

The Ecologist

Vol 25 No 5 September/October 1995

£3.50 (US \$7)

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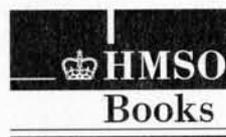
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The Ecologist is published by Ecosystems Ltd.

Editorial Office and Back Issues: Agriculture House, Bath Road, Sturminster Newton, Dorset, DT10 1DU, UK.

Tel: (01258) 473476, Fax: (01258) 473748, E-Mail ecologist@gn.apc.org

Subscriptions: RED Computing, The Outback, 58-60 Kingston Road, New Malden, Surrey, KT3 3LZ, United Kingdom
Tel/Fax: (01403) 782644

Retail Distribution: Central Books, 99 Wallis Road, London E9 5LN, United Kingdom

Tel: (0181) 986 4854, Fax: (0181) 533 5821

Annual Subscription Rates

£21 (US\$34) for individuals and schools;

£45 (US\$85) for institutions;

£15 (US\$25) concessionary rate
(subscribers in the Third World and
Eastern Europe; unwaged—ID required).

Air mail £11 (US\$19) extra.

Concessionary rate only available from RED
Computing and The MIT Press and not through
other subscription agents.

The Ecologist is published bi-monthly. The rates
above are for six issues, including postage and
annual index.

Subscriptions outside North America payable to *The
Ecologist* and sent to RED Computing (address
above). We welcome payment by UK£ cheque
drawn on UK bank, US\$ check drawn on US bank,
eurocheque written in UK£, banker's draft payable
through a British bank, UK or international postal
order, Access, Visa or MasterCard.

North American subscriptions payable by check
drawn on US banks in US funds to: **MIT Press
Journals, 55 Hayward Street, Cambridge, MA
02142. Tel: (617) 253-2889, Fax: (617) 258-6779**

The Ecologist is available on microfilm from University Microfilms International, 300 North Zeeb St., Ann Arbor, MI, USA

Advertising

For information, rates and booking, contact:
**Wallace Kingston, Jake Sales (Ecologist agent),
6 Cynthia Street, London, N1 9JF, UK
Tel: (0171) 278 6399, Fax: (0171) 278 4427**

Inserts

Up to 265x185mm, not more than 10g each:
£45 per thousand, full run, plus VAT; £60 per
thousand, part run (minimum 4,000), plus VAT.
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The editors welcome contributions, which
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not guarantee to return those not accepted.
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necessarily express the views of the
editors.

The Ecologist International Serial Number
is: ISSN 0261-3131.

Printed by Penwell Ltd, Station Road, Kelly
Bray, Callington, Cornwall, PL17 8ER, UK.
Tel: (01579) 383777

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EDITORIAL OFFICE,

AGRICULTURE HOUSE, BATH ROAD,
STURMINSTER NEWTON, DORSET,
DT10 1DU, ENGLAND, UK.

TEL +44-1258-473476 FAX +44-1258-
473748

E-MAIL ECOLOGIST@GN.APC.ORG

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Smear campaigns, lawsuits, “dirty tricks” and the creation of lobby groups are some of the tactics now being used by public relations companies to discredit environmentalists. Of equal concern are attempts to “divide and conquer” movements by courting and coopting mainstream environmental organizations. The industry justifies its activities as “part of the democratic process”, but in reality, it is actively working against democracy.

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Cover: Mick Brownfield.

The Ecologist is printed on recycled paper, whitened with hydrogen peroxide.

Whose Knowledge Counts?

"Experts", "Counter-Experts" and the "Lay" Public

For decades, people around the world have been protesting that they have had little say in decisions to build the weapons, nuclear power plants, hydroelectric dams or waste incinerators which have subsequently harmed their lives and interests. One response of businesses and bureaucracies alike has been to arrange "consultations" and "participatory processes", promising to give ordinary people more involvement in such decisions before they are made.

In principle, this move is welcome. What environmentalist or social activist group could not want more advance discussion about a new plant or technology about to be set in its midst? By themselves, however, "consultations" and "participation" do not necessarily solve the problems which motivated people to protest in the first place. Who is consulted? Who participates? Who decides who is consulted and who participates? Who decides what the issues are that people shall be consulted on? What counts as relevant knowledge and expertise? Is anyone obligated to pay attention to the consultation, or is the simple process of staging a consultation considered sufficient? In other words, who sets the groundrules dictating the terms on which the consultation takes place? Unless these questions are also discussed, "consultation" and "participation" are likely to prove merely new ways of containing — or even silencing — popular environmental concerns.

Plant Biotechnology Consensus Conference

The first UK National Consensus Conference on Plant Biotechnology, held in November 1994, offers an interesting case in point. The process of the Conference seemed simple enough. A panel of "lay" people, drawn from the general public, would be assembled to interrogate "experts" in plant biotechnology on seven key issues: the risks versus the benefits of biotechnology; consumer impact; environmental impact; moral issues; patenting; impact on developing countries; and regulation. The panel would then produce its own independent report just as a jury delivers its "lay" verdict in a criminal trial. Ostensibly, the conference offered scope for environmentalists and others to present their concerns about genetic engineering to the general public and to stimulate wider debate on the issues which could lead to more informed, more democratic decisions.

Organizing the event was the Assistant Director of the Science Museum, John Durant. The museum's apparently autonomous status was seen as ensuring a public forum acceptable to the biotechnology industry and its critics alike. The opening remarks of the conference, however, made by Earl Howe of the government's Ministry of Agriculture, Food and Fisheries, revealed that the Biology and Biotechnology Research Council had both requested the Science Museum to organize the meeting and had funded it. The committee of figures influential in biotechnology which Durant put together to steer the conference preparations, moreover, included a representative from Zeneca Seeds, a major British company involved in genetically engineering

and patenting seeds, and a pro-biotech journalist, Bernard Dixon — but no environmentalist. The neutrality of the conference was thus in question from the outset.

To set up a "lay" panel, the organizers placed advertisements about the conference in local newspapers. Several hundred applicants then underwent "complex psychological tests" to select those who had no strong position either for or against biotechnology, as well as no specialist knowledge. Eventually, 16 were chosen.

During two training weekends, the "lay" panel selected a corresponding "expert" panel from a list of industry and government representatives presented to them. The "lay" panel also chose "counter-experts" from a list drawn up by the organizers of what they termed "pressure groups", including Greenpeace, the National Federation of Consumer Groups, Friends of the Earth, the Vegetarian Society, *GenEthics News*, Farmers Link and the Green Alliance.

A "lay" member of the Novel Foods Regulatory Committee who was also chosen stressed in her presentation that, although she was an academic, her position on the Committee was as an ordinary person "just like you" in order to represent ordinary people; her expertise was in being "lay".

The conference organizers thus encased the conference from the start in a framework which divided participants into two — and only two — opposing categories: "expert" and "lay". Others were excluded. A representative of the Women Farmers Union, for example, was told by the organizers that she could be neither an expert witness nor a member of the "lay" panel because she was "too lay to be expert, but too expert to be lay". She and others like her, who were concerned or involved in the topics under discussion but not considered to have specialist knowledge, were effectively shunted into the conference audience. In addition, the division of participants into the category of either "expert" or "lay" had the effect of separating the "counter-experts" from the "lay" public they claim to represent.

Questions and Answers

On the first day of the conference, "experts" gave presentations on the key issues and answered brief questions of clarification from the "lay" panel. On the second day, the "lay" panel put more detailed questions, often composed from written questions from the audience, to the "experts". The "experts'" replies were also augmented by contributions from other "acknowledged" experts or sometimes by self-appointed "experts".

This pattern, with a few exceptions, set up a functional division of labour: "lay" people ask questions, "experts" provide the answers. Indeed, to play out their "lay" role properly, the "lay" panel was obliged not only to learn how to coordinate their questions and articulate them clearly, and become adept at using a microphone but also, above all, to show appropriate deference to the "experts" and the organizers. The "lay" panel was thus encouraged to take on the challenge of investigating biotechnology but from an exaggerated position of innocence and ignorance.

The division of labour between "lay" and "expert" was accentuated by the conference's mediating chairperson, Peter Evans, presenter of BBC Radio 4's *Science Now* programme. In some cases, Evans refined an unclear question; in others, he allowed the "experts" to answer questions however they cared to interpret them. At all costs, however, he seemed to be at pains to enforce the "lay questioner — expert answerer" dualism. Even when faced with an open-ended question which no one seemed to be able to respond to, Evans valiantly persisted: "Is there an expert that can answer this question?"

Another of Evans's functions as chair was to demarcate the boundaries between the issues under discussion. For instance, he disallowed a question on the global aspects of biotechnology in the ethics session on the grounds that it was a development issue instead of an ethical one. As a result, the ethics "experts" were able to restrict their discussions to vegetarianism and consideration of whether biotechnology presented any novel moral problems. Any deep ecological feelings about the integrity and value of nature were ruled out of consideration. So was the issue of precedents set by previous technologies such as nuclear power. So, too, were crucial questions concerning the implications of biotechnology for social justice, such as those revolving around corporate ownership of hybrid seeds.

Interestingly, the "experts'" areas of competence were not restricted in the same way. Being granted "expert" status at the conference empowered one to speak on almost any aspect of biotechnology, transferring one's authority from discipline to discipline at will. Thus a biotechnology industry consultant chose to answer in the affirmative a question as to whether or not biotechnology would be in the interests of developing countries, without making clear on what basis he could claim any expertise in the economics or sociology of Southern countries.

When the explicit or implicit claims of "experts" to competence in determining "the public good" are ratified in this way, "expertise" gains a great deal of political power. The function of the industry "experts" was, in effect, to define the public good in a way which would make it consistent with industry profitability.

More generally, any serious discussion of the biotechnology industry's repeated claim that genetically engineered, high-yielding crops will solve global food problems necessitates some knowledge of the causes of hunger, the characteristics of different farming systems, the impact of land tenure on subsistence, and the effects of new technologies on landlessness. By giving "experts" licence to gloss over such issues, or to speak about them without having any of the requisite knowledge, the Consensus Conference merely obscured many of the real issues concerning plant biotechnology.

On the other hand, no plant ecologists were called to respond to questions concerning the potential effects of the deliberate release of genetically modified plants into the environment — some 200 applications to release such plants have been approved in Britain since 1993. It was left to just one of the "counter-experts", Greenpeace's Science Director, Sue Meyer, to field all ecological questions single-handedly.

But while "experts" were permitted to transfer their expertise from their own field to other fields, the "counter-experts" from the NGOs had to balance precariously on the boundary between "expert" systems and the "lay" public. The legitimacy granted to the "counter-experts" by the Conference and the "lay" panel was clearly based on their ability to articulate wider public concerns about the ethical, social and environmental implications of biotechnology, and the fact that the public trusts them to do so, rather than on narrow technical expertise.

Reporting Back

Having spent two days collecting information, the "lay" panel withdrew to spend the next 14 hours writing up a preliminary report, which it presented on the third day. As one might expect from a conference structured so as to produce consensus, on many of the issues under scrutiny, the report attempted to balance all points of view heard. For instance, on the potential impact of plant biotechnology on the environment, the panel concluded that:

"Gene technology can [either] assist in the process of preserving and enhancing biodiversity and sustainability, or further the trend towards monoculture that delivers short-term benefits at long-term risk."

But although the organizers had done their utmost to shape the outcome by setting every detail of the terms of engagement — by constructing and identifying what and who counted as "lay" and "expert"; by setting a goal of consensus rather than being satisfied with disagreement; by stipulating that the event was for the good of science; and by declaring that the chair was "neutral" — they could not dictate the whole content on the "lay" panel's report. For instance, the report took a clear stand against the patenting of genetically engineered organisms, and called for labelling of genetically engineered products and tighter regulation of releases of genetically modified organisms. It also stressed the need for "appropriate technology" in developing countries rather than "engineered hybrids to be pushed on unsuspecting communities". At some points, the report cast doubt on the ability of biotechnology companies to act in the public interest.

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Such points were not to the liking of many industry apologists. Concluding the conference, Lord Howie of Troon, Chair of the House of Lords Select Committee on Biotechnology (which had produced an uncritical report of the industry) went out of his way to assert that Parliament would not be influenced by the report in any significant way. Conference organizer John Durant, meanwhile, described the lay panel's report as giving qualified support for plant biotechnology. Tom Blundell, the head of the Biology and Biotechnology Research Council, the conference's funders, maintained that the value of the conference lay in highlighting the need for investment in science in general and biotechnology in particular, and in the need for public support for such investment. Blundell clearly considered, as did some of the organizers and speakers, that the conference's aim was to "correct" the deficit in public understanding of biotechnology, to "educate" the public to accept "expert" ideas, and to help the industry maintain its momentum.

In his preface to the "lay" panel's final published report, Durant (who is also editor of the journal, *Public Understanding of Science*) situates the Consensus Conference within the Science Museum's mission "to promote the public understanding of the history and contemporary practice of science, medicine, technology and industry" and describes the gathering as having "exceptional status" in allowing two-way dialogue between scientists and the public. He referred to the "lay" panel as not being a suitable body to decide public policy, but nevertheless as:

"broadly free from the multiple sectional interests that are at work within the field of plant biotechnology... for this reason alone its informed judgements deserve to be taken seriously — particularly by those who claim to speak about this subject 'in the public interest'."

In other words, now that the "real public" has given its "qualified support" for biotechnology through the lay panel report, social and environmental activists of the Greenpeace or Genetics Forum stripe should beware of claiming legitimacy for their more critical statements. Reducing NGOs to a sectional interest comparable to that of the biotechnology industry's profit motive, instead of regarding them as representatives of a disinterested view, identical with public concern, was a key political goal for the conference organizers.

Tim Roberts of Zeneca Seeds, echoing Durant's claim that the "lay" panel gave qualified support for biotechnology, maintains that as a "lay" statement, the report is too crude to be the basis of any specific proposals, thus leaving it open to "expert" interpretation. NGOs, however, regard the report's proposals as precise, such as a requirement for clear labelling of genetically modified products and the replacement of the patenting system.

Ground Rules

Unlike a jury at a criminal trial, the "lay" panel was not required to deliver an unambiguous verdict "for" or "against" plant biotechnology. Nor was it able to outline areas of disagreement in its report. The resulting "consensus" is thus open to various interpretations. Unlike the decision of a jury, no one is obliged to listen to the "lay" panel's verdict — a point of some bitterness among its members who worked hard on it. With no institutional or political clout, the "lay" panel's findings have only ideological significance.

The structure of the UK National Consensus Conference on Plant Biotechnology ranked people speaking about biotechnology in a distinct pecking order: "experts", "counter-experts" and the rest. Any questions that the lower orders asked were presumed to be answerable by those considered to possess expert knowledge, whereas many of the crucial questions are in fact a matter of judgement. The goal of manufacturing a "National Consensus" out of a diversity of opinion on such a highly-contentious topic as biotechnology was impossible to achieve without silencing dissenting voices. In particular, it required the separation of the most articulate criticism from a less-focused unease among the wider public.

Limiting the topic to plant biotechnology, in addition, excluded discussion of animal and human genetic engineering — for example, the use of the recombinant bovine growth hormone (rBGH) in dairy cattle, the creation of the "oncomouse" and the patenting of human cell lines. By keeping such topics, which tend to generate greater passion and concern among the "lay" public, out of sight, the organizers attempted to take a quiet first step towards engineering public acceptance of biotechnology in general.

Environmentalists and critics of biotechnology were at a disadvantage in not having any say in setting the ground rules for the Consensus Conference. But despite the fact that this public forum was warped by the power of their opponents, NGOs still responded positively. They endorsed the conference as a rare attempt for public debate on an issue usually regarded as the private domain of industry and government bureaucrats. What is clear from the process, however, is that those with power in industry or government will not be bound by any decision made by or opinion of a group of "lay" people which does not endorse their goals. They are prepared to ignore it or interpret it in a way which suits their own ends.

Derrick Purdue

Derrick Purdue is a sociologist in the Faculty of Economics and Social Science, University of the West of England, who is researching social movements and seed patenting.

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“Democracy” For Hire

Public Relations and Environmental Movements

by

John C. Stauber and Sheldon Rampton

PR companies today can package for their clients a global campaign that includes not only advertising, news stories and video footage but also crisis management, industrial espionage, organized censorship, infiltration of civic and political groups, and the manufacture of synthetic “grassroots movements”. Their work is central to the strategy of “divide and conquer” which the corporate world has adopted against environmental movements.

Rachel Carson's 1962 book, *Silent Spring*, is credited as triggering present-day environmental awareness in the United States.¹ Yet various corporations implicated in her account of massive agrichemical poisoning caused by DDT, lindane, heptachlor and other toxins did their best to prevent its publication.

Although they failed to do so, corporate public relations (PR) experts have since become adept at attempting to contain the environmental activism that *Silent Spring* spawned. Particularly since the 1980s, a virulent, pro-industry, anti-environmentalism has developed, propelled by some of the same industries and PR practitioners who battled Rachel Carson. They are waging a war against environmentalists on behalf of their corporate clients in the chemical, energy, food, automobile, forestry and mining industries. US businesses now spend an estimated \$1 billion per year on the services of anti-environmental PR professionals and on “greenwashing” their corporate image. The battle is being fought on many fronts: television, the printed press, school classrooms, community meeting halls, the boards of directors of mainstream environmental groups, journalism conferences and radio shows.

More recently, the PR industry has refined a two-pronged strategy that creates and exploits divisions within the environmental movement. This “divide and conquer” strategy orchestrates attacks against grassroots activists on the one hand, while simultaneously courting, coopting and compromising mainstream environmental organizations on the other.

Burning Books

Smear campaigns, lawsuits, “dirty tricks”, and the creation or support of pro-industry groups that foment hatred and physical harassment of green activists are some of the tactics used by PR companies to discredit environmentalists.

The sabotaging of news coverage of environmentalist books is illustrative of the PR industry's tactics. Take the case of David Steinman's book, *Diet for a Poisoned Planet*, which called attention to the fact that US government inspectors had found

110 industrial chemical and pesticide residues in raisins. Months before scheduled publication in 1990, PR firm Ketchum, whose client was the California Raisin Advisory Board recommended that the Board's spokespeople:

“conduct one-on-one briefings/interviews with the trade and general consumer media in the markets most acutely interested in the issue . . . The [Ketchum] agency is currently attempting to get a [publisher's book] tour schedule so that we can ‘shadow’ Steinman's appearances; best scenario: we will have our spokesman in town prior to or in conjunction with Steinman's appearances.”²

An informant working with the publisher gave Ketchum the dates and timing of radio and television talk shows on which Steinman was booked to appear. “They called up each and every talk show,” explains a Ketchum source, and argued that it would be unfair to allow Steinman on the show without the other side of the issue, or they tried to depict him as an “off-the-wall extremist without credibility”.

Prominent anti-environmentalist Elizabeth M. Whelan, who heads the American Council on Science and Health, a group funded largely by chemical and food firms, was brought in to warn government agencies that Steinman and others “who specialize in terrifying consumers” were “threatening the US standard of living and, indeed, may pose a future threat to national security.”³

A similar experience befell Jeremy Rifkin's book *Beyond Beef: The Rise and Fall of the Cattle Culture* which recommends that people stop eating beef for ethical, health and environmental reasons. After a PR mole⁴ obtained the itinerary for Rifkin's promotional book tour across the US, the tour:

“had to be cancelled after it was repeatedly sabotaged. Melinda Mullin, *Beyond Beef's* publicist at Dutton Books, says . . . radio and TV producers who'd scheduled Rifkin's appearance began receiving calls from a woman claiming to be Mullin cancelling or misrepresenting Rifkin's plans. Finally, Mullin had to begin using a code name with the producers. Liz Einbinder, a San Francisco-based radio producer who had had *Beyond Beef* on her desk for several weeks, was surprised to receive angry calls and an anonymous package denouncing Rifkin within hours of placing her first call to Mullin. This led to speculation that Dutton's New York phones might be tapped.”⁵

John C. Stauber and Sheldon Rampton work at the Center for Media & Democracy, 3318 Gregory Street, Madison, WI 53711-1725, USA, which reports on the PR industry and publishes a quarterly news magazine, *PR Watch*.

Sabotage can easily become provocation. In 1987, Mary Lou Sapone, an employee of Perceptions International, a firm providing "research on coercive trends and movements that affect business", joined the US animal rights movement. She was soon seen all around the country at protests, meetings and conferences. In 1988, Sapone and a colleague, Marcus Mead, began to incite one woman on the fringe of the animal rights movement into attempting to murder Leon Hirsch, president of US Surgical, a company which experimented on dogs. Having given the woman money to buy bombs, Mead drove her and two pipe bombs from New York to US Surgical headquarters in Connecticut. There she was arrested by the Norwalk Police Department who had already been informed of the plot. The fabricated incident enabled US Surgical and Perceptions to point to "terrorist" tendencies in the animal rights movement. US Surgical's attorney used pre-trial proceedings of the putative bomber to seek exhaustive information about Friends of Animals, including one activist's personal diary and income tax returns.⁶

Grasstops and Grassroots

PR companies have also become adept at "manufacturing" apparent support from ordinary people for the goals of industry. One tactic is to custom-design an anti-environmentalist pressure group and direct it from the offices of PR firms or their clients. Sometimes this group consists solely of elite intimates of government figures, sometimes it is more broadly based.

To influence an individual legislator in the way a client wants, for example, PR firm Reese Communications hires what it calls a "District Liaison" from the ranks of the legislator's "influential friends and leading business associates". In addition to having a "close personal relationship with the legislator and his/her staff . . . this person should also be actively involved in the community and have some media contact". The District Liaison then helps organize a "powerful business roundtable" including community leaders and friends and supporters of the legislator. Through "repetitive, persuasive contact by friends, acquaintances and influential members of the legislator's home district", the District Liaison and the roundtable create an artificial bubble of peer influence around the targeted politician, so that "legislators will get the feel of total community support for an issue". Reese calls this technique "grasstops communications".⁷

Ultimately, however, "grasstops communication" and "air cover" — advertising and manipulation of the mass media (see Box, p.178) — are not in themselves sufficient to convince politicians that "the masses" are also concerned about the issues corporations want pressed. Grassroots support has to be orchestrated.

In 1989, PR firm Beckel Cowan, under contract to the American Petroleum Institute, organized "Americans Against Unfair Gas Taxes", a national organization with over 15,000 members" which helped to prevent a proposed national rise in tax on petrol. In Nevada, the car industry created the front group "Nevadans for Fair Fuel Economy Standards" to impress upon Nevadan Senator Richard Bryan that proposed legislation supported by Bryan to foster greater fuel efficiency would make their cars unaffordable.⁸ Deceptive names of these front groups are rife, such as the "Global Climate Coalition" and the "British Columbia Forest Alliance".

Such manufacturing by PR companies of artificial "grass-

roots movements" for their clients for a fee was described by former Senator Lloyd Bentsen, a long-time Washington and Wall Street insider, as "astroturf lobbying". *Campaigns & Elections* magazine defines "astroturf" as a:

"grassroots programme that involves the instant manufacturing of public support for a point of view in which either uninformed activists are recruited or means of deception are used to recruit them".⁹

Journalist William Greider calls it "democracy for hire".¹⁰ PR professionals now use the term "real grass roots — not astroturf" to refer to orchestrated mass campaigns that are so well-designed that they *look* real.¹¹

How to Outnumber Your Opponents

Corporations, particularly larger ones, can put their own employees to work in creating grassroots support for their objectives. As James Lindheim of Burson-Marsteller puts it:

"Don't forget that the chemical industry has many friends and allies that can be mobilized . . . employees, shareholders and retirees. Give them the songsheets and let them help industry carry the tune".¹²

According to *Nukem Market Report*, published by the unfortunately-named German firm Nukem GmbH, which designs and operates waste treatment systems for the chemical and nuclear power industries, utility companies should communicate their point of view to plant employees, since "neighbours tend to ask plant workers for the 'inside scoop' about what's really going on". Nukem praises Baltimore Gas & Electric (BG&E) for paying its employees to "donate" one hour each week for public service activities in their community:

"As a result, BG&E employees serve in senior positions in local volunteer fire companies and have 'adopted' a total of three elementary schools for mentoring and tutoring programmes. Over 100 employees are coordinating about 50 charities."

By cultivating a caring, community-minded image, BG&E has been able to limit opposition to its proposal to store nuclear wastes in dry casks near its nuclear plant site. The key, says BG&E Public Information Officer Karl Neddenien, is to build this image early: "As long as ten years before a utility even thinks about a dry storage facility, it had better have developed a good community image".¹³

To take the next step — recruit supporters from outside the company — the PR industry has used the tactics of environmentalists and other citizen activists to get people to write letters and telephone calls. William Greider, author of *Who Will Tell the People? The Betrayal of American Democracy*, describes the "grassroots organizing" shop of PR firm Bonner & Associates, located on one of Washington's main boulevards, as a "boiler room" with:

"300 phone lines and a sophisticated computer system, resembling the phone banks in election campaigns. Articulate young people sit in little booths every day, dialing around America on a variety of public issues, searching for 'white hat' citizens who can be persuaded to endorse the political objectives of Mobil Oil, Dow Chemical, Citicorp, Ohio Bell, Miller Brewing, US Tobacco, the Chemical Manufacturers Association, the Pharmaceutical Manufacturers Association and dozens of other clients".¹⁴

Potential supporters are identified through the use of mailing lists and computer databases. Speaking at a PR conference in December 1994, John Davies of Davies Communications explained how passive supporters can be turned into advocates concerned enough to write a personal letter to a politician, newspaper or city commissioner:

"We want to assist them with letter-writing. We get them on the phone, and while we're on the phone we say, 'Will you write a letter?' 'Sure.' 'Do you have time to write it?' 'Not really.' 'Could we write the letter for you? . . . Just hold, we have a writer standing by'."

The call is then passed on to another Davies employee who creates what appears to be a personal letter to be sent to the appropriate public official:

"If they're close by, we hand-deliver it. We hand-write it out on 'little kitty cat stationery' if it's a little old lady. If it's a business we take it over to be photocopied on someone's letterhead. [We] use different stamps, different envelopes . . . Getting a pile of personalized letters that have a different look to them is what you want to strive for".¹⁵

Similarly, a "patch-through" telephone system enables PR firms to switch calls they have made to potential supporters directly through to legislators' offices. The advice of Mike Malik of Optima Direct at a December 1994 Chicago seminar on "Shaping Public Opinion: If You Don't Do It, Somebody Else Will" was to "Space the calls throughout the day — it's got to look real".¹⁶

Some of the groups of supporters created in these ways are huge. The National Smokers Alliance developed by Burson-Marsteller with millions of dollars from tobacco multinational Philip Morris — and whose president and CEO is Burson-Marsteller Vice President Thomas Humber — claims a membership of three million smokers. People who call toll-free numbers listed in full-page newspaper adverts for the Alliance receive stickers to place in shops and restaurants declaring "I am a smoker and have spent \$ ___ in your establishment".

The membership of some front groups is more carefully selected. In the 1980s, Pagan International formulated its "Nep-tune Strategy" to help the Shell oil company counter a boycott

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"Don't Leave Your Future in Her Hands" reads an advertisement for the services of PR firm Davies Communications. It continues: "Traditional lobbying is no longer enough. Today numbers count. To win in the hearing room, you must reach out to create grassroots support. To outnumber your opponents, call the leading grassroots public affairs communications specialists."

Divide and Conquer

While the PR industry is organizing "grassroots" opposition, its clients pursue a policy of "dialogue" with mainstream environmental groups, seeking to create "partnerships" between businesses and environmental groups for mutual image-building and financial profit.

The Foundation for Public Affairs, sponsored by a PR trade association, helps industry determine which activists are worth courting and how.¹⁹ It monitors more than 75 specialized activist

against its business dealings in South Africa. Pagan organized and subsidized a group composed of black clergy called the Coalition on Southern Africa (COSA). Launched in September 1987 with great fanfare, COSA talked of developing black-black business links between South Africa and the US, promoting education of South African blacks and pressing for an end to apartheid. In reality, COSA was a paper front group with no resources to carry out these goals which had been set up to "divide and weaken the position of the religious community with regard to South Africa". As Dona Katzin of the Shell boycott campaign pointed out, immediately after COSA was created, companies with South African operations began to point to COSA to show that not all US church groups backed disinvestment.¹⁷

On other occasions, smaller ad hoc "grassroots" groups can be brought together for specific purposes. For instance, a meeting was due to be held in January 1990 in New York City to counter the introduction of the synthetic bovine growth hormone (rBGH), manufactured by Monsanto. Just four days before the gathering, PR firm Kaufman, working with Monsanto and the National Dairy Promotion and Research Board, subcontracted a specialist "grassroots lobbying" PR firm, Direct Impact, to recruit:

"between six and eight residents of New York to attend the event, monitor developments, ask questions, and provide other support as appropriate".

Kaufman's brief was that "each attendee must be able to articulate the basic [pro-rBGH] arguments on the issue".¹⁸

publications and gathers information on "more than 1,300 activist organizations, research institutions and other groups". A directory it published until 1993 included "intelligence" on 250 groups including "current concerns, budget, funding sources, board of directors, publications, conferences and methods of operation".²⁰

Once a year, the Foundation organizes a two-day Annual Conference on Activist Groups and Public Policymaking, where professional activists and staff members of prominent Washington-based consumer and environmental organizations are invited to rub shoulders with influential corporate PR executives. According to the Foundation's promotional brochure, the purpose of the 1993 conference was to help PR executives find out the answers to questions such as "What tactics are being employed by activists to achieve their goals? What methods can be used by business in cultivating ties with activist groups and what are the potential benefits . . . and/or drawbacks?"²¹

Mongoven, Biscoe & Duchin (MBD), meanwhile, charges clients such as Monsanto, Shell, DuPont and Philip Morris thousands of dollars a month for providing information on what environmentalists are doing. MBD gets on the mailing list of as many organizations as possible. Its employees summarize and report on the contents of activist newsletters and other publications on "acid rain, clean air, clean water, hazardous and toxic wastes, nuclear energy, recycling . . . the United Nations, development in Eastern Europe, dioxin, organic farming, pesticides, biotechnology, vegetarianism, consumer groups, product safety, endangered species, oil spills" and other issues that may affect its clients.²²

MDB maintains "extensive files on organizations and their leadership", including biographical information on key personnel, funding sources, relationships with other organizations, publications, and a "characterization" of the organization, all aimed at assessing the potential for coopting the organization or marginalizing its impact on public policy debates.²³

Entering into a "Relationship"

Once a corporation has decided which environmental groups or individuals to court, there are some "cost-free and virtually risk-free" ways for it to "test the waters", suggests Jack O'Dwyer of *O'Dwyer's PR Services*: "Help them raise money. Offer to sit on their board of directors. That can open up a good symbiotic relationship." Another effective tool is to fund a conference on a topic of mutual interest or an issue-specific publication for the non-profit group.²⁴

Getting environmental and other organizations to take corporate funding can be the next step. Some of the biggest green organizations — Izaak Walton league, National Wildlife Federation, National Audubon — now receive support, recognition and cash from corporate polluters. The Wilderness Society accepts funding from waste firm WMX, Archer Daniels Midland and other multinationals.²⁵ In exchange, the corporate benefactors have bought themselves a green image that is worth literally millions in the consumer marketplace. The American Civil Liberties Union accepted about \$500,000 in contributions from tobacco interests between 1987 and 1992 without disclosing the largesse to its membership, and has helped promote the idea that smoking is a "civil right" comparable to that of free speech and association.²⁶

Under the direction of Gaylord Nelson and environmental

business consultant Bruce Anderson, Earth Day USA, a celebration of the 25th anniversary of the first Earth Day in 1970, welcomed corporate contributions without screening out major corporate polluters. With the help of Allen Finch of PR firm Shandwick, money for Earth Day came pouring in from Procter and Gamble, Honeywell, Ralston Purina, Kinkos, Pillsbury and AT&T. For US\$20,000, a company could become an Earth Day sponsor. Further negotiations could buy permission to use the official Earth Day USA logo.²⁷

Compromising Environmentalists

The whimpering demise of 1995's Earth Day USA — it fell apart when media coverage disclosed the corporate greenwashing — proved what a success the PR strategy had been. The publicity led to internal dissension among Earth Day's board of directors and its eventual breakup.

But as PR guru E. Bruce Harrison — who helped coordinate the PR blitz against Rachel Carson — points out, ecological activism has been partially transformed into a multi-million dollar environmental bureaucracy. The large environmental organizations maintain expensive offices in downtown Washington, divorced from their activist roots. Their executive directors command six-figure salaries, while their tightly-run boards increasingly include representatives from Fortune 500 companies.

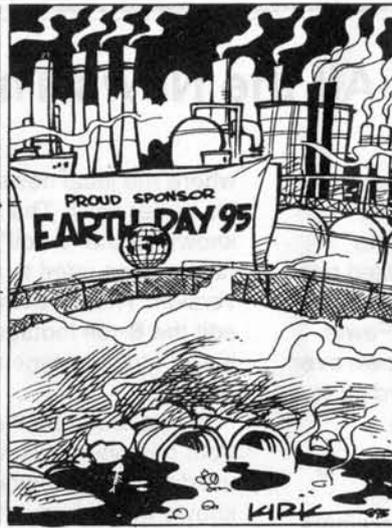
Such a transformation, Harrison stresses, is all to the advantage of the corporate clients of PR firms. He advises his clients that the large mainstream green groups primarily want to "stay in the greening business", and that their real goal "is not to green, but to ensure the wherewithal that enable it to green". Thus the managers of the large green organizations are primarily concerned with raising money from individuals, foundations — and, increasingly, from corporations. To do so, they have chosen to maintain a "respectable" public image and are willing to sit down with industry and PR executives to arrange mutually-beneficial deals. This puts mainstream environmental groups just where industry wants them — in a position to be compromised through industry partnerships and funding.²⁸

The Pay Off

Alliances with green groups not only improve corporate images but can also pay off in other ways. According to Hill & Knowlton's Dale Didion, companies are learning that they can:

"hire members of the environmental group's staff to help on certain projects. This is a tremendous benefit for a company that wants to have access to top green experts. Companies can avail themselves of talented researchers, scientists and analysts at very reasonable prices".²⁹

Collaborations with environmental groups also provide corporations with valuable knowledge from green critics. "Companies must have some vehicle for knowing what the intelligent public thinks about their products and processes," says Joanna Underwood, president of the New York-based INFORM, an environmental research organization.³⁰ Frank Boren, former president of the Nature Conservancy and a board member of ARCO Petroleum, highlights another advantage: "One good thing . . . is that while we're working with [mainstream environmental organizations], they don't have time to sue us".³¹



Kirk Anderson

Meanwhile, by providing its PR services free-of-charge to health-related charities, New York PR firm Porter/Novelli has been able to persuade the charities to support the interests of its paying corporate clients. In spring 1993, for example, agricultural producers and growers and pesticide manufacturers represented by Porter/Novelli were alarmed at the impending broadcast of a documentary on the cancer risks posed by pesticides to children. To rebut the documentary, Porter/Novelli persuaded the American Cancer Society (ACS), to which it has provided free services for over 20 years, to issue a memo stating that "The programme makes unfounded suggestions . . . that pesticide residues in food may be at hazardous levels".³² ACS sent guidelines to its branch offices on how to respond to any public inquiries about the issue — guidelines which included points Porter/Novelli had drafted for ACS and which again downplayed the risk of cancer from pesticides.

The "bad cop, good cop" strategy — undermining on the one hand and courting on the other — explains why many of the companies that fund *anti*-environmental extremists also pour money into mainstream environmental groups. Corporate sponsors of the World Wildlife Fund (WWF), Nature Conservancy, Defenders of Wildlife, National Resources Defense Council, Environmental Defense Fund, Audubon Society and National Wildlife Federation also fund about one-quarter of the 37 organizations listed in the *Greenpeace Guide to Anti-Environmental Organizations*.³³

The operations of PR firm Shandwick illustrate the "divide and conquer" strategy. Shandwick's clients include Ciba-Geigy, Chase Manhattan, Dow, Ford, Hydro-Quebec, Monsanto, Pfizer, Procter and Gamble, Purina Mills and Sumitomo Bank. Shandwick helped to establish an anti-environmental front group called the Council for Agricultural Science and Technology, which is funded by hundreds of companies involved in genetically-engineered foods, agricultural chemicals, food additives and corporate factory farming and which has become the "source for public policy makers and news media on environmental issues". The PR firm helped the Western Livestock Producers Alliance "win its battle against raising grazing fees on public lands", which was one of the biggest defeats the environmental movement has suffered since the a Republican majority was elected to Congress in November 1994.³⁴ Yet Shandwick also planned, coordinated and executed the 1995 Earth Day celebrations. Earth Day board member Jerry Klamon justified the involvement of companies such as those

represented by Shandwick by saying that they "need to be nurtured and brought along". He added, "We need to use tactics that people are habituated to following . . . These PR people are obviously good at penetrating the American consciousness".³⁵

Duped Environmentalists

While many large environmental organizations claim that the best way to be effective is to look for common ground with businesses, E. Bruce Harrison admits that in fact the tactics of grassroots activists are the greens' strongest weapons.³⁶ This is not surprising; as Jane Morris, author of *Not in My Backyard: The Handbook*, says, local activism can become a guide:

"to how your government works, not in theory but in practice . . . During the course of a NIMBY campaign, your understanding of government will be profoundly changed and deepened. Just as dramatic will be the transformation of your view about how each citizen, yourselves included, can be a part of a larger change . . . NIMBY activism is not an obstruction but a stimulus to finding lasting solutions instead of temporary and often devastating technofixes. In NIMBY activism, people take an active role in shaping their futures and in running their government instead of letting it run them."³⁷

Industry and PR firms are thus delighted when they can convince environmentalists that their best chance of success is to suppress NIMBYism and to submit instead to the blandishments of industry or government in seeking a "win-win" compromise.

Their tactics are clearly paying off. When a Republican majority was elected to Congress in November 1994, national green organizations found themselves cut off from the grassroots they had abandoned and cut out of the political loop. They were therefore unable to put any significant pressure on legislators. Congress has since moved quickly to eviscerate past legislation and regulations that had been the green lobbies' major accomplishments in the 1970s.

A Hidden Hand

Although the PR industry claims that it is simply participating in the democratic process and contributing to public debate, it has to conceal carefully most of its activities from public view

All the News That's Fit to Print

The rise of PR's influence over newspapers and other media — about 40 per cent of all "news" in the US flows virtually unedited from PR offices — has coincided with the rise of large corporations. Fewer than 20 corporations now own over half of all US media. According to media critic Ben Bagdikian:

"the magnitude of the players is incredibly large. Increasingly corporate giants and supergiants are working together in joint ventures . . . Journalism, news and public information have been integrated formally into the highest levels of financial and non-journalistic corporate control. Conflicts of interest between the public's need for information and corporate desires for 'positive' information have vastly increased".

As newspapers are taken over by large corporations, staff are cut and profits shipped to corporate headquarters instead of being reinvested. Reporters have less and less time to report in-depth and have to rely instead on press releases and easy-to-cover, sensational stories.

This creates openings for organizations such as the North American Precise Syndicate to influence the news. The Syndicate provides camera-ready stories on behalf of most of the top PR firms and most Fortune 500 companies to 10,000 newspapers, almost all of whom reprint at least some of the material. A similar business, Radio USA, "supplies broadcast quality news scripts to 5,000 radio stations throughout the country" — "a lifesaver on a slow news day", according to Max Kolbe, news director at KKIN radio station in Aitkin, Minnesota, and many other radio editors.

PR firms also produce "video news releases" or VNRs — entire news stories written, filmed and produced by PR firms and transmitted by satellite feed to hundreds of TV stations around the world. VNRs are typically packaged with two versions of the story the PR firm is trying to promote. The first is fully edited, with voiceovers already included or with a script indicating

where the local newsreader should read his or her lines. The second version, known as the "B-roll", consists of the raw footage used to produce the edited version. The receiving station can either edit the B-roll footage itself or combine it with other footage received from other sources.

Designed to be indistinguishable from genuine news, many VNRs are used as "story segments" on TV news shows without any attribution or disclaimer. During the Gulf War, for example, Hill & Knowlton produced more than \$500,000 worth of VNRs, resulting in tens of millions of dollars' worth of "free" air time on news shows for its client, the Kuwaiti government.

When MediaLink, a PR firm that distributed about half the 4,000 VNRs made available to newscasters in 1991, conducted a survey of 92 newsrooms, it found that all 92 of them used VNRs supplied free by PR firms which had been subtly slanted to sell a client's products and ideas while appearing to be "real" TV news.

"Most of what you see on TV is, in effect, a canned PR product," boasts a senior vice-president with Gray & Company public relations. "Most of what you read in the paper and see on television is not news."

Like advertising executives before them, PR executives become inordinately powerful as the media becomes dependent on PR for more and more of its content. Even the most energetic reporters know that they cannot afford to get on the wrong side of a powerful publicist; Hill & Knowlton and Burson-Marsteller together represent a third of the most quotable sources in the US. As John Sweeney of *The Observer* in London puts it:

"The Spin-Master Generals know all too well how to play the information game. They know how to control, restrict and, if need be, throttle access. . . . And if you don't play the game, you're toast. No stories for you, mate. Everyone's at it: the police, the Labour Party, the Bosnian Serbs".

Corporate conglomeration and "downsizing" means that many reporters in their thirties now find themselves forced out of their profession or in financial difficulties trying to support a family, fund their children's college education and save for retirement. They

can earn more money by leaving journalism and going into PR. Vermont newspaper reporter John Dillon writes that:

"The revolving door . . . not only spins between the government and lobbies but between the press corps and the PR firms. Like Capitol Hill aides who trade in their expertise and access for a lobbyist's salary, burned-out or broke reporters can be tempted by the greener and more lucrative pastures offered by PR companies".

Author Susan Trento adds that this revolving door accounts for much of the gridlock in the US's political process:

"Nothing seems to get cleaned up. From Watergate to Koreagate to Debategate to the HUD scandals to BCCI, it seems that the same people are doing the same things over and over, and never getting punished — and no one seems to care. The triangle — the media, the government, and the lobbying and PR firms — protect each other".

The fact that the 150,000 PR practitioners in the US now outnumber the country's 130,000 reporters gives PR another hold over news outlets; with the media downsizing its newsrooms, the gap between the two is widening. Some of the country's best journalism schools now send more than half their graduates directly into public relations.

PR firms also keep a watch on journalists. Former *Wall Street Journal* reporter Dean Rotbart, for example, has carved a niche for himself within the PR industry by compiling dossiers on some 6,000 of his former colleagues so that his corporate clients know how to manipulate individual members of the media. Rotbart's firm publishes this information in high-priced newsletters and delivers customized workshops and reports. "If at any point you get a call from a journalist and don't know who it is," Rotbart says, "call up and we will fax you that bio within an hour." Such bios include names of reporters' superiors whom corporations can contact if they want to complain.

IT'S TIME FOR YET ANOTHER LOOK AT HOW THE NEWS WORKS...STEP ONE: A CORPORATION WHICH HAS BEEN CAUGHT ENGAGING IN SOME ILLEGAL OR UNETHICAL ACT HIRES A PUBLIC RELATIONS FIRM...



...AS WELL AS SENDING OUT SLICKLY-PRODUCED "VIDEO NEWS RELEASES" WHICH MANY CASH-STRAPPED LOCAL NEWS DEPARTMENTS AIR VIRTUALLY UNEDITED...GIVING CORPORATE PROPAGANDA THE APPEARANCE OF OBJECTIVE REPORTING...



STEP TWO: THE P.R. FIRM PROCEEDS TO MANIPULATE PUBLIC OPINION IN A VARIETY OF DEVIANT, UNDERHANDED WAYS-- SUCH AS ANONYMOUSLY PLANTING OP-ED PIECES IN THE NATION'S NEWSPAPERS...



STEP THREE: PUBLIC OPINION IS SWAYED BY THIS ONSLAUGHT OF MEDIA MANIPULATION MASQUERADING AS NEWS...SINCE, AS P.R. FIRMS WELL UNDERSTAND, ANY LIE REPEATED OFTEN ENOUGH BECOMES TRUE...



if it wants to manipulate public opinion and government policy. "The best PR is never noticed," is the proud slogan of the public relations industry — but when it is, its downfall is quick. While companies are building up relationships with environmental groups, Hill & Knowlton's Dale Didion feels:

"it might be in both parties' interest at first to keep their relationship out of the news . . . Work out early how and when the relationship will be announced to the media — and what measure should be taken if word leaks out prematurely".³⁸

When the public does catch on to PR activities, astroturf organizing can quickly become ineffective. For example, the Department of Energy's PR campaign to counter the hostility provoked by its 1987 plan to store high-level nuclear wastes at Yucca Mountain, Nevada, ran aground when it was exposed. The campaign included television adverts for the plan, hiring local reporters to present the "industry's side of the story", and training Department of Energy scientists to act as a "scientific truth response team" to reply to critics. The goal of the campaign was to "reduce the public's concerns over safety".³⁹

In 1991, however, President of Florida Power, Allen J. Keesler, wrote to other members of the Edison Electric Institute, as association of US electrical utility companies, asking every member engaged in nuclear energy production to help fund the PR campaign which he described as aimed at developing a cooperative environment in Nevada so that the nuclear waste repository could proceed.⁴⁰

Nevada's anti-nuclear forces were outraged when his letter was leaked to them. For weeks afterwards, newspapers and television featured scathing attacks by state officials. Nevada Senator Richard Bryan demanded an explanation from Energy Secretary James Watkins regarding the role of his department in the PR campaign. Governor Bob Miller wrote to the governors of other states with nuclear power plants, challenging the

propriety of using ratepayers' funds to persuade Nevadans that they ought to accept the nuclear wastes that no other state wanted. In June 1992, a survey showed that after seeing advertisements promoting the waste dump, only 3.3 per cent of respondents reported an increased level of trust in the repository programme while almost 41 per cent were less trusting and the remainder were unchanged.⁴¹

Enclosing Democracy

The reality is that, far from participating in the democratic process, the PR industry is actively working against it. As Australian scholar Alex Carey writes, the 20th century:

"has been characterized by three developments of great political importance: the growth of democracy; the growth of corporate power; and the growth of propaganda as a means of protecting corporate power against democracy".⁴²

Propaganda is different from ordinary discussion, or what Carey calls "education". The latter cannot determine in advance what the goal or end of a discussion will be, but seeks to "open minds to arguments for and against any particular conclusion", with goals and ends changing, depending on local give and take among the participants and on new evidence and views that come to light.

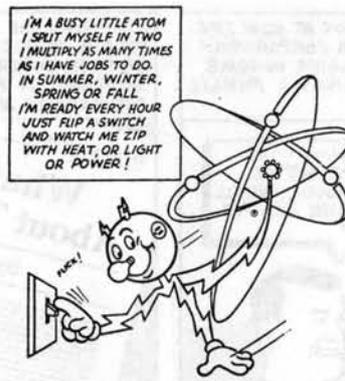
PR, on the other hand, attempts to set in advance what the goal or end of discussion is to be: to bring "some target audience to adopt attitudes and beliefs chosen in advance by the sponsors of the communication". This goal is not to be adjusted, no matter what new evidence or views come to light.

For Edward Bernays, a pioneer of public relations following his successful propaganda efforts for the US government during the First World War, manipulation of public opinion was not only excusable, but necessary. Democracy, Bernays thought,

could avoid chaos *only* if it were enclosed within an elitist, authoritarian structure:

"The conscious and intelligent manipulation of the organized habits and opinions of the masses is an important element in democratic society. Those who manipulate this unseen mechanism of society constitute an invisible government which is the true ruling power of our country . . . We are governed, our minds are moulded, our tastes formed, our ideas suggested, largely by men we have never heard of. This is a logical result of the way in which our democratic society is organized. Vast numbers of human beings must cooperate in this manner if they are to live together as a smoothly functioning society . . . In almost every act of our daily lives, whether in the sphere of politics or business, in our social conduct or our ethical thinking, we are dominated by the relatively small number of persons . . . who understand the mental processes and social patterns of the masses. It is they who pull the wires which control the public mind."⁴³

The PR professionals who strive to manage our opinions and emotions in the way that Bernays advocated do so, not because they are malevolent, but because PR is financially rewarding. From their point of view, they are simply providing a service to paying customers. It PR poses a threat to democratic practices, it is ultimately a manifestation of the deeper contradiction in corporate societies — the gap between the dream of governance "by the people, for the people" and the reality of a society deeply



"Reddy Kilowatt", the PR mascot of General Electric

divided by unequal access to wealth and power. As one Ketchum PR employee has confessed, "There is a new censorship in this country, based on nothing but dollars and cents".

There is nothing wrong with many of the techniques used by the PR industry — lobbying, grassroots organizing, using the news media to put ideas before the public. Indeed, ordinary citizens have the right to engage in these activities, to participate in the decisions that shape their lives and to organize for social change — better working conditions, health care, fair prices for family farmers, safe food, freedom from toxins, social justice, and a hu-

mane foreign policy. But ordinary citizens cannot afford the multi-million dollar campaigns that PR firms undertake on behalf of large corporations, business associations and governments.

Ironically, the very existence of the PR industry proves that it is possible to stop the enclosure of democracy and for genuine democratic movements to emerge. The fact that corporations and governments feel compelled to spend billions of dollars every year manipulating the public is a perverse tribute to the ability of ordinary people to influence and change their society around them.

This article is extracted from *Toxic Sludge is Good For You: Lies, Damn Lies and the Public Relations Industry* by John C. Stauber and Sheldon Rampton, Common Courage Press, Box 702, Monroe, Maine 04951, USA, 1995, \$16.95, (plus \$3 postage and packing).

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Mangolds, Manure and Mixtures

The Importance of Crop Diversity on British Farms

by

Tracey Clunies-Ross

The need to reduce the use of chemical fertilizers and pesticides in British agriculture has become increasingly apparent and accepted. But unless there is increased diversity at the level of field, farm and region, chemical-free agriculture is likely to leave crops vulnerable to pests and disease. Current legislation and marketing structures, however, militate against greater diversity within agriculture. Wider structural changes are crucial if farmer's livelihoods, people and the environment are to be safeguarded.

The social and environmental impacts of modern intensive farming — from pollution to debt and dispossession — are now well-documented and argue for radical changes in agriculture and food production.¹ Even within mainstream farming circles, there is increasing recognition of the need to reduce the use of chemical fertilizers and pesticides and to embrace more “environmentally-friendly” forms of farming.

Such moves are welcome, but the problems of modern agriculture do not begin and end with chemicals. Chemical-free agriculture would certainly be less polluting — not only of the environment but also of food and people — and would diminish the agrochemical industry's influence over farmers and farm policy. In the absence of wider changes within farming and food marketing practices and structures, however, chemical-free agriculture might also exacerbate vulnerability to crop failure.

To make this point is emphatically not to argue for retaining chemicals in agriculture. On the contrary, one of the major



Robert Loxton

Lessons from History

One hundred and fifty years ago — long before the advent of chemical farming — the failure of the Irish potato crop vividly brought home the dangers of growing genetically uniform crops over a large area. Descended from a few plants originally brought to Europe from the Americas in the late fifteenth century, all the potatoes grown in Ireland in the seventeenth century (as in the rest of Europe at the time) shared a susceptibility to blight (*Phytophthora infestans*), an airborne disease which causes potatoes to wither and rot. In the summer of 1845, the disease broke out throughout Europe, having crossed the Atlantic in a diseased tuber. The Isle of Wight, even then famous for its market gardens, was the first county in England to be hit, its potatoes withering in the ground

almost overnight. Within a month, the blight had spread to Kent; one large grower reported that his whole crop of potatoes, both early and late, was “entirely destroyed”. By October that year, Ireland had succumbed. There was hardly a sound potato to be found in the whole of the northern county of Armagh: in the South, crop failure was widespread in Bantry and Clonakilty. In Monaghan, Tyrone

reasons why crops today are vulnerable to pests is that chemicals have killed off many of their natural predators and have enabled farmers to abandon crop rotations and mixed cropping practices in favour of monocultures. It is, however, to argue that reducing the use of chemicals without accompanying steps to diversify crop production at the level of the farm and the region invites potential disaster.

Tracey Clunies-Ross is an Associate Editor of *The Ecologist* and author of *The Politics of Industrial Agriculture*, Earthscan, 1992

and several other counties, it was reported that "potatoes bought a few days ago, seemingly remarkably good, have rotted."² Within months, a large part of the Irish potato crop had been decimated. There were further losses the following year, 1846, and in 1847, the entire crop was destroyed. Without resistant varieties of potato to plant, the Irish peasants could do nothing. Denied access to other food, hundreds of thousands starved.

In the Bank . . .

Since the Great Famine, plant breeders have sought to safeguard against similar tragedies by establishing plant collections from which genetic material can be drawn to be bred into existing varieties of crops — or crossed with older varieties — to create new strains which are more resistant to disease or insect pests than their predecessors. This work was set in train by Russian scientist Nikolai Ivanovich Vavilov, whose legendary plant collecting expeditions in the early twentieth century laid the foundation for the world's first collection of genetic material. Today, a worldwide network of such gene banks exist, supplying plant breeders with seeds, plants and plant tissue from which the genetic material for breeding programmes can be derived.

Many scientists are convinced that there is now enough genetic diversity preserved in gene banks to breed plants to suit almost any set of circumstances. Others are less sanguine, pointing to the numerous problems that beset gene banks (*see* Box, p.183) and arguing that gene banks are no substitute for diversity in the field and on the ground. One reason, as Jeremy Cherfas, Head of Genetic Resources at the Henry Doubleday Research Association, points out, is that *in situ* conservation preserves the robustness of varieties and makes their qualities more visible:

"It is no good simply having the potatoes locked up in government or private collections; they need to be out there, growing and exposed to all the challenges going, to make their qualities visible. In past epidemics, such as the outbreak of Wart Disease that devastated [potato] crops in 1910, it was sharp-eyed inspectors who noticed that one variety, Golden Wonder, was apparently immune, and from that observation, and that variety, come most of the immune varieties available today. The more

varieties are out there growing, in as many places as possible, the more likely we are to discover valuable traits such as resistance."³

. . . Or in the Field?

Indeed, diversity in the field could provide many of the answers to concerns raised by reliance on an ever-growing armoury of chemicals to "protect" against pests.

In organic gardening, for instance, "companion planting" — growing a row of one type of plant adjacent to a row of another type to provide protection, nutrients or some other symbiotic benefit — has long been promoted as a means of pest and disease control. Permaculturists also attempt to maximize the use of space, sunlight, soil and nutrients by cultivating together plants with different canopy levels and different root levels. Yet within conventional farming circles, diversity within the field is rarely practised. In the vast majority of British agriculture, a stand of just one variety of a crop is grown on its own in a field. Even on organic farms where the philosophy of rotations encourages the planting not only of different crops in adjacent fields but also of different crops following each other in the same field, the growing of different crops, or different varieties of the same crop, *within* a field is rare.

Research undertaken by Professor Martin Wolfe, first at the Plant Breeding Institute in Cambridge and more recently at the Swiss Federal Institute of Technology, suggests that growing such mixtures of different varieties of the same crop can dramatically slow down the advance of fungal diseases in cereals. Wolfe argues that the greater the continuous acreage of one variety that is presented to fungal diseases, the greater the likelihood that new fungal strains will evolve which can overcome a crop's genetic defences. The solution is not to develop a "super-chemical" or a "totally resistant variety", but to "throw up as many obstacles as possible to keep 'tripping up' the fungus as it strives to conquer new varieties and fungicides."⁴ In Wolfe's view, this "tripping up" can best be achieved by growing together in one field mixtures of crop varieties which have different resistance mechanisms. In former East Germany, for example, where (until unification with West Germany in 1990) some 350,000 hectares of barley were grown in

mixtures to produce malt for the brewing industry, powdery mildew (an airborne disease affecting spring barley) was controlled without the use of chemicals.⁵ In Poland, too, over a million hectares have recently been planted with mixtures of either barley and oats, or barley, oats and wheat, while in the United States, at least 100,000 hectares of wheat mixtures have been planted.⁶

Diversity within Farm and Region

However, diversity is not only important within fields: if crops are not to succumb to pests and diseases, it is also important at the level of the whole farm. Within Britain, such diversity has declined significantly in the last 50 years as farms have tended to specialize in either livestock or crop growing, and have concentrated on the few varieties that they can grow best. In the process, farmers have abandoned the use of crop rotations — planting different crops in different fields in different years — which, without chemicals, are essential to build up soil fertility as well as to restrict the spread of pests and diseases. In the east of England, for example, many farms now grow "continuous cereals": without breaks either spatially or over time, pathogen levels can rise unhindered by anything other than chemical control (although chemical control can in itself create further epidemics when pathogens become chemical resistant).

In addition, a limited number of varieties of any one crop now dominate farms across Britain. New varieties of cereals, for instance, are developed and tested nationally, and then marketed to farmers all over the country. Although the top varieties may be placed in slightly differing orders on regional recommended lists, varieties will not be developed and promoted if they are suitable only for a specific region. The tendency is, therefore, for large proportions of an area sown to any one crop to be dominated by just a few varieties, at most, of that crop. The result is an agricultural industry in which, of the 150 varieties of potato available in Britain, 10 of them account for more than 70 per cent of the acreage planted to potatoes.⁷

The problems associated with widespread planting of a single variety were clearly demonstrated in 1974 when 30 per cent of the entire UK wheat crop was

Gene Banks or Gene Morgues?

The US National Seed Storage Laboratory (NSSL) at Fort Collins, Colorado, is just one of several "gene banks" worldwide where the seeds of thousands of plant varieties — many of them no longer cultivated by farmers — are stored in neat laminated foil pouches against the day when their geneplasm might be required by plant breeders to improve crop performance or to overcome crop failure. Protected by 12-inch reinforced concrete walls, vault doors, security systems and a steel roof, the Colorado lab's 262,000 "accessions" (as seed samples are known) are, say its operators, safe from fire, tornado, vandalism and even terrorism.

For many plant breeders, Fort Collins and other gene banks offer the ultimate safeguard against the loss of genetic diversity in the field. Others argue that the world's gene banks are in such a deplorable state that many of the varieties stored in them can never be regrown. Major M. Goodman, professor of crop science at North Carolina State University, put the issue bluntly:

"In many cases, I would maintain that seed banks holding collections are really seed morgues. What goes in is not going to come out alive."

In some cases, seeds have been destroyed through human or mechanical failure. Examples include the breakdown of the cold storage unit at the International Centre for Research in Semi-Arid Tropics in India and the drying of seeds at the wrong temperature at Fort Collins. A 1991 investigation by the US National Research Council found that many entries in the database for the US National Plant Germplasm System had no data on the latitude and longitude where each plant was grown, its identifying characteristics or the ecology of the location. Without such information, the accession was next to useless.

Henry L. Shands, associate deputy administrator for genetic resources of US Department of Agriculture's Agricultural Research Service, warned in November 1994 that:

"Over 25 per cent of the accessions are unavailable and the number is increasing. One quarter of the samples at the National Seed Storage Laboratory don't meet the long-term storage viability goal of 65 per cent germination and backlogs of grow-outs are as much as 20 years for some species . . . For the 50 per cent of the germplasm still not backed up in the base collection at the NSSL, there is little protection from genebank erosion and consequent genetic loss."

The problems experienced in the United States are magnified in many other parts of the world where funds are in shorter supply and the technologies of storage less sophisticated. As Fred Powledge reports in *Bioscience*:

"In 1992, a team of Western scientists inspected the former Soviet system and found deteriorating collections, skeleton staffs of loyal but dispirited workers, broken and inadequate equipment, and a general lack of funds and optimism. Some 350,000 accessions were at risk. The *Allium* collection in Olomouc, Czech Republic was in deplorable shape. Workers had managed to plant the 800 varieties of onions, leeks and related species in order to regenerate the collection, but there was no money to harvest the crop."

The collection was only saved after the UK gave a grant of US\$30,000.

Mechanical failures apart, even seeds stored under

ideal conditions will not survive indefinitely unless the seeds are periodically grown out in the field and new seed is collected and returned to the bank. As the crop is grown out, some seeds will fail to germinate, and of the plants that grow, some will fare better than others with the result that, each time it is grown out, the crop adapts a little more to the current growing conditions. Some seeds within the sample will also store better than others, however; a longer period of time in the gene bank encourages adaptation to conditions in the gene bank rather than in the field. But the more often the crop is grown out, the less likely it is to replicate exactly the diversity and characteristics of the original crop. Thus both growing out and simple storage result in "genetic drift".

Different crops, different varieties and different individuals within the varieties will survive for varying lengths of time in storage. Under ideal conditions, wheat seed may remain viable for a few hundred years, while barley has reportedly sprung back to life after 33,500 years. On average, however, a gene bank needs to grow out all its seeds every 10 years or so. The less often the seed is grown out, the lower the germination rate will be, while the more often the seed is grown out, the more exaggerated will be the genetic drift. As Cary Fowler and Pat Mooney explain:

"The dilemma is clear. If germination rates in the seed bank are to be allowed to only drop five to ten per cent before regeneration, frequent grow-outs will be required, exposing the sample to inevitable losses. If, on the other hand, germination rates in the banks are allowed to deteriorate beyond those percentages in order to avoid the dangers of regeneration, then more and more diversity will be lost in the bank itself as the samples suffer the effects of storage . . . While technical conditions in gene banks can be improved, a certain amount — perhaps a very large amount — of genetic erosion will nevertheless take place."

Professor Browning, a plant pathologist from the US, questions the value of storing samples of crops in seed banks away from the agro-ecosystems of which they form a part. Arguing for *in situ* conservation, Browning maintains that crops and their pathogens evolve as part of a single process:

"When we store samples from these populations in germbanks, we stop the evolution . . . of our crop progenitors while allowing that of the pathogen or insect to continue on our commercial cultivars."

To stop "the evolution in half of the host-parasite system, while allowing that in the other half to continue", he argues, may actually lead to the sought-after characteristics losing some of their importance. If, for example, a variety has particularly good disease resistance or yield, the chances are that these characteristics will have been bred into its successors before it becomes obsolete. However, if the reason for a particular variety's loss of popularity is, say, its lack of suitability for harvesting by mechanical means, or its inability to withstand long-distance travel, it is possible that at some future date, these drawbacks may no longer seem so important. At that point, however, if the variety is multiplied up and widely distributed, it is unlikely that it will be able to withstand the new strains of pest and disease which have evolved over the decades since it was first put in the gene bank.

planted with Joss Cambier, a variety which is susceptible to yellow rust fungus. Following an outbreak of the disease, fungicides were sprayed, often from the air, on an unprecedented scale, the first time fungicide spraying had taken place on a nationwide scale.⁸

Since then, the National Institute of Agricultural Botany (NIAB) has actively promoted a degree of diversity on the ground, a 1994 publication on cereals stating:

"If a single variety is grown over a large acreage, the entire area will be vulnerable to infection by the same race of yellow rust or mildew. It is therefore a wise precaution to grow at least three varieties on the farm, chosen in such a way that the risk of disease spreading from one variety to another is reduced . . . This can be achieved by [selecting] suitable combinations of varieties to sow in adjacent fields, particularly if winter and spring varieties have to be grown close to one another. The same principles apply when choosing varieties to sow in a field in successive years or in a seed mixture."⁹

Despite this advice, the limited number of varieties actually recommended by NIAB for planting means that even farmers growing three different varieties on their farm may well be surrounded by farmers growing the same three varieties. The presence of limited diversity at farm level, though progress of sorts, may therefore fail to stop regional or nationwide pest and disease problems. In 1993, for example, orange wheat blossom midge spread rapidly across south and east England, causing serious damage to the wheat crop.

Limited Options

Many farmers in the UK and other countries are well aware of the importance of diversity on the ground, but are not often in a position to diversify their crops. Caught on an economic treadmill, they must plant what they can profitably sell, being constrained in their choice of crops by marketing structures, including wholesalers and supermarkets, which demand large quantities of standardized produce; and by food processors, from flour millers to crisp manufacturers, which demand specific varieties of crops; as well as by legislation which limits the availability of seeds.



Robert Loxton

The sale of seeds has gradually become more stringently regulated during the twentieth century. A government review of the 1920 Seeds Act, published in 1957, recommended "the certification of seed stocks . . . and the keeping of unsuitable varieties and strains off the market",¹⁰ recommendations which were carried through in the 1964 Plant Varieties and Seeds Act. This Act established a system for testing varieties for their "suitability", and created a National List of those which were deemed to be sufficiently "distinct, uniform and stable" (the DUS tests). A fee for carrying out DUS tests was instituted, as well as an annual fee for maintaining a variety on the List. In addition, varieties on the List became the subject of "plant breeders' rights", giving the breeder of new varieties exclusive control over the production and sale of the variety's reproductive material. The Act thus dramatically shifted the emphasis of seed regulation away from protecting the purchaser of seeds towards protecting plant breeders.

By the early 1970s, once the listing system was developed and in place, it became illegal either to sell seed that was not on the UK National List or to sell it under a name that differed from that on the List. Following Britain's entry into the European Community in 1973, this List was harmonized with the lists of other EC countries to form a Common Catalogue.

Inevitably, these regulations have discouraged the growing of unusual or minority crops. The high annual fee for maintaining varieties on the List means that varieties of cereals, or even vegetables, which do not sell in sufficient volumes are dropped from the List, even if there is still a demand from some farmers

or gardeners, making it illegal to buy and sell the seed.

These regulatory pressures, which have narrowed the range of varieties available to farmers, have been exacerbated by recent trends in the plant breeding industry. Under Margaret Thatcher's government, Britain's publicly-owned plant breeding institutes were progressively sold off. Privatization has placed plant breeders under further pressure to concentrate on developing varieties which sell in large volumes, enabling them to recoup their investment in research and development. As most farmers use chemical fertilizers to enhance yields and chemicals to control pests and diseases, plant breeders have concentrated on varieties which respond well to artificial nitrogen while giving a lesser priority to breeding in resistance to diseases which are easily chemically controlled. In competing with each other to produce varieties which will sell in volume, plant breeding companies have tended to develop crop varieties with the same set of characteristics, thus concentrating plant breeding effort on a narrow range of the potential spectrum.

Ownership and Supply

Changing patterns of seed ownership, particularly as smaller companies have been taken over or amalgamated and ownership of varieties concentrated in fewer hands, have exacerbated these pressures. In the last few years, for example, Scottish seed potato producers have found their freedom to buy, sell and grow certain varieties of seed potatoes increasingly curtailed. A handful of companies — notably Nickerson Seeds, Scott and Newman, and Cullen Allen — with rights over the reproductive material of popular varieties, have chosen to prevent growers and merchants from buying and selling seed potatoes on the open market. Instead, restricted contracts are being offered which require growers to sell seed potatoes, at a fixed price, back to the company which provided the seed, thus preventing them from selling on to other farmers. Farmers attempting to grow seed potatoes from controlled varieties without permission have been taken to court for breach of the plant breeders' rights.¹¹

The possible long-term effects on diversity in the field of these practices are multiple. Firstly, rights' holders can influence the acreage and price of the

varieties they control, thereby affecting the mix of varieties that is actually grown. Secondly, the current system of plant breeders' rights affects the profitability of the Scottish seed potato industry compared with the Dutch or Irish industries where controls may operate differently, thus giving transnational companies the power to determine where potatoes shall be grown. And thirdly, the control of seed potato production in Scotland, one of the principle suppliers of reproductive material for English potato growers, has a knock-on effect on the varieties being grown in England.

The Supermarket Shelf

Another factor affecting the choice of varieties planted by farmers is the decisions and preferences of those who buy the harvested crops. Farmers grow food for consumers — but only a fraction of the crop goes directly from the farmer to the consumer. It is intermediaries, such as supermarket buyers, millers and processors, who exert the real influence over what is grown in the field and on the farm.

About 70 per cent of food consumed in Britain is now bought at supermarkets. Supermarket chains buy in considerable bulk and, in order to service their widespread outlets, must receive specified quantities at specified times. Such a system does not allow for the vagaries of the growing season — late springs, heavy rains, drought and the like — even for fresh produce.

Farmers selling through these outlets have to do their best to make their growing systems fit the deadlines, rather than selling their produce as it becomes available. Supermarkets tend also to require produce to fall within a specified range of acceptable sizes, shapes, colourings and markings and to be supplied in large quantities.

To secure their supplies, supermarkets have developed a system of forward contracts which takes their need for standardized uniform products back out into the field. As a recent study of food retailing in Britain observes:

“Growers who supply supermarket chains are given specifications for every crop, detailing the variety to be grown, the approved seed supplier, when to plant, how to treat the growing crop, and the method and timing of harvest.”¹²



Robert Loxton

A Tale of Two Growers

Such a system may help the grower meet the supermarket's targets, and the supermarket meet its need for uniformity and quantity, but it does little to promote diversity in the field and can easily undermine it. In the 1980s, for example, as organic growers began to produce more volume than they could easily sell through local markets, more and more of them looked to supermarkets to take their produce. One 30-acre horticultural holding in Hampshire decided to put 75 per cent of its output through two supermarkets. However, the expense of meeting the supermarkets' rigorous standards in grading, packing and labelling put an enormous strain on the growing system. Those parts of the rotation which did not bring in revenue, such as fallows or ley breaks (required to build fertility and break pest and disease cycles) were reduced or eliminated and, in consequence, disease increased. In 1990, as the problems spiralled out of control, the holding folded.¹³

In contrast, where farmers have avoided marketing through supermarkets — or have abandoned doing so — they have been able to retain or increase diversity. In Devon, for example, Jan and Tim Deane used to supply supermarkets, but have changed over to a direct marketing system involving the sale of boxes of mixed vegetables direct to the consumer. Instead of having to produce large volumes of single crops on particular dates, they now grow a range of crops over an extended season, planting over 50 crops instead of 12.

Direct marketing to the local community, contact with their customers and a reduction in the emphasis on financial returns from each individual crop has

allowed the Deanes to increase the diversity on their holding, both in terms of the range of crops grown and the varieties chosen. Larger farms which sell through intermediaries do not have the freedom to pursue this approach, thus restricting the diversity in British agriculture.

White Sliced Bread

Nor does the pressure on farmers stop with the supermarkets. The food processing industry also has immense influence on what is grown and how. In the cereal sector, for example, most wheat used by millers is milled into flour for breadmaking, which accounts for 64 per cent of flour production, or some 3.25 million tonnes a year.¹⁴ As John Bingham and Peter Payne, leading plant breeders for Plant Breeding International (Cambridge) explain:

“The predominant bread manufactured in the UK is white, wrapped and often sliced, and is made by The Chorleywood Process. This process was invented at the present Flour Milling and Baking Research Association in 1961 and as well as shortening and simplifying the bread-making process, it enables weaker mixing UK wheats to replace high-protein, strong wheats from North America. The wheat breeder has therefore to try and produce varieties whose doughs have the correct viscoelastic properties to make such bread. The doughs they produce must not be too elastic or too extensible. The grain must also be able to consistently achieve a protein content of 11.0 or 11.5 per cent in association with high yields, have a high specific weight and be resistant to sprouting.”¹⁵

Thus the wheat breeding industry is totally geared towards meeting the needs of the main “end users”. If the dominant end use of wheat is white bread, then breeders attempt to develop wheats which will suit the baking process better — these are the wheats which will be most in demand by farmers because they offer the best economic returns. In 1993/4, 55 per cent of UK flour was used to make white bread, 15 per cent for biscuits, 15 per cent for starch, 4 per cent for brown bread, 4 per cent for wholemeal bread, and 4.5 per cent was prepacked and sold direct to consumers.¹⁶ (Most of the wheat crop

which is not milled for flour is produced for animal feed.) Consequently, current wheat breeding programmes in the UK concentrate on developing hard-milling bread-quality wheats, soft-milling biscuit wheats and hard-milling feed wheats.¹⁷

Certain end users, such as wholemeal bread makers, are not deemed sufficiently important by plant breeders for their needs to be given a high priority, even though their needs can be very different. Whereas white flour must be sieved, for instance,

and is therefore best made from hard-milling wheats which do not clog up sieves, wholemeal flour is not sieved and, particularly stoneground flour, is best made from soft-milling wheats which require less energy to mill. One of the best soft-milling varieties suitable for breadmaking is Flanders, which was recently removed from the National List after 18 years, making it illegal to buy and sell. Such de-listing of varieties still in demand by at least some farmers and end users is not unusual.

The Plant Breeders' Treadmill

Ironically, many of the pressures on farmers are mirrored by those on plant breeders. They are constrained not only by the genetic material available, but also by the markets into which they have to sell and by the activities of their competitors. Decisions about developing a wheat that satisfies the needs of wholemeal bread-makers, for example, when white bread is the dominant end use; about developing a variety with resistance to a disease which can be "controlled" by a pesticide; and about pursuing yield at the expense of bread-making qualities are all decisions which, following privatization, are influenced solely by the market.

Moreover, as plant breeding has become more sophisticated than performing simple crosses between two varieties, it has also become much more expensive. Today, it may take eight generations from an initial cross between two varieties of wheat before a new variety is ready to be submitted for the DUS tests necessary to gain a place on the National List. To achieve commercial success, a variety must go through another three years of trials by the National Institute of Agricultural Botany, and be placed on a recommended list. Only five to eight per cent of varieties which may seem promising to breeders in the early stages make it through to the NIAB recommended list, and even those which get this far are unlikely to last more than ten years before being replaced by newer ones.

The result is a treadmill that powers itself. New and successful varieties coming onto the market are widely recommended and planted; a few varieties come to dominate the acreage planted in any one year. This exerts selection pressure on pests and diseases so that within a short period of time, plants lose their resistance to pest and disease attack and have to be replaced with newer varieties. Plant breeders therefore have to be constantly developing new varieties to replace those already on the List.

The pressure of this plant breeding treadmill has been sufficient to divert effort away from the development of crops or varieties with minority end uses. Varieties which are not considered commercially viable are constantly being dropped from the National List, and whole areas of research have been virtually abandoned because the potential economic return does not justify the development costs. The needs of organic farmers and

CNS

Capitalism Nature Socialism

A Journal of Socialist Ecology

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growers are a case in point. More could undoubtedly be done to develop varieties suitable for organic systems, but the potential market does not currently warrant the expenditure by plant breeding institutions.

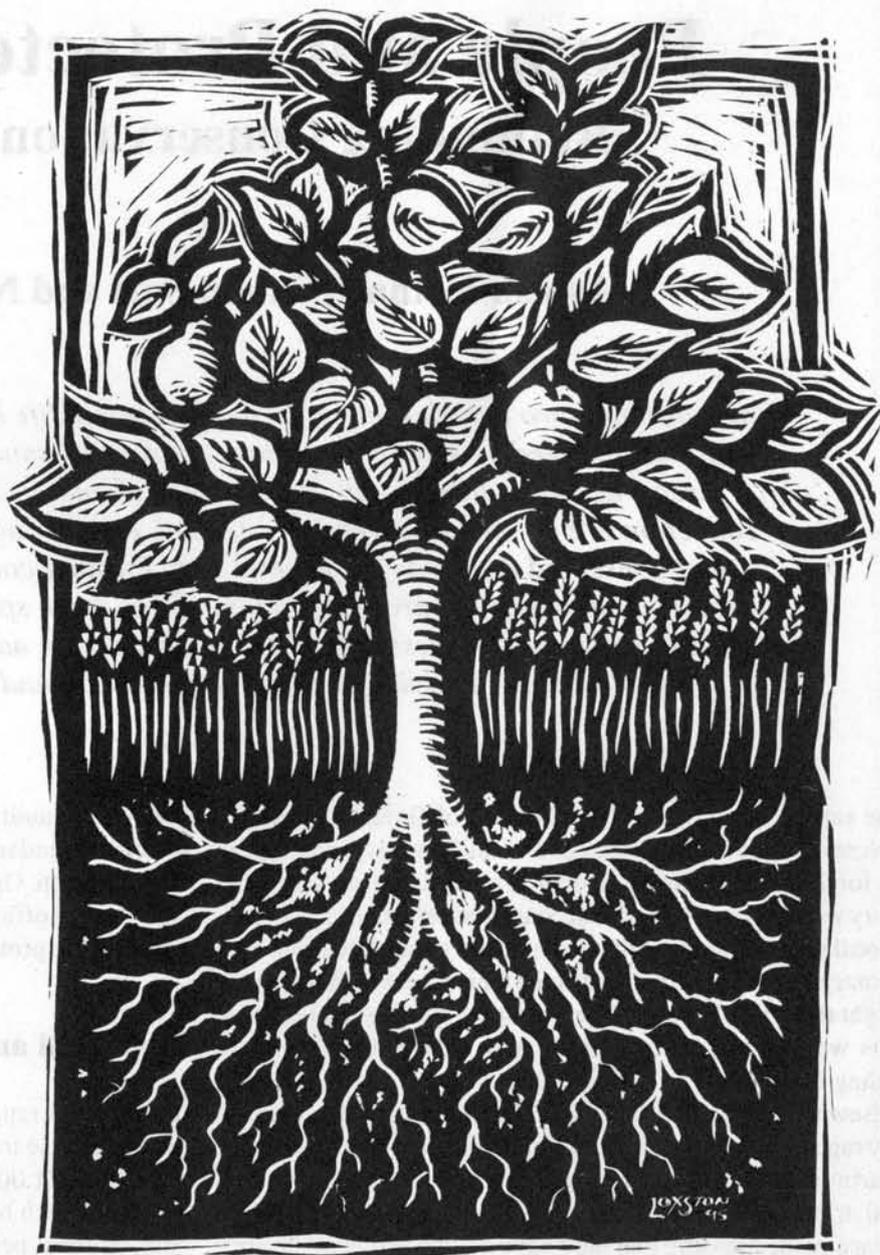
The locking-in of plant breeders to the treadmill is thus another cause for diminishing diversity in the field. Crops such as mangolds, once commonly grown to feed animals over the winter, have been replaced by fodder beet, which responds better to nitrogen fertilizer, leaving a minority of organic farmers without access to their preferred crop. Combined pressures on plant breeders and farmers have also led to a decline of grasses such as Common Vetch, Kent Wild White Clover and English Trefoil, which were traditionally grown in mixtures that fixed their own nitrogen. Today, Italian ryegrass, which has a ready response to nitrogen fertilizer, accounts for some 90 per cent of the grass seed sold in Britain.¹⁸

Ways Forward

Historically, diversity in the field has always proved the best protection for farmers against pests and disease. Over the last 50 years, however, diversity has been progressively abandoned in favour of chemical control, trapping farmers, plant breeders and chemical manufacturers alike onto a treadmill which is running faster and faster, as pests rapidly overcome the resistance of new plant varieties to disease or as they develop resistance to new pesticides.

As the need to reduce chemical use in agriculture becomes increasingly apparent — and accepted — so the need to put diversity back at the heart of farming becomes critical if crop failures are to be avoided. As long as marketing structures, processing techniques and seed legislation pressure farmers to specialize in growing a limited range of genetically uniform crops, there is little possibility of such diversity being achieved. The key to greater diversity on the ground may well lie less in new plant-breeding programmes or techniques than in a combination of innovative arrangements between farmers and consumers and political pressure to change the economic and regulatory framework in which farmers have to farm. One without the other is unlikely to succeed.

This article is edited from a discussion paper, *Seeds, Crops and Vulnerability: A Re-Examining of Diversity in British Agriculture*, by Tracey Clunies-Ross, published by *The Ecologist*, price £15, available from the editorial office.



Robert Loxston

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People and Protected Areas

Rethinking Conservation in India

by

Ashish Kothari, Saloni Suri and Neena Singh

For more than two decades, attempts to protect wildlife and wildlife habitats in India have been pursued by setting up national parks and sanctuaries. In these protected areas, however, human activities such as animal grazing and forest produce collection are banned or severely restricted, even though people may have lived in and conserved the areas for generations. Ensuing conflicts, particularly when combined with industrial pressures on the areas, have spurred many conservationists, social activists and forest officials to reconsider on national and local levels the artificial divide between conservation and human rights.

In the early 1990s, the West Indian state of Gujarat "delisted" the Narayan Sarovar Sanctuary as a wildlife reserve, paving the way for limestone mining and the construction of a cement factory within the park. National conservation groups protested, but local villagers supported the sanctuary's denotification. The sanctuary, they argued, had restricted their access to the area and brought them few benefits. The limestone quarries and cement works would bring them jobs — why were conservationists standing in the way?

Elsewhere, in the south Indian state of Karnataka, controversy rages over the Nagarhole National Park where the Forest Department is currently deciding whether or not to evict some 6,000 tribal people from the park. The tribals are resisting displacement, stressing that they have a right to live in the area and that they are critical to its conservation.

In other cases, conflict has arisen where parks and reserves have increased the numbers of potentially dangerous animals — notably elephants, wild boar, tigers, lions, leopards and bears — which have then encroached upon villages, leading to villagers being attacked, livestock killed, and crops and property destroyed. Between 1979 and 1984, the Sunderbans National Park (and Tiger Reserve) reported 192 cases of humans being injured or killed by animals.¹ Crop damage by wild boar and bluebull is so widespread that some states have declared the animals vermin or ordered their elimination.

The resulting hostility felt by local communities to gazetted areas as parks and reserves often manifests itself in protected areas being deliberately set alight,² violent clashes with the police, or attacks on forest staff. Physical clashes between people (local or outsiders) and forest officials have taken place in as many as 47 protected areas.³

Such conflicts pose a serious threat to protected areas and to biological and cultural diversity in India. Indeed, there is increasing recognition that a protection strategy which alienates

local communities, besides being unjust and disrespectful of people's fundamental rights, is also detrimental to wildlife conservation. On the other hand, there are also cases of villagers and forest officials collaborating to resist industrial forces threatening protected areas.

Biological and Cultural Diversity

India's wide range of altitude, rainfall and geological conditions has given rise to an enormous diversity of ecosystems supporting some 81,000 recorded animal species and 45,000 plant species.⁴ Such biological diversity has nurtured cultural diversity, as local peoples have evolved numerous ways of coping with the varying environments on which they depend for their living — environments which they in turn have helped to mould. The country has 4,635 distinct ethnic communities, 325 languages, six major religions and dozens of smaller independent faiths, and ways of life ranging from hunting and gathering through farming and herding to craft working and industrial processing.⁵

The last century, however, has seen a sharp decline in biological and cultural diversity throughout India, the rate of loss accelerating in the last few decades as the development process has taken hold. All over the country, forests, grasslands and wetlands which were controlled by local communities have been opened up to commercial development, a process which began in earnest in the British colonial period when India's forests were placed under state control. Local communities have been transformed from relatively (though by no means completely) independent, self-reliant and self-determining entities to ones dependent on the vagaries of money markets, labour contractors and governments.⁶ The process has been exacerbated by internal changes within communities as their members have been "integrated" to some degree into the industrial economy and mainstream culture and their traditional management practices have broken down or been eroded.

Today, over half of India's natural forests have disappeared

Ashish Kothari is a member of Kalpavriksh, an environmental NGO, and a lecturer at the Indian Institute of Public Administration (IIPA), New Delhi; **Saloni Suri** and **Neena Singh** are researchers at IIPA.

since the beginning of this century; one-third of its wetlands have been drained; 70 per cent of its freshwater lakes and ponds are polluted; and most of its grasslands have disappeared under concrete or been converted to agriculture. Official sources suggest that about 10 per cent of the country's flowering plants, 21 per cent of its mammals and 5 per cent of its birds are nearing extinction⁷ while others — the cheetah (*Acinonyx jubatus*), the pink-headed duck (*Rhodessa caryophyllacea*) and the *Madhuca insignis* tree — are already extinct.⁸

Of the measures which the government has implemented to protect the remaining populations of endangered species, the most important is the 1972 Indian Wild Life (Protection) Act (WLPA), which contained provisions for protecting habitats and establishing an all-India list of protected species. In its wake, there was a spate of protected area notifications as national parks and sanctuaries were set up throughout India, their numbers rising from 131 in 1975 to 496 today.⁹ Parks and reserves now cover some 4.3 per cent of the country.¹⁰

Designation as a protected area has helped prevent a significant part of India's biodiversity from being destroyed by development: in Kerala, the Silent Valley rainforest was saved from a hydroelectric project; in the Gulf of Kutch, approval for a proposed oil refinery has been stalled due to its location near a Marine National Park; and in Orissa, plans to build a luxury hotel complex in the Balukhand Sanctuary have been thwarted. The Act and associated programmes have also saved several species from extinction: the one-horned rhinoceros, *Rhinoceros unicornis*; the Asiatic lion, *Panthera leo persica*; the swamp deep, *Cervus duvauceli*; and the brow-antlered deer, *Cervus eldi*; and many others.

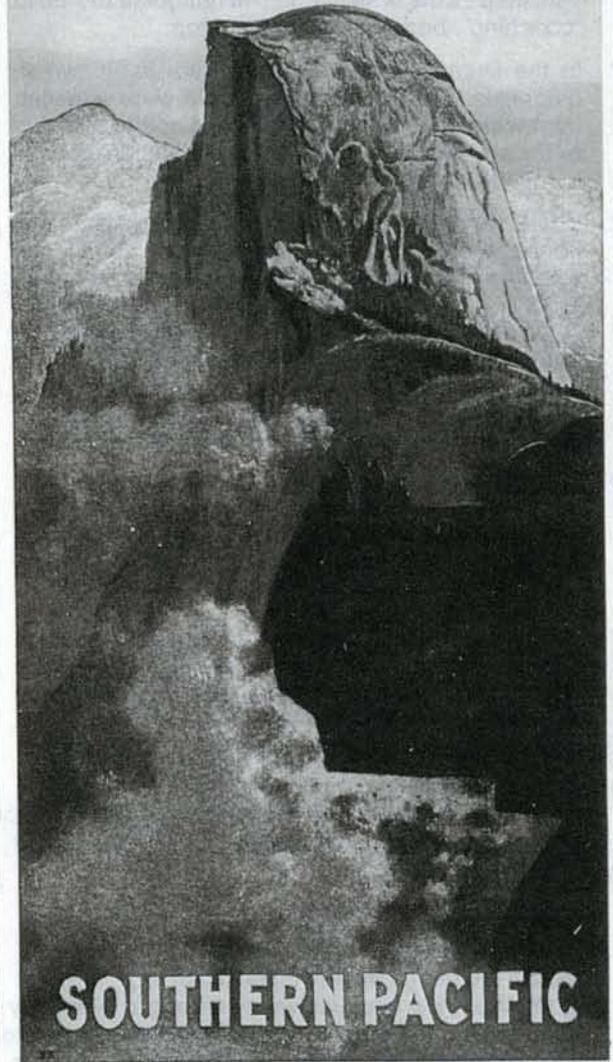
People versus Parks

But there is another side to this conservation story. Countless human communities depend on India's protected areas for their sustenance and livelihood. In the mid-1980s, a national study revealed that 69 per cent of the surveyed protected areas were inhabited, whilst 64 per cent were in areas where local people enjoyed customary community rights, leases or concessions.¹¹ Animal grazing was the most common human activity in the protected areas, taking place in 69 per cent of the surveyed parks and sanctuaries, whilst the collection of non-timber forest products was recorded in 57 per cent of surveyed areas.

The 1972 Act, however, severely curtails human activity in the two categories of protected areas it established: national parks and sanctuaries. Within parks, no human activity is permitted unless it is "in the interests of wildlife"; in sanctuaries, some activities — such as the collection of fruits, fodder, fuel and other forest products, and land-based production activities including agriculture — are permitted, but only at the discretion of the wildlife and civic authorities.

The legislation has thus led to a number of communities being forcibly displaced and relocation has almost always been poorly carried out.¹² In other cases, the authorities have extinguished or curtailed the customary rights of access previously enjoyed by local people, as well as their customary rights to natural resources inside the protected areas. Gathering fuel for cooking and fodder for livestock becomes "illegal", with villagers reporting considerable harassment by forest staff unless they pay the bribes demanded of them. Villagers are rarely told why their rights have been curtailed and are hardly ever offered viable alternatives.¹³

YOSEMITE VALLEY



In the late nineteenth century, many US conservationists maintained that "primitive and natural" wilderness should be preserved untouched. A view of human society as inherently antagonistic to and incompatible with wilderness underpinned the creation of the world's first national park, Yellowstone, in 1872. The resident "sneaking red devils" Shoshone were expelled and many people killed. A similar process took place when the Yosemite National Park was established in 1890. Such views of nature have shaped conservation policies worldwide through the "export" of the US national park model. Bernard Grzimek was single-minded about excluding Maasai cattle herders from the Serengeti Plains in Kenya so as to conserve wildlife. "A national Park" he argued "must remain a primordial wilderness to be effective. No men, not even native ones, should live inside its borders."

Relocation Worldwide

The expulsion of inhabitants from national parks is required by law in many countries, even when there is no evidence that their presence threatens the local ecosystem or biodiversity:

- When the hunting and gathering I!k people were expelled from their hunting grounds to make way for the Kidepo National Park in colonial Uganda, they took up subsistence agriculture in barren highlands, but suffered prolonged famine which led to a total collapse of their society. Traditions of food-sharing vanished as the I!k slowly died of hunger or turned to "poaching", begging and prostitution.
- In the Dumoga-Bone National Park in Sulawesi, Indonesia, the Mongondow people were expelled from watershed forests and forced up the hillsides by the agricultural settlements and irrigation projects in the lowlands.
- Some of the few remaining aboriginal people of Sri Lanka, the Vedda, were forced from their lands when the Madura Oya National Park was set up in 1983 in the water catchment area of the Mahaweli Development Programme. Traditionally hunters and gatherers who supplemented their subsistence with shifting cultivation, the Vedda had difficulties adapting to the sedentary life. Subsequent surveys showed that they were fast losing their own language.
- National parks established to protect mountain gorillas in Zaire, Uganda and Rwanda have entailed the expulsion of the already marginalized Batwa "pygmy" people whose opinions were not sought in subsequent surveys of affected people.
- In Uganda, some 30,000 forest-dwellers and peasant settlers were expelled without warning to create a wildlife corridor between the Kibale Forest Reserve and the Queen Elizabeth National Park.

Such expulsions have been vigorously opposed by indigenous peoples' organizations which are also critical of the concept of "wilderness" as "a place without people". Ruby Dunstan of the N!aka'pamux people of the Stein Valley remarked:

"I never thought of the Stein Valley as a wilderness. My Dad used to say 'that's our pantry'. We knew about all the plants and animals, when to pick, when to hunt. We knew because we were taught every day . . . But some of the white environmentalists seemed to think if something was declared a wilderness, no one was allowed inside because it was so fragile. So they have put a fence around it, or maybe around themselves."

Similarly, Nicanor Gonzales has stated that the Kuna Indians from Panama:

"know how to interrelate humans and nature . . . In this sense, then, I don't believe that you can say that indigenous people are conservationists, as defined by ecologists . . . At no time have indigenous groups included the concepts of conservation and ecology in their traditional vocabulary. We speak, rather, of Mother Nature. Other organizations need to be clear about this before jumping in to solve some problem with the indigenous population."

Source: Colchester, M., "Salvaging Nature: Indigenous Peoples, Protected Areas and Biodiversity Conservation", UNRISD discussion paper, September 1994.

A decision to restrict or halt certain human activities in protected areas has often been taken arbitrarily without any assessment of its impact on the ecosystem or its wildlife, and without any clear statement of the desired conservation objective. Inevitably, such high-handedness, coupled with the almost universal absence of provision of adequate alternatives, have caused great suffering and tension.

"Eco-development" — More of the Same?

To examine the measures needed to generate people's support for wildlife conservation, the government set up a Task Force in 1982. Assuming that it was the rural poor who were responsible for the degradation of habitats, the Task Force urged that protected areas should remain "free of human use" but should be surrounded by a multiple-use area in which "eco-development measures" such as land and water regeneration should be promoted.¹⁴ The objective of these measures was to divert supposed local community pressure on the proposed protected area and to win the support of these communities in protecting wildlife.¹⁵ Subsequent efforts have been sporadic and scattered, with some reported successes in areas like the Karnha, Melghat and Sunderbans Tiger Reserves.

Such "eco-development" projects may well increase in future: India has recently negotiated a grant-cum-loan of \$56 million from the Global Environment Facility (GEF) and the World Bank's International Development Association (IDA) for "eco-development" around seven protected areas. Yet, these proposals do not challenge the structural inequalities which cause conflicts between people and wildlife conservation, nor do they confront the processes which lead to people being evicted from protected areas. In the case of the Gir and Nagarhole National Parks, the GEF "eco-development" proposal states that "all habitation within the [protected area] is now illegal, as is all grazing and other human uses for extraction"¹⁶ — even though many settlements were present and activities going on before the national park was created. In addition, the importance of local traditional knowledge in wildlife and habitat maintenance is not integrated into the project proposals, while the legitimacy of a protected area's legal status is rarely questioned. Whilst the proposals mention the involvement of local people in protected area management,¹⁷ they fail to discuss how this is to be achieved, particularly important given that state governments tend to be unconvinced of the need to do so.

People as Problems?

The legal stipulation that human activities should be severely restricted in protected areas reflects a deep-seated conviction within India's conservation establishment that "ordinary people" and "conservation" are irreconcilably opposed. While some of those who have shaped Indian conservation policy recognized the ecological knowledge and related practices of local communities (indeed, hunters and naturalists relied on this knowledge), official conservation efforts have largely bypassed traditional conservation practices and beliefs.¹⁸ The assumption has always been that wildlife conservation is the prerogative of naturalists, trained ecologists and foresters, and that modern biological science is the only discipline needed to carry it out. Lacking formal training, local people are deemed to have

nothing to offer conservation. Worse still, their way of life is viewed as inimical to wildlife conservation.

These biases have resulted in conflict. In 1980, for example, the Bharatpur Sanctuary, a wetland harbouring over 350 bird species, was upgraded to a national park, and livestock grazing was banned. In one of the worst incidents of conservation-related conflict, seven villagers were killed, protesting against the ban. Yet, a long-term study by the Bombay Natural History Society showed that buffalo grazing was an integral part of the ecosystem, helping to counter the tendency of the wetland to turn into grassland.¹⁹ Other evidence from ecological studies in the Western Ghats and Himalayan pastures, as well as from the Amazon rainforest and African savannah, suggest that biodiversity is not necessarily reduced nor ecosystems destroyed by traditional human activities — though this can of course happen when the traditions break down.

Moreover, far from destroying the environment, local communities are frequently at the forefront of opposition to destructive development. The mass protests staged throughout 1994 by India's fisherfolk against trawling in coastal waters, for example, were prompted by concern for livelihoods and for the ecological health of the seas. Likewise, in Rajasthan, it was local villagers who led efforts to stop quarrying and mining in and around the Sariska Tiger Reserve. Elsewhere, also in Rajasthan, inhabitants of five villages recently declared 1,200 hectares of forest as Bhairodev Dakav "Sonchuri" (Sanctuary). The area is now vigorously protected by the villagers against encroachment. Any violations are dealt with by village councils which have appointed a "Sonchuri" warden.

This is not to deny that traditional practices may, in some cases, no longer be appropriate when certain species of wildlife are dwindling fast. The mass ritual hunting carried out by some communities, for example, or the hunting of mammals and birds by some north-eastern tribes, undoubtedly contribute to wildlife decline. Indeed, tribal groups such as the Naga Students' Association and the Naga Mothers Association have recently appealed to the Naga tribes to stop hunting species like hornbills, whose casques are used as traditional headgear.

Nor is it to deny that, increasingly, local communities put pressure on habitats or become conduits for urban and commercial interests to do so. In the Borivali National Park outside Bombay, for example, land developers regularly encourage poor people to encroach upon the Park — and then take over the land themselves. At least 35 protected areas have been similarly encroached upon. In other instances, encroachment has occurred because local communities no longer have sustainable relationships with their surroundings either because their numbers or those of their livestock have risen, or because their demands have increased in line with urban consumer values. Many forest dwellers in the north-east, for example, have begun to sell off their forests to the sawmills mushrooming all over the region.



Gathering produce from the Sitanadi Sanctuary

Ashish Kothari

The Root Problem

Insisting that people are not "the problem" is, however, to argue that the increasing hostility between traditional wildlife conservationists, on the one hand, and community rights groups, on the other, blinds both sides to potential alliances against a common adversary: the urban-industrial economy which has little concern for biological or cultural diversity, invariably sacrificing them for short-term commercial gains, and which lies at the root of many conflicts between people and parks.

A prime example is that of Rajaji National Park in the Himalayan foothills of Uttar Pradesh where a bitter conflict has developed over the Forest Department's moves to evict local nomadic pastoralists, the Gujjars. The nearby cities of Dehradun, Haridwar and Rishikesh have expanded around the Park; factories, power lines and army camps have now cut off elephant migration routes, thus increasing conflicts between animals and people. The state government has scapegoated the Gujjars for overgrazing in the park while industrial expansion, backed by powerful vested interests, continues.

Commercial pressures on India's protected areas are increasing still further as a result of economic liberalization and structural adjustment policies.²⁰ Coastal and marine areas are threatened by prawn farming and trawling, while Indian and foreign companies are eyeing the mineral deposits in protected areas inland. Several state governments have announced major concessions for industries in "backward" areas which tend to be some the last vestiges of wildlife and plant habitat and certain cultures.

There is also increasing pressure to "denotify" protected areas in order to open them up to commercial activity. In 1991, the Darlaghat Sanctuary in Himachal Pradesh was denotified to make way for a cement factory. Likewise, the Gujarat state government denotified Narayan Sarovar Sanctuary for cement production and has threatened to denotify part of the Marine National Park in the Gulf of Kutch to make way for an oil refinery. In the east Indian state of Orissa, the government proposes to denotify part of the coastal area Bhitarkanika Sanctuary, home to the world's largest congregation of the

endangered olive ridley turtle, to allow commercial fisheries to operate off the coast. In the biodiverse Western Ghats in Karnataka, parts of the Kudremukh National Park have been leased from the state government for mineral prospecting; the Madhya Pradesh state government has offered free landholdings to the tourism industry to set up facilities in the Pench, Kanha and Bandhavgarh National Parks and the Pachmarhi Sanctuary.

Coming Together

Faced with this onslaught, many popular movements are working to break down the artificial divide between conservation and human rights, arguing that one without the other is meaningless and that alliances between conservation groups and social activists are essential if India's cultural and biological diversity is to survive the juggernaut of economic liberalization.²¹

Indeed, many social activists have been singularly lacking in ecological understanding, having as poor a sensitivity towards wildlife as orthodox conservationists have towards local people. Fortunately, that situation is changing as social activists and conservationists talk to each other and realise that the problem does not lie in an automatic contradiction between conservation and human rights, but elsewhere.

There is growing recognition, too, that in many instances neither local communities nor government agencies can protect wildlife and habitats on their own. Communities often lack the resources to tackle threats, especially powerful commercial forces, or ecological problems on a regional scale, while government agencies lack the necessary knowledge and people on the ground and often even the mandate to undertake long-term conservation.

A critical stumbling block towards greater cooperation between local people and state authorities, however, is the intense distrust and mutual suspicion which has built up over the decades between the Forest Department and local communities. Poorly-equipped, badly-paid and frequently the target of well-armed gangs of poachers, forest staff have often taken out their frustrations on local villagers, exercising their powers arbitrarily. Widespread corruption among forest staff is often an outcome of these adverse conditions: a forest guard is more likely to take a bribe than oppose illegal activities knowing he can be shot dead. Often, forest officials are also under pressure from their own state governments which may be more interested in exploitation than conservation; coordination between various government departments remains poor; and political interference often allows poachers to escape prosecution.

But the Forest Department is not a monolith, and there are staff who have managed to oppose commercial and political interests. In the Radhanagari Sanctuary of rainforest in Maharashtra, for instance, bauxite mining, which has strong political backing, has been stalled by a local forest officer who simply dug up the road leading to the proposed mining site. A range officer in the Okhla bird sanctuary near New Delhi exposed and stopped the illegal granting of fishing contracts by the Delhi government and resisted bribes, despite threats to his life. Just outside Corbett National Park, the field director caught a state minister fishing illegally and fined him 25,000 rupees on the spot, risking possible transfer and harassment.

There is thus undoubted scope for alliances between villagers and forest officers in the cause of conservation. Such alliances, however, can only go so far whilst existing wildlife laws — and

indeed the whole bureaucratic and political framework within which conservation operates — impose severe limitations on people's involvement in protected area management and utilization.²² The need for clearer and more flexible legislation concerning people's rights and permitted activities in each different protected area category (the range of which also needs expansion beyond the two existing categories) is thus of paramount importance, as is a mandate to involve local communities in planning and managing protected areas.

A Journey of Exploration

Efforts to explore the possibilities of partnerships between local communities and the local government agencies have already been undertaken by a number of conservation and human rights groups.

Most recently, in January and February 1995, about 35 villagers, activists and researchers travelled through 18 national parks and sanctuaries in western and central India. The "Jungle Jivan Bachao Yatra" ("Save Forest Life Journey") aimed to initiate a dialogue among various local communities living in and around national parks and sanctuaries and between these communities and the Forest Department. Stressing that India's wildlife habitats are rapidly being depleted, despite existing wildlife protection legislation, the Yatra explored various forms of conservation in which forest-dwelling people have participated while maintaining livelihood security. It travelled from place to place holding meetings with villagers, forest officials and NGOs, and observing the various threats that protected areas faced in different places. It found a strong readiness among local communities to participate in conservation and natural resource management, but an equally strong feeling of alienation, as people's traditional access to the forests had been curtailed. It also found several forest officials who recognized the need for a partnership with local people. What became most clear, however, was the hypocritical nature of government policies with regard to wildlife habitats: local forest-dwelling communities are denied their traditional rights and access to forest resources in the name of wildlife conservation, while the same areas are being opened up to commercial uses and elite tourism.

The Yatra concluded that the following steps were needed:

- A clear and strict national policy not to allow industrial, urban and commercial pressures to impinge on protected areas, including a ban on denotifying protected areas for such purposes;
- An official recognition of the legitimate resource rights and needs of local traditional communities, and measures to meet these needs;
- A central role for local communities in the planning, protection and monitoring of protected areas, including in the determination and enforcement of inviolate core zones and sustainable use buffer zones;
- Planning the management of protected areas to be based on a healthy interaction between formal ecological science and traditional knowledge, learning especially from traditional practices which have helped to conserve and use natural resources sustainably.

- Greater sharing of the available benefits of protected areas, including biomass rights, tourism income, employment in wildlife and forest related work, alternative livelihood opportunities and others.

Major Hurdles and Opportunities

The Yatra followed an earlier conference, organized by the Indian Institute of Public Administration (IIPA), in which participants had also stressed the paramount importance of local communities being actively involved in the "joint management" of protected areas. A tentative definition was proposed:

"Joint Protected Area Management (JPAM) is the conceptualization, planning and management of protected areas and their surrounds, with the objective of conserving natural ecosystems and their wildlife, while ensuring the livelihood security of local traditional communities, through mechanisms which ensure a partnership between these communities, government agencies, and other concerned parties."

This definition, however, masks many complications which can only be resolved at the level of each protected area: What are the conservation objectives of the protected area? What are the existing livelihood sources, resource rights and needs of local communities and their impact on the protected area? What are the methods and institutional structures by which joint planning and management can be evolved? How would powers and responsibilities be shared between each partner? How can the stake of local communities in the protected area be clarified?

Exploring those questions — let alone evolving common answers to them — will require more than dialogue between forest officials and local communities, though this is an essential first step. If protected areas are to be managed jointly, through a genuinely participatory process, then the question of whose voice counts in decision-making is critical. Recent studies of Joint Forestry Management (JFM) which is now nearly two decades old in India suggest that rigid structures with government officials in control are likely to fail.²³ However, where there are committed forest officers or strongly-empowered community organizations, there have been notable successes.²⁴

Nonetheless, "joint management" can all too easily become a means whereby the already powerful concentrate their power still further, to the detriment of local communities and the environment alike. Where joint management is imposed from above, it may act to undermine the very community controls that previously served to protect the environment. The appointing of village committees which deal specifically with forests, for example, while bureaucratically neat and appropriate in a context in which wood is a commodity and thus separated from the

rest of social life, is likely to disrupt local organizations which are used to considering forests as connected with agriculture (as water sources or grazing grounds, for instance, or as, say, burial grounds). Similarly, the practice of electing representative forest committees can exclude lower castes and classes and fly in the face of community practices in which each household has to have a voice. This can lead to intra-village conflict and lack of interest in committee projects.

Other quick fixes may also backfire. Putting women on hastily-convened village forest committees may actually marginalize them. This can happen if they are asked to make decisions in an official public arena which they had previously made in a community or household one (for example, about which tree species to plant). In a public arena they are likely to have been taught to be silent, whereas in other arenas they may have more of an existing power base on which to build further struggles for more community influence. Similarly, hiring local forest guards may undercut local traditions of labour exchange and make guards less accountable to locals and more susceptible to bribes.



During the "Jungle Jivan Bachao Yatra" ("Save Forest Life Journey") various local communities living in and around national parks and sanctuaries discussed protected area issues among themselves and with Forest Department officials.

Ashish Kothari

A Difficult Road . . .

Such problems highlight the need to place "joint management" in context. Undoubtedly joint management of protected areas in India is an idea whose time has come: indeed, without partnerships in conservation both wildlife habitats and local communities will continue to fall prey to the forces of destruction. But partnerships that fail to address the power relations between the partners are unlikely to succeed. Fortunately, new and vocal alliances which cut across the divide between conventional conservation and human rights — consisting of villagers, conservationists, concerned academics, social activists and forest officers — are raising these concerns, throwing up answers and learning from each other. Their activism is helping to shift India's conservation strategy in a direction which gives hope for its wildlife and diverse cultural communities.

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EDITOR

Shahid Qadir,

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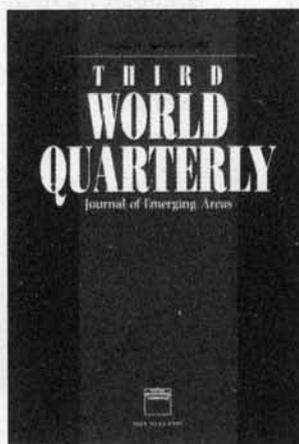
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1995 - Volume 16 (4 issues). ISSN 0143-6597.

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The Invisible Giant

Cargill and its Transnational Strategies

by

Brewster Kneen

Cargill — the world's largest grain trader — exemplifies the successful transnational corporation, its worldwide network of companies exerting an immense influence over global agriculture and agribusiness to the detriment of small producers and the environment. The corporation's success has relied as much on its ability to shape public policy, capture government subsidies and key political actors as on its financial and business acumen. All powerful though it might appear, however, its global reach can be resisted.

Established in 1865, Cargill is the largest private company in the United States. It started out primarily as a regional grain merchandizer in Minnesota (where it is still headquartered); it now describes itself as the largest agricultural commodities trader in the world, with global sales of \$51 billion in 1994-1995 and a daily profit of \$2 million after taxes.¹

Yet few people are aware of Cargill's global reach, not even many of its own employees. In Memphis, Tennessee, the casual visitor to the office of Hohenberg Bros. would be hard pressed to know not only that it was the office of one of the top five cotton trading companies in the world but also that it was a Cargill subsidiary.² In many towns and cities, the local Cargill office is housed in a nondescript building outside the main business district, with little indication of the company's presence except on the lobby plaque listing the building's tenants. This low profile is no accident. As Kerry Hawkins, president of Cargill Ltd (Canada) once put it, "Our experience is if you're too big, people don't want to do business with you."³

And Cargill is big. It employs some 72,700 people worldwide in 800 locations in 60 countries in more than 50 leading lines of business including corn, salt, peanuts, cotton, coffee, road transport, river-canal shipping, molasses, livestock feed, steel, hybrid seeds, rice milling, rubber, citrus, chicken, fresh fruits

and vegetables, beef, pork, turkey and flour milling. Cargill is the world's largest producer of malting barley; the largest oilseed processor; and the second largest producer of phosphate fertilizer.⁴

Exerting Control

Such wide-ranging, vertically-integrated operations have brought Cargill huge benefits. Acting as input supplier, banker, buyer of finished products and wholesaler allows the company to make profits at every stage in the production, distribution and consumption of the commodities in which it trades.

The case of frozen concentrated orange juice provides a good illustration of the company's ability to use both the processing and trading of an *actual* commodity and the trading of *imaginary* commodities, such as futures contracts and derivatives, to influence, if not control, global markets. Thus, every five days, Cargill's custom-designed and -built bulk tankers leave the Brazilian port of Santos, loaded with frozen concentrated orange juice from the company's orange processing plants inland, and head for New Jersey or Amsterdam where the juice is transferred to Cargill rail cars or trucks for delivery to processors and retail distributors.

Cargill may well have supplied the orange trees to the farmers, told them how to grow the fruit, supplied the requisite chemical fertilizers and pesticides, hired the labour to pick the oranges, and even provided credit for the farmers to buy Cargill inputs. Meanwhile, for the

five days that the frozen concentrate is in transit, Cargill, through its Financial Markets Division, has the opportunity to trade futures and derivatives based on the commodity up to 19 times.

Indeed, Cargill's "invisibility" lies not only in the fact that its name seldom, if ever, appears on the retail product, but also in that most of its actual trading activities are in the non-existent, invisible commodities of futures contracts and derivatives. With its private financial system and resources to call upon, Cargill is in a position to exert immense leverage over the production and prices of food commodities, including where and by whom they will be produced.

Cargill's Impact

But what has proved beneficial and profitable for Cargill has proved the opposite for thousands of small farmers, livestock ranchers and meat processors in the countries in which the company operates. In 1989, for example, Cargill opened a \$55 million beef packing plant in Alberta, Canada (with the help of \$4 million from the Alberta government) and drove competitors out of business by simply paying more than others for cattle and selling them for less until it had gained the predominant market share. The company also drove down wage rates in packing houses across the country by \$3 an hour simply by announcing, before its plant had even opened, the maximum rate it was prepared to pay.

Cargill's position as a major feed and

Brewster Kneen is a Canadian food systems analyst and critic. He has written several books on different aspects of food and agriculture. He also publishes *The Ram's Horn*, a monthly newsletter on the world food system.

feed supplement manufacturer and supplier as well as cattle buyer has enabled it to gain effective control over previously "independent" feedlot operators, who have been turned into little more than the equivalent of franchise operators for the company. Some feedlot operators are financed by Cargill provided that the cattle are raised on Nutrena feeds, a Cargill product. Since Cargill often buys the cattle as well, it can specify the standards cattle have to meet, the dates on which they will be sold on and how much will be paid for them.

On the other side of the world, in Karnataka, India, farmers growing sunflowers for Cargill have become virtual peons for the company, taking all the risks of production for minimum rewards. Cargill takes out contracts with so-called "coordinators", usually larger farmers, who in turn take out contracts with farmers, many of whom are illiterate, to grow sunflowers. Farmers were told that, if they used Cargill's sunflower seeds, they could expect a harvest of 16 quintals per acre. But despite following Cargill's recommendations for chemical pesticides and fertilizers for Cargill seeds, the maximum yield was six quintals per acre. In 1993, Cargill contracted to pay 42 rupees per kilogramme of sunflower seeds, but actually paid farmers half that — and often paid late. According to the company, payments were lower than agreed because part of the cultivated seeds were substandard. Cargill still took the rejected seeds, however, combined them with good seeds and sold the mixture as commercial seed.

More generally, Cargill's influence on US agricultural policy has been highly detrimental to farmers in both North America and the Third World. Together with other major commodity traders and processors, Cargill has lobbied hard for farm support programmes which keep commodity prices low, often well below the cost of production — thus guaranteeing cheap raw materials to agribusiness and allowing US traders to undercut competitors in foreign markets, all subsidized by the US government. The policy has helped drive hundreds of thousands farm families out of business since 1981.⁵ The effects on the environment have also been severe, as farmers have attempted to intensify production to compensate for falling prices, thereby increasing soil erosion and reinforcing dependency on high energy use, fertilizers and pesticides. Meanwhile, the export of cheap US grain to Third World countries has driven

thousands of farmers off their land, unable to compete with the heavily-subsidized imports.

Subsidies, Subsidies

Farm support programmes which keep commodity prices low are not the only government policy that Cargill has helped to shape to its own benefit. Although current corporate — and to a great extent public — ideology holds that the success of corporations such as Cargill results from their "market efficiency", such companies are in fact heavy feeders at the public trough: indeed, their business success may have more to do with their ability to avail themselves of public subsidies than with their business acumen.

Cargill's fortunes appear to have depended to a surprising extent, given the corporate ideology of free enterprise, on the major export subsidy programmes of the US government, particularly over the past 50 years.⁶ Immediately after the Second World War, programmes of the UN Relief and Rehabilitation Agency and the Marshall Plan moved mountains of grain as aid to Europe. US wheat and flour exports jumped from 48 million bushels in 1944 to 504 million in 1948. Grain companies, including Cargill, stored and delivered grain — for a fee — on behalf of the US government.

By the early 1950s, however, domestic food production in Europe began to rise to replace imports. The dumping of US grain was no longer welcome foreign aid, but unwelcome competition and an obstacle to the European goal of self-sufficiency in food. The response of the United States government, under heavy pressure from grain companies, was to subsidize the export of grain to countries outside of Europe under Public Law 480 — the Agricultural Trade Development and Assistance Act, known as "Food for Peace" — which was passed in July 1954. As W. G. Broehl writes in his corporately-sponsored history of Cargill:

"PL 480 combined and extended the use of surplus agricultural products for the furtherance of foreign policy goals . . . The funds could also be used to develop new markets for United States farm goods . . . That it was a boon to the American grain traders goes without saying".⁷

Cargill has always been a major beneficiary of PL 480 finance. Between 1955 and 1965, Cargill's US grain exports increased

400 per cent, with sales rising from \$800 million to \$2 billion. By 1963, Public Law 480 had generated revenue for Cargill of \$1 billion. In addition, between 1958 and 1968, Cargill received some \$76 million for storing grain, often in leased, publicly-owned terminals or terminals built with public funds.

Cargill has been quick to capture other subsidies as well. In 1985, the US Congress passed the Export Enhancement Programme (EEP) of the Food Security Act to bolster crop exports and help beleaguered US farmers. Under the EEP, eligible countries are designated each year by the US Secretary of Agriculture. Individual sales are then negotiated between the eligible country (or its designated agency) and a trading company on the basis of the subsidy available at the time for that particular country. The subsidy is then paid to the company making the deal.

From 1985 to early 1992, the US government doled out \$4.26 billion to 95 corporate trading companies under the EEP, with Cargill receiving some \$800 million of this. In 1987, wheat sales under the EEP to China alone reportedly netted Cargill subsidies of \$2 million.⁸ Commenting on the EEP, the *New York Times* concluded:

"The Agriculture Department's \$40 billion campaign to bolster crop exports, begun a decade ago to help beleaguered farmers, has instead enriched a small group of multinational corporations while doing little to expand the US share of the world's agricultural markets . . . An examination of the subsidy programmes highlights the symbiotic relationship between one of the biggest and least scrutinized federal departments and some of the politically influential companies it regulates."⁹

Other publicly-funded programmes which have benefited Cargill and other grain processors and merchants in the name of US market share and global competitiveness are channelled through non-profit industry foundations and associations so that they are relatively invisible to the public.

US Wheat Associates (USWA) is one of 57 organizations which have received support from the Targeted Export Assistance Programme, administered by the foreign Agricultural Service of the US Department of Agriculture. Under this programme, USWA has been involved in promoting wheat foods abroad. In one such promotion, 100-tonne samples of

various classes of US wheat were sent to mills around the world together with US specialists to guide potential foreign users. Mills in Senegal, Burkina Faso, Colombia and Taiwan were among the recipients. In 1988, more than 1,000 small bakeries in Korea participated with the result that 10 new baked foods were introduced in the country.¹⁰

In 1989, the National Association of Wheat Growers Foundation developed a project called "The Developing World: Opportunities for US Agriculture" to increase opportunities for wheat exports to less-developed countries:

"The project will train up to 30 growers to make presentations to state and local groups, and through the media, on economic development and trade and the potential of less developed countries to enhance the US economy (sic)."¹¹

A more recent publicly-supported programme which operates to the benefit of Cargill and other grain processors and merchants is the USDA Market Promotion Programme (MPP), established under the 1990 Food, Agriculture, Conservation and Trade Act "to counter unfair foreign trade practices."¹² This programme provides funds

or commodities owned by the Commodity Credit Corporation to US trade organizations, companies and cooperatives to implement foreign market development programmes. US Wheat Associates (USWA) have used MPP funds to set up milling schools in Venezuela, Egypt and Morocco and baking schools in Thailand, Costa Rica and Algeria to develop markets for US wheat. The Venezuelan milling school, for example, provides training in flour milling and related subjects for millers from all Latin American countries. The advantages for US industry are clear, as USWA's president, Winston

Wilson explains:

"The US presence in the school will broaden familiarity with US wheat and maintain relations with Latin American milling industry representatives in the face of aggressive competition from Canada and other world suppliers."¹³



Cargill's export terminal in British Columbia, Canada, loads ocean-going vessels with grain, bound for international ports.

It is not known why USWA picked Venezuela for this programme, but Cargill, as the major player in the flour and pasta industry in Venezuela, will certainly be a primary beneficiary.

Moulding Policy

Cargill has a full array of highly sophisticated lobbying styles to manipulate government policy and programmes to its advantage. Its reputation in the grain trade for doing so is extensive; as an executive in a competitor company said, "The big

don't get that way by waiting around for something to happen."¹⁴

A prime mechanism is the revolving door of public service: (usually) senior Cargill executives take leave of Cargill for a stint in government advisory and policy positions, returning to the company when their mission is accomplished.

The career of William R. Pearce, who retired as Cargill's vice-chair in 1993, is illustrative. In 1973, Pearce left Cargill to join the Nixon administration as deputy special representative for trade negotiations, steering a trade bill through Congress that, in Cargill's own words, "shaped international trade policy".¹⁵ Pearce rejoined Cargill a year later in 1974.

Cargill employees or ex-employees have taken up key posts in the US Department of Agriculture (USDA) and in the US negotiating team for the recent GATT Uruguay Round. Such is the extent to which Cargill employees have rotated through positions at the USDA that one government investigator has called the practice "structural corruption".¹⁶

The next level of lobbying activity takes place through the myriad trade associations that represent a commodity or processing interest, such as turkey growers, flour millers, soybean proces-

sors, peanut growers or the feed industry (there are 77 pages in one directory of US agricultural associations with several per page). While many of these associations present themselves as producer organizations and claim to speak on behalf of farmers, organizations like the "Western Canadian Wheat Growers" and the "Western Canadian Barley Growers" are actually financed by corporations and speak for their corporate backers. Cargill has organized similar groupings in countries where it is seeking to establish a presence: in India, for example, farmers to whom it has sold hybrid corn have been

Save our sovereignty. Save our seeds. Save our salt.



Boycott Cargill and other TNCs

NATIONAL ALLIANCE OF PEOPLE'S MOVEMENT

Indian farmers' protests in 1993 against Cargill's proposals to open an export-oriented salt facility in Kandla, Gujarat contributed to the company being forced to drop the project.

encouraged to speak on behalf of the company.

In recent years, Cargill has also developed effective grassroots lobbying techniques to enhance its higher level activities and achieve favourable business climates at the local level. The Cargill Community Network (CCN), for example, is the name of a grassroots programme "aimed at improving Cargill's reputation and success in communities where it is doing business." The CCN is "designed to help win Cargill's public-policy objectives at every level of government" by spreading the word that Cargill is "a solid corporate citizen" while "building a reservoir of community goodwill that ensures we have friends when we need

them."¹⁷ From a computer database, network members receive information on state and national issues as well as identification of their state and national legislators; in some cases the network also negotiates group memberships "with leading business organizations."

Establishing Beachheads

Nurturing such networks is key to Cargill's operations around the world. Indeed, its success as a global company — and, in particular, its ability to enter new product markets in many different localities — has depended on its capacity for identifying key political actors and politically-appropriate business openings.

James R. Wilson of Cargill Technical Services in the UK recently described Cargill's approach to starting a business in a new country:

"Cargill speaks of beachheads. Much of business strategy has its origins in military strategy. Historic product-line beachheads for the company have been hybrid seeds (primarily corn), commodity export marketing and animal feed milling. The strategy has been: create the beachhead with inputs of capital, technology and a management nucleus; get the cash flow positive; re-invest the cash flow and expand the beachhead . . . The company generally insists on majority ownership in beachhead companies because it needs to be clear who is responsible for the management of an individual company."¹⁸

Hybrid seed has proved particularly attractive as a "beachhead product" because it requires virtually no capital investment. In Tanzania, for example, Cargill's seed business has 24 staff, most of whom are involved in seed production. Four or five of them, however, "bounce around the country on dirt bikes setting up a dealer network" and selling and delivering seed in small quantities of one to ten kilogrammes. Managers, meanwhile, work with "contract seed growers who run much bigger farms than most of their customers."¹⁹ The hybrid seed business is then used as a "Trojan Horse" to create dependency among farmers upon Cargill's "crop inputs" of fertilizers and advice; as a result, they eventually become indebted suppliers of commodities, either for trade or processing. Besides Tanzania, Cargill has used hybrid seeds to establish itself in Argentina, India, Pakistan, Zambia, Zimbabwe, South Africa and Malawi — all of which have the potential to become major grain and oilseed growing regions.

Elsewhere, other products have been used. In Indonesia, for example, Cargill scout Kees Nieuwenhuyzen recommended in 1970 that Cargill start a feed company and a small chicken breeding hatchery. By 1982, Cargill's operations had grown to two feed mills, three chicken breeding farms and a hatchery with an annual production of 4.5 million broiler and layer chicks. Hybrid seed was subsequently added to the company's products, with the Indonesian government subsidizing 30 per cent of the costs of the seeds to farmers. James Spicola, a former president of Cargill, summarized the strategy:

"We start with out with a reasonably small capital investment in a field to which we think we can bring some expertise and technology and management, then grow the business from there. We reinvest the profits and move into other opportunities as the situation develops . . . We've found that our welcome to the country is much more productive on a long-term basis if we've started small and grown."²⁰

Stopped in Its Tracks

Despite its global reach and power, however, Cargill does not always get its own way. In Japan, it has consistently been hindered, if not blocked outright, by Japan's five large trading houses, known as the *Zaibatsu*. Cargill tried to get into feed milling in Japan, but the government would only permit them to buy an existing plant. When it tried to do so, all the mills in Japan agreed among themselves not to sell to Cargill. After US government intervention on Cargill's behalf, the Japanese government eventually gave Cargill permission to build a new plant — but, unlike other importers of feedstuffs, required Cargill to pay duty on its imports. Without duty-free imports, the plant could not compete in the Japanese market and Cargill was forced to lobby again for the import duties to be lifted. This was eventually agreed, but the company has still been unable to expand its operations or become a major player in the Japanese feed market.

In addition, Cargill's failure to understand Japanese consumer tastes and work practices have also caused it major problems. In 1991, for instance, it announced that it was to build a beef "further-processing" plant to "enable Cargill to serve the expanding appetite of Japanese

consumers for redmeat products as Japan liberalizes its meat-import laws." Barely two and a half years later, Cargill halted its operation and sold the processing plant to Nippon Meat Packers at a reported loss of \$10 million. Industry insiders say that the venture failed because Cargill failed to understand the Japanese food distribution system, thinking instead that what worked in the US could be simply duplicated in Japan. However, Japan's food service industries and supermarkets require frequent, small-lot deliveries, demands which Cargill could not meet. Nippon Meat Packers, unlike Cargill, has developed a system that gets customized beef orders to restaurants and supermarkets across most of Japan within 24 hours of being imported.²¹

In India, Cargill's global reach has been curtailed through the opposition of "powerless" peasants. In July 1988, the Indian government approved a "New Policy on Seed Development", reducing the duty on imported seeds from 95 per cent to 15 per cent. Cargill began to implement its 1983 decision to enter the seed business in India by setting up a joint venture company — Cargill Seeds India — with Tedco, a subsidiary of Tata, one of India's largest corporations. An office was established in Bangalore and in early 1993 Cargill started to build a seed processing factory on a 32-acre site at Bellary, 300 kilometres north of Bangalore. The facilities were to include an administration and seed technology training centre "to develop modern agriculture", and were scheduled to begin production in October 1993. The presence of Cargill in India, coupled with the push to conclude the Uruguay Round of the GATT negotiations, however, ignited a popular campaign against the company. On the morning of 13 July, local farmers

gathered at the Cargill site, demolishing the partially-completed facility with their bare hands.

Resisting the Giant

Powerful though Cargill appears from its balance sheet and its political contacts, there are clearly many things that it cannot do. Cargill and other transnational corporations have the wealth, skill and political leverage to outflank or overpower virtually any organization that attacks it head-on in a game which is rigged in their favour. They cannot, however, force people — either farmers or the general public — to play their game.

The Japanese *Zaibatsu* have practised one line of resistance to Cargill, banding together like warlords to defend "their" territory. The farmers of India, in their numbers, have manifested another. The growing refusal of consumers to eat highly-processed food that has travelled from a centralized production facility and the rejection by increasing numbers of farmers of growing industrial monocultures are still others.

Around these old affirmations and new beginnings, social movements and their allies are making common cause worldwide to lay the grounds for socially-just and environmentally-sound alternatives to the global production systems which Cargill exemplifies. New forms of social organization are emerging which thrive on and generate diversity and inclusivity. It is hard to imagine a place for Cargill in such communities.

This article is extracted from Kneen, B., *Invisible Giant: Cargill and Its Transnational Strategies*, published jointly by Pluto Press, 345 Archway Road, London N6 5AA, UK (and New Haven, USA) and Fernwood Publishing, Halifax, Canada, 1995. ISBN: 0-7453-0964-X.

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- consistent and reliable statistics to draw upon. Although aggregate figures for trade and aid are available from government sources, they do not give, and are not allowed to give, any indication of corporate shares. In addition, private corporations are under no obligation to reveal financial results; what numbers they give suit their own purposes. I am left having to observe correlations and draw inferences.
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Books

Technology's Curse

LANDMINES: A Deadly Legacy, by The Arms Project (a Division of Human Rights Watch and Physicians for Human Rights), October 1993, £13.50/\$20 (pb), 528pp. ISBN 1-56432-113-4

WAR OF THE MINES: Cambodia, Landmines and the Impoverishment of a Nation, by Paul Davies with photographs by Nic Dunlop, Pluto Press, London, 1994, £17.95/\$24.95 (pb) 192pp. ISBN 0 7453 0860 0

Landmines are "excessively injurious" conventional weapons which may have indiscriminate effects. Over the past 25 years, more than one million people have been killed or maimed by landmines, the majority of them civilians, even though international humanitarian law prohibits the use of indiscriminate weapons, the turning of weapons against civilians and the use of weapons which cause "unnecessary" suffering.

Landmines were first used during the First World War and developed into effective tank destroyers during the Second World War. But because they could be lifted and re-used by opposing armies, a smaller, anti-personnel mine was designed to ensure that anti-tank mines stayed put. Soon, however, these newer devices began to be used on their own. The widespread use of anti-personnel mines during the Vietnam war highlighted the indiscriminate nature of the weapon. Scattered in enormous numbers without precise mapping and marking, mines and booby traps caused 65-70 per cent of US marine corps casualties in 1965. They are still killing and injuring civilians today.

Research undertaken by the US group,

The Arms Project, which is presented in *Landmines: A Deadly Legacy* reveals that 346 different models of anti-personnel landmine have been produced by almost 100 companies based in 48 countries, including Austria, Belgium, Bulgaria, China, former Czechoslovakia, Egypt, France, Italy, Pakistan, the former Soviet Union, Sweden, UK, United States, Vietnam and former Yugoslavia. Annual production of anti-personnel mines is reported to average 10 million.

The civilians, economies and environments of the 35 countries or so to which landmines have been exported and in which they have been laid, primarily during the Cold War era, bear the brunt of these weapons' destructive power. Casualties have been particularly high in Afghanistan, Angola, Cambodia, El Salvador, Georgia, Iraqi Kurdistan, Laos, Mozambique, Nicaragua, Northern Somalia, Sri Lanka, Sudan and Vietnam. *Landmines* estimates that up to 100 million live landmines are scattered around the world with another 100 million stockpiled.

Conventional landmines fall into four main types. The blast mine, usually buried or camouflaged, explodes when someone steps on it, often blowing the person's leg off. The force of the blast can drive fragments of earth, bone and fabric high into what remains of the limb, causing further surgical problems. The fragmentation mine works in a manner similar to that of a grenade. Usually set off by a trip wire, the explosion projects fragments of the mine casing over a wide area. The directional fragmentation mine does much the same thing, but sprays the fragmentation in a pre-determined direction. The bounding fragmentation mine leaps a metre or so into the air before shooting its contents at high speed over a 50-metre radius or more.

Recent developments include non-metal mines designed to escape detection; mines equipped with electronic sensors that can "identify" targets or maximize effects; and mines combined with anti-handling devices which make mine clearance more dangerous than it already is.

Landmines details how huge numbers of anti-personnel mines have been laid in unmarked and unmapped minefields in high densities around the world, sometimes scattered at random, almost always in places where people need to farm or live after conflict in the area has ended. An average of 26,000 people are killed or maimed each year by landmines, which

are among the most long-lasting weapons ever invented.

No machine can clear wide areas of land polluted by landmines effectively. Mines have to be located and removed by hand by expert-trained people using technologically-advanced detection and safety equipment. The cost of clearing mines worldwide has been estimated at \$33 billion.

Describing landmines as "weapons of mass destruction in slow motion", The Arms Project has put together an extraordinary case for banning them worldwide. Given the overall humanitarian costs of landmines, their military role in contemporary warfare is too limited to justify their use; their indiscriminate nature and effects means that they are illegal anyway, no matter what their military utility.

Further indisputable evidence that anti-personnel mines should be banned is provided by *War of the Mines*. Despite the signing of the Paris Peace Accords for Cambodia on 23 October 1991 by the four warring Cambodian factions after 20 years of fighting, mines planted during the conflict in the fields and forests continue to blow people to pieces. Over four million landmines are scattered around the country with "almost total disregard for mapping" and may take up to 250 years to clear. Author Paul Davies cites a UN engineer who says that:

"none of the millions of mines in Cambodia had been made in the country — all had been imported, willingly supplied by the international sponsors of Cambodia's 'civil war'."

Supported by Nic Dunlop's extraordinary photographs, Davies recounts how the communities of Rattanak Mondul in Western Cambodia, not far from the Thai border and one of the most heavily mined areas in the country, live with these weapons. Between January 1992 and June 1993, 166 people were killed or injured in Rattanak Mondul. One person in 90 in the district is an amputee. In Cambodia as a whole, some 300 people are killed or injured every month by landmines. "Some 70 per cent of all victims are from the male 16-35 age bracket, and 50 per cent of all victims are males in their 20s", very few of them engaged in military activity at the time of their injury.

However, Rattanak Mondul and its neighbouring districts in Battambang province contain some of the most fertile agricultural land in Cambodia. When refugees in Thailand registered with the UN's High Commissioner for Refugees (UNHCR) for repatriation to Cambodia,

Rattanak Mondul was the district they most wanted to go to. Despite being classified as a "no-go area" by UNHCR because of the large numbers of uncleared mines, thousands of refugees made their way back there during the 1992 UN sponsored repatriation.

Farm land was already at a premium in Rattanak Mondul when the influx of refugees, either from Thailand or internally displaced by the war, descended. If people cannot get land, they find other forms of income, leading to "an almost total reliance on cutting and gathering the products of the surrounding forests and scrubland to survive". But farming, forest gathering and cutting wood are the most "risky" activities for mine-accidents.

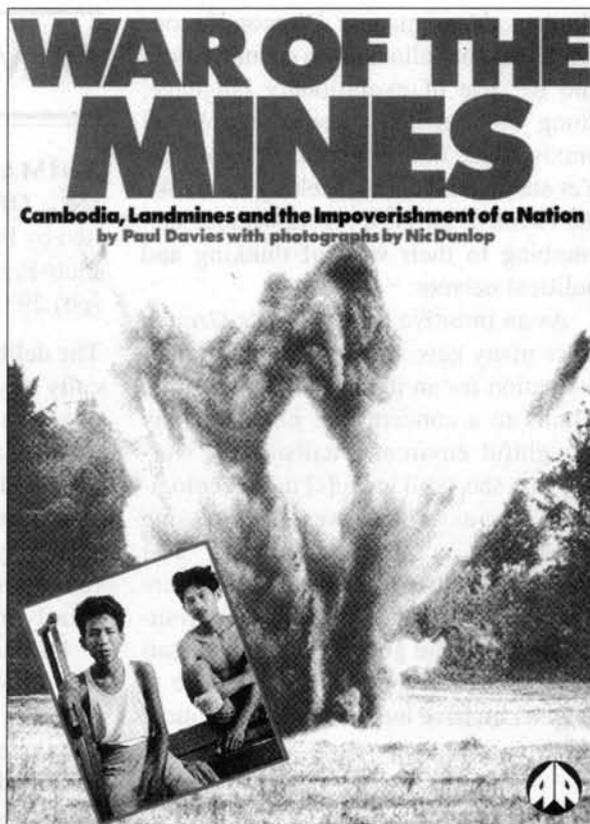
Davies describes the landmine as "the perfect weapon for a war of total social, economic [and] cultural . . . attrition". In effect, it is easier and cheaper to destroy the backbone of a country by mining it than by a conventional military assault.

Various agencies are trying to get the injured back on their feet again with the use of artificial limbs, but there is hardly any psychological care for mine amputees. Many amputees and farmers are now wary of working in the fields, moving instead to the larger towns and to the capital, Phnom Penh.

Mines are slowly being cleared by several non-governmental organizations and by the Cambodian Mine Action Centre (CMAC), a hard-won legacy of the 1991-1993 UN era; for all these groups, funding and political commitment is crucial.

The amount of money spent on clearing up these non-biodegradable remnants of conflict is minute compared with the size of the problem. The UN Trust Fund for Mine-Clearance Assistance, set up in November 1994 after much lobbying by non-governmental and inter-governmental organizations, held its first conference in July 1995, but only one-third of the hoped-for budget of \$75 million was pledged by member states.

Anti-personnel mines should be banned and their use internationally stigmatized in much the same way that chemical and biological weapons have been banned. A total ban on manufacture, sale, transfer,



export, use and stockpiling would enable the mess to be cleared up, slowly but safely. Responding to a voluntary UN resolution, several countries, including Sweden, Ireland, Mexico, Belgium and Italy, have banned the export of anti-personnel mines. The UK, however, refuses to ban the export of mines designed to self-destruct or self-neutralize after a certain period of time because it claims they are less dangerous to civilians and "more humane" — even though such mines are far from infallible.

Over September and October this year, the 1980 Inhumane Weapons Convention and its Protocol on landmines was reviewed in Vienna, but delegates were unable to agree on a new protocol. One NGO observer remarked that:

"the conference was designed to update international humanitarian law in order to protect civilians. However, governments on the whole seem more interested in protecting their own weapons systems."

When will delegates ensure that what Paul Davies has borne witness to can never happen again? When will governments realise that consideration of any measure other than banning anti-personnel mines is little short of murderous?

Tim Carstairs

Tim Carstairs is the coordinator of the UK Working Group on Landmines.

Fertility Control

FERTILE GROUND: Women, Earth and the Limits of Control, by Irene Diamond, Beacon Press, Boston, (Airlift Books, London) 1994, \$24/£19.99 (hb) ISBN 0-8070-6772-5

Fertile Ground takes as its starting point ecofeminism's fundamental insight: that the destruction of nature is historically, conceptually and practically linked to the subjugation of women. Rather than recapitulating the theoretical debates about whether women have any privileged connection to nature, Irene Diamond offers her readers a provocative series of musings on a vital, but largely unexplored, concept: fertility. Ultimately, she hopes to sow the seeds for a renewal of feminism which she believes must now supplant those modern forms of rationality and agency that have created the very possibility of feminism's own emergence. Fertility, she believes, supplies the conceptual ground upon which the language of control — over the earth and over women's bodies — can be deconstructed.

Diamond's scope is wide-ranging, addressing reproductive technologies, agriculture, pornography, development and death, yet her work also has a highly personal quality, being one of creative exploration, not decisive conclusions.

Yet her personal tone does not preclude the elucidation of new intellectual terrain. Diamond creatively links Michel Foucault's notion of "the deployment of sexuality", which he believes is central to modernity's diffusion of disciplinary power, to our relationship with the earth. The confluence of science, sex and power, Diamond argues, has produced the "sexuated body" which simultaneously spurs consumerism and constrains our sensuous relationship to nature. By adopting the language of control, reflected in the notion of a woman's body as her own property, feminists become unwitting accomplices in the deployment of sexuality and the discourse of technological mastery over the body which is, at root, anti-ecological.

The memorable titles of her four core chapters sum up her argument. In "Sex Without Consequences: From Sexual Freedom to Sexuated Body", Diamond describes the population control movement in the United States. She argues convincingly that "family planning" has

historically aimed to reduce the numbers of poor people and non-white people. Certainly the level of debate in the US would be raised were her ecofeminist position on abortion more widely considered. Rather than framing abortion as an issue of control over women's bodies, Diamond maintains that women should be recognized as responsible agents, capable of making life and death decisions in an imperfect world. Yet her intuition that there is something unecological about modern methods of contraception is never distilled into a clear argument.

"Children Without Turmoil: From Sex Without Reproduction to Reproduction Without Sex" explores the world of pro-fertility technology. While Diamond's ecofeminist sensibilities make her dubious about the "industrialization of life", her autobiographical experience of the world of high-tech baby-making discloses the allure of these technologies for people who want to become biological parents. Yet she believes that feminists should not embrace so wholeheartedly the biomedical surveillance and commodification of life entailed in such technical baby-making.

"Food Without Sweat" attempts to link the prevalent fear of overpopulation, and the discourse that surrounds it, with the modern narrative of progress through technology. While Diamond's discussions of the social construction of scarcity and colonialism as the control of fertility are provocative, this is the weakest chapter of *Fertile Ground*. However, the links between the industrialization of agriculture and misogyny are intuitively appealing, given the historical entwinement of patriarchy (control by men of women and children) with the agricultural revolution (control over nature).

In "Our Bodies, Our Earth", Diamond proposes a politics of renewal as an alternative to the politics of control. She finds evidence of its emergence among ecofeminists, greens and bioregionalists throughout the world, but she is especially drawn to spiritually-oriented grassroots women's groups, such as India's Lakshmi Mukti movement, which invoke

Hindu goddess imagery. Diamond is conscious that her allusions to cosmic forces and her use of evolutionary language, along with her insistence upon political praxis, place her on a delicate tightrope. Yet she is undaunted, seeking to invoke the vision of the New Agers without succumbing to their wishful thinking and political naivete.

As an intuitive foray, *Fertile Ground* sows many new seeds. Diamond, in her aspiration for an integral understanding, admits to a concern that plagues many thoughtful environmentalists: she worries that she "still grasp[s] these ecological truths as if they were the missing elements in an intellectual puzzle". Her work may leave some readers who are wary of ecofeminism's affinity for mystical language and goddess imagery dissatisfied, but even they will not be able to deny its incisive intellectual contribution.

Karen Litfin

Karen Litfin is Assistant Professor of Political Science at the University of Washington, Seattle, and author of *Ozone Discourses*, Columbia University Press, 1994.

Of Mice and Men

ANIMAL GENETIC ENGINEERING: Of Pigs, Oncomice and Men, edited by Peter Wheale and Ruth McNally, Pluto Press, London, 1995, £13.95/\$17.95 (pb) 293 pp. ISBN 0-7453-0755-8.

The deliberate release and use of genetically engineered crops in Britain have begun to generate some controversy because of associated environmental safety and biodiversity issues. But while such issues might (mistakenly) appear to be relatively straightforward, those relating to the genetic engineering of animals are clearly more difficult.

Debates over the moral status and welfare of animals have been going on for decades. Since the 1960s, however, many people have come to believe that animals have undergone far too much manipulation and industrialization and their genes, at least, should be left intact. Animal biotechnologies might, therefore, represent an area where public concerns over impacts on the environment and on animal

welfare and rights would readily combine into wholehearted opposition.

Such an opposition is certainly developing and has slowed the progress of animal genetic engineering. For instance, introduction in the European Union of the synthetic BST hormone in dairy cattle to increase milk yields has been delayed until at least the end of the century, while the European Parliament recently rejected a proposed EU patent directive on living organisms. But largely as a result of scientific, ethical and political complexities, the topic has remained the concern of a committed minority. The proponents of genetic engineering, meanwhile, argue that additional public understanding and reassurance will overcome what they consider to be the unreasonable critical influence of this misguided minority.

By providing a clear and wide-ranging picture of this debate, *Animal Genetic Engineering* contributes towards

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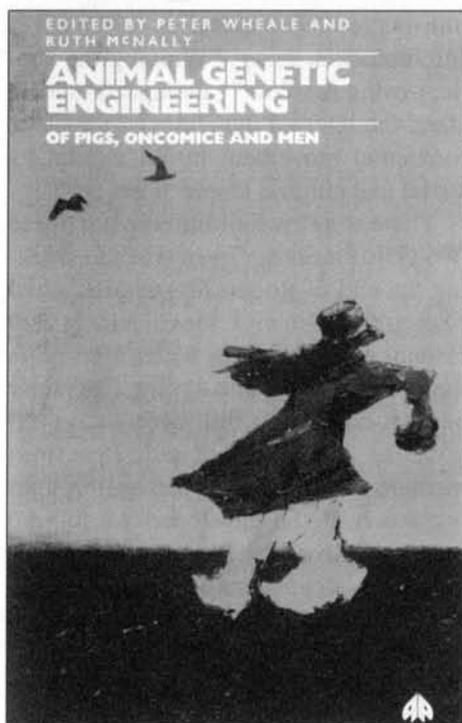
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wider public understanding of these complexities. Peter Wheale and Ruth McNally have edited papers from a 1992 conference organized by the education wing of Compassion in World Farming. The essays cover a wide spectrum of scientific information and political and philosophical debate, written by supporters, sceptics and critics of genetic engineering, and accompanied by transcripts of the conference discussions and a useful glossary.

Most of the book covers transgenic manipulation, the process by which genetic material from one animal species is inserted into the genome of another. The scientific techniques involved and their potential for use in human medical research are outlined — the “oncomice” of the title are mice which have been genetically engineered to develop cancerous growths so that anti-cancer drugs can be tested on them. Some papers deal with potential impacts on ecosystems and biodiversity, such as the establishment and persistence of new organisms in the natural environment, while others focus on the welfare and ethical implications of animals genetically engineered for high-production purposes or as producers of organs for human transplants. As John Webster says, we must ask ourselves whether “we consider it more or less acceptable to regard the pig as the source of a new heart or a sausage?”

Overall, *Animal Genetic Engineering* provides a lucid portrait of the debate concerning the regulation of biotechnologies in which uncertain positions about science and ethics come

together. The characters in this debate include well-meaning genetic engineers and articulate and single-minded critics; an assortment of politicians, lobbyists and members of regulatory committees; and animal welfare scientists and philosophers. They come to life in the transcripts of the discussion sessions, providing further insight into the main issues.

The deep scepticism shown by many conference participants focused on the role and character of the regulatory institutions, in particular, on the various ethics study groups and committees set up by the UK government and the European Commission. These are frequently seen as dubious and disingenuous quangos, designed to reassure public concern about genetic engineering rather than carry out impartial investigations.

While Wheale and McNally emphasize that “no specialist knowledge is required to understand the ideas and arguments presented by the respective contributors”, their book is, at times, a challenging read. Peter Wheale’s own essay applies contractualist theories of social justice to debates over the exploitation of animals. He argues that humankind has little philosophical consensus on how to deal with our obligations to animals, and that common approaches which attempt to balance the utility or social good of a particular technology do not provide a “reliable moral framework”.

As a whole, the book presents an accurate picture of a crucial but frustrating policy debate. Jeremy Rifkin puts the questions he has been asking for years:

“Who are we going to trust with the ultimate authority over the blueprints of life? Who decides what are the good and the bad genes? Who orchestrates the future evolutionary development of this planet? . . . Who would trust themselves?”

Animal Genetic Engineering should help to inform readers about the scientific techniques and the controversies associated with genetic engineering. It provides an account of a healthy and valid scepticism towards most of the existing regulatory institutions. It also demonstrates that we have our work cut out to find appropriate alternatives.

Tony Ashford

Tony Ashford is a social scientist researching animal welfare and genetic engineering policies at the University of Bath, and a member of the Genetics Forum.

Global Links

GOOD LIBERALS AND GREAT BLUE HERONS: Land, Labor and Politics in the Pajaro Valley, by Frank Bardacke, Center for Political Ecology, PO Box 8467, Santa Cruz, California 95061, USA, 1994, \$14.00, (pb) 137pp. ISBN 0-9641094-0-9.

In this collection of magazine and newspaper articles, local journalist Frank Bardacke traces the political history of his home town of Watsonville in the Pajaro Valley, California, examining the influence of national and international factors on the local economy.

Watsonville has always had a reputation as a “fighting working-class town”, says Bardacke, to which memorable strikes by the town’s workers testify. Since the massive immigration of Mexicans in the 1960s, the town has also become “binational, bicultural”. Bardacke celebrates the strength of Mexican identity and culture in Watsonville whilst at the same time being acutely aware of the growing inequalities faced by immigrants. Although a small number of Latino businessmen have gained ground in city politics, the majority of Mexican workers and their families are falling further and further behind. Bardacke is quick to remind us that, at the end of the day, “it’s a class thing”.

Good Liberals and Great Blue Herons, however, is far more than just a vivid portrait of small-town American life. Bardacke examines how the fingers of the world economy shape the town’s destinies, explaining the local in terms of the global and vice-versa.

In “Adiós, West Coast Shorty”, Bardacke looks at the changing structure of power in Watsonville. From the 1920s to the 1960s, a number of Slavonian and Italian families were the town’s ruling class. Although “no sweet thing”, the old families could at least be made to confront the consequences of their decisions. Things have now changed:

“The people who now make the fundamental decisions that shape our community no longer live in town. They issue their commands from plush offices on the top floors of massive buildings made of steel and tinted glass, in cities like Los Angeles, Chicago and London. They head giant corporations — Castle and Cooke, Dean Foods, and Grand

Metropolitan — that will stay here as long as it is profitable, and will leave when they can make more money someplace else.”

The layoff of nearly 400 workers at the Green Giant frozen food plant in Watsonville is just one example of how events in the town are dictated by the swings of the international political economy. According to Bardacke, the redundancies are the result of three factors: Third World debt, which has resulted in pressure on Mexico to turn over much of its agricultural heartland to the production of export crops; the internationalization of the food supply, which means that fresh fruit and vegetables are now available even in mid-winter; and leveraged buyouts which force companies to cut costs ruthlessly.

“So that New York bankers will get paid in full on some bad loans they made, so that frozen food executives will make super profits rather than ordinary ones, and so that Grand Metropolitan’s board of directors can win its financial gamble and make the payments on its high interest loans, impoverished Mexican mothers no longer can afford to buy enough tortillas for their hungry children, and unemployed Watsonville frozen food workers don’t know how they are going to pay their rent.”

The dictates of the international market on food production are further examined in “Not Enough Water to Wash Their Sins Away”. In this essay, Bardacke discusses a project to import water for irrigation to the Pajaro Valley and warns of the environmental dangers of ignoring “the limits put by local water on local life” and of treating water “as a commodity that can never run dry, always to be replenished with money and technique”. He blames market-driven, corporate-dominated agribusiness for the unsustainable practices that now characterize farming in the valley. For example, the cultivation of strawberries, which use twice as much water as the traditional crop of apples but which are more profitable, has led to the overpumping of underground water and salt water intrusion.

“If agribusiness men were to consider the effects of their farming practices on the underground water supply, if their decisions were based on anything other than the highest rate of profit, then our valley might still be graced by apple orchards, and our underground water would still flow to the sea”.

Throughout this collection of articles, Bardacke’s analysis of local events and issues serves to enhance our understanding of the local and global forces that shape similar events in our own communities. It is his intention that *Good Liberals* should be “not only a map of the territory but an informal guide to political action”. He proposes that workers worldwide should unite against injustice and inequality. The slogan “Think globally, act locally” is no longer adequate; local action must reach out, seeking international support from people with similar grievances. In the case of the Watsonville Green Giant workers, for example, a boycott of the products of parent company, Grand Metropolitan, could become a national and eventually an international event.

Emma Pearce

Emma Pearce is a freelance environmental journalist who has worked in Peru and Ecuador.

A Welsh Agenda

GREEN AGENDA: Essays on the Environment of Wales, edited by Robert Minhinnick, Seren Books, 2 Wyndham St, Bridgend CF31 1EF, Wales, 1994, £7.95 (pb)198pp. ISBN 1-85411-101-9

When viewed from outside the country, Wales’s environmental problems seem similar to those of any other peripheral small country in Europe — transport and the oppressive dominance of the private motor vehicle; energy and the challenge of replacing fossil and nuclear fuels with natural sources; agriculture in the strait-jacket of the EU’s Common Agricultural Policy; and suburbanization as a self-replicating state of mind. *Green Agenda* brings together nine of Wales’s leading environmental activists and writers to give a stimulating and contemporary account of these issues. But what is the Welsh Green Agenda? And whose agenda is it?

In his introduction — which sets the agenda for the book — editor Robert Minhinnick makes dark references to the “suspicion” and “failure” within pressure groups in Wales. He vents his spleen on contemporaries who fail to build bridges with other sectors of society, and talks of the “hostility” of Welsh language campaigners and the “embittering result of

one-issue lobbying”. Margaret Minhinnick’s essay, “Winning the Battle, Losing the War?” attempts to understand the internal dynamics of the environmental movement in Wales and its social and cultural connections.

There is a streak of bitterness in these two contributions, *Green Agenda* marking the end of Robert Minhinnick’s and Margaret Minhinnick’s involvement with Friends of the Earth in Wales after more than a decade of campaigning from their base in Porthcawl. But these essays expose the limitations of pure “environmentalism”, not just in Wales but throughout much of the developed world, and their analysis of the shortcomings of environmentalism cannot easily be dismissed. These essays, which have proved to be the most controversial in the book, are thus cautionary markers in an otherwise self-confident volume.

Green Agenda shows that campaigners and academics can marshal an impressive array of evidence and analysis. Why, then, is the environment not at the centre of ordinary people’s concerns nor mainstream political thinking?

In fact, the context of any green agenda for Wales is the extraordinary political situation of the country. The unelected governor of the country, the Secretary of State for Wales (a British government post held by Member of Parliament John Redwood until his recent bid for leadership of the Conservative Party) dispenses policies which have no democratic mandate in Wales. In fact, in areas such as transport planning, nature conservation and the role of the countryside agencies, Redwood’s policies differed so markedly from those of the government that he was described by his Cabinet colleagues as having declared a unilateral declaration of independence and as being “anti-environment”.

Redwood’s colleagues (still in place even though there is a new Secretary of State for Wales, William Hague) were the right-wing economists and free marketeers of the development boards, charged with imposing a highly unsustainable form of economic growth on town and country. Their green agenda has been to make Wales one of the “motor regions of Europe” by minimizing planning controls everywhere except within the prime wildlife sites and famous landscapes such as Snowdonia. In these areas, Redwood knew he would meet stiff opposition from a well-organized green lobby of the rural middle-class,

professional ecologists and angry young urban refugees.

High on the *Green Agenda* is the need to get these groups together with the urban poor, the unemployed and those fighting for social and cultural change, and to make the issues relevant to all of them. Only then, Robert Minhinnick argues, will there be a chance of saving "the environment of the majority" which enjoys no special protection. It can be done on a local level — the campaign against opencast coal mining in the valleys and against road building in slate quarry towns in the north of the country are testimony to that. In these places, meetings in which both trade unionists and vicars have been involved and which have been simultaneously translated from the native Welsh into English, have put green issues at the top of local political agendas. Is it possible to get such a wide range of interests to address a national green agenda? Or would it diffuse energies and end in acrimony like so many other rainbow coalitions?

The strength of single-issue campaigning is that things can be changed for the better without having to wait for a transformation of society. But most environmentalists would agree that a new societal consciousness is also needed, and *Green Agenda* confirms that many of the elements needed for such a transformation are in place in Wales. A clear alternative vision of a sustainable future, articulated by credible leadership and arising from a firm cultural base, may attract mass support. This certainly happened in the constituency of Ceredigion North Pembrokeshire, where Cynog Dafis, the Plaid Cymru/Green Party candidate, was elected with the clearest green mandate ever given in British politics.

In his essay on UK energy policy and the Welsh environment, professor of physics and long-time Plaid Cymru (Welsh national party) activist Phil Williams writes about the need to "persuade the Western world that it is possible to reduce energy consumption without impairing our quality of life". Lapsing into religious idiom, he asserts that "if God designed one spot on earth that was perfect for that pilot scheme, it is Wales". The country may also be a place for transforming many other theories about sustainable living into practice.

Morgan Parry

Morgan Parry is director of the North Wales Wildlife Trust and a campaigner on environmental and language issues in Wales.

BOOKS DIGEST

- **BREAKFAST OF BIODIVERSITY: *The Truth About Rain Forest Destruction***, by John Vandermeer and Ivette Perfecto, Food First Books, (distributed by Subterranean, 265 South 5th St, Monroe, OR 97456, USA), 1995, \$16.95 (plus \$4 postage) (pb) 184pp. ISBN 0-935028-66-8.

A clear-sighted book which links economics, politics, sociology and the most up-to-date work in rain forest ecology. The authors illustrate how "nature conservation" is both constantly being redefined by, and becomes the consequence of, grassroots struggles for democracy.

- **UNEQUAL BURDEN: *Economic Crises, Persistent Poverty and Women's Work***, edited by Lourdes Benería and Shelley Feldman, Westview Press, Boulder, CO/Oxford, UK, 1992, £13.50/\$19.95 (pb), 278pp. ISBN 0-8133-8230-0.

A sustained critique, illustrated through case studies, of the diverse ways in which structural adjustment policies are premised on increasing women's "shadow" work. Wrenching survival strategies, however, may lead to more egalitarian relationships between women and men.

- **STOP THE KILLING TRAIN: *Radical Visions for Radical Change***, by Michael Albert, South End Press, Boston, MA, (Turnaround Distribution, London) 1994, \$15.00/£12.00 (pb), 243pp. ISBN 0-89608-470-1.

This wide-ranging collection of critical articles from *Z Magazine* combines analysis, commentary and outrage as the author explores topics such as the media, capitalist economics, the Nobel Prize, politics in Eastern Europe and the Kennedy assassination.

- **BIODIVERSITY CONSERVATION: *Whose Resource? Whose Knowledge***, edited by Vandana Shiva, INTACH, Bharatiyam, Near Humayun Tomb, Nizamuddin, New Delhi 110 013, INDIA, 1994, (pb), 315pp. ISBN 81-900281-5-4.

A compilation of papers presented at a seminar on People's Knowledge and Intellectual Property Rights, this volume considers biodiversity in agriculture, medicinal plants and fisheries in India, and critiques various "protective" mechanisms such as GATT, IRPs and the Biodiversity Convention.

- **THE TECHNOLOGY OF KILLING: *A Military and Political History of Antipersonnel Weapons***, by Eric Prokosch, Zed Books, London & New Jersey, 1995, £16.95/\$29.95 (pb), 224pp. ISBN 1-85649-358-X.

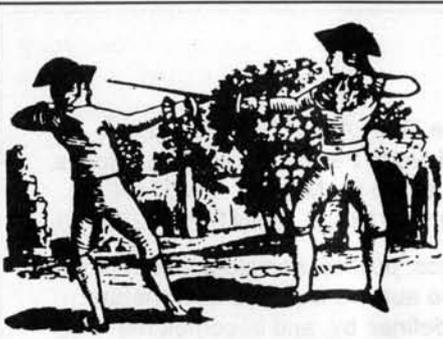
Arguing that the nuclear arms race has diverted public attention from the deaths and injuries caused by antipersonnel weapons, such as landmines, Prokosch details the proliferation of these weapons over the last 50 years and considers the future, both in terms of the weapons and of banning them.

- **SEED AND SURPLUS: *An Illustrated Guide to the World Food System***, by Bertrand Delpeuch, Catholic Institute for International Relations/Farmers' Link, London/Norwich, 1994, £6.99 (pb), 136pp. ISBN 1-85287-125-3.

Explaining worldwide food issues in simple terms, this book presents basic facts about agriculture and food, explains major trends in the food trade between North and South, and proposes alternative agricultural systems that can feed people and be environmentally sustainable.

- **SLIDE MOUNTAIN or *The Folly of Owning Nature***, by Theodore Steinberg, University of California Press, Berkeley, 1995, \$30.00/£19.00 (hb), 212pp. ISBN 0-520-08763-1.

Through his anecdotal stories about various parts of the US landscape, the author illuminates some of the absurd dilemmas that have arisen in attempts to turn the natural world — including underground water, clouds, airspace and the ocean floor — into someone's property.



Letters

Congestion Pricing or Road Pricing?

As an advocate of road pricing — mechanisms that charge motorists for their use of public space, clean air and other human and natural resources — I wish to both commend and criticize Simon Fairlie's article, "The Theory Behind Road Tolls," (*The Ecologist*, November/December 1994).

Road pricing has vast implications, not just for transport but for the organization of society. Yet in the US, most critiques of road pricing have come from motoring apologists who insist that drivers already pay more than their fair share, thank you very much. Fairlie's perspective is diametrically opposite, and his arguments are provocative and often on target. He is largely right to cast proposed congestion pricing measures in the UK as a potential Trojan Horse for new toll roads, low-density sprawl and electronically-mediated road infrastructure. And I appreciate Fairlie's fair-minded summary in the article of my proposals for "smog fees," weight-distance charges and means other than congestion pricing to internalize the societal costs of driving.

But Fairlie made a major error in conflating *congestion pricing* with *road pricing*. In fact, congestion pricing and road pricing are very different in motivation, application and implications for transport, society and the environment. While congestion pricing, particularly as envisioned by the UK Department of Transport, appears to be intended primarily to improve driving and benefit motorists, other forms of road pricing would reduce driving and benefit non-motorists and the environment as well as some drivers.

Road pricing, however, encompasses any and all means to have drivers pay the costs that their motoring imposes on

others, on communities and on the natural world. One such means, congestion pricing, in its purest form raises tolls to discourage peak usage but lowers them at other times to reward off-peak travellers. I agree with Fairlie that, insofar as congestion delays are largely self-inflicted costs within the motoring "fraternity," as he calls it, we non-drivers may find congestion pricing irrelevant or worse. Particularly if it is made revenue-neutral, congestion pricing — and the smoothing out of road demand it engenders — should not be a priority of Greens (although it can be strategically useful in fending off road expansions ostensibly directed at eliminating choke-points such as water-crossings).

The object of Greens who want car and truck travel reduced, and who want the remaining miles travelled made less socially and environmentally damaging, should be *revenue-raising* road pricing. As Fairlie outlined in his sidebar on my proposals, each form of traffic damage motivates a corresponding pricing mechanism that internalizes costs and generates revenue to compensate non-drivers for the damage incurred. What he did not emphasize is that cost internalization (preferably by several or more of these pricing mechanisms simultaneously) is also a powerful means of discouraging vehicular travel, particularly the most polluting and dangerous varieties.

I agree with Fairlie that negotiating the analyses, measurements and revenue-collection means for such full-cost accounting will be contentious. But Fairlie stretched the point past recognition when he insisted that such negotiations would be "completely arbitrary and involve formidable improvements in computer technology, pervasive monitoring of individual activity, and accounting systems of staggering complexity." (Curiously, he based this characterization largely on pronouncements by the UK Department of Transport.)

Consider lorries. These large, heavy vehicles inflict upon communities noise, danger, intrusiveness, fumes, and stress to roads and buildings. Even with speed limits and prohibitions from local roads, lorries impose large costs, averaging close to 10 cents per tonne-mile in the United States, by my estimates, and probably around the same in the UK. To be sure, the damage estimates vary with vehicle, road environment and estimator, but even the low end of the range is many times the rate at which lorry travel is now charged in petrol taxes and licensing fees.

Thus, lorry travel in Britain is now heavily subsidized at a rate probably

approaching 5 pence per tonne-mile. This subsidy warrants a *weight-distance charge* on heavy trucks. Such a levy on vehicle weight multiplied by distance travelled, amounting to £1 per mile for a 20-tonne lorry, would provoke companies to modify their location, manufacture and mode of shipment to reduce material carried and distances covered (for instance, water replacing road transport, increased use of local supply, lighter and smaller goods). And, since lorry travel would shrink but not disappear, the weight-distance charge would generate revenues with which government could mitigate public and environmental harms from lorries through a host of means ranging from enforcement to lower taxes in affected areas.

Now, Fairlie would regard this as a licence to pollute. But lorry operators — and Britain's 15 million motorists, for that matter — already hold this licence and they exercise it every day, devastating towns and countryside. Making polluters pay via road pricing is no more an endorsement of pollution than is the status quo, and it is far better in terms of reducing pollution and promoting equity than continuing to let polluters pollute, that is, letting motorists drive without paying. Moreover, pricing is not an alternative to, but a partner of, other means to reduce driving and its damage to society.

Fairlie's hyperbole notwithstanding, Britain does not need to be re-arranged to implement a weight-distance charge on lorries. A national registry would suffice, with periodic reporting of, and billing for, each lorry's distance travelled and maximum gross weight. The charges should be increased gradually to afford businesses time to adjust. A more sophisticated system calibrating the charges to population density, requiring weigh-stations or electronic metering devices, could be implemented in a second stage.

Following their introduction for lorries, weight-distance charges could be extended to all motor vehicles, thus eliminating rule-bending and reducing all motor travel while encouraging the shift to smaller vehicles (driven less often) that Fairlie and I both seek. To capture the costs of tailpipe emissions, which too often correlate poorly with vehicle weight (and with fuel consumption, for that matter), mileage-based smog fees should be introduced as well. These initially could be approximated through emission averages for each vehicle model, but eventually could be measured in real time via on-board diagnostics using micro-processors.

If full-cost accounting of road travel is not, then, unduly "arbitrary," "pervasive" and "staggeringly complex," we come to Fairlie's ultimate objection: that it is "based on the assumption that people have a right to cause environmental damage . . . as long as they can afford to pay the costs." But this ignores the crucial fact that, unlike ordinary purchases, road pricing payments would go not to the private makers and sellers of goods, but to the public treasury. While of course these revenues may end up financing cruise missiles or rationalizing corporate tax dodges, there is at least the possibility of their financing social services, public transport and equitable tax reductions. Indeed, it should be a requirement of road pricing that its very considerable revenues finance progressive spending and tax reductions.

Moreover, it is not as if road pricing will suddenly open the floodgates for the wealthy to damage the environment. On the contrary, it will almost certainly take money away from the rich and upper-middle classes and redistribute it downwards. In New York, Los Angeles and, I suspect, most places in between, the rich drive on average five times as much as the poor. (In the New York calculation, "rich" denotes the upper one-third of households, and "poor" the remaining two-thirds; in Los Angeles, the comparison is between the richest and poorest quintiles.) It would be surprising if figures for the UK were much different. Yes, some poor drivers will be "tolled off" the roads, but they will gain money in their pockets with which to purchase goods and services that, for most, will more than offset the crimp in their mobility. Poor non-drivers will fare even better. Fairlie seems to have missed this central point.

Fairlie puts his hopes for reducing auto domination in "restrict[ing] road vehicles to activities that cause a minimum of damage to the environment and to other people," through speed restraints and other forms of traffic-calming, limits on roads and vehicle size and fuel use, and reinvestment in transit. I endorse such policies wholeheartedly, and campaign for many of them here in New York. But so long as we continue subsidizing traffic, they will be little more politically achievable on a large scale than full-cost road pricing, and probably less effective in reducing road travel.

The real point is that road pricing and socially-conscious land and infrastructure policies are not alternative paths, but mutually dependent and reinforcing means to a just and sustainable transport system. Without pricing, the

individual convenience of the car to car-owners, with or without traffic congestion, will guarantee growing auto use that will force and justify road expansion (and overwhelm programmes for traffic-calming and better transit), in turn generating more trips and compelling more families to own and use cars. Moreover, without pricing, funds to restore transit and rationales for centre-oriented development will be lacking. But without complementary changes in land use and infrastructure that afford people safe and convenient access to most destinations without private cars, pricing alone will be insufficient to guarantee people reasonable levels of mobility to which we are all entitled.

Fairlie performed a service by subjecting road pricing to tough scrutiny. He can perform a greater service next time by retiring his congestion-pricing straw man and considering how road pricing can play a central and progressive role in reducing reliance on motor vehicles.

Charles Komanoff
Komanoff Energy Associates
270 Lafayette Street
New York
NY 10012
USA

Road Rationing

I found the tone of Simon Fairlie's article, "The Theory Behind Road Tolls" (*The Ecologist*, November/December 1994) irritating. Its emotive language and technical bias were such as to leave me feeling that if this is what the journal does in a field with which I am familiar, how can I rely on it for guidance in fields of which I know little?

Briefly on the emotion. "Long-run marginal cost" was dismissed as "largely meaningless to the general public". Not only is this an elementary and necessary concept in economics; it is at least as capable of being understood as many of the chemical or ecological concepts *The Ecologist* regularly covers. Nor I suspect would your average motorist have any difficulty with "cruise controls". "Naked profiteering — jobs for the boys": you could say much the same about companies running car parks or consultants devising traffic calming. And Simon Fairlie's conclusion — "a fairy-tale logic propagated by a clique of pensionable DoT economists" — is just childish name-calling.

We no doubt agree that motor traffic must be controlled, urgently and

drastically. We would probably agree that a mix of methods is going to be necessary. But I submit that road-pricing merits a fairer appraisal than Fairlie gives it, and that environmental campaigners should consider its potential advantages.

Every movement of every vehicle on the highway could eventually be charged for in units essentially similar to units of electricity or telephone-time. Much remains to be done on the technology, but it need not be any more complex or intrusive than telecommunications networks have become, and the cost has to be set against the huge cost of motor-ing and its side-effects — and the consequences of not cutting that.

It is wrong to suggest that it could never have more than a marginal application, and indeed I would argue that the aim should be to price all roads with the long-term objective of curbing ecological irresponsibility. The distance/unit could vary according to the nature of the road and vehicle, the environmental burden and the volume of demand. Such a system would force the driver *at the moment of use* to consider whether the benefits outweighed the charge. I question Simon Fairlie's rather loaded summary of the evidence on the cost of congestion, but pricing does not need these aggregate



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estimates: charges could, for example, be progressively raised until traffic volumes were at (variable) environmentally-tolerable levels.

This would be vastly preferable to the appalling cost of congestion and pollution caused by the total failure of current price signals to the motorist and lorry operator. The dismissal of congestion as "part and parcel of the process of motoring" is rich to those of us whose bus is delayed or who face the stench of fumes, while the idea that it "facilitates pedestrian movement" in any worthwhile sense is absurd.

Traffic management is highly desirable, but it does not address the fundamental problem of economic inefficiency, and the evidence suggests that it cannot alone cope with the tidal wave of vehicles. Higher taxation of petrol might help, but demand is inelastic at the sort of average levels that would be politically credible. Road-pricing is a more precise tool because it tackles the problems only where and when they are acute. And pricing is almost certainly necessary to achieve a large transfer to public transport: the private benefits of the motor car are so great that a policy of improving bus and train services on its own will not attract sufficient journeys to save us from catastrophe.

Local Environment

Editors

Julian Agyeman and Bob Evans
South Bank University, London

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1996 - Volume 1. 3 issues. ISSN 1354-9839.

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It is an historical accident that the use of roads (but not railways) is perceived almost as a free good, and you and I know that mass-motorization is unsustainable. I do not underestimate the political sensitivity of introducing charges, but Simon Fairlie is being perverse in thinking that petrol quotas would be any more acceptable. Bureaucratic rationing has little to commend it, and there is no logical reason why scarce road space should not be rationed by price, nor why external costs should not be counteracted by pricing mechanisms.

The community must now decide whether to make serious use of charging techniques that are commonplace (and passably fair) in other sectors or whether to adopt the third-best solution of massively subsidizing buses and the railways. Insofar as the former would price off consumption of resources of which the net private benefit is at present outweighed by the social and environmental losses, *The Ecologist* should welcome it, while the latter could be ecologically unsound because it would encourage unnecessary travel and freight haulage.

Jonathan Tyler
Passenger Transport Networks

49 Stonegate
York
N Yorkshire YO1 2AW
UK

Simon Fairlie replies . . .

Whether or not "naked profiteering" is an over-emotional accusation, and whether or not the revenues from road tolling go into the public exchequer, one fact remains. Toll roads are designed to restrict scarce road-space to those who can bid highest for it. That is why it finds favour amongst free-market economists and aggressive construction companies such as Trafalgar House. Those of us concerned with democracy and equity should be questioning the logic behind this programme and looking at other solutions.

Rationing — even sometimes "bureaucratic rationing" — in fact has much to commend it. It means sharing out scarce resources fairly. During the Second World War, the British people would never have backed a government that openly allowed scarce supplies of meat, eggs and milk to find their way on to the tables of the wealthy. We should regard with equal suspicion any scheme which consigns scarce road space — and hence mobility — to a privileged sector of the population.

The "Real" Causes

A year ago, I knew little of the environment and its "real" condition. A change of circumstances since then has allowed me to investigate the issue beyond the information provided day to day in the newspapers.

My reading now suggests that the environment is not under attack by the natural forces of population growth, but rather the concerted efforts of clandestine business groups using covert operations to effect their requirements of a New World Order. Noam Chomsky's basic tenet in this regard is that there is a giant conspiracy, one that has taken place over many hundred of years, that today finds its backers in "the US state-corporate nexus." It is not formalized, conscious conspiracy, but the outcome of the capitalist intellectual concepts which are sewn into the First World's social fabric.

From this tenet, one can explain the many abnormalities in the global structure; from this perspective a semi-rationality comes about, although the acceptance is neither easy or pleasant. From international foreign aid and GATT to national taxation law, all is an attempt to transfer greater funds to the elite. As of this moment, their efforts have been surprisingly effective and complete. So here is the question:

As admirable as *The Ecologist's* efforts are, is there any way to really stop all this? The real problem seems to be not the pollution (environmental and social) but the ability of those effecting it to make it all seem like such a necessity, for example, free trade. The real problem has a subtlety to it that is not readily communicable in the community press. If the problem really is so entrenched in the system, is there any real way to bring it to an end, especially remembering the power that these groups have in the system?

With the greatest respect, besides preaching to the converted, what does a magazine like *The Ecologist* really achieve? And finally, what can or should a single individual do to bring about some change? Rest assured, I wish to help. But like many others, I sense a frustration bordering on futility. It would seem that the journey ahead is on a fixed railway track to destruction; the flexibility of an open road with scenic detours is not permitted.

Kerry Spencer-Salt
23 Greenhills Road
Croydon Park, NSW 2133
Sydney
AUSTRALIA

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18 November 1995: **THE LONDON ECOLOGY CONFERENCE**, Battlebridge Centre, 2-6 Battlebridge Road, Kings Cross, London NW1. All groups and individuals campaigning for the environment in London invited. For more information, contact Klaus Graichen, 21 Spring Park Drive, London N4 2NR. Tel: 0181-442 8640.

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10 December 1995: **FOOD POLICY: Making a Feast of It** conference at Brunei Gallery, Russell Square, London WC1. For more information, contact Peta Cottee, National Food Alliance, 5-11 Worship Street, London EC2A 2BH. Tel: 0171-628 2442; Fax: 0171-628 9329.

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