

Chain Reaction

Friends of the Earth Australia

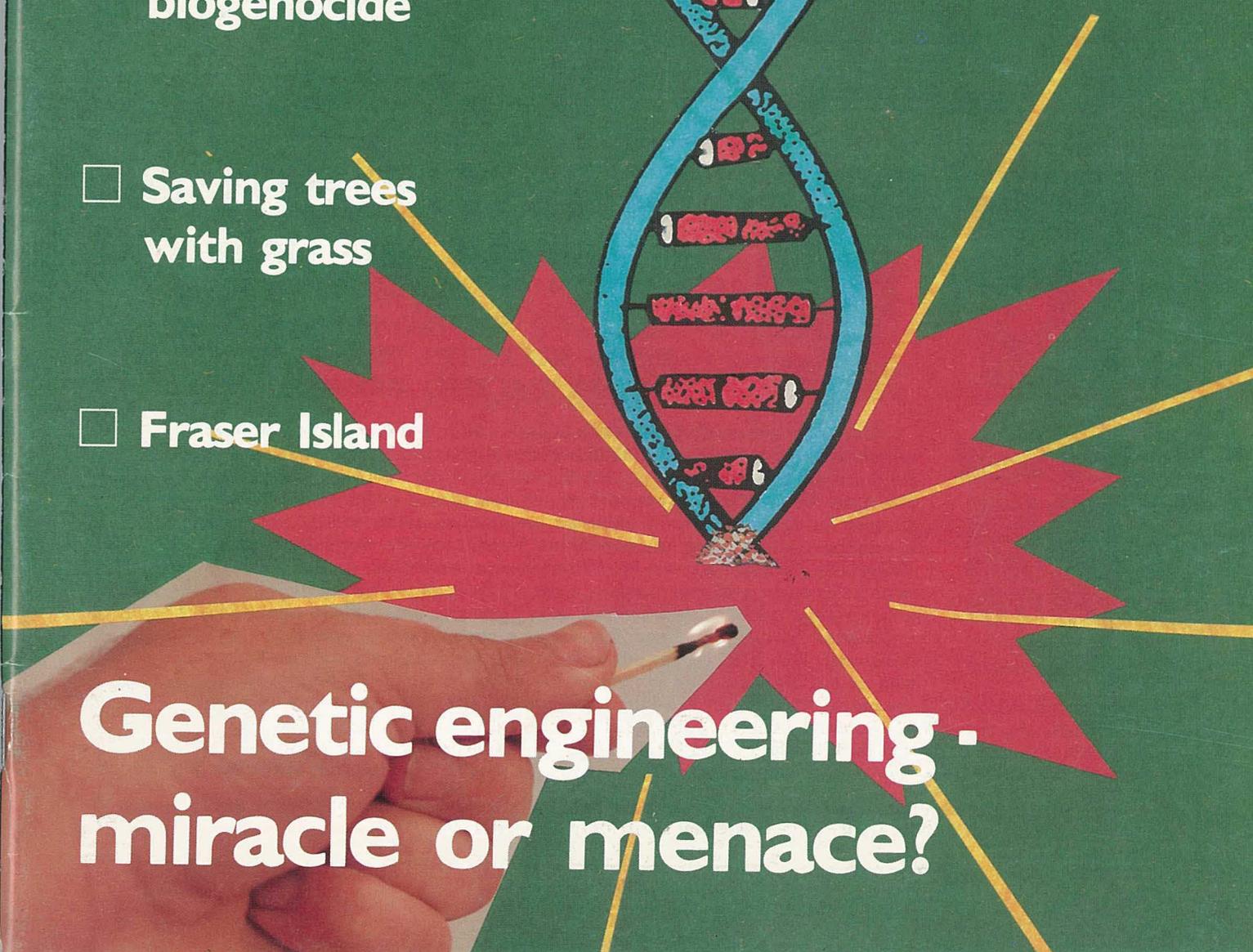
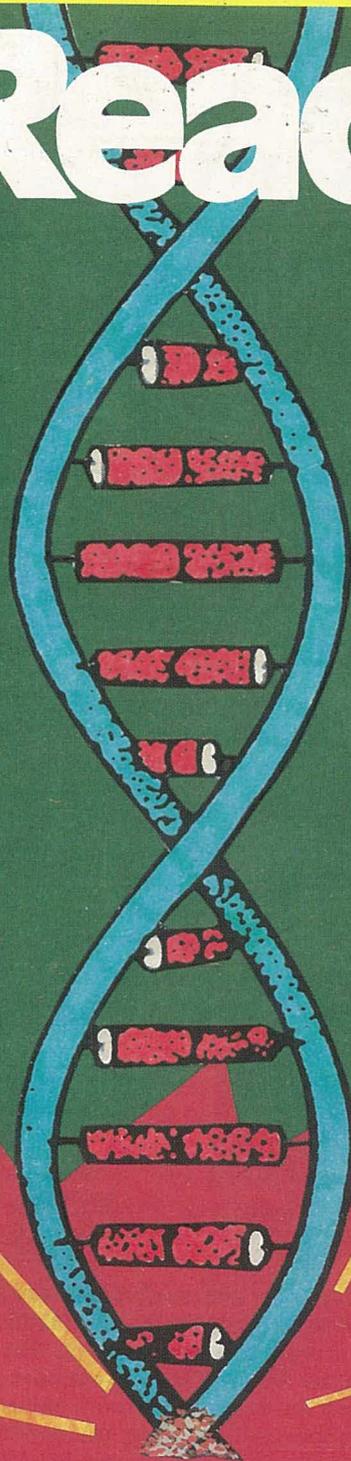
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Sustainable development

Biodiversity or biogenocide

Saving trees with grass

Fraser Island



Genetic engineering - miracle or menace?

Peter Watkins'

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National Waste Busters Day

Thursday 22 November 1990
Let's act together to get our act together

Attention all Waste Busters

Friends of the Earth has proclaimed 22 November 1990 a National Waste Busters Day will be seen as a co-ordinated demonstration of the Australian community's concern for the environment — specifically targetting the wastefulness of 'modern' society.

We urge individuals and groups to participate in activities which promote waste minimisation. Friends of the Earth endorses a positive solutions oriented approach where problems are identified and solutions are proposed.

In order to co-ordinate the day's events all participating groups are asked to provide details of their activities by 25 October 1990. This information will be compiled and made available to the media.

Friends of the Earth (Sydney)
4th Floor, 56 Foster St
Surry Hills, NSW, 2010
Ph (02) 281 4070
Fax (02) 281 5218

Chain Reaction

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30 Biodiversity or Biogenocide?

The diversity of life on the planet is important for all species, it even affects the economic activities of *Homo sapiens*. According to *Richard Hindmarsh*, one species is endangering all of the others, and itself.

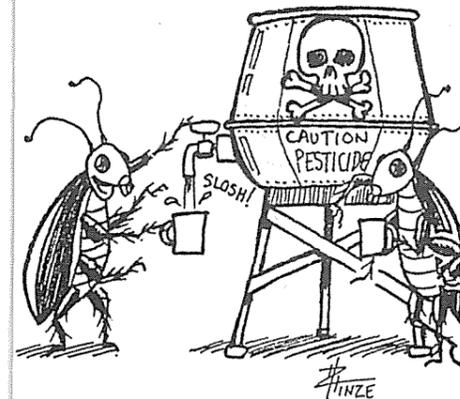
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periodicals available or the money to subscribe to all these periodicals. The subscription rate for a year is US\$40/ (by airmail) OR US\$30 (by seamount). All payments to: SAHABAT ALAM MALAYSIA/ Friends of the Earth, Malaysia, 43, Salween Road, 10050 Penang, Malaysia. A small donation to support the work of this non-profit environmental conservation organisation will be greatly appreciated.

Note: Due to the expensive bank commission levy on overseas cheques, please try to send all payment to us by BANK DRAFT/INTERNATIONAL MONEY ORDER.



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Letters

Non-violence

Earlier this year I attended a number of meetings with the Rainforest Action Group (RAG) and Friends of the Earth Fitzroy to organise an action highlighting Mitsubishi's role in Rainforest destruction. This turned instead into a debate on varying interpretations of non violent direct action (NVDA). One of the main areas of conflict was the role the police were to take in our action, and I would like to contribute to the debate on the RAG's brand of NVDA with reference to this action.

Policemen (and I use "men" here because the law is essentially a male modality and the police the cultural masculinisation of authority) adhere to a role which is to develop and implement policies which support patriarchical ideas.

This is not to say that the police are not human beings who are also trapped in the system. Yet they are also responsible for their part in the system and as police they also play a part in creating and perpetuating the system.

I certainly think it is dangerous to focus all activist anger and energy on hating them, although police violence often provokes anger and hatred. Of course, it is not useful to hate people on principle, but it is also arrogant to dismiss legitimate reaction to horrific experiences.

It is often advantageous to a group to inform the police of actions. Indeed a nonviolence theorist, Gene Sharp states: "it has even meant that the police be notified in advance" (my emphasis).

This statement seems to be an unshakeable definitive platform upon which RAG base their entire strategy, and not just for themselves. Late in 1989 Earth First! had a demo at McDonalds to highlight Ronald's imperialist rainforest destruction. RAG members were invited to meetings which decided not to inform the police of the action. The police arrived before the protesters did.

The Mitsubishi action involved people with conflicting political opinions. Members of the group questioning the necessity to inform the police of every detail offered numerous compromises, which did include informing the police. All the many compromises were rejected — they were not "the process". The arguments flew for weeks. We gave in completely. We knew the police would be there anyway.

Melbourne RAG's strong relationship with the police manifests as requests for 'Police for Rainforests' stickers. Robert Burrowes (*Chain Reaction* 59) hails the sale of this sticker as a major move towards police environmentalism. Here it would seem apt to say that it's more than a sticker — it's a lifestyle. And may I add, there is a lot of sticker donning going on of late, and it is especially in these times that the environmental movement has a responsibility to turn debate into action and gain some real achievements.

Felicity Ruby
Repton NSW

Confessions of a corporate clown

For almost two years I went against everything I ever believed in by selling out to the McDonald's corporate juggernaut by playing Ronald McDonald to thousands of innocent, trusting children.

Prior to that, I am sorry to say, I also portrayed the Marvellous Magical Burger King in the north eastern United States doing a children's magic show promoting the glory of meat eating for the Burger King corporation.

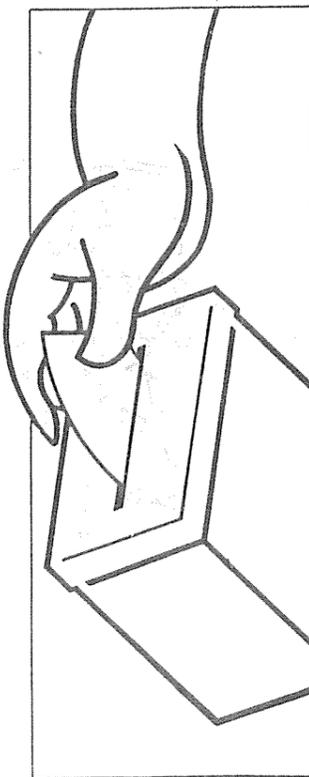
Ten years later, I now realize I have a debt to parents and children everywhere to try and present the truth about the wonderful vegetarian lifestyle to which I owe so much. Towards that end I have developed a brand new show to gently educate kids about their true relationship to the environment, their animal friends, and each other, as neighbours on a dreadfully victimised over burdened planet.

This show (complete with magic, music and fun) is my way of saying sorry for selling out so blatantly to concerns who make their millions off the murder of countless animals and the exploitation of children for their own ends. Although moderate expenses are expected from sponsors, this is a not-for-profit scheme centred on showing young people the peaceful alternatives of the natural, healthful, vegetarian way of life.

To get more information on the show, please write to: Skyboot Productions PO Box 718 Lockport New York 14095.

Geoffrey Giuliano
United States

You are invited to write letters to *Chain Reaction* with your comments on the magazine or any other issues of interest. Letters should be kept within 300 words so that as many as possible can be published. Longer letters may be edited. Write today to *Chain Reaction*, GPO Box 90 Adelaide, 5001, South Australia.



The Gulf war and US bases

I was interested to read Andrew Nette's article on the opposition to the US bases in the Philippines (*Chain Reaction* 61). It was especially interesting in the light of the military intervention in the Gulf, because the outcome there will have an effect on the fight against the US bases elsewhere.

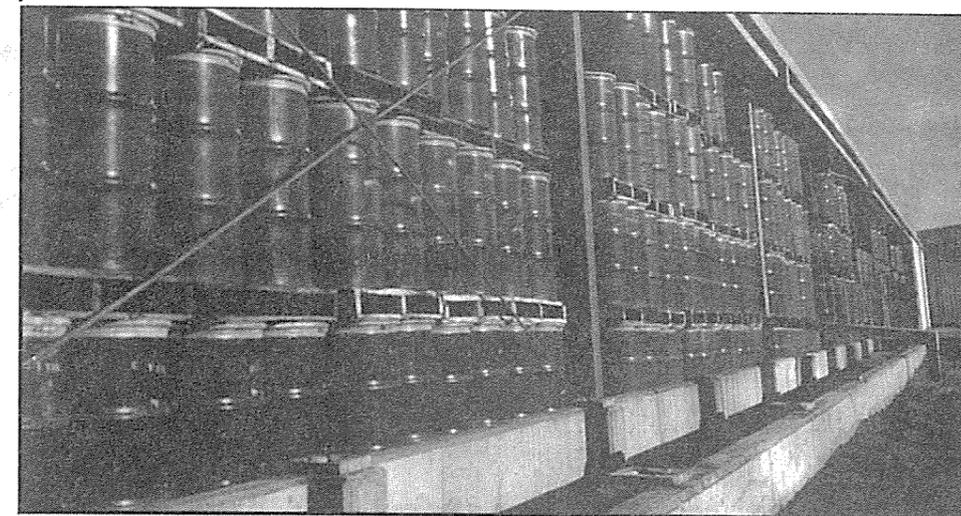
If the US defeats Iraq, the US government will gain the confidence it lost after its defeat in Vietnam. Once again we will see the US government swaggering around, aggressively addressing the interests of the ruling class.

One of the key places will be the Philippines. Nette's article described the political and military intervention of the American government. With a US win in the Gulf that intervention will escalate, making the fight against the bases much harder to win.

But of course, the converse is true too. If the American army is defeated it will give a real boost to the anti-bases campaign in the Philippines. If the Arabs kick the Americans out of the Middle East then the Philipinos could very well develop the confidence to do the same. And who knows — maybe we will be able to kick the US bases out of Australia too!

So, who wins in the Gulf is important to many struggles around the world. People who support such struggles should hope for a resounding defeat for the American Army in the Gulf. And join the fight in Australia to help bring about that defeat.

Anne Lawson
Ascot Vale SA.



The production of hazardous waste continues at ICI's Botany plant

Intractable problem

Peter Brotherton (*Chain Reaction* 61), who is himself a member of the Intractable Waste Taskforce, takes issue with *Chain Reaction* for accusing the Taskforce of being more concerned with disposal solutions than with broader hazardous waste management strategies. He quotes his own Taskforce Phase 2 Report as evidence that the Taskforce does indeed believe that 'waste prevention' is the appropriate management process to deal with intractable waste.

However strategies to encourage waste prevention do not need to be sold to the community. Most people would wholeheartedly agree with the idea that we should aim to stop producing intractable waste as soon as possible. So why has the Taskforce recommended a major community consultation program? It seems to me that the Taskforce has not engaged the public relations firm, Community Projects Ltd, who have a reputation for smoothing

the way for controversial projects, to visit environmental and community groups all over New South Wales to persuade them that waste prevention is best. Community Projects Ltd has quite obviously been hired to gain community support for a high temperature incinerator.

Whatever rhetoric the Taskforce uses and however vehemently they espouse a waste prevention philosophy, their actions speak louder than their words. In fact, it seems that their talk of waste prevention is really aimed at gaining support for the incinerator from environmentalists since one of the best arguments against establishing such an incinerator is that it will facilitate continued production of hazardous wastes by providing a disposal solution for them.

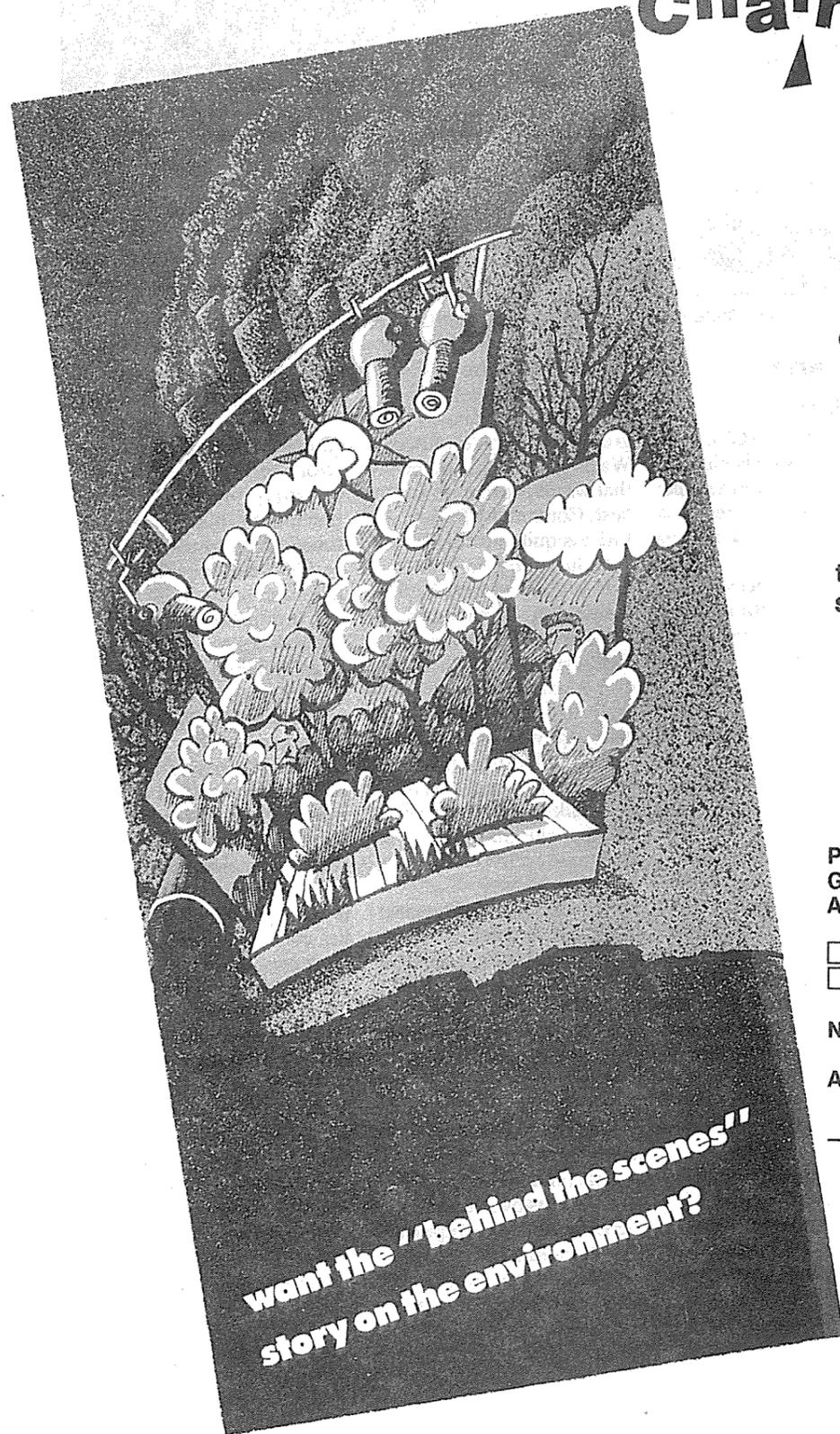
The gap between the spoken commitment to waste prevention and the actual commitment is painfully obvious overseas. In the United States, despite a 1984 Congress commitment to hazardous waste reduction, their Environmental Protection Agency (EPA)

only requested \$398,000 (0.03 per cent of their total budget) for waste minimisation projects in 1988 (*Chain Reaction* 53). It would be interesting to know how much of the Taskforce's time and budget is being invested in finding ways to minimise hazardous wastes and how much is going towards the establishment of an incinerator.

I, for one, do not put much faith in government promises that they will prohibit the generation of intractable chemical waste from 1995. Governments change and people have short memories. It is a promise that is more likely to be kept if an incinerator has not yet been built. Industry needs the support of environmentalists to get their incinerator established. Let's withhold our support for this facility at least until they have actually stopped producing these hazardous wastes. We won't be in such a good position to make demands once our support is no longer required.

Sharon Beder
Coalition Against Toxic
Emissions
Sydney NSW

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Chain Reaction



Chain Reaction is the national magazine of Friends of the Earth Australia. Since its establishment in 1975, it has covered a broad range of issues relating to the environment and has provided a resource for all those concerned to know the stories and issues ignored or hidden in other media. The best way to receive *Chain Reaction* is through a subscription. Return the form below and keep in touch.

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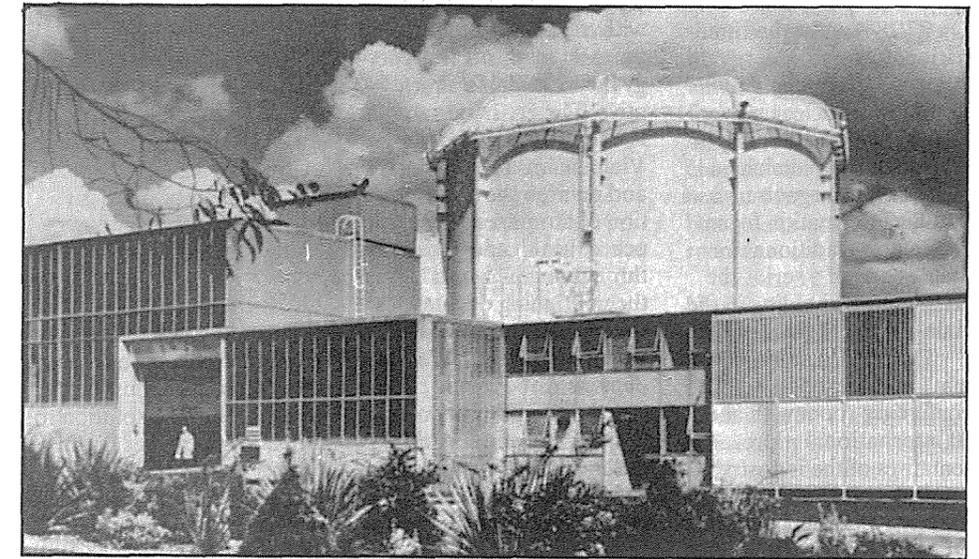
Earth News

HIFAR will it go?

The Australian Nuclear Science and Technology Organisation's (ANSTO's) Lucas Heights research reactor, in Sydney's southern suburbs, has come under increased criticism recently. The Association of Professional Engineers of Australia (APEA) has gone public with a detailed series of occupational and technical safety concerns. NSW President of APEA Mike Veysey said the action was in response to "a wall of indifference and complacency" from ANSTO.

The engineers' criticisms have been supported by a review of the reactor's safety and management conducted in 1989 by a team from Atomic Energy of Canada Ltd, (AECL). The Canadians outlined a comprehensive series of concerns and made over fifty recommendations to improve Lucas Heights safety regime. These concerns included such areas as: limited training for key personnel; no regular maintenance, testing or inspection programmes; poor health and safety practices; obsolete and unmaintained operating manuals; improper management of high level waste, and; inadequate emergency arrangements and planning.

ANSTO's response to such fundamental criticisms



The HIFAR reactor at Lucas Heights

from within the industry has been comparable its approach when it is under attack from the anti-nuclear movement or local residents. David Cook, the director of ANSTO, accused the engineers of behaving in an unethical and "presumptuous" fashion. In spite of all the evidence, all the reports, all the criticisms, ANSTO senior management refuses to acknowledge any problems with the operation of the over thirty year old HIFAR reactor. Cook's major response was a statement claiming the Australian "scientific community had every confidence in HIFAR and ANSTO's operations" — a comment which in the

context could hardly improve ANSTO's credibility and which led the engineers to complain that "current management is masking reality".

In the midst of these criticisms comes notice of disturbing new plans for the development of both the Lucas Heights facility and the surrounding area. It is believed that about 90,000 people have moved into the area since the reactor was built in the 1950s. Governmental approval now appears likely for a proposal which would allow residential and other development to occur up to 1.6km from the plant. Currently there is a 4.8km exclusion zone around the

site. ANSTO maintains that the plan is safe. A further "independent" study supported this view, which is hardly surprising given that it was commissioned by ICI, a major contractor to ANSTO.

ANSTO's actions must call its ethical and technical credibility into question. A full public and genuinely independent inquiry is the minimum step necessary to ensure workers and local residents, whether present or future, are not paying for technocratic nuclear ambitions with their health or lives.

Source: *Bulletin*, 17 July 1990; *FOE Sydney press release*, July 1990.

"Non-traditional" nuclear power

On 27/28 August the International Atomic Energy Agency (IAEA) held a seminar on nuclear power and the nuclear industry in Canberra. The seminar, described by organisers as a "public information forum with a non-traditional format" is one of a series the IAEA intend holding in the Asia-Pacific region

The "non-traditional format" consisted of a hotel conference room with about 30 international representatives of the industry, predominately from Western Europe, including Dr Hans Blix, Director-general of the IAEA. They were aided by a corresponding number of Australian nuclear representatives,

mainly drawn from the ranks of ANSTO, the uranium mining companies and various government departments and statutory authorities. The object of these people's attention was a selection of about 40 members of Australian and regional media.

The main thrust of the speakers was that increasing demand for energy in the developing world, coupled with the effects of global warming made nuclear energy the most viable alternative. The IAEA, established in 1957 and based in Vienna aims to "accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world". With the continuing decline of the nuclear industry in the developed nations, starkly demonstrated by the recent failed attempt to privatise the UK nuclear power industry, the IAEA and the industry in general are increasingly dependent on creating demand in the developing world.

The most animated seminar session was a panel discussion in which ACF's

Mark Diesendorf and Ian Lowe from Griffith University were able to critically examine the economic, environmental and technical limitations and problems of nuclear power. This was markedly different from the sterility which typified other seminar sessions, which avoided discussing Chernobyl, growing anti-nuclear sentiment and the increasing use of alternative energy technologies.

It was clear that many at the seminar had adopted a defensive attitude to the increasing scrutiny and criticism which the industry is experiencing. The issue of global warming and greenhouse gas emissions is seen by many within the industry as the selling point for this decade. This cynical attempt to display environmental concern must be challenged. The solution to global warming lies not in the wholesale embracing of the fundamentally flawed nuclear option but rather in energy conservation and efficiency and the transition to renewable energy options. **Source:** *Friends of the Earth Fitzroy; Greenpeace.*



Smokes getting to the Thais

While the US government wages war on tobacco consumption at home, abroad it sings a different tune.

As cigarette consumption declines in the west, millions of people in Eastern Europe and Asia are lighting up. Consumer awareness in industrialised countries has not put the US-dominated tobacco multinationals out of business, but driven them to look for markets elsewhere. Developing countries, women and young people are the new targets.

American tobacco companies and the US Trade Representative are pressuring Thailand to import US cigarettes. Thailand has refused on health grounds, saying the presence of American cigarettes will sabotage efforts to reduce smoking among the Thai people.

Claiming unfair trade practices, the US has referred the dispute to the Multilateral General Agreement on Tariffs and Trade (GATT).

A decision is expected in November 1990.

Source: *Consumer Lifelines.*

Bellamy and throw away plastics

David Bellamy, the one time hero of the Franklin, has now stooped to advertising throwaway plastic containers on commercial television. The ads feature David Bellamy thrusting small unit disposable plastic containers full of yoghurt at the camera in the company of children, telling viewers how good this particular brand is.

As a TV environmentalist with a high personality profile David Bellamy has a lot to answer for with these offensive adverts. He surely cannot be unaware of the environmental effects of throwaway plastic packaging.

Plastics do not biodegrade and they reside in the soil and water for unknown lengths of time. Our beaches are also littered with throwaway plastic containers and wilderness also suffers from throwaway plastic pollution. Burning plastics on our dumps also causes atmospheric pollution and gives off traces of dioxin.

Why then is David Bellamy advertising such a product? Obviously he can only be doing it for the same reason other media personalities promote certain products — for money.

Advertising agencies usually recruit such media personalities to promote their goods with quite high fees. The fee is then recovered by the increased sales that such personalities generate.

David Bellamy is therefore directly and deliberately increasing the amount of disposable plastic entering the environment.

Source: *Ian Grayson*



Effluent talk in SA

South Australia is currently the only State in Australia without any legislation governing the discharge of industrial effluent into the marine environment and this issue will provide an interesting gauge for evaluating the performance of the Bannan Government and its values on the environment.

The Government first introduced a marine protection Bill in late 1989. A State election stalled this effort and the legislation was reintroduced in February 1990. Three months appears to be a long time in politics, as the Liberal opposition moved from supporting the Government's initial Bill to vigorously opposing the reintroduced one.

Maybe a narrow election loss combined with a realisation that a blind ignorance of environmental matters costs important votes, and the appointment

of a Shadow Minister who can appreciate that link helped adjust the Liberal's perspective on the issue.

The original Bill was an attempt to provide comprehensive legislation but was muddled by ambiguous powers placed with the Minister of Environment and Planning. At best, it allocated the cost of cleaning up a spill firmly with the polluter. At worst, it granted the Minister the complete power in deciding what was a polluting substance and in what circumstance. The powers of exemption were also placed with the Minister. Fines for breaking the Act were limited to a maximum of \$100,000 for the offending company. Industry was to be allowed a transition period of fifteen years before having to comply to the Act.

Fortuitously both opposition parties had similar objectives in amending the Government's Bill. They proposed a clear definition of polluting substances, no powers of exemption, maximum fines of up to a million dollars, an advisory committee of experts to make recommendations to the Minister, limiting the transition period to eight years (though the Democrats favoured a shorter period again), and the establishment of a Marine Protection Fund to research South Australian marine waters.

Long hours of debate followed; if self-effusive pontificating were a criminal offence, we would all be calling for the death penalty. After everybody had had their two bob's worth and the Bill had faced both Houses of Parliament, the legislation reached stalemate on two points: the stopping of the

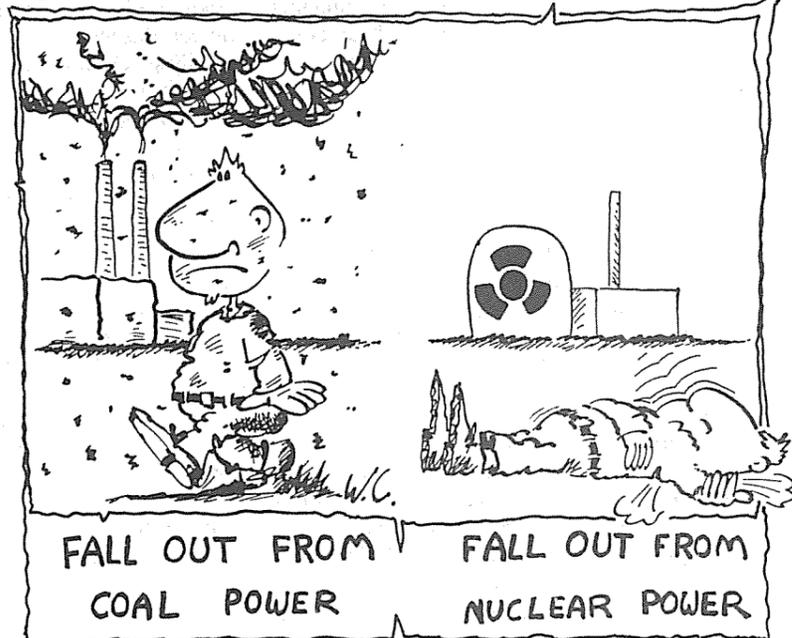
release of sewage sludge and the establishment of a separate marine advisory committee.

Willing to accept many beneficial amendments but not all, the Minister dropped the Bill. This was followed by recriminations from both sides, though one of the more amusing rationales came from the Minister who reminded anybody who would listen that she "had agreed to 59 of 61 of the Opposition's amendments". That thirty five of these were the same of one of either three word changes did not seem to matter when the serious business of political point scoring is on.

In August 1990, the Marine Environment Protection Bill made its third appearance and its progress through Parliament is so far comfortable. Interestingly, it is essentially the same legislation dropped by Government earlier in 1990 with one or two improvements of its own thrown in. The most contentious issue of ending sewage sludge discharge by 1993 has been dropped by the Liberals, after indication that the Government will be fulfilling its pre-election promises in this area.

What comes out of all of this should be the best marine pollution legislation in the country, though no Act is worth the paper it is printed on unless the resources are made available for its functions to be carried out adequately. Given the conditions of personnel in the National Parks and Wildlife Service and the Department of Fisheries (to name but two) this is not a foregone conclusion.

Source: *Greenpeace (Adelaide).*



Earth News

Acting on a WIM

In the Wimmera region of Western Victorian Wimmera Industrial Minerals (WIM), a wholly owned subsidiary of CRA, has recently gained approval to begin the demonstration phase of a major sand mining project. WIM's project has been divided into three stages: 1) proving the practicality of the technology involved; 2) demonstrating on 1000 acres to fine tune the technology for commercial production; 3) full scale commercial mining operations over an estimated 15,000 acres, although recent company claims have outlined potential mining areas in excess of 100,000 acres.

The environmental consequences of mining operations on such a broad scale are numerous. The predicted water usage at

the commercial stage is ten thousand megalitres per year. This would put a very severe strain on the water system in a region where the existing water supply is already overcommitted and the river systems degraded. Any use of water from a deep underlying aquifer raises similar problems with added unresolved issues of reductions in pressure, increases in ground water flow and the inevitable result of increased salinity levels.

Other major concerns include: the possibility of chemical or radioactive contamination of the area's water; the impact of mining on animals; heavy vehicle traffic impact; visual impact — the site is located only kilometres from the Grampians National Park; nutrient enrichment of ground and surface water, and; contamination of air, soil and water by dust and radioactive gases and particles.

The radiation hazards associated with the mining of mineral sands are a cause of major concern. A joint ACTU/VTHC occupational health and safety unit document recognised this when it outlined that "all members involved in the

mining, processing, handling and transport of monazite should be regarded as radiation workers"! It is estimated that during the commercial stage of the WIM project there will be nearly 6,000 tonnes of thorium and around 500 tonnes of uranium residue on the site. This project clearly undermines the spirit, and possibly the letter, of Victoria's nuclear free legislation.

Local concern about, and opposition to the project is growing. Speculation about the extent of mining in the region has already resulted in depressed land and property values according to representatives of the Victorian Farmers Federation. Farmers in Victoria have no legal right to prevent mining on freehold land and the question of rehabilitation, especially given the problems this project would present, has not been resolved. The WIM project will have serious effects on agricultural production and increase soil degradation, erosion and nutrient loss. In this context the action taken by local farmers in forming action and land protection groups is, whilst hardly surprising, most encouraging. A broad coalition of anti-nuclear, environmental and agricultural groups has begun to develop around this issue and it will continue to push for public discussion to challenge the glib, and often contradictory assurances coming from the company.

Source: ACF (Wimmera Branch) briefing paper, FOE Fitzroy briefing paper, ACTU/VTHC Occupational Health and Safety Unit.

Norwegian whaling

Greenpeace has condemned the departure of a Norwegian whaling ship to kill minke whales as part of a so-called scientific research hunt.

To do so is in contary to the International Whaling Commission's (IWC) ban on whaling.

In July the IWC condemned the proposal and called on Norway to refrain from killing the minke whales. The Norwegians now face the threat of economic sanctions from the US. Under the Pelly Amendment, the US Commerce Department can embargo any amount of Norwegian fisheries imports (worth \$US 141 million a year) for violating the directives of the IWC. In February, US Commerce Secretary Mosbacher warned that sanctions could be used against Norway if it carried out the hunt. So far, the US Government has never used these economic sanctions — one of the only means of punishing a country contravening the IWC's conservation program.

The European parliament has also backed sanctions to enforce the commercial whaling ban. On May 17, it called on all EC members to sustain the IWC's commercial whaling moratorium by "all possible diplomatic, economic and other measures."

The killing will add to Norway's already appalling record on whaling. Since the ban on commercial whaling was introduced in 1986, Norway has killed 825 minke whales.

Government sources in Norway claim that the minke stocks in the north east Atlantic numbered 77,000, and were not under threat. Source: Greenpeace via Environet, 24 August 1990.

Radiation rules ... OK?

No one should contest the fact that any exposure to radiation is harmful to any life system. With regard to occupational radiation protection standards debate has always been on what constitutes an "acceptable dose", namely what the 'public' accepts as a permissible risk in terms of health impacts.

To allow the nuclear industry to operate economically, workers are not classified as members of the public so they can legally receive higher doses of radiation.

From an anti-nuclear viewpoint, no radiation exposure attributable to nuclear related industries is acceptable or permissible, as there is no justification for the nuclear industry to exist.

Now the industry's proponents are having to face up to the fact that the radiation protection standards derived from these perceived permissible risks are no longer "acceptable". Recent reports have necessitated a rethink.

The *Biological Effects of Ionizing Radiation V* report studied the incidence of cancer in the survivor population of Hiroshima and Nagasaki. This report concluded that the risks of developing cancer from low levels of radiation exposure is three to four times as high as previously thought and that there is no level below

which the effects of radiation can be disregarded.

The *Gardner Report* studied the incidence of leukaemia in offspring of workers at Sellafield nuclear reprocessing plant in the UK. The study confirmed a statistical link between a worker's radiation dose and genetic mutation of their sperm cells and the incidence of leukaemia in their children.

These reports confirmed that risk estimates used to derive present radiation exposure limits (recommended by the International Commission on Radiological Protection in 1957) underestimated the risks and that the occupational limit of 50 millirem is "unacceptably high". As a result the ICRP is set to recommend a reduction in exposure limits to 20 mSv in 1991.

Until the Gardner Report no studies conclusively linked radiation exposure to genetic damage in human beings. The report has thrown the industry and its regulatory bodies into disarray.

Exposure of living tissue to ionizing radiation sets off a chain of chemical, physical and biological changes that can result in serious illness, genetic defects or death. Changes to the molecules of cells that have been ionized may kill the cell outright or alter them causing cancer or other physical injuries to develop. In theory a single exposure to ionizing radiation can

cause irreversible cell damage. Cells are most susceptible to damage when they are dividing, thus fetuses and young children are especially at risk. Radiation can either cause damage to the exposed person or their offspring. Genetic damage is damage to the exposed persons sex cells or gonads, which is passed onto future generations.

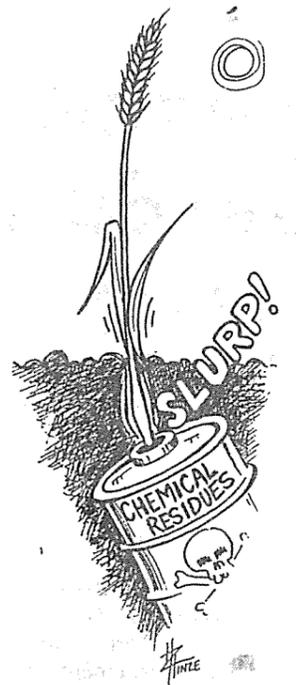
The nuclear industry works on the premise that we are willing to "accept" genetic damage resulting from worker's higher radiation exposure i.e. we are willing to pay the "price" of a "reasonable" number of defective children so we can have the "benefits" of nuclear generated energy and nuclear weapons.

Genetic damage is a routine product of standard operations in the nuclear industry. It does not constitute a previously unknown risk as radiation protection standards have been based on the following assumptions:

- in order to earn a living a worker would accept more than a normal share of radiation induced defective genes.
- society would accept the incremental damage resulting from mating with occupationally exposed persons of reproductive capacity.

In light of the furore caused by the findings of the Gardner Report it is all too obvious that these assumptions are ill-founded.

Source: Greenpeace (Adelaide).



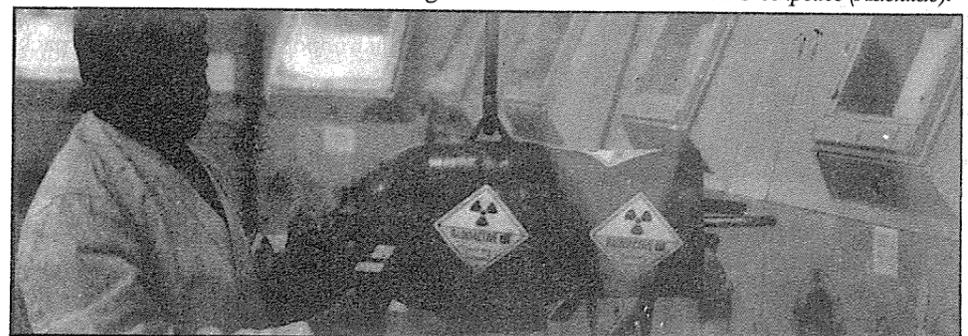
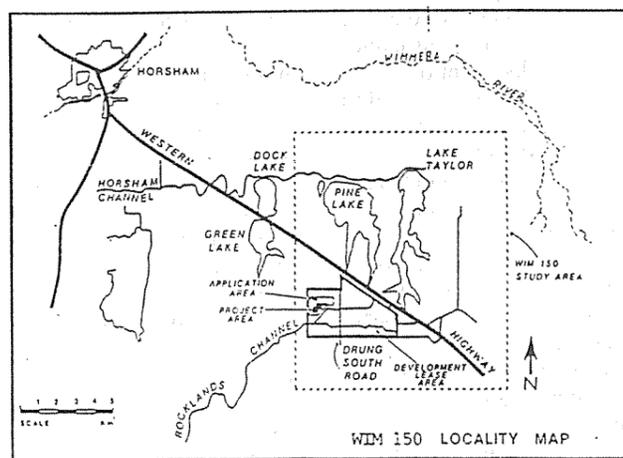
Toxic accounting

While the largest industrial emitters of toxic pollutants in the US report a nearly 40 percent reduction in toxic releases, the largest decreases resulted from "creative accounting", not from pollution control methods, according to a study released by the National Wildlife Federation (NWF).

The NWF study, *Phantom Reductions: Tracking Toxic Trends* (1990), examined 29 of the 500 facilities identified by NWF a year ago as the 'Toxic 500' and concluded that, despite appearances, toxic emissions from many facilities did not significantly decline in 1987-88.

Under the Emergency Planning and Community Right-to-Know statute, companies are required to report the volume of toxics they expel into the air, land, and water. The Environmental Protection Agency (EPA) publishes the figures in an annual Toxic Release Inventory.

Source: National Wildlife Federation, 1400 16th Street, N.W. Washington, DC



Friends of the Earth News

Forming new Friends of the Earth groups

Friends of the Earth is unique among Australian environment organisations in that local groups are not established by a central, national body — they are started by local people who then apply to FOE Australia to become part of that national network.

There are some advantages to a local group in being part of FOE Australia, including:

- Greater access to the knowledge and experience of FOE groups and members throughout Australia and even the world;
- Recognition by people, politicians, and the media as an environment group with something to say on a wide range of local, national and global issues;
- Occasional access to joint fundraising ventures;
- Publicity for issues through the pages of *Chain Reaction*, (all you have to do is write it, send it in, and survive the editing);
- Cheap rates on *Chain Reaction* for members.

There are many other advantages, and probably a number of disadvantages, that will not be covered here. However, if you think your local group could benefit from being a Friends of the Earth group, or, if you have the energy to start a new Friends of the Earth group, please read on.

Local autonomy

Local Friends of the Earth groups are basically autonomous, and most of the procedures for setting up a FOE group

are standard practices, but not strict necessities.

Local groups may draw up their own rules for operation provided that they do not conflict with the objectives of the FOE Australia constitution. These local rules must be approved by a local general meeting.

Local groups must also take appropriate steps to protect the name 'Friends of the Earth', although they need not use this name themselves.

The most important requirement for a group becoming a Friends of the Earth group is that it gain approval to do so from the existing FOE groups in Australia. This can be done through a vote at the national meeting, usually held annually in January. It can also be done through a national ballot of the FOE groups between national meetings.

For further information ...

The 1990 national meeting appointed FOE Fitzroy as the point for people to contact if they wish to form new groups. Cam Walker at FOE Fitzroy has produced a kit for new groups, and he is available for telephone consultations.

Contact: Cam Walker, FOE Fitzroy, 222 Brunswick St, Fitzroy, Victoria, 3065 Telephone: (03) 419 8700

Don't sell uranium stockpile

FOE has condemned moves, reported 16 September, to sell off the Australian Government's uranium stockpile for \$50 million.

According to FOE's Uranium researcher, John Hallam:

"Moves to sell off the stockpile in the near future make no commercial sense. While the spot-price has risen slightly in recent weeks, it is far from anywhere near the cost of production. Australia's 2000 tonne stockpile will force down spot-prices again, without gaining a decent price for the Government. \$50 million is a pittance for such a quantity of uranium, and will do nothing to solve Australia's balance of payment problems.

"The timing of the sale seems to have more to do with the upcoming ALP conference, than with any realities of the uranium market. If the government were interested in getting a decent return on the stockpile, it would wait a number of years before selling it off",

Mr Hallam concluded.

The sale of this stockpile would wipe out the 2000 tonne/year shortfall in yellowcake production, resulting in a worldwide glut and probably the lowest prices on record.

For further information, contact: John Hallam (02) 281 4070 (FOE Sydney).

National waste strategy launched

A National Waste Minimisation Strategy has been launched by Friends of the Earth calling for a 50 per cent waste reduction by the year 2000, achieved through a mixture of market-based measures and regulation.

The Strategy has been developed with a view to its adoption by state and federal governments and was presented to the Federal Government's Waste Summit on August 15-16.

Fran Macdonald, recycling spokesperson for Friends of the Earth urged all States and Territories and the Federal Government to develop and implement waste minimisation policies and legislation based upon sustainable use of resources in the production of socially-useful goods and services, with minimum levels of pollution and waste.

"What we are talking about is changing the wasteful culture we have developed in the post-war period. If we are to become a truly sustainable society then we are looking to governments to introduce tough measures for waste minimisation and recycling", she said.

The strategy includes a legislative package, with the following key elements:

- Waste reduction targets and source separation of recyclable materials;
 - Creation of markets & infrastructure, regulation & use of incentives/disincentives;
 - Deposit Legislation, to apply to beverage containers & other materials, for example, newspapers.
- Other important elements of the package:
- an emphasis on the principles of waste minimisation, which prioritises in descending order, **prevention** and **reduction** of waste, **reuse** of products and **recycling** and **reprocessing** of materials;
 - a 50 per cent waste stream reduction by the year 2000, with the ultimate aim of zero waste discharge;
 - the prohibition of the manufacture

or sale of any any packaging or single-use disposable item causing environmental harm, unless there are overriding health considerations;

- the implementation of a design standard for minimising the environmental impact of products and services;
- pricing structures which reflect the the environmental costs of products and services.

Further information: Fran MacDonald (03) 419 8700 or David Vincent (02) 281 4070

Ros Kelly uranium backlash

Friends of the Earth has said that Federal Environment Minister Ros Kelly's statement that she would accept uranium mining in Kakadu demonstrates that she is unaware of the facts of the worldwide uranium market and uranium mining regulation in Australia.

According to Friends of the Earth there is neither commercial nor any other justification for more mines in Kakadu or elsewhere. The arguments in favour of mining have been based on the premise that there is some vast market for our uranium just waiting to be filled. The fact is there just isn't a market for additional uranium production, a fact of which the Minister seems not to be aware.

The latest Uranium Institute reports suggests that by the year 2000, uranium supply will be 62,000 tonnes per year, and demand will be for only 52,000 tonnes per year. Other studies indicate even lower figures.

Ms Kelly says she will regulate the uranium industry more tightly than before. Recent studies by FOE show that there is virtually no regulatory framework for uranium mining in Australia, another fact of which Ms Kelly seems to be unaware.

Given the lack of any real commercial justification for new mines, it is completely inappropriate for the Minister to be saying she will accept more uranium mines. Her views run counter even to those of Energy Resources of Australia (the owners of the Ranger Uranium mine), who are actively lobbying against the opening of more mines.

For further information, contact: John Hallam, FOE Sydney (02) 281 4070.

Friends of the Earth Groups

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FOE Nouveau
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Centre for Environmental Studies
University of Adelaide
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Saving trees with grass

An alternative to the destruction of forests may lie in a return to the production of paper from hemp, according to Aldis Ozols.

Visitors to Toulouse, France are confronted by the sight of more than 8,000 hectares of lush marijuana plants waving gently in the breeze, while in the central USSR, over 40,000 hectares are under cultivation. These are not the hallucinations of terminal dope-fiends, but government-backed plantations used to supply raw material for paper manufacture. In Australia, the Industries Assistance Commission is considering hemp farming as one of the alternatives to woodchipping old-growth forests.

The exclusive use in paper manufacture of trees from virgin forest is a disease of the latter part of this century. Paper has been an integral part of human civilisation for thousands of

years. Common teaching has it that the Egyptians produced the first crude writing material by pounding soaked papyrus reeds on flat rocks to fashion a coarse form of paper. In fact, for thousands of years before this the Chinese had been creating a fine and durable paper with fibre pulp derived from the common hemp plant, of the family Cannabaceae. Until the first third of this century the marijuana plant was the dominant source for paper production. Most surviving texts from last century, including practically all the bibles and encyclopaedias, were printed on hemp paper directly, or on so-called 'rag paper' made from cloth originally derived from hemp fibre.

By far the bulk of hemp fibre was

produced to supply the needs of wind-propelled navies — the word 'canvas' is a Dutch derivative of 'cannabis'. With the replacement of sail by steam power the area under cultivation contracted greatly. The development of synthetic fibres and high speed, large output automated production processes made further inroads into the demand for natural fibres. This was exacerbated by the slow development of machinery capable of processing hemp fibre on a large and economical scale, similar to that developed for the cotton industry.

A further factor was the political suppression of the use of marijuana by some groups in American society. After thousands of years of productive cultivation by many different cultures it was deemed necessary to apply the full force of the police and judiciary to eradicate this 'threat' to humanity.

Even so, the extremely favourable weight to strength ratio of hemp fibre retains for it a place in industry. Hemp rope and hemp fibre are widely available at hardware stores for plumbing purposes, and some of the finest fabrics produced in the world are a blend of hemp and cotton. An extensive cottage industry in Italy produces clothing from hemp.

This versatile plant also has properties which could save our native forests. Cellulose for paper derived from the cultivation of hemp occurs in two physical forms. The outer bark of the stem yields the long, strong fibres that have been used since time immemorial for rope and cloth. These have to be separated from the pith, or phloem, at the centre of the plant. The result of this separation process is referred to as hemp hurds and was considered a waste product, until the pioneering work of Lester Dewey of the US Department of Agriculture in 1916.

In an attempt to increase the efficiency of the hemp industry, Mr Dewey conducted experiments with paper manufacturers to establish the suitability of hurd pulp as a paper substrate. Adapting existing processes, he found that a paper could be produced that satisfied all the requirements of the printing industry and, in fact, exceeded in strength and folding endurance that produced from wood stock. The importance of this work is that the usable yield per hectare is increased from approximately 160kg/hectare of long fibre

to 1010kg/hectare of hurds for paper manufacture. Under these circumstances it is possible to produce as much paper from ten hectares of hemp as from forty hectares of trees!

Also significant is the difference in lignin content between wood and hemp pulp. This averages 30-40 per cent in wood but only 3-4 per cent for hurds. It is the removal of lignin that requires much of the harsh chemical treatment that makes the current Kraft process such an environmental disaster.

The large scale cultivation of hemp can be carried out in an environmentally sensitive fashion. The suitability of Australia as a location for hemp cultivation was established as early as 1845, when Dr Francis Campbell conducted small scale experiments. He found that the loamy soils of the river flats from the Hunter region to Grafton provided ideal conditions.

This land is presently devoted to cattle grazing, and along with much other Australian agricultural land, suffers from infestation of noxious weeds and gross soil erosion. As reported in *Scientific American* in 1915, two or three seasons of hemp cultivation will largely clear a field of weeds because of the dense shock of leaves produced, while the deep tap-root system aerates and stabilises the soil. In fact, early farmers used hemp to prevent soil erosion after forest fires.

Land already devoted to pasture can be readily adapted to hemp cultivation without disrupting dwindling native habitats. The leaf, which has no place in the paper making process, makes an excellent fodder. Marijuana leaf is used

to fatten stock in Borneo and other Asian countries with excellent results, while the seed, due to its high oil content, is currently widely used as a bird seed.

It is not my intention in this article to debate the merits or otherwise of marijuana as a social drug. It is important to realise that while the plant grown for fibre and that cultivated for smoking are the same species, the conditions under which fibre plants must be grown render them totally unsuitable for drug use, with almost undetectable levels of THC.

The possibility of using hemp fibre cultivation to save native forests in Australia is being researched by Dr Andrew Katelaris, who provided the information in this article. He can be contacted on computer electronic mail (email at peg:akatelaris) or PO Box 451 Strawberry Hills, NSW, 2012, Australia.

Aldis Ozols is a contributor through Pegasus.

Bamboo not a pipe dream

Jed Stuart of Lismore Good Wood also recommends bamboo as a possible alternative to wood for paper making. He cites some advantages: it automatically regenerates itself each year after harvesting; it can provide two to six times as much cellulose per acre as pine, and grows at around 5 times the rate; it has far longer fibres which means that the paper can be recycled many more times.

Whereas we in the west have spent years developing the technology for making paper from timber, India has concentrated its efforts in making paper from environment friendly bamboo. In 1980 India used 2.2 million tons of bamboo, making 70 per cent of its paper.

See David Farrelly, *The Book of Bamboo*, Sierra Club Books, San Francisco, 1984, for more startling facts about Bamboo.

Source: Jed Stuart, Lismore Good Wood (Good Grass).



The shifting sands of time — Fraser Island

Fraser Island is a unique place of great beauty off the coast of Queensland which was the subject of a huge debate over sand mining in the 1970s. Felicity Ruby reports on recent events on the island and calls for more support for environmentalists in the current struggles.

Fraser Island is the world's largest sand island, the only place in the world where rain-forest grows in pure sand and it is now back on the environmental agenda as a rain forest issue. The 1976 victory by conservationists in stopping sand mining can now be viewed as only half a victory. The mining leases have not been revoked and are being considered for reopening by the Commission of Inquiry into the Conservation, Mangement and Use of Fraser Island and the Great Sandy Region chaired by Mr Tony Fitzgerald. The Initial Discussion Paper states "The matter of whether mining will or will not proceed needs to be addressed" (again). Interestingly, Fitzgerald was previously employed by the legal firm, Morris Fletcher and Cross who acted for the companies whose sand mining activities

were halted by the bans. He is currently associated with Feez Rothing who have made pro-mining submissions.

Yes, another Fitzgerald Inquiry, and to illustrate this inquiry's glorious objectivity, logging has not been stopped for the duration. This has resulted in panic logging and embarrassing demonstrations highlighting the Goss government's reversal of an election promise. Why does Goss need an inquiry when Australia's major environmental organisations have all recommended Fraser for World Heritage Listing? Goss is buying time, or he has sold it.

It is probable that Fitzgerald will come out on the side of environmentalists, as it would be politically expedient for Goss to be seen to be eventually green. However, the Inquiry can only make recommendations which

the government is not bound to act upon. Meanwhile environmentalists have been forced into a difficult campaign which will deplete green energy, the main aim of the Goss Goosery, I think. Also, the Inquiry has delayed World Heritage Listing for another year — applications need to be in by November and Fitzy conveniently hands down his judgments in December.

Forest authorities and timber workers admit that Fraser Island's old growth timber will run out in 18 months. Despite this, the industry claims that logging on Fraser Island is "sustainable". This is ludicrous as *there has never been successful regeneration* on the Island because the thick canopy no longer exists, making the undergrowth very thick. Also, the roots of young trees cannot reach the humus buried many

metres under the sand. The humus supply has been cut down, making regrowth impossible. Thousand year old forests cannot be replaced in the 70 year replacement cycle proposed by the timber industry. Funny, that.

Royalties on Fraser Island logs are so low that the Queensland Forestry Service has run at a loss for eight of the last twelve years. The government has been subsidising the logging industry \$2 million for the last four years yet the industry pathetically bleats about job losses being the fault of greenies.

The timber industries in the area fail to recognise that the worker's real enemy is automation within the industry. Over 25 per cent of timber industry jobs have been lost in the last two decades, while production has increased 50 per cent.

Following the awareness raised by the sand mining campaign, visitation to the island increased tenfold between 1975-1985, from 20,000 to 200,000 per annum. Tourism, of course, affects the island detrimentally and is the main source of jobs in the area. If Fraser loses its beauty, no-one will have a job. Sixty four percent of the eighty two percent questioned in the towns of Hervey Bay and Maryborough were in favour of a stop to logging for this reason.

Protesters are being charged under the Recreational Areas Management Act 1988 (RAM Act). This Act created a board of two persons who are not accountable to parliament or National Parks. In fact the Board overrides the National Parks and Wildlife Act and can give permits which allow unrestricted commercial activity in National Parks. The RAM Act also pre-empted protest activity, giving the foresters and loggers the power to apprehend and question people displaying "inconsiderate and anti-social behaviour" — in effect an independent police force. The RAM act makes it illegal to put up banners or signs, (although the police have failed to remove anti-greenie signs that have dead snakes hung over them) or to leaflet and talk to tourists. It does not outlaw the tourist bus companies from disseminating incorrect and libelous propaganda which I personally endured.

Under the RAM act, personal belongings like sleeping bags (an important item on cold nights) and cars

have been confiscated. This has made protest incredibly difficult. Imagine the practical difficulties: Base Camp is 25 km from the barge stop, logging areas are up to 20 km from Base Camp, protesters are chased by loggers through the forest and the Queensland media are being particularly revolting and absent.

The ALP in opposition condemned the introduction of the RAM act as draconian and potentially disastrous to this wilderness area. The Goss government's use of the act indicated the extent to which the political climate of Queensland has changed — very little. One policeman informed a protester that "people die in custody all the time, you know."

And the Butchalla people, the rightful owners of Fraser Island, certainly know all about that. They have put a submission to the Fitzgerald Inquiry demanding that the island be returned to the people who know how to look after it. The Butchalla people are establishing a cultural centre on the island and support the conservationist protest, but to what extent have conservationists supported the Butchalla people? Fraser Island is *not just a rain forest*

issue. The appropriation of Murri culture in the use of the white didgeridoo players in demonstrations is a bloody disgrace and is a sin many greenies searching for a culture perpetrate.

The Wannabe tribe and the aforementioned negligence are unfortunate elements in an incredibly difficult and important campaign which needs a lot more support. If you can help in *any way*, do — write to Goss, go to the Island, make a noise.

Felicity Ruby recently visited Fraser Island.



Fraser Island is popular with tourists because of the rainforests growing in pure sand, its wildlife (eg dingos) and its beautiful beaches. It also attracts attention as a site for environmental battles.

Going green — a third world perspective

Ecology has a deeper meaning than that proposed by politicians, developers and institutions according to S M Mohamed Idris. The green fashion is being used as a cover for continued exploitation of both nature and people in the third world.

Almost all of a sudden, the environment has become the latest global issue, not only among scientists but also among political leaders. Indeed, as the East-West Cold War winds down, the ecological crisis may well dominate international affairs in the 1990s.

Until a few years ago, those of us who fought battles on ecology issues were thought to be cranks. This is no longer so. Prime Ministers and Presidents are competing with one another to show how 'green' they have become.

But in the Third World ecology movement, our fear is that the rhetoric of ecology will be used by the power structures to confuse and mislead. Policies which are designed by corporate interests or on their behalf are being drawn up in nice-sounding ecological terms such as 'sustainable development' and 'forestry action plans'.

The term 'sustainable' from the ecological point of view means the maintenance of the integrity of the ecology. It means a harmonious relation between humanity and nature, that is, harmony in the interaction between individual human beings and in their

interaction with natural resources.

The term 'sustainable' from the point of view of non-ecological elites means 'how to continue to sustain the supply of raw materials when the existing sources of raw materials run out'.

From the point of view of ecology, there has to be a drastic restructuring of industrial and production systems, a change in modern lifestyles, a change in the concept and practice of the meaning of Life itself, in order to avert an ecological catastrophe.

But although non-ecological elites now begin to realise that something has gone wrong with the environment, they still want to maintain the present dominant economic and cultural systems, backed up when necessary with political and military mechanisms.

So for these elites, to be 'Green' is simply to fix up what they consider the unnecessary side-effects of economic growth. They believe that through tinkering with pollution laws or through inventing environmental technology, the environmental problems can be solved and life can go on merrily in the same old way.

In other words, sustainable development for them means sustaining the

present system of economic growth, with minimal disturbance to the status quo. Confronted with the facts and the movement of people's ecology everywhere, they try to manage and control the crisis without removing the fundamental causes and without changing the present system.

The present dominant systems of production, consumption and culture in the Western and industrial world are simply unsustainable if our world is to survive, and especially if the people of the Third World are to survive, and to survive with dignity as human beings.

We can no longer fool ourselves that the environmental crisis can be solved by technological 'fix-it' measures. The present unequal and unecological structures have become incompatible with the survival of humanity.

Some people may ask, is this not an extreme and unrealistic view of ecology? How about the relation between the environment, development and poverty? Isn't ecology a luxury issue for the Third World? Shouldn't the Third World concentrate firstly on rapid growth and solving its poverty problems, then worry later about the environment?

This trend of thinking is often articulated by leaders in both the developed and underdeveloped countries. But there is now sufficient evidence and experience to demolish this kind of thinking. Indeed, the destruction of the environment is going on perhaps even faster in the Third World, and this ecological destruction is emerging as a major cause of poverty itself. Moreover, contrary to the thinking of the elites, it is not the poor who are responsible for environment destruction; the poor are the victims.

When forests are logged by timber companies backed up by politicians, millions of tribal peoples and rural people lose their forest resources and their lands and waters are polluted. When big trawling boats sweep up the marine resources, millions of traditional fishermen lose their catch and their livelihood.

When industries dump their toxic wastes in rivers or on open land, farmlands are destroyed, water supplies are contaminated, and children of the poor get leukaemia, cancer and other diseases.

When big projects come up in the

name of 'development' and 'helping the poor', they displace thousands of the poor from their homes and their source of livelihood. For instance, the big dams in Brazil and the Narmada dams in India now threaten hundreds of thousands of tribal and rural peoples.

When companies find it more profitable to shift their toxic products or hazardous industries to the Third World, the unknowing consumers, farmers and workers of the Third World become the victims.

For instance, 40,000 farmers and consumers die every year from use of toxic pesticides. Another example is the Bhopal tragedy, and the thousands of other Bhopals which are less publicised but in which thousands of workers die from hazards at the workplace.

Environmental destruction is at least as urgent an issue in the Third World as it is in the North, even more so since the source of the Third World's environment problems lies eventually in the North, where the destructive projects are hatched, where most of the world's natural resources are used in luxury consumption, and where the system of thoughtless industrialism originated and is being spread to the rest of the world.

The issue of ecology must therefore be seen in the context of unequal distribution of resources, income and

wealth worldwide and within each country. So long as there is this unequal distribution, the world's elite will continue to use up and destroy the world's resources, and thus perpetuate the displacement and poverty of the poor.

Big institutions, like companies, governments and multilateral organisations, are the mechanisms by which the process of destructive development takes place. They make use of modern technology to manipulate nature, not only externally (for instance through removal of forests and pollution of water) but also in the very basic elements, through genetic manipulation and biotechnology.

Plant life, animal life and human life are affected in many ways. Not only is biodiversity being destroyed through genetic erosion, but the very nature of the human body is changing.

Through the intake of toxic substances, including radiation, there is a tremendous increase in the incidence of cancers, birth defects, chemical poisoning and new strange diseases, such as Minamata Disease, (caused by mercury poisoning) and SMON disease or Stevens-Johnson Syndrome caused by pharmaceutical drug toxicity.

From the very structure of human life to the grand systems of nature, such as climatic balance, the Earth is being threatened.

If we look holistically at the many problems of ecology and development, we can say that they are parts of the same problem, the problem of the wrong model of development in both the North and the South. And if we look holistically at the effects of these problems, we can say that they are affecting not only parts of the Earth, but the very structure and system of Earth and life on Earth.

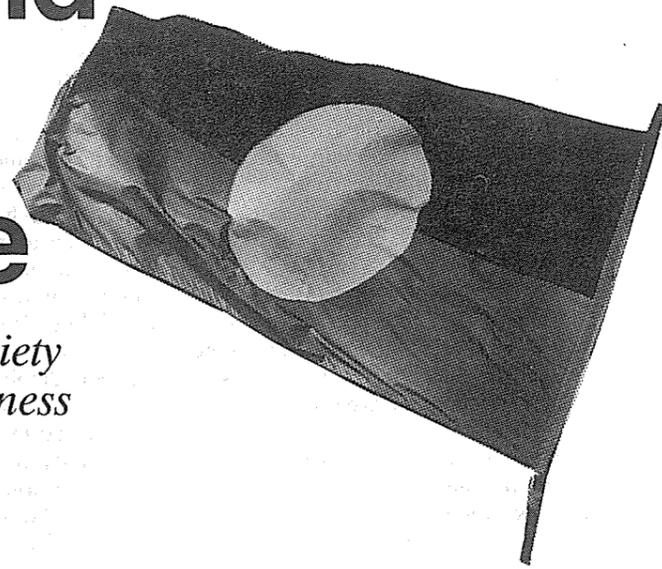
Environmentalists therefore have to continue to give deep interpretations and clear analysis of the ecological crisis, and to make critiques of the false solutions.

Now that Green has become the fashionable prestige colour, environmentalists should be careful not to be diverted or misled by products, projects, technologies or institutions that may proclaim themselves Green but in reality use this as a cover to continue to exploit both Nature and people.

S M Mohamed Idris is the President of the Consumers' Association of Penang and editor of Third World Resurgence, published by Third World Network, 87 Cantonment Road, 10250 Penang, Malaysia. This article is reprinted from the first issue of the magazine, published September 1990. © Third World Network 1990.



Wilderness and land rights — a response



Rod McDougal of the Wilderness Society suggests that its campaign for Wilderness legislation has involved discussions with Aboriginal organisations for some years and that no Aboriginal land will be nominated as wilderness without prior consultation.

The Wilderness Society (TWS) has been working towards Wilderness Protection Legislation in South Australia for nearly three years. In that time the Society has had contact with most of the Aboriginal communities and organisations in South Australia.

With this in mind, I feel that it is important to respond to Jon Lark's article "Wilderness — is it a land rights issue?" (*Chain Reaction* 61) Jon Lark was employed by TWS as a Campaigner, not an Aboriginal Liaison Officer and specifically on campaigns other than the wilderness legislation. He has been on leave from the Wilderness Society since May 1990 and is not up to date with many of the latest developments.

An examination of our files shows that in 1988 TWS had detailed discussions with the Maralinga and Anangu Pitjantjatjara organisations. TWS provided them with draft documents outlining our ideas for Wilderness protection in SA and suggested models for how aboriginal people might want to be involved. We also provided them with copies of our policy on Aboriginal Land Rights. We have maintained contact with these organisations since then. Since the commencement of the Interim

Wilderness Committee TWS has been in contact with most of the Aboriginal organisations in South Australia.

TWS has also lobbied community groups, schools, politicians, environment groups and individuals seeking support for the proposed legislation. Following the announcement of an unreasonably short period for consultation, TWS successfully lobbied the Minister for Environment and Planning for an extension. The time has been extended by nearly six months, which will allow TWS and the Interim Wilderness Committee more time to seek input from Aboriginal people into the Wilderness discussion paper.

The practicalities of visiting the remote communities has been difficult, but using the resources of the National Parks and Wildlife Service, it has been possible for TWS and the IWC to visit most of the communities potentially affected by the legislation. Contact has also been made with aboriginal communities living in the Northern Territory but with traditional attachments to land in South Australia. In his article, Jon referred the lack of consultation with the Pauplyala Tjarutja community in Western Australia. Contact with this isolated community has been difficult. Messages were sent by

TWS to the community over nine consecutive days via the Flying Doctor radio. As yet, no response has been received, but TWS will be trying other avenues of communication to ensure that this community is consulted. As far as nomination of any areas is concerned it is TWS, and has been for a long time, that Aboriginal people be consulted before any nomination proceeds. There have been no negotiations behind closed doors.

Much of the land of high wilderness character in South Australia is land to which Aboriginal people have a traditional attachment or hold under freehold title. It is vital that Aboriginal people are given the opportunity to seek the environmental protection the Act will provide. The legislation is not intended to provide an avenue for land rights claims, nor is it intended that it would in any way impede such claims or jeopardise existing Aboriginal freehold title. The processes of land rights and wilderness protection are separate but they can be complementary.

It is stated in Jon's article that "Definitions of wilderness areas exclude Aboriginal rights of access to their land." This is perhaps the crux of the misunderstanding. Wilderness is described in the Society's National

Code of Management as an area that is "remote at its core from access and settlement, substantially unmodified by modern technological society or capable of being restored to that state, and of sufficient size to make practical the long term protection of its natural systems." The SA Branch of TWS has developed a proposal for Aboriginal access to wilderness areas that includes the use of vehicles for hunting and visiting sacred sites. This involves a recognition of the special relationship aboriginal people have with their land and also recognition of the fact that non-traditional methods have been incorporated into aboriginal culture.

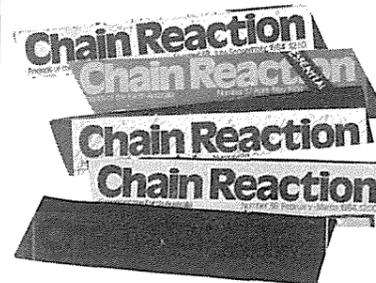
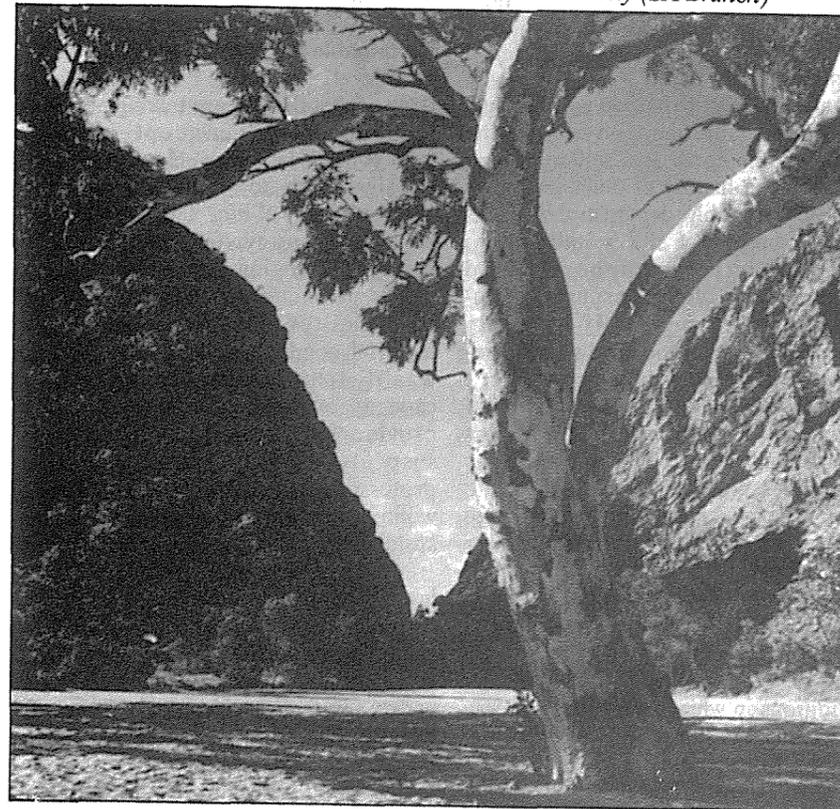
TWS has proposed that where wilderness is identified on Aboriginal land, their title would in no way be changed by the proposed act. Aboriginal people would be asked if they wished to set aside an area of land under the protection of the act and to introduce a code of management. The decision to do so would be entirely theirs. That is, TWS has recommended they would have powers of veto. If they chose to do it that area would be protected from all exploitative practices. Joint management of wilderness areas could allow Aboriginal people to

re-establish links with land to which they have a traditional attachment. A joint plan of management negotiated between the Government and the Aboriginal community involved would be needed to determine the access provisions. There is no question of Aboriginal people being locked out of their land.

TWS's campaign for wilderness protection legislation in South Australia is evolving through discussion, debate and consultation. The opportunity TWS had to participate on the Interim Wilderness Committee has allowed us to control the direction of the debate and to ensure that the needs and aspirations of aboriginal people are given equal weighting with the pressing global environmental imperative to preserve bio-diversity from the destructive practices of Western technological society.

We, as environmentalists, are taking responsibility for our actions. We are working towards the protection of wilderness areas. We are committed to consulting with Aboriginal people regarding the proposed legislation.

Rod McDougal is President of The Wilderness Society (SA Branch)



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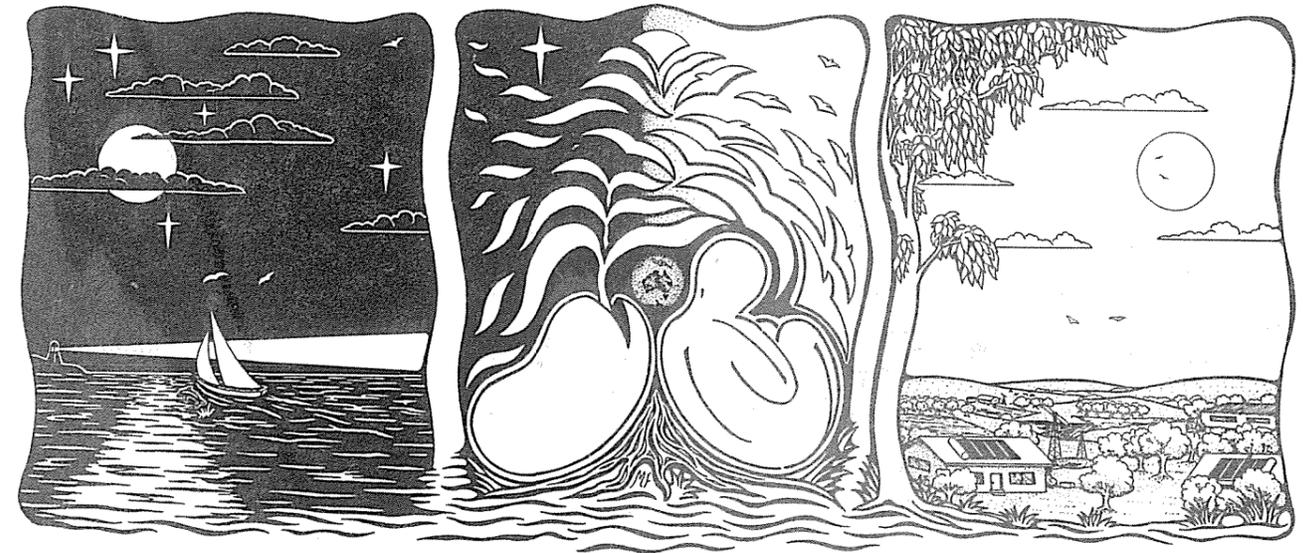
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Questioning Sustainability

The use of "sustainability" as a term has become popular and useful in recent times, to all sorts of people. Malcolm Hollick argues that environmentalists must debate the concept and develop clear definitions of it, and looks at some



Sustainability is the name of the game; the latest "in" word; the way to be with it. Politicians and industrialists liberally season their speeches with the term, the media use it with abandon, a quick scan of indexes reveals a library of publications on the subject, and every week some group has a conference on it. The term has entered the national consciousness, and is in danger of achieving the dubious status of "motherhood".

But what does sustainability mean? Many are willing to tell us to farm sustainably, or manage forests sustainably, or develop a sustainable economy, yet few stop to consider what it is they are really talking about. In consequence, it is hardly surprising that "sustainability" seems to mean all things to all people. The Treasurer, Paul Keating, speaks of "sustainable economic growth", while Hugh Morgan describes mining as "sustainable resource exploitation". Perhaps these two would find themselves in agreement, but their ideas are diametrically opposed to those of most conservationists. If we are to succeed in promoting true sustainability and preventing the term being "hijacked" by traditional development interests, it is important that we debate the concept and develop clearer definitions of it as well as considering practical ways to implement it.

This article is a contribution to that debate which sets out some of the dif-

ficulties that I see in defining "sustainability" and a "sustainable society". I have deliberately refrained from analysing documents such as the World, National and State Conservation Strategies and the Brundtland report, *Our Common Future*, and focussed instead on a few broad themes. I hope it will provoke lively discussion.

Sustainable for what?

What exactly is it that we want to sustain? Personally, I have no fears for the future of the earth as a self-sustaining system. The history of Gaia, as James Lovelock so ably demonstrates in his books, shows that she is well able to cope with catastrophe; indeed catastrophe is often the spur to evolutionary development. If humanity pushes the system too hard we may become extinct and take many other species with us, but I have no doubt that in time Gaia would shrug off the impact even of nuclear war. Thus sustainability is a non-issue if our concern is for life on earth in general rather than for homo sapiens or other particular species or ecosystems.

The very concept of a "sustainable society" rather than a "sustainable earth" is human-centred. Presumably what we mean by this is maintenance of conditions in which our human society and natural environment can continue for the foreseeable future to provide what we believe to be a desirable quality

of life. The exact nature of that quality of life depends on our personal values and experiences. Essential to all are life-support processes that provide us with air, water, food and other resources essential to life, but what else is needed beyond subsistence is a matter of opinion.

Sustainable for how many and at what level?

If we accept that we are talking about a human-centred concept of sustainability, it becomes relevant to ask, sustainable for how many humans and at what quality of life? The earth might be able to sustain far more than its present population if we were content with a subsistence vegetarian diet, minimal shelter, clothing and other material goods; and if the population was distributed according to the capacity of the local environment to provide for our needs. However, I suspect that very few of us, even professed deep ecologists, would be willing to accept such a definition of a sustainable society.

At the other extreme, say the OECD level of material and energy resource use, it is clear that the earth could sustain far fewer than its present population. While conservationists advocate a reduction of resource demands because the capacity of the earth is being over-strained, it is not clear how many would continue to support the

concept of a resource conserving society if it were possible to reduce population to a size which could be sustained at a high level of material affluence. Thus even within the conservation movement, there may be significant differences regarding the appropriate balance between population size and material affluence in a sustainable society.

Sustainable for how long?

Whether or not an activity or process is considered to be sustainable depends on the time scale used. Economists and businessmen discount the future in their analyses to the extent that a total catastrophe in 50 years time is unimportant. To them, anything that will last longer than 10 or 20 years is sustainable. By contrast, in astronomical terms human society is not sustainable because the sun will eventually burn out.

So what time scale do we mean when we talk about a sustainable society? It is clear that the world and national conservation strategies, and conservationists in general, mean more than one generation — but how many? Our grandchildren? Our great grandchildren? Or should we adopt the great law of peace of the Mohawk Indians: for any proposed action, first consider its impact on the next seven generations?

Underlying this question is the important philosophical issue of whether

people and events in the present or near future are more important than those in the more distant future. Does importance diminish with time into the future, as economists maintain, or should all future generations be given equal consideration? If all were to be considered equally, the "votes" of untold generations to come would always outweigh those of our own, and hence we would be morally obliged to devote all our efforts to building for, or protecting, the future rather than meeting our present needs. This position is as untenable to most people as giving no thought for tomorrow.

As so often happens, we must seek a balance. Where the fulcrum lies depends on our views of the needs and capabilities of future generations, and of the resilience of the earth. We do not know what people of the future will value — apart from the basic necessities of life — and nor do we know what technologies they will have available to them to overcome their problems. Similarly, we have little idea of how far the biosphere can be pushed before it will cease to sustain human life, although the present signs of stress should be apparent to all.

Technological optimists, supported by most economists, argue that a short time horizon is appropriate because new technical fixes will become available to solve future problems, including the collapse of the biosphere (for ex-

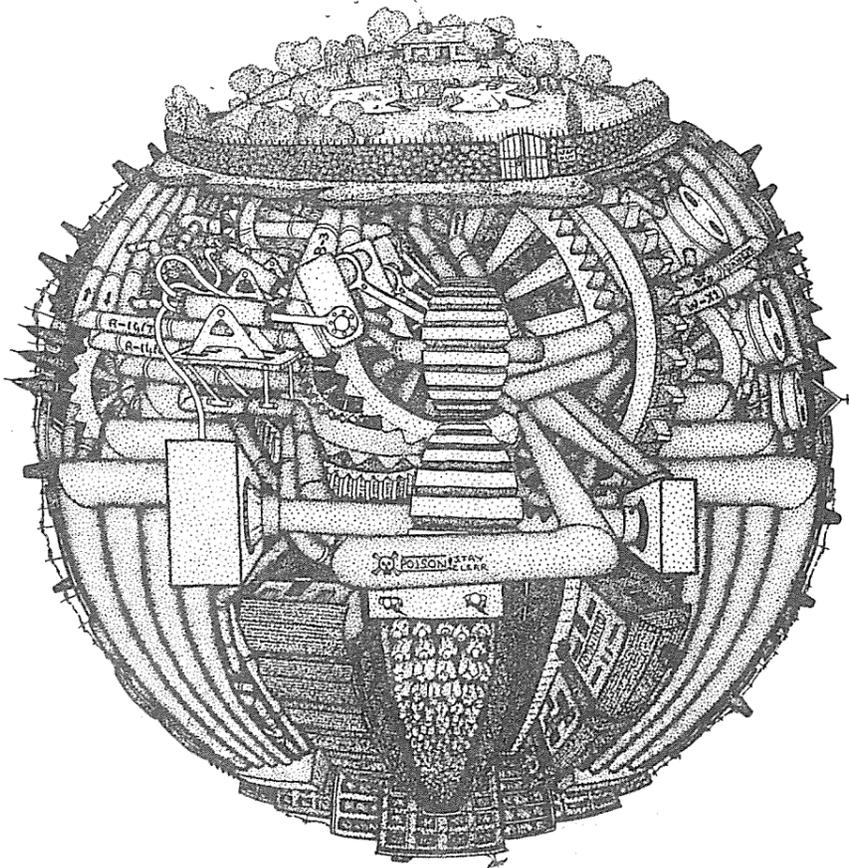
ample, the science fiction domed and sealed city; space colonies) Pessimists, including many conservationists, argue for a longer perspective because they lack confidence in both the resilience of the earth and human capabilities. However, I suspect that the time horizons of even the most dedicated conservationists seldom stretch beyond four or five generations — a drop in the bucket of human history, or a drop in the ocean of Gaia's evolution. Unfortunately, there is no informed, objective position from which to argue that one attitude is better than another because the future is unknown.

We face here one of the basic problems with the concept of sustainability. The actions identified as necessary to ensure transition to a sustainable society depend on the time horizon adopted, and the degree of our faith in science, technology and the resilience of the earth. Can we hope to persuade the community that we, as conservationists, have a more valid faith than others.

Sustainable over what area?

Not only is the nature of a sustainable society dependent on the time horizon, but it also depends on the geographical scale adopted. A sustainable society based on an isolated village has very different requirements to one based on a region or whole globe.

For local sustainability, we must



have local self-sufficiency. This in turn implies a low level of technology and a need to conserve all local environmental resources. If, however, "development" came to our village and it was integrated into the regional economy, it would be possible to think in terms of specialisation (for example, growing a cash crop rather than a variety of foods) and conservation of local resources would not be so vital. For example, food or timber might be obtained from further away if local sources were destroyed for some reason.

From the regional perspective, it is again essential to maintain self-sufficiency, but this does not necessarily mean conserving every local resource. Thus, if water quality was degraded in one area so that it was no longer suitable for drinking, this might not reduce the sustainability of the whole region if the water could be used for some other purpose, such as industry, and potable water now used for industry was brought in from elsewhere.

Thus, while we can agree that the global life-support systems on which we depend must be maintained (assuming

we reject the science fiction scenario), it is far more difficult to decide what this means at the local or regional level. It is not necessarily vital, or even desirable, to conserve every natural resource, including environmental resources, at the local or regional level in order to ensure a sustainable society within a sustainable biosphere. The best we can do, perhaps, is to tread lightly everywhere, while recognising that some of our footprints inevitably will cause change and degradation.

The sustainable economy

For years some economists have been developing the theory of a "steady state" economy, which many would now recognise as a model for a "sustainable society". The idea has not prospered, at least in part because of the negative connotations of "steady state" in many peoples' minds. It conjures up images of a boring, stagnant society in which nothing happens and nothing changes. But the reality of the theory is quite different, and a steady state society could be dynamic and stimulating; it could even grow.

There is no necessary contradiction

between sustainability and growth — it is a question of the nature of that growth and the way it is achieved. The key to "sustainable growth" is twofold. First, the emphasis must shift from measuring the success of the economy by the level of activity, or throughput of resources, to some measure of efficiency. In other words, we must minimise the resources needed to achieve the desired outputs. This goes beyond the current efforts at recycling and improved appliance efficiency to a fundamental reconsideration of the ways we meet human needs. What are the real benefits we get from economic activity, and how can these benefits be supplied with fewest resources?

It is difficult to envisage an advanced civilisation that uses no non-renewable resources to make metals, cement, glass and other materials. But complete recycling of non-renewable resources is impossible since some materials are always lost in use, for example due to wear and corrosion. Thus civilised society can only be sustained for as long as ore deposits are available unless new technology enables substitutes (eg plastics from plants) to be found, or means of concentrating minerals from sea-water or rocks are developed which use only moderate amounts of renewable energy. Nevertheless, a highly efficient economy coupled with modest technical innovation could be sustained for a long time.

The second key to sustainable growth concerns the nature of economic goals. Endless growth in material possessions is not possible, no matter how efficient we are at using resources. But endless growth of other types is possible. Already some economists argue that we are moving into an "information economy" in which knowledge and information are the main bases of wealth rather than material resources or even services. The generation, storage and use of information has very low resource and energy requirements compared with traditional agricultural or industrial production. Even further in this direction, we can perhaps envisage an economy in which the main product is growth of the human spirit: self-fulfillment, love, community, art, science, philosophy...

The sustainable society need not be a land of hair shirts and ascetics, and it is very important to emphasise its posi-

tive aspects if the concept is not to suffer the same fate as steady state economics. The fact, true though it may be, that we must reduce resource consumption is not a welcome message for hedonistic consumers, and they will naturally prefer to believe the optimists with their faith in technology and the resilience of the earth. The sustainable society must be depicted as the good life; a life in which the economy serves human needs and values rather than greed, a society in which people are free to grow and achieve their potential as human beings. It is this positive message which must be elaborated and emphasised if the idea of a sustainable society is to prosper.

The sustainable environment

As already stated above, the idea of sustainability tends to have connotations of stability and an absence of change. But Gaia, together with her component ecosystems and organisms, is dynamic. Her very existence depends on continual change and evolutionary development in response to changing circumstances. Attempts to stabilize ecosystems may keep the lid on for a while, but eventually some dramatic change is sure to happen, as fisheries and forest managers often have found to their cost.

Environmental systems are inherently unpredictable and uncontrollable. Nevertheless, their future may be dramatically altered by small perturbations at the right time and place. A sustainable society must learn to "go with the flow" and adapt to an evolving and dynamic environment. But if it is not to be completely at the mercy of nature, like primitive humanity, it also must try to identify perturbations that will move the evolutionary process in desirable directions, while being prepared for inevitable surprises.

Political and social sustainability

So far I have concentrated on the economic, resource and technology aspects of sustainability. If agreement on a single vision of a sustainable society from these points of views is likely to be difficult, agreement on social and political aspects will be even harder.

Can we have a society which is politically and socially dynamic and still sustainable? Conversely, in view of the many traditional societies which have failed to adapt to change, can we have a

sustainable society which is not dynamic? What is the relationship between sustainability and centralisation of the economy and government? Between sustainability and democracy, individual freedom, and equity? There are likely to be as many different answers to these and other questions as there are political philosophies and personal value systems.

Characteristics of a sustainable society

These considerations lead me to conclude that there can be no single definition of such a complex concept as a sustainable society, even within the relatively uniform confines of the conservation movement in Australia. Rather there are many potentially sustainable societies with different combinations of culture, environment, economic system, technology and rate of change. However, it may be possible to define some broad characteristics of a sustainable society which would be common to all viewpoints.

Firstly, a sustainable society must be flexible so that it can adapt as circumstances change. Many traditional

societies have failed because of their inability to cope with change and, paradoxically, the society which created the phenomenon of future shock may go the same way because we are locked into unsustainable economic behaviour and technologies. Flexibility implies diverse and relatively small-scale, decentralised technologies and economic and social institutions.

Secondly, sustainability in the long term requires a low level of resource consumption. This may be achieved by some combination of a low material standard of living, a very high efficiency of resource use and/or a small population. A corollary is that a sustainable society would focus on the satisfaction of higher human needs such as love and fulfilment rather than our present distorted concentration on material needs.

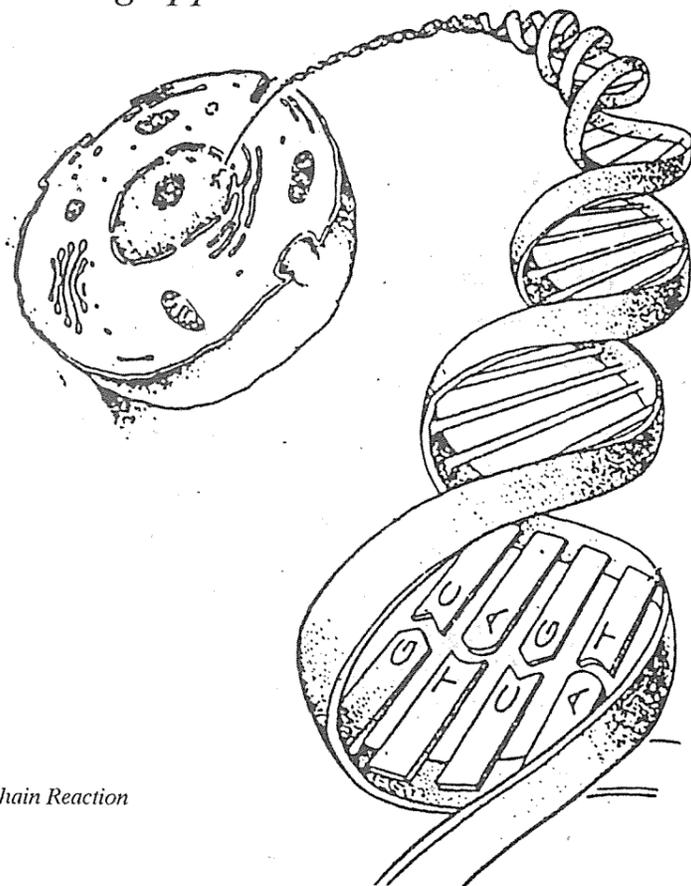
Thirdly, it seems to me that a sustainable society must be cautious. Caution is no guarantee of survival, but those who gamble and take risks are certain to come to grief eventually.

Malcolm Hollick is a Senior Lecturer in Civil and Environmental Engineering at the University of WA.



Genetic Engineering: Miracle or Menace?

Genetic engineering is often presented as a possible solution to everything from fatty pork and oil spills to old age. Engineered plants, animals and microbes are beginning to leave the laboratories in sanctioned releases. Bob Phelps examines some major problems and calls for public control of all genetic engineering applications.



Though individual living cells are invisible to the naked eye, together they make up all living things from single-celled bacteria to ourselves, with billions of cells. Genes control the chemical messages within cells that determine the form and functioning of both the cell, and the organism's various organs. These codes of life consist of four chemical building blocks, arranged in pairs, like the treads of a spiral staircase. Millions of different combinations of the basic chemicals determine the different genetic make-up of each kind of organism.

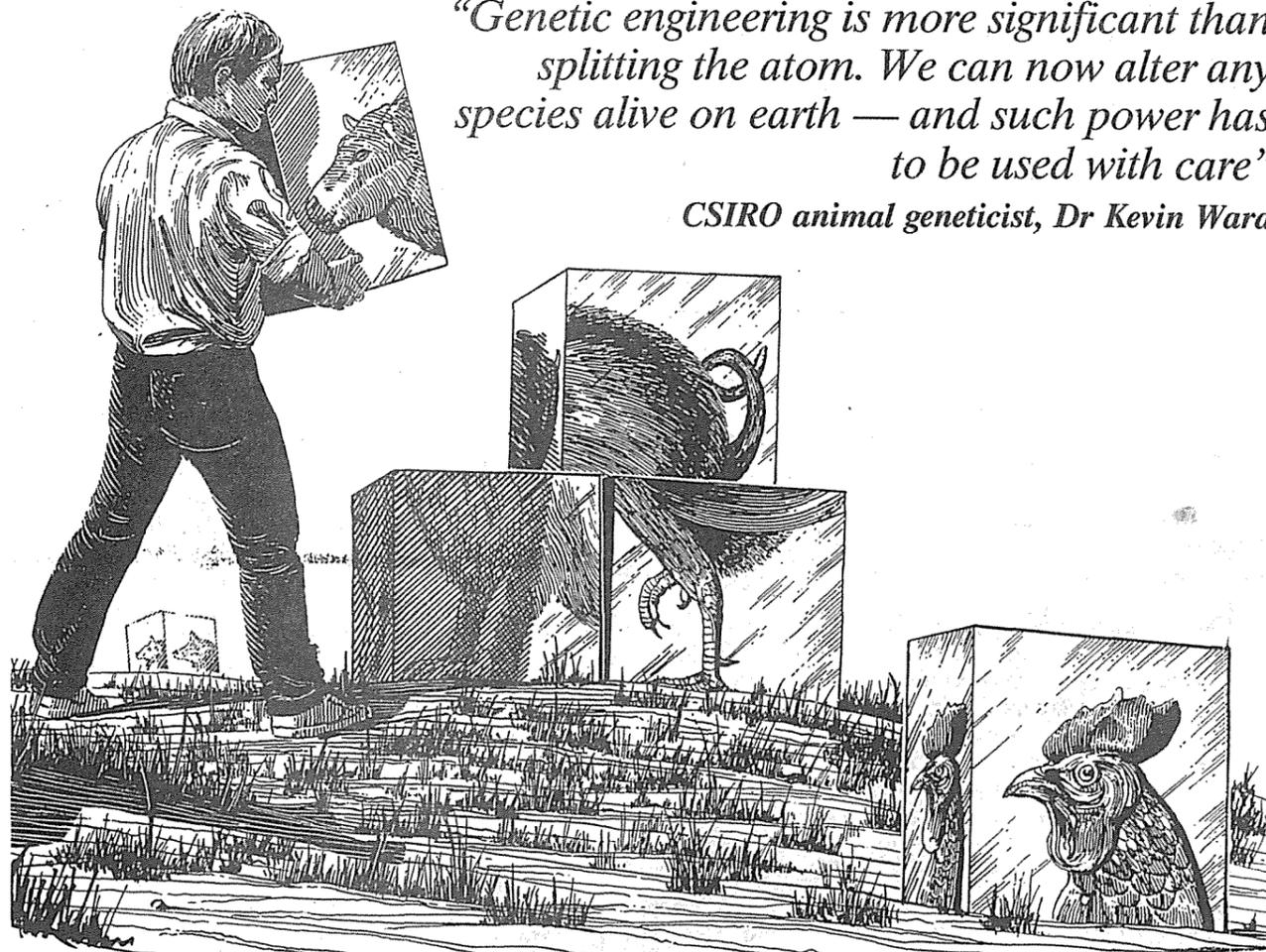
Genetic engineering is a set of techniques and processes for adding to or removing parts of these genetic codes, to create engineered plants, animals, micro-organisms or humans that are different in some way from their natural counterparts. Some examples of recent work include, blue roses, research mice containing a human cancer gene, pigs and fish that grow faster and bigger, and herbicide tolerant crop plants. Such changes may be passed on to the offspring of the engineered organism if its germ (reproductive) cells are altered.

In principle, scientists now have the technical ability to alter the genes of any living thing. The technology allows genes to be transferred between totally unrelated species — humans to animals, animals to microbes, plants to animals, and so on, in ways that could not happen naturally, nor be achieved through traditional breeding. For example, a tobacco plant with added firefly genes glowed in the dark, a sheep 'crossed' with a goat produced a geep (or shoat if you prefer), and 'neutered' ice-forming bacteria reduced frost damage to plant leaves on which they were sprayed.

Despite some refinements in the understanding of genes, and the scientific and industrial ability to manipulate them, such knowledge is not complete. Even if it were, it could not provide a comprehensive description or explanation of living things and their behaviour; as they are also influenced in important ways by such factors as the environment, learning and social context.

Whose interests does it serve?

Yet corporations and governments want to establish industries based on the genetic engineering of wild and



"Genetic engineering is more significant than splitting the atom. We can now alter any species alive on earth — and such power has to be used with care"

CSIRO animal geneticist, Dr Kevin Ward

domestic plants, animals and micro-organisms. They envisage products with the potential to revolutionise agriculture, the drug and food processing industries, human and animal health care, environmental management, waste treatment, minerals recovery, and a variety of other activities.

Currently the Australian government, through the CSIRO, the Department of Industry and Technology, and research grants to universities, spends around \$120 million a year on genetic engineering research and development, and companies spend about \$80 million. Whether many of the proposed applications will ultimately be practical and commercial successes, and acceptable to the community, remains to be seen.

To date scientists and regulators have tried to confine the genetic engineering debate to technical issues only. In the absence of public discussion of the broader questions, designer organisms and products are being created to serve the short-term commercial goals of efficiency, economic output and convenience.

Potential hazards

The benefits of genetic engineering are still ephemeral but there are certainly many risks. Some are well understood, many are uncertain, and a large number of others are still unknown. The existence of such risks is well founded in current scientific knowledge and are not the fantasies that some genetic engineering proponents suggest.

The Genetic Manipulation Advisory Committee which advises on the genetic aspects of the technology acknowledged a shortage of environmental data in Australia when it said, "There is a general lack of documented evidence, in Australia and overseas, on the performance of transgenic organisms in open environments, either in terms of their ecology or their genetics. A transgenic organism may not always exhibit the expected characteristics and an unplanned genetic exchange with another species might occur."

An example that highlights the potential hazards and flaws of some genetic engineering projects is the development, by over 30 herbicide manufacturers, of crop plants that are herbicide tolerant. Despite the great

popular support for more environmentally friendly farming methods, these are developing slowly because of limited government and corporate investment. Instead, the chemical, drug and food processing companies are investing in genetic engineering research projects that will increase the sales of their existing products by making food production more chemical dependent. Farmers planting herbicide tolerant crops (and before long they may have no choice) would spray higher doses of poisons, over larger areas, to get a thorough weed kill.

The environmental impacts could be considerable. Ciba-Geigy, for instance, has made soya bean plants to tolerate its herbicide Atrazine that breaks down very slowly in the environment and has been widely detected in groundwater in the USA.

CSIRO researchers have produced herbicide tolerant tobacco plants that withstand eight times the usual field strength of 2-4-D. Crops exposed to just recommended doses are more vulnerable to insect infestations and disease, needing higher doses of insecticides and fungicides.

As Professor Robert Colwell of the University of Maryland said, "... engineering of a plant so that it can tolerate herbicides, especially noxious and persistent herbicides, seems to me a wrong-headed use of this new technology. It simply would lead to a greater and more widespread use." Professor Alan Kerr of the Waite Agricultural Institute in South Australia agrees. "It is very unfortunate that the first genetically engineered plants to be released will almost certainly be those made resistant to herbicides and this will probably lead to an increased use of the herbicides."

Another real danger is that the herbicide tolerance genes may be transferred to weedy relatives of the crops (e.g. wheat to grasses), further encouraging the use of sprays. It may also reduce the diversity of related domestic and natural strains where pest resistance and other competitive advantages have been found over the centuries.

Focusing research on tolerant plants threatens the development of strategies for sustainable agriculture. More contaminated food, land and water will be the legacy if these crops are approved for commercial use.

This approach to agricultural genetic engineering places human food and agricultural commodity supplies ever more firmly under the control of agribusiness conglomerates. Modern agriculture is a fragile system, vulnerable to catastrophic collapse and market exploitation. Practices that promote diversity, not uniformity, and favour long term agricultural and environmental stability should be fostered. Genetic engineering applications are heading in the opposite direction.

Environmental risks

The basic criteria to be applied to all genetic engineering proposals is their capacity to contribute to long-term ecological sustainability and the maintenance of biological diversity, criteria already accepted by the Federal Government for assessing other projects. To date the bulk of work on genetic engineering has been contained within research laboratories and the genetically engineered organisms were especially weakened so they could not survive outside, but organisms designed

for deliberate release must prosper in order to serve their purpose. Out of the laboratory, they have the potential to upset the ecological balance and reduce biodiversity if altered genes are transferred to other organisms, or they out-compete their domestic and wild relatives to extinction. Once released, they may spread and proliferate, and cannot be recalled to the research facilities. Many aspects of the natural environment are not yet understood so the impact of new organisms cannot be predicted with certainty. For example, Adelaide University and overseas researchers have engineered fish to contain growth hormone genes which make them grow quicker and larger than their natural counterparts. In the natural environment their impact could be substantial, altering the roles of predator and prey, demand for food resources, and the genetic structure of the native fish population. Introduced fish species have already had a detrimental impact and the introduction of genetically engineered organisms may be the equivalent of putting a new species into waterways, akin to the introduction of rabbits.

Likewise, the potential of global environmental damage is central to the debate in the United States over whether to approve the commercial use of IceMinus (FrostBan) which reduces frost damage to crops. Sprayed on plants, this genetically engineered bacterium replaces its natural cousin, IcePlus, that has a role in forming damaging ice crystals. The problem is that IcePlus also plays an important part in ice formation in rain clouds. If IceMinus took over up there, climate disruption could result. The US Congress's Office of Technology Assessment concluded the risk was very small but called for further studies. IceMinus could also change the lifecycle, range and behaviour of insects naturally infested with IcePlus, perhaps creating a new pest, or killing off beneficial insects. Many people are asking if strawberries in winter are worth the risk of climate modification and a plague of insects, no matter how small the risk.

The assessment of risks and costs should include ecological, social justice, ethical, consumer, animal welfare and other concerns. These should be fully investigated, assessed, understood and widely discussed by the whole com-

munity before we finally decide, on a case by case basis, whether to accept genetic engineering and its products.

Panacea or Diversion?

Despite its potential to create new problems, genetic engineering technology is being justified as a potential answer to current global environmental problems. It is suggested, for example, that the greenhouse effect may change climates and ecosystems so radically that only engineered plants and animals could survive such inhospitable environments. This diverts attention away from the urgent necessity of modifying

many human activities, such as the burning of fossil fuels, to stabilise and reverse global climate change. Likewise, genetic engineering is held out as a partial solution to the problem of the fast declining stocks of non-renewable resources — fuels, minerals, soils, water, air — on which modern civilisations are founded. Again, this is a diversion from the necessity to modify our environmentally destructive lifestyles.

Proposals for such biotechnological fixes ignore the environmental costs posed by the technology itself. Most genetic engineering applications are

Patents for genetically engineered products

Corporate interest in genetic engineering is premised on their ability to gain patent ownership over its products.

The first ever animal patent was granted in the United States in April 1988, on the oncomouse, a genetically engineered laboratory animal designed to die of human cancers within 90 days. No other animals have been patented but patents were granted on some plants and micro-organisms.

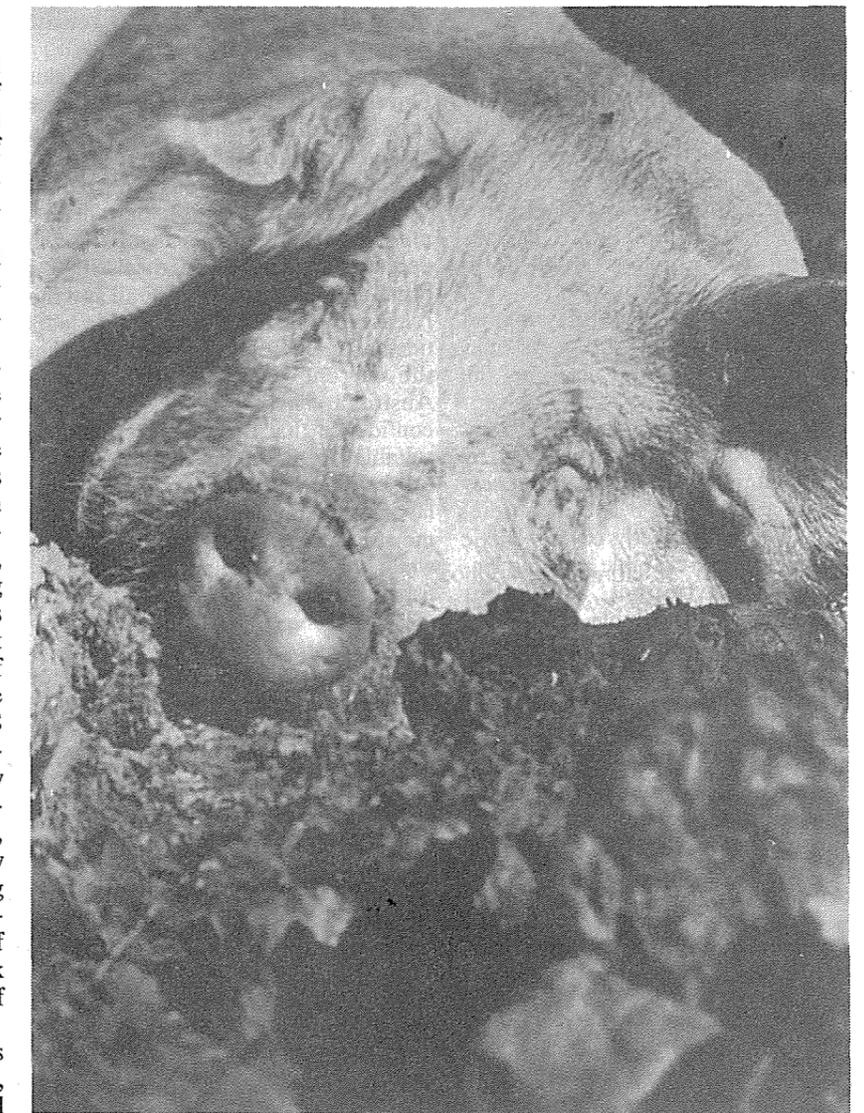
The oncomouse approval followed a decision by the US Patent and Trademark Office, that designated all genetically engineered animals, from aphids to zebras, as non-naturally occurring products and defined all such life as a 'manufacture or composition of matter.' It viewed genetically novel organisms, including those engineered to contain any number of human genetic traits, in the same way as pop up toasters and ball point pens. Human genes are commonly put into animals and plants, including the oncomouse itself, and the engineering of human somatic (non-germ) cells is now permitted in the United States.

Minister for Industry Technology and Commerce, John Button, told the Senate last year that the Australian Patents Office will apply similar criteria since nothing in our law prevents it. The genetically altered progeny of patented organisms would also be patented and attract a royalty. Patent owners will enjoy protection for 16 years, the same as for an inanimate invention.

Current patent applications include transgenic mammals to produce chemical substances such as human growth hormone in their milk, herbicide tolerant plants, and a number of methods for manipulating genetic material. The offspring of patented organisms will also be patented.

The Australian Conservation Foundation (ACF) opposes animal patents and has so far submitted over 10,000 signatures on a petition to the Australian Senate, asking for amendments to the Patents Bill 1990, which would prohibit the patenting of biological material. The Australian Democrats have submitted these amendments and other support is needed for the ban.

Selective breeding has gone on successfully for centuries in agriculture, food processing and kindred industries, without patent protection to encourage innovation and will continue to be the main source of agricultural productivity gains for the foreseeable future. It would be a grave injustice if, by the addition or deletion of only one gene from a plant or animal, it became subject to patent ownership. The work of generations of traditional breeders, and the undomesticated biological resources of the world, could be appropriated by corporations.



The super pig was meant to be fast growing ... super quality meat ... he turned out to be a super cripple — excessively hairy, lethargic, riddled with arthritis and apparently impotent.

being researched on the basis of a narrow set of priorities, dictated by the commercial goals of the companies. If deployed, the organisms will speed the trend to tame natural environments to accommodate the new creations and commodities, with a consequent loss of biodiversity and the extinction of further native species.

Current regulatory approach

The present regulatory scheme of guidelines and voluntary compliance over genetic engineering is weak and unenforceable. The Genetic Manipulation Advisory Committee (GMAC), based in the Commonwealth Department of Administrative Services, is the lead agency to advise on the genetic uncertainties of release proposals. Voluntary guidelines are administered through its specialised subcommittees and an Institutional Biosafety Committee (IBC) in each research institution. The GMAC has given advice on seven field tests and one commercial release to date. Neither the GMAC nor the Minister can approve or prohibit releases.

Other bodies in State and Commonwealth Governments can assess non-genetic and ecological matters, but the lines of responsibility and the basis for regulatory action remain ambiguous. Hundreds of laws administered by many different authorities may apply but few are uniform between jurisdictions and none directly cover genetic engineering. For example, existing Environmental Impact Statement procedures are unsuitable as most involve assessment of inanimate structures (buildings, roads etc.) rather than live organisms, and most air, water

and soil pollution legislation appears inapplicable.

While all genetic engineering work was contained in research laboratories with weakened organisms, voluntary arrangements worked reasonably well but now that deliberate releases of viable organisms are proposed, laws are necessary. The need for public involvement and specific controls was recognised in both the Victorian Law Reform Commission Report (June 1989) and an Australian Environment Council Discussion Paper (October 1987). Both recommended specific new national uniform legislation, requiring mandatory notification, environmental and social impact assessment, monitoring, and public notice, of all release proposals.

Despite this, the New South Wales Government approved the commercial production and sale of a genetically engineered bacterium, NoGall; genetically engineered pigs were released from research facilities; and there have been a number of field trials involving the deliberate release of genetically altered organisms. The case of NoGall and the release of the transgenic pig, in particular highlight the weakness's within the current regulatory structure in Australia. These examples give little confidence that the present system is suitable for the proposed transition of engineered organisms from the laboratory to the market place. A moratorium on all releases is needed, while the new regulations are established.

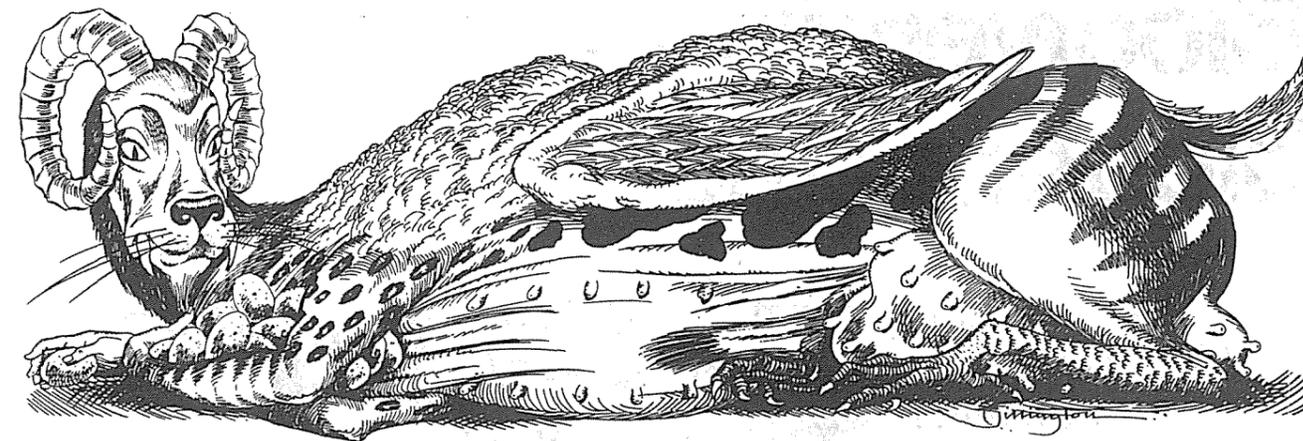
NoGall

Australia recorded a world first in November 1988, when the NSW

Government approved the commercial production and sale of a genetic engineered bacterium to combat crown gall, a cancer in stone fruit trees and roses caused by a pathogenic bacterium. A benign strain of the bacterium had been used as an inoculant for many years, by dipping the roots of young plants in the bacterial solution to displace the pathogen. A report from Europe that the system had failed once, prompted Professor Alan Kerr to engineer it to reject genetic material from the pathogen and thereby retain its inoculant effect. By the removal of the gene, which mediated such a transfer, the bacterium was turned into a patentable product.

The NSW Department of Agriculture approved the use of NoGall without any field trials in that State, without an EIS and without examining any toxicological or safety data. Federal government bodies are currently assessing it for commercial release in the rest of Australia. Comprehensive data on the behaviour of NoGall in soil, and its interaction with other soil-dwelling organisms and plants is fundamental to any comprehensive assessment of the organism's suitability for use and extensive uncontrolled release to the environment. Yet no detailed research data is available. Nor is follow up monitoring of NoGall's commercial use being carried out.

In contrast to the speed of NoGall's approval in Australia, in the United States and Europe no live genetically engineered organisms have been approved for commercial sale after more than ten years of litigation, numerous field trials and heated debate on genetic engineering.



Transgenic Pigs

It was disclosed in April this year that genetically engineered pigs had been released from secure facilities, without authorisation for slaughter and human consumption. Thus began a new phase in the debate about genetic engineering legislation.

The development of the pigs was conducted by Metrotec — a joint project between Metro Meats and the University of Adelaide. The release of the pigs occurred without either the University's Institutional Biosafety Committee (IBC) or the GMAC being notified. GMAC Chairperson, Professor Nancy Millis, confirmed that, "Metrotec failed in its duty to put the proposal to us."

Metrotec's Managing Director, Barry Lloyd, argued that his company need not advise the University's IBC or the GMAC as he claims companies are not bound by the voluntary guidelines. He also contended that they had not complied because the IBC 'leaked' information. People are wondering if Metrotec is the only organisation to flout the GMAC's guidelines.

This debacle has encouraged many, including the University of Adelaide, to now favour new genetic engineering laws which, "would ensure that all organisations operating in this area would be required to meet defined standards." This clear commitment by the university strongly suggests that it has lost any capacity to ensure its corporate partner plays by the voluntary rules.

While defending the voluntary system, project researcher Dr Wells concedes that, "No-one quite knows where the buck stops and that's got to be resolved."

That live engineered organisms and the products of genetic engineering are being released in field trials and for commercial use is unacceptable, given the lack of public debate regarding these developments and the failure of the Federal and State governments to establish regulatory structures to oversee them.

Before any more releases for experimental or commercial purposes from the thousands of laboratories around the world, the public should debate the many issues.

Public Inquiry

The Federal Parliamentary Standing Committee on Industry, Science and Technology has opened an inquiry into genetic engineering. The committee has invited all interested individuals and organisations to make submissions as soon as possible. The Committee will report particularly on the impacts of engineered plants, animals and microbes deliberately released for experimental and commercial purposes, and the need to replace voluntary guidelines with laws. Related topics raised in submissions will also be considered.

This Inquiry is a unique opportunity for the public to have a say about industries based on Genetic Engineering before they are established rather than after problems arise.

It is essential that the public rejection of this destructive technology is conveyed to the committee, loud and clear.

The public has the right to decide whether genetic engineering goes ahead or not. Information on proposals, now treated as 'secret — commercial in

Have your say

Write a letter or submission to the The Federal Parliamentary Standing Committee on Industry, Science and Technology Inquiry into Genetic Engineering.

Send to:
Paul McMahon, The Secretary
Parliamentary Standing
Committee on Industry, Science
and Technology
R1, Suite 116,
Parliament House,
Canberra, ACT 2600.
Ph: (06) 277 4594

confidence', should be freely available in advance of any assessment to as wide a section of the public as possible.

Now that genetic engineering is coming out of the laboratory it affects and concerns us all and those involved have a responsibility to plainly explain the broader implications. Just because something is technically possible, there must be no assumption that it should necessarily go ahead.

All questions must be fully investigated, understood, assessed and widely discussed by the whole community before we make any final decisions on whether or not to accept genetic engineering and its products. Token consultation and debate, aimed merely at assuaging public concern, will not be accepted.

Bob Phelps is the Genetic Engineering Campaign Officer with the Australian Conservation Foundation.

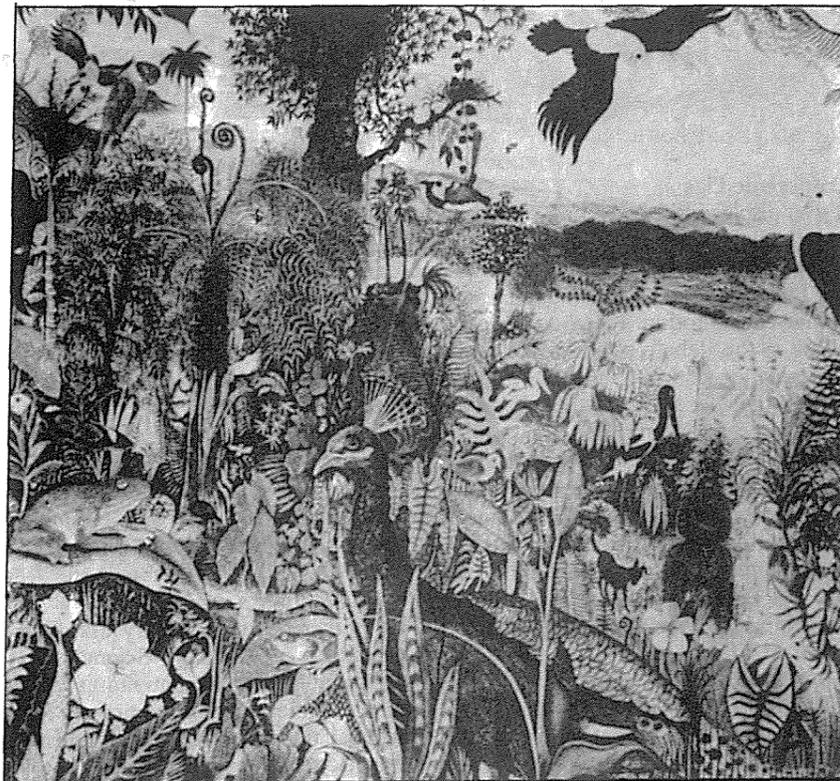
Bovine Growth Hormone

Bovine somatotropin (BST) is a growth hormone which is prepared in a laboratory following the insertion of the somatotropin gene into bacteria so that it can be produced and harvested in fermenters. Injected into dairy cattle, it is claimed that BST is capable of increasing milk output by between 25 and 30 per cent with little increase in food intake. It is administered daily to some dairy herds in the USA. The highest rates of increase have been recorded for the most productive cows, in highly managed environments such as feedlots. It is not surprising that the animals are experiencing high rates of mastitis, various stress related disorders, and general loss of condition. At around \$100/head per annum for the product, it endangers the livelihoods of many small family farmers who are among its most trenchant critics. They argue that it is unacceptable in an already glutted market.

Consumers and many other groups also oppose its use. Initial distribution of milk from cows on BST was to food stamp recipients, creating a storm of protest that they were being used as guinea pigs. Special labelling is now required in a number of US states and several large supermarket chains have refused to stock it, casting

Biodiversity or biogenocide?

There are many things happening to the natural environment as a result of human actions. Richard Hindmarsh suggests that the worst effect of humans is the reduction of the diversity of the living world. He suggests that that humans could be bringing about their own destruction.



Biodiversity is a exciting new way of referring to the earth's ecological system. As the basis of evolution and our primary life-support system it is emerging as one of the defining issues of all time.

Biodiversity encompasses three interlinking levels in a seamless web of natural order:

- **genetic diversity** – the variability within a species, measured by the variation in genes (the basic units of inheritance that can be passed from one generation to another) within a particular species, variety, or subspecies;

- **species diversity** – the variety of living organisms on earth, estimated to be somewhere between 5 and 30 million (although we have only identified some

1.7 million); and

- **ecosystem diversity** – the variety of habitats, biotic communities and ecological processes in the biosphere.

Diminishing biodiversity refers not only to the extinction of a particular species or habitat but also to decreases in the amount and frequency of variation at the ecosystem, species and genetic levels. Paradoxically, biodiversity is now becoming more widely recognised because its decrease threatens the very existence of industrial development – the 'executioner' of biodiversity.

One very potent but accurate way of describing diminishing biodiversity is biogenocide – the accelerated elimination of biodiversity by human

'development' practices and by extension, the eventual elimination of humanity. One model based on current development practices (such as deforestation) suggests that over the next 25 years the extinction rate of species could increase to 40,000 per year. That would amount to 110 species each day which is considerably up from one species every four years in 1900. In contrast, natural rates of extinction have been remarkably slower. During the last monumental period of extinction – the great dying of the dinosaurs (some 65 million years ago) – that rate was possibly only one species per 1000 years! Another widely cited prediction is that by the year 2000 our tropical moist forests may be reduced to zero

per cent! When the present stock of species also represents between 2 to 10 per cent of all species ever having lived on earth, then life on Earth could well be on the edge of extinction. This time round however, the extinction will have been induced by one species amongst millions – *Homo Sapiens*. This means that if we are to survive, we need to revive our care for the earth.

The issue of biodiversity is firmly embedded in the current sustainable development debate where widespread concern is being expressed for the welfare of present and future generations, as well as for Nature. It cannot be separated from the other major issues – such as pollution, land degradation, poverty and hunger, depletion of resources, or the debates about global warming, ownership of biological material, or the creation of a second, artificial nature through the biotechnology revolution – indeed it underpins them all. Such is the power of biodiversity.

Care of biodiversity = survival

Without biodiversity, evolution as the result of natural selective forces cannot occur. High genetic and species diversity maximises the chance of successful adaptation and/or resilience in the face of environmental changes, both naturally and human induced, including fire, flooding, disease, selective logging, and severe storms. This is because the diverse biotic communities, species and DNA surviving can replenish affected gene pools and ecosystems. The interconnectedness of the three levels of biodiversity can be illustrated, where fitness, vigour, and reproductive success are related to genetic diversity of species, while species diversity is necessary for a stable food web. Ecosystems retaining high genetic and species diversity help maintain ecological equilibrium which is so necessary for planetary and human survival.

Humans are a part of this natural order. Although we live in a simulated technosphere we remain residents in a biosphere. All culture is tied to biodiversity and all development options whether high-tech, low-tech, traditional, or sustainable, do not release us from it. Indeed, although genetic engineering poses an incredibly serious threat to biodiversity, it has highlighted the fact that industry,

agriculture and the economy depend on life-forms, that is, on the diversity of interactive living resources. In this relationship, biodiversity is the independent variable and economy is the dependent variable, and always will be.

In more simple terms, biodiversity provides the oxygen we breathe, maintains atmospheric quality, regulates and stabilises climatic conditions, maintains water supply and quality, generates and maintains the topsoil, disposes of wastes, converts solar energy and nutrients into plant matter, breaks down organic wastes and recycles nutrients, controls pests and diseases, pollinates crops and provides a genetic store from which we can benefit, now and in the future. In short, it provides all the essentials of life.

Biodiversity biomes

The richest biodiversity biome on earth is the tropics. While it comprises only 42 per cent of the earth's land area, and 12 per cent of the planet's surface, this area contains about 85 per cent of the world's species – some 255,000 flowering plants, as well as two thirds of the 'lower' plants (mosses, lichens, algae and fungi) which total about 145,000. Other rich biomes include tropical swamplands, coral reefs and coastal zones.

The gene-rich tropics are located mainly in the developing countries, otherwise known as the Third World, which contain some 75 per cent of the world's plants and 96 per cent of the world's agricultural genetic resources. Today, these areas are most subject to diminishing biodiversity, following the systematic decimation of gene-pools by the industrialised countries of the First World.

The hidden nature of biodiversity.

Until recently, diminishing biodiversity was not widely recognised because of its almost non-existence at three (probably more) levels of our consciousness. First, because of physical limitations on our perception we simply cannot see genetic components like genes and microorganisms, or ecological processes, like organic decomposition or the breakdown of the ozone layer. Second, we cannot be in the many different places to witness the multitude of bio-destructive practices occurring, locally and globally.

Thirdly, and most importantly, our

bio-awareness (where 'bio' means life) has been subject to cultural limits. Our failure to realise what is happening to the planet (and to challenge what is happening) arises largely from a narrow socialisation strongly influencing the way we treat the earth. Nature has been reduced to 'education and research compartments' such as biology, geology, physics, history, genetics, and so on, which have no perceived inter-connections. Humanity is regarded as the final aim and end of the universe with Nature at its disposal, to dominate and manipulate as it wishes. Hence, Nature has been and is 'plundered' for natural resources or raw materials with little consideration for its other values. Lastly, human progress is identified with scientific and technological advances and any unfortunate 'side-effects' can be remedied or 'fixed' by further application of science and technology (no matter if it is corporate or public).



The industrial development model: the pendulum of the synthetic world.

In effect, these limitations have endowed us with a bioinvisible cultural perspective that has facilitated the industrial development model. Its central tenet is the ultimate desirability of continual economic growth. This has resulted in a disposable manufacturing and consumption system which ignores both the interactive nature of ecological processes and the boundaries of the earth's carrying capacity. Nature is once again compartmentalised, and when the 'resources' of one 'sector' are exhausted there is always another to exploit — Nature is assumed to be expendable and infinite. Although the 'side-effect' of the global environmental crisis beckons limits to growth, the mindsets of industrialists and their associates ignore or resist this growing reality. This is not surprising because their fundamental mode of wealth production is challenged. The model is not discarded but merely technologically altered.



Even in the face of such phenomena as widespread pollution or resource depletion it is naively hoped that natural limits to production will be indefinitely deferred!

There is also the problem of autonomous nationalism. Nations assume that they 'own' chunks of global biodiversity to do what they like with. This is an equally serious problem at the local level in private-property based societies. Most people assume that if the problem is not in their own 'backyard' then it is not a problem, but ecological processes and ecosystems do not recognise human boundaries.

Such property-based concepts have led us further down the track of biogenocide, via social processes like consumerism and Third World poverty. Here, the needs and 'greed' of consumers in industrialised countries of the First World are considered before the social and ecological welfare of the poor countries. For example, the 'need' of industrialised countries for cheap timber and beef has wrought havoc on the plains of South America and the forests of Brazil, Thailand and Sarawak. Such 'development' practices, particularly resource extraction, are embedded in the historical assumption that Third World countries exist to provide for the continuing growth and development of the industrialised countries. Industrialised countries contain only 30 per cent of the world's population but consume about 70 per cent of the world resources. Conversely, 30 per cent of the remaining resources is shared amongst the 70 per cent of the world's population living in the Third World. Within developing countries there is further inequality between the very few rich and the very populous poor. This global and local social inequality results in hundreds of millions of people being caught in a poverty trap. Consequently, one economic survival strategy adopted by the poor is to have many offspring to maintain them as they get older. The result is rapid population growth. Moreover, two thirds of the world's poor live in rural areas and depend directly on the land for their subsistence. The ecosystems that sustain them are increasingly threatened by population increase, the effects of ecologically unsound development programmes such as the Green Revolution, and the global effects of industrialisation. As the Brundtland

report *Our Common Future* points out: "Those who are poor and hungry will often destroy their immediate environment in order to survive: They will cut down forests; their livestock will overgraze grasslands; they will overuse marginal land". Thus, the industrialised First World, with a belated interest in the environment, can scarcely assume the moral highground in any debate on the preservation of biodiversity.

The physical processes of biogenocide.

Three main physical processes are evident in biogenocide. Firstly, biodiversity as a 'common' resource is subject to open-access exploitation. For instance, an ecosystem, habitat or species can be over-exploited as a 'free good', available to everyone. Overfishing, soil erosion and deforestation are examples. Secondly, there is partial and indirect elimination of ecosystems and species as a secondary effect of biome exploitation, for example, the disastrous consequences of soil degradation from ecologically unsound agriculture, and the wanton disruption of habitats and species through rainforest clearing, mining, and habitat fragmentation. Thirdly, is the process of displacing or transforming elements of Nature for purposes of industrial production. For example, industrialised agriculture replaces natural cycles of soil fertility with synthetic chemicals.

What are some of the most lethal development practices that threaten biodiversity?

Deforestation: You can't see the trees for the land.

The biome with the greatest genetic and species diversity is the tropical moist forests. Yet, they are disappearing more rapidly than any other biome. Given the current deforestation rate of as much as 245,000 km² a year (almost 50 hectares per minute), all tropical moist forests could be destroyed within less than 30 years! When it is estimated that 10 to 30 animal and microbial species depend on every one plant species, then that loss is absolutely devastating, and underscores the reality of life on earth being on the edge of extinction. Once a species disappears it is non-replaceable — extinction is final!

Oceanic biogenocide.

There are severe problems for oceanic

biodiversity from oil spills and the dumping and disposal of contaminated sewage sludge, garbage, and industrial toxic waste such as heavy metals, radioactive waste, pesticide and fertiliser run-off, and other chemical compounds such as PCBs. Other contamination is caused by dredging of rivers and deposition from atmospheric pollution.

The biogenocide effects are both direct and indirect. An over-supply of nutrients alters the balance of plant communities such as plankton and algae near the shore, as well as other plant species. A disruption of fish, shellfish and bird feeding and breeding can result. Indirect impacts can occur through continual exposure to pollutants which heighten the vulnerability of marine organisms to disease. This may also occur through toxic chemical accumulation in living organisms that enters into the food chain, and becomes concentrated in those animals at the top of the chain — such as fish and people. In Manila, as in many other Third World cities, the desperately poor eat toxic fish rather than not eating at all.

There are also biogenocidal effects from overfishing. Decreasing catches indicate that human demand for fish is, in part, seriously disrupting natural marine growth cycles. Many fishing practices, such as the use of weighted nets dragged along the sea bottom to catch deep-swimming species, devastate marine habitats. Drift-nets, widely known as 'walls of death', indiscriminately capture and drown most non-target marine species in their path

The coastal zone: where have all the Mangroves gone?

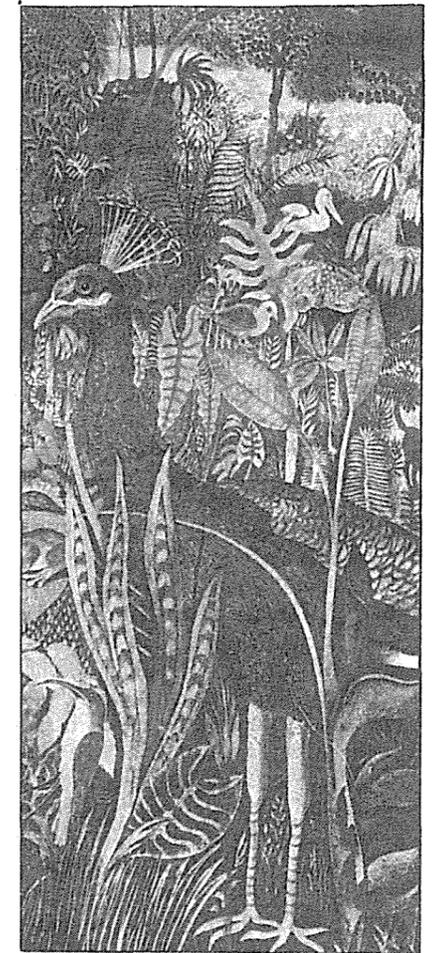
Mangrove forests, seagrass areas, saltmarshes and tidal estuaries support a wide variety of marine animals, plants, microorganisms and migratory birds. They are vital feeding and nursery grounds for marine species that support commercial and recreational fishing. The coastal zone is the most productive part of the oceans. Yet, this zone is under great threat from residential development, marinas, industrial activities such as mining, diversion of water supply through dams and irrigation programmes, recreation, and pollution from sewage disposal, industrial and urban waste. These activities disrupt patterns of water and

nutrient circulation, and often destroy the habitat. Detrital-based food webs are also disrupted and overall there is a reduction in fishery yield. When fresh water is diverted, salinity increases and species like shrimps, mussels and oysters are displaced by others more salt-tolerant. In southern and eastern Australia, over 60 per cent of coastal wetlands has already been lost. In Europe, since the decimation of forests by acid-rain, coastal wetlands have become the continent's most threatened habitat. Significantly, environmental economists recently placed a (conservative) estimate of production energy value on tidal estuaries at US\$20,000-50,000 per acre! This begs the question: What would their real value be, if placed in a holistic biodiversity context?

Industrialised Agriculture: Nature transformed.

Since World War II, industrialised agriculture has flourished in the Western world. Its direct benefit of increased agricultural productivity has relied on genetic technologies that have replaced open-pollinated seeds with 'high yielding' seed varieties (hybrids or monocultures). However, monoculture crops are highly vulnerable to pests and diseases; their genetic variation which forms a buffer to pests and diseases has been largely bred out. To overcome these vulnerabilities, protection is required through heavy and continual dosages of pesticides.

These practices have declined or halted the natural genetic diversity of crops in those areas that have adopted modern plant breeding practices. So much so, that crop geneticists now believe that 4-10 years after they introduce a new form of genetic resistance into a crop strain, that resistance collapses in the face of a newly evolved form of disease or pest. There is a constant need to 'top-up' a monoculture plant's genetic constitution, from a large natural 'reserve' gene pool. Countries such as North America and Australia are almost totally dependent on the external sources of genetic resources for their major crops. Ironically, centres of diversity for modern agriculture are in the Third World and that is where gene pools are now rapidly shrinking. One notable cause has been the Green Revolution — the spread of industrialised agriculture into the Third



World.

The effects of chemicalisation have also been disastrous: widespread chemical pollution of terrestrial and aquatic ecosystems has occurred. A toxic-induced form of evolution has also resulted. Now, more than 1600 insect species have developed significant resistance to major synthetic pesticides since their introduction in the 1940s. Herbicides are also proving ineffective: 48 species of 'weeds' have already become resistant to the once widely-used triazine herbicides. The techno-industrial response has been a spiralling treadmill of research and development for more effective pesticides along with greater and greater doses of pesticides. Biodiversity has been reduced by both approaches. Pests with human-induced stronger 'fitness' distort natural ecological processes and species variation, while chemical pollution alters or reduces the structure, content, function, stability, resilience and productivity of ecosystems.

Another disastrous aspect of monoculture has been its effect on small farms. The cost of the 'package' of agrochemicals, hybrid seeds, mechanisation equipment and fossil-fuel, has helped to eliminate 34,350 small farms in Australia between 1951 and 1989. The result — larger farms which are more conducive to monoculture crops; diversity has been lost. In the process, vast tracts of land (or habitat) have been razed. As well, hybrids depend on the intensive use of water for nutrient 'uptake'. These practices have led to severe land degradation through salinity, soil erosion, and the distortion of natural cycles of soil fertility renewal, at numerous places throughout Australia and the rest of the First World.

These problems have also spread to Third World countries with the adoption of industrialised agriculture in the 1950-70s, encouraged by Western interests. The promise of the so-called Green Revolution was a 'miracle' solution to global hunger. While it did initially raise food productivity, that productivity is now declining. In the adoption process, the expensive technology was only suitable to rich areas that could either afford or support it. Adverse social impacts resulted and included increased unemployment,



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indebtedness, landlessness, and poverty. Many of the poor could not buy the food that was being produced in ever increasing volume. Hunger and malnutrition increased and with it pressure for people to have large families for insurance against economic uncertainty. Marginal lands were over-exploited, and biodiversity was devastated.

The impacts on the ecological front were made worse by the associated chemical pollution and land degradation. Another tragedy lay in the displacement of food plants that over centuries had evolved to local ecological conditions. Industrialised agriculture and the Green Revolution have proved a disaster for local, and ultimately global, genetic diversity.

Emerging threats to biodiversity

As though all these problems were not enough, the world is now being confronted with new threats that promise to affect biodiversity on an unprecedented scale — from depletion of the ozone layer, global warming, resource extraction from the deep-sea-bed and possibly Antarctica, to private ownership of biological material (genetic resources) and the release into the environment of genetically-engineered organisms. These latter two threats are inherent in the development of biotechnology, also known as the bio-revolution (see Bob Phelps' article in this issue).

Global and local initiatives

The importance of biodiversity is becoming evident mainly through the efforts of the green movement and non-government organisations, which have correctly linked its rapidly diminishing presence to industrialisation. Many groups network locally and globally to prevent genetic erosion and corporate control of genetic resources.

Governments and international development agencies have taken some initial steps in response. For instance, the International Union for Conservation of Nature and Natural Resources (IUCN) published the 'World Conservation Strategy' in 1980. It defined the three main objectives of living resource conservation to be the maintenance of essential ecological processes and life-support systems, the preservation of genetic diversity, and that any further utilisation of species and ecosystems

should be sustainable. Another influential report has been the World Commission for Development and Environment's *Our Common Future* published in 1987. It promotes a fine balance between environmental and economic considerations, and has recognised that human development practices must be altered for the preservation of biological diversity.

At the national level, Australia has embraced the concept of ecologically sustainable development, with a policy document called *Our Country Our Future* (1989). In it, Bob Hawke expresses the sentiment, "We have a responsibility, to future generations as well as our own, to preserve the unique ecosystems of this ancient continent and to play our part in maintaining the Earth's biological diversity".

Yet, these latter policy initiatives still work from the premise of the industrial development model. While promoting environmental welfare, enhanced economic growth is seen as the solution to these problems; industrialisation is tokenly toned down and there is an enhanced reliance on science and technology to find new avenues to defer limits to growth.

The more logical sustainable model would be to revive our care for the earth by placing limits on current growth, developing a biovisible cultural perspective, reconceptualising growth concepts to ecological and social criteria, redistributing global resources, discarding biogenocidal industries and developing a bio-friendly economy.

Conclusion

The issue of diminishing biodiversity has emerged as one that succinctly pulls together all the issues in the conservation / development debate. Its all encompassing impact on life on earth provides us with a unifying concept through which we can develop a truly ecologically sustainable future — one that is free of contamination, poison, poverty, patriarchy, and biogenocide. From such a base we can act more coherently and effectively against the powerful forces that are destroying our world, and Nature. Biodiversity or Biogenocide? — our choice!

Richard Hindmarsh is an ecoscientist working at the Science Policy Research Centre, Griffith University, Brisbane.

Being green

The whole world may look like it's going green, but according to Gisela Gardener, there are different approaches in different parts of the world.

After twenty-one years of living in England and Australia I returned to Germany last May. As part of the research for a book I have been looking at different cultures' attitudes to land and was going to find out about German concepts. I expected environmental issues to be high on the political agenda and I knew that the Green Party had been in Parliament for some years and that there were large anti-nuclear and other social movements. I was however unprepared for the level of environmental awareness and information amongst people who were not part of any of the groupings that usually discuss such issues here.

"It's no good recycling your aluminium cans", I was told by an elderly boss of a right wing union, "They are sprayed with plastic paints which release dioxins during the melting down process. Much better to reuse glass bottles."

German homes have crates of soft drink and beer delivered, empty bottles are replaced in the crates, picked up by the next delivery, returned to the bottling plant and reused. Sturdy shopping bags, similar to Australian sports bags, were also the long established — never quite abolished — norm and in many food shops, if you wanted it, you paid for a plastic bag separately. In Frankfurt and Berlin local authority posters adorned advertising spaces extolling us to reduce, reuse and recycle, warning of the dreadful consequences of ever increasing mountains of refuse and their effect on ground water pollution and air quality.

At my first local Green Party meeting in the most densely populated suburb in Europe, Frankfurt's Nordend, we discussed actions around packaging. One group would collect milk and juice cartons and build large

pyramids in shopping centres, encouraging passersby to choose the recently introduced milk bottles. Traditionally milk was collected in billy cans with lids and they are also making a comeback. Others were leaving the excess packaging at the check-out and requesting it be returned to the manufacturers of the goods as a customer's complaint.

I heard discussions about genetic engineering, which was seen as a vital issue and a great danger. I felt as I had over ten years ago when I first began to grasp the overwhelming dangers of the nuclear industry. Many independent scientists, feminists and disabled people, as well as such groups as the Catholic Young Farmers in Bavaria, had been criticising proposed laws relating to this new technology. The Green Party and others has been organising nationwide days of protest. It was explained to me that one reason why some Germans may tend to look at subjects of this sort carefully is because of the Nazis' eugenics policies. Such policies, as indigenous peoples have experienced, are not alien to the English speaking world. Why is genetic engineering not a hot topic in Australia, where those who hope to profit by it

have had to face little critical public attention or opposition?

I learnt new information about ground water pollution, rubbish incinerator plants, filters in coal burning power station chimneys and the destruction of the forests. Environmental monitoring of industry and power plants was often done by independent environmental research institutes, who provided reliable detailed scientific information to the general public, green politicians and activists. I was envious.

'Biolädeu', shops stocking organic produce and 'bio' butchers were popular, but too expensive for people on low incomes. Chancellor Kohl is said to prefer organically grown food on his plate, but continues to support European Community policies which favour Anglo-Saxon style agribusiness. The numerous small independent farmers, who until recently had some very sustainable farming methods, are finding it more and more difficult to make a living. Their traditional small farms are considered inefficient by agribusiness standards and most are now augmenting their incomes as unskilled and semi-skilled labour in factories and service industries. The demand for organic and free range produce is there, but agricultural and pricing policies prevent potential suppliers from being able to respond to this demand.

The structure of the landscape itself and people's relationship to it are fundamentally different from the English model. During the last few centuries the English upper classes enclosed the land with fences and the now-protected hedgerows and declared the very earth and all that lived on it private property. There are much fought-for footpaths in England to allow people to walk from A



to B, but in Australia and the USA even that limited form of access to right of way does not exist. The idea that large tracts of land are "a property" and that anyone putting foot on it may be punished by the law for trespass is not part of the German system.

In most areas rural people live in villages, and farmers have a number of small fields in the areas surrounding the village. Livestock live in stables and the farmyards next to the farmhouse, which is generally home to three generations. Patches of managed forest alternate with patches of arable land. The forest belongs to the village and the farmers look after it co-operatively and get their wood, including their Christmas trees, from it. Anyone may walk amongst the fields and in the woods, pick mushrooms, nuts and berries and other wild foods.

In areas such as Oberfranken the many woods were "Naturschutzgebiete", protected areas for birds, rare animals and plants. Local workers were proud to show me patches of rare indigenous orchids. Private property does not have holy cow standing in this landscape. On the other hand, farmers were struggling with land fouled by the keeping of too many animals, such as pigs and cows, in large factory farms and they were increasingly aware of the detrimental

effects of pesticides and artificial fertilizers on ground water and soil. Radioactive pollution from Chernobyl and fears about local nuclear power plants were also a problem.

West Germany (like Sweden but unlike Britain and the US) is a social democracy. It is Europe's strongest economy and a conservative law-and-order state. The right wing government likes to make deals with unions, whose hard working members continue to produce and consume vast amounts of goods and services, and, in comparison with workers in other countries, have a very good standard of living and an impressive education and health care system. Alienation and ecological disaster aside, it seems a shame that Australian conservatives (Liberals and National Party) emulate the English and US attitudes to unions and workers' conditions, when the German model seems so much more successful in capitalist terms.

In English speaking countries people know about Hitler and the evils of national socialism. They have heard of the Kaiser and think of the Germans as humourless, militaristic, efficient and tidy. And they are right. It is all part of German history and a section of German people is just like that. But a good proportion of German people acknow-

ledge the horrors of their past — not something I have seen too often in England, but it is starting to happen in Australia. We hear little about the vibrancy of socialist, feminist, anarchist and other alternative traditions which have developed in Germany over many decades. The Green Party is a coming together of all these different elements of social resistance, and it organizes the opposition to social democracy. It questions profit-oriented growth and faith in the capitalist market economy. It challenges capitalist rationality, with its waste of resources and environmental destruction. It is informed by feminism and is working in the direction of a total social alternative. A large part of the autonomous women's movement joined the party or supported it. Green party politicians work with extra parliamentary social movements, minority groups, unions and citizen's initiatives. They argue against West Germany's paragraph 218, the anti-choice abortion law and agitate against "Ausländerhaf", hatred of foreigners, and the new discriminatory laws against non-Germans.

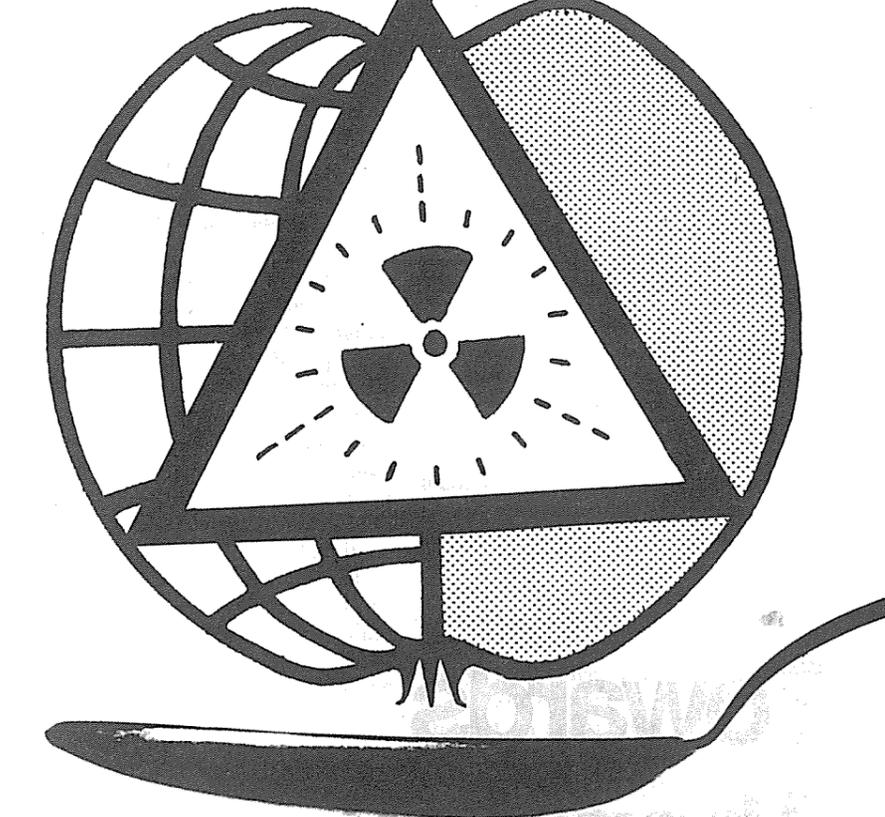
The history of the formation and continued existence of the party is lengthy and convoluted. But the party's composition itself is, in terms of Anglo political culture, quite astonishing. The British style of "divide and rule" does

not seem as successful as it is in Australia among people who are working for social change. There are many different factions and currents in the Greens and I remain amazed at their ability to continue through their internal debates and struggles to form a party which for all its faults and failings, has had such a significant effect on West German life over the last decade.

Whenever I asked anyone involved in the party which grouping they belonged to, they would evade my question, not liking to identify with a particular current. They would entertain me with descriptions of the more flamboyant styles. Cityoten, for example, were a form of green yuppie who got about on a beautifully-made expensive bicycle, with a designer backpack, containing his state of the art personal computer, on the back of his carefully groomed body. I wasn't told what the equivalent female looked like. Some said not to make too much of the political divisions, but most were willing to give a rough outline:

On the right of the party is a small faction of eco-libertarians who advocate radical politics without a socialist perspective. They hope that the contours of another society can be developed by means of patient step-by-step reforms. The Realos are an important faction who want to bring about change by forming coalitions with the SPD (Labour Party) on local and state level. With their radical green reformism they work in parliament to defend the interests and security of minority groups and social movements. They see their reformism not as integration into the existing system, but as a means to develop different values, life styles and relations of production. The ecosocialists are concerned that the party will degenerate into one of the props of the system. They oppose coalitions with the SPD, which after all is a party which, like our own Australian Labor Party, has rejected any discussion of a social alternative to capitalism. The fundis are radical ecologists on the left of the party who are working towards a qualitative change in society, based on a cultural and spiritual revolution.

At least one in twenty Germans have voted for the Greens, giving them the five percent of the vote necessary to allow them to be represented in parliament under West German law.



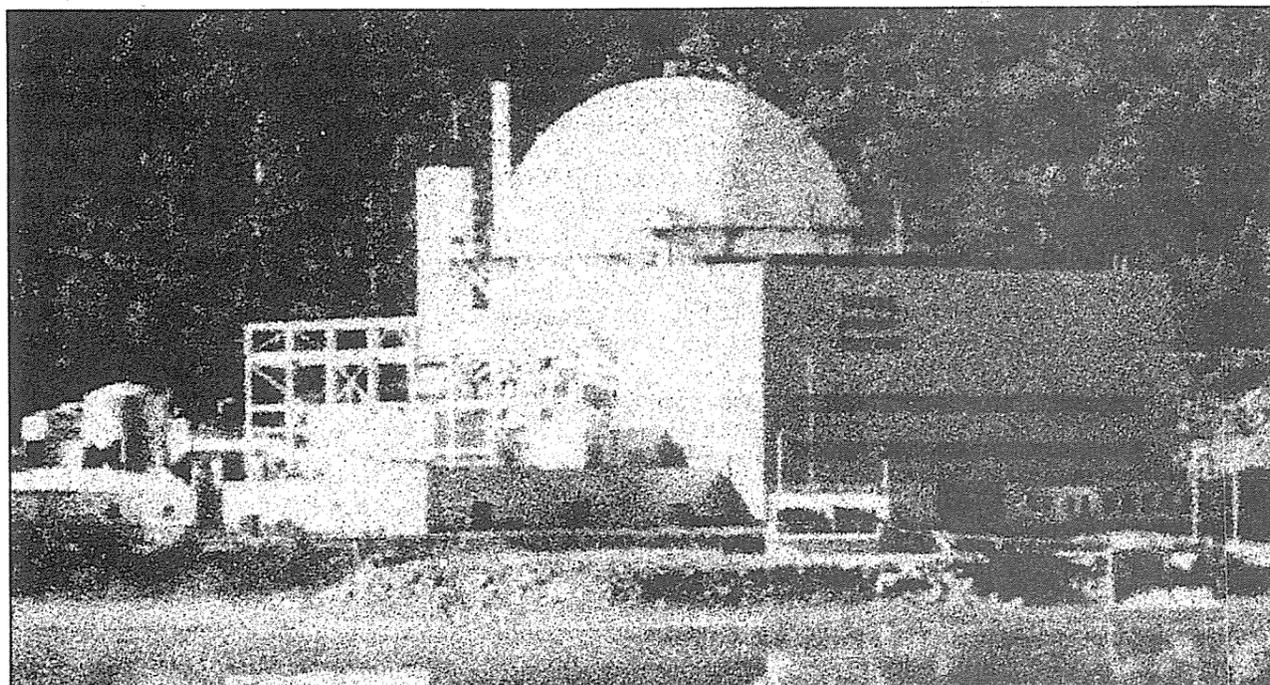
Four years after Chernobyl food is still affected by radiation.

Reunification, or rather the absorption of East Germany into the West German system, is raising hopes, the SPD's especially, to rid parliament of this thorn in their side. It is difficult for West German and East German left, green and alternative groups and parties to make deals quickly enough to achieve a nationwide five percent at the all German December elections. West German electoral law does not permit parliamentary parties to be alliances between autonomous organizations. DDR groups like the "Neue Forum" fear losing their identity and some of their perspectives by moving too hastily in the direction of the Greens. The East German Green party, much smaller and more conservative than its West German sister, will take part in a conference where both parties will dissolve themselves and form a new one. The Neue Forum decided in July by a small majority to stand candidates on Green party lists, although some find the Greens too red and would have preferred to spend the next four years building their own extra parliamentary

movement and negotiating a careful deal with the Greens.

Members of DDR citizen's initiatives, who broke the DDR one-party state last November, were horrified to hear that the Realo-dominated federal parliamentary Greens had been negotiating with the much despised PDS, the rejuvenated successor of the former DDR ruling party, the SED. But many East and West feel that the PDS is the only viable non-capitalist East German opposition party and that a capitalist system cannot be reformed to change into a sustainable society. Paradoxically, the best to hope for, as a commentator put it in *die Andere*, the weekly newspaper of the Neue Forum, would be that the PDS and the Greens could both manage to drag their heels over the five percent hurdle and that a strong left in parliament would allow the Greens to make the most effective nationwide ecological politics yet.

Gisela Gardener is a writer who lives in Torquay.



Nuclear facilities in Europe are usually located on rivers and near towns. Citizen's legal action has succeeded in keeping many of them closed for years.

Towards Aboriginal sovereignty

On 16 July 1990 the Aboriginal Provisional Government (APG) was formed by Aborigines in Australia. This article was prepared by the APG, and outlines its structure, purpose and strategies, and some of the implications of the establishment of a sovereign state for Aborigines.

There has been a general focus of attention on the sad treatment of Aboriginal people in Australia, particularly since the 1960s. As a result of that attention many Federal and State Government funded programs have been aimed at alleviating the hardship suffered by Aboriginal men, women and children in this country. Invariably the best programs have been those funded by Government but implemented by Aboriginal organisations run by Aboriginal people.

Specific programs aimed at reducing Aboriginal leprosy rates, other health problems, improving access to the goods and services of the community, for example: law, education, housing, and generally upgrading the social situation of Aborigines have resulted in some benefits flowing onto Aboriginal communities. With these social benefit policies have come some minor changes in Aboriginal politics. Until 1967 Aborigines were not regarded as human beings and were prevented from voting. There were too few Aboriginal spokespersons and any organizations acting on behalf of Aborigines were invariably run by whites. That, generally speaking, has changed.

From 1967 to 1976 those interested in the development of the Aboriginal struggle saw significant achievements. The advent of Aboriginal Legal Services in every State and Territory aimed at reducing imprisonment rates of Aborigines (which were second to none in the world). In 1976 Land Rights legislation in the Northern Territory formed the high water mark of the Commonwealth's attempt to give Aboriginal people greater access to land previously owned and enjoyed by them. The establishment and funding of the National Aboriginal Council (NAC) gave Aboriginal people for the first time an effective voice at the national level.

Since then, however, it is at best difficult and at worst impossible to point to projects of the same magnitude as those mentioned above. Just as those initiatives indicated a trend towards better treatment of Aboriginal people by Government, the failure by Governments to have any initiatives of any significance in the 1980s indicates a trend in the opposite direction. Justice Michael Kirby best summed it up during the 1988 celebrations, by suggesting the white population had become bored with the subject of Aboriginal justice.

In the meantime Aboriginal com-

munities are left to suffer the disadvantages which have continued since the Government initiatives finished in the mid 1970s. There has been no new initiatives, no policy changes likely to benefit Aboriginal people to any significant level and even more frightening, no appropriate response has come from the Aboriginal community capable of pushing appropriate change of Government policy.

A decade of consultation

When the APG was launched one of the first outcries from some sections of the Aboriginal community was "lack of consultation". For over a decade meetings of the Federation of Land Councils, Coalition of Aboriginal Organisations, National Aboriginal and Islander Legal Services, SNAACC, and even the NAC saw numerous discussions held about the Sovereign rights of Aboriginal people in this country. The same people who cried lack of consultation were present at these meetings, where there was little action, but many words were spoken.

At these national meetings where, presumably, the national delegates were reflecting the views of their local communities in talking about the sovereign rights of Aboriginal people, the cry had long been for Aborigines to begin "acting" sovereignty rather than continuing the use of rhetoric. How much longer would the discussions have had to be held — ten years, twenty years or even longer before a decision would be made? How many more Aboriginal men, women and children would suffer while the debate went on?

Whilst it is to be expected that many will always oppose change, not all Aborigines saw it that way. Former Department of Aboriginal Affairs Secretary, Mr. Charles Perkins, probably the most well known Aborigine of recent times, said on 17 July 1990 that some Aboriginal organizations had

died on the vine and needed to change direction and become as creative and dynamic as they were thirty years ago.

Without doubt Charles was referring to the enormous time spent by Aboriginal organisations and the delegates "discussing" a plan aimed at alleviating hardships for Aboriginal people without any of these plans seeing the light of day. The biggest insult to those opposing change came from former Northern Territory Chief Minister, Paul Everingham who

said in *The Australian* on 8 August 1990, the fact is that self determination will remain a dream until Aborigines show the determination to deal with the realities of Australia today...

The purpose of the Aboriginal government

The APG aims to change the situation in Australia so that instead of white people determining the rights of Aboriginal people, it will be the Aboriginal people who will do it. In previous times, even when Government policy was supportive of Aborigines, those policies were aimed at alleviating hardship but at the same time reinforcing white domination of Aborigines. For example, Land Rights legislation in the Northern Territory retains absolute ownership of that land for the Australian Government but gives certain rights to Aborigines. If the white Government ever repealed the legislation the land would automatically revert to the white government.

The second important change sought by the APG relates to the status of the relationship between Aborigines and whites in the country. Until now Aborigines have always been regarded as nothing more than a minority group in Australian society. The APG refutes that assumption and insists that nobody in the world has any greater right than Aborigines themselves to determine what it is that Aboriginal people desire.

Thirdly, the APG believes that, despite the fantastic work done by Aboriginal organizations throughout our country, Aboriginal people still do not fully accept responsibility for determining the long term future. Organizations have essentially been service delivery organizations without having, in all cases, the capacity to push ahead to a situation where by Aboriginal people had absolute control over themselves. Organizations were so busy trying to keep their communities alive by virtue of their seryjee delivery that they had little opportunity to sit down, design and implement policies aimed at giving effective control of Aboriginal communities back to the communities themselves.

Fourthly, the APG looked at the current situation of Aboriginal Affairs and saw nothing to indicate that there was ever going to be change from continual reliance upon the white welfare system and being forced to participate

in the Australian political system. APG members recognized the need for a body which, by virtue of its name and purpose, would set a new theme and plan for the long term destiny of Aboriginal people.

The objective of an Aboriginal state

Any challenge from the Aboriginal community to over 200 years of white supremacy and domination will result in a predictable reaction. What is seen by Aborigines as freedom and independence has been termed by whites as a form of apartheid; what has been put forward as the right of Aboriginal people to control themselves has drawn the comment of "separatism"; what the APG sees as self determination for Aborigines is viewed generally by the white powers-that-be as a dividing up of the country.

Furthermore, whenever members of the Aboriginal Provisional Government talk about an Aboriginal State the immediate response from our opponents is that "Aborigines are to be rounded up and put on a little piece of land some where in the middle of Australia." Clearly, all of these above examples indicate the strategy of those opposing the intentions of the APG, namely, by putting fear into the discussion it is hoped that more and more Aboriginal people turn away from the debate and therefore everything will be left alone.

Let it be clearly understood: the Aboriginal Provisional Government wants an Aboriginal state to be established, with all of the essential control being vested back into Aboriginal communities and only oversee powers being vested in the Aboriginal Provisional Government. The amount of land involved would essentially be Crown Land but in addition there would be some land which would be needed by the Aboriginal community other than Crown Land.

The basis for territory coming under the Aboriginal Provisional Government would be *the land needed by Aboriginal communities to survive on*. No longer would Aborigines need to beg Governments or judicial bodies for land to be returned to Aboriginal people. At the end of the day enough land would need to be returned to Aboriginal communities throughout Australia to enable them to survive as a Nation of people and the remaining land would be kept by whites and their Governments as a basis for them to continue their nation.

There will not be a need for all

Aboriginal people to go and live on the land vested under the jurisdiction of the Aboriginal Provisional Government. Some may choose to do so and some may choose to continue to live under the jurisdiction of white Australia. There is nothing wrong with that because if nothing else it gives Aboriginal people a choice which is otherwise lacking.

Nor would Aboriginal people have to go and live in a particularly small area even if they did desire to live under the jurisdiction of the Aboriginal Provisional Government. The lands would be scattered far and wide around Australia and would essentially be the land appropriate to local Aboriginal communities no matter where they were distributed in the country, and the amount of land returned to those communities would be the amount of land they needed. While some have scoffed at the peculiar boundaries such division of land would create it is not unusual in international circles. For example, the United States is a nation yet is divided completely from its territory in Alaska, and its territory in Hawaii is halfway around the other side of the world. That has not been seen as a reason to laugh at the jurisdiction of the United States Government.

There would be sufficient resources available to the Aboriginal communities because, as a survey in the Australia Budget paper number 5 of 1988 indicates, the amount of money required to keep the Aboriginal communities around Australia at a subsistence level, including pensions, unemployment benefits, housing, health and total grants to Aboriginal organizations amounts to 1.1 billion dollars. From the same Crown Land the Aboriginal Provisional Government is reclaiming, royalties alone to State and Federal Governments amount to over 4 billion dollars, excluding the billions received in addition by virtue of income tax. Consequently, if nothing was changed, Aboriginal people would be at least four times better off financially under an Aboriginal Government than they would be under a white Government. It would therefore mean at least four times more money being available to deliver decent services to the Aboriginal communities and with the wiping out of the costly white administration Aboriginal communities would have more direct and increased

access to necessary finances.

At the moment Aboriginal Communities have to abide by the white man's law. That would change under the APG because each Aboriginal community would determine its own form of legal system appropriate to its community situation. It would mean therefore, that some Aboriginal communities would practice "traditional" laws, others who have had much more contact with the white community would have a mixture of white and black law, and even others would have a system which is simply appropriate to their life style in any given situation. Any person from outside the Aboriginal Nation entering Aboriginal land would be expected to abide by that legal system and conversely, any Aboriginal person going into cities or the towns would be expected to abide by the white man's legal system. Herein lies one disadvantage of Aboriginal Sovereignty which is conceded: if the basis for Aboriginal self determination is the mutual respect of each others rights as peoples, then Aborigines cannot expect to carry their own laws onto Australian Government controlled areas just as people coming onto Aboriginal land cannot expect to ignore Aboriginal law. But it also should be recognized that there is scope for softening the normal harshness of penalties by both sides: if a white person came onto Aboriginal land and was not familiar with the laws and broke such a law, it may well be that the white person would not be punished as strongly as an Aboriginal person would be. By the same token, we would expect that Aborigines who broke the white man's law would also be treated in a lighter way than white people themselves.

The political control of each local Aboriginal community would be vested in the community themselves. There would be no point in transferring white power to an Aboriginal Provisional Government which simply imposed the same policies from above. The local communities must have absolute control over their day-to-day activities and the direction in which the local Aboriginal communities were to move. The residual powers of negotiating with foreign Governments for trade, co-ordination of some uniformity between Aboriginal communities and so on should be vested in the Aboriginal Provisional Government. Election to

the APG would be via the local community controlled councils.

Therein lies the basic outline of how Aboriginal people can exercise control over their own communities without hindrance or interference from any other Government within Australia or outside. The Aboriginal Government would operate alongside all other Governments in the world including the Australian Government and certainly not be subordinate to it. White legislation would have no application whatsoever to Aboriginal communities because absolute control over Aboriginal land would be vested back in Aboriginal communities. The laws of the white man would not apply unless the Aboriginal communities wanted it. There would be no right of the police to come onto Aboriginal land unless it was by agreement with the Aboriginal Community.

In that context, there is room for negotiation between Aboriginal communities and those institutions exercising jurisdiction over Australian Government land. In exchange for Aboriginal people ceding up to perhaps half of the country to white Australians, there would need to be some compensation package. It need not necessarily be in the form of money and perhaps ought not to be, so that we become more self sufficient at an early stage. However, having access to specialized institutions such as medical facilities, education facilities and telecommunication system could be a basis for that compensation for ceded lands. Further it would be in the interest of the Australian government to prevent Aboriginal land being used as a sanctuary by criminals from its own area, also to prevent drug runners evading Australian police by running through Aboriginal Land. This could be done by coming to some arrangement with Aboriginal community organizations to allow police access on certain conditions. Both communities would have mutual benefit. There is no necessity for continual conflict provided that the imposition of the white man's will on Aborigines is removed once and for all.

Getting there from here

Aboriginal Sovereignty as described in this paper is not going to be handed over on a silver platter by any white Government. If the struggle of Aboriginal people had been hard in the past it will

be even harder in the future. The independence movements of other Indigenous People around the world have had to make a lot more sacrifice than we have. This is not a call to arms but a recognition that Aboriginal people have got to be a lot more serious about the call for Aboriginal sovereignty before it will be recognized, not just by the Australian Government, but also by Governments overseas.

The APG anticipates small areas of land initially being given back to Aboriginal communities after specific campaigns and after some period of time. A political unification of those successful groups would form the developing Aboriginal Nation territory. The strategy would be to rally all Aboriginal people around a particular community which is seeking to reclaim certain areas of lands. Following passive resistance by Aboriginal people to police efforts to remove them from those lands, control would eventually be conceded by the white authorities as being re-vested in the Aboriginal communities. This of course would take great people resources, financial support and grim determination. The latter is entirely up to us.

In addition we need to up the stakes of negotiations with foreign Governments so that they recognize us as the true owners

of this country. As we have seen from the South African venture, international pressure on an oppressive regime can change with a combined effort by people overseas and serious efforts by the oppressed peoples themselves.

The likelihood of Aboriginal people achieving self determination rests squarely on the Aboriginal people themselves. If there are only a few of us willing to stand up and seriously push towards Aboriginal sovereignty, it is highly unlikely it will be achieved. If more and more Aboriginal people put themselves forward with their own ideas and efforts, then justice would be certain.

There will be meetings to elect new people to the APG throughout Australia and it is hoped that more and more people put themselves forward. The current office bearers of the APG are there on the basis that if the Aboriginal community wishes to put new and better people forward, we would readily stand down. However we strongly wish to be part of a process of bringing about change for the betterment for all of our communities because we too, like you, have not just witnessed the hardship our people have suffered but have also experienced it.

Specific ways that all people can give their support to the APG are by:

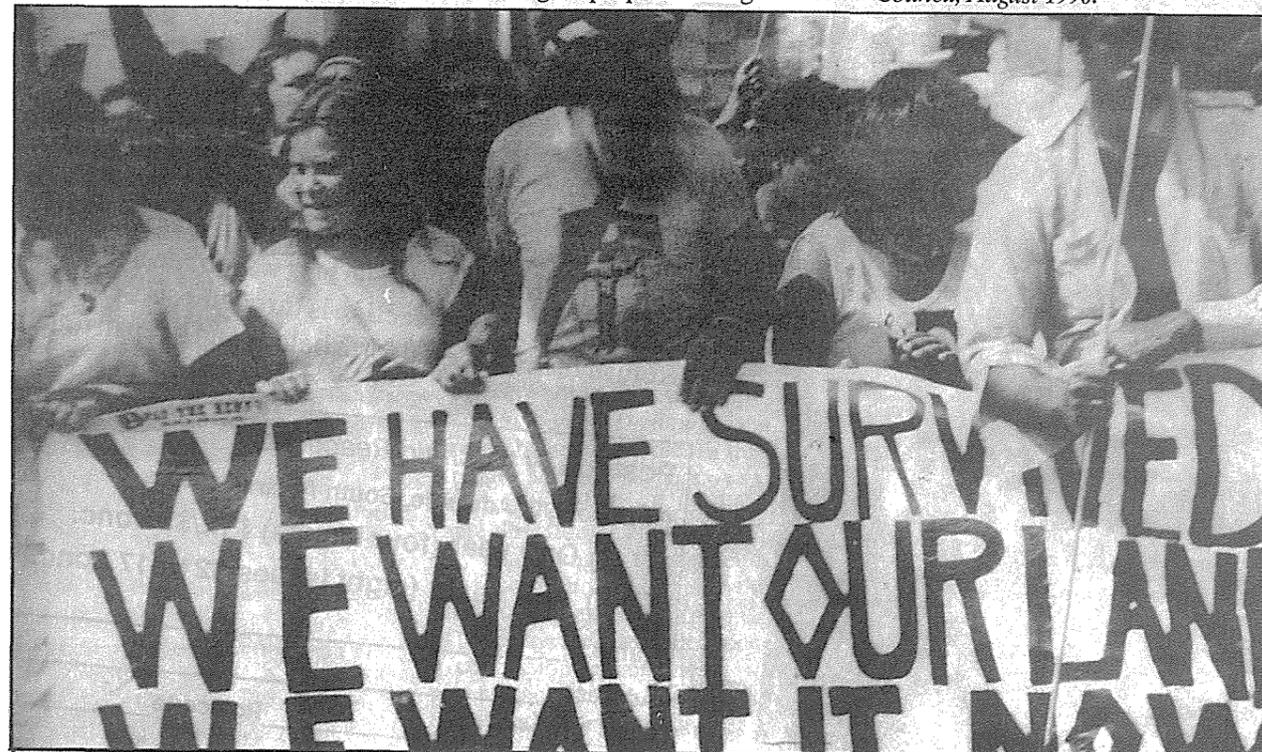
- Aboriginal people attending the meet-

ings and putting themselves forward as part of the Governing Council.

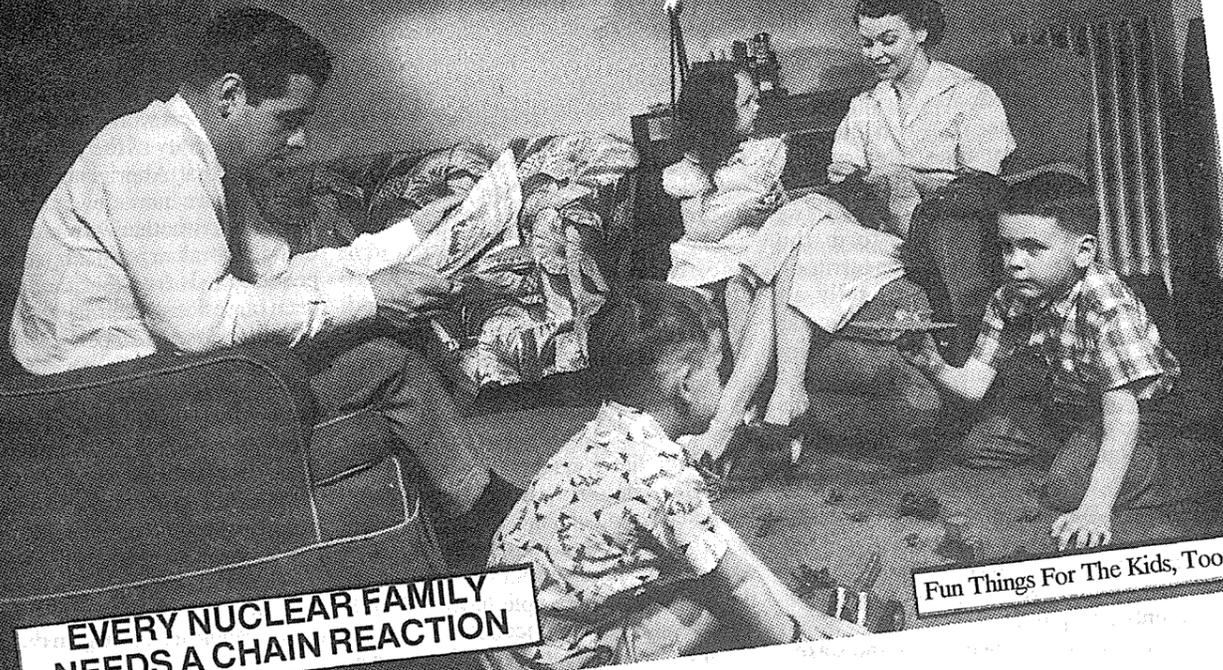
- Aboriginal people pushing forward their ideas and being constructively critical of other ideas that they hear.
- All people making some financial contribution on a regular basis to the APG no matter how small.
- White people paying for occupation of the lands to the APG on a pay the rent principle. The amount of financial support would be determined by the capacity of the people to pay.

It is true that Aboriginal people in this country have never ever been given a choice as to whether we wanted to be part of the Australian political system or independent. It is true that there never has been a serious attempt by Aboriginal people to control ourselves, our children and our destiny without getting approval from the white man. All of this can change. It is possible to keep some of the people down some of the time but not all of the people all of the time. As the excitement and enthusiasm within the Aboriginal community grows on the basis that we can control our own destiny, so too will grow the likelihood of a practical outcome in our favour. Your participation will have a significant bearing on the future.

Aboriginal Provisional Government Council, August 1990.



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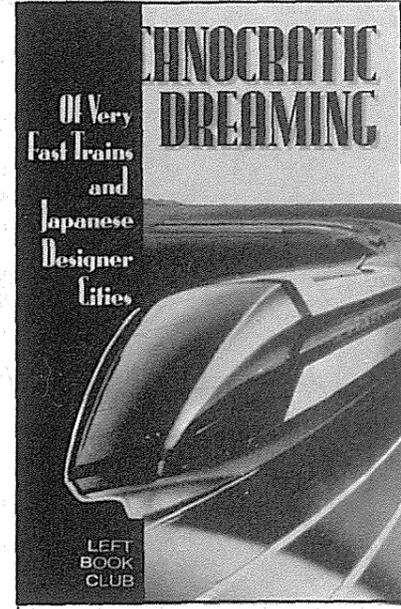
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Reviews



Technocratic Dreaming
 Paul James (ed)
 Left Book Club, 248 pages, 1990,
 \$15.50

Reviewed by Margaret Dingle

The opening essays of *Technocratic Dreaming* seem no more enlightening than the technocratic jargon they condemn, or that work of imaginative fiction, the *Multifunction Polis* booklet, (Adelaide, 1990, available in the SA Government bookshop). The concepts of the technocrats are as elusive as fish in water – muddy water at that, one can scarcely glimpse them. That is what Paul James “Australia in the Age of Technocracy” and Guy Rundle “Australia’s Deliriosa Furiosum”, are telling us, but I feared at first that *Technocratic Dreaming* would never bring the details of these proposals into focus.

I was wrong. There followed a generally excellent analysis of the Very Fast Train (VFT) proposal, its possible implications and the transport alternatives. I was a little disappointed however, that almost no consideration was made of the possible effects of the inland route and that the effects of a conventional rail system in the same area were not spelt out.

Technocratic Dreaming is a book written by many people. In this lies its strength and its weakness. A variety of viewpoints, albeit all tending in the same direction, is expressed. This in a way is a strength: the reader is given information, not told what to think; but on the other hand it is a weakness, some of the essays seem to be headed towards a conclusion, a conclusion which is never reached; the story is taken up from another angle by another writer.

The book suffers in some sections by being left behind by history. The selection of Adelaide as the future Multifunction Polis (MFP) site makes speculation about the possible link between the VFT and the MFP seem anachronistic. Nevertheless the similarity of attitude underlying the two proposals is well demonstrated.

Sometimes it seems uncertain as to whether the book is about the MFP and the VFT or about the way technocrats think. Occasionally the book annoys by speculating on rumours or leaving loose ends. There are times when I wish some of the authors would explore the various possible outcomes of several possible courses of action, including the effects of stopping projects but taking no action at all to reform our economy and transport system.

I felt the book was somewhat lacking in alternative proposals. However the essay “Mobility in a Clean Environment”, by the Australian Railways Union and the Australian Conservation Foundation, does get down to brass tacks, does propose solutions. I recommend it to all who are interested in environmentally sound transport. I also found the final essay, “Towards an Alternative Australia” by Boris Frankel, to be a very interesting political analysis.

This is a book which raises issues rather than solves them, a book which is valuable in giving historical perspective to recent developments and a book in which the reader is left to draw his or her own conclusions.

Margaret Dingle is a writer who assists with the production of Chain Reaction.

Reviews

Raparapa: Stories from the Fitzroy River Drovers

Paul Marshall (ed) Magabala Books, 1988.

Reviewed by Celia Karpfen

Raparapa is a book that both immediately grabbed my attention and one that I have come to value since I've read it. It contains an introduction and nine thoughtfully transcribed and edited interviews with Aboriginal drovers from the Fitzroy River region in north Western Australia. Maps and photographs — both present-day and historical — are liberally sprinkled throughout. The photographs, particularly the colour ones, were highlights.

The introduction was written by John Watson, one of the drovers interviewed and a recent chairman of the Kimberly Land Council. It was during his time as chairman that he identified the need for such a book — primarily so that those visiting the Kimberlys could see that there was more to Aboriginal people than what they saw in shops, pubs and parks, to acknowledge Aboriginal contribution to the stock industry and to give people some understanding of why Aboriginal people are fighting for their land and other issues of importance to them.

The eight others interviewed were men who Watson knew from his childhood at the Mt Anderson station.

With each chapter one gets a sense of the person interviewed, their lives, the people around them, the country and what was important to them. Together they provide a history of the region from the early 1900s, the changes in the livestock industry, in Aboriginal affairs, and some thoughts for the future. Themes and common experiences also emerge from this process as well as a diversity of opinion on some of the issues facing them. Descriptions are

Raparapa

all right, now we go
'longside the river



Stories from the Fitzroy River drovers

Eric Lawford, Jock Shandley, Jimmy Bird, Ivan Watson, Peter Clancy
John Watson, Lochy Green, Harry Watson & Barney Barnes

edited by PAUL MARSHALL

given of the day-to-day life of the drovers (which began as children with simple activities around the station) — mainly prior to the equal wage case of the 1960s — the maintenance of the stations, fencing, repair work, taming horses, splaying and branding cattle and the actual droving — taking cattle (usually several hundred at a time) to where they were going to be sold or shipped off, along the Fitzroy River.

Through the descriptions, the drover's understanding of the cattle and the land is highlighted. Few cattle were ever strained, injured or killed in the process. This is in marked contrast to

the current practices in the stock industry of trucking, bull buggies and helicopters in mustering: an area of concern for all those interviewed.

Work related injuries were a common experience for those interviewed and the men they worked with — as was the lack of medical attention and compensation. Wages varied, but often were no more than rations, clothing, blankets and a saddle.

Like Aborigines in other parts of Australia, they came under the authority of the Aboriginal Protection Board. For them however, the police and station owners were the main

'protectors'. Whilst this sometimes worked to the advantage of the drovers, their families and communities with for example advance notice of when police were coming looking for children to take away and allowing them to leave the stations over the summer months to maintain their traditions. Many stories are told of Aboriginal people being shot or whipped if they stepped out of line or were seen as potential trouble makers. And as indicated above, they were often little more than slave labour.

Pride in their achievements and survival, warmth and humour are also a feature of the interviews.

The equal wages case in the mid-late 1960s led to major changes for Aboriginal people and the stock industry generally. Station owners on the whole were unwilling to pay the wages to Aborigines leading to massive unemployment amongst and displacement of Aboriginal people from the stations.

The way in which those interviewed experienced the changes varied — depending on their age and what they had been doing prior to the decision. For some it led to new and better opportunities in work, others were less directly affected as they were close to retiring, but can see the effect on their children and communities: alcoholism, high unemployment, loss of and non-transfer of skills, knowledge and so on.

And on the industry and the land with the run-down of stations, land degradation and the machine intensive methods of transport and mustering. Changes in the pattern of ownership of the stations is also an influence in this.

Changes in Aboriginal Affairs policies have also led to some changes for those interviewed and their communities. Some have gained from the work opportunities available others have been involved in the establishment of Aboriginal owned and run stations with the 'assistance' of the Aboriginal Development Corporation.

Intertwined with talking about the new experiences here was talk of working with white experts and bureaucracies. As someone who spent their teenage years in Canberra, and is tertiary 'educated', I found these sections particularly telling. A description is given of road and dam building that has gone on in the last twenty years in the Fitzroy River region and of the lack

of consultation with or listening to those who are most familiar with the country, prior to work, and the subsequent damage that has been done to the land.

Likewise some tell the story of establishing Aboriginal owned and run stations. overcoming many obstacles in the process from taking on stations that have been run down and stripped prior to handover, working with bureaucracies and very limited budgets.

Raparapa tells a lot about the Fitzroy River region and life in general through the eyes of nine Aboriginal drovers. The inclusion of maps in Jimmy Bird's chapter and at the back of the book help to give an idea of the land covered and whose country it was originally.

It is a truism for the 1990s to talk about the interconnections and interdependence of people. *Raparapa* is worth reading for the reasons it was written and also because the issues and experiences it raises are of relevance to all of us wherever we are.

Celia Karpfen is a regular reviewer for Chain Reaction.

Multiple Exposures: Chronicles of the Radiation Age

Catherine Caulfield
Harper & Row, 1990

Reviewed by Fred Wilcox.

"At first he told no one. For almost two months, Wilhelm Röntgen ate and slept in his laboratory at the University of Wurzburg, working doggedly to make sense of the strange thing he had seen. His colleagues in the department of Physics were curious, but Röntgen was tantalizingly silent. To a close friend who queried his unusual behaviour he said only, 'I have discovered something interesting.'"

This interesting discovery, as it is described in Catherine Caulfield's book was the X-ray, a phenomena so unique and exciting that Röntgen's lectures were soon drawing large, enthusiastic crowds. At one public talk, Röntgen asked Albert von Kolliker, an anatomist, to place his hand on a blacked-out glass tube. When the exposed film showing the bones in von Kolliker's hand was held aloft, the audience erupted in cheers.



Reviews

Soon, "Röntgen mania" was sweeping first across the United States, then the world. In Iowa, a farmer claimed to have used X-rays to transmute ordinary metal into gold. Criminologists suggested that X-raying criminals' heads might cure them of their self-defeating behaviour. The Women's Christian Temperance Union thought alcoholics and chronic smokers might change their ways when shown, through X-rays, how their bad habits were destroying their health.

The discovery of X-rays, it appeared, was not only a brilliant scientific discovery, but, quite possibly, the cure-all for which scientists had been searching. Indeed, one thing was certain. X-rays could not possibly harm those who experimented with this new discovery in the laboratory, or used it to treat cancer, tuberculosis, moles and skin inflammations.

But it was not long before strange and unsettling reports began to surface about the less salutary effects of X-rays. Herbert Hawks, a Columbia University student who had demonstrated X-ray equipment at department stores, lost his eyebrows and lashes, patches of hair, suffered from impaired vision. Clarence Dally, an assistant to Thomas Edison, lost his hair and suffered from skin ulcerations. In 1904, Dally became the first person to die as a result of exposure to ionizing radiation.

Over the next half century, factory workers using radium-based paint luminous paint to manufacture watch faces that glowed in the dark, sickened and died from terrible, debilitating diseases. Uranium miners, many of them Native Americans, died from lung cancer and respiratory diseases in large, statistically significant numbers. GIs who witnessed atmospheric tests in Nevada began to sicken and die in clusters, their diseases clearly linked to exposure to radiation. And reports from Hiroshima and the Bikini Islands

confirmed what many had long known or suspected — that radiation is profoundly hazardous to human health.

Yet, in spite of the fact that we have known for some time that radiation, even in small doses, is dangerous, the world community has done little to protect present and future generations from prolonged exposure. Radioactive isotopes are still routinely released into our environment from a variety of sources. For example Windscale, a reprocessing plant in England, has released more than a quarter of a ton of plutonium (a substance so deadly that even microscopic doses can induce cancer) into the Irish Sea, believed to be the most radioactively contaminated body of water in the world.

In parishes near Windscale, the death rate from childhood leukaemia has been found to be five times higher than expected, while the death rate for children under 10 in the parish closest to Windscale was 10 times higher than expected. Fish contaminated with radioactive caesium are consumed by millions of residents of the United Kingdom and Ireland, many of whom will die painfully and needlessly from toxic poisoning.

While Catherine Caulfield does not deny the positive and even life-saving uses to which radiation has been put, this is the story of our very cavalier attitude towards its deadly effects. After hundred of studies, a plethora of scientific articles, books, documentaries and even Hollywood films about the dangers of exposure to radiation and plutonium, little is being done to prevent industry and government from releasing radiation into our environment.

Nuclear power plants continue their routine releases of radiation into our air and water, physicians and unlicensed X-ray technicians (only 15 US states require that technicians be licensed) overprescribe and overuse radiation, the government continues to "vent" radiation from underground atomic testing, and the cancer rate continues to soar, with more than 500,000 Americans dying each year from various forms of cancer.

Catherine Caulfield does not offer any panacea or easy solutions to the dangers she describes in her new book. But for readers interested in finding out the various ways in which we are ex-

posed to radiation, this is a valuable resource. What is troubling about works like this is that they leave the reader feeling angry, frustrated and even frightened.

One out of four Americans now develops cancer in his or her lifetime. It is time we took a hard, pragmatic look at the dangers radiation poses to our well being-time to weigh the benefits of nuclear power and weapons testing against the terrible suffering of people who have been, are being or will be exposed to radiation.

*Fred Wilcox is the author of **Waiting for an Army to Die: The Tragedy of Agent Orange** (Vintage, 1983). *Third World Network Features/Amicus Journal.**

On Purpose

Charles Birch
NSW University Press

Reviewed by Anne Jeffrey

Charles Birch is an eminent Australian biologist-geneticist who is joint winner of this year's \$725,000 Templeton Prize for Progress in Religion.

The award of a prestigious prize in "religion" to a scientist may seem rather odd, but throughout much of his career Birch has been engaged in new and adventurous reflection on questions of science and faith, which have led him to a holistic philosophy yielding a new postmodern world view which covers both global problems and each individual's needs for meaning and purpose.

Caroline Jones says, "Charles Birch has produced exactly the right book for today. Its ideas transcend the dilemma of modern man and woman and us show the way ahead, through heart, mind and strength, to a rich authentic life of meaning and purpose."

"That which animates human life animates alike the rest of the entities of creation," these words of Birch's in the last chapter of the book to me are the essence of his postmodern ecological world view. This is a truly dynamic book and contains much food for thought for all who care at all about our whole earth.

Anne Jeffrey has an interest in religious matters.



Rainforests — recognise your connections

Wendy Orams and Stuart McQuire, 40 pages, \$2.00 plus 90 cents postage.

This booklet focuses on the tropical timber trade and the role of Australians in rainforest destruction. It covers the broad range of issues and information necessary to understand the extent of destruction that is occurring to rainforests. Chapters include — Sustainability myths in tropical forestry; rainforests logged and why we destroy rainforests for timber.

Available from: Rainforest Action Group GPO Box 3217GG, Melbourne 3001.

The Earth Gardener's Companion

Earth Garden Magazine, 64 pages, \$7.95, 1990.

A calendar guide to organic gardening. One of the book's main strengths is that it enables anyone to know what they can do in an organic fruit and vegetable garden at any time of the year.

Available from: Earth Garden, PO Box 188, Moreland, 3058.

Resources

International trade and the environment: an environmental assessment of present GATT negotiations

Steven Shrybman, 22 pages, 1990.

This analysis has attempted to illustrate the need for comprehensive assessment of GATT negotiations in order to identify their environmental significance. The conclusions of the report are that trade negotiations proceed and agreements are concluded without even the most perfunctory consideration of the enormous environmental consequences that flow from them.

Available from: Canadian Environmental Law Association, 517 College Street, Suite 401, Toronto, Ontario M6G 4A2, Canada.

A look inside the World Bank

Carol Sherman, 27 pages, free.

A booklet for individuals and non-government organizations who wish to understand the impact of the World Bank in developing nations. The World Bank currently lends up to \$20 billion per annum. Yet many of these projects consist of destructive inappropriate and unsustainable practices such as major dams, mining in sensitive ecological areas and roads. This booklet offers insight into these projects supported by the World Bank.

Available from: Senator Jo Vallentine, Parliament House, Canberra.

Modernization and Development: the search for alternative paradigms

S. Duke, Zed Books 1988, 144 pages £7.95

This book attempts a review of development thinking and practise, seeks to explain the paradigm shift and the emergence of an alternative model. The author argues that an al-

ternative development paradigm can no longer take the narrow goal of economic growth as its primary objective. He concludes that modernisation is not possible on the basis of its original paradigm which implicitly legitimises inequality and injustice. Available from: Zed Books, 57 Caledonian Road, London N1 9BU, United Kingdom.

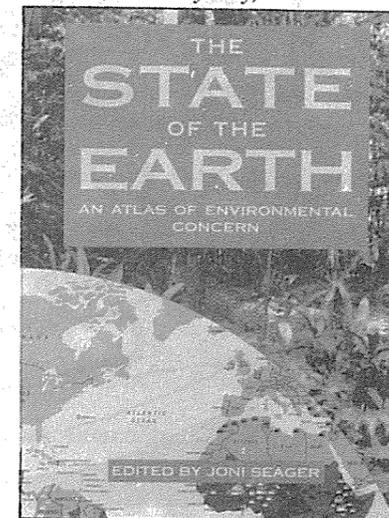
The State of the Earth

An Atlas of Environmental Concern, Allen and Unwin, \$19.95 1990.

The State of the Earth looks at the potential impact of critical issues — global warming; holes in the ozone layer; and the loss of the world's tropical forests. It also identifies the damaging effects of large-scale agriculture; urban expansion and the destruction that comes with persistent war.

Also contains an overview of international agreements and legislation pertaining to environmental management.

Available from: Allen and Unwin, PO Box 764, North Sydney, 2059.



Then... after the meeting at the pub...

"Instead of all this posturing, why dont we actually do something!" said Elliot.
"Such as?"



"Blow something up! Burn something down! Shoot someone!"



Frank spilt his beer. Cathy laughed.
I thought... why not?

KATHLEEN MCCANN & DAVE SWEENEY 1990

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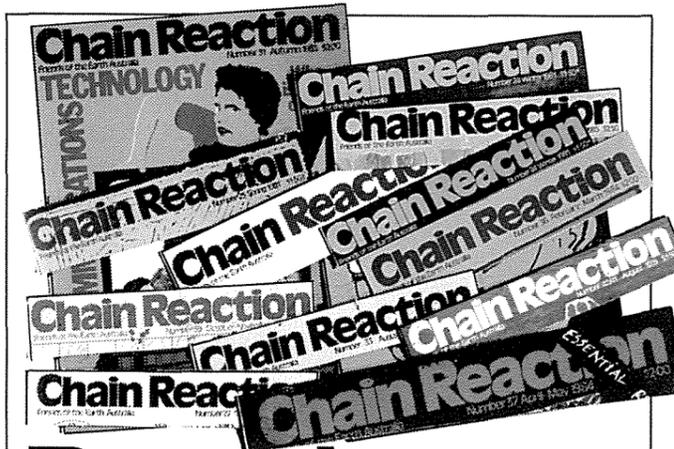


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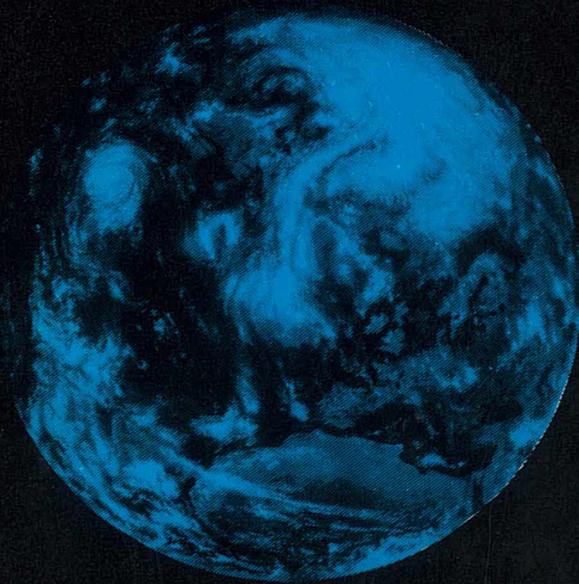
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