

the ecologist

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Editor Zac Goldsmith
Editor's Assistant Layla Dayani
Managing Editor Harry Ram
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Sub-editor Ben Skelton
Science Editor Peter Bunyard
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Press enquiries Jan Howells
Researchers Lydia Mariner, Emma Cardwell, Catherine Radojcic, John Hills
Publisher Tyler Moorehead

Founding Editor Edward Goldsmith
Editorial Board Helena Norberg-Hodge, Steven Gorelick, John Page, all of ISEC

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Editorial Office

Unit 18, Chelsea Wharf,
15 Lots Road, London, SW10 0QJ, UK
Tel: +44 (0)20 7351 3578
Fax: +44 (0)20 7351 3617
Email editorial@theecologist.org
Website www.theecologist.org

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beauty rooted in environmentalism.



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When I left school roughly ten years ago, I was able to travel the world. I talked to villagers who'd chained themselves to the banks of a river in protest against the controversial, and now disaster-struck, Tehri Dam. I met indigenous people in the Chiapas region of Mexico, fighting to protect their own identity and economy in the face of growing threats from the NAFTA-enabled US multinationals. It was obvious to me, and to anyone else who'd witnessed these tragedies, that that is what they were: tragedies.

But it wasn't until someone handed me a copy of a then little-known book, *Decline of an English Village* by Robin Page, that I understood that the same pattern of destruction is eroding the heart of rural Britain.

Page's book is a personal testament to the immeasurable value of community. Reading it inevitably inspires a feeling of homesickness for a way of life that 'progress' has all but rendered impossible. Working communities, real communities of the sort Robin Page describes, take generations to build but sadly only a few years to destroy. They are vital threads in the fabric of life, fulfilling priceless social, ecological and economic functions. Common sense dictates that we should cherish and nurture them. Tragically, successive British governments have not.

Worse, they have actively driven their destruction. Rural decline is not evolutionary. It is the consequence of bad, often corrupt decisions born of an unholy marriage between politics and vastly over-sized businesses. When confronted with the effects of those bad decisions, our leaders merely interpret them in such a way as to legitimise further bad decisions.

Britain's rural communities, then, are being gutted. At the beginning of the 21st Century, only half our parishes boasted a shop, farm incomes had plummeted to an average of £10,000, and farmers were committing suicide at a rate of one each week. Rural Britain is dying, like the communities of Southern Mexico, like the cultures of Northern India.

Faced with all this, the experts appeal to abstract economic principles which they regard with far greater deference than they do real people. If farmers are going out of business, they say, it is because they are 'uneconomic'. But to be 'economic' in today's global food economy requires political access, disproportionate subsidies, and an ability to make the relentless costs of intensive agriculture – pesticides, erosion, emissions, cancer – vanish from the price tags of artificially 'cheap' food. Facilities, in other words, which could not be further from the grasp of an ordinary farmer.

Today's engineers of 'progress' are pushing us blindfold from a past they fail to understand towards a future that they cannot define. There are no realistic goals, and therefore no means by which we may judge its course. Brave New World developments are sprung on our countryside – but like the crowds assembled to view the naked emperor's new clothes, too few of us are prepared to say what is true: that transforming rural communities into vacuous commuter zones, their inhabitants to mere economic units, does not represent 'progress'. It represents death.

Decline of an English Village is a tale of the tragic unravelling of one community at the hands of a new elite whose rejection of anything that fails to conform to its sanitised urban world is pursued with all the vehemence of a Jihad. Fortunately the book has been updated and reprinted. We will be publishing extracts in the coming months, and are able to supply our readers with discounted copies. Perhaps once you've turned the final page you might consider passing it on to your local MP.

Zac Goldsmith





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Chances are your toothpaste has enough fluoride to kill a small child, potentially carcinogenic colourings banned in other European countries and several slow-motion poisons. Why take the risk? Pat Barker reports.

23 IF YOU LOVE ANIMALS... EAT THEM **COVER STORY**

Hugh Fearnley-Whittingstall asks, 'why shouldn't we claim the moral authority to kill animals for food on the basis that we are offering them a better deal in life than they would get without our help'. 'Because', argues Professor Andrew Linzey, 'we don't have the right to colonize and kill millions of other sentient individuals as food resources, when one can live a healthy and happy life on a vegetarian diet'.

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When local shrimp-boat operator Diane Wilson found out that Formosa Plastics was polluting her fishing grounds, she went after them. 12 years, three hunger strikes, and the threat of a 19 year jail sentence later... this is her remarkable story.

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'Hoover stayed with us until he was three, imposing his personality on everyone on the farm, becoming fully adult, occasionally wayward, more hairy, more warty and more extravagantly tusked, but never less than courteous and considerate. And he seemed to expect the same behaviour of us.' Lyall Watson invites you into the world of Hoover... the warthog.

40 TETRA: A POPULAR REVOLT **COVER STORY**

Costing £2.9 billion, the UK's new police communication system Tetra has been described by one independent scientist as likely to cause 'more civilian deaths than all the world's terrorist organisations put together'. Jay Griffiths reports.

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...storms the Republican barricades

**When I started work when I was young
I was asked to fit part A to B.
Then later my job was to tell the young
to fit parts A to B.
Then later my job was to tell
Who should tell others to fit parts A to B.
I worked very hard for many years,
But never saw how what we made fitted
In the great scheme of things.
We made parts out of parts.
It created many jobs that supported the
employees,
It was a successful little company,
A cog in the world's machine.
Then over the years in the news,
I saw a monster prowling foreign lands.
I kept working because we all have to fit
A to B to put bread on the table.
Then slowly the news started to raise the
thought,
That the monster was getting closer to my land.
I had had a good life, my hard work had
Earned me holidays and treats,
We were often happy.
I think I was a good man,
In a world I didn't fully understand.
And then one day the monster came
Crashing through our borders,
Until it reached our town.
And then it came crashing
Through the walls of my house.
And just before I died,
I saw that out of all its many parts,
Some were stamped with the letters A and B.**

Send letters for publication to:
Letters, The Ecologist, Unit 18 Chelsea Wharf,
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[illegible][illegible]

The Swiss system of politics is certainly better than ours, but it is still large-scale and useless to the small group or individual without the time or resources to organise 100,000 signatures ('Direct democracy', July/August 2004).

**John Rogerson
Lockerbie**

Now that United (F)Utilities has had to increase the price of its gas (+12 per cent) and electricity (+9 per cent) with the stupid statement that 'the age of cheap energy is now over', I say 'get real'.

Which cave did these Fossil Fuel Fundamentalists crawl out of?

PS. And I never mentioned oil and/or wind farms once.

PPS. Every house in Oldham should have solar panels... And it keeps the nimbies (as they hide

Dave Goodwin
Saddleworth

How many more stories am I going to have to read about chemicals appearing in water supplies before politicians do something about the appalling state of our 'fresh' water? The latest scandal I read in my local newspaper, the *Bangor Daily News*, relates to the 'No-stick' social responsibility star DuPont, which is going to court to fend off a lawsuit filed by West Virginian neighbours of the chemicals corporation, who have discovered lots of perfluoro-octanoic acid (C-8 for short, the main ingredient in Teflon) in their water. According to the *Bangor Daily News*, 'C8 is a detergent-like chemical that doesn't break down in the environment or in the human body. It can be found in the bloodstream of 90 per cent of Americans'. Could this explain the lack of sh*t sticking to the current and hopefully soon-to-be ex US president?

SUPERMARKET FREE

In the last two weeks I have transformed 30-year old food

shopping habits and I am all the better for it. I've learned new recipes from talking to people at the farmers' market stands and I really do taste the difference in the fruit and vegetables I now buy. Is there any way you would consider doing monthly pages on British food? Those of us making a conscious decision not to shop at supermarkets need all the help and support we can get.

Melissa Tarbot
By email

PROZAC ON TAP

I've just finished reading a recent study that said that the anti-depressant Prozac is so prevalent in the bloodstreams of Americans that it is now an indivisible part of US tap water. Does this mean that drinking tap water can trigger a royalty payment to Eli Lilly, the drug's manufacturer? After all, Canadian farmer Percy Schmeiser was sued by Monsanto when a few of the biotech firm's patented GM seeds happened to blow into his fields.

Max Keiser
By email

HOOKED

I feel sick. Sick at my own laziness, my own willingness to conform. Supermarkets have made me consider simplicity and speed as the prime virtues in my food. Mobile phones have made me believe being always available (read never free) is a condition to aspire to. But of course the true genius is that once they have me buying their ready meals and choosing my own 'individual'

ringtone, I am locked in. Now I get excited every time a new range of 'meal solutions' is presented to me in my 'local' supermarket, and I feel my phone is inferior to those of my friends that have a camera built in as well. I'm hooked, as addicted to their supposed charms as a junkie. And I'm scared that it will be as hard to give up. But if I want control of MY life, I know I have to try. We all do.

Vicky Cummings
London N10

NO ANSWER?

I often find when reading my *Ecologist* that while one article informs me of a problem, it is only when I read three or four that the penny truly drops. In last month's issue there was a perfect example. First I read how supermarkets have destroyed the pleasure of food shopping, and now are offering themselves as the solution to the misery that is shopping. Then there was the story of certain environmentalists saying that thanks to climate change we have to think about using nuclear power. Elsewhere nanotechnology enthusiasts were harping on about using nanotech to clean up waste from earlier technologies. And finally there was the article deriding the idea that cloning animals was somehow the answer to protecting endangered species. Individually interesting articles. Add them up and I see the common thread. We don't stand a chance while we assume that the only way to solve the technological problems we have invented is by inventing more technologies to 'solve' them. Maybe

MONEY TO INVEST?



A highly experienced team of environmental consultants and engineers have created unique and personalised energy briefings designed to encourage and simplify the use of sustainable technology in the home. First round funding has been secured. Second round funding in the region of £250,000 is required.

For details of investment options and exit routes please contact Matthew Rhodes on 01926 771465 or email matthew.rhodes@encraft.co.uk in the strictest confidence.



encraft
The Sustainable Lifestyle Company

the problem is not with the technologies so much, as with us.

Steven Bird
By email

HELP...PLEASE

Is it possible to ask for help through *the Ecologist*? I am at the stage where I need to have some food samples analysed to see if there are increased levels of minerals in the samples grown on remineralised soil. I need help from a university or a lab that could do the analysis. The project has no budget, except me, and I just do not have the money to pay commercial fees, which would be £1500-£2000.

If you include a note in the next edition asking if anyone is interested in helping I would be very grateful.

Colin Shaw
By email

LIFTING THE VEIL

Thank you so much for dedicating the whole of the last issue to supermarkets. I have always had a nagging feeling that it all seemed too good to be true, but your report really

opened my eyes. More importantly though, now I know what I know, I just can't bring myself to go into supermarkets. Before, I would think I should shop somewhere else but then the lure of promised convenience, variety and quality tempted me in. Now all I see are lies, waste and abuse and the shop just looks like an ugly eyesore destroying my high street.

Angela Carrington
Oxford

ADDENDUM

In the article 'Every little helps' (*Ecologist* October 2004) we omitted to mention the work of Caspian (Consumers Against Supermarket Privacy Invasion and Numbering), to whom we are indebted for highlighting concerns over RFID, loyalty cards, and other supermarket surveillance technologies. To find out more, go to www.nocards.org

special report supermarkets

As the supermarket doors glide open there they are - cosmetically perfect, irresistibly firm, brilliantly coloured fruit and vegetables. And yet, when you get them home, they taste of nothing. Is it the way you cooked them, or have you just selected badly? No, you've been conned.

By email

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fruit and vegetables

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permanent

global summertime

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Ad infinitum...

The battle to turn everything into a marketing opportunity continues...



HAND-HELD PRESIDENTIAL CAMPAIGN

In the run-up to the US presidential election, anti-Bush campaign America Coming Together (ACT) is sending thousands of activists into swing states to canvass voters individually and play them electronic adverts on hand-held computers. ACT's political consultant says: 'The response has been tremendous. Who has ever been to someone's door carrying a PalmPilot and showing an ad? Nobody. In some cases people have never seen a PalmPilot up close before.'

Seen any outrageous uses of public space for marketing?
Email jeremy@theecologist.org

NO OLYMPICS GOLD PEPSI OR NIKE

Writing in marketing trade mag *PR Week* in August, commentator Paul Holmes reported that the organisers of the Athens Olympics clamped down on 'anything that might allow TV audiences a glimpse of a non-sponsor's logo'. Holmes wrote: '[Spectators] carrying bottles of Pepsi (or any bottled water not made by Coca-Cola) [had] them confiscated... People with a Nike logo on their T-shirts [were] asked to turn the shirts inside out. Stewards... [were] warned about wearing footwear that [wasn't] made by official sponsor Adidas.' Holmes then added: 'I'd rather see the [Olympic] organisers worry about concerns that official merchandise is being made in sweatshops.'



Sports-utility death traps

Yet another reason for owning a sports-utility vehicle (SUV) has been rubbished with new figures showing you are more likely to die in an SUV than in a conventional car. Already we knew they caused more pollution, more climate change and more accidents; now new data from the US's National Highway Traffic Safety Administration reveals that SUV occupants were nearly 11 per cent more likely to die in a traffic accident than occupants of smaller cars in 2003.

Flame-retardant with your fish?

First they found that farmed salmon contained more levels of cancer-causing PCBs (chlorine-based compounds) than wild salmon. Now researchers have discovered that the same also applies to PBDEs: a type of flame-retardant used in electronics and fabrics. Although no conclusive evidence of the chemicals causing harm to humans has yet been found, they have been shown to interfere with rats' hormones. And the two most commonly used PBDEs have been banned by the EU.

When crime really does pay

News comes from across the Atlantic that confirms that being a criminal is no barrier to success in corporate America. The new employer of Oregon executive Andrew Wiederhorn has said it will continue to pay his \$1.6m salary while he serves an 18-month prison sentence for crimes that included filing a false tax return while he was CEO of another financial services group. They've even suggested giving him a bonus to help him pay the restitution he has to make in accordance with the terms of his plea bargain.

Chemicals are destroying our brains

The number of people suffering from neurological diseases such as Alzheimer's and Parkinson's has risen dramatically in industrialised countries, according to a new report in the journal *Public Health*. The report claims this may well be a result of chemical pollutants. Between 1979 and 1997 cases of Alzheimer's and other dementias more than trebled in men and rose by nearly 90 per cent in women in England and Wales, with other countries witnessing similar growth rates. The study's authors say the rates of increase were too steep to be the result of genetic changes, and that the cause had to be environmental. Co-author Colin Pritchard cited the ubiquity of pesticides, exhaust fumes, and industrial chemicals, of which there are some 80,000 now in use.



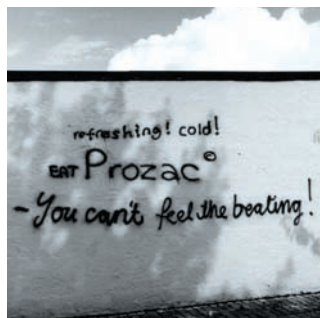
11,000 dead sea creatures cover the front of Berlin's Brandenburg Gate. They were laid there by activists from Greenpeace to highlight the urgent need for wildlife protection areas in the North and Baltic seas.

Unwanted mast gets poor reception

Residents of the small community of Tamur in northwest Ireland have taken a very hands-on approach to the fight against mobile phone masts. Angry with mobile phone company O₂'s erection of a mast that had twice been refused planning permission on health and environmental grounds, they simply tore down the unwanted installation. It seems that they were more interested in their community's welfare than people's ability to get crystal-clear coverage for their mobile phones.

The national conference of UK pressure group Mast Sanity takes place on 25 and 26 September 2004 at Gloucester Cricket Club in Bristol.

For more information, call 08704 322377, or go to www.mastsanity.org



Taking the Prozac piss

The Environment Agency has found traces of the anti-depressant Prozac in the UK's drinking water. Although there are no exact figures, the agency stated that the amount of Prozac in the water table could be at potentially toxic levels, with some experts concerned that it might affect reproductive ability.

Fare-dodgers' support group

Believing that public transport should be free so that as many people as possible are encouraged to stop using their cars, activists in Sweden have established a fund to pay the fines of fare dodgers. Individuals make small payments into the fund in accordance with their incomes and travel patterns, and if they get caught evading fares their fines are paid by 'free-riding cooperative' P-kassan. The activists insist the plan is about more than just helping people bunk off paying, and say: 'In the long run free public transport would lead to other positive effects, like a better urban environment with less traffic jams. Today car traffic is prioritised at the expense of public transport. Roads are financed by tax and are free to use, but public transport is financed by fares. It's strange that the authorities punish those who choose the means of travel that suits the environment best.'

To find out more go to www.planka.nu

Farewell fruit, hello aromatherapy

Britain's vanishing local shops are being replaced by businesses offering image makeovers, a new study by the London School of Economics (LSE) reports. LSE economic historian Dr Timothy Leunig's *Alternative Census* compared entries in the *Yellow Pages* for 1992 and 2002. Leunig found that the numbers of grocers, bakers and carpenters have fallen dramatically. In contrast, seven of the 10 categories of entries seeing the most growth were in the beauty sector, with the largest increases being for aromatherapy (up 5,200 per cent), cosmetic surgery (up 1,780 per cent) and dieting and weight control (up 1,445 per cent).

DuPont hopes Teflon charges won't stick

The US Environmental Protection Agency filed a complaint in July charging chemicals giant DuPont with withholding evidence of its own health and environmental concerns about an important chemical used in the manufacture of Teflon. DuPont stands to be fined up to \$25,000 for every day it withheld the evidence. As the company first learnt of the potential risk 20 years ago, this could result in a fine of \$300m.

The chemical the agency is concerned about is perfluorooctanoic acid. It is found in the blood of 90 per cent of Americans.



Global warnings

Climate change is not a future scenario. The day is not after tomorrow, but today

ANDES GLACIERS MELTING

The glaciers on top of 18 Peruvian mountains are melting. Furthermore, Patricia Iturregui, president of Peru's National Environment Council, warns: '[If] climatic conditions remain as they are, all [Peru's] glaciers below 18,000 feet will disappear by around 2015.' Already, 20 per cent of the country's 1,615 miles of glaciers have been lost.



EUROPEAN WINTERS TO 'DISAPPEAR' ALTOGETHER BY 2080

Europe is warming faster than anywhere else on the planet and may stop experiencing cold winters altogether by 2080, a new report has claimed. According to the European Environment Agency, the number of climate-related disasters in Europe doubled during the 1990s. The agency found that, because of increasing greenhouse gas emissions, temperatures in Europe have risen by an average of 1.7° Fahrenheit over the past 100 years and will climb by between 3.6° and 11.3° more this century. By comparison, global temperatures have risen by between 0.36° and 1.26° in the past century, and are forecast to rise by between 2.52° and 10.4° more by 2100.



WHITE HOUSE DISMISSES OWN CLIMATE CHANGE FINDINGS

A Bush administration report has acknowledged that rises in temperatures across North America over the last 50 years were due, at least in part, to human activities. Nonetheless, the US president's top scientific adviser, John Marburger (above), said the report had 'no implications for policy'.

Agent Orange petition nears half-million mark

The July/August *Ecologist* announced the launch of an online petition in support of the Vietnamese Association for Agent Orange Victims, which has begun a court case in New York against 35 chemical companies involved in the production of the herbicide Agent Orange. The defoliant was used by the US military during the Vietnam War, inflicting huge and indiscriminate damage and suffering on the local environment and population. As this issue of *The Ecologist* went to press the number of signatures on the petition had reached 470,028. If you haven't signed the petition already please do so at www.petitiononline.com/AOVN/.



Pollution bad for productivity

Researchers from the Denmark-based International Centre for Indoor Environment and Energy have discovered that poor air quality inside office buildings reduces typing and reading speeds by up to 9 per cent; that's the equivalent of losing 4.5 hours in a 48-hour working week.

Your children need you

It has long been known that companies use children's 'pester power' to encourage parents to buy useless products. Even the US Department of Homeland Security has established a 'Ready for Kids' programme designed to 'teach fourth- to eighth-grade kids the ABCs of emergency preparedness in the event of a terrorist attack'. Ready for Kids includes an American shepherd dog mascot and instructions telling kids to bug their parents to develop a family emergency plan.

Is nuclear really an option?

The newspapers in this country have recently been full of stories revealing that some environmentalists are calling for the nuclear option to be revisited in the light of the threat of climate change. Certain other stories have received slightly less coverage in the British media. For example, on 9 August, the 59th anniversary of the dropping of the atomic bomb on Nagasaki, Japan experienced its most deadly nuclear accident to date, when four workers were killed by scalding steam spewing from a ruptured pipe at a nuclear power plant in Mihama, southern Japan. Officials from Kansai Electric Power Company admitted that the pipe had not been properly inspected for 28 years. At the end of August the newest nuclear reactor in Ukraine was shut down for the sixth time since its official launch less than three weeks earlier. The same month, the head of Peru's Institute of Nuclear Energy reassured worried citizens in his country that two stolen nuclear measuring devices *probably* did not contain enough radioactive material to make a dirty bomb. One story that was reported in the British press (in *The Sunday Express*) concerned revelations that more than a dozen areas of Scotland remain under curfew because of fall-out from the Chernobyl disaster (pictured above), and that sheep on 14 farms are still being monitored for contamination.



Dumb animals?

It's not just factory farming and vivisection that prove humanity has no idea how to relate to other living beings...

PLASTIC SURGERY FOR PETS...

A vet in Brazil is offering plastic surgery and botox injections for pets. Among the treatments available at Edgard Brito's clinic are wrinkle surgery, ear correction and even face-lifts for dogs.



...AND COWS

The organisers of an Australian agricultural show have banned cows from entering if they have had cosmetic surgery. Tasmania's Agricultural Show Council believes some breeders are resorting to such techniques to increase their animals' chances of winning. 'We don't want cows' teats sealed or glued,' a spokesman said. 'We don't want people pumping cows' stomachs up. We don't want any interference at all as far as the conformation of the animal is concerned.'

FISH HAVE FEELINGS, TOO

An article printed in the journal *Applied Animal Behaviour Science* this summer claimed that 'anatomical, pharmacological, and behavioural data suggest affective states of pain, fear and stress are likely to be experienced by fish in similar ways as in tetrapods [four-limbed vertebrates]. This implies that fish have the capacity to suffer'. So, cramming them together in fish farms must be a living hell for them.

RESTAURANT FOR CATS

The Meow Mix Café, the world's first restaurant specifically for cats, opened in New York in August. Although the initial idea was to open it for just one week (in order to promote the owner's brand of cat food), there were plans to turn it into a permanent concern if it was well received.



THERE'S ELEPHANTS ON THE PITCH...

Concerned about prisoners' predilection for gambling on the results of the Euro 2004 football championship, the director of Thailand's penal system scheduled the diversion of a match between inmates of Ayuthaya Prison and a team from outside the facility. The external team comprised trained soccer-playing elephants from Ayuthaya Elephant Palace, and held the inmates to a 5-5 draw.





Nigeria demands \$1.5bn for Shell victims

The Nigerian senate has passed a resolution asking Shell to pay \$1.5 billion in compensation to communities affected by pollution from the company's oil operations. Shell replied that the resolution was not binding unless backed by law.

Fishery greenwash condemned

Leading environmental organisations have condemned the decision of the Marine Stewardship Council, the London-based responsible fishing advocacy group, to award a sustainable practices logo to the US's largest fishery. Groups including Greenpeace and international marine conservation group Oceana claim the Alaskan pollock fishery, which accounts for a third of all fish caught off the US, does not meet the council's guidelines for sustainability. Instead, they allege that overfishing in the fishery has resulted in an 80 per cent drop in Steller sea lions there, as well as a decline in the pollock population itself.

'Toyota-isation' of Sahara causing dust bowl

An Oxford geography professor says a dramatic increase in dust blowing up from the Sahara is due at least in part to the fact that four-wheel drive vehicles are increasingly being used instead of camels in the desert. Over the last 50 years dust storms emanating from the Sahara have increased by 1,000 per cent. Professor Andrew Goudie believes a ban on driving vehicles in sensitive desert areas may be necessary.



Airport expansion threat to UK's last medieval hunting forest

A campaign calling on the public to help save 1,000-year-old Hatfield Forest from the proposed expansion of neighbouring Stansted Airport has been launched by the National Trust. The last surviving example of a medieval hunting forest in Britain, this unique site is already badly affected by Stansted's current flight path and could face an uncertain future if a second runway is built at the Essex airport. Tony Burton, the National Trust's director of policy and strategy, said: 'We need to act now to safeguard the future of Hatfield Forest and protect this precious site from the irreversible damage that could result from the plans to expand Stansted Airport.' Last year the government approved plans to increase capacity at Stansted, including the development of a second runway.

Sign the National Trust's online petition calling on the government to block expansion at Stansted at www.save-hatfield-forest.org.uk. Alternatively, write to: Hatfield Forest Estate Office, Takeley, Essex CM22 6NE

Differing approaches to laziness

A UK businesswoman has been told to rewrite a job advert seeking 'hard-working' staff because it discriminates against the lazy. An advert placed by employment agency owner Beryl King calling for 'warehouse packers who must be hard-working and reliable' was deemed to be unfairly discriminatory by a Southampton Jobcentre.

Meanwhile, a senior economist at French electricity firm EDF is facing a disciplinary hearing after publishing a book that aims to teach people how to survive in French corporate culture without doing any work. The author of *Bonjour Paresse* ('hello laziness'), Corinne Maier, recommends taking 'useless' jobs in fields such as consultancy. Her bosses have taken offence at the book, however, and summoned her to a disciplinary hearing.



GM Watch

SALMON GIVE BIRTH TO TROUT

Scientists at the Tokyo University of Marine Science and Technology have succeeded in causing salmon to give birth to trout by transplanting the primordial germ cells of a North American rainbow trout into the embryos of young masu salmon. While the scientists claimed the technique could be employed to boost the numbers of endangered populations, environmentalists countered that the only real way to do that was to protect habitats.



DRUG LORDS BEAT BIOTECH FIRMS AT OWN GAME

Colombian drug traffickers have created a new variety of coca plant that is resistant to the chemicals sprayed to eradicate it. As well as being resistant to the pesticide glyphosate, the new strain of coca produces up to four times more cocaine than the variety currently used.



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Our man on Wall Street

Max Keiser bemoans Greenpeace's financial naivety, rails at Citigroup's daylight robbery, and suggests we fill our boots with carbon credits.

The KaramabanQue Index

STOCK	STOCK PRICE FALL since 1 January 2004
1 Krispy Kreme Doughnuts (kkd)	-64.81
2 Ryanair (ryaay)	-38.71
3 Clear Channel (ccu)	-28.44
4 Coca-cola (ko)	-11.90
5 Pfizer (pfe)	-7.53
6 Citigroup (c)	-4.04
7 Microsoft (msft)	-0.26
8 Mcdonald's (mcd)	+ 8.82
9 ExxonMobil (xom)	+12.44
10 Starbucks (sbux)	+30.30
INDEX IS UP 13.25%	

The KaramabanQue (KbQ) Index 2004 tracks the share price of high-performing but socially and environmentally irresponsible corporations, assuming their shares had been sold short on 1 January 2004. A short sale is a bet that a trader makes that a company's share price will fall. The further the company's share price falls, the more money the trader makes. Selling short stocks hurts corporations because it deflates their share price, the one and only language CEOs understand. The 10 stocks listed here are those with the highest KbQ rating on 1 January 2004.

The KbQ rating determines where a company appears in the index, and combines the amount of dissent directed at a company and its boycott vulnerability ratio (BVR).

A company's BVR indicates the susceptibility of its stock price to a consumer boycott. Currently, ExxonMobil's BVR is close to \$1, whereas Coca-Cola's is closer to \$5. Put simply, if I subtract a dollar of sales from Coke, that boycott cuts into the value of its stock five times harder than if I were to subtract a dollar of sales from Exxon.

For this reason boycotts ought to target high-BVR stocks like Coke.

www.karmabanque.com

Starbucks gets whacked

Coffee chain Starbucks was flirting with a 52-week high when KbQ re-emphasised its sell recommendation last month. The stock is swimming against a powerful, global, anti-American tide, not to mention way too

expensive lattes in the Bush depression. Looks like we were right: sales numbers for August came in below Wall Street estimates, and the stock got whacked for 10 per cent. More pain on the downside to come, we think.

Ryanair in a tailspin

Carbon-spewing, wheelchair-hating, budget airline Ryanair picked up some new corporate social responsibility risk potential. A new website called *ryan be fair* (www.ryan-be-fair.org) tracks disgruntled employees and

their grievances (hey, they want to start a union). Add to this the potential of higher oil prices for dragging down the firm's earnings, and we think the stock may yet hit fresh lows this year.

Krispy Kreme slide continues

Obesity provoker and alleged accounting fraudster Krispy Kreme Doughnuts hit a 52-week low this August. I'd like to see Krispy boycotters take this one down to single digits. There is some precedence: fellow US confectioner



Interstate Bakeries is feeling the wrath of anti-carb boycotters who have forced the company to warn of the 'possibility' that auditors could raise questions about its ability to continue as a going concern.

Greenpeace's Exxon failure

Shortly after last month's issue of *The Ecologist* hit the news-stands I got emails from senior Greenpeace staffers on three different continents 'urgently' requesting that I expose the author of the memo I had reported as outlining Greenpeace's exit strategy from its self-admittedly failed Stop Esso campaign.

What struck me about these emails was the confirmation of my long-held belief that Greenpeace is an organisation held captive by its public relations department. No mention was made of the merits of the argument. No, the emails were concerned about how this memo, if leaked to the press, might 'play', and whether or not Exxon would contact me and get a copy of it to help it discredit Greenpeace. As if Exxon, a multi-billion-dollar company has time for such nonsense.

So what do I hear coming out of Greenpeace now? Speaking to me on

condition of anonymity, a senior staffer said (and I paraphrase here): 'KbQ's results mirror our own internal studies. Coke has been a great campaign: it took only a few months for them to back down on ozone-depleting coolants. Whereas Exxon's proven to be a hard target that won't give an inch. I think your idea about targeting only high BVR-rated companies makes sense, and it would save us a lot of grief if we incorporated KbQ's ideas.'

When I probed further about this, two things became apparent: one, campaigns at Greenpeace are chosen more for PR value than strategic sense; and two, nobody at the pressure group can read a corporate balance sheet. Why bang on about this? Because the *FT* reported something last week that should, if financial statements were not off-limits to environmentalists, be an extremely important bit of news concerning carbon credits. More on this in 'When greed is good' over the page.

Investors should be cautious about any and all stock recommendations and should consider the source of any advice on stock selection. Various factors, including personal or corporate ownership, may influence or factor into an expert's stock analysis or opinion.

All investors are advised to conduct their own independent research into individual stocks before making a purchase decision. In addition, investors are advised that past stock performance is no guarantee of future price appreciation.

Market news

Euro Disney

Shares in Euro Disney, the US's proxy on the Continent, continue to 'shit the bed', as we say on Wall Street. It appears the stock's dive mirrors the rise of animosity between Europe and the US.

Adding heat to this volatile cocktail of animus is the recent trade data showing direct investment from the US to France has dropped by more than 80 per cent this year. Then there's the Bush administration's plans to pull 70,000 free-spending US troops out of Europe and Asia so they can be deployed to the new Ameri-Disney-Saudi Oilworldland in Iraq.

Against this backdrop the unthinkable



Looks like curtains for this cultural Chernobyl

starts to become possible: a Euro Disney bankruptcy. Not even Saudi billionaire Prince al-Waleed, who has a 16.3 per cent stake in Euro Disney, appears ready to ride to the rescue. The rumour is he's still hopping mad with the US after former New York mayor Rudolph Giuliani snubbed him post-9/11 by not taking any

of the cash he made available to help to rebuild Ground Zero.

I remember when Euro Disney first opened: the French called it a cultural Chernobyl, and that was the high point for the stock. The question still remains why anyone would pay to go to a shopping mall surrounded by boring rides, bad food and screaming, spoiled, obese kids, when you can see real castles, the ones that inspired Walt Disney to create his magic kingdom in the first place, in the Loire valley just a few kilometres down the road.

Recommendation: just sit back and watch this one implode.

Carbon Credits: 'When greed is good'

The new European Climate Exchange is scheduled to begin trading the world's first futures contract based on carbon emissions later this year.

Governments know that if they are to stop premature, carbon-led human extinction they have to cap emissions. They also know that they can never get any company to cap carbon out of simple philanthropy; simple philanthropy does not trade on any exchanges: it's as invisible as Adam Smith's hand.

Carbon credits and futures on carbon credits fill this gap in the marketplace by giving greedy speculators a way to make bets on greed in a new way. The idea works like this: emissions are given a financial value and made tradeable on an exchange; the amount companies can emit is capped, and if companies do not exceed their quotas they are given credits that they can then sell to

the slow pokes in the class who need to buy the right to make excessive emissions.

This makes excessive emissions a not-so-profitable business. And the companies cutting down on emissions and selling their emission credits are happy to keep doing so because the profits they get from selling these credits are more than they would make from emitting carbon in the first place. The powerful force of greed is turned in on itself and turbo charges a trend to reduce carbon – not because it's the 'right' thing to do, but because it's the greedy thing to do. For example, American Electric Power (AEP) is the US's number-one coal-burning company. Now, it is chasing renewable energy projects in Chile and Bulgaria as a way of freeing up carbon credits it can then sell to its carbon-inefficient

competitors.

As green exchanges expand more companies will follow AEP's lead and chase carbon efficiencies as eagerly as they now chase drilling rights and veins of coal. Should we care that these companies are not doing this to be 'good'? No. We should only care that the amount of carbon being emitted goes down as quickly as possible. The 'loser' in such a system, by the way, will be the last big company to get carbon-efficient. My guess is that that will be ExxonMobil.

If environmental groups made a basic understanding of financial markets more of a priority than good photo opportunities, then support for these new carbon-based financial products would spread around the world, thus ensuring their success.

Recommendation: buy carbon credits.

Citigroup

How do you spell larceny? On 2 August a Citigroup bond trader working the electronic trading system known as EuroMTS sold €11 billion worth of bonds. Prices for the bonds crashed. But then Citigroup traders scooped up bargains, bargains that they themselves created, and pocketed an estimated €2m profit in less than

30 minutes.

I think I'll try this trick the next time I'm in Marks & Spencer. I'll scream 'fire' at the top of my lungs, grab a few abandoned trolleys, and then sell the food I steal for a 'profit' across the street.

Citigroup's name seems to pop up wherever allegations of fraud appear:

Parmalat, Enron, you name it. Has anyone considered that maybe the problem is not these companies, but with their banker? And isn't Citigroup helping out vivisectionists? That's what I heard.

Recommendation: suggest to animal rights activists Stop Huntingdon Animal Cruelty that Citi finances vivisection.

5 FREE TICKETS to see Max Keiser live and unplugged on Wednesday, 22nd September 7.30pm @ the Window, 13 Windsor Street, Islington N1 8QG. Contact Stacy on: 07966 223 749

MALCOLM TAIT

Towers of silence

India's vulture population is facing catastrophic collapse and with it the sacrosanct corporeal passing of the Parsi dead

The fate of the vultures of India has been well documented this year, and a terrible fate it's been too. Three species have been suffering a rapid decline in the last decade, and back in January, the blame for that decline was finally finger-pointed. Diclofenac, a drug used to treat domestic cattle, has found its way into the internal systems of the carrion-eating birds, causing renal failure and death. The white-backed vulture (below), in particular, has suffered heavily, declining by perhaps as much as 99.7 per cent in the last 10 years. It's a catastrophic collapse.

Captive breeding programmes are already under way to try to save the three species (which also include the long-billed and slender-billed vultures), while steps are being taken to ban the drug in its

veterinarian form. This might be in time to save the birds, (although whether they will ever regain their earlier populations is another matter), but there's another race that's been affected by this saga, and it's one that might not recover.

The Parsi people were already in decline. Having fled Persia during the Islamic incursions and made their home in India, they were accepted on the basis that they did not marry outside their Zoroastrian religion and abstain from missionary activities. Many still believe in that discipline, and those that don't tend to leave to make their lives in other lands. Today, there are only about 50,000 Parsis left in India.

And now, the crash of the vulture population has added to their problems. According to their religion, the elements of earth and fire should never be contaminated by the impurities of human flesh, and as a result, burial and cremation are unacceptable. The Parsis, therefore, 'bury' their dead in the sky. In practice, this means leaving the body on a high building, a Tower of Silence, to be devoured by vultures. Now that the vultures have gone, the Parsis are faced with a vile choice: let the bodies pile up, or resort to a belief-defiling method of disposing of them. With, on average,

three Parsis dying each day in Mumbai, the situation is becoming critical. Aviaries have been set up to keep a local concentration of vultures, and in Mumbai, the Parsi council has installed huge solar reflectors to hasten decomposition. One engineer has even installed an ozone-generating machine to help combat the stench.

There is something appallingly sad about the fate of the Parsi dead, and not just because we are watching a religious tradition falter, but because the tradition is founded on ecological awareness. The impurification of the earth, fire and water that the Parsis have long tried to avoid is now part of the everyday lives of the rest of the world. There is barely a patch of land, a pigeon's crop, a falling leaf or a child's hair that is not touched somehow, some way, by the cocktail of chemicals, PCBs and drugs that fill our lives. And now, thanks to chemicals, the natural world is no longer even able to sustain one of the last remaining attempts at a purified existence, the corporeal passing of the Parsi dead.

In 1897, Mark Twain visited Bombay, as Mumbai was then known, and attended a Parsi funeral. His description symbolises the extent of why our destruction of a simple ritual is such a desperate loss: 'it disseminates no corruption, no impurities of any sort, no disease-germs; that no wrap, no garment which has touched the dead is allowed to touch the living afterward; that from the Towers of Silence nothing proceeds which can carry harm to the outside world.'

If only the outside world could say the same.

Malcom Tait's new book The Wildlife Companion is published by Robson Books

YVES ENGLER

National disease service

Antibacteria-resistant superbugs are turning hospitals into killers

In the 18 months from January 2003 to June 2004, some 100 people died from the *clostridium difficile* superbug at Sherbrooke Hospital in Quebec. In the UK almost 10 per cent of patients pick



up a hospital infection, including MRSA, and at least 5,000 people die as a result each year. Between 8,000 and 12,000 Canadian patients die because of hospital-acquired blood infections, infected surgical wounds and antibiotic-resistant organisms every year. And 103,000 Americans died from hospital-acquired infections in 2000.

Billions are spent annually on new drugs and medical technologies, but little is spent on basic hospital infection control – even though the latter would save a greater number of lives

What makes the hospital environment such a major killer? Some medical errors will always occur, but last September the *American Journal of Infection Control* (AJIC) reported the findings of a Canadian survey that claimed that half of all hospital-acquired infections are preventable. The problem is, hospital infection-control procedures are inadequate.

The survey quoted in the AJIC found that less than 25 per cent of Canadian hospitals had adequate measures in place to properly prevent the spread of infection, and that nearly half of all hospitals in Canada fell short of the minimum recommendations for the number of infection-control staff. Similarly, the UK's National Patient Safety Agency found that there was a 60 per cent shortfall in the number of hand-hygiene procedures performed in British hospitals. And an American study concluded that up to 75 per cent of deadly infections caught at hospitals in the US could be avoided by doctors and nurses using better washing techniques.

Nevertheless, it is wrong to simply blame frontline medical staff for these infections. Data shows that successful behavioural change is contingent upon vigilant supervisors putting in place adequate preventive measures and demanding proper cleaning practices. Moreover, sympathetic management, a culture of respect, proper staffing levels, ongoing education programmes and proper shift-scheduling have all been shown to improve the health and safety of hospitals for both patients and workers.

The biggest barrier to improvement, however, is our economic system, which focuses on cures and technology because that's where the biggest, quickest profits can be found. Billions of dollars are spent annually on the development of new drugs and medical technologies, but little is spent on basic hospital infection control – even though the latter would

save a greater number of lives.

Now the data is starting to come in about what happens when 'business-minded' governments focus on profit-making opportunities and short-term efficiency in medicine. Last year's Sars outbreak in Canada and Asia is just one illustration of how money would be much better spent on public-health promotion.

One of the factors that Taiwan's Centre for Disease Control singled out as contributing to the devastating outbreak of Sars in that country was the contracting-out of hospital laundry, cleaning and nursing-aide services. You would hope that the Taiwanese experience might prove salutary for Britain, where the dirtiest hospitals in the NHS all have contract cleaners.

Another cause of infection-control problems is an over-reliance on the profit motive *outside* the hospital door. Recent American data, reported in the magazine the *New Scientist*, shows that more than 70 per cent of hospital-acquired infections are resistant to at least one common antibiotic. This increase in deadly multi-resistant viruses is, in large part, attributable to our overuse of antibiotics in wider society. Doctors, faced with patients demanding quick cures, and encouraged by a pharmaceuticals industry that spends billions on advertising, over-prescribe antibiotics, which are losing their efficacy and encouraging the growth of multi-resistant organisms as a result.

Furthermore, half of all antibiotics sold each year are used on animals. Antibiotic use in agriculture has

increased 15-fold over the past 30 years in the UK. Industrial farmers give their animals constant low doses of these drugs to treat infection and to encourage growth. The administration of low doses is especially problematic, because instead of killing bacteria off such doses provide a feeding ground in which organisms can mutate.

Governments in Sweden and Denmark have already banned antibiotic growth-promoters, while an EU-wide ban is supposed to become total in 2006. British poultry farmers, however, continue to use antibiotic growth-promoters. And North American governments, kowtowing to the livestock-farming industry, have done little or nothing.

Hospitals *can* be much safer and healthier places, thousands of lives *could* be saved, if only real health outcomes were given priority over profit-making opportunities.

Yves Engler is a freelance journalist

AIDAN RANKIN

Punch & Judy politics

'He who fights with monsters should look to it that he himself does not become a monster. When you gaze into the abyss, the abyss also gazes into you.' FRIEDRICH NIETZSCHE

At the height of the Iraq war last year, shortly before the conquest of Baghdad and the cinema-cliché images of toppling statues, a young activist presented me with a leaflet in London's Russell Square. The leaflet inveighed against the war and its authors, Bush and Blair, and so my response to it was – and remains – one of sympathy. But I was troubled by the predictable, yet still vicious, insults, the extreme and florid rhetoric, the personal vitriol in place of clear argument. There was a call for 'resistance', the nature of which was unspecified but implicitly violent. Even the schlock horror backdrop of bloodstains made me vaguely uneasy.

But the leaflet's outstanding feature was its sheer lack of balance. Blair and Bush were presented as evil incarnate,

while Saddam Hussein escaped the mildest criticism. I put some of these questions to the anti-war activist, who was probably a postgraduate student. He replied that violence was not the issue, but 'the context of the violence'. Nor was peace the issue, but 'opposition to capitalism and war'. He was explicit, and laudably honest, about his belief in violent change, and in peace marches as a means (one of many) towards that end.

More recently, an art historian whose article I was editing described to me the discrimination she had faced in her profession, principally as a woman, but also as an eastern European in the UK. She was, it seemed, still smouldering inwardly from the patronising put-downs and rudeness she had experienced in the 1970s. 'If you don't always struggle, how do you win victories?' she demanded, in an unconscious echo of the regime she had escaped. At that moment, her combative

the detrimental effects on both the victors and the vanquished, and the corruption of the ideal being struggled for in the first place.

In Britain adversarial politics find their nadir in prime minister's question time. This weekly ritual involves the prime minister and the leader of Her Majesty's opposition confronting each other across the House of Commons and attempting to score points off each other. It is of interest only to a narrow political class. The public, especially the young, regard it as an increasingly sterile Punch-and-Judy show. It is a sad and embarrassing relic that has done much to encourage apathy and disillusionment with politics. This is dangerous, because when parliamentary institutions are seen as talking shops, and the gap between voters and politicians widens, extremist attitudes take hold.

In the US, large sections of the electorate feel disenfranchised, sometimes with good reason (as in Florida in 2000). As I write, one of the dirtiest presidential campaigns of recent

them, or read their articles, or been affected by their actions in some way. They have their reactionary counterparts as well: the anti-abortionist who supports capital punishment; the family values campaigner who is indifferent to child poverty; or the type of 'Euro-sceptic' who opposes any cession of power to 'Brussels' but is slavishly submissive to the US. Adversarial politics encourage stereotyped thinking. By their very nature, they stifle creative thought and shut off intellectual and practical possibilities.

In their fervent embrace of adversarialism, progressive movements suffer at two levels. First, they are co-opted: they are changed by the system, rather than changing it themselves. Second, they lose their positive energy – the reason for their existence in the first place – and replace it with anger, fanaticism and personality cults. The more angry and fanatical a progressive movement is, the less likely it is to challenge the status quo. This might seem paradoxical to some activists, steeped in the new mood of militancy. However, they would do well to remember that Gandhi's *satyagraha* ('trust struggle') and Martin Luther King's civil rights campaign for African-Americans succeeded, and altered long-term thinking, because they were non-violent – intellectually as well as physically, and created new ways of thinking about politics. It is significant, as well, that the most successful ever left-wing newspaper in the US was called *The Appeal to Reason*. In the early 20th century, *The Appeal's* measured practical case for an American version of socialism represented the left at its best.

The rejection of adversarial politics is a sign of underlying strength and not a symptom of compromise, as too many progressives assume. On the contrary, those activists who embrace adversarialism are themselves engaged in compromise, as truth gives way to point-scoring and the hope of change yields to an attitude of permanent opposition. The violent ambitions of the campaigner at Russell Square and the hate-filled slogans on many anti-war banners should give comfort to Blair and Bush. For the protesters are buying into a political culture that finds its eventual expression in war. 'Either

Adversarial politics encourages stereotyped thinking. By its very nature, it stifles creative thought and shuts off intellectual and practical possibilities

expression was replaced by a look of profound unhappiness, even despair. Far from celebrating her own personal success, as she undoubtedly deserved to do, she admitted that she was still eaten up with anger. Her urge to struggle had taken over her intellectual and emotional life to the extent that no success could placate her, no 'victory' could ever be enough.

These two examples illustrate problems with the way we think about and organise politics. The first of these is the adversarial approach that shapes political debate and governs every aspect of it. Human sympathy and tolerance give way to dogmatic certainty, and moralistic slogans thinly veil amoral and cynical acts. 'Winning' becomes an absolute principle, overriding any attempt to arrive at truth. Captivated by the 'struggle' for 'victory', politicians and activists ignore

times is being waged, in which personal smears take the place of honest debate, let alone policies that matter. Both the US and the UK project themselves, in Iraq and elsewhere, as exemplars of democracy, yet domestically they have seen electoral participation decline to record levels. Adversarial politics, it seems, are threatening the democratic process instead of enhancing it.

The second problem, closely related to the first, is with progressive movements, be they parties or single-issue campaigns. Inspired by ideals of social justice and equality, and seeking positive change, they often take on the negative aspects of their opponents, usually the characteristics they most oppose. The aggressive pacifist, the man-hating feminist and the animal rights campaigner who seems to hate fellow human beings might all be political and social stereotypes, but we have all met

you're with us or you're against us': the words were Bush's, but they reflect the mentality of many of his most vocal opponents. Such protesters frequently switch sides with notable ease. Joschka Fischer, leader of the 'realist' wing of the German Greens, was a veteran anti-war protester, but as his country's foreign secretary he has championed the bombing of Serbia. Blair and his New Labour colleagues began their careers on the left as militant 'peace'

sexes. A 'war of the sexes' is no more likely to achieve gender equity than a terror campaign to achieve lasting peace. And there is no reason at all why love for and loyalty to a region, or even a nation, should be incompatible with an internationalist perspective that extends to the rest of humanity and the planet.

All these issues are presented by adversarial politics as opposites, but in fact they are complementary principles,

Far from being opposites, Britain's Conservative and Labour parties compete in their obeisance to the cult of market forces, the most dangerous fundamentalism of all

campaigners, but now form the most 'pro-war' Cabinet since the days of gunboat diplomacy. Superficially, Blair, Fischer et al have switched sides, but they have remained true to the same form of politics: them and us; either you're with us or against us; demonisation of opponents. It is easier to switch from one adversarial position to another than to create a new form of politics like a Gandhi or a King, or the socialists and feminists of an earlier generation.

Adversarialism reduces political discourse to a series of artificial choices. In his book *A Citizens' Income*, the leading Yorkshire Green Party member Clive Lord laments the divisions in green politics that stand in the way of unity on the environment. He cites as an example the divide on social issues in Germany between the left-oriented Greens and the smaller, conservative Ecological Democratic Party. The Greens support homosexual rights, whereas the smaller right-wing party promotes traditional family values. This is a classic example of sterile either/or politics, for there is no reason why one principle – support for families – should cancel out the other – that of equality and fairness. Yet partisans of both positions tend to assume that we must choose one, rather than have both. Similarly, there is no reason why we cannot aim for parity between women and men and value the distinctive contributions and approaches of both

or parts of a whole. The game of adversarial politics creates artificial divisions that result in individual bitterness and disappointment, and the diversion of progressive movements from their original goals towards self-limiting cultural niches. At a global level, adversarialism assumes a more sinister form, fuelling the revival of ethnic and religious conflicts, masking a larger battle for control of the earth's resources and the rise of fundamentalism, whether religious or economic.

The adversarial mode of politics creates increasingly extreme polarisations on cultural issues, both globally and in national life. At the same time, it obscures the lack of genuine political choice. Far from being opposites, Britain's Conservative and Labour parties compete in their obeisance to the cult of market forces, the most dangerous fundamentalism of all. Both equate progress with economic expansion and seek to impose this model on all human societies – and on the rest of nature. In obscuring the lack of choice, the adversarialists also divert us from the most important choice of all: that between pursuing economic growth as an end in itself, and so willing our own destruction, and living within limits in a sustainable world.

Aidan Rankin is Research and Publications Officer for the Economic Research Council, London. www.ercouncil.org Email: aidan.rankin@ukonline.co.uk

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JIM THOMAS

Atomising Third World economies

Nanotechnology threatens to destroy the global trade in commodities

In all fairness, the science had not even been conceived at the time, but in 1952 one of the most enjoyable comments on what nanotechnology would come to mean for society was already screening in cinemas around the world. In that year Alec Guinness played the eponymous hero of the film *The Man in the White Suit*, a maverick textile scientist who invents a fabric that never wrinkles, gets dirty or wears out. Far from welcoming this shiny new innovation, the unions and bosses in the film recognise it as a threat to their livelihoods and form lynch mobs to hunt Guinness's character down. In its time the film was an incisive comment on new fibres such as nylon. Today it has a new relevance as engineered nano-fibres incorporate themselves invisibly into everyday products. Invisible or not, the ability to tune the properties of matter at the nano-scale to produce new synthetic materials directly threatens patterns of trade in established commodities and, by extension, the agricultural livelihoods that depend on those commodities.

Consider trousers. If there is a recurrent poster child for US-style nanotech it's the 'nano-trousers' that every nano-evangelist has at some point publicly spilt coffee over before a

bemused audience. If all goes well, the coffee beads up like mercury and rolls off without staining. If it doesn't... Well, more fool them. Nano-trousers are the innovation of Texas-based outfit Nano-Tex, which weaves artificial 'nano-whiskers' into clothing to make it stain-resistant. Two of Nano-Tex's inventions aim to replicate the qualities of natural cotton: the fabric Resist Spills breathes in the same way cotton does; while artificial Cotton Touch is specifically designed to feel like cotton to the wearer. Of Cotton Touch, Nano-Tex founder David Soane says: 'This will be our blockbuster.' He's probably right.

But what might be a blockbuster for Nano-Tex could prove a disaster for the world's 20 million cotton farmers, 99 per cent of whom live in the global South. As a commodity, cotton has been in a bad way for some time. A century of price declines accompanied the rise of cheap synthetic petroleum-based fibres. Today, despite record harvests, cotton accounts for only 40 per cent of the world's total fibre consumption. Other natural fibres have fared no better: wool accounts for a mere 2.5 per cent, and silk for a tiny 0.2 per cent. Demand for artificial fibres is growing twice as fast as that for cotton.

If Nano-Tex were a niche producer it might be possible to ignore its challenge to cotton markets. That is not the case, however. Nano-Tex is owned by garment multinational Burlington, and its nano-fabrics have already been successfully incorporated into some of the world's best-known clothing brands, including Eddie Bauer, Lee, Gap, Old Navy and Kathmandu. Nano-Tex has won awards and praise from *Time* and *Forbes* magazines, and, perhaps most significantly, attracted the cash of Wall Street's most canny investor Warren Buffet. The latter regards nano-fibres as part of the strategy by which a domestic US textile industry can resurrect itself in the face of overwhelming competition from Asia.

What is true for cotton fabrics is also true for other commodities on which Southern economies currently depend. Nano-gels and nano-clay particles that are intended to replace and reduce rubber in car tyres pose a significant threat to the rubber-tappers of Thailand, Malaysia and Indonesia. Stain-free

bathrooms, clothes and self-cleaning windows could have a devastating impact on the markets for starch and tropical oils used in soaps and detergents. The copper industry is a cornerstone of the economy in poor nations such as Zambia, but highly conductive carbon nano-tubes look set to make copper wiring obsolete.

At face value all of this disruption could be sold to the public as an ecological boon. The raw materials for nano-materials could increasingly be sourced closer to home (from ethanol or petroleum, for example), thus reducing transport emissions. Surely nobody would mourn the demise of exploitative mining industries? Nobody but a realist, that is. A sharp switch away from tropical commodities would be callous: it would not hurt the likes of Rio Tinto so much as those forced by poverty to take jobs in their mines. Take the copper trade away from Zambia without a managed transition, and a country already ravaged by Aids and drought would become even less able to set its house in order. Reduce the market for cotton and don't be surprised by an upsurge in suicides among farmers in India. With every new wave of technology it's the poor and vulnerable who get swamped: a shift to nano-commodities will neither help them with new opportunities nor change any fundamental power relations.

Like GM crops and pharmaceuticals, designer nano-materials come swathed in strong intellectual property protections, with patents and profit accruing entirely to Northern corporations. Nor is it clear that one environmental problem is not simply being swapped for another, since nano-fibres and nano-particles are far from receiving a clean bill of health: the UK's leading science academy the Royal Society has recommended a prohibition on environmental applications of nano-particles. We need strong global rules to ensure that new technologies are only deployed if the interests of the poor and the vulnerable are protected.

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

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A FILM BY MORGAN SPURLOCK

SUPER SIZE ME

12A CONTAINS ONE USE OF
STRONG LANGUAGE
AND SURGICAL DETAIL

A Film of Epic Portions

FORTISSIMO FILMS presents a production by THE CON in association with STUDIO-ON-HUGOON a film by MORGAN SPURLOCK "SUPER SIZE ME"
Director of Photography SCOTT AMBROZY Edited by STELA GEORGIEVA & JULIE "BOB" LOMBARDI Artists Director JOE THE ARTIST Animation ZOOGRAPHIC Motion Graphics JONAH TOBIAS Sound Design HANG TEN BROCKE Associate Producer DAVE PEDERSON Original Music STEVE HODOWITZ and MICHAEL PARRISH
Theme Song produced by POP BOX and performed by TOOTHPICK Executive Producers J.R. MORLEY and HEATHER WINTERG Produced and Directed by MORGAN SPURLOCK Soundtrack available on Deutsche Grammophon © 2004 Karlier Pictures Inc. Photo by John Goefer

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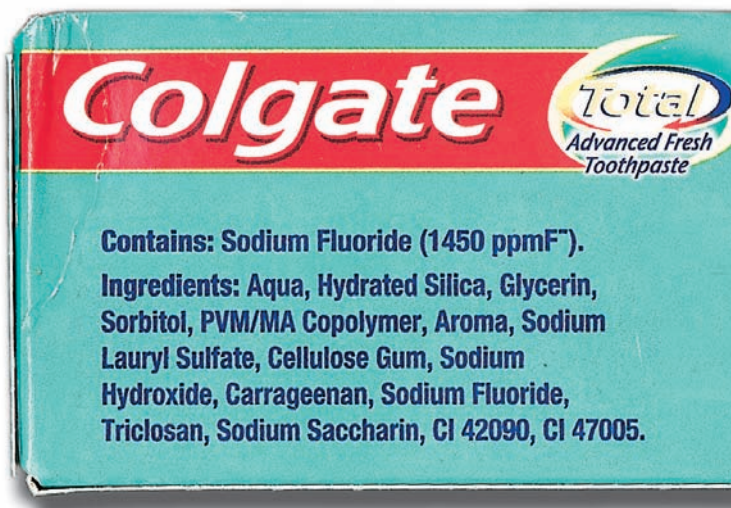
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IN CINEMAS SEPTEMBER 10



Toothpastes contain a number of slow-motion fact that every tube of family toothpaste

by PAT THOMAS

Do you suffer from mouth ulcers or rashes on your face? Are your teeth pitted and yellow? If the answer to these questions is yes, then your toothpaste may be to blame.

The truth is that very few of us are aware of how harsh most toothpastes are and the potential damage they can do to your mouth and body. While children are at the greatest risk because they tend to swallow more while brushing their teeth, many of the chemicals in toothpaste can easily be absorbed into the body via the tongue and the thin mucous membrane inside the mouth.

Toothpastes contain a number of slow-motion poisons including saccharin and artificial colourings and flavourings (all potential carcinogens). More worrying still is the fact that every tube of family toothpaste contains a lethal dose of fluoride. In the UK advertising promotes fluoride toothpastes as healthy; in the US the government regulator the Food and Drug Administration requires their packaging to include health warnings and information on contacting local poisons control officers in the event of ingestion.

Amazingly, for something that is put in the mouth and frequently swallowed, anybody can make and sell toothpaste in the UK: licences are only necessary if manufacturers make medicinal claims (such as an ability to reduce tooth sensitivity).

Sorbitol

Purpose:

Sweetener and tartar control agent
Humectant

Health effects:

- Bloating and intestinal cramping in high doses
- Laxative

Because of its laxative effects, the use of gel toothpastes (which can contain up to 70 per cent sorbitol) by small children should be supervised, possibly even discouraged, by parents.

Glycerin

Purpose:

Lubricant: improves the feel of the product

Humectant: keeps the product moist

Glycerin can be processed from plants or animals.

Health effects:

- Generally safe, but can dry the skin around the mouth

Hydrated silica

Purpose:

Abrasive stain remover

Health effects:

- Weakens tooth enamel; tooth enamel rebuilds itself daily from ionic calcium and phosphorus in the saliva; regularly scratching the surface of the tooth with harsh abrasives interferes with this process

- Gum damage: in rare cases the silica can build up under the gum, causing inflammation

The safety of ingested silica has not been adequately proven, and some observers have linked it with Crohn's disease, though this connection remains unsubstantiated.

PVM/MA copolymer

Purpose:

Plastic-like glue derived from polyvinyl, often found in hair gels and sprays, which sticks the triclosan, and other ingredients, to the teeth and gums

Health effects:

- Unknown

Sodium Fluoride

Purpose:

Strengthens tooth enamel
Antibacterial

Health effects:

- Fluorosis: spotting, mottling and yellowing of the teeth; especially in children
- Osteoporosis: ingested fluoride leeches calcium from the bones
- Allergy/hypersensitivity reactions
- Poisonous: ingestion can cause salivation, nausea, vomiting, epigastric pain and diarrhoea

THERE IS ENOUGH FLUORIDE IN A 100-MILLILITRE TUBE OF 'FAMILY' TOOTH PASTE TO KILL A SMALL CHILD.

Sodium Hydroxide

Purpose:

Bleaching/cleaning agent; a common component of oven and drain cleaners

Health effects:

- Skin Irritation



Sodium lauryl sulphate (SLS)

Purpose:

Detergent and foaming agent

SLS is a harsh cleanser often used as an engine de-greaser. It's added to toothpaste to make it foam, but is not necessary to clean your teeth.

Health effects:

- Irritating to the mucous membranes in the mouth
- Mouth ulcers, canker sores
- Contact eczema

Aroma

Purpose:

Flavouring

Health effects:

- Allergic reactions: some of these may mimic common dental problems, such as bleeding gums, mouth ulcers and gingivitis (inflammation of the gums)
- Potential carcinogen: aromas are generally petroleum derivatives and can be contaminated with cancer-causing substances

CI 42090

Purpose:

Blue Colouring

Health effects:

- Hyperactivity
- Skin rashes

Potential carcinogen: there is some evidence that CI 42090, also known as FD&C Blue 1 and E133, can cause cancer in animals.

BANNED IN AUSTRIA, BELGIUM, FRANCE, GERMANY, NORWAY, SWITZERLAND AND SWEDEN

poisons. More worrying still is the contains a lethal dose of fluoride.

Carageenan

Purpose:

Thickener: part of a naturally occurring family of carbohydrates extracted from red seaweed; also known as E407

Health effects:

- Stomach aches
- Potential carcinogen: has been associated with cancer of the gastrointestinal tract in animals, and laboratory evidence suggests it can act as a trigger for breast cancer in humans.

Triclosan

Purpose:

Antibacterial agent
Reduces plaque

Health effects:

- Gum damage: causes premature cell death in gum tissues
- Allergic reactions
- Ulceration
- Alters the biodynamic balance of the mouth: kills 'good' and 'bad' bacteria, which could make users more vulnerable to infection

A chlorinated aromatic, triclosan is molecularly similar to dioxins, PCBs (highly toxic chlorine-based compounds) and the herbicide Agent Orange. Indeed, its manufacturing process can release dioxins (powerful hormone disrupters) into the environment. It is also a chlorophenol, a class of chemicals that can cause cancer in animals. Commonly used as a pesticide, it is easily absorbed into the body via the mouth, and has been associated with liver damage in animals.

CI 47005

Purpose:

Yellow colouring

Health effects:

- Asthma
- Rashes
- Hyperactivity
- Aspirin-sensitive people should avoid this colouring

Also known as FD&C yellow 10 and E104, CI 47005 is a coal-tar dye and can contain impurities that are neurotoxic and carcinogenic. Banned in Australia, the US and Norway

BANNED IN AUSTRALIA, THE US AND NORWAY

Saccharin

Purpose:

Artificial sweetener

Health effects:

- Carcinogenic: linked to bladder cancer in animals

In the US, foods that include saccharin must declare it is a potential carcinogen on the label. No such warnings are required in the UK.

TRY THESE INSTEAD

Even some 'natural' toothpastes contain contested ingredients. So, make sure you read the label before you buy.

Some of the better options include:

AloeDent

www.optimahealthcare.co.uk

Kingfisher

www.kingfishertoothpaste.com



Jason

www.jason-natural.com



Tom's of Maine

www.tomsofmaine.com

Green people

www.greenpeople.co.uk



Comvita

www.comvita.com



Neal's Yard

www.nealsyardremedies.com

Sarakan

www.sarakan.com



Weleda

www.weleda.co.uk



Burt's Bees

www.burtsbees.com





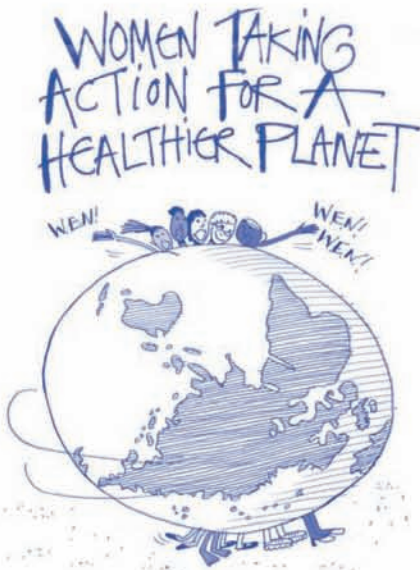
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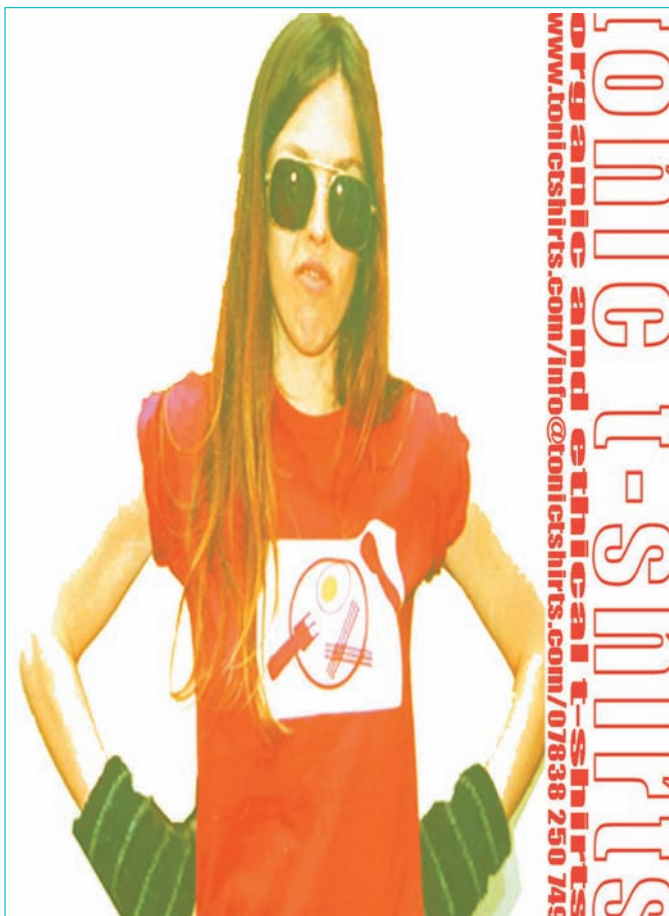
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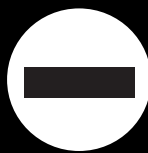
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THE DEBATE

Should we all be vegetarian?



**Hugh
Fearnley
Whittingstall**

'Why shouldn't we claim the moral authority to kill animals for food on the basis that we are offering them a better deal in life than they would get without our help'

**Professor
Andrew
Linzey**



'Because we don't have the right to colonize and kill millions of other sentient individuals as food resources, when one can live a healthy and happy life on a vegetarian diet'





Dear Hugh

The case for ethical vegetarianism rests principally on two arguments. The first is that it is wrong to kill sentient animals when it isn't really necessary.

For centuries, meat-eating was thought to be essential for human health. Perhaps, in the past, there were some places where it was. Maybe there are still some places in the world today where eating meat is essential. But whatever may have been true about our forebears, or even about some people who now live in inaccessible regions of the world, we can be sure that meat-eating isn't now essential for us in this country.

That realisation should inform our moral reckoning. When we are free to do so, there is a *prima facie* obligation to respect the lives of other sentient beings.

The second argument is that it is wrong to cause gratuitous or inessential suffering. Most people say that they have no objection to killing animals for food, as long as those animals live natural lives and are treated, and killed, humanely. But the evidence is now overwhelming that neither condition is fully met in modern farming.

Modern breeding technologies make animals liable to physiological and psychological suffering. Intensive conditions frequently frustrate their natural behavioural needs. Added to this is the misery involved in the animal trade, especially at markets and in long-distance transport.

And then there is the act of slaughter itself: I defy anyone to visit a normal slaughterhouse and conclude that animals don't suffer. People are unaware of the price paid in terms of animal suffering for flesh food.

Those who genuinely believe that animals should only be eaten if they have lived natural lives and haven't suffered are logically required to adopt vegetarianism, or demonstrate that at all stages *their* meat is produced accordingly.



Dear Andrew

You summarise well the abuses of modern intensive livestock farming. But in your very last sentence you admit the alternative strategy by which we can oppose these unacceptable cruelties, and that is by supporting the products of those who produce meat humanely, extensively and with due regard for the welfare and instinctual needs of their livestock. This is what I refer to as the 'contract of good husbandry' and it is the very foundation of a set of inter-species relationships that has endured for millennia.

What is often not understood is that domestication of the livestock species was not sudden enslavement but a gradually evolving symbiosis. It began when certain species became 'camp followers' of human settlements, dependent on hand-outs of waste and leftovers. Then came ranching and herding, and raising fodder crops specifically for keeping the animals close and fattening them for improved eating. As the symbiosis embraced full domestication, our livestock received protection from predators, assistance in bearing young, and even rudimentary healthcare. They have flourished to become, with us, among the most successful species on the planet.

The critical point, though, is that we may claim the moral authority to kill animals for food only on the basis that we are offering them a better deal in life than they would get without our help. And I accept entirely that current intensive farming practices represent a cynical and unacceptable breach of the contract of good husbandry.

Protest is entirely appropriate. But becoming a vegetarian is a negative protest, akin to washing your hands of the whole affair. By contrast, choosing your meat carefully, as a conscientious carnivore, and insisting on a product from extensive, high-welfare systems of farming, is a positive vote for restoring the values of the contract of good husbandry and improving the welfare of farm animals.



Dear Hugh

I didn't 'admit' an 'alternative strategy'. I pointed out that those who accept the principle that we shouldn't inflict inessential suffering need, in order to be consistent, to

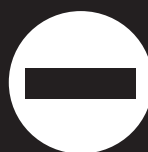
demonstrate that at all stages their meat is produced accordingly. That is a much more demanding, close to impossible, criterion than you admit.

You say that we may kill animals for food 'only on the basis that we are offering them a better deal in life than they would get without our help'. Well, take birds as an example. There are around 120 million hens in broilers and batteries in this country. Battery hens are unable to spread even one wing and stand on permanently sloping wire mesh in conditions of semi-darkness. Even ducks and 'game birds' are now intensively farmed.

You will say that this is just the excesses of factory farming. But no, even if one chooses free-range eggs the system is parasitic on routine abuse. Within 72 hours of birth, millions of unwanted male chicks are gassed, suffocated or homogenised (fed through chopping machines en masse). 'A better deal'? Really?

I am still genuinely curious as to why you think we have the right to colonise and kill millions of other sentient individuals as food resources. Even practices of great antiquity are not morally self-justifying. Even if one accepted, for the sake of argument, that 'hunter gatherers' needed to kill, that still doesn't answer the question whether it is justifiable to do so today when one can live a healthy and happy life on a vegetarian diet.

You say that vegetarianism is a 'negative protest', but some systems are so inherently exploitative that disengagement is the only course. The idea that one can annually reduce 840 million mammals in the UK to meat without 'unacceptable cruelties' is myopic.



Dear Andrew

Myopic indeed! My vision of a farming system in which meat is produced without cruelty may be far-fetched. But relative to your own, as yet undescribed, vision of an entirely meat-free world, it is a picture of clarity and attainability. I know many people who are striving to achieve it. I count myself among them. We are raising contented animals, feeding them well and appropriately, and transporting them carefully for slaughter within a few miles. They live well and, compared to their wild relatives, suffer minimally in death.

Yes, we are a small minority, a drop in the ocean compared to industrial meat production. But we are serious about our commitment, and determined to increase in number. And as we do so, the welfare of our farm animals will improve.

In the meantime, perhaps you can explain how you envisage the transition to a meat-free world, and how the lot of our livestock will be improved by it. Are you in favour of the mass slaughter of farm animals, to accelerate the arable revolution?

Would you maintain any domesticated species at all, or allow their extinction? How would residual populations be managed? In the absence of predators to finish them off, they will die a lingering and stressful death. Will the vegetarians allow human intervention? Humane slaughter? In which case, why not eat the resulting carcasses?

Without a pragmatic, attainable vision of a meat-free world vegetarianism is reduced to a knee-jerk moral fundamentalism: that eating animals is wrong. But that is not self-evidently true. It is the methods and consequences of meat-eating that are important. Vegetarian policy will also have massive consequences for the environment, and the life, death, welfare and suffering of the world's animals, both wild and domesticated. Will it really mark an improvement?



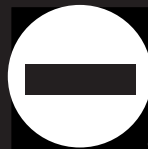
Dear Hugh

You are shifting your ground. Earlier you said that 'we may claim the moral authority to kill animals for food only on the basis that we are offering them a better deal in life than they would get without our help'. Now, you are arguing that you and others 'are striving to achieve' that scenario. You can't have it both ways. Either meat-eating is defensible because it provides a 'better life' or it isn't.

You take exception to my use of the word 'myopic', but you accept that caring farmers, like yourself, are 'a drop in the ocean'. This must mean, logically, that the vast majority of farmers fail, by your standards, to treat their animals properly. My judgement that it is 'myopic' to suppose one can reduce 840 million mammals annually to meat without cruelty is justified by your own words. I'm curious why you should want to be a spokesperson for a practice, which, even in your own terms, overwhelmingly fails the animals?

You ask about my vision. I believe in progressive disengagement, both individual and social, from injury to animals towards realising the goal of a peaceful world. But progressive disengagement needs to be just that. I applaud efforts to reduce suffering in farm animals, as I would have supported attempts to make the slave trade more humane. But the better way, and the goal we should be advancing, is not to have human *or* animal slaves. Animals in industrialised farming have become just that: fungible items, machines, commodities, resources here for us.

You claim your vision is 'attainable', but why, then, hasn't it been attained by the very people you think should deliver it, people upon whom, you say (and this is crucial), the 'only' moral justification for livestock farming rests



Dear Andrew

I think you know I am not a 'spokesperson' for industrial farming practices, any more than you are. And far from shifting my ground, I am consistently arguing for the rejection of intensive farming in favour of a fully extensive system in which our meat animals live well and die humanely. That this has yet to be achieved hardly makes it untenable as a moral position. If it did, where would that leave your own attempt to bring about world peace by abstention from meat?

In the meantime, I must ask you to be much clearer. If my own vision of cruelty-free extensive meat production could be realised, would you then concede that meat-eating is morally acceptable? Or do you believe the killing of animals for food is intrinsically cruel, and therefore fundamentally wrong?

If the former, then my moral vision, however optimistic, must surely be worth fighting for. If the latter, then I simply don't agree. Unless they die of starvation, injury or disease, then *all* animals are killed by another animal – usually one that is planning to eat them. So why must humans be excluded from this natural law? And if we are to be excluded, which of the other three methods of death would you choose for your animals? They would all unquestionably involve more suffering than humane slaughter at the hands of meat-eating humans.

You also seem determined to shirk the practicalities, and attendant moral issues, of harbouring obsolete livestock in a meat-free world. In my last letter, I asked you six specific questions about this, and not one of them received an answer.

So please describe, in your last 300 words, a consistent moral vision of a meat-free world that addresses all these vital questions. You could be the first vegetarian to do so.



Dear Hugh

There are powerful environmental, economic, even health arguments for vegetarianism. But I have sought to go to the moral heart of the issue. Meat-eating violates two principles.

The first is that we shouldn't kill sentient beings when it isn't really necessary. Mammals and birds, at least, are intelligent, sentient beings: they can feel, enjoy life, have interests, and experience suffering to a greater or lesser extent than we do ourselves. To deliberately extinguish another being's capacity for sentient life without good reason is wrong. Simply liking their taste is not sufficient. You obviously haven't grasped this.

It is a very odd argument that we offer animals a 'better life' by extinguishing their capacity to have any life at all. Your argument that all animals die anyway is also a justification for killing grannies. I can hear it now: 'Since so many of them die painfully through disease it is only right that we save them from suffering and give ourselves a good meal.' And, likewise, your earlier notion of a 'contract' is fanciful. Animals can't sign contracts. None go willingly to slaughter.

The second principle meat-eating violates is that we shouldn't inflict inessential suffering. In fact, you have already given the game away. You accept that the humane farming that you and others are *trying* to achieve represents no more than a 'drop in the ocean'. It follows, even in your own terms, that virtually all meat production is implicitly cruel. Correspondingly, all those who accept that argument should give up virtually all meat.

I didn't say that you were a spokesperson for industrial farming, but for the practice of meat-eating. Killing millions (billions worldwide) of sentient individuals requires serious justification. You have not provided it.



Dear Andrew

For the second time of asking, you completely shirk the issue of how the vegetarian utopia is to be achieved without either the mass annihilation or gradual extinction of our domesticated livestock. Instead of debating the logical conclusion of your position, you keep returning to 'principles' of a fundamentalist, and therefore suspect, nature: eg, killing animals is wrong, therefore meat-eating is wrong. I was hoping you would be ready to break this tedious circularity.

You keep asking me to try and justify the cruel practices of intensive farming, when I have clearly condemned them from the beginning. They may represent the majority of livestock systems, and (in the case of pork and poultry production in particular) I accept that ethical, extensive alternatives are all too thin on the ground. But they do exist, and myself and others are working hard to promote and develop them.

In the end you say that all those who recognise the scarcity of humane livestock farming practices 'should give up *virtually* all meat' (my italics). And so you effectively concede my point: that there is a small but valid space in the market where extensively reared meat, from animals that have lived healthy, contented lives, can be bought by those whose consciences are fully engaged in the shopping process.

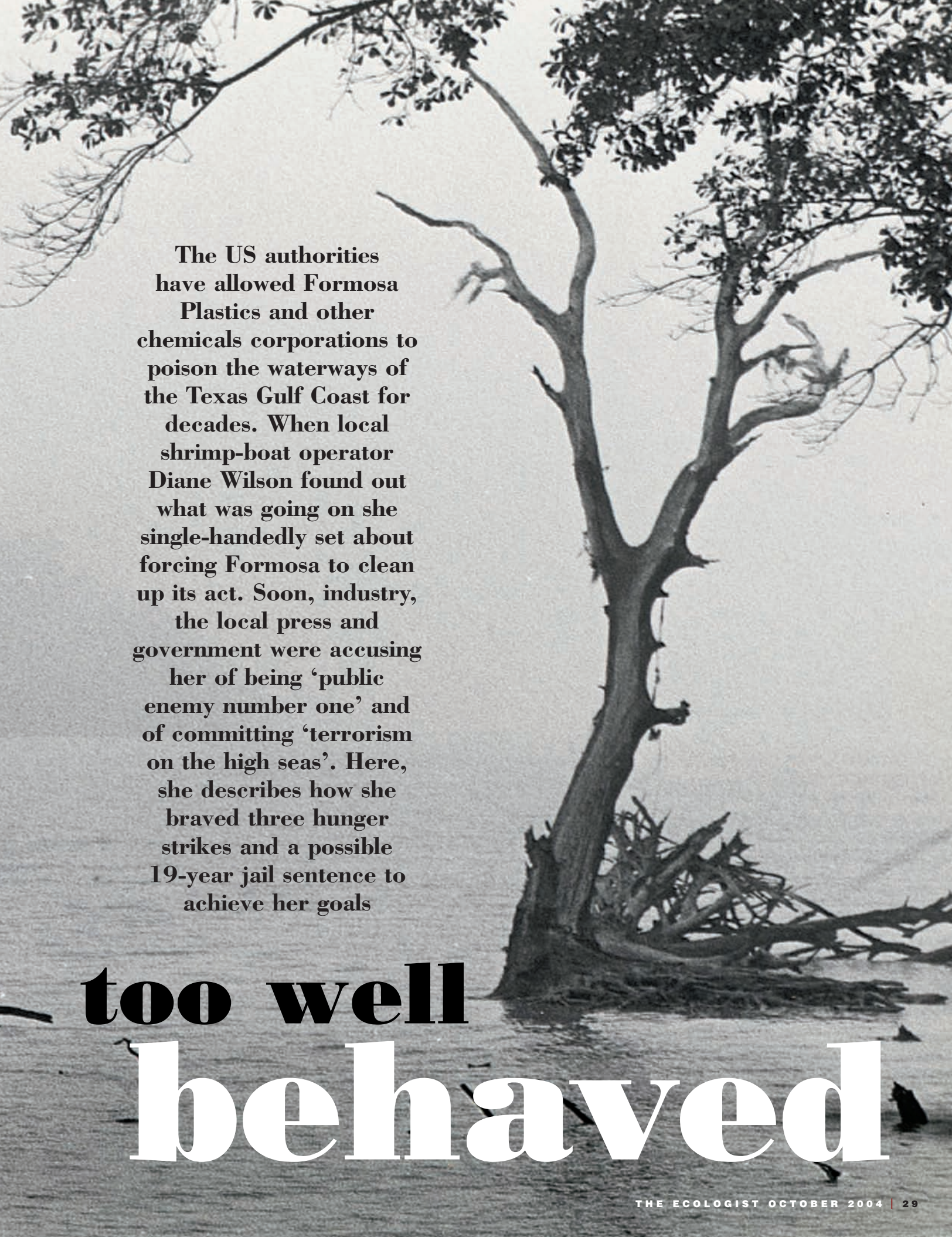
I know many former vegetarians who are making the switch from the negative vote of total abstinence to the positive vote of choosing meat with verifiable ethical credentials – often by shopping at farmers' markets, where those who have raised the animals are present and accountable at the point of sale.

They believe that by making this choice they are doing far more for the welfare of our farm animals than they could ever achieve by total abstinence. And I believe they are right.

Professor Andrew Linzey is a Theologian at Oxford University and author of *Animal Theology* (SCM Press).

Hugh Fearnley-Whittingstall is a food writer and presenter of the Channel 4 *River Cottage* series. His most recent book is *The River Cottage Meat Book* (Hodder & Stoughton).





The US authorities
have allowed Formosa
Plastics and other
chemicals corporations to
poison the waterways of
the Texas Gulf Coast for
decades. When local
shrimp-boat operator
Diane Wilson found out
what was going on she
single-handedly set about
forcing Formosa to clean
up its act. Soon, industry,
the local press and
government were accusing
her of being ‘public
enemy number one’ and
of committing ‘terrorism
on the high seas’. Here,
she describes how she
braved three hunger
strikes and a possible
19-year jail sentence to
achieve her goals

too well behaved

I'm a commercial fisher from the Texan town of Seadrift on the Gulf of Mexico. I've spent more than 40 years on the Texas Gulf Coast. I've fished the bays. I've been in the rivers. And I have watched those bays and rivers systematically deteriorate. One thing the people of Texas and the neighbouring state of Louisiana get to fight over is the question of which is the most toxic state in the US. Every once in a while Louisiana gets that honour, and at other times Texas gets it. With huge oil reserves situated in the region, both in mainland Texas and offshore in the Gulf of Mexico itself, all of the petrochemical corporations operate along the coastline. They get tax abatements and cheap labour, and use political corruption so they can get away with using the bays as places to dump their waste. I think very few people in the US have a sense of what it's like to live near the chemical plants down in Texas and Louisiana. The fact is there's at least one explosion at a chemical factory every hour in the US.

A few years ago, an explosion at a Houston plant of the former petroleum firm Phillips 66 killed 32 workers. Another time a huge, thick black fire burned for 28 hours at Formosa Plastics' facility near Seadrift, and the company was not even judged to have committed any violation of environmental regulations. The Formosa factory is one of the biggest of many vinyl-chloride, or PVC, plants in Texas. In the US the occupational injuries and deaths associated with the work that of employees at PVC plants equal or

exceed heart attacks and cancer as a cause of their mortality. The public does not know about this and the media does not report it too much, but because I complain about these things *The Houston Chronicle* once described me as being public enemy number one in my community.

I have been an activist for about 13 or 14 years, and I'm amazed that most people in the US think that there are laws that protect them effectively against industrial pollution. A lot of folks even think the chemicals industry is being hamstrung and over-regulated. But 30 years after the passage of the 1972 Clean Water Act, which promised that the US's waters would once again be fishable and swimmable by 1982 and that there would

waterways and more than 250 million pounds a year of reported toxins going into American waterways. The Clean Water Act has failed miserably.

Seadrift is situated in Calhoun County, which has a population of just 15,000. According to TRI data, in 1989 Calhoun had the worst record for toxic releases in the whole of the US. But by the following year, it wasn't even on the list. Why? Disturbed by the bad publicity our pollution status generated, our senators and county commissioners lobbied to have one major toxic chemical taken off the official list of pollutants, and, poof, the problem officially vanished. But those 15 million pounds of toxic material are still sitting out there in landfill. Formosa

didn't figure at all in the TRI data for 1990, though in reality it was shipping millions of pounds of toxic vinyl-chloride residues to Lake Charles in Louisiana and burning them. Formosa said: 'This is recycling, not waste release.'

I went and dug up a bunch of official files and found a number of letters from the state telling Formosa, 'This isn't recycling. You need to report these numbers.' The Taiwan-based company never did, and the matter seems to have been dropped. You have to learn to read between the lines when you hear the EPA or industry talking about how their 'numbers have come

down'. Here's another example of how these figures are manipulated. A company operating near Seadrift was always near the top of the toxic releases list. Now it isn't on the list at all. This is because it stopped dumping toxics into injection wells and started putting them in the Guadalupe River instead. (The river flows into the commercial fishing grounds of San Antonio Bay on the Texas Gulf Coast.) For a purely technical reason that got the company off the list.

When I found out about the reality of Calhoun County's toxic releases record it just blew my mind. I knew there were

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be zero emissions of industrial pollutants into them by 1985, a lot of America's waterways are as polluted as ever. According to the most recent Toxic Release Inventory (TRI) of the US Environmental Protection Agency (EPA), 40 per cent of US waterways are too polluted to fish or swim in, and 30 per cent of US industries do not comply with the act. (The figures for industry compliance relate only to companies that bother to report their performance, so God only knows what's really going on out there.) In the last 10 years, there have been 30,000 closures of bays and

chemical plants around, but I had never known the true scale of what was actually going on. I am not a natural spokesperson. When I was a child, when people would come to the house, I would crawl under the bed to hide. But when I saw evidence of harm clearly in front of my eyes and people pretending it wasn't going on, I felt compelled to do something. So, I spent the next 15 years fighting chemical plants and trying to keep their waste streams from contaminating local bays. When I first started, I didn't understand anything about chemicals or permits or TRI. I would call Union Carbide and Formosa and the aluminium company Alcoa and chemicals giant Dupont and British Petroleum and ask, 'Could you kind of explain something about your numbers and where they come from?' It didn't work out too well.

Eventually, though, I learned how to find interesting material in official government files, and that's how I became such an expert on Formosa. The company was starting the largest expansion of a petrochemical facility Texas had ever seen in our little bitty county, and nobody seemed to know anything about it. In our little school district, they were eliminating 17

teachers because we were in such bad shape, but Formosa had managed to get \$200m in tax abatements, and it immediately started building, bringing in 5,000 construction workers almost overnight. There had been no hearings; no information was available.

In the beginning my only allies were poor divorced women; husbands of married women wouldn't let their wives get involved because the campaign was too controversial. Since I'm a fisherman and my father was a fisherman and my brothers were fishermen and my cousins were fishermen, I tried to make allies with

other fishermen, but the fisheries are in such crisis that most of the white fishermen were very apathetic: they didn't believe you could fight city hall; they had lost so many battles that all they wanted to do was escape on their boats.

I went out and formed an environmental group. I called a meeting in my town and expected only a few people to attend. I ended up with bank presidents and the local chamber of commerce threatening me. I had senators down there in the fish house. I had people calling me a terrorist. They were certain, absolutely certain, that I was a spy for the state of Louisiana, because Texas and Louisiana were competing for the privilege of hosting Formosa's \$2



billion chemical plant. Wang Yung-ching, the Taiwanese chairman of Formosa, was going back and forth between the two states, and seeing which one would give him the most money for polluting its bays and waters. Texas got the prize because we gave him the \$200m worth of tax abatements. And we gave him ship channels and banquets.

Because I protested against this, I was considered a spy. I was considered a terrorist. Formosa threatened to sue me, and every single one of the members of my campaign's board quit because they were afraid that they were fixing to get

sued. People would come up to me very quietly and tell me they couldn't get involved in my campaign because they had to have bank loans, and they had to have some of their kinfolk working at some of the chemical plants. Because when the fishing industry goes down in the Gulf of Texas, communities have a hard time. These are poor people. Sometimes during the winter, when it really gets rough, they have to get jobs at these plants.

But it's a myth that you need a lot of people and a lot of money to resist, because you don't. All you need is commitment and belief. All it needs to start is you: all it takes is one person. I drew a line in the sand and decided the petrochemical industry was not going to destroy bays in the Gulf of Texas any longer. I had previously watched the area's dolphins die off. All the local dolphins and alligators were just sitting, rolling in the water. You would go out there and you would find hundreds of dead dolphins stretched out on the land.

We watched the red tides, the brown tides, the green tides. We watched Alcoa create a Superfund site by dumping mercury. (Superfund sites are locations identified by the EPA as being the most polluted areas in the US.) Now you've got mercury in the sea's sediment, mercury in the fish. And what do the local shrimpers do? They sit on top of the Superfund site out in the bay and they take the shrimp up, and folks out there are getting nice, mercury-laden shrimp.

My campaigning against Formosa in the US had been picked up by the underground press in Taiwan, where people had their own grievances about the company's behaviour. (The reason why Formosa wanted to build in Texas or Louisiana in the first place was because there had been too much protest about its activities in Taiwan.) A Taiwanese legislator invited me to visit the country and talk to grass-roots groups, unions, and others for two weeks. I learned of people being jailed, disappearing, being tortured and killed. That trip, those people, »

radicalised me. I felt that people in the US didn't know how to make change. That lesson can be best described by a quote from the 19th century US writer and anarchist Henry David Thoreau, who is supposed to have said on his deathbed that the only thing he regretted was that he had been too well-behaved.

So I've been working to try to enforce a policy of zero discharge into waterways of pollutants from petrochemical plants on the Texas Gulf Coast. Zero-discharge law in the US has actually been around for 20 years. It was in the Clean Water Act, which is a federal law but hasn't been enforced because folks are just a little too well-behaved about asking for enforcement to happen. But it can be demanded – by anybody. Because if someone like me, someone with only a high-school education and who never even liked chemistry, can get a petrochemical plant to comply with the act (as I did), then anybody out there can demand (and secure) zero discharge at any type of facility they care to get involved with.

I didn't know anything about zero discharge at the beginning of this struggle. I didn't even know it was possible. The only reason I found out about it is because I got a call from somebody with a zero-discharge technology business in Houston asking me why I was fighting to stop petrochemical plants getting waste-water permits rather than just demanding that companies install zero-discharge technology.

When I first brought the subject of zero discharge up, the petrochemical industry claimed it had never heard of it. I spoke before a Gulf of Mexico symposium, and I was talking about zero discharge, and these CEOs were saying, 'What are we talking about here? Philosophy?' It's not a philosophy; it's a technique. It can be done. There is a lot of available technology.

It has been done for a long time. For instance, some Middle Eastern countries have been doing it, not because they are worried about pollution, but because they have to conserve precious water. A lot of zero-discharge technology was inspired by a desire to keep water in a closed loop. That's one of its real benefits. You not only close the loop on pollution and avoid discharges going into the water; you actually save water.

Getting an agreement with Formosa necessitated my being outrageous, because in the beginning nobody took me seriously; they thought I was a real nut. Now they just think I'm a real persistent nut, but that's what it takes. I eventually had to go on three different

there is a key to the universe. There is a universal law. If you put your commitment out there, I believe everyone is potentially miraculous: we could all be Gandhis. Sometimes things get so outrageous that you have to do something dangerous. You put yourself or your property at risk, and you can create miracles; you can create events. I've had people come up to me and want to know what immense organisation was behind me, or who was directing me, and the scary thing is there was nobody. It scared me at times. Because I kept thinking there's got to be somebody who knows what in the hell is going on and what I need to be doing. But there was nobody there. So you have to make the decisions, and they're hard decisions.

I don't believe in having a safety net when making these choices and taking these actions. They're scary decisions, and you always know you're on the path because you can smell your own fear, and you head straight for it. You have to head for the fear. Gandhi talked about soul power, and that is what it's all about. It comes from your soul. It comes from being on your path and realising that there are things out there much bigger than yourself and what you think you've got.

I didn't have much luck with the white fishermen on the Texas

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hunger strikes to get my point across; one of them lasted 30 days. But I still could not turn the tide and get Formosa to agree to zero discharge. By the third hunger strike, Formosa admitted that the technology existed, but claimed that it couldn't afford it. I wound up fighting Formosa's waste-water permit all the way up to an appellate judge in Washington. I lost my attorney, so I started filing my own briefs. Even though I only have a high-school education, and am not real logical or legal-minded, I wrote my own briefs to the EPA.

So you can do a lot. I firmly believe

Gulf, so eventually I approached the Vietnamese fishermen working there. There had been a whole history of tension and hostility between the white and Vietnamese fishing communities in Seadrift that got a lot of national attention about 16 years ago. After the Vietnam War, 100 Vietnamese families suddenly came into Seadrift, a real poor fishing town, and started crabbing. There had never been any attempt to facilitate communication, not by the entrepreneurs who had brought the Vietnamese, or by any of the state agencies such as the Parks and Wildlife

Department, which likes to regulate us, or by any of the federal bureaucracies. When you've got a poor crabber who is trying to support his family and he sees another man put his crab traps too close to his, he gets upset about it. The Vietnamese didn't understand English and didn't understand the rules.

Words escalated into fights. There was a shooting, and then houses burned, boats burned. Then the Ku Klux Klan tried to come into Seadrift to march. Thank God we kicked it out of town, because it was very eager to exploit the issue.

These Vietnamese fishermen became the most dedicated demonstrators in support of my efforts. A *Houston Chronicle* reporter said the most surreal experience he'd ever had was to see Vietnamese fishermen protesting against Taiwanese businessmen on the Texas Gulf Coast.

To make a very long story short, I did manage to stall Formosa's wastewater permit, but it was clear the EPA and the Texas state authorities had every intention of making sure the company got its plant finished. When I realised how naïve I had been, that I could be right according to the letter of the law but still couldn't stop Formosa from discharging toxic waste into the local waterways, I was so outraged I decided to do the only thing I could think of that would shock people around Seadrift. I'm a very non-violent person, so violence was out of the question. But I decided to take my own shrimp boat and sink it on top of Formosa's illegal discharge point so that every time anybody went over the adjacent causeway they would see the mast of my boat sticking up, and they would automatically think about Formosa's discharge.

Down on the Texas coast, your shrimp boat is real important: you can live in a shack; you can have a rusty truck; but, by God, you've got to have a nice shrimp boat. For us, that's like a farmer with his farm. When I was

fighting Formosa, I had been on those three hunger strikes trying to get the company to zero discharge, to actually obey federal law. You run a traffic light and a cop's going to stop you, but Formosa was discharging into a bay system, and it didn't have a permit allowing it to do so: it was violating the law; absolutely no permit. I had an appeal going in Washington, and everybody knew it.

To really drive home how important this was, and to put things in perspective, that's when I decided to sink my shrimp boat. I had a 42-foot shrimp boat with a huge diesel engine. I had to have a winch truck pull out the engine because if I had sunk my boat with it still inside and gotten

was about to do and told the Coast Guard. So there it was at midnight in a storm and three Coast Guard cutters showed up looking for Ms Wilson on the boat she was fixing to sink, and they accused me of 'terrorism on the high seas'.

They said I was facing 19 years in the penitentiary and \$500,000 in penalties. They confiscated the boat and tied it up to shore, but what I had tried to do finally woke the fishermen up. When they heard what had happened, all the fishermen – the whites, the Hispanics, and the Vietnamese – got out there in the middle of the bay on their boats and made such a stink that it caught the attention of the media, and it was all over the papers. Formosa finally got sick and tired of all the bad press, and finally agreed to zero discharge.

I got a zero-discharge agreement from Formosa Plastics. It took about five or six years to get. But about a month later I went to Alcoa, which had at that time the number-one plant in the US for toxic discharges. I went to Alcoa and said, 'Now do we get a zero-discharge agreement or do we do the whole thing over?' In 30 minutes it agreed to zero discharge.

I just want you all to believe, to know, that you can achieve similar results. Just believe in yourselves and be outrageous. The author Molly Bang wrote a children's book about my story called *Nobody Particular*. That's a very

appropriate title, because if there's one point I want to get across it's that if someone like me, someone who is naturally shy and has hardly any formal education, can take on some of the biggest companies in the world, anybody can. Somebody once said, 'It's the reasonable woman that adapts herself to the world, and it's the unreasonable woman that makes the world adapt to her.' I'm telling all of you women to be unreasonable. ■

Diane Wilson's story is extracted from *Ecological Medicine: Healing the Earth, Healing Ourselves* (Sierra Club Books, 2004)

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even a thimble of diesel fuel in that bay, the authorities would have fined me royally and said I was the polluter. I had another shrimper with a boat sneak me out in the dead of night, pull my shrimp boat out there in the middle of a storm, and I was going to sink that thing square on top of Formosa's discharge point. There was going to be a monument to that discharge out there. But about two thirds of the way out I had Coast Guard all over me. It turned out Formosa had hired, for \$65,000 a year, one of my cousins, who had once been a fishermen's spokesperson, just to follow me around. He got wind of what I

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...warts

‘I mpisi,’ whispered Jabula. ‘Hyena.’ He held out his arm to keep me back, lifting a finger to his lips to tell me to be quiet, and stood there, crouched a little, turning his head from side to side, searching for something. I froze, and we stood that way for a long time, waiting to see, or hear, or smell whatever it was that had made him so alert. Hyenas will usually avoid humans, but you can never be certain. In the end, he relaxed a little and began to move forward very slowly, looking at every scuff and drag mark in a clearing directly ahead of us. The floor of this arena looked like a battleground, scarred with prints of several sizes and stained with dark patches of dry blood. And there in the centre lay a warthog tail, a long one with its tuft still intact, so big that it could only have belonged to an adult animal.

‘That’s all they left,’ said Jabula with a shrug. I knew he was right. Hyenas can eat and digest just about anything. Skin and bones and even teeth are all crushed up by their powerful jaws and dissolved in a matter of hours.

‘A sow,’ he added, picking up the tell-tail and brandishing it like a fly whisk. ‘And she was not alone. There were piglets, three of them, I think.’

He moved around the clearing, reading the signs, reconstructing the last minutes of their lives for me in breathtaking detail, stopping only when he was interrupted by a strange sound. It was half grunt and half snuffle, almost a sneeze, and it came from a small hole at the base of a nearby termite mound. We looked at each other in surprise.

Jabula shrugged and went over to the hole to peer in. It was about six inches in diameter, just big enough to hold a grapefruit and apparently not very deep, because we could see something about a foot down, something round and flat with a pair of very fierce dark eyes that dared us to do our worst. It was the snout of one of the young warthogs, jammed backwards into this little hideaway, miraculously still alive and prepared to fight us to the death, scowling as though we, and

not he, were the ones in trouble. Hungry hyenas will sometimes take the trouble to dig such a pig out, but that is hard work. Our two hyenas had already dined well on the rest of the family and were content to leave the last little pig wishing he had stayed at home. And he clearly had no intention of coming out to see if we too were the sort of animals who were fond of pork.

We couldn’t leave him there, so Jabula sent me back to the house to find a sack. When I returned, he was sitting on the termite hill out of sight of the hole, dangling the tail of the adult warthog in front of the entrance, letting the piglet get the scent of his mother. Jabula was making soft, low grunts and the little pig was answering, once in a while, with a high squeak.



These exchanges went on for half an hour or more until the young warthog got so hot and thirsty that he just had to make a move. He put the tip of his flat snout out first, sniffing at the tail, then his eyes and finally his ears – and when the whole head was free, Jabula leaned down and pulled the youngster out entirely.

He screamed with rage, lashing out with his sharp little hooves, snapping needle-like teeth, but before he could do us or himself any damage, we had him bundled

up in the sack and were on our way back home. Alice in Wonderland was right. Little pigs have a lot in common with human babies. They squeal and sob and carry on alarmingly, but this one had us well trained in less than a week.

Y oung warthog start feeding on solids when they are about three weeks old, and this one was clearly happy to do so. Apples, pears, grapes, bread, cake, porridge, dates, chocolates, cheese and eggs all vanished into his ever-open mouth. He even seemed to like meat, gobbling down chicken and minced beef, but we agreed that it wouldn’t be fair to offer him bacon – though I have no doubt he would have downed that just as happily. It was like watching a vacuum cleaner at work, a suction bag with a leg at each corner. That was what we called him: Hoover.

And he grew almost before our eyes. In a month, he »

and all

doubled his size to 10 pounds, and in three months, at almost 60 pounds, he weighed nearly as much as I did and looked like a proper warthog. His mane began to grow out along his neck and spine, and a pale trim of beard sprouted at the edge of his lower jaw. His warts and permanent teeth began to appear and by the time he was approximately a year old, he stood two feet tall, with a waistline larger than Jabula's, and had graduated to a more normal diet for a warthog. He grazed the lawn and made long sorties out into the veld around us.

Hoover was a gentleman. It was true that he had a distinctive smell and tended to gobble his food, but in every other way he didn't behave 'like a pig'. He liked to wallow in a muddy pool on hot days, but he was far more interested in bathing in the spray from a garden hose, or standing under a tap of running water. He was extremely clean and painstakingly polite, never failing to greet every one of us each time we met by nuzzling a knee or, when he could do so, by nose-to-nose or mouth-to-mouth contact.

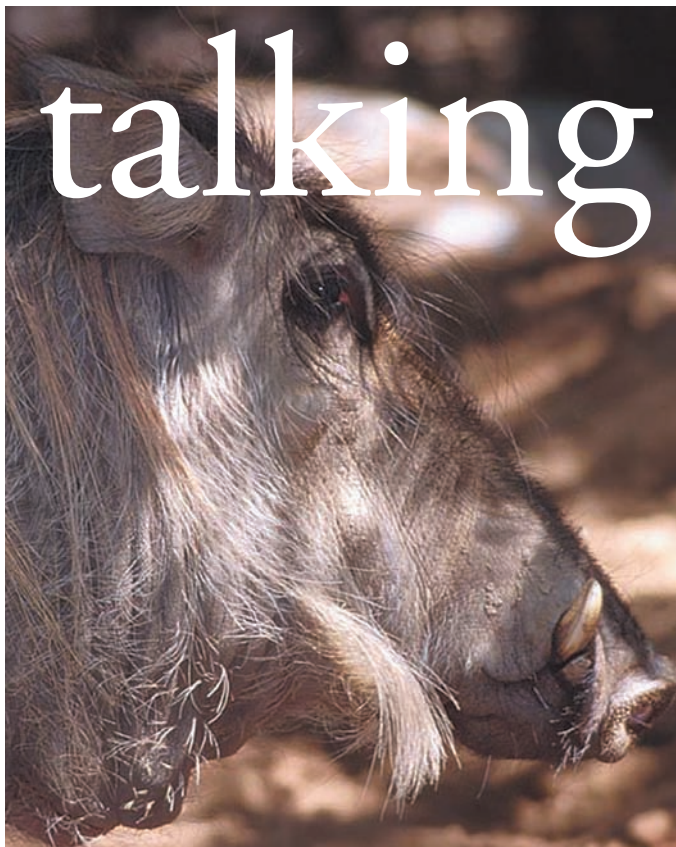
If Hoover found me sitting or lying down, he would stop a seemingly distance away and lean forward until his snout disc was just an inch from my face. Then he would snuffle softly, inviting a response, and if I acknowledged him in any way, he would push his nose right into the side of mine or into the corner of my mouth, and breathe deeply, inhaling my scent and checking it with his memory of what I should smell like. And if all was well, he would make a happy little sound of greeting and satisfaction. Pig-ignorant people with fixed ideas labour under the delusion that pigs go around saying 'oink' all the time. Some may, but they also have access to a rich repertoire of other vocalizations, and warthog share a language

all their own.

In addition to his greeting sound, Hoover had a contact call, a series of brief, anxious grumbles that let me know where he was when I was out of sight. He also had a louder, more enthusiastic grunt that he used only for the sight or smell of favourite foods. Then there was a soft low call, a querulous sound I only heard when he paused at the entrance to a hole or burrow; a very polite sort of sound that meant: 'Anyone at home?' For more intensive moments, there was an alarm grunt, almost a snort, something sharp and loud that usually preceded flight; and a harsh growling grunt, louder and longer and heard only in threat. This he reserved for all dogs and any strange human visitors.

When first captured, Hoover had produced a sustained long, loud squeal which I have heard many times since from young pigs of several species who are being admonished by their elders, a sound that subsides to a submissive squeal on the point of turning away to flee. Very young warthog produce a throaty 'churr' sound when calling to their mothers, one that changes to a high-pitched 'eek' when they become separated from the litter altogether. And once or twice I have been lucky enough to hear the warthog chant de coeur or love call – a loud, rhythmic 'putter' that sounds like a two-stroke lawnmower as a courting male approaches his potential mate.

I could recognize at least fifteen different sounds from Hoover. Some were very subtle, scarcely separable to the human ear, but judging by their effect, they carried distinct meaning for other hogs. And I believe I could recognize Hoover's voice and pick him out from other warthogs by sound alone. My grasp of warthog small-talk, however, was woefully



warthog

Hoover had only a very brief experience of warthog society, but it was enough to have taught him, or to have released in him, a working knowledge of warthog communication. As he grew, he used most of the acoustic signals I later came to recognize in the wild. He greeted and threatened and submitted with all the appropriate sounds, behaving when he walked out with Jabula and me as though he was part of a bachelor herd. And we encouraged this, replying in kind with our

best approximations of warthog small-talk.

This sometimes worked and sometimes left him looking at us rather quizzically, wondering what on earth we were trying to say, but on the whole it helped. We grunted and growled in most of the right places, and he granted us the benefit of the doubt and the very real gift of his own superior senses. He always heard sounds before we did, smelled odours before we could, and somehow picked up news on his early warning system well

limited by my inability to detect and decode the olfactory components in his system of communication.

Hoover loved to be groomed. He would stand still for ages as long as I kept scratching his ears or ran my fingers through his mane, grooming all the places he couldn't reach himself. Sometimes he would reciprocate by nuzzling my arm or leg in return, but this involved 'grazing' nibbles that were far too intense, pulling some of my hair out by the roots. I suspect that my skin was not very satisfying to him anyway, lacking the added interest of all the glandular secretions that warthogs have to spare.

By his second year, Hoover was almost adult, with a fine set of tusks that he polished on tree trunks at the same time as he marked them with his lip and eye glands, leaving a visible stain that lasted for days. He inspected these markers regularly, sniffing at them, refreshing them, adding to their advertisements in the course of a ritual round of inspection which he took at a strut with his tail held stiffly to attention.

But the most revealing moments of our time together came from the bush walks that Jabula and I took in Hoover's company. Jabula enjoyed Hoover's name. He made it sound

just like the appliance, breathing out on the first syllable and sucking in on the second, getting a curious look from the pig every time he did so. But as Hoover grew big enough to have a little warty gravitas, Jabula began to treat him with more respect and gave him the title of Indhlovudwana, which is the Zulu for 'little elephant'.

Jabula used to lead all our bush walks, but as time went by Hoover drifted into point position and Jabula and I just went along, following his winding way, seeing things from his point of view.

Food was always first on his mind – short green grass for preference, with flowers or seed heads if possible, or failing that, shoots and roots and fruits of a wide variety of plants. I lost count after listing more than thirty different kinds, all plucked and then masticated with his cheek teeth as we walked along. When he had to get right down to it, Hoover would 'kneel' to crop more efficiently, resting on his wrists where the bone was already cushioned. Warthogs are born with these calluses, and the fact that they exist before the need for them occurs, presents us with yet another of those nice conundrums that life throws up to challenge evolutionary theory.

The next warthog priority is shelter. Since they are the only pigs to live in open habitats, bolt-holes figure prominently in their lives. Fortunately, warthog expansion to the African »

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before Jabula, which was very useful and, on one occasion, even life-saving. It began with a sharp, snort-grunt of full alarm as Hoover vanished in a flash down the nearest aardvark burrow. Every hog for himself. Jabula responded almost as quickly, rushing me to a convenient mopane tree and hoisting both of us up to a high branch where we sat, looking hard in every direction, until a lion came padding down the path we had been about to follow.

He was a rare sight in our area, a scraggy old male with a thin mane, hungry enough to sniff at Hoover's hideaway, but not young enough to excavate it on his own. He gave us an equally bleak look up in our tree and passed by, just a veteran eking out his

last days alone, but more than a match for a young boy with a hiking stick.

On another occasion, Hoover set off a similar alarm and went to ground in the same way when a martial eagle flew by and let its raptorial shadow fall on our path. But I noticed that he responded differently to dogs, snakes and human strangers. All these potential threats were announced with the same 'alarm grunt', but were preceded by a caveat, a qualifying clause in the form of a warning soft snort or 'woomph', which modified the alarm in a way that allowed Hoover to stand his ground. It seemed to say: 'We have a problem, but there is no need to panic yet.'

So we didn't. But it

wasn't until twenty years later, when I was completing my doctorate in ethology, that I realized what Hoover had done. Linguists decree that true language involves a set of rules known as syntax, in which word order is linked to, and changes, meaning; something only humans can do. But it seemed to me, in retrospect, that Hoover had done exactly that. He had shown that the 'alarm grunt' was a matter of life and death, an announcement to be taken seriously, and meant 'Run away!' Then, by linking it to an extra sound in the sequence 'woomph warning + alarm grunt', he had softened the call so that it meant: 'Get ready to run away!' – which is very different.

Ever since then I have

looked at warthog hard and listened to their chit-chat, but it is difficult in the wild to recreate the intimate connection we had with Hoover. Our close proximity had made it possible to pick up shades of meaning that are rather subtle and easily missed. I haven't heard that precise 'woomph + grunt' again. It might have been an aberration of our particular interspecific communication. Hoover could have been making allowances for the snort-challenged humans around him, but I suspect there was something more going on. I think that pigs everywhere are dropping semantic pearls before human swine who labour under the delusion that all pigs can do is go 'oink'.

savanna coincided with the presence there of a large, nocturnal, termite-eating mammal called the armadillo or 'earthpig'. No relation to the pigs, this bizarre-looking proto-ungulate with asses' ears and a muscular tail uses huge claws to dig down to its prey, many grasslands looking like battlegrounds, pocked with holes large enough to accommodate a small man or a full-grown warthog.

Armadillo burrows are vital resources in the bushveld too. They go down three or four feet, usually round a bend or two, and end in a sleeping chamber. Some are quite complex, with several entrances and a maze of passages and caves that provide shelter for porcupines, mongooses and farrowing warthog sows. Hoover's interest in them began to make sense when at about six months old he chose to spend his nights away from home, sleeping in a variety of burrows instead of the box with a blanket that we had provided.

Hoover never knowingly passed any



of its head and held on tightly as the thick muscular body thrashed away for a while, despite the fact that its back was already broken. Gradually the struggle subsided and we were allowed closer to admire his kill. Then our favourite pig, our alleged grazer, ate every last inch of the reptile.

Jabula was very impressed, and I was as proud as though I had made the catch myself, but it wasn't until years later and many retellings of the tale, that I realized how extraordinary it was.

Wild pigs do kill and eat lizards, snakes, young birds and small mammals, indeed almost anything they can catch. They learn to do so by example, by being part of a sounder in which such techniques are passed on by adults with the necessary experience. But in the case of snakes with lethal bites, trial-and-error learning is a fatal strategy. Hoover was hand-reared and so lacked such knowledge. Yet, when faced for the first time by a live puff-adder, he was able to use his hoofs to disable, and his jaws to

EVERY NOW AND THEN, HOOVER WOULD COME ACROSS HIS OWN TRACKS. HE TOOK TIME TO SAVOUR THEM AND THEY CHANGED HIS DEMEANOUR, GIVING HIM A DREAMY SORT OF LOOK, LIKE SOMEONE FINDING SOLACE IN THE FAMILIAR SMELL OF HIS OWN ARMPIT.

burrow entrance without stopping to examine it. He would sniff at it, give the 'Anyone at home?' call, then pop down to see what the accommodation was like. Usually it was a quick in-and-out, and sometimes he would pop up triumphantly from a second entrance yards away. On overcast or cool wet days he slept in, coming out only when driven to do so by hunger. Then Jabula and I used to track him down and wait for him to rise, which he always did in great style, bursting out of the entrance as though shot from a cannon, invisible in his own roiling dust cloud until he was 20 yards away, just in case there was a leopard lying in wait.

Sometimes there was, so he was very careful, coming or going. When choosing a burrow for the night, he always approached it from downwind, coming in cautiously, slightly stiff-legged if he sensed anything untoward, calling ahead before he made his usual acrobatic, backward descent. This was always followed by a quick return, popping back up to the surface for a last look around before he turned in, but on one occasion he went down and just disappeared.

We waited patiently for his reappearance, but when nothing happened we began to feel concerned. Several minutes passed. Then there were some very alarming subterranean sounds and a cloud of dust which billowed up from the burrow as though the roof had fallen in. This was followed by some more scurrying and the welcome sight of Hoover's hindquarters as he backed slowly out of the hole – dragging a four-foot puff-adder. He had the struggling viper by the back

dispatch, an adult adder in style and without injury.

There has to be a very powerful and extensive genetic reservoir of innate answers to a large variety of environmental questions, a blood bank of carnivorous strategies that linger on, even in the species memory of an omnivore that has been adapted to dealing with nothing more challenging than grass. Such programmes must include the possibility that there are sometimes snakes in the grass.

Pig society is smell-bound. Almost everything pigs do is determined in some way by odour. Scent-marking and scent-reading help to define these limits and to cement social communication. In our attempts to make sense of systems that are beyond our sensory grasp, I suspect that we disparage some scent-laying practices by passing them off as 'territorial markings'. The fact is that pigs are not really territorial at all, but operate movable home ranges, shifting these as they adapt to the seasons. They are generous with their secretions for a different reason, one that has more to do with identity than property. They are protecting themselves, rather than their surroundings, finding security in society instead of territory, laying down olfactory perimeters that are flexible.

Hoover accepted our society for what it was, rich in resources but nevertheless imperfect, unpigly. And he discovered that a solitary pig is a sad thing, almost as useless as a bee without a hive. But he made the best of it and came

through in the end, I believe, because he had an olfactory safety net.

Hoover's home range was anchored to our farmhouse. This was home-base, his resting site. When he outgrew his box and blanket and moved out to a burrow of his own, that loosened the perimeter a little and gave him more territory to patrol, more places to make a mark on – which he did, repossessing focal points each time the busy human traffic overwhelmed and destroyed his signatures. I watched him do it, seeing and sort of under-standing what he was doing, and why he couldn't rest until it was done. But I also observed something else.

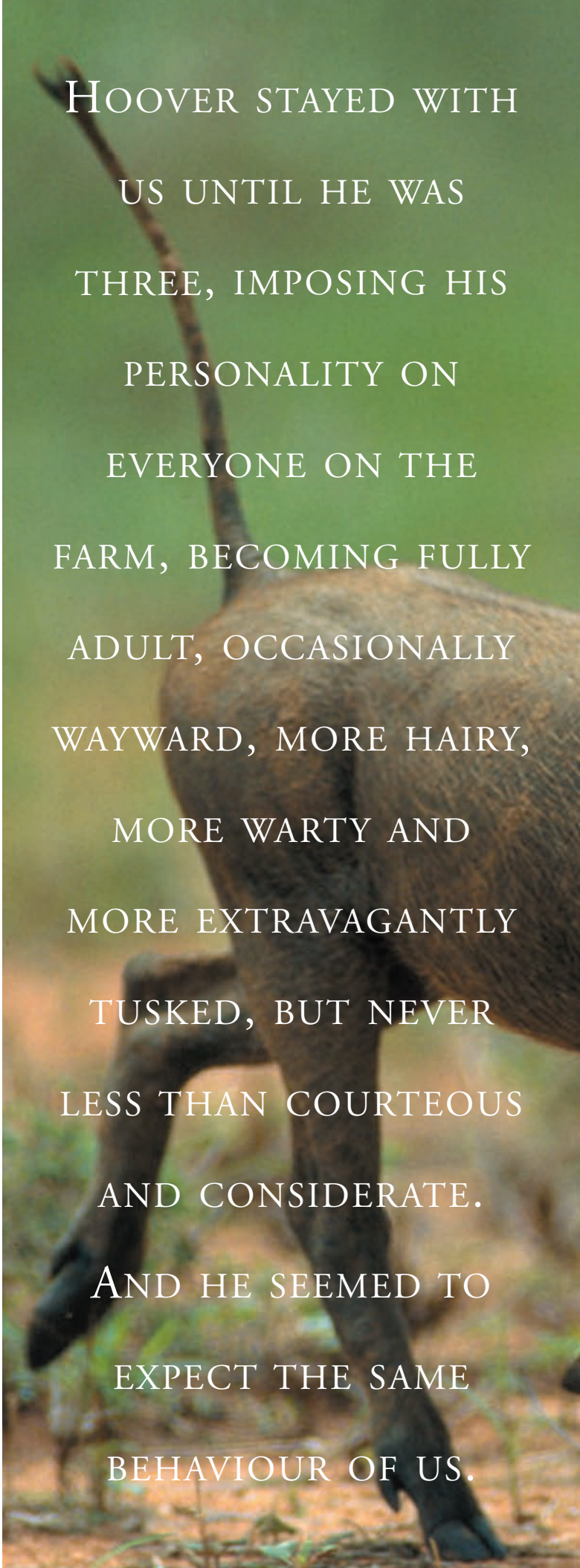
He trotted around on his high heels, tail up and nose down, dashing off after my footprints from the previous day, finding out where Jabula was today, inspecting new odours, trampling on and trumping them, spreading the word. But every now and then, he would come across his own tracks, and these always slowed him down. They gave him pause for thought. These were different, they were hoggy. They were his! And every time I saw him do this, the same thing happened. They calmed him down. He took time to savour them and they changed his demeanour, giving him a dreamy sort of look, like someone finding solace in the familiar smell of his own armpit. I believe that is exactly how it worked. He was finding himself, encountering the sounder, the hive-smell, the essence of warthog, and learning who he really was.

Hoover stayed with us until he was three, imposing his personality on everyone on the farm, becoming fully adult, occasionally wayward, more hairy, more warty and more extravagantly tusked, but never less than courteous and considerate. And he seemed to expect the same behaviour of us.

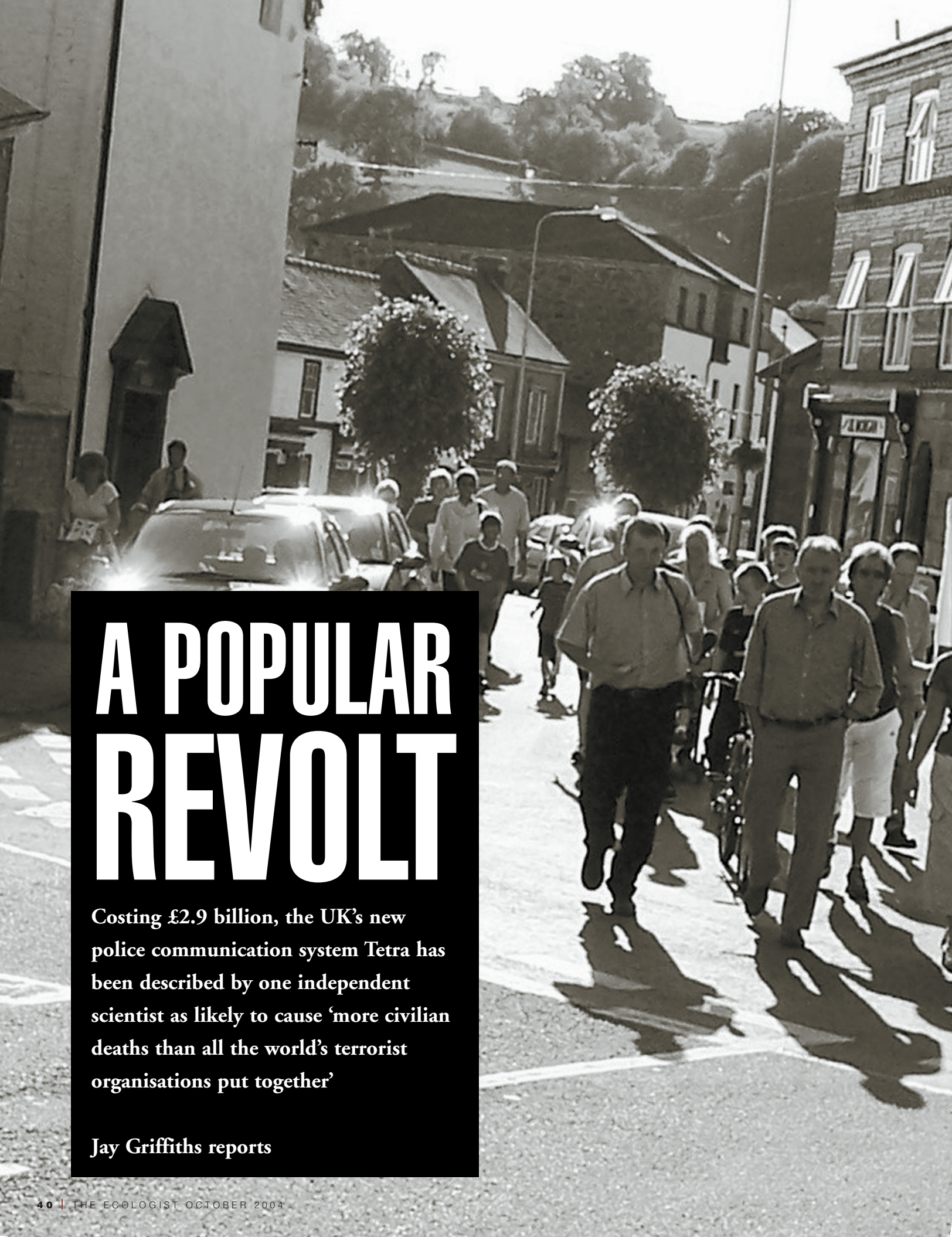
Despite their reputation, most pigs are scrupulously clean. They defecate only in certain places, setting up their 'latrines' in agreed spots, even when their surroundings are severely restricted. Warthogs produce small dry droppings that are less odorous than others, but they are none the less punctilious about them and exercise a fine restraint. When we walked out together, in company, and Hoover needed to relieve himself, he turned away and went a short distance from us to do so. This may be nothing more than a ritual that ensures that the nest or food is never unnecessarily fouled. But I noticed that, on such occasions, Hoover seemed uncomfortable, dare I say even a little 'embarrassed', if we watched.

And that was only one of many ways in which this grizzled and warty, potentially grotesque, wild hog came to seem so delicate and endearing. We lost him, in the end, to a comely young sow in a sounder that passed through our territory on their way north to greener pastures along the Limpopo River. ■

Extracted from The Whole Hog by Lyall Watson published on 23 September 2004 by Profile books at £16.99 hardback
Lyall Watson is a naturalist, born in Africa, Educated in Europe, and native to the wilder parts of the world. He has spent half a century in fieldwork on biology and palaeontology, anthropology and archaeology, and he has a rare talent for making unusual connections between all these life sciences, crafting his discoveries and experiences into a series of captivating books. These include Supernature, Lifetide, Lightning Bird and Elephants.



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A POPULAR REVOLT

Costing £2.9 billion, the UK's new police communication system Tetra has been described by one independent scientist as likely to cause 'more civilian deaths than all the world's terrorist organisations put together'

Jay Griffiths reports



Before the Tetra mast was erected in Llanidloes, the nearest thing to a health scare there was the fact that the local Kwik Save was no longer selling prunes in apple juice.

Llanidloes is a small, open-hearted market town in a damp and lovely valley in mid Wales. It is a town with a strong identity and a long memory; some people still live in the street where they were born. Solidly Welsh, and surrounded by farmland, Llanidloes also has a smattering of English blow-ins; people who are into organic veg and eco-design and jazz, and who chirpily co-exist with no more than the odd grumble from locals about the 'hippy contingent'.

And then, stealthily, on a bank holiday weekend in May, the mobile phone company O₂ (through its subsidiary MMO₂) erected a Tetra mast in the heart of the town. O₂'s idea of 'consultation' was legal but risible: it did little more than inform the mayor and town council that it was putting the mast up, whether Llanidloes liked it or not.

And Llanidloes did not.

There was an outcry. Posters were put up in windows, a march held, banners made. (One banner flew from the top of the mast itself.) Llanidloes joined what *The Times* has described as a 'popular revolt' against Tetra.

The local people felt bullied by a giant of a company. For many of them, it's an issue of local democracy: they should have the right to refuse. 'In Llanidloes,' says the stalwart and

their own analogue radio system, and it can be difficult for neighbouring forces to communicate with each other. By the end of 2005 this will no longer be a problem, as by then all the country's constabularies will have switched over to Tetra.

Not everyone, however, is so enthusiastic about Tetra. Dr Gerard Hyland, an expert in low-level radiation, member of the International Institute of Biophysics and prominent Tetra critic, states: 'With the Tetra roll-out we could be seeing a pandemic of brain tumours in 10 years.' Low-frequency radiation, says Hyland, affects brain function and the blood-brain barrier and degrades the immune system. Children are known to absorb far more radiation than adults. Writing in the medical journal *The Lancet* in November 2000, Hyland stated: 'Radiation is known to affect the brain rhythms, and children are particularly vulnerable... The main effects are neurological, causing headaches, memory loss and sleeping disorders.'

When a Tetra mast was switched on in Dursley in Gloucestershire people there complained of migraines, sleeplessness, nosebleeds and being 'shocked awake' up to 15 times a night. At a school in Littlehampton, Sussex, 11 children had to be sent home on the day that a nearby Tetra mast went live. The children suffered dizziness and, like the residents of Dursley, severe headaches and nosebleeds. (Interestingly, the local community did not know the mast

WHEN A TETRA MAST WAS SWITCHED ON IN DURSLEY IN GLOUCESTERSHIRE PEOPLE THERE COMPLAINED OF MIGRAINES, SLEEPLESSNESS, NOSEBLEEDS AND BEING 'SHOCKED AWAKE' UP TO 15 TIMES A NIGHT

thoughtful local councillor Morgan, 'we have a history of David beating Goliath.' Someone else tells me that the town was the site of a Chartist riot in the 19th century.

And then the people of Llanidloes began educating themselves. What they discovered, just like hundreds of communities around the country, is the full staggering story of Tetra. A story that involves science being 'perverted for political ends', chronic illness and agonising death, one of the country's leading scientists performing an extraordinary U-turn, a company that openly confesses to taking no responsibility for the safety of what it produces, a financial scandal, a political scandal and, above all else, a health scandal.

If you live near a Tetra mast, then this story affects you directly. And considering that there will eventually be at least 3,200 such masts erected in the UK, there *will* be one near you.

Tetra stands for 'Terrestrial Trunked Radio'. It is the new police communication system using microwave radiation and low-frequency electromagnetic pulsing, and is operated by O₂ under the brand name Airwave. 'Airwave,' says a police source, 'is better than the old system for voice traffic: at least we don't get interference from Dutch cabbies anymore.' It also prevents criminals from listening in, as it has its own private, digitally encrypted frequency. At present, police forces run

had been switched on, so the children's reactions could not have been psychosomatic.) At Drumcarrow Hill in Fife a Tetra transmitter has been in operation since the late 1990s. Only about 200 people live around the mast, but there have been at least seven recent cases of cancer and five cases of motor neurone disease (MND) diagnosed in the area over the past five years. (Normally, no more than two people to every 100,000 is diagnosed with MND per year.)

MND is a particularly nasty and fatal degenerative disease. Last year Dr Neil Cherry, former associate professor of environmental health at Lincoln University, died from it, convinced he had contracted MND as a consequence of his long exposure to low-frequency radiation, the potential health hazards of which he researched. Cherry's work suggests that low-level radiation, and Tetra, could also cause heart and blood problems, interference with bone marrow and tumours.

Not surprisingly, Llanidloes does not want Tetra. Nor did professor Sir David Lane, the director of the Cancer Research UK Cell Transformation Research Group at the University of Dundee, who submitted a formal objection to the siting of a Tetra mast and base station near his home on the grounds that it might 'constitute a health hazard to the occupants of the neighbouring houses'.

Even insurance companies, including firms like Lloyd's of »

STOP TETRA



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London and Swiss Re, have advised each other that exclusion clauses should be written against paying compensation for illnesses caused by exposure to continuous long-term low-level radiation. John Fenn, of Sterling Underwriters, has said: 'I've been concerned about this for some time and a few years ago I began writing exclusion clauses. I'm convinced there is a problem.'

In the 1960s low-frequency electromagnetic and microwave radiation were identified as having potential for use in anti-personnel weapons. And the Pentagon has confirmed it has developed microwave crowd-control weapons. Documents from the US Department of Defense report: 'Animal experiments have demonstrated the use of low-level microwave signals to produce death by heart seizure or by neurological pathologies resulting from breaching the blood-brain barrier.' Ought a system developed as weaponry to be considered safe for the police and public?

Gerard Hyland is explicit. '[If you ask] whether there is an established risk to human health from exposure to Tetra radiation, the answer is undoubtedly "yes".' He adds: 'If there were the same degree of uncertainty over a food or medicine, the government would never have licensed it.' The problem is that while food and drugs are subject to a stringent and lengthy (but by no means infallible) testing regime, technologies like genetic engineering, nanotechnology and Tetra undergo much laxer scrutiny.

Blakemore, chief executive of the state funding body the Medical Research Council. Mysteriously, Blakemore, who is also a member of the National Radiological Protection Board's (NRPB) Advisory Group on Non-Ionising Radiation (Agnir), now says: 'On reflection [16Hz radio waves provide] absolutely no cause for alarm at all.' His explanation for this volte face is as follows: 'My mind hasn't changed. I still hold to both of my previous statements. In principle, it would have been better if 16Hz pulsing could have been avoided. But that was said in the context of the quite strict precautionary approach adopted by the Stewart Report.'

Because of that caution, Agnir was commissioned in 2001 to write a report on Tetra's possible health effects. Although Agnir's conclusion appeared to be 'all's well', there were worrying details in the body of its report, including the observation that studies 'do not exclude the possibility of a risk of cancer that appears only after many years of exposure, nor of a hazard from radiation modulated at around 16Hz'.

Yet if you telephone the NRPB as a member of the press you will be told: 'Agnir concluded that it was unlikely that special features of the Tetra system posed a risk to health.' And the website of the Tetra Industry Group (whose members include O₂, Motorola and Nokia) cheerfully says the group 'noted Agnir's conclusion that research published since the Stewart Report does not give cause for concern.'

I BELIEVE THAT THE GOVERNMENT, GOVERNMENT SCIENTISTS AND THIS INDUSTRY WILL BE RESPONSIBLE FOR MORE CIVILIAN DEATHS IN PEACETIME THAN ALL THE TERRORIST ORGANISATIONS PUT TOGETHER

The Green MEP for London Jean Lambert has said: 'Reports of Tetra being responsible for tumours, leukaemia, MND and other cancers must be taken seriously... With risks like these the precautionary principle must apply.' What Lambert refers to as the precautionary principle, the people of Llanidloes call common sense: if something may have risks, and has not been proved safe, it must be assumed that it may be dangerous. Clearly, there is a real need for tougher regulation and testing of new technologies, but the government doesn't see it that way at all, and the person it has put in charge of its Better Regulation Task Force is David Arculus, who is also chair of MMO₂. The fox is in charge of guarding the chicken coop.

The thing about Tetra that makes it potentially risky is that its signal has a frequency of 17.6 hertz (Hz; the hertz unit measures the number of times a signal's wave oscillates in a second). That's very close to the 16Hz frequency at which the brain 'loses' calcium – an effect known as calcium efflux and which has been linked to MND. [Tetra's frequency is also within the frequencies used by the brain's beta waves.]

The first warning over this came in the report of the influential Independent Expert Group on Mobile Phones (the Stewart Report). Published in 2000, the report stated that [radio] frequencies around 16Hz 'should be avoided, if possible'. The Stuart Report was authored by professor Colin

Why? The government agency the Police Information Technology Organisation (Pito) candidly says of the Agnir report that 'the research was commissioned to *reassure* users of systems like Airwave that they do not pose a risk'. The report itself echoes this observation: one study, it said, 'could be of crucial importance in helping to *reassure* users of the safety of amplitude-modulated and pulse-modulated communication systems'. (The italics are mine.) Call me old-fashioned, but I rather thought that the job of an organisation called the National Radiological Protection Board might be to protect the nation from hazardous radiation; instead it seems to be protecting industry from hazards to its profits.

Unconvinced by the Stewart Report, the Police Federation (the union-style representative body for police officers in England and Wales) commissioned independent research scientist Barrie Trower to complete a study on the possible risks of Tetra. He completed his report in September 2001, and the findings were shocking. The Police Federation sat on it for a few months, but it was leaked onto the internet. Trower, with a background in government microwave research, was a careful collator of the evidence and wrote his report in a style that would be comprehensible to a non-scientific reader; he was thus a profoundly important whistleblower – for the police and public alike. 'When I wrote the Tetra report,' »

Trower later commented, 'I said [the system] must never be used, and I haven't changed my mind. I believe that the government, government scientists and [this industry] will be responsible for more civilian deaths in peacetime than all the terrorist organisations put together.'

Astonishingly, however, the Home Office is rolling Tetra out nationwide without proper studies being done first: an act that Hyland describes as 'totally irresponsible'. The NRPB admits: 'No epidemiological study as yet has explored the risks associated with telecommunications systems such as Tetra which use [RF] radiation modulated at frequencies around 16Hz... Human volunteer studies should be carried out.'

I asked professor Lawrence Challis, who, like Colin Blakemore, is a member of Agnir, if proper studies had been done. 'No,' he said, 'because you'll never be able to say that something is safe unless you have an infinity of studies, but there is no evidence of any harm and the police are happy with the system.'

Last year the Home Office *did* commission a £5m study from Imperial College London to study Tetra's effects on police officers (not volunteers) over a 10-year period. But that study is only looking at the effect of handsets, and is being done while the system is already in use.

Since many of Tetra's potential effects could take years to surface, scientists agree that any studies of the system should

Speaking only on condition of anonymity, a senior police source told me: 'I've got to be guarded. There's an awful lot of political pressure regarding this issue.' He was not allowed to speak to other officers about the risks of Tetra, and felt that his career was on the line if he objected publicly. He spoke of his feelings of being kept ignorant and isolated. He asked me for information and help – any help: legal help or campaign help. I was moved: it isn't often that someone so powerful sounds so helpless.

I spoke to Steve Pierce, chair of the Devon and Cornwall district of the Police Federation. 'We need 21st-century technology,' he said. 'And in that sense we welcome Tetra. But if you ask if I'm easy about Tetra, the answer is no. How can I be?' At a Police Federation meeting on Tetra in October 2002, Pierce spoke to Dr Mireille Levy, the Home Office health and safety officer for the system. Levy said: 'Nothing will stop Tetra and if the officers don't like it, they can resign.' Heads swivelled, conversations stopped, Pierce told me. An officer asked Levy who would be responsible if he contracted leukaemia. 'No one,' she replied.

Tell that to Dr Ian Dring. His brother Neil used to be a police officer in Leicester, and died in agony of oesophageal cancer this summer. Ian Dring said his brother was convinced that it was Tetra that caused his death. He said/says: 'If people want to know how it feels to have your brother die in your arms, fighting for 48 hours for every breath, then I'll tell them.

"IF PEOPLE WANT TO KNOW HOW IT FEELS TO HAVE YOUR BROTHER DIE IN YOUR ARMS, FIGHTING FOR 48 HOURS FOR EVERY BREATH, THEN I'LL TELL THEM. IT WAS A DEATH YOU WOULDN'T WISH ON YOUR WORST ENEMY." DR IAN DRING

run for several years. But the experiments that the government did instigate, at the Ministry of Defence's laboratories at Porton Down on Salisbury Plain, were completed in just three and a half months and involved exposure to Tetra signals lasting only 20 minutes.

Tetra was piloted in Lancashire in March 2001. Soon 177 police officers in the county reported symptoms that included migraine, nausea, sleeplessness and lack of concentration. Elsewhere, the Norfolk Constabulary has confirmed that six people have become ill with dizziness and headaches since a mast on top of North Walsham police station went live early this year. Twenty-five people living near the mast have reported similar illness.

While researching this article, I heard of police officers 'terrified' (their word) of using Tetra, but who were pressured not to speak openly about their fears. One officer from Lancashire wrote to *Police*, the Police Federation magazine, in March 2002, saying: 'I personally know of new cases of skin problems, sleeplessness, migraines, depression, difficulty in concentrating and headaches.' He has since been moved to another section. Another told me the system was a 'done deal the first day we heard of it'. Officers felt they had no choice in the matter. 'It was something we couldn't stop.'

It was a death you wouldn't wish on your worst enemy.'

Having spent much of his working life in health and safety, Ian Dring, himself a scientist, monitored his brother's condition. 'As soon as he started using Tetra he got severe headaches. And the site of the tumour was where he mounted the handset.' Neil Dring had none of the usual preconditions for oesophageal cancer: he was only 38, younger than the age group typically associated with it; he was a non-smoking, light-drinking triathlete with no stomach problems and whose diet was good. 'To us,' said Ian Dring, 'that's suspicious. And then another officer of similar age and equally healthy has been diagnosed with oesophageal cancer in the Leicester force and in the same place.' Ian Dring quotes the American Cancer Society as saying that for a man under 40 without preconditions the incidence rate of this type of cancer would be one in 100,000, and that the chances of two people of the same profile in the same environment getting it simultaneously would be millions to one.

Stan Sexton, health and safety adviser for the Leicestershire Constabulary, has said that the second officer rarely used Tetra for radio calls. But Dr Grahame Blackwell, who formerly led a team researching and developing third-generation mobile communications, says that irrelevant: radiation from handsets could trigger problems that could then be exacerbated by »



Tetra mast above Llanidloes

THE (NOT SO) SECRET POLICEMAN'S REPORT

So concerned was the Police Federation about the possible health risks of Tetra that in 2001 it commissioned independent research scientist Barrie Trower to write a report about the system. These are just some of the fears he voiced:

'...The good work of the hormone melatonin at night will be restricted leading to suppression of the immune system.'

'...[It] could enhance breast cancer in lady police officers.'

'...There could be long-term damage to the eyes of officers using Tetra.'

'...I am particularly concerned for the acutely sensitive brains and organs of police dogs.'

'...Tetra may be used in areas where children are running around, and there are very well-known and documented cases of pulse radiation affecting epileptic children.'

'...Because Tetra affects the beta rhythm of the brain it will affect what the beta rhythm is responsible for; namely, sound judgement in emergency situations.'

'I fail to see how Tetra can possibly be safe for the officers [who] use it.'

'...In an exclusive report in the *Manchester Evening News* [on] 11 May 2001 Dianne Bourne [wrote]: 'The head of brain surgery at Nasa has even said he would not consider holding [a Tetra handset] to his head. He said the net result is that the police are guinea pigs.'"

Although intended to be confidential, Trower's report was leaked onto the internet. Read it in its entirety at www.planningsanity.co.uk/reports/trower.htm

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constant exposure to radiation from masts. I spoke to Lawrence Challis about the two Leicester officers. 'Sadly people die of cancer every day,' he said, and dismissed as chance the fact that two police officers working in the same force died of exactly the same extremely rare cancer.

Meanwhile, Llanidloes is realising the diversity of its talents. The mayor and his town councillors lobby energetically against the mast. An ex-physics teacher reads up on the science. In the buildings around the mast, people inform their landlords they will move out of rented business space if it is switched on. People who have never campaigned over anything in their lives get active. ('Never,' says councillor Morgan, 'never, ever underestimate Llanidloes.') The guys at the local printers stay working till 10 at night to help produce information leaflets. The council organises a leaflet drop to every house in the borough. Someone begins a 'NO₂ Tetra' subvertising campaign.

A public meeting is called. O₂ is invited. And the NRPB. And the supportive local MP Lembit Opik. Local people come in their hundreds. Virtually everyone attends. Except, that is, O₂: it sends an insulting letter saying, 'The nature of public opposition and local activism have raised serious concerns with regard to the safety of O₂ employees at such a meeting.' (They are worried about *their* safety?) Further, O₂ says the

The Observer, which said the board had misled the panel responsible for the Stewart Report about the availability of 'vital evidence of harmful effects on children from transmitter masts'. The panel had asked the NRPB for copies of a particular study on children; the NRPB informed it that the research was unpublished and unobtainable. Not so. *The Observer* reported: 'The research, published in an international scientific journal in 1996, has been easily obtained by ordinary members of the public.'

What's more, there is a yawning discrepancy between what the NRPB and other agencies consider are safe levels radiation. To illustrate this point, Alasdair Philips, the founder of the campaign group Powerwatch, draws an analogy between radiation levels and speed limits: it's as if Britain had a speed limit of 2,847mph, while the limit in the rest of the EU was 9mph. (See panel.)

Why the difference? Crucially, the NRPB sets its standards only after taking into account the *thermal* effects of radiation. But scientists like Gerard Hyland believe that it is the non-thermal effects of radiation that are 'far more serious'. With thermal effects there is enough energy to heat tissue; with non-thermal effects heating does not take place, but there are other adverse impacts on biological structure and the body's communication systems. Roger Coghill runs the independent Coghill Research Laboratories, which specialises in

'WE ARE A GROUP OF PEOPLE WHO LOVE OUR JOB AND WE ARE NOT "TROUBLE MAKERS", BUT WE ARE GENUINE IN OUR BELIEF THAT THESE [TETRA] RADIOS ARE KILLING US.' ANONYMOUS POLICE OFFICER

Llanidloes site 'perfectly fits the needs of the Airwave service'. 'But it does not,' comments Opik, 'fit the needs of Llanidloes.'

But the man from the NRPB, Dr Michael Clark, does attend. He speaks of sunshine, X-rays and ordinary radio signals. He says very little about Tetra. And he lies to the town, claiming that the Trower report was not commissioned by the Police Federation.

As stated above, the NRPB exists to regulate radiation. It is government-funded. Like many regulatory bodies, however, it has unhealthily close ties to the industry it claims to oversee, and there are clear conflicts of interest. The NRPB sub-contracts research on microwave radiation to a firm called Microwave Consultants Limited, whose director is Dr Camelia Gabriel, who also happens to be a senior consultant for the mobile phone company Orange.

Dr Keith Baverstock used to be the World Health Organisation's senior radiation adviser in Europe. In July 2004 he addressed a conference on low-level radiation and accused the NRPB of 'misusing' science (in studies of nuclear-test veterans). He said science had been 'perverted for political ends' by government agencies that should have been protecting public health. Baverstock alleged a 'serious flaw' in the NRPB's methodology in these studies.

The NRPB's reputation was further sullied by an article in

bioelectromagnetics. He says: 'The worldwide scientific community is shocked that the regulatory authorities of the West are ignoring plentiful and robust evidence that non-thermal radio-frequency exposure can cause serious adverse health effects.'

Meanwhile, the Home Office and O₂ insist the system is safe, and refer to the Agnir report for proof. But the Agnir study was not peer-reviewed. The NRPB has been furiously attacked by the Coghill Research Laboratories, which says the board fails 'to mention or discuss the hundreds of studies being reported in the literature of adverse effects at levels well below so-called thermal levels'; standards set in the West [for radio-frequency exposure] are 'influenced by commercial not biological considerations'; the work of the NRPB completely ignores the exposure levels set in China and the former Eastern bloc, and this 'raises the question whether such deliberate wilful omissions by experts purporting to carry out a protective function on behalf of the public constitute criminal neglect'.

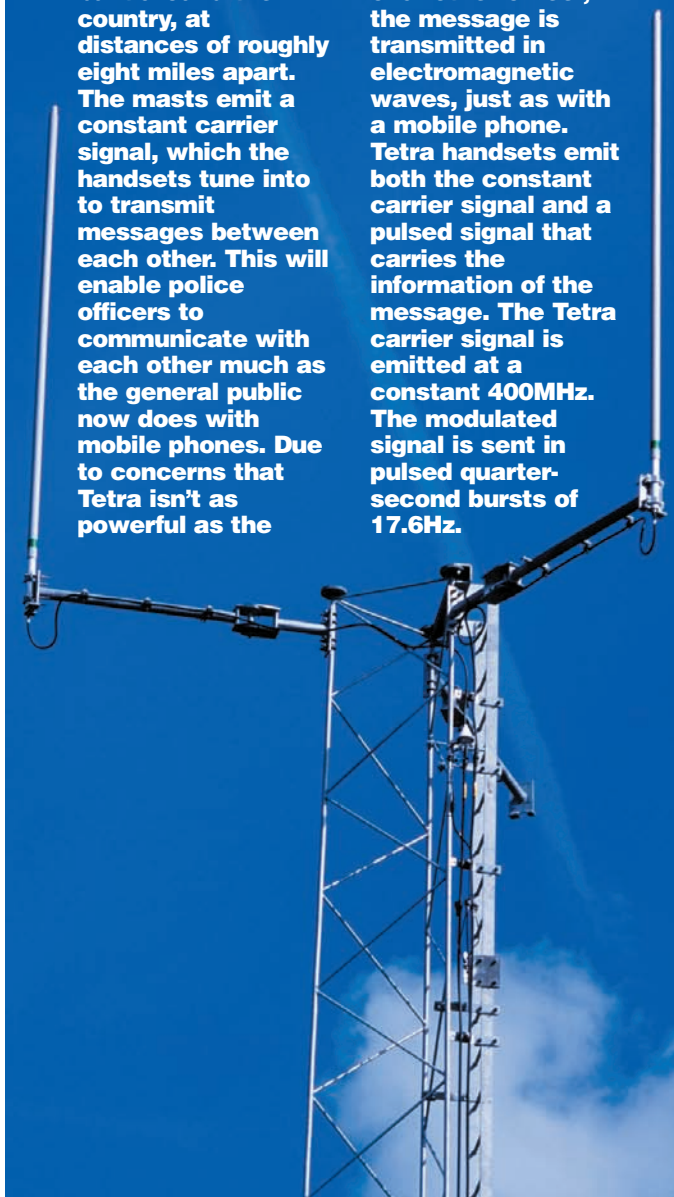
O₂'s response to public disquiet has been cavalier. It has been accused in court of 'corporate bullying' and, in reference to protesting residents, has said: 'We had to bring certain places into line.' A company spokesperson has even declared: »

What is TETRA?

There are two components to Tetra: the handsets and the masts. In order to give the system full national coverage, 3,350 Tetra masts are currently in the process of being built around the country, at distances of roughly eight miles apart. The masts emit a constant carrier signal, which the handsets tune into to transmit messages between each other. This will enable police officers to communicate with each other much as the general public now does with mobile phones. Due to concerns that Tetra isn't as powerful as the

mobile phone company O₂ first promised, however, there is talk of doubling the number of masts.

When a policeman makes a call from his handset to that of another officer, the message is transmitted in electromagnetic waves, just as with a mobile phone. Tetra handsets emit both the constant carrier signal and a pulsed signal that carries the information of the message. The Tetra carrier signal is emitted at a constant 400MHz. The modulated signal is sent in pulsed quarter-second bursts of 17.6Hz.



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'The safety of what we supply is nothing to do with us.'

At a meeting in the House of Commons between Llanidloes residents and the company, O₂ PR executive Josh Berle referred to the use of Tetra by the 'police, fire and ambulance services'. Not so fast. According to the House of Commons Library Research Papers, the fire and ambulance services have rejected it, apparently for reasons of cost. Tetra, said Berle, is in use in many countries. Careful. In fact, the system used by many national police forces, including those of France, Switzerland and Germany, is the French-standard Tetrapol, which, crucially, does not pulse at 17.6Hz. Alasdair Philips says Tetrapol is 'intrinsically more bio-friendly as it does not pulse in the same way or at similar endogenous brain-wave frequencies'.

Tetrapol is also far cheaper than Tetra, whose initial cost is £2.9 billion. Here we get to the financial scandal. Besides being very expensive, the Tetra system doesn't Do What It Says On the Tin. Its data-transmission speeds are about a quarter of what was promised. Further, it *does* do things it shouldn't: the former regulator the Medical Devices Agency (now subsumed under the Department of Health's Medicines and Healthcare Products Regulatory Agency) has complained that it interferes with defibrillators and incubators, can upset heart pacemakers and could have 'direct impact on patient care'.

The Home Office agreed the Tetra contract in a public-private partnership with BT (which then hived it off to O₂) and the US telecommunications company Motorola. Later, the House of Commons Public Accounts Committee scrutinised the deal and was unimpressed by Airwave as a system, and by the behaviour of the Home Office. The committee observed: 'Airwave might be more sophisticated and expensive than it really needs to be... In negotiating [the] deal the Home Office failed to secure any claw-back for the taxpayer of additional profits if the system is sold by O₂ to overseas governments... Failure to negotiate a claw-back agreement was a product not just of O₂ being in a powerful position as the only bidder, but also the inability of the Home Office to bring the fire service and other safety organisations on board... It was by no means clear to us who will bear the risk if concerns about the effects on health of using the Airwave system prove to be real.' This is the political scandal: that the Home Office should apparently put the interests of a huge private company before the safety of the police and the public.

The Tetra Industry Group admits on its website that it has its eye on the lucrative markets of the security, construction and transport sectors. It dearly wants to sell the Tetra system to many countries around the world. Barrie Trower says that one country to have rejected the system for its emergency services is the US.

The industry seeks the endorsement of the British police, which are seen as conservative, safety-conscious and well-equipped; it would be a kind of celebrity endorsement: 'as seen on *The Bill*'. 'That,' says Grahame Blackwell, '[would be] a strong selling point. It's a very cynical use of our emergency services.'

Blackwell shows me extracts of e-mails from a member of a crime-scene examination team using Tetra in Lancashire. The e-mails grow increasingly desperate over the weeks, and describe



how all but one of the team is 'suffering from symptoms ranging from headaches, toothache [and] neuralgia, to high blood pressure and even a cancerous tumour in the throat... It is the tumour that has finally been the last straw'. The tumour victim, says Blackwell's correspondent, had been 'very pro-Tetra... Needless to say, he's changed his mind since finding out he has cancer'.

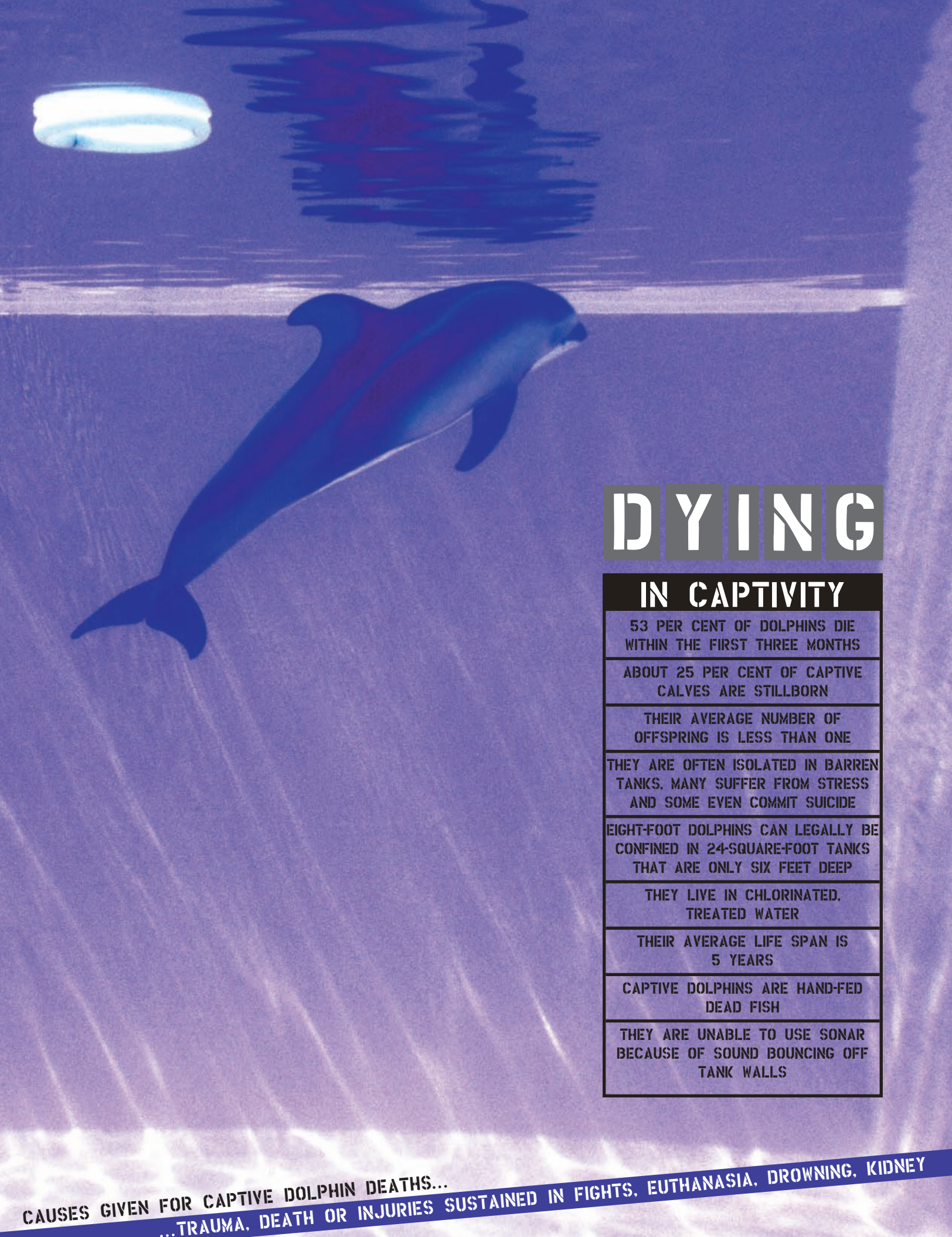
Just as I finish this article, Blackwell receives another e-mail. The officer with the tumour is now dead. His colleague remarks: 'We are a group of people who love our job and we are not "trouble makers", but we are genuine in our belief that these radios are killing us.'

Meanwhile, hundreds of local campaigns have sprung up around the country and are linking nationally. In Llanidloes the spirit of the Chartists lives on. Fighting for the rights of ordinary people to make the decisions affecting their lives, Chartists faced imprisonment and transportation for their part in a popular revolt. But ultimately they won. Let's hope the same is true of the people of Llanidloes. ■

Jay Griffiths is a freelance journalist and author of *Pip Pip: a sideways look at time* (Flamingo); a fully referenced version of this article can be found on *The Ecologist* website (www.theecologist.org)

STOP TETRA BEING DEPLOYED IN YOUR COMMUNITY

- 1** Scour planning announcements in your local press for evidence of planning applications being submitted for Tetra masts. Look for references to O₂, MMO₂ and Airwave.
 - 2** Copy this article and send it to your local councillors, asking them for a response.
 - 3** Ask your council to let you know if there is any attempt in your locality to get Tetra masts approved as 'permitted development'. If so, encourage at least five local residents to send letters of objection, preferably by recorded delivery, to the named person from the company responsible and to your local authority's planning department.
 - 4** Lobby your council generally. Although Tetra masts less than 15 metres high do not usually need planning permission, some councils have blocked permission for them. The telecommunications companies have gone to court, only to find the courts back the local authorities. Planning departments often say they cannot take fears over health risks into account when making their decisions. This is not so: there *is* legal precedent for health and *perceived* risks to health being accepted as material planning considerations (*Skelt vs the First Secretary of State*). Be aware that companies may put in two planning applications simultaneously for one mast site; both applications will need to be contested.
 - 5** Speak to local landowners. If local people wish to make claims for ill health or depreciation of property, they can claim against the owners of the land on which Tetra masts are sited but not the companies (like O₂, for example) that own the masts. One landowner is being sued for £5.2m.
 - 6** Adopt Motorola's slogan 'intelligence is everywhere', and stay informed. Visit these websites for up-to-date information:
www.tetrawatch.net
www.mastsanity.org
www.mastaction.co.uk
www.powerwatch.org.uk
www.starweave.com
www.em-hazard-therapy.com
 - 7** Inform your community with leaflets and public meetings. Form a local campaign, and link up with other groups.
 - 8** Talk to the local police, and send them a copy of this article.
 - 9** If you are a Motorola or O₂ customer, switch your phone to another company and tell Motorola and O₂ why.
 - 10** Contact your MP and MEP. Green MEP Caroline Lucas has called for an EU-wide ban of Tetra. If her declaration for a ban were to attract 313 signatures from MEPs, it would become the official policy of the European Parliament, and Tetra could be stopped in its tracks.
 - 11** Contact the local press.
- And if your valiant attempts fail to stop the building and switching on of a Tetra mast near where you live, keep a daily diary recording your health – both before and after any masts are switched on. Your evidence may help in future legal cases against the companies using you as a guinea pig.**



D Y I N G

IN CAPTIVITY

53 PER CENT OF DOLPHINS DIE
WITHIN THE FIRST THREE MONTHS

ABOUT 25 PER CENT OF CAPTIVE
CALVES ARE STILLBORN

THEIR AVERAGE NUMBER OF
OFFSPRING IS LESS THAN ONE

THEY ARE OFTEN ISOLATED IN BARREN
TANKS, MANY SUFFER FROM STRESS
AND SOME EVEN COMMIT SUICIDE

EIGHT-FOOT DOLPHINS CAN LEGALLY BE
CONFINED IN 24-SQUARE-FOOT TANKS
THAT ARE ONLY SIX FEET DEEP

THEY LIVE IN CHLORINATED,
TREATED WATER

THEIR AVERAGE LIFE SPAN IS
5 YEARS

CAPTIVE DOLPHINS ARE HAND-FED
DEAD FISH

THEY ARE UNABLE TO USE SONAR
BECAUSE OF SOUND BOUNCING OFF
TANK WALLS

CAUSES GIVEN FOR CAPTIVE DOLPHIN DEATHS...
...TRAUMA, DEATH OR INJURIES SUSTAINED IN FIGHTS, EUTHANASIA, DROWNING, KIDNEY

TO ENTERTAIN US

A harrowing insight into the hugely profitable and brutal world of captive dolphins

by Torsten Engelbrecht and Jeremy Smith

Last year Ric O'Barry, one of the original trainers for *Flipper*, the famous US television series about a dolphin, witnessed the infamous dolphin drive fisheries that take place annually around the harbour of Taiji in southern Japan. He had gone there with colleagues from One Voice, the French animal protection group for which he now works.

Each year many thousands of dolphins and small whales are encircled with giant nets and coralled into the lagoon at Taiji. Once the animals have been tightly packed together they are slaughtered in a frenzy of bloodletting that turns the lagoon red. Last year 20,000 dolphins and small whales died in this way, killed for their meat.

In recent years the drive fisheries have inspired international uproar. But O'Barry believes that those campaigning against them are missing one central

point. The market price of dolphin meat has plummeted due to concerns about it being laced with mercury and other toxins. These days, the only thing that makes these fisheries financially viable, O'Barry asserts, is that in amongst the men with knives are men with nets – men employed by the captive dolphin industry to catch live specimens for the purposes of entertainment.

O'Barry wrote up what he saw in Taiji in his diary. The entry is long, but bears quoting in full.

'January 30: When we arrive at the lagoon at 6am at least 50 divers from various dolphinariums are gathered on the beach around a fire, wearing wetsuits. The whalers are also present but... remain at a distance from us: they have been warned by the police to leave us alone.

'The dolphins are staying at the far end of the lagoon, no doubt scared and confused. At 6.30am the process begins to drive them toward the beach. The whalers do this by

dragging [their] net closer toward the shore. The dolphins' panic increases as the space they are confined in gets smaller and smaller. The dolphin trainers get in the water with long pieces of rope. They tie [them] around the dolphins' tail flukes and drag them onto the beach. There is a lot of yelling and turmoil as the divers subdue the dolphins and drag them ashore. Mothers and babies are separated as the dolphin trainers pull the animals out of the lagoon, one after the other, and we can hear the dolphins' calls of distress.

'The trainers... line the dolphins up in very shallow water, close to the rocky beach. The dolphins have never experienced gravity before. Helplessly grounded like this, all their body weight puts pressure on their internal organs: lungs, liver, and heart. This is extremely stressful for them, especially the pregnant females. »

FAILURE. PNEUMONIA. GASTRITIS. MALNUTRITION AND STRESS. SEVERE BRONCHOPNEUMONIA. CHLORINE »

'Tents [made out of] blue tarpaulin have been raised on the beach to prevent us from filming the stranded dolphins, but once in a while the tarp flares up and we can see the many dolphins literally piled up on one another bashing violently against each another.

'The dolphin trainers begin the process of selecting the dolphins that fit the desired criteria. They are typically looking for young females with no blemishes. Dolphins that have been injured as a result of the rough treatment are obviously not desired. The selected dolphins are forced into stretchers, and, hanging from the side of a motorised boat, they are taken to the awaiting sea cages in Taiji harbour.

'The selection process goes on for hours. The dolphins that have not yet been dragged ashore are absolutely panic-stricken. Some collide with the capture nets in a massive effort to escape. They get entangled in the nets underwater and, unable to reach the surface to breathe, they will suffer a slow and painful death of suffocation.

'We constantly look at the trainers to see a reaction, and they simply don't seem to care. Dolphins are suffocating and sustaining injuries all around them, but their cries for help are met with complete indifference and lack of compassion from the trainers. It is shocking to see. A large dolphin struggles to get free of the nets for more than 20 minutes, but the trainers do nothing to help the dolphin out of its misery. A dolphin calf, less than a year old, is swimming all by itself in a corner of the lagoon. The calf got separated from its mother and looks so lost in the chaos. This calf is among the last to be rounded up. It is too young to fit the dolphinariums' criteria and is not among the chosen.

'When, after more than three hours, the trainers have finally selected the dolphins they want, the dolphins that are too old, too young, too big, have too many blemishes or are injured are

hauled back into the water. The whalers tell us these dolphins will be killed. Later, however, we are told the remaining dolphins, except four, were released. How many of them have suffered internal injuries from the ordeal, we will never know. Many have difficulty swimming, show signs of broken and dislocated pectoral fins, swim erratically and breathe very hard. Some simply sink to the bottom, never to surface again. Today we have witnessed the strong connection between the Japanese dolphin drives and the dolphin captivity industry.'

All dolphinariums allege that *their* dolphins have not come from the drive fisheries. But while this may be true for specific institutions, the evidence shows that *all* the methods used to capture dolphins are cruel. 'In extreme cases, five to ten marine mammals might die following their live capture, temporary warehousing, transportation and acclimatization to captivity,' estimates Beatrice Miranda from the Swiss task force for the protection of marine mammals (ASMS).

A 1995 study of captured dolphins showed that they are six times more likely to die in the month directly after capture than at other times. If it takes dolphins a month to 'recover' from capture, there can be no doubt that they are badly affected by the experience.

Other studies have described the risk of so-called 'capture myopathy', a muscle disease associated with the stress of capture, restraint and transportation, and characterised by degeneration and death of skeletal and cardiac muscle. Furthermore, dolphins live in family-style groups and because whole groups are often captured in nets before the 'best' specimens within them are selected, capture myopathy can affect many more animals than are finally selected.

Those chosen are shipped to dolphinariums around the world, where

they'll spend the rest of their days performing tricks for ice-cream-munching humans. Nonetheless, advocates of dolphinariums, like Ulf Schönfeld of Duisburg Zoo in western Germany, assert that 'keeping dolphins in marine parks is unproblematic'. Schönfeld says: 'They can be maintained similar to all other zoo animals. The animal's freedom of movement does not play a major role. What they need is gainful activity.' (Schönfeld cannot, however, offer any proof to back up his statements.)

By contrast, the journal *Nature* recently published a study by Georgia Mason, an animal behaviour researcher at Oxford University, which highlighted the problems captivity brings for meat-eating animals accustomed to roaming vast hunting grounds in the wild. Mason's study mentions polar bears as an example, which are confined in zoo enclosures typically one millionth of the size of the areas they would explore in the wild. Captive polar bears suffer serious behavioural problems and die much younger than their wild counterparts.

This is very similar to the experience of captive dolphins. In the wild, dolphins swim an average of 40 to 100 kilometres a day. To swim such distances in a pool would involve them completing many thousands of dull, repetitive circuits. As with the polar bears, dolphins in captivity exhibit behavioural disorders, including increased aggression against fellow dolphins and humans, apathy and movement stereotypes such as circular swimming and emerging for air only at a single location.

Again as with polar bears, being kept captive also affects a dolphin's life span. In an investigation into the marine-park industry for Florida's *Sun Sentinel* newspaper, journalist Sally Kestin revealed that 1,127 bottlenose dolphins died in captivity over the last three decades. Kestin wrote: 'Of the 875 whose ages can be determined, more than half never reached [the age of] 10, and 83 »

POISONING. PENETRATED BY STINGRAY SPINE. ZINC POISONING. SUFFOCATION. BACTERIAL SEPTICAEMIA.

LIVING

IN THE WILD

DOLPHINS CAN LIVE UP TO 40 YEARS

THEY CAN REPRODUCE EVERY TWO
TO THREE YEARS, STARTING
AT THE AGE OF 10

THEIR AVERAGE NUMBER OF
OFFSPRING IN A LIFETIME IS SIX

THEY LIVE IN COMPLEX SOCIAL
STRUCTURES, STAYING IN A FAMILY
UNIT THEIR ENTIRE LIVES

DOLPHINS SWIM UP TO 50 MILES
A DAY, AND DIVE TO DEPTHS
OF 500 FEET

THEY LIVE IN THE OCEAN'S
SALT WATER

THEIR AVERAGE LIFE SPAN IS
30 YEARS

DOLPHINS HUNT FOR AND
EAT LIVE FISH

THEY USE SONAR TO 'SEE' AND
TO INTERACT

INTERNAL BLEEDING, SHOCK CAUSED DURING CAPTURE, SHOCK CAUSED DURING VETERINARY TREATMENT, >

per cent were dead before 20.'

Furthermore, the rate of infant mortality for dolphin offspring is the same in captivity as it is in the wild, with more than half dying soon after being born. Superficially, that might seem to provide rare evidence that captivity is at least no worse for dolphins than living in the wild. But why should infants born in a tank free from sharks, food shortages and pollution die at the same rate as those born in the wild? As marine scientist and dolphin-stress expert Naomi Rose says: 'I believe that the stress the mothers [of captive-born dolphins] suffer affects their physical and even psychological ability to keep their offspring alive.'

Perhaps aware that people are increasingly uncomfortable with the idea of circus-style exploitation of animals and zoos, many marine parks today insist that the entertainment they provide is just an extra added on to the real business of educating the public and conserving a species. For example, Sea World claims to be 'striving to provide an enthusiastic, imaginative and intellectually stimulating atmosphere to help students and guests develop a lifelong appreciation,

marine parks working hard to protect it. The dolphins are smiling, after all... Serious and negative news about what is happening in the natural environment does not sell tickets.'

The simple fact is keeping dolphins in captivity is not good for those in the wild. The removal of a single dolphin affects the remaining group in other ways besides causing widespread myopathy. In the wild, mother and baby dolphins live together

inseparably for the first five years of the baby's life. The relationship is particularly intense, with the mother demonstrating huge affection and protectiveness for her calf. When these mothers (the primary target of the hunters) are captured, the babies must grow up without them. This has disastrous consequences – both for the baby, which often dies, and for the group, whose extraordinarily well-organised social structure is irrevocably disrupted.

Not every animal within a dolphin group has the same rank or status. There are alliances and sub-

understanding and stewardship [of] our environment'. Sea World says its goal is 'to instill a respect for all living creatures'. No doubt to help it achieve this mission, a tour-guide training manual used at the Sea World in Orlando, Florida, directs employees not to use the words 'captured', 'cage', 'tank' and 'captivity', but 'acquired', 'enclosure', 'aquarium' and 'controlled environment'.

In the event of

The idea that captive dolphins suffer from stress is borne out by many of the official reasons given for their deaths in captivity. They are recorded as dying from 'chronic oesophageal ulcers', 'ulcerative dermatitis', 'rupture of stomach ulcers' and 'gastric ulceration'. Just as with

humans, dolphin ulcers are caused by stress. Sometimes the cause of dolphins' deaths is explicitly given as stress. One dolphin was even recorded as having committed suicide by jumping out of its tank.

An investigation by the Whale and Dolphin Conservation Society (WDCS) into four facilities run by US dolphinarium chain Sea World highlighted some of the many problems that confront dolphins in captivity. Not the least of these is the amount of noise they are subjected to. At the height of the tourist season, WDCS revealed, there may be tourist access to petting-pool dolphins for up to 14 hours a day, with several hundred visitors crowded around the edges of the animals' tanks at any one time. Music is played over loudspeakers, the trainers address the audience and the animals using microphones, and there are occasional firework displays. As Toni Frohoff, research director of the US dolphin conservation organisation TerraMar Research, says, 'each and every day dolphins are subjected to a constant source of often intense stress and disturbance from which they cannot escape'.

being asked whether specific dolphins have died, the manual offers guides the following advice: 'If people ask you about a particular animal that you know has passed away, please say, "I don't know".'

Whatever language they use, dolphinariums are lying to the public. There is no evidence to suggest that people who have seen animals in captivity are then more likely to either treat them better in the wild, live more sustainably in order not to damage their habitat or increase their campaigning efforts to protect them. As the legendary French oceanographer Jacques Cousteau once said, 'there is about as much educational benefit to be gained from studying dolphins in captivity as there would be from studying mankind by only studying prisoners held in solitary confinement'. Indeed, the zoo experience may make people even more apathetic about conservation. Rose writes: 'The glossy façade is so compelling, people become complacent and assume all is well out in the ocean, with the staff at

groups: there are animals that know better than others where to find food; there are 'aunts' that assist mothers during birth; if these kinds of animals are captured the effect on the group is particularly pronounced. Marine mammal expert David Lusseau studied a group of 62 dolphins in the waters off New Zealand for seven years. He found that when just two key individuals were removed from the group, the group split in two and only reunited when the two individuals returned.

There are currently estimated to be 200 dolphinariums around the world, 40 of which are in Japan. There are dolphins kept in amusement parks, roadside shows and shopping centres, and even travelling dolphin shows. The Mirage Gambling Resort in Las Vegas keeps captive dolphins in a tank in the middle of the Nevada desert. In Switzerland the Conny-

ANOREXIA. JAW CAUGHT IN NETTING. RUPTURE OF STOMACH ULCER. HEART DISEASE. CAPTURE MORTALITY. POOL. FAILURE TO ADAPT TO CAPTIVITY. BACK INJURY. INGESTION OF FOREIGN OBJECT. SHOCK SHOCK. SALMONELLA. KILLED BY ANOTHER ANIMAL. STARVATION. ADRENAL EXHAUSTION. EMACIATION. GASTRIC

land dolphinarium keeps them inside a discotheque. In Canada there is one swimming alone inside a shopping mall.

The modern proliferation of dolphinariums is being driven, of course, by money. In the 1960s a live dolphin was worth \$300. Two years ago Sea World in Florida

'Sunset Sam was God's sunshine for us all, and his sun warmed many lives. His memory and the gifts he gave the world in general and each individual who ever saw him will outlive us all.'

with-dolphin centres, and five dolphin therapy sites (three of which opened their

CHRONIC OESOPHAGEAL ULCERS. ULCERATIVE DERMATITIS. EMACIATION. ACCIDENTAL COLLISION WITH »

paid \$130,000 for a dolphin. Dealers report that young dolphins can fetch prices well in excess of \$400,000.

Dolphins have become so valuable that aquatic parks now use them as loan security. 'When Miami Seaquarium proposed a new \$17m whale and dolphin exhibit,' explains Sally Kestin, '[it] put up its marine mammals, including Lolita the killer whale, as collateral on the loan to finance the project.'

And the animals carry on generating cash even after they die. 'I interviewed Mitchel Kalmanson, a marine mammal appraiser in Florida who provides life insurance on dolphins at parks all over the world,' explains Kestin. 'He devised a formula for determining a dolphin's insurance value. Juvenile dolphins up to the age

With hundreds of dolphinariums in existence, and more and more opening up, the demand for new dolphins has never been higher. Besides those plucked from the slaughter of the Japanese drive fisheries, Cuba has sold more than 140 dolphins since 1995 to aquariums in countries that include Mexico, Argentina, Spain and Israel. And in the summer of 2003 the Pacific Solomon Islands were the site of one of the largest dolphin captures ever recorded: at least 100 bottlenose dolphins were hauled out of the sea; of these 30 were immediately flown to Parque Nizuc, a water and adventure park in the Mexican tourist mecca Cancun. It has since been confirmed that the import licences granted by Mexico's ministry of the environment for these animals were illegal. Mexico failed to meet its obligation, as a member of the Convention on International Trade in Endangered Species of Wild Fauna and Flora, to demand verification from the

Solomon

doors in 2003). Two more therapy facilities are being constructed right now.

All over the world swim-with-dolphin programmes are springing up in tourist centres eager to cash in on the latest craze. In the Caribbean alone, tourists can now swim with dolphins at more than 30 marine park attractions, double the amount of five years ago. In just one year new swim-with-dolphin centres opened in Jamaica, Anguilla, Antigua, Bermuda and Tortolla in the British Virgin Islands; others are in development in the Cayman Islands, the Dominican Republic, St Lucia and Curaçao.

Some people attribute almost miraculous therapeutic effects to swimming with dolphins. Others are more sceptical, pointing out that there has never been a study published in a peer-reviewed journal pointing to the lasting efficacy of dolphin-assisted therapy or its advantages over other forms of therapy. The sceptics say the alleged healing power of ultrasonic waves emitted by dolphins has never been supported

RESULTING FROM FRACTURED JAW. MATERNAL TRAUMA. SHOCK CAUSED DURING MOVEMENT. NEO-NATAL »

of five are valued at \$50,000 to \$100,000. Adults up to the age of 30, covering the peak breeding years, are worth \$100,000 to \$200,000. Captive-bred and female dolphins are worth more. He factors in breeding record, training, history of swimming with people, and physical condition of the facility where an animal is to be kept. Premiums, usually paid annually, range from 4 to 15 per cent of the animal's value. The insurance covers death due to accidents or disease.'

When the dolphins do die, stressed and malnourished, the dolphinariums exploit their deaths as a way of raising further funds, using sentimental announcements to induce previous park visitors to send cash testimonials. Thus, in an appeal to the local media in 2001 the executive director of Florida's Clearwater Marine Aquarium said:

Islands that the large-scale capture of the dolphins did not endanger the local population. New hunting grounds are also being developed in areas that include Central and South America and West Africa.

Within the dolphinarium industry there is one sub-sector that is expanding at a particularly rapid rate at the moment: specialised swim-with-dolphin centres, many of which provide dolphin-therapy programmes. According to Sakae Hemmi, director of the Japanese environmentalist organisation the Elsa Nature Conservancy, Japan currently has more than 10 swim-

scientifically. Then again, anyone who has ever witnessed dolphins in the wild comes back changed by the experience, and would say that the lack of scientific data is an irrelevance.

But whatever the actual merits of dolphin therapy, the morality of keeping dolphins in captivity does *not* depend on whether it is good for humans. Wrenching dolphins from their world in order to 'improve' ours may deceive a few children into being happy; it may even alleviate the direct suffering of the occasional ill human. But it will do nothing to solve the wider problem, that of humanity's destructive and possessive relationship with the natural world. ■

ULCERATION. FOOD POISONING. REACTION TO DRUG OR VACCINE. FRACTURED SKULL. JUMPED OUT OF THE TANK »

Torsten Engelbrecht is a freelance journalist. Jeremy Smith is the deputy editor of *The Ecologist*.

How We Can Save the planet

Mayer Hillman

PENGUIN, 2004, £7.99

There is no greater obstacle confronting humanity than climate change. Starting from this stark, and clearly accurate, analysis, Mayer Hillman proceeds to lay out a step-by-step guide for how we can survive into the next century. Perhaps his most radical suggestion is the need for carbon rationing. The concept is simple: each person is allocated an annual allowance for the amount of carbon they can use, and each year that amount gets slightly smaller, so that we eventually start living in a sustainable way. At a time when the populations of rich nations are using several times the amount of resources available to each person on the planet, carbon rationing may be the only way of forcing us to confront the impact of our over-consumptive, wasteful lifestyles.

REVIEWED BY SARAH MCCARTHY



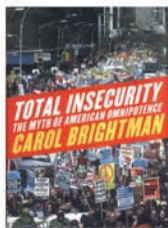
Total Insecurity: the myth of American omnipotence

Carol Brightman

VERSO, 2004, £19

It is home to the world's richest people, most powerful corporations and deadliest armed forces. But is America's seemingly unchallengeable power really that stable? Brightman, for one, thinks not, and offers some compelling arguments to support her case. With the euro increasingly moving to become the world's oil currency, the US economy getting into ever greater debt, and the PR disaster that continues to spew out of Iraq, Brightman believes that the US empire's days may well be numbered. What is needed to hasten its eclipse, she argues, is concerted resistance such as that seen in last year's anti-war protests, and the opportunities for some genuine alternatives.

REVIEWED BY DOUGLAS BEBB



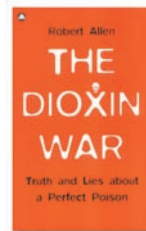
The Dioxin War: truth and lies about a perfect poison

Robert Allen

PLUTO PRESS, 2004, £12.99

Dioxins are some of the most deadly chemicals ever created. Found in pesticides, plastics, solvents, detergents and cosmetics, they are perhaps most infamous for being the toxic component of Agent Orange, the herbicide that the US sprayed across vast swathes of Vietnam during their ill-fated war there. This is the story of the people who strove for years to expose the truth about a group of chemicals responsible for heart and liver disease, hormonal disruption and cancer, to name but a few of their most lasting legacies. Allen reveals how the chemical companies colluded with government officials to cover up the known impacts of dioxins, and how a small group of determined campaigners fought for many years to get the truth out and eventually succeeded.

REVIEWED BY STEPHEN WEBB



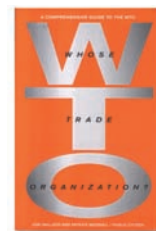
Whose Trade Organisation? A comprehensive guide to the WTO

Lori Wallach and Patrick Woodall

THE NEW PRESS, 2004, £9.95

There can be few more hated and few less understood institutions in the world than the WTO. And there is probably no person better equipped to explain its labyrinthine workings and expose its devastating impact on the planet than Lori Wallach, the director of the US campaign against corporate globalisation Global Trade Watch. With this book, she and co-author Patrick Woodall have created the perfect guide to an organisation that has turned the world on its head in less than a decade. They expose how the WTO's nine-year existence has been marked by a series of decisions forbidding anything that impinges upon the corporate thirst for profit: from the protection of endangered species to clamping down on sweatshops.

REVIEWED BY COLIN WHEELER



Book of the month

The Yes Men: the true story of the end of the World Trade Organisation

The Yes Men

DISINFORMATION, 2004, \$14.95

When anti-capitalist activists the Yes Men set up a parody of the website of the World Trade Organisation (WTO) the site was so good that many visitors (this reviewer included) didn't realise it was a take-off: the Yes Men were invited to speak at corporate conferences. Next thing, they were addressing an international textiles conference in Tampere, Finland, praising Hitler's economic policies, explaining that the abolition movement was a load of misplaced nonsense as slavery was a doomed system anyway on account of its inefficiencies, and demonstrating the 'management leisure suit': a gold lamé bodysuit attached to which

was a giant phallus with a monitor in its end that allowed executives to spy on their employees. What is even more amazing is that rather than being heckled or bundled off stage and into the nearest police car, the Yes Men were taken seriously: even to the extent of their activities being reported without a jot of irony in the Finnish press the following day. If you thought all activists were dull and worthy types who don't know the meaning of the word fun, read this book.

REVIEWED BY RUFUS WESTON



'Some of our presentations were based on official theories and policies, but presented with far more candour than usual, making them look like the absurdities that they actually are. At other times we simply ranted nonsensically. Each time, we expected to be jailed, kicked out, silenced or, at the very least, interrupted. But no one batted an eye. In fact, they applauded.'

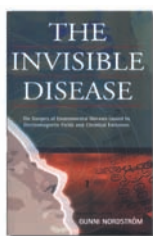
The Invisible Disease: the dangers of environmental illnesses caused by electromagnetic fields and chemical emissions

Gunni Nordstrom

O BOOKS, 2004, £9.99

Is it possible that our mobile phones, computer screens, microwave ovens and even the bulbs in our lamps could be making us ill? One thing for certain is that the proliferation of electromagnetic technologies and chemicals in the environment has been paralleled by the emergence of a host of previously unknown illnesses: multiple chemical sensitivity, chronic fatigue syndrome, fibromyalgia... The list goes on and on. In this worrying book, one of Sweden's leading investigative journalists exposes the eponymous invisible disease that is affecting millions of people in the industrialised world, explaining the many connections between the technologies we take for granted and the diseases they could well be causing. Ask yourself if it is a price worth paying.

REVIEWED BY SARAH MCCARTHY



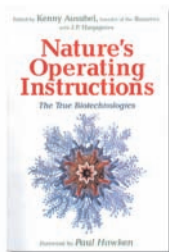
Nature's Operating Instructions: the true biotechnologies

Edited by Kenny Ausubel

SIERRA CLUB BOOKS, 2004, £10.95

Here is a book that turns biotechnology on its head. Normally, we take the word to mean the manipulation of nature by technology, generally with the aim of maximising profit for patent-holding corporations. But this series of illuminating and often beautiful essays explores the wonders of the true biotechnologies of the title: the mechanics of nature. The various authors imagine a world in which rather than trying to manipulate nature we attempt to learn from what it does best.

REVIEWED BY SARAH BECK



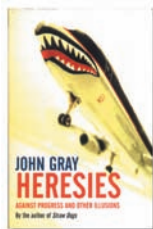
Heresies: against progress and other illusions

John Gray

GRANTA, 2004, £8.99

There can be few writers more exhilarating, or challenging, to read than John Gray. His dismissal of our faith in technological progress and debunking of the many myths we live by can be unsettling to read, and always leaves the mind racing. In this collection of essays written over the last three years he casts his eye across as diverse a set of topics as biotechnology, vivisection, Joseph Conrad, *The Matrix* and the war in Iraq.

REVIEWED BY SARAH MCCARTHY



West Papua & Indonesia since Suharto Independence, Autonomy or Chaos?

Peter King

UNSW PRESS, 2004, \$39.95

For the largely forgotten people of West Papua this is a timely and important book on their struggle for independence. The author takes the reader from the 1950's promises of self-determination and independence by their colonial masters to the present day - over 50 years of refusing to bow to the inevitable: Indonesian occupation and assimilation into that country. Based on extensive field research, King places the Papuan struggle in a context of failing reform within Indonesia and a politically supported military: the feared and loathed TNI. He argues passionately for immediate international intervention to resolve Papua's plight, and for Indonesia to be persuaded that their best interests lie not in a 'security' approach but in dialogue and negotiation with the Papuans and other disenfranchised minorities.

REVIEWED BY RICHARD BURCHNALL



MY FIVE MOST INFLUENTIAL BOOKS

Robin Page

Robin Page is founder and chairman of the farming conservation charity The Countryside Restoration Trust. Living on the small farm where he was born, he is probably also England's last remaining peasant. He has written 28 books, including *The Decline of an English Village*, the 30th anniversary edition of which has just been published by Bird's Farm Books. He was sacked by the BBC as presenter of the long-running TV show *One Man and His Dog*, almost certainly because of his campaigning for the countryside and against the EU.



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

Without a doubt Rachel Carson's *Silent Spring*. In my part of Cambridgeshire we could see the changes and feel the loss caused by pesticides as wildlife disappeared from our farm fields. She explained what was happening; it should have been obvious. Farmers were being encouraged to use various technologies and sciences that they did not understand. The politicians encouraged this madness for the sake of 'efficiency' and 'competitiveness'. Same old problems; same old politicians.

2 Which one book would you give to all politicians?

I don't want to be seen as sucking up to the editor of *The Ecologist*, but a very important book for me has been *The Trap* by Sir James Goldsmith. It exposes totally the nonsense of the EU and globalisation. Not only would I give a copy to every politician, I would stand over them to make sure they read and understood every word.

3 And to every CEO?

How can you persuade somebody driven by power and money to read a book? It would be a total waste of time. Instead I would take the CEO of Tesco to meet the family of a farmer. There is a farming suicide every six days. I would want him to look at their weekly income and compare it with his own. For those in industry I would ship them to the Antarctic for a fortnight and let scientists from the British Antarctic Survey talk to them; off the record, of course.

4 And to every child?

Tarka the Otter. It was a book that made me cry and the writing is wonderful. Henry Williamson was a good writer, but his politics were dodgy. Interestingly, his main crime was to support a united Europe. Today he would be welcomed as an ally ('heart of Europe', and all that) by Tony Blair. Then he was regarded as a fascist.

5 It's 2050 and the ice caps are melting. You're only allowed one book on the Ark. What is it?

I would want my favourite Mr Man book: *Mr Happy*. I would be smiling, too, knowing that what I said in 2004 and earlier was right, and that the House of Commons would be under water - preferably with the inmates still inside.

50 Reasons not to Vote for Bush

Robert Sterling *et al*

FERAL HOUSE, 2004, £6.99

How many reasons can you think of for not wanting another four years of George W Bush in the White House? Iraq. Enron. Halliburton. Neo-cons. US attorney general John Ashcroft. Tax cuts for the rich. Stealing the 2000 election. Cutting down forests to stop them burning. Drilling the Arctic. Reneging on Kyoto. In this fascinating, funny and sometimes downright frightening book, Robert Sterling and co tell the stories of these and 40 other examples of the ever-lengthening catalogue of disasters, corruption, scandals and corporate sell-outs that defines the Bush presidency.

REVIEWED BY TOM ANDREWS



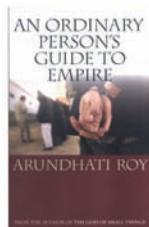
An Ordinary Person's Guide to Empire

Arundhati Roy

SOUTH END PRESS, 2004, \$12.00

Arundhati Roy combines a Booker Prize-winning novelist's mastery of language with an astute political campaigner's understanding of the bitter realities of the world. It is hard not to read her essays, elegantly weaving together the links between the Indian caste system, the sell-off of Iraq and the global corporate media, and not be moved to tears. It is impossible not to feel the urgency in her writing as she concludes: 'We're running out of time. Even as we speak, the circle of violence is closing in. Either way, change will come. It could be bloody, or it could be beautiful. It depends on us.'

REVIEWED BY SOPHIE WHITFORD



Sophie's story: raising a chimp in the family

Vince Smith

PORTRAIT, 2004, £8.99

In 1990 when the author was working as a senior keeper at Chester Zoo, a newborn chimpanzee in his care was abandoned by her mother. Named Sophie, he took the baby chimp home and hand-reared her with the help of his wife. This is an enthralling account of their lives — though their first days and months in the English countryside; Sophie's traumatic removal from the family she adored into a captive zoo world; her repatriation to Africa; reunion with her foster family; and, finally, her integration into a semi-wild group of chimpanzees. A fascinating, very funny and in parts hugely emotional insight into the closest of our natural relatives.

REVIEWED BY BLAIR POLLOCK



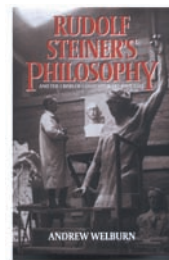
Rudolf Steiner's Philosophy: and the crisis of contemporary thought

Andrew Welburn

FLORIS BOOKS, 2004, £25.00

Is Steiner the most overlooked of the 20th century's philosophers? And is he perhaps the one to whom we should pay the most attention if we are to learn how to live on this earth without destroying it and everything it sustains (ourselves included)? Reading Welburn's fascinating account of the thinking of the man who gave the world the Waldorf school movement and biodynamic agriculture, it is hard to think otherwise. For Steiner there is no world 'out there'. We are all inherently mixed up with the world, part of it, involved in the creation of reality.

REVIEWED BY SOPHIE WHITFORD



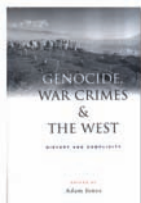
LATEST RELEASES

Genocide, War Crimes and the West

Edited by Adam Jones

ZED BOOKS, 2004, £16.95

In a series of intelligent and grimly revealing essays experts including ex-US attorney general Ramsey Clark and former UN human rights envoy Denis Halliday debunk the notion that war crimes are something the other side does, and catalogue the long history of Western complicity in such atrocities.

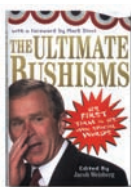


The Ultimate Bushisms

Edited by Jacob Weisberg

SIMON & SCHUSTER, 2004, £8.99

As well as being filled with the finest examples from Dubya's first (and hopefully only) term, *The Ultimate Bushisms* juxtaposes some of his most outrageous statements with 'reality checks', reminding us of just how weak the most powerful man in the world's grip on reality really is.



Another World is Possible if...

Susan George

VERSO, 2004, £10

... We know what we're talking about... We salvage the planet... We target the right adversaries. In her latest book political scientist Susan George sets out what the world must do if it is to reach a sustainable alternative to the current status quo.



Eat More Raw: a guide to health and sustainability

Steve Charter

PERMANENT PUBLICATIONS, 2004, £12.95

Covering subjects ranging from the environmental impact of our food choices to how you can go about finding and eating wild foods, Steve Charter's informative book is an excellent guide for anyone wanting to eat more sustainably.

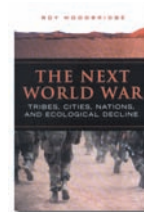


The Next World War: tribes, cities, nations and ecological decline

Roy Woodbridge

UNIVERSITY OF TORONTO PRESS, 2004, £18.00

The next world war will not be fought between humans, argues Woodbridge, but against the environment, and its weapons will be scarcity, famine, global warming and disease. If we are to win this 'war', he argues, we need to dramatically restructure society.



Sustainability and Spirituality

John E Carroll

STATE UNIVERSITY NEW YORK PRESS, 2004, \$18.95

Forget the idea that sustainability is about technological change, argues Carroll. True sustainability questions the very values we live by, and our spiritual understanding of the world.



Greenpeace: the inside story; how a group of ecologists, journalists and visionaries changed the world

Rex Weyler

RODALE, 2004, £18.99

An inspiring account by one of Greenpeace's founding members of the organisation that brought environmental protest to the front of everyone's mind. A fascinating portrayal of the world of frontline activism.



Zak

Bridget Belgrave

LIFE RESOURCES, 2003, £4.99

An enchanting children's fable that celebrates the beauty of the natural world and the possibility of mankind interacting with it in a more magical and respectful way.

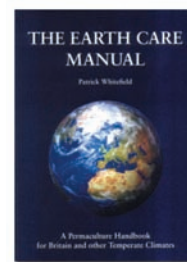


The Earth Care Manual: a permaculture handbook

Patrick Whitefield

PERMANENT PUBLICATIONS, 2004, £34.95

Most DIY manuals simply tell you how to build and dismantle. This one tells you how to live in the world sustainably, and includes information on issues as diverse as building design and horticulture.



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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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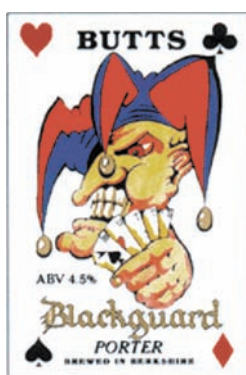
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from the pulpit

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

I'm the Reverend Billy

“

I can no longer sit back and allow terrorist infiltration, terrorist indoctrination, terrorist subversion, and the international terrorist conspiracy to sap and impurify all of our precious bodily fluids."

Commander George the Ripper Bush at Madison Square Garden

There is a stillness in the land of New York. The urban canyons are lined with faltering ripped flags and sad balloons – the Republicans have gone. They flew back across the Hudson River, back into America. And we "Anarchists" go back to our lives. Well we were called "Peace Marchers" and other gentler things until the media switched and our elephant puppetry and home-made Bush masks became OF THE DEVIL to the sleepy conservative children with their national bed-time story at the end of summer camp.

Our circus of peace passed right through their big top, two circuses of imagery and bold sloganeering – now we are quite sure we did our big cat act in a halogramic double. We never got close.

When your country is, as a system, embodied in HILARIOUS PUBLIC COWBOYS, buried somewhere in pre-Englightenment, raging against doubt in a shabby muddy fortress-town with club-dicked wolves dancing on the other side of wall. Except that these Republicans believe that this is the modern future and THEY LIKE IT. Bush looks you right in the eye and says YOU ARE A COWBOY LIKE ME AND TOGETHERWE WILL GRIN OURSELVES FORWARD IN A GRAND VIOLENT MOMENT, SWINGING OUR RIFLES AT THE DARK FORCES AT THE DOOR. In fact, the Republicans are in a kind of ecstatic love, not involving their genitals so much as a prosthetic member, say, a coonskin hat with a tail, unconsciously talismanic, say, the final moment of John Wayne's "The Alamo," posing for a camera, reading a teleprompter, and swinging a fake gun at a darkie we can't see.

The darkness at the door is the earth we live in, of course. You want to point that out. You march for days shouting BUT THAT IS LIFE ITSELF! -- and the tenth largest army in the world, 39,000 uniformed cops, descends on you. You want to say, -- these

people have just sculpted the darkness together into a Moslem face, and before that it was Asian, and before that it was Russian, and before that it was.. oh.. Caliban. WHY DO WE BELIEVE THEM? At some point this needs to become obvious. It's been going on centuries.

And there's another jet over our home in lovely downtown Brooklyn. Well, who knows? -- Maybe this screaming hollow bullet fired back into the continent carries the last of the Republicans west. Maybe that's the one who fell in love with a local prostitute anarchist here in the darkness of Sodom and

Gomorrha and had to stay a few days longer, a momentary swoon with the humanists to the east. No, not likely. We would have had sex with them, sure, we would have done anything. But they were in a portable gated community through the whole week – we peppered them with DROP THE DEBT, STOP AIDS, and LICK MY BUSH! – called out to them from our home in the liminal rat shit between their limo and their party, but they moved within a sheath of uniforms. Some of us dressed up and slipped into their backrooms, then sent out textmessages about their red white and blue martini called GLOBAL WARMING. (You think I'm kidding. I am not kidding.)

I need a meeting with GANDHI, JESUS, MALCOLM X, SOJOURNER TRUTH, AUNG SAN SUU KYI, JOSE BOVE, TOLSTOY AND DR. STRANGELOVE Can someone tell me what to do? Their Christian apocalyptic God asks them to have dominion over the earth, but we can no longer have pity for extinct species. Extinct species R us. We now so most of us are placed outside their wall, out in the darkness that they love to fear. So much of the earth's population is cast as the dark extras, and those bright, technologized walls. Then suddenly I can imagine the flimsiness of this circussy predation. Just let Toto bark and bite the curtain and we will watch them pulling on the levers with all their frantic fear. But this week – we couldn't find Oz. I feel like we let the world down. God, there were a lot of police.

”



the Republicans are in a kind of ecstatic love, not involving their genitals so much as a prosthetic member, say, a coonskin hat with a tail

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). Visit www.revilly.com



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