationwide, the World Commission on Dams classified 22,000 as large, half the world's total, and all but 22 built since the communists took over in 1949. Promises in recent years to fold sustainability into industrialisation don't appear to have affected the reality, especially where dams are concerned. Whereas the west seems to have learned from disasters like Australia's Snowy River scheme and America's Hoover Dam, China has many more planned.

The government has begun, however, to recognise that environmental degradation is eating into real economic

## THE CASE AGAINST DAMS

Since the 1930s, man has tampered with rivers on an unprecedented scale: three-quarters of the major rivers in the Northern hemisphere alone have been tamed or harnessed. The number of large dams worldwide has climbed from just over 5,000 in 1950 to more than 45,000 today. When a dam is built, especially on a large river, it backs up months' or years' worth of a river's flow, creating an enormous reservoir of water in the valley behind it that floods everything in its path. This has led to:

- An increase in water-borne diseases – including malaria, bilharzia and schistosomiasis – from changes in the rivers' ecosystems.
- The loss of annual floods and flows of nutrient-rich silt needed to fertilise farmland downstream, jeopardising the livelihoods of hundreds of thousands of farmers, in addition to those physically displaced by the dam.
- The significant and often irreversible destruction of entire river ecosystems, and of wildlife, including forests, in the river valleys behind dams as floodwaters rise.
- The reduction of fish populations, as the change from free-flowing river to reservoir prevents oxygen levels from being replenished, prevents nutrients from reaching fisheries downstream, and blocks the path of migratory fish such as salmon. This is particularly serious for hundreds of thousands of people who are dependent on fishing in large rivers to feed themselves.
- The creation of methane emissions from the rotting of flooded vegetation and organic matter that flows into the reservoir – which in some cases can contribute more to global warming than emissions from coal-fired power stations producing a similar amount of electricity.
- An increased risk of conflict when large dams are built on major international rivers and reduce downstream flow to other countries (as in the case for the proposed Illisu dam in Turkey on the Tigris River, which could escalate tension with Syria or Iraq).
- The displacement and impoverishment of up to 80 million mostly poor and indigenous people since large dams started being built, through the destruction of their homes, their agricultural land, their livelihoods, communities and culture, often without the provision of anything approaching adequate compensation.
- Dams have collapsed under the enormous pressure of water behind them. According to Chinese government reports, in 1975, after one of the wettest years ever, dam collapses killed 250,000 people, and caused famine and disease among 11 million more. In the United States in 1976, the collapse of the Teton dam destroyed three towns and hundreds of thousands of acres of farmland.

Sources: World Bank's World Commission on Large Dams, International Rivers Network



gains, with the *People's Daily* noting that the average annual growth rate of 8.7 per cent over the past 25 years should be slashed by more than two per cent to an annual 'green GDP' growth rate of 6.5 per cent, when the cost of the damage is taken into account. As in so many sectors, China's power generation is among the most inefficient in the world, with official figures showing that the energy consumed in producing a product worth US\$1 is 4.3 times higher in China than it is in the United States, 7.7 times higher than in Germany and France, and 11.5 times higher than in Japan.

'China is a massive economy growing at an amazing rate. If the present high-consumption and high-pollution growth mode is not changed, China will lack sufficient resources and environmental capacity to sustain its future development,' said Pan Yue, the deputy head of the State Environmental Protection Administration.

The recent deferment of a massive

project on Yunnan's Nu River, which runs into Burma's Salween, brought a sliver of hope that the message is getting through. Chinese media reported that the cascading dam, designed to provide double the power of the Three Gorges project, was cancelled for further impact studies on 1 April by order of Premier Wen Jiabao, but an official of the Yunnan Huadian Nu River Hydropower Development Company said two weeks later: 'Neither the instruction written by Wen, nor any file containing the destiny of the project has reached us so far.'


In order to boost electricity to account for 30 per cent of the country's power needs by 2030, the State Power Corporation's deputy head, Chen Dongping, is on the record as saying that \$36 billion would be spent on building dams to generate power eight times the capacity of the Three Gorges dam. Dams, he said, are clean.

Could it be that the reprieve for the Nu is just temporary, politically-expedient window dressing? 'Maybe the money has

already been spent by corrupt officials,' said one London-based China watcher who asked not to be named. 'Maybe the centre just wants to re-exert control over the Yunnan officials to let them know who's boss and after the project has been tweaked a bit it will go ahead. Everything in China is politics, there's no such thing as altruism, or even environmentalism, at any level of government.'

Even if this project doesn't go ahead, another nine dams, out of a total of 13 on the drawing board for the Nu-Salween, are planned for the same Three Parallel Rivers area, which Shen calls 'truly a magnificent ecological treasure'. Kevin Li, a Hong Kong-based consultant with the IRN's China programme who lobbied against the Huadian dam, cautioned the plan could be 'revised or simply repackaged' and noted that 'despite the huge opposition against the Three Gorges dam, the project still went ahead.'

Lynne O'Donnell is a freelance journalist



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# Power Crisis

## Special Report

**Britain has gobbled its North Sea gas resources in little more than 10 years, its nuclear power stations are due to be decommissioned and wind farms alone cannot fill the gap. Within two years, Britain could be facing a series of blackouts and the ignominy of importing the resource it once considered so plentiful from a host of politically unstable countries**

# Blackout Britain

by MARK TOWNSEND

**B**y now sweat was streaming from his brow. Tim Davies gasped as the first crushing wave of claustrophobia swept over him. Then the accountant cursed as his briefcase slipped from his soggy palms, sending the day's paperwork cascading around the feet of his fellow Tube passengers. About 20 minutes earlier, their train had stopped abruptly during the manic jam of the evening rush hour. Carriage lights spluttered, then died. They were trapped 100 feet beneath central London. The heat was rising. So too was the panic. Voices wobbled in the darkness of a terrorist strike somewhere above them.

Antonio Moroni would soon know how Davies felt. Days later, 1,000 miles away in Rome, the security guard had summoned an elevator to pop downstairs for a late-night espresso. It was a bad choice. With a fearsome clank the tin

box froze between floors. And unlike Davies, Moroni would have no-one to share his nightmarish thoughts of an Al-Qaeda strike. Outside, pandemonium would erupt on the streets of the Italian capital. Barely a week earlier neon-gorged New York, beacon of the world economy, had too been plunged into blackness. A power shortage in Denmark and Sweden would quickly follow, and soon after the biggest of all would strike Moroni and his homeland. One by one some of the brightest Western democracies, built on their addiction to safe, reliable electricity, had seen their lights go out. In the space of just 40 days late last summer, many of the planet's great cities had the reassuring cord of power ripped from them, leaving them flapping and confused in the dark.

Now, though, it was the turn of southern England. London mayor Ken Livingstone watched from his plush fourth floor Thames-side offices as the glare of his city sputtered out below him.

'An outrage,' he screamed. Yet Livingstone had better get used to it. Blackout Britain is inevitable, according to the UK's most eminent experts on the subject. Key government advisors, engineering bodies, leading think tanks and the power industry itself concur that a dim future remains a likely scenario. The first wave of blackouts are forecast in less than two years. By then, Britain will be well on the way to begging some of the world's most volatile regimes for something as basic as its power.

Make no mistake, Britain is facing the gravest energy crisis in its history. cursory investigation soon casts light upon an unholy alliance of failed policies and short-sighted cost-cutting. Tony Blair already knows his country is inching towards a day when the factories will fall silent and candles will dominate supermarket sales. MPs recently analysed the London blackouts and found that Britain's power network was nearing the

end of its 40-year life span. Chronic under investment, they concluded after sifting through the evidence, was squarely to blame. Dieter Helm, who advises the government on energy policy, similarly describes a 'clapped out' system. Former Government advisor Professor Ian Fells of Newcastle University and principal author of a far-reaching energy inquiry by the Royal Academy of Engineering, describes those in charge of our electricity strategy as living in 'cloud cuckoo land'. Yet the malaise runs way deeper than a decrepit supply network. Britain's main supply of electricity – gas – is about to run out.

The world's third largest consumer of natural gas, after the US and Russia, has effectively exhausted the North Sea's once-plentiful reserves in little more than a decade. Britain has come to rely on gas as though it were like the wind: replenishable, safe and never-ending. In 1990, gas provided just 1.7 per cent of Britain's main electricity supply. Twelve years later it was fuelling almost one-third of our power. In two years' time, the government will face the ignominy of having to import an energy that it had considered so plentiful so recently. At the same time, Britain's other two key sources of power – coal and nuclear – are about to be phased out for environmental reasons that few dispute. Britain's dirty, belching power stations will begin closing in 2008 when European directives to curb emissions ensure that these ancient powerhouses of yesteryear can no longer be countenanced. At around the same time, Britain's controversy-shrouded Magnox nuclear reactors will finally start to shut. All but one of the nuclear plants that now generate almost a quarter of Britain's electricity will start to be decommissioned in the next seven years. The nuclear dream, punctured by persistent safety and financial concerns, has all but faded.

Last year both these produced 58 per cent of Britain's electricity. 'A yawning energy gap will start appearing by 2006. Things are beginning to go really astray and I am not alone in that belief,' said Fells.

The answer, according to the Government, is blowing in the wind. Yet more than a year after the laudable aims of Blair's energy white paper, his green dream remains just that. No-one seems clear just how wind energy will reach his intended target of producing a tenth of Britain's electricity in the next six years. Fells believes an optimistic target stands at just seven per cent. Inside Whitehall

**Tony Blair already knows his country is inching towards a day when the factories will fall silent and candles will dominate supermarket sales.**



the heat is rising. Like Davies, ties are being loosened in rising panic. If wind farms are not given the chance to succeed, Britain cannot power itself.

By 2020 Britain risks a staggering 80 per cent energy shortfall, according to the Institution of Civil Engineers. The days of wallowing in a hot bath before catching

the latest episode of Coronation Street – safe in the knowledge that there is electricity for all – appear to be coming to an end. Yet against this backdrop the government has remained publicly upbeat. So far ministers have refused to ensure against economy-crippling power cuts. Similarly the National Grid, responsible for distributing power to our homes, refuses to discuss contingency measures designed to deal with a bout of blackouts.

And so Britain rushes headlong towards the moment when it cannot offer electricity for all. A worse case scenario involves four-fifths of UK energy being harvested in faraway gas fields within 15 years. Massive gas pipelines will snake thousands of miles across continents to ensure that our lights stay on. Mechanical

failure, political whim and blackmail threaten as much disruption as a terrorist act might. In addition, the economy would remain hostage to volatile gas prices over which it has no control. Yet it is the terrorist threat that haunts most in the industry. And the countries pinpointed to supply Britain's future energy only serve to exaggerate such unease. Algeria, Iran, Turkmenistan, Russia and Nigeria are among those on the list.

Blair's war on terror suddenly seems faintly incongruous when ordering his nation to rely on states it has pinpointed as some of the most dangerous in the world. Even so, civil servants have little option but to consider Algeria – despite it having been named as a principal runner in the rise of North African fundamentalism and whose former residents are implicated in the Madrid bombings. Iran is likewise considered unstable by the intelligence services. Turkmenistan and Nigeria are viewed as operating under the cloud of corruption. Russia in turn remains firmly

under the dark shadow of terror, with the Moscow bomb certain to linger long in the memory. Chechnya separatists have vowed not to give up their struggle.

A pipeline supplying a state that remains accused of kow-towing to Bush's perceived war on Islam would appear a target too tasty to ignore. Elsewhere, dispute continues to rage in the Ukraine through which vital pipelines could run. In March the BBC offered an apocalyptic vision of blackout Britain following a terrorist attack on a gas terminal near Moscow. The message was that a very

one, seem equally intractable. Meanwhile industry insiders have already devised a series of calamitous scenarios for what might happen in the event of a terrorist strike on such installations.

But the bungling does not end there. Planning consent does exist to build seven massive gas-fired stations to help Britain through its electricity shortfall. Permission though expires next year and fears over the high price of natural gas as North Sea reserves dwindle means they may already have been written off.

Fittingly, the London blackout

Likewise the ability of the emergency services to cope with an attack on our nuclear power stations or electricity supply remains a topic of considerable concern. So alarmed is the Emergency Planning Society that it has written to the Cabinet Office more than a dozen times since the Twin Towers atrocity, saying that funding shortfalls mean the country would not cope with a terror strike. Despite repeated demands to government, no advice has been issued to the public on how to react following an attack on a nearby nuclear or power plant. Nuclear sites remain a catastrophic, but vulnerable target as *The Mirror* newspaper revealed last year when a reporter crept into the supposedly watertight inner sanctum of Sizewell, which houses tons of plutonium waste.

That moonlight flit came amid government claims that British power stations are on heightened alert. Despite this no security guards were found patrolling the fences which were easily sliced with wire cutters, and there were no guard dogs or security lights. No alarms were heard. Elsewhere MI5 is reportedly investigating several attempted break-ins



**If you're stuck on the tube, or trapped in a lift when the lights go out, rest assured that in the UK, it's far more likely to be a power failure than a terrorist attack**

high stakes game of Russian roulette may have to be played. Fells, who helped write much of the programme's script, said he did not receive a single complaint of scare-mongering from anyone inside the energy industry.

Those involved in negotiating for their gas supplies will, like Davies, loosen their ties as they blush at the sheer temerity of their diplomacy. Yet they cannot fail. Britain has enough gas storage to feed the island for about 14 days. Germany and Italy, by comparison, have several months' storage capacity. Experts agree that a £13bn programme on new gas pipelines, liquefied gas terminals on the Thames Estuary and South Wales, as well as new interconnector links to the continent will help. But there is little hope that they will be completed by 2006 and maybe not for another decade. The short-term energy vacuum, as well as the long term

underlines just how ill-prepared the country remains should terrorists strike its power supply. How Britain provides electricity can only be viewed alongside the routine warnings of senior police chiefs, who claim that Britain should be braced for an inevitable attack. More than ever though, the fear persists that the capital of the fourth richest country in the world and whose streets were first illuminated by electricity in 1870 remains unable to secure something as fundamental as its electricity. It took 30 minutes for those in charge of the National Grid to inform Scotland Yard that the failure was a system fault and not the work of terrorists. Similarly no announcement was issued to quell the paranoia choking commuters like Davies. It was the first real test of London's overhauled defence mechanism after the September 11 strikes. And it failed.

at electricity power stations amid fears that Al-Qaeda is planning an attack against large 'soft' infrastructure targets in southern England. When IRA safe houses were raided by police and intelligence officers, they stumbled across maps of the national power supply network. The threat to our energy supply takes other forms. An electronic attack by mainland operatives is also considered a *bona fide* risk, according to the Government's advisor on computer security. Sabotaging software controlling the distribution of power would ensure chaos. All the same, experts agree that such a threat is minuscule compared to the impending reliance of overseas gas pipelines.

In reality, blame for the London blackouts fell on a group of electrical engineers working for a private contractor one early evening last September. The

mistake appears simple enough: a £2,000 shoebox-sized one-amp fuse was installed instead of a five-amp alternative. An instant cut in the power supply ensured that repercussions were rapid and broad. A cataclysmic chain of reactions left 410,000 households in the dark, 270 sets of traffic lights misfiring and thousands like Davies ensnared in a subterranean hell.

Privatisation too played its role. London Underground's decision to scrap its power station in Lots Road, Chelsea, as part of its modernising, guaranteed chaos would unfold. Before then, the Tube was immune to National Grid power failures. Again analysis of the manner in which the mistake was handled provides significant cause for concern, betraying further inherent failings with the way Britain's power industry is being structured.

A consistent failure of privatisation has often been the lack of accountability in the aftermath of mistakes. And, as with the rail industry, so too the electricity network is accused of operating in a powerless vacuum. Noone took direct responsibility for the London blackout. No contracts were withdrawn. Disciplinary action was conspicuous by its absence. National Grid Transco is liable for fines totalling up to 10 per cent of its £1bn turnover if it is found to have breached conditions, yet escaped without losing a penny following the chaos. The fact that it occurred less than a year after two million homes were left powerless following violent October storms, suggested to many that lessons were not being learned.

All of which would more than enough to set alarm bells ringing. But the malaise gripping Britain's future electricity supply again runs deeper. Analysts agree that Britain's capacity for producing power is insufficient and that, during periods of peak demand, there is too little margin for error. Not long ago power stations were able to offer capacity 27 per cent greater than the amount typically required, an excess that has now dangerously slimmed down to just 16 per cent. Britain can produce a maximum of 65,000 megawatts. Surges have recently hit 54,000mw. Blame lies at the decision of power companies to mothball spare power stations in order to save running costs. Such a policy has shaved 3,400mw off emergency supplies – or the

## 1 Where our power comes from

There are 202 power stations across the UK with more than 1MW capacity each, and many more smaller local sources producing less than 1MW each.

## 2 How it reaches us

Electricity is carried from these power stations by one of four transmission systems, two for Scotland, one for Northern Ireland and the largest one for England and Wales, known as the National Grid. These systems distribute electricity to the Regional Electricity Companies along a network of overhead lines, underground cables and sub-stations.

## 3 What are the problems with this system?

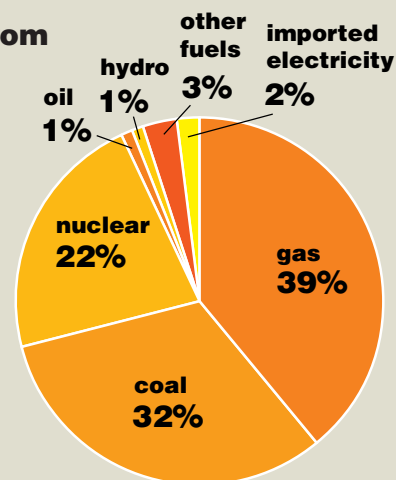
The further electricity has to travel, the more is wasted in transportation. At the moment, however, most of the power stations are in the North, although the highest demand comes from the South. For this reason alone, a proliferation of local power sources is preferable to relying on just a few large power stations dotted across the country. Furthermore, if we were less reliant upon a few big, polluting stations, we would be less vulnerable to any one of them suddenly going down, either through technical failure or terrorist attack.

## 4 How is demand met?

Every day, the National Grid Company predicts how much electricity will be needed, telling enough power stations to generate electricity to meet that demand and picking the cheapest first. Demand from industry is fairly uniform with factories often running all night as cheaper electricity during off peak hours encourages 24 hour working. Most of the variation in demand is due to changes in domestic and business use, affected by many factors aside from time of year and temperature.

### Variations in daily demand

- |                   |  |
|-------------------|--|
| <i>1am to 3am</i> | Demand is higher than for the rest of the night as people take advantage of cheap rates to use their washing machines, storage heaters, etc on time clocks.  |
| <i>6am-10am</i>   | Demand increases as we wake up, and shops and businesses open.   |
| <i>1pm</i>        | Slight rise around lunchtime   |
| <i>5.30pm</i>     | The day's peak is reached. Many shops and businesses are still open, yet people are beginning to go home and turn on their heating and electrical appliances. In winter, lights start coming on all over the country.  |
| <i>Occasional</i> | Popular TV programmes cause surges in demand, known as 'TV-pick ups'. These are not caused by more sets being on, but by all the kettles and lights switched on at the end of the programme. These 'pick-ups' can demand as much power as one large power station can provide. |



### What happens if demand is not met?

If demand were not met, a number of steps would have to be taken, ranging from dropping the voltage slightly (causing lights to dim and electrical equipment to work less effectively) to, in the worst case, blackouts. Alternatively, if too much electricity were generated, then fuel would be wasted by power stations whose output was not required.

equivalent power required to make more than 333,200 thousand million cups of tea a year. Maybe it's not surprising then that the National Grid itself has told the public to prepare for a risk of power failure in periods of heavy demand.

Once peak periods were confined to the frosty winter months of December and January: climate change has altered the picture dramatically. Global warming will soon call for an intensive all-year round supply of electricity. If the government's drive for homeowners and business to improve energy efficiency remains unheeded, our lust for power will sharply increase at the precise point Britain's ability to meet such demands ebbs away. To see what this might mean, one need look no further than the

**If the drive to improve energy efficiency remains unheeded, our lust for power will sharply increase at the precise point Britain's ability to meet such demands ebbs away**

massive Italian blackouts, which affected 57 million people and all parts of the country except Sardinia. Blame has fallen, in part at least, on the huge demands caused by air conditioning systems during last summer's heat wave. Climatologists described that same stretch of heat as a harbinger of future British summers. The Pentagon recently joined them in warning that Europe, more than any other continent, will be hit hardest by the effects of heat and violent storms. These issues have already been identified in Britain. The National Grid repeatedly dipped into emergency reserve supplies several times last summer. During that same sweaty period, no fewer than seven shortage warnings were issued to power producers.

The problems are compounded by under-investment in the UK's £16bn transmission network, which was implicated in last year's London blackout and days later when 200,000 homes in the West Midlands were left starved of electricity. The National Grid is replacing just one per cent of its network a year, a rate that would make the rail industry blush with shame. MPs recently questioned power companies about whether they were skimping on

maintenance following reports the National Grid had cut maintenance staff by 60 per cent. In addition, there remains speculation that the London fiasco was caused by poor maintenance of the network. An unnamed engineer reportedly confessed that there were insufficient staff to carry out maintenance work, accusations denied by National Grid Transco, which says spending on repairs has increased to £300m from £80m. Whatever the truth, the hiccups keep coming. The latest occurred this April when a fault at a substation plunged 61,000 homes in Wiltshire into darkness.

Naturally, the draining of North Sea gas reserves and persistent doubts over wind energy has resurrected demands for Britain to embark on a new age of

government's chief scientific advisor, and who believes climate change is the planet's biggest threat, agrees nuclear provides a viable alternative.

The debate is bitter and the stakes are high. And not just for the pro-nuclear camp but environmentalists too, some of whom are accused of being more anti-nuclear than contemplating energy that does not exacerbate climate change. Yet the industry's flaws remain as profound as ever. Concerns over the safety of Britain's massive nuclear waste stockpile and the catastrophic failure to achieve financial viability remain persuasive arguments against. British Energy, which runs our imminently moribund nuclear plants, is virtually bankrupt, kept barely alive by colossal government loans. And even if a decision is taken in favour of nuclear power, the planning process for nuclear power is so torturous that it can take



building nuclear plants. If the potential offered by wind energy is not realised, the clamour for a return to nuclear power may well prove difficult to resist. The vast and well-connected nuclear lobby points to France to support their unswerving vision for a nuclear island state. They claim nuclear power has allowed France to become Europe's powerhouse, able to produce more electricity than it needs and selling off the rest. Sir Alec Broers, president of the Royal Academy of Engineering, is among the latest to rubbish the Government's plans to generate 20 per cent from renewables by 2020 as unrealistic. Nuclear is the only option, he warns. Sir David King, the

more than 12 years to build replacements.

Stephen Timms, the minister in charge, recently admitted that the question of new build won't be addressed for years. Wind farms will it seems get their chance, but the political backing has to be cranked up and quickly according to the sector. Whatever the outcome, tough choices lie ahead – and not just in which candle-making companies to buy shares. Many like Davies have accepted that the Tube may never run on time. But when the lights start going out on the journey home, forgiveness may prove a great deal more elusive.

Mark Townsend is an award-winning environmental journalist

**The community of Machynlleth has gone beyond just investing in someone else's wind turbine. They've clubbed together and planned, built and paid for one of their own. By Jeremy Smith**



# People Power

**T**hink back to the first hour of the morning. The alarm goes off. The radio comes on. Switch on the light in the bedroom. And in the kitchen. And in the bathroom. Take the milk out of the fridge. Boil the kettle. Twice. Have a hot shower.

All the while what were you thinking? About work? Breakfast? How untidy the house was?

How about how much electricity all those tasks used? Doubtful. Most of us, accustomed to simply plugging our appliances into sockets and flicking a switch, have no idea where our electricity even comes from. We know there are different types of power stations around the country, and we know roughly how much we pay out each month, but little more. If someone asked us to explain how coal heated our kettles, or how wind turbines powered our televisions, or how Sellafield's nuclear reactors kept our frozen fish frozen, they'd be met with a blank stare.

And why should we know? It's not our job. We pay our direct debits and leave the rest to the likes of Enron, British

Nuclear Fuels and the young men and women dying in Falluja and Kirkuk. Ours is a world of ready meals and moving walkways, removed from the actual efforts of creation. We have forgotten that before the industrial revolution if you wanted something to move, or to grow, the energy you had to expend was your own.

Across Britain, people are beginning to wake up to this. Concerned at the level of their contribution to climate change, more and more people are changing their electricity over to one of the three green energy suppliers – Good Energy, Green Energy or Ecotricity. Ten years ago these companies didn't exist. Now between them they have nearly 20,000 customers, all powering their lives off electricity not generated by coal, gas or nuclear.

One of the most ambitious projects, however, can be found in the Dyfi Valley in mid-Wales. There, on the edge of Snowdonia National Park, a rural community has gone beyond just relying on someone else's wind turbine. They've clubbed together and planned, built and paid for one of their own.

## 'We did everything possible to get the message out and get more people excited... keeping people updated; we even dropped leaflets into the town's vegetable box

**'W**hy?' It's one question I keep asking myself as my train dawdles its way from London to the little station of Machynlleth, tucked into the foothills of Snowdonia National Park. Why would a rural community invest five years of its time and money in a project that in the end will only provide the energy for 50 homes? What sort of radical environmentalists are these?

That evening, as I sit waiting in the pub I struggle to find anything remarkable. The White Lion Coaching Inn has low ceilings, exposed beams, regulars conversing with a barlady in Welsh, but other than a dish on the menu with the evocative name Cawl nothing differentiates it from a thousand pubs in a thousand villages all across the UK.

Furthermore, when my 'radicals' do arrive, they don't appear that radical at

all. There's Tim Brewer, with a smile buried under a heavy gnomish beard. He's a professional wind engineer who gave up his time to build the turbine. Vicky Leaney is early to mid thirties with the ebullient energy of a primary school teacher. As co-head of the company that owns the turbine she's responsible for the day to day running of the project. Andy Rowlands is a softly spoken quiet man. He runs a community organisation that was instrumental in both finding the necessary funding and getting the local community involved.

I want them to amaze me with the trials and tribulations of building the UK's first community wind turbine, but they talk about it as if it they were reflecting on repainting the front room. 'Surely a lot of people must have been really against the idea,' I suggest. 'I mean wind farms are a famously divisive issue.'

Not theirs, it seems. At the very beginning of the project they'd held a meeting in the village hall to try to gauge what levels of support there were. As they sat nervously waiting to see if anyone would turn up, they got their first inkling of the spirit that over the next four years would turn their plan into a reality.

As the sky got darker, people started drifting in. Farmers, shopkeepers, a host of local characters. Before long Rowlands began to worry they wouldn't have enough chairs. By the time he called the meeting to order there were almost 100 people squeezed into the tiny Victorian hall.

Everyone had something to say. Some wanted to know how much money they stood to make. Others were concerned as to how big it would be, or where it would be sited. A few were concerned about the noise it would

COBBIS



Assembling the Pwr Pobl turbine



## We'd get positive articles written in the local papers; pin up notices in the village hall schemes – whatever would get local people feeling that this was their project.'

make and some just wanted to lend a hand in whatever way they could.

By the end of the meeting, not only had 80 people signed up to be members of a wind turbine supporters group, but had paid £10 to £20 each to pay for a planning permission application and to have an environmental impact assessment drawn up.

'Amazingly only one hand was raised in objection,' smiled Leaney, 'and she wasn't even from round here.' Not only was Marion Rees not local, but it transpires she was a member of a group called the Country Guardian, which describes itself as 'a National Campaign to oppose wind turbines in Britain's precious landscapes and promote energy conservation'. Critics suggest the organisation has a hidden agenda to promote nuclear power, and point to the fact that its vice-president is Sir Bernard Ingham, one time Thatcher press spokesman, former consultant to British Nuclear Fuels, current secretary of Supporters of Nuclear Energy and holder of the view that: 'The only means by which we can power Britain and not damage the atmosphere further is by nuclear power.'

However, even Rees was impressed by the enthusiasm shown at the meeting. Although initially she did her best to put a spanner in the works, she could see it was pointless. In the end she left, saying she wouldn't campaign against a project that was that popular with the local community.

Persuading people to chip in £10 at the beginning was one thing, but the wind turbine was slated to cost £80,000. Andy Rowlands was hopeful he could raise at least half of that from a series of EU grants, with the remaining £40,000 or so to come from the local community.

On the way in I'd seen graffiti sprayed by the side of the railway reading 'growing up in a dying town.' For many years many of the young people have been escaping the Welsh countryside for the bright lights of Cardiff or Bristol and leaving not much else but a few hill farmers scratching a

### Renewable Energy 1 Micro-hydro

**Unlike large dams, now widely acknowledged to be unsustainable and ineffective, micro-hydro involves the use of small mills and dams to provide clean energy and an alternative source of income for rural communities.**

In 1995 Miles and Gail Fursdon of Old Town Farm, Poundsgate (pictured right), transformed the 1936 mill on their family's farm into a micro-hydro power plant. With the help of eight friends, the Fursdons dug a 460 metre channel to transport water from a stream on their land to the new turbine, which they bought from the Czech republic. The turbine provides enough electricity to power not only their farm but also the three surrounding villages (about 80 households): some 400 megawatt hours a year which they sell back to the National Grid for £20,000.

Having completely recouped their costs within five years the turbine has now become their primary source of income. Far from having to counter public opposition to their plan, the turbine has become a local attraction – with talks, slideshows and guided tours led for local businesses and schools.

#### POTENTIAL

*Up to 15 per cent of the UK's 8,000 mill sites are thought to be suitable for similar schemes, potentially generating two per cent of the UK's electricity needs in the future.*



living and increasing numbers of people seeking retirement in the idyllic setting of the surrounding hills. None of these however, would have much disposable income. How, I ask them, did they manage to raise that sort of money?

Encouraged by the enthusiasm shown at the village hall, and knowing the best way to keep the profits in the community was for the community to own the turbine, they formed a limited company, and sold off the shares to the community. In September 2001 they set up the company that would own and manage the wind turbine [Bro Dyfi Community Renewables]. And as a fallback they convinced Baywind, a larger wind co-operative based in Cumbria, to underwrite the whole offer.

'We'd done everything possible to get the message out and get more people excited,' remembers Rowlands, 'We'd get positive articles written in the local papers; pin up notices in the village hall keeping people updated; we even dropped leaflets into the town's vegetable box schemes – whatever would get local people feeling that this was their project.'

Their efforts paid off. Within three weeks of its release, the share offer was massively oversubscribed. From all over the valley people had applied to buy not £37,000 worth of shares in their wind turbine, but £54,000. 'It was incredible,' adds Leaney. 'We actually had to drop the maximum value of shares anyone could own from £20,000 down to

## 'As well as supporting Fair Trade products we're translating the principles to our own imported lamb – that way we support the farmers and keep the money

£1,000, just to make sure that anyone who wanted to be part of the scheme could be.'

They had the money. The community were excited. Now all they had to do was build it. But what about planning permission? Was it easy trying to find a site? Brewer tells me how having promised for three years to let them build the turbine on his land, the owner of the originally proposed plot all of a sudden pulled out, or 'shat on us from a great height,' as he commented colourfully.

'It was a very bad moment,' Vicky added somberly. There they were three years into the project, the wind turbine due to arrive any day, finance in place, local contractors committed to build it and no where to put it.

'Thank God, less than a month after he'd dropped out,' chips in Rowlands, 'We got a phone call from Forest Enterprise, offering us land they owned next to his. They even threw in a free picnic table and chairs to go under the turbine.'

The more they talked the more I realised that this project has nothing to do with 'amazing' individuals. It is about something that we have forgotten in our society obsessed with, well,

'amazing individuals'. It's about community. They hold a meeting and it's 80 to 1 *in favour*. The landlord pulls out so the local government *offers* to help and throws in a picnic table for good measure. So many people want to buy into it that they have to *stop* them spending too much money.

**T**he next morning I learn just how resourceful this community really is. Wanting to see the wind turbine for myself, I've been told to meet Andy Rowlands at the office of an organisation called Ecodyfi, based on Machynlleth's sleepy high street.

From the outside the building looks like a shop selling sickly flavoured fudge to tourists. Inside it seems more store cupboard than office, crammed full of desks, display units, and promotional leaflets for 'Things to do in the Dyfi Valley'. However, I've been assured that it is only thanks to Ecodyfi that the turbine ever got off the ground.

The organisation works promoting sustainable community projects, and helping local people develop and find funding for ones of their own. As Rowlands talks to someone on the

phone, I nose around. Leaning against one of its light blue walls are a pair of pinboards covered with photographs of schemes the organisation has supported. In one a farmer is standing above a crystalline stream, pointing to a tiny dam built to supply electricity to his farm. Another photo shows a local potter who is heating his house and furnace with wood waste from nearby factories. In the centre of Machynlleth, meanwhile, the Quarry Café is heated by solar panels on its roof. Elsewhere in the town similar panels provide the power for a block of 10 flats in a social housing unit. And aside from renewable energy schemes, in the few minutes that I'm waiting for Rowlands I've picked up flyers or seen posters promoting kerbside composting, local box schemes, reusable nappies and even a plan to make the area the first Fair Trade valley in the UK.

Rowlands puts the phone down. He has been talking to another member of the local car share club, just checking it was ready for us. 'None of us use a car that much, so it makes sense to share one.'

As we wind our way up through the trees towards the turbine, I ask him about Ecodyfi's work, and especially its

### Renewable Energy 2 Biomass

**Biomass technologies involve burning sustainable fuels such as wood byproducts, plant material, crop residues, or animal manure. Unlike fossil fuels, biomass is carbon neutral as the CO<sub>2</sub> emitted while burning these materials is offset by that absorbed during the fuel's growth. In Finland some 10 percent of electricity come from biomass, in the UK it's less than one percent.**

Powys County Council has developed Wales' first community woodheating project in the village of Llanwddyn, using woodchip sourced from within a 20 mile radius to provide heat for homes, a school and a community centre.

After realising that the school and community centre could be heated with locally sourced wood-fuel, the possibility for a community heating system was explored. When this was discovered to be possible, the council found out whether local residents would be interested in being heated in this way. Thirty of the 38 households have now signed up.

The scheme will save around 20per cent on heating bills for the school, community centre and residents whilst saving 44 tonnes of carbon each year.

#### POTENTIAL

*It has been calculated that using only UK land currently under set-aside Biomass could produce around 2.5GW or 5 per cent of the UK's current electricity needs.*



PICTURE BY RURAL ENERGY LTD

## local experience. Simple things like encouraging people to choose local lamb over circulating in the community, rather than being sucked out of it.'

plan to make the area a Fair Trade valley. 'Like producers in the Third World,' he replies, 'our farmers are being ripped off by multinationals. As well as supporting Fair Trade products, we're translating the principles to our own local experience. Simple things like encouraging people to choose local lamb over imported lamb – that way we support the farmers and keep the money circulating in the community, rather than being sucked out of it.' Again, it just makes sense.

As we carry on up the hill, all I can see are spruces lining both sides of the road. There's no sign of the turbine at all. Then, after we've been driving for about 20 minutes, we lurch round a final corner and there it is. I'm accustomed to seeing wind farms on the horizon from miles away. To have not even been aware of this one until I am within 50 metres comes as a surprise. We get out of the car and walk across the clearing towards it.

Although standing 23 metres tall to the centre of the blades, which themselves stretch nearly 16 metres in either direction, it doesn't seem that large. I've always loved the sight of windfarms, yet to be honest being up this close it seems more prosaic. It's just there, doing its job. The thing I notice most is the noise. Not that it's particularly loud; we continue to talk without having to raise our voices. It's just the fact that there is noise. Seeing them standing on the horizon they had always seemed somehow silent.

'Must have been difficult to build'. 'Not really. We cleared a few trees. Laid some concrete foundations and then put the turbine up.' 'Sure, but the turbine itself?' 'It's a second hand one from Denmark,' he replies.

Second hand? I'd always imagined they'd been built to order. 'Too expensive, and with some careful searching there are some good second hands ones to be found,' Andy added. Apparently they'd originally planned to get one from Germany, but that one hadn't been ready in time. A volatile US exchange rate after September 11 had



Local children painting the turbine's mast at its opening party



Tegwyn Jones points to the micro-hydro dam used to supply his farm with clean electricity

## By the end of its 15-year lifespan anyone who invested £1000 will have received satisfaction of knowing they helped their community save 70 tonnes

put paid to another. A third got refused by the council on aesthetic grounds – it had three blades, whereas those on the surrounding hills had only two. In the end they bought one from Denmark.

It wasn't hard to put up either. It came over in a lorry. The mast section came intact, with all the workings inside, and the blades separate. 'Anyone with a few general skills and a bit of determination could do it,' Rowlands assures me.

I point to the bottom five or so feet of the turbine's mast. They are covered with children's paintings. Rough and brightly coloured, they look to have been stamped with cut out potatoes. Amidst several handprints can be made out smiling suns, wind turbines, a red Welsh dragon. Repeated around the mast are the words 'Pwer Pobl'.

'It means People Power,' he explains. 'We had a party last April to inaugurate the turbine. We all trekked up here and tried to come up with a name. When someone said Pwer Pobl it got the loudest cheer.' BP spend 1 million to change their name to Beyond Petroleum and design themselves a green and yellow logo. Out here in the Dyfi valley they give the kids a paintbrush and pick the name at a party.

'So where does the power go from the turbine?' All around us it's just hills and trees. No cables, no powerlines. Not even a house.

He points off over the brow of a hill. 'Down there to CAT [The Centre for Alternative Technology]. I'm confused. 'But I thought you were using the power directly yourselves?' Before arriving I

had envisioned a rural idyll where the people of the valley generated enough renewable energy to satisfy their needs, and so were able to cut themselves off from the National Grid altogether. 'Local people unshackle themselves from multinational domination', or something like that.

Detaching ourselves from the grid, Rowlands explains, is a romantic, but impractical notion. First, since the National Grid has invested a lot of time and money in setting up the

infrastructure of pylons,

cables, wiring etc, they would have to be bought out, at huge cost.

Secondly, if the National Grid no longer owned it, the community would be liable for all the maintenance, health and safety aspects of running their own grid.

Thirdly, why bother? 'The grid acts like a giant battery,' he adds. 'Currently it is "charged" primarily by a few giant power stations situated around the country. This brings with it a host of problems. Huge amounts of energy are wasted because of the distance it has to travel.

Because we are reliant on so few sources, we are much less secure. And because most people don't live anywhere near their source of power, they are unaware of its environmental costs and treat it as infinite.'

The answer, he believes, is for small, local, renewable schemes to proliferate across the country. Not just wind turbines, but solar panels, wood chip burners, micro hydro dams – whatever

works best with the area's renewable natural resources and whatever the community affected by it wants. That's where the pinboards in his office fit in.

'So why are you selling it to CAT?' I still don't get it. 'If you're not going to use it, why not just sell it to the grid?'

At the time selling it to the grid meant selling it to one of many multinational companies who are only interested in getting the cheapest price. If they find their energy cheaper elsewhere they might just cancel your contract. Things have improved since, he tells, me with the advent of the truly green energy companies. Five years ago, however, this wasn't a viable option.

On the other hand, CAT's professed aim is 'to inspire, inform and enable society to move towards a sustainable future'. The centre operates as both a research station and visitor centre for renewable technologies. It so happened that when Rowlands and Leaney wanted to build their turbine, CAT needed a new one. They committed to buy all the energy the turbine could produce at a fixed price for its entire life. It gave the project the security it needed to begin.

**T**hat was five years ago. The turbine has now been turning for a year and those people who put money in are already seeing a return on their investment of 4.2 per cent. Over its lifetime that is expected to double to 8.44 per cent, far better than what any bank would pay. Over its 15-year lifespan, it will produce around 163,500kwh of power a year – enough to supply almost 50 homes with clean electricity. By then anyone who invested £1000 will have received enough in dividends to pay off all their electricity bills for the period, as well as the satisfaction of knowing they helped their community save 70 tonnes of carbon dioxide from being released into the atmosphere every year.

As well as providing a return to its investors, 30 per cent of the turbine's profits are invested into a Community Energy Fund that Bro Dyfi has set up. It



## enough in dividends to pay off all their electricity bills for the period, as well as the of carbon dioxide from being released into the atmosphere every year.

trains up local people as 'energy champions' to provide practical advice to the community. It gives away free bus passes to get people out of their cars. The community mini bus is being converted to biodiesel. Insulation materials are being subsidised. Local schools are changing over to green energy tariffs as well as being provided with renewable energy kits for their classrooms

Meanwhile, Rowlands and his colleagues at Ecodyfi are working their way around the community, asking people to fill in forms calculating their energy use. Those that do are given a free energy saving lightbulb and provided with advice on how to further increase their energy conservation. In the end, claims Rowlands, these initiatives will cut a further 345 tonnes a year of CO<sub>2</sub> emissions in the valley each year. Meanwhile Bro Dyfi is planning an improved public transport system for the area, which naturally will be electrically driven (with batteries charged by renewable energy), and looking to develop a further wind turbine, again owned by the community.

Looking out from below Pwerr Pobl's mast at the hills of Snowdonia it is impossible not to feel moved by their barren beauty contrasted against the hedges and streams of the lush green foothills below. The air smells fresh and free of pollution. I can understand why people living in such an area would do what they could to keep it this way. But what if another village somewhere else in the UK wanted to do something similar?

'We didn't just do this for ourselves,' Rowlands tells me. 'All along we made sure to keep track of everything we had to do, every possible alternative we could have explored. We want to make it easier for others to repeat what we have done.'

With this knowledge and experience, Bro Dyfi is now working as a consultancy, advising other communities in the UK on what sort of schemes might best suit them. If you need technical advice, or assistance

applying for grants, they are there to help. 'Recently I've been showing people round from County Tipperary,' adds Rowlands. 'There was another group from a village in Derbyshire interested in small scale hydropower, several farmers from Snowdonia, and a community in Pembrokeshire eager to develop a wind turbine on a similar model to our own.'

'It would be have been easy for detractors to dismiss this project as a one off,' he tells me as we get back into

the car. 'They could have said that without CAT being nearby, or without mine, or Vicky or Tim's backgrounds, we'd never even have got it off the ground. It's true, it made it easier for us to be the first. But what we have done is created a blueprint. All the difficulties that might be encountered, all the assistance that can be found – we know where that is now.'

Jeremy Smith is the deputy editor of the Ecologist.  
Bro Dyfi can be contacted on 01654 703965

### Renewable Energy 3 Solar Water Panels

**Solar water heating systems are the most cost-effective renewable energy technology you can install in your home – with around 50,000 domestic systems already in place. Rather than producing electricity, solar water panels heat water directly – typically via panels installed on a roof which absorb the sun's energy and transfer via coils connected to the hot water system. Solar water panels provide an average of 72 percent of a household's hot water over the year – 100 percent in the summer and around 15 percent in winter.**

Retired civil engineer Richard Hegerty installed a solar water heater at his house in Essex in 1993. 'When I retired I got the idea that I wanted to become a bit more environmentally aware,' he explains. Since then his water heater has provided over 10,700 hours of free, unpolluting heat, for nothing other than the original cost of £4,935.

Hegerty's panels are installed below his bedroom's window. They measure just 1m by 80cm across. Inside, all the pipes are hidden away in the loft, and the pump is inaudible. 'From the end of May through to October, we have silent, clean heat,' says Hegerty, adding that it can also provide heat in winter. 'People think they need hot sunny days,' he explains. 'But they don't – it's the sun's light they rely upon. Last December I remember going downstairs to scrape the frost off the car windscreen, and when I came back inside the green light was on telling me the heater was picking up power from the sun.'



SOLAR FOR LONDON

#### POTENTIAL

*The sky really is the limit. A domestic solar water heater saves 0.4 to 0.6 tonnes of CO<sub>2</sub> from being emitted into the atmosphere each year. If every house in the UK had one fitted it would save around 10.5 million tonnes of CO<sub>2</sub> each year.*

Government grants of £500 are available for solar panel installation from Clear Skies [www.clearskies.org](http://www.clearskies.org)

# SAVE POWER NOW!

As well as necessary changes at the national and community level, each one of us can and should do our best to minimise our own electricity usage.

By implementing a series of low cost measures in our homes, we can make substantial savings on our fuel bills whilst drastically reducing our contributions to climate change.



## Solar Water Heating

A four-metre-squared panel on the roof generates around half a household's hot water needs. It costs around £1,500 to self-install and saves around £200 a year in energy costs.

**Saving on fuel bill  
£200 per year**

For your nearest solar club, who will help you install the system, see [www.cse.org.uk](http://www.cse.org.uk)

## Insulation

### Problem

More than 40 per cent of all heat lost in an average house is through the loft and walls.

### Solution

250mm (10 inches) of loft insulation

**Saving on fuel bill  
25 per cent**

Cavity wall insulation

**Saving on fuel bill  
60 per cent**

### Impact

- If everyone in the UK installed loft insulation of up to 250mm thickness, the financial saving would pay the energy bills of 635,000 families.
- If everyone in the UK installed cavity wall insulation, we would cut CO2 emissions by nine million tonnes.

## Heating

### Problem

- The older your boiler, the more inefficient it is likely to be. If it is 15 years or older, consider changing it.

## TV and Video

### Problem

• By 2010 digital set-top boxes could be costing UK households £357 million every year in electricity or £14 per household.

• Every year videos in the UK use £113 million, and TVs £50 million, worth of electricity just waiting to be switched on. 85 per cent of the electricity used by your video is consumed while it is not actually on.

### Impact

If everyone in the UK turned off their televisions and videos at the set rather than leaving them on standby, we could close one of every 20 power stations in the country.

## Windows

### Problem

A fifth of all the heat lost from a home can be through poorly insulated window frames and single glazing.

### Solution

Double-glazing

**Saving on fuel bill  
at least £40 a year**

Close your curtains at dusk to stop heat escaping

## Lighting

### Problem

- UK households use £1.2 billion worth of electricity every year on lighting – 10–15 per cent of the electricity bill in most homes.

- Electricity consumption by domestic lights and appliances has nearly doubled since 1970 and it is set to increase by 12 per cent to 2010.

### Solution

Using an energy efficient lightbulb can cut energy wastage by over three-quarters. That's around £7 a year on your energy bill, or £65 over the bulb's lifetime as energy efficient bulbs last up to 12 times longer than their inefficient counterparts.

**Saving on energy use  
75 per cent**

### Impact

If every UK household installed three compact fluorescent lightbulbs, enough energy would be saved in a year to supply all street lighting in the UK and the carbon dioxide emissions saved would fill the Royal Albert Hall nearly 9,000 times.

- If everyone in the UK installed cavity wall insulation, we would cut CO<sub>2</sub> emissions by nine million tonnes.

## Kitchen

### Problem

- Nine in 10 homes in the UK have a washing machine, 35 per cent have a tumble dryer, and one in four has a dishwasher. Between them they use £800 million worth of electricity, producing five million tonnes of carbon dioxide each year.

- UK households use £1.2 billion worth of electricity every year on cooling and freezing food and drinks. Refrigeration and freezing appliances in UK homes use nearly as much electricity as all offices.

### Solution

Use an energy efficient washing machine

**Energy use reduction  
33 per cent**

Use a 40°C wash cycle rather than 60°C

**Energy use reduction  
33 per cent**

Use an energy efficient dishwasher

**Energy use reduction  
50 per cent**

Use an energy efficient tumble dryer

**Energy use reduction  
33 per cent**

Use an energy efficient fridge/freezer

**Energy use reduction  
33 per cent**

### Impact

- Buying an energy efficient fridge/freezer to replace your inefficient model could cut carbon dioxide emissions produced indirectly by your home by up to 228Kg a year.

- If everyone simply boiled the water they needed to make a cup of tea instead of filling the kettle every time, we could save enough electricity to run more than three quarters of the street lighting in the country.

- Heating and hot water account for over half the cost of the average fuel bill and, unless your home is newly built, your heating system is unlikely to be running as efficiently as it could.

### Solution

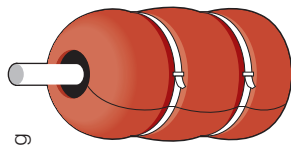
Replace your old boiler with a condensing boiler

**Saving on fuel bill  
32 per cent**

Upgrade heating controls

**Saving on fuel bill  
7 per cent**

Fit an insulating jacket to your hot water tank



Hot water cylinder jacket

**Saving on fuel bill  
£15 a year**

Reduce your heating thermostat by 1°C

**Saving on fuel bill  
10 per cent**

Fit a solar water heater (see separate box)

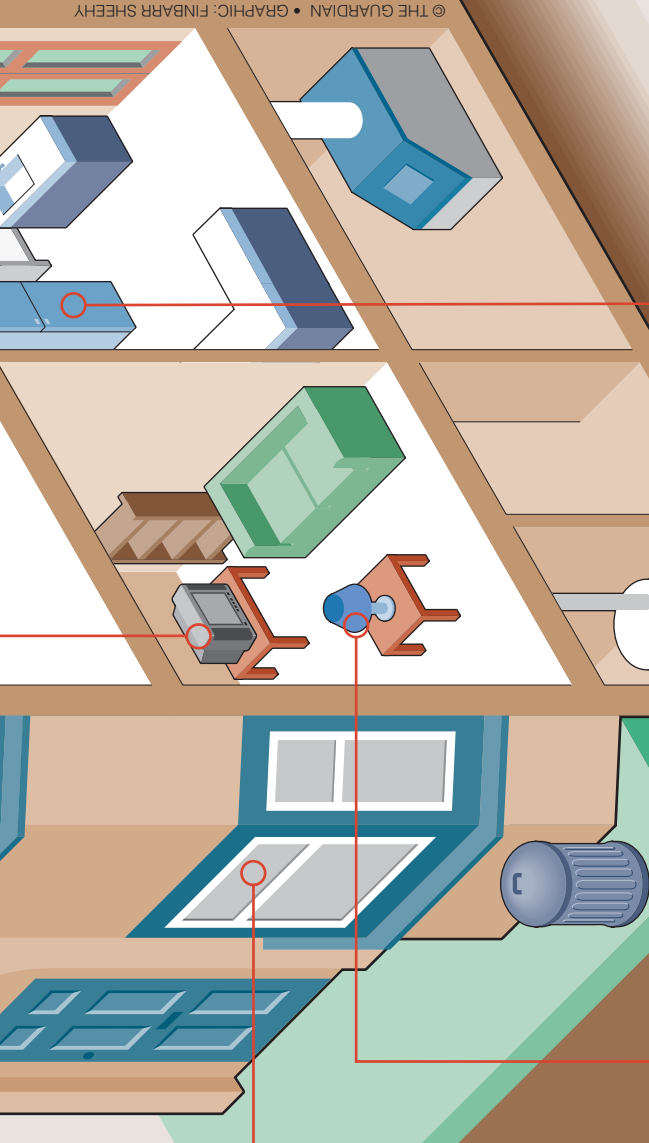
**Saving on fuel bill  
50 per cent**

### Impact

- If everyone in the UK with gas central heating installed a condensing boiler, we would cut CO<sub>2</sub> emissions by 17.5 million tonnes.

- CO<sub>2</sub> emissions would be cut by two million tonnes if everyone in the UK put a jacket on their hot water tank.

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# Reviews

## Book of the month

### One with Nineveh: politics, consumption and the human future

Paul Ehrlich and Anne Ehrlich

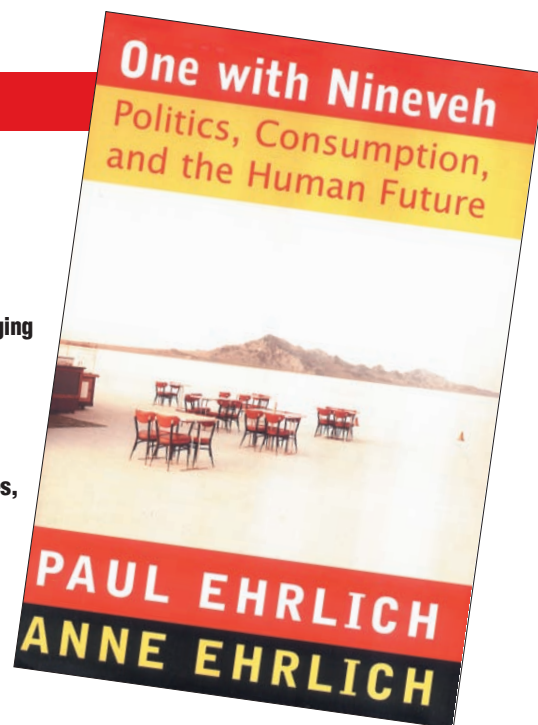
SEVEN STORIES PRESS, 2004, \$24.95

Nineveh was the ancient capital of the Assyrian Empire. However, pride, arrogance and imperial overreach caused its collapse. In *One with Nineveh*, Ehrlich and his wife tackle what they see as the three forces shaping humanity's future – overconsumption, overpopulation and economic inequality. They argue that all three of these problems are intimately related to the state of current politics. They write: 'Collective hubris reinforces the desires of many of the most powerful segments of civilisation, and it helps create collective denial. It prevents people from

seeing what society's environmental choices mean for our children and grandchildren.'

Both a cautionary tale and a call to action, *One with Nineveh* relies on an extensive array of research infields ranging from ecology, demographics and biodiversity, to economics, politics and globalisation. As well as asserting the urgent need for the reform of national governments and international initiatives, the book argues that many solutions lie in local and individual actions. We all need, they argue, to return to a more ethical way of living that acknowledges our impact on the planet.

REVIEWED BY STEPHEN WILLIS



**'Most people do not speak a language of globalisation, are not familiar with computer technologies, let alone other cultures, take comfort in their own traditions and ways of life, and are not world travellers'**

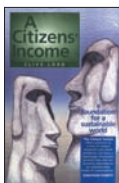
## LATEST RELEASES

### A citizen's income

Clive Lord

JOHN CARPENTER 2004 £8.99

Lord's concept of a citizen's income envisions a fairer and more mutual society, where all necessities are shared unconditionally. A member of the Green Party for over 30 years, his book lays out a practical, localised alternative to the current neo-liberal model.



### A modern introduction to hemp

Paul Benhaim

SELF PUBLISHED 2004

As managing director of Hemp Foods Australia, Benhaim is better positioned than most to understand hemp's vast potential as a sustainable crop. Here he outlines the plant's history and myriad uses, ranging from industrial use as fibre or plastic, to food or health applications.



### Terrorists or freedom fighters?

Edited by Steven Best & Anthony Novella II

LANTERN BOOKS 2004 \$20

The first anthology of writings on the history, ethics, politics and tactics of the Animal Liberation Front, the book explores the history of civil disobedience and sabotage and challenges many of the assumptions that underlies our culture.



### Ghandi in his time and ours

David Hardiman

HURST 2004 £15.95

Hardiman examines how Ghandi's radical politics came about, charts its progress during his lifetime, and then surveys its effects since his death. An important analysis for anyone interested in understanding the Mahatma's impact on modern thought and action.



### Under the weather

Pat Thomas

FUSION 2004 £10.99

Subtitled 'How the weather and climate affect our health', Thomas' thoroughly researched and highly accessible book is a wake-up call in this world of abrupt climate change. As well as warning against the dangers, it also explains how to protect against the weather's growing extremes.

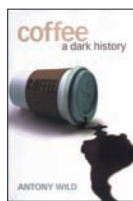


### Coffee: a dark history

Anthony Wild

FOURTH ESTATE 2004 £18.99

In the same vein as books like Kurlansky's *Cod*, Wild presents us with an exhaustive history of the world's second most valuable commodity after oil. More a historical account than an analysis of current problems, the book is full of fascinating anecdotal detail about our favourite stimulant.



### Pop: truth and power at the Coca-Cola Company

Constance Hays

HUTCHINSON 2004 £18.99

An examination of the boardroom history of Coca-Cola rather than an exposé of its environmental crimes and human rights abuses, Hays' book is nonetheless a fascinating account of a company that epitomises globalised greed. Her portrait of former CEO Roberto Goizueta paints a picture of arrogance that can be seen across the corporate world.



### World on fire

Amy Chua

HEINEMANN 2004 £12.99

That rapid imposition of free-market ideology on developing countries has encouraged ethnic violence and unrest is the premise of Chua's book. Although she believes that markets are the solution and that the problem is bad application rather than the system itself, she offers many powerful insights into the deeply flawed ideology of such institutions as the World Bank.



### News from somewhere

Roger Scruton

CONTINUUM 2004 £16.99

Philosopher and author Scruton writes of a visceral life lived closer to the world we inhabit, where man is once more entwined into the processes of natural existence. A beautifully written, often challenging and thought-provoking book.



## Strangely like war: the global assault on forests

Derrick Jensen and George Draffan

CHELSEA GREEN 2004 £7.99

*Strangely Like War* exposes the connection between our ever-escalating rates of consumption, the relentless felling of the world's forests, and the destruction of the indigenous peoples cast off their land. As with all of Jensen's work, the book works as a critique of our whole way of living, one that allows such practices to continue. As he and Draffan write: 'The problem is not and has never been a lack of accounting methodologies or industrial know-how; the problems are denial, recalcitrance, and apathy. The solution isn't technical, but political. The solution isn't even political but social. The solution isn't even social but psychological. The solution isn't even psychological but perceptual. The solution isn't even perceptual but spiritual. The problem is our entire way of living and relating to the world.'

REVIEWED BY JEREMY SMITH

## 50 facts that should change the world

Jessica Williams

ICON BOOKS 2004 £9.99

Eighty one per cent of the world's executions in 2002 took place in just three countries – China, Iran, and the US.

British supermarkets know more about their customers than the Government does. There are 27 million slaves in the world today. A third of the world's population is at war. Williams' book is indeed full of facts that should change the world. It is also much more than just a litany of facts – each one is just the heading for an in-depth essay exploring why the various situations she cites have come to pass. Lucidly written, excellently researched, and with detailed referencing, the world won't look so rosy when you've put it down.

REVIEWED BY DOUGLAS BEBB



## What will we do if we don't experiment on animals?

Jean Swingle Greek and C Ray Greek

TRAFFORD 2004 £16.99

The book serves two vital functions. First, it lays to rest the myth that animal research is the only way we can really learn if new treatments are to be safe and effective. Not only is it not the only way, explain the authors, it isn't a valid way – the differences between species mean results in one do not predicate them recurring in another. More importantly though, the book lays out a range of alternative approaches – technological, computerised, genetic, human-based – that in the future could provide us with research that is both effective and doesn't entail the needless suffering and death of millions of animals.

REVIEWED BY SARAH BECK

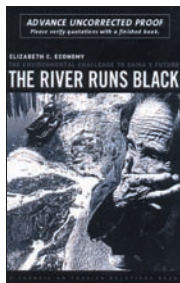
## The river runs black: the environmental challenge to China's future

Elizabeth C Economy

CORNELL UNIVERSITY PRESS 2004 £17.95

In the past 20 years China has experienced increasingly dramatic growth rates, and the environment has been the one to suffer most. Dust storms, desertification and deforestation have left the country ravaged and caused countless public health emergencies. With China embarking upon a series of massive dam projects and urbanisation schemes, the concern is that things are not likely to improve. Furthermore, if the situation were to greatly worsen and the public become disenchanted as the promised wealth does not reach them, the potential for both internal conflict and external migration are both huge.

REVIEWED BY LOUISE WESTON



## MY FIVE MOST INFLUENTIAL BOOKS

### Stephen Corry



Stephen Corry is director of Survival, the organisation for tribal peoples' rights. In the 1990s, he led campaigns against marketing masquerading as ethics – like the 'rainforest harvest'. He is currently front-page news in Botswana where he is described as a 'liar and devil' (but actually has many friends). Since 1992 he has also been the chairman of Free Tibet Campaign. He lives with his family in the West Country.

#### 1 Which book first made you realise that 'something was wrong'?

No book – it was living with Sherpas when I was 18 and climbing in the Himalayas that first opened my eyes to the great trick of consumerism pushing out meaningful society. Though I suppose I did catch a solo travel bug through the great works of exploration, like Heinrich Harrer's *Seven years in Tibet*, which I read when I was 12. Harrer was something of a fascist, but the idea of his gutsy self-reliance was electrifying and I wanted to be there too.

#### 2 What book would you give to every politician?

By definition, politicians are a lost cause and no book will convert them. A good history of Europe might help show how we've been here before, and made the same mistakes – mistakes that led to deplorable and avoidable suffering. *Europe: a history*, by Norman Davies, wouldn't be a bad start.

#### 3 And to every CEO?

I suppose the key here is to adhere to a moral code with some intelligence. I am not opposed to business, which would be like opposing motherhood – there's no future in it! But it would be nicer for everyone if profits were not allowed to drive out ethics. In fact, I believe almost everyone does think they themselves are fundamentally moral. Ghandi's autobiography, *Experiments with truth*, is good for showing the power and beauty of morality, though the Mahatma himself was human and made some serious mistakes. For example, his views on tribal peoples were actually very eurocentric.

#### 4 And to every child?

Frankly, anything they enjoy that has depth – hidden depth is best. I have no wish to foist my ideas on children. I think it is vital though that they learn to articulate their own. This means to appreciate the power of language and see that its musicality is at least as important as content. It's difficult to beat Edward Lear's nonsense poetry to show how cadence and imagery can conjure with your feelings. Who hasn't delighted in *The Owl and the Pussycat*?

#### 5 It's 2050: the ice caps have melted; sea levels are rising. You're only allowed one book on the Ark. What is it?

Corry, I know, but the complete works of Shakespeare would do me fine. Everything's there and you can reread it for decades and still make discoveries. If I had to choose one, it'd be tough. There's a lot I still don't get in the Sonnets... or I'd go for Lear (I, too, have three daughters and am beginning to know how he felt – no, that's a joke!)... or *Winter's Tale* (luckily, more of life moves from tragical to comical than we sometimes think)... or...!

# Talking toxins

Every year in the UK we replace 15 million mobile phones. Around 10 per cent are recycled or refurbished; others lie forgotten in drawers. Most, however, are tossed into the bin, destined for landfill sites.

The amount of pollutants in a single

phone may not seem significant, but we are buying more and more every year – and the smaller they get, the more disposable they seem. These days a handset is smaller than a bar of soap, but 15 million of them laid end-to-end would, according to recycling company Fonebak, stretch from Land's End

to John O'Groats and halfway back again.

Mobile phone recycling technology has become very efficient. But replacing a phone creates a demand for a whole new one, and the real cost is much more than just its price tag...

Simon Brandon investigates

## TANTALUM

Tantalum, a rare metal extracted from coltan ore, is used to coat the electrical components in mobile phones. The sudden increase in demand over the last decade has sparked a 'coltan rush' in West Africa, a rich source of the mineral. Its sale has funded guerrillas in the Congolese civil war, and an army of hungry prospectors – among them women and children press-ganged by the guerrillas – have resorted to hunting large numbers of elephants and even gorillas for food. Mobile phone manufacturers claim they only deal with legitimate sources of coltan – but they also concede they have no way of knowing the mineral's original source.

## MERCURY

By-products of LCD screen manufacture include ozone-depleting CFCs and phosphorous, a chemical that encourages suffocating algae growth in freshwater.

Mercury – another bioaccumulative toxin – is present, along with lead, in the screen's light sources. Symptoms of mercury poisoning range from insomnia and memory loss to hallucinations, psychosis and irreversible brain damage. Last year in this country we threw away 13 million phones' worth.

## PLASTICS

A mobile phone is, on average, 40 per cent plastic. Several kinds are used: polyesters and polycarbonates for the body, silica plastics for the microchips. Separating them for recycling is not cost-effective, and they are simply burned off. Plastics are crude oil derivatives – incinerating them releases greenhouse gases as well as toxic additives.

## LEAD

Circuit boards are the green boards on which chips, wiring and other electrical components are mounted. These are attached to the board using lead-based solder. Lead is both bioaccumulative (meaning it builds up in plant and animal tissue) and highly toxic. It leaches from landfills into the soil and hence the food chain, and can cause liver, lung and kidney damage. At higher doses it is fatal.

## COPPER

Copper and its compounds account for 15 per cent of your mobile phone. Copper mining produces arsenic and carbon monoxide as waste products. People working in copper mines are susceptible to asthma, tuberculosis and other respiratory illnesses through the inhalation of silica dust; and the smelting process releases sulphur dioxide, causing acid rain.

From landfills, copper can find its way into our water supplies. Our bodies need copper, but too much can cause vomiting and diarrhoea. It has also been associated with liver damage and kidney disease. Young children are particularly susceptible to its toxic effects.

## OTHER METALS

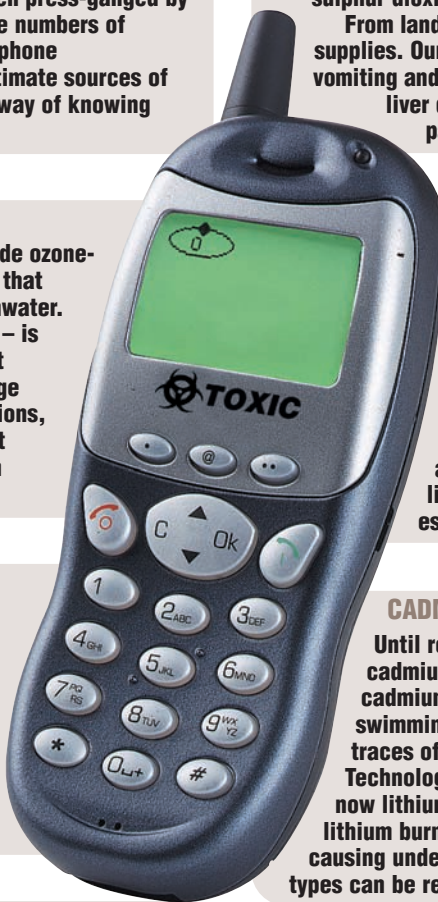
Small amounts of antimony, aluminium, beryllium, nickel and cadmium are present in each handset. Most are by-products of mining and industrial chemical processes. They can all be recycled usefully, but when handsets are disposed of in landfills these toxins – known as Persistent Accumulative Toxins (PATs) – leach into and build up in soil and groundwater. Their presence has been linked to cancer and neurological disorders, especially in young children.

## CADMIUM & LITHIUM

Until recently mobile phones were powered by nickel-cadmium batteries, three of which contain enough cadmium to poison the water in an Olympic-sized swimming pool. Our oceans are beginning to show traces of cadmium, although the source is unclear. Technology has moved on; all mobile phone batteries are now lithium-ion type. These contain no heavy metals, but lithium burns when it comes into contact with water, causing underground fires at landfill sites. Both battery types can be recycled.

## WASTE WATER

To make microchips requires distilled water and plenty of energy. The manufacture of one memory chip uses 35 litres of distilled water and, on average, two kilogrammes of fossil fuels. The water is used to wash etching chemicals, dissolved copper and impurities from the silicon wafers, turning it into poisonous effluent.



Most recycling depots now take mobile phones. To find out more go to [www.fonebak.com](http://www.fonebak.com) or call 01708 684000

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## From borlotti to beetroot

What's in season in June

## Had enough of the rat race?

Alternative jobs, courses and volunteering

### Offer of the month

Green People are offering Ecologist readers a FREE tube of After Sun cream with natural anti-oxidants, natural UVA & UVB filters and natural suntan accelerator worth £9.99 when you buy SPF15 Sun Lotion.



(see page 56)

- At its best
- In season

artichokes (Jerusalem)	
artichokes (globe)	●
asparagus	●
aubergines	
beetroot	●
borlotti beans	
broad beans	●
broccoli (purple sprouting)	
broccoli (calabrese)	●
Brussels sprouts	
Brussels tops	
cabbages (various green varieties)	●
cabbages (white)	
cabbages (red)	
cardoons	
carrots	●
cauliflower	●
celeriac	
celery	
chard	●
chicory	
courgettes	
cucumber	●
endive	
fennel	
french beans (whole pod)	
garlic	●
greens (spring & winter)	
kale (and borecole)	
kohlrabi	●
lamb's lettuce	●
leeks	
lettuce	●
onions	●
pak choi	●
parsnips	
peas (incl. sugar snaps)	●
peppers and chillies	
potatoes	●
pumpkins (and squashes)	
purslane	●
radishes	●
rocket	●
runner beans	
salsify (and scorzonera)	
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## DAVE KEY

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*Dave Key co-runs an organisation called Footprint Education*

*(www.footprint-education.org). It provides both educational courses and consultancy services on sustainability issues. Often this involves taking people into the Scottish wilderness. 'After two days on the top of the mountains, people soon realise how connected we are to the natural world.' He has recently finished an MSc in Human Ecology at the Centre for Human Ecology (CHE) in Edinburgh.*

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### Who would benefit from the course?

While I was there I met all sorts of people – activists, people from charities, journalists, writers, people involved in social work and in the public sector. The link between social justice and ecology is very strong, so basically anyone who has got an inkling that we can't carry on the way we are will get something out of the course. It's a great place if you want to see how you can realign your work to be more sustainable.

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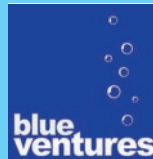
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[info@holisticfamilyholidays.com](mailto:info@holisticfamilyholidays.com)

### LOOE

**Campsite on organic farm** situated in sheltered orchard valley. Fifteen minutes walk from Seaton beach. Accessible by car or bus from Seaton. Close to Looe and monkey sanctuary.  
01503 250135  
[www.keveral.org](http://www.keveral.org)

### CORNWALL

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[www.eastpenrest.freeserve.co.uk](http://www.eastpenrest.freeserve.co.uk)

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[gclarke@internationalbusinessschool.net](mailto:gclarke@internationalbusinessschool.net)  
[www.internationalbusinessschool.net/eco-lodge.htm](http://www.internationalbusinessschool.net/eco-lodge.htm)

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Ring 01239 820277 for brochure.  
[info@go-wales.org](mailto:info@go-wales.org)

### WEST CORNWALL

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01736 794183

### PANTELLERIA ISLAND, SICILY

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[www.giardinidipantelleria.com](http://www.giardinidipantelleria.com)

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01582 658459

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Tel: 01728 685971



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[www.DharmaNetwork.org/4sale](http://www.DharmaNetwork.org/4sale)  
Or call Martin: 0033468318773

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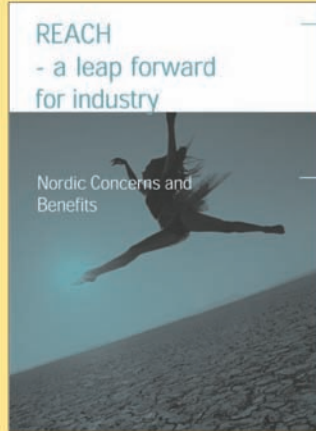
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Danish Ecocouncil: Tel: +45 3315 0977 e-mail: info@ecocouncil.dk

Download the report: [www.ecocouncil.dk/english](http://www.ecocouncil.dk/english).

Printed report is free, but postage and services are charged

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I have been advising people on financial matters for 20 years, will take a holistic view of how you and your finances work, and will help you set goals to overcome financial obstacles and give you a financial spring clean.

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Or visit our website:  
[www.evergreenagency.co.uk](http://www.evergreenagency.co.uk)



### Visit eco-centric

[www.eco-centric.co.uk](http://www.eco-centric.co.uk)  
a FREE website for meeting like-minded people



# campaign

## DIRECTORY

Every month we bring you up to date information on a wide range of campaigns: how to contact them; what they need; and the progress they're making. And if you know of a campaign that we haven't listed below please email us: [campaigns@theecologist.org](mailto:campaigns@theecologist.org)

### ANIMAL WELFARE

#### Save the albatross

With large numbers being killed by longline fishing boats, the albatross is heading for extinction. Birdlife International is campaigning for the implementation of international agreements to save the bird. Contact Birdlife International: [www.birdlife.net/action/campaigns/](http://www.birdlife.net/action/campaigns/) 01223 277 318

#### Say no to whales in captivity

Whales die in captivity all over the world: they are too large and accustomed to living in a vast habitat to survive in small pools.



Contact the Whale and Dolphin Conservation Society: [www.wdcs.org](http://www.wdcs.org) 0870 870 0027

#### Stop animals suffering in live transport

Every week more than 10 million live animals are transported throughout the EU. The RSPCA is campaigning for tougher rules on maximum journey times.

Contact the RSPCA: [www.rspca.org.uk](http://www.rspca.org.uk) 0870 333 5999

#### Buy sustainably-caught fish

The Marine Stewardship Council works to raise consumer awareness about the depletion of fish stocks. [www.msc.org](http://www.msc.org)

### CLIMATE CHANGE

#### Make carbon dinosaurs extinct

Britain's coal-fired power stations are some of the oldest and most inefficient generators of energy in the UK. Contact Friends of the Earth UK: [www.foe.co.uk/campaigns/climate/](http://www.foe.co.uk/campaigns/climate/)

#### Stop BP's Baku pipeline

Join the regular protests against BP's Baku-Tbilisi-Ceyhan pipeline. Contact Rising Tide: [www.risingtide.org.uk/](http://www.risingtide.org.uk/)

#### March to stop climate change

The annual march from Esso's UK HQ in Surrey to the US embassy in London to raise the political profile of climate change takes place on 15 May. Contact the Campaign Against Climate Change: 020 8855 3327 [www.campaignagainstclimatechange.net](http://www.campaignagainstclimatechange.net)

#### Make your church climate-friendly

Operation Noah provides resources and advice for getting parishioners more involved in community climate-care actions. Contact Operation Noah: [www.christian-ecology.org.uk/noah](http://www.christian-ecology.org.uk/noah) 01252 849904

### FOOD

#### Eat less meat

Compassion in World Farming is calling on the government to reduce UK meat consumption by 15 per cent by 2020, and urging consumers to buy only organic or free-range meat. Contact Compassion in World Farming: [www.ciwf.co.uk](http://www.ciwf.co.uk) 01730 264208



#### Adopt a McDonald's

Join the adopt-a-store campaign and get leafleting your local Golden Arches, letting the people who eat there know that a side salad does not a good corporation make. [www.mcspotlight.org/campaigns/](http://www.mcspotlight.org/campaigns/)

#### Keep dangerous pesticides out of chocolate

Demand that chocolate manufacturers ensure Lindane, a pesticide banned in Europe and linked with breast cancer, is not used in cocoa production. Contact Pesticide Action Network: [www.pan-uk.org/forms/lindform.htm](http://www.pan-uk.org/forms/lindform.htm) 020 7274 8895

### HUMAN RIGHTS

#### Get UK companies out of Burma

Contact the Burma Campaign to find out which UK companies support the dictatorship in Burma. Contact the Burma Campaign: [www.burmacampaign.org.uk/](http://www.burmacampaign.org.uk/) 020 7324 4710

#### Help Levi Strauss workers in Haiti

Write to Levi's about the treatment of union members at the factory of its sub-contractor Grupo M in Ouanaminthe, Haiti. Contact No Sweat: [www.nosweat.org.uk](http://www.nosweat.org.uk) 07904 431 959



#### End human rights abuses in Sudan

Call on the Sudanese government to end the abuses, including indiscriminate bombings, torture, rape, arbitrary arrests and abductions, committed by its armed forces in the ongoing civil war. Contact Amnesty: [www.amnesty.org.uk/action/sudan/](http://www.amnesty.org.uk/action/sudan/) 020 7814 6200

### INDIGENOUS RIGHTS

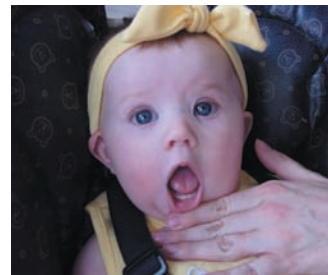
#### Support the Kalahari bushmen

Support Survival International in its work to stop the Botswana government's campaign to wipe out the Kalahari bushmen. Contact Survival International: [www.survival-international.org](http://www.survival-international.org) 020 7687 8700

### MILITARISATION

#### Stop investing in arms

The Campaign Against the Arms Trade's 'Clean Investment Campaign' asks arms company shareholders to consider alternative investments. Contact the Campaign Against the Arms Trade: [www.caat.org.uk/campaigns](http://www.caat.org.uk/campaigns) 020 7281 0297



### NUCLEAR POWER

#### Help expose low-level radiation

For 50 years the authorities have covered up the health effects of radioactive pollution. A new cluster of cancers has been found in North Wales. Government continues to ignore the risks from man-made fission products. Contact the Low Level Radiation Campaign: [www.llrc.org](http://www.llrc.org) 01597 824771

### POLITICS

#### Boycott Bush

[www.boycottbush.net](http://www.boycottbush.net) tells you which companies fund George W Bush and the Republican Party, what products they sell in the UK and how you can buy alternatives. Find out more at [www.ethicalconsumer.org](http://www.ethicalconsumer.org) or call 0161 226 2929



### RESOURCES

#### Join a progressive debate about population

The Optimum Population Trust campaigns for ecologically sustainable population sizes in the UK and worldwide. [www.optimumpopulation.org](http://www.optimumpopulation.org)

### TREES

#### Help restore the ancient forests of Scotland

Trees for Life is an NGO undertaking practical conservation work to restore the former Caledonian Forest in the central northern Highlands of Scotland. [www.treesforlife.org.uk](http://www.treesforlife.org.uk) 01309 691292

IF YOU ARE A CAMPAIGNING ORGANISATION YOU NEED TO BE LISTED IN THIS DIRECTORY SO THAT ECOLOGIST READERS CAN CONTACT YOU...

## Help turn the world's cities green

Make a donation, or sponsor a tree or a grove in any of Trees for Cities' projects in urban communities around the world. [www.treesforcities.org](http://www.treesforcities.org) 020 7587 1320

## VIVISECTION

### Ban animal testing

Get your MP to support House of Commons early day motion 738, calling for a ban on animal testing for household cleaning products. Contact the British Union for the Abolition of Vivisection: [www.buav.org](http://www.buav.org) 020 7700 4888



### Support alternatives to vivisection

Europeans for Medical Advancement works to discredit the flawed arguments behind vivisection and to provide scientifically valid alternatives. Contact Europeans for Medical Advancement: [www.curedisease.com](http://www.curedisease.com) 020 8997 1265

## WASTE

### Recycle more

Find out where your nearest recycling facilities are, what you can recycle and how to encourage others to do the same. Contact: [www.recycle-more.co.uk](http://www.recycle-more.co.uk) 08450 682572



## Become an incinerator buster

Fifteen UK municipal waste incinerators burn 2.5 million tonnes of waste every year, producing a cocktail of toxic chemicals that can cause cancer, heart disease, respiratory problems, immune-system defect, increased allergies and birth defects. Contact Greenpeace: [www.greenpeace.org.uk/](http://www.greenpeace.org.uk/) 020 7865 8100

### Reduce, reuse and recycle

Leading national organisation promoting and encouraging action on the three 'R's - reduction, reuse, recycling. Contact Wastewatch [www.wastewatch.org.uk](http://www.wastewatch.org.uk) 020 7089 2100

### Increase awareness of the environmental impact of nappies

The Women's Environmental Network runs the Real Nappy Project to raise awareness about the environmental impact of nappies and to ensure that parents and adults with incontinence have a fair choice. Contact the Women's Environmental Network: [www.wen.org.uk](http://www.wen.org.uk) 020 7481 9004

## WATER

### Keep water safe from multinationals

Send a World Development Movement postcard to international development secretary Hilary Benn, urging him to 'pull the plug on water in Gats'. Contact the World Development Movement: [www.wdm.org.uk/campaign/watergats/takeactiongats.htm](http://www.wdm.org.uk/campaign/watergats/takeactiongats.htm) 020 7737 6215

### Resist the fluoridation of the water supply

Campaign to stop the government's forced fluoridation programme. Send a 'yellow card' to your local water authority demanding that it keeps your water fluoride-free. Contact the National Pure Water Association: [www.npwa.freeserve.co.uk](http://www.npwa.freeserve.co.uk) 01226 360909

### Make the government spend more on clean water

Call on the UK government to increase aid spending on water and sanitation via: [www.flushoutpoverty.org/](http://www.flushoutpoverty.org/) 020 7793 4523

# HIT THE STREETS JUNE

## 1 DEVONPORT DISARMAMENT CAMP DAY 6, DEVONPORT, PLYMOUTH

The final day of the Trident Ploughshares Camp, with an early morning blockade of the dockyard.

[www.tridentploughshares.org/devonport](http://www.tridentploughshares.org/devonport) 0845 458 83

## 3-6 PERMACULTURE WOODLAND GATHERING

Hill Holt Wood, Lincolnshire. A forum for networking, debate and learning for those interested in the future of our woodlands.

[woods@permaculture.org.uk](mailto:woods@permaculture.org.uk)  
[www.permaculture.org.uk/woodland](http://www.permaculture.org.uk/woodland) 0845 458 1805



## 5 RE-ARRANGED CANNABIS MARCH & FESTIVAL

Carnival style march from London's Kennington Park (assemble 12pm) with floats, banners, costumes and samba beats leading to an all-day free festival in Brockwell Park, Brixton - licence permitting.

[www.thecannabisfestival.co.uk](http://www.thecannabisfestival.co.uk) 020 7274 3364

## 5 MANCHESTER RADICAL BOOKFAIR

Bridge 5 Mill, 22A Beswick Street, Ancoats, Manchester

The bookfair covers anarchism, peace, direct action and social change. There will be books, stalls, ideas, discussions and workshops.

[www.radicalbookfair.org.uk](http://www.radicalbookfair.org.uk)

## 7-13 FASLANE PEACE CAMP BIRTHDAY WEEK

Faslane Peace Camp, Shandon, Helensburgh, Scotland. Faslane has been resisting the UK's nuclear WMD for 22 years! During the week there will be workshops and actions, and on Saturday June 12, a birthday party with sound systems and punk bands.

[www.faslanepeacecamp.org.uk](http://www.faslanepeacecamp.org.uk) 01436 820 901

## 12 WORLD NAKED BIKE RIDE

Meet Bayswater, London

Ride to protest oil dependency and to rejoice celebrate individual freedom.

[www.worldnakedride.org](http://www.worldnakedride.org)

## 15-21 AN EXHIBITION OF RESISTANCE TO BP AND BIG OIL

To celebrate the beginning of the end of BP's sponsorship of the National Portrait Award, London Rising Tide is putting on a counter-exhibition and a series of actions.

07969 786770  
[www.risingtide.org.uk](http://www.risingtide.org.uk)

## 24 INDYMEDIA CINEMA - THE EUROPEAN NEWSREAL

9:30pm, The Other Cinema, 11 Rupert Street, London W1

A project dedicated to establishing a European network to distribute and screen grassroots videos covering issues ignored or distorted by the corporate media. 020 7734 1506



## 25-6 EU SUMMIT

George Bush is flying in, as are the heads of EU states involved in the war, such as Italy, Britain, and Poland, all seeking to iron over their differences with the supposedly anti-war bloc of France and Germany. Come join the protests.

[www.ambush2004.org](http://www.ambush2004.org)

## 26-4 JULY THE OCCUPATION ISN'T ENDING

A week of protests, non-violent direct action and occupations to expose the bogus June 30 'power transfer' to a so-called Iraqi Interim Government. Voices in the Wilderness UK is encouraging groups and individuals to take action to demand an end to the US/UK military occupation.

[www.voicesuk.org](http://www.voicesuk.org) 0845 458 2564



CALL US ON 020 7351 3578 OR EMAIL [campaigns@theecologist.org](mailto:campaigns@theecologist.org)

Vaccine myths

Janine Robert's report on polio (May 2004) is brilliant, but similar articles could be written on all diseases that are vaccinated against. How long must it be before people begin to realise that vaccination per se is a flawed doctrine?

Vaccination uses the over-simplistic theory that germs cause disease and antibodies prevent it. It is known that viruses can mutate from one disease form to another, or appear spontaneously. It is also known that a person can have antibodies to a specific disease but still contract it, while people not developing a disease often nevertheless have no antibodies to it.

We do not get healthy children by vaccinating against ever increasing numbers of perceived threats. This merely exchanges simple infections which harm no one in basic good health, and which are the body's way of eliminating toxins, for chronic and life threatening diseases (allergies, asthma, eczema, diabetes, epilepsy, leukaemia, and other cancers, juvenile arthritis, MS, AIDS, ME, etc etc). All are immune malfunctions.

Measles, whooping cough etc are now considered dread diseases precisely because children's immune systems are so damaged by numerous vaccines (by the way, vitamin A prevents measles complications). Parents now panic about simple infections, giving drugs routinely, which contribute to the toxic build up, immune collapse, and chronic and serious disease. The diseases which really did kill (bubonic plague, smallpox, diphtheria, scarlet fever) were due to nutritional deficiencies and very poor living conditions, and have declined naturally with or without vaccines.

The way to have healthy children is to have clean pure air and water and non polluted wholefoods, and to use herbs and homeopathy for what minor ailments may occur. Childhood infections provide important immune system development.

HELEN JARVIS, ILKESTON, DERBYSHIRE

The World Health Organisation (WHO) confidently predicts that polio epidemics are all but over and that the poliovirus itself will become extinct by the end of 2004. Who is it trying to fool and why? The hidden epidemic. The search for a virus and vaccine for polio was based on a flawed environmentalist science that might have cured a large number of children - and which could still do so.

COCA COLA KILLERS

On behalf of the Colombia Solidarity Campaign, I would like to correct a small but important detail in Keith Hyam's otherwise excellent article about Coca Cola (Killer Cola, April 2004). The Colombia Solidarity Campaign did not call for the boycott of Coca Cola products, but are merely responding to the international call for boycott action from Sinaltrainal (the Colombian Food and Drinks Workers' Union) and the World Social Forum, who have called for the boycott as a last resort in their struggle for justice and reparations for the families of the 8 Coca Cola workers who have been assassinated in Colombia for trying to organise a trade union.

Coca Cola and the paramilitary death squads who they allegedly employ, have been consistently brutal in their attacks on the union since the start of the boycott. In the last 6 months there have been attempts against the lives of two union leaders, the child of another and most recently Coca Cola tried to sack 91 union organisers from their plants. This mass sacking was only avoided through a hunger strike by Coca Cola workers.

The lies, insults and brutality inflicted by Coca

Cola on their opponents, via their press offices and via the police and army, both in India and Colombia, are more proof that the multinational is unwilling to negotiate with their critics. The boycott is a last resort, but in Colombia where 8 workers have been assassinated, many more tortured, imprisoned and forcibly displaced, the time has definitely come for the last resort. For this reason alone, the workers of Sinaltrainal deserve and need our support and solidarity. Boycott Killer Cola!

Damien Jones, Colombia Solidarity Campaign, London

IN DEFENCE OF COMPOST

I have been seething all weekend after reading your editorial interview with Baroness Young (April 2004). First she says, 'composting is more dangerous than incineration.' 'In order of safety I'd put incineration at the top of the list.'

We know that incinerators regularly fail to pass the safety standards that they are supposed to adhere to. What happens? They get fined. Do they care? Of course not they just pay and keep emitting dangerous levels of carcinogenic substances. Why? The fines are too



Nature & Resources When Coca-Cola located in the 'rice bowl' of Kerala, Southern India it brought with it seven water shortages, increased infant mortality and a brutal police crackdown on its critics

IN DEFENCE

It is common to see the large Coca-Cola bottles placed next to the village of Pichikudi in the Southern Indian state of Kerala. Pichikudi is a farming village of about 600 families, many of them Hindu. The right to water is a common issue of all in such a beautiful setting, in the heart of Kerala's rice bowl. The right to water is a common issue of all in such a beautiful setting, in the heart of Kerala's rice bowl. The right to water is a common issue of all in such a beautiful setting, in the heart of Kerala's rice bowl.

PROFIT

It was not long after Coca-Cola entered the rice bowl of Kerala, India, that the company began to be criticised for its 'Killa-Cola' bottling plant. 'Over the years, Chittur taluk was known as the rice bowl of Kerala. We had the most fertile soil and the best yields anywhere in the state. But now the ground is dry and the crops have withered. The water is so scarce that we have to buy water from other towns. After the drought, around 2000 farmers have been seen to commit suicide over the last two years. Karnataka, who has a well and few supplies, says we can't help at all to support its family economy.'

During Coca-Cola's initial villagers were able to draw water from wells just 100 feet deep, now they often drill it at a depth of 500 feet.

It is not only the fields that have dried up, but the water. When Kerala's Coca-Cola bottling plant opened in 1997, it was built on a site that was once a rice paddy field. The village and land a long way from the sea began to dry up. The water table fell, and the ground began to sink. The water table fell, and the ground began to sink. The water table fell, and the ground began to sink.

The massive operation requires a lot of water: around one and a half million litres of groundwater per day. But the water is so scarce that the company has to buy it from the local government. The company has to buy it from the local government. The company has to buy it from the local government.

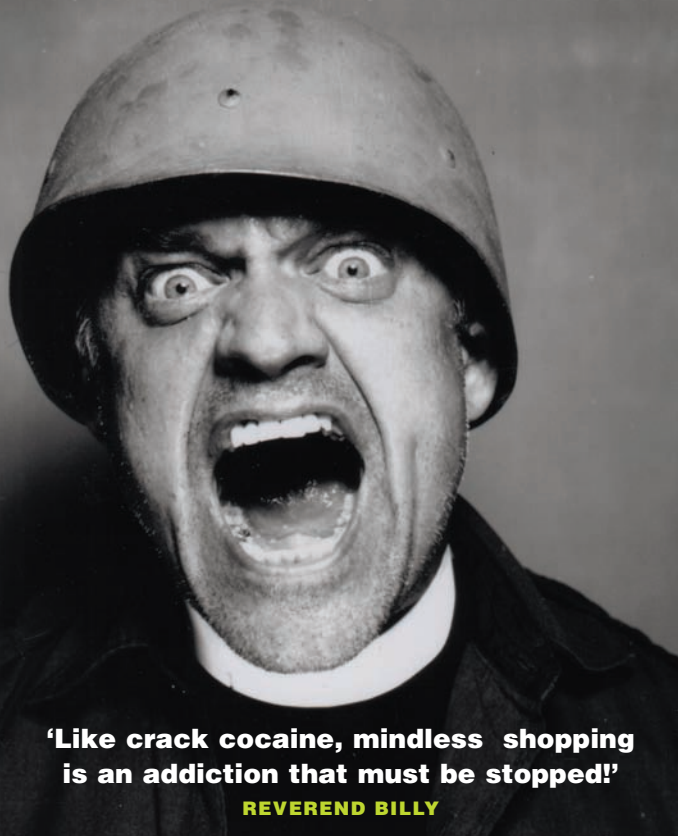
Baroness Young's interview with me about composting was a disappointment. She said that composting is more dangerous than incineration. She said that composting is more dangerous than incineration. She said that composting is more dangerous than incineration.

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**'It's an art, it's an act, it's almost a religion**

**THE NEW YORK TIMES**



**FROM THE PULPIT TO THE STAGE...  
THE ECOLOGIST PRESENTS**

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**Ticket line: 0870 787 9871**



**[www.theecologist.org/revbilly](http://www.theecologist.org/revbilly)**

puny. What does Young say? 'Well I doubt you'd ever get to the point where an environmental crime would be that big.'

As my blood pressure went through the roof – I read on. On the precautionary principle, she says 'Well quite frankly there are a whole load of products that, quite frankly, are fundamental to human existence, the way we live in a modern fashion, that you would wipe out of existence in a stroke because they haven't been previously tested.' She is not worried that products have not been properly tested because they are fairly fundamental to human existence! (Slightly at odds with her approach to bio-aerosols in composting here – which I presume is what she is worried about with 'health impacts of composting not being

properly assessed yet'.) Of course I would argue that composting is and has been fundamental to human existence and pragmatically tested for over 4,000 years without any problem – only benefit. But I digress. A large textile manufacturer – Rohner Textil – applied the precautionary principle to 8,000 chemicals, used in textile manufacture, analysed and found only 38 free of concerns of serious health effects such as causing cancer, birth defects and genetic mutations. Luckily they found that they could do everything they wanted with the 38 chemicals proved innocent.

Is this not an area where the Environment Agency itself could be taking a lead? Should they not be advising businesses on the chemicals and products, which are

proved innocent and starting to help phase out and outlaw the rest?

**Nicky Scott, Chairman,  
Community Composting Network**

## **PUT YOUR HOPE IN HEMP**

In Derrick Jensen and Remedy's article about deforestation (Feb 2004) they talk about hope, but without mentioning the viable alternative that is hemp. 1 acre of hemp can produce as much timber products as

4 acres of trees, every four months. That same acre can provide as much fibre as four acres of trees, and enough cellulose to make 1,000 gallons of gasoline. This very same acre of hemp will also provide about 100lbs of seeds to make foods or other oil products from. In short one acre of hemp would simultaneously allow farmers to profit from three different markets, every four months.

**Michele Bajan, By email**

## **Erratum**

In an article on disposable nappies (page 12, April 2004) we incorrectly said that 'more than 8 million nappies are landfilled every week'. That is in fact the daily amount of nappies going to landfill.

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**The Ecologist reserves the right to edit letters as necessary**



# from the pulpit

We interrupt our regular programming for a moral advisory...

## I'm the Reverend Billy



The Church of Stop Shopping has just returned from the wilderness of straying souls, California. We were bussing up and down the golden coast for two weeks. We called ourselves The Neighbourhood and Town Revival Tour.

Knowing that a lot of what we do is crazy, or HOLY – we embrace our mission with self-induced joyousness, by which I mean, we sing a lot in the bus. We began our journey down in Los Angeles, where the community of Inglewood had just heartily rejected the advances of Wal-Mart.

We felt so inspired by the neighbourhood defence groups, the union locals and churches who withstood THE RETAILER WITH A BUDGET TWICE THE SIZE OF SCOTLAND. We were inspired to rename the choir the 'Stop Big Boxes Gospel Choir'. We got bolder, less safe. We started pulling the bus into parking lots, throwing the microphones out the windows, and launching into our radical caroling. STOP SHOPPING! STOP SHOPPING! Alleluhiah!

We also entered a new phase – we began the practice of exorcising cash registers. This involves sustaining an attitude of high holy prayer while an ex-marine security guy pulls your legs toward the door. But PRAISE THE GOD THAT IS NOT A PRODUCT – it is all in a day's preaching.

The Christian fundamentalists have their own model of Fortress America – a big box for the trapped soul. In these airtight utopias a good fundamentalist can sleep, work, go to the bank and the laundry, and then shop for handsomely displayed sweatshop products, where, while you browse, you can hum along to the rhythm of hard right rock with the Rapture in the lyrics. And our EXTRAS FROM DAWN OF THE DEAD never leave their enormous Jesus jail, (nor do we call it 'their little America'). Can someone say SHOPOCALYPSE?

Two kinds of big boxes blurred together in our bus windows. The difference? One has the Logo, the other has the Cross. But they both create highly regimented, deeply socialised people down in their Evil lower levels. Both pave everything in sight. Both make their consumer-citizens so stupid they don't know what a

colonial war is. Both corrupt their local politicians into ungodly tax breaks. And too many, far too many of them love to golf.

One morning we disembarked from the bus after driving and singing for 500 miles. Above us were these 1,500-year-old redwoods. And up in the braches were valiant tree-sitters, whom I'm honoured to credit in the pages of *The Ecologist*. The causes of the situation are familiar. Another deeply-in-debt company needs

to cut down the oldest living things to pay off junk bonds, while the CEO takes in tens of millions. We sang our anti-consumerist songs from the forest floor, and thanked these brave souls for their work. THANK YOU!

We gathered around one great stump. A woman named Anna, who had lived in the tree for eight months, led us in a kind of prayer. She talked about this tree's life, and its moods and its kind of singing, as it towered above the ravines that go down to the sea. As we held hands in a circle we could feel the great redwood above us, where it had lived. Her re-introduction of life, by way of memory and imagination and love, alternated hope and hopelessness in us. We tried to sing, and my preaching came out like a tender thought. Then the police cars pulled up on the logging road nearby.

We have wandered into a terrible moment. Another in a long line of great historical powers who torch the world is so doing, dreamily adolescent and irresponsible. Words like 'Democracy' and 'Freedom' are applied with the distortions that power allows.

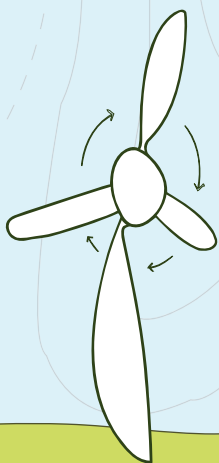
Nothing is more dangerous than the isolation of America, unseeing and inexperienced. We are in a dome, in a fluorescent big box full of products created by suffering. All our views of the world are filtered by billionaires at the portals of a false environment. We must break into their private property and introduce new imagery. We must be willing to embrace our counter-intuitive Holy Foolishness. Amen? AMEN!

Bill Talen's book *What Should I do if Reverend Billy is in my Store?* (New Press) is available in independent bookshops (if you see it in a transnational chain store, steal it). Rev Billy will be preaching in London in June. Visit [www.revilly.com](http://www.revilly.com)



**'Exorcising of cash registers involves sustaining an attitude of high holy prayer while an ex-marine security guard pulls your legs toward the door'**

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