

FRIENDS OF THE EARTH'S

Chain Reaction

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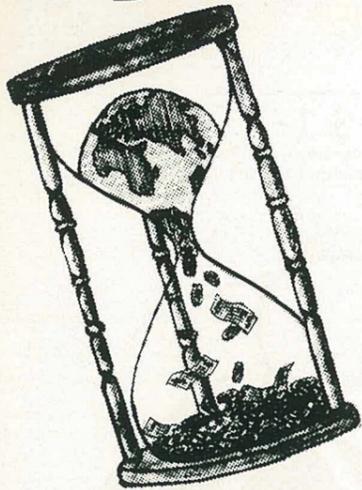
**THE GLOBAL
ENVIRONMENT CRISIS —**
Reports from around the World



also

**AUSTRALIA'S
FOOD ABUNDANCE —**
Can It last?

SOLAR HOMES



THE EARTH — DON'T SPEND IT ALL AT ONCE

Ever since Friends of the Earth was first formed in late 1969 in America it has concentrated on environmental issues of a global nature, the spread of nuclear power, the destruction of the "global commons" (the oceans and Antarctica and the atmosphere) and many others covering the search for a sustainable and equitable future for all the world's inhabitants.

Although Chain Reaction normally looks at Australian issues it is worth taking time to look at the development of environmental consciousness around the world and to draw on the successes of citizen groups in other countries for inspiration and ideas for our own struggles.

There are dozens of FOE groups around the world in 25 countries (a list of the national contacts is included on the inside back cover) and a huge number of other environmental and particularly anti-nuclear groups. We

are a small though not insignificant part of a vast world wide movement which has gathered momentum in a very short period of time.

Governments around the world are slowly coming to the realisation that they must start taking account of citizen action groups and the views of environmentalists. The list of major projects in mining, industry and agriculture that have been stopped or changed because of their unacceptable environmental impact is very long. In many countries Government's have acted to take such objections into account through strong environmental legislation although many countries remain "havens from polluters". The Australian Government is planning watering down our Federal laws to permit polluting industries such as Aluminium smelting and all shale oil drilling in sensitive areas (such as the Barrier Reef) and generally giving free enterprise (read foreign multinational) an open go to despoil our resources without regard for the environment.

In this time we have collected many items of interest that have originated in the mail flowing into the FOE Melbourne office and with various FOE members who travelled to different parts of the globe late last year. We believe this issue presents a smorgasbord of happenings that we hope will give an idea of events around the world and the state of the movement. We have particularly concentrated on the nuclear issue because this is the fundamental environmental problem

and the one which has mobilised the population in country after country to massive protests.

Very little appears in Australia's media about the overseas anti nuclear movement. How many of us are aware of Brazil's massive power plans including even enrichment? How many are aware of the opposition to uranium mining in countries like Namibia, Sweden, Canada and Ireland? In this issue we bring you information on all these places and reports from Italy, Denmark, Britain, America and many others.

We also provide detail on the movement for alternative renewable energy supplies including a visit to the fascinating Centre for Alternative Technology in Wales. From Australia we have reports on the development of solar homes making comparisons between some of the latest designs and news on wind energy.

There are also reports on FOE groups who are increasingly taking an interest in more social and human issues such as nutrition, health and social justice. As well as the energy question. FOE Malaysia is fighting disease in rural Malaysia whilst Los Amigos de la Terra (Mexico) is bringing soybeans to Nicaragua which has been torn apart by the recent successful revolution.

As David Brower, the founder of Friends of the Earth in America, said recently at the tenth birthday celebrations for the organisation there:

*It is only a little planet . . .
But how beautiful it was*

WANTED — IDEALISTIC WRITER WITH IDEAS AND ORGANISING ABILITY

Barbara Hutton, the present editor of Chain Reaction is moving on after a successful 7 issues which have confirmed Chain Reactions status as the most incisive environment magazine in Australia. Many thanks from all at FOE and we are sure from all our subscribers.

A renewed Chain Reaction collective is being formed with the help of long time FOE activists Leigh Holloway and Mark Carter (both recently back from European trips). Anyone interested in helping with stories, illustrations, layout and particularly distribution is very welcome to get involved.

In particular we need active people in other states to contribute stories and help promote distribution. It is hoped to substantially increase the circulation from the current 5,000 to make the magazine more viable.

Any ideas or criticisms about Chain Reaction and what direction it should take in the future would be appreciated. Comments are particularly sought on the long running issue of how much we should concentrate on "special issues" exploring a particular area and how much it should work as a general "news magazine". All ideas to the Chain Reaction Collective, 366 Smith Street, Collingwood, 3066.

● page 2

THE VANISHING SEEDS

International companies get a strong hold on seed production with enormous genetic consequences.

by Mark Cole.

● page 4

EARTH NEWS

FRIENDS OF THE PEOPLE

FOE Mexico takes soybeans to Nicaragua.

AMAZING SCHEMES

Tasmania's HEC plans dams galore for the Franklin River.

MINISTERS DELAY LEAD ACTION

A temporary set back on air pollution from motor vehicles.

WIND POWER

... There are changes in the wind.

EUROPE'S POLLUTION SCANDALS

FOE MALAYSIA

Environmental issues in third world.

● page 10

MUSICIANS AGAINST NUCLEAR

ENERGY

MANE hits off with a blast.

● page 12

THE ABUNDANCE OF FOOD

Continuing the food debate from our highly popular special food issue.

by Ian Pausacker.

● page 18

CHANCY — NUCLEAR NEWS

A run down of nuclear events from around the world including the latest developments in Australia.

● page 21

ROSALIE BERTELL — ANTI

NUCLEAR NUN

Highly qualified radiation expert and committed nun Rosalie Bertell has been inspiring Australian audiences.

by Judy Wilks.

● page 23

INTERNATIONAL SECTION

PHOTOS OF THE EUROPEAN ANTI NUCLEAR MOVEMENT
ITALY: ENERGIE NUCLEARE? NO GRAZIE!

by Leigh Holloway.

BRITAIN: NON VIOLENT PROTEST SPREADING

by Linda Bradburn.

WALES: LIVING BY EXAMPLE

by Bob Fuller.

DENMARK'S ALTERNATIVE ENERGY NEWSPAPER

by Leigh Holloway.

TRAVEL BY PEDAL — NOT PETROL

by Angela Pugsley.

LAND RIGHTS CONFERENCE

by Leigh Holloway

● page 38

SOLAR ENERGY IN THE HOME

A review of various Australian designs for solar homes from high technology to alternative lifestyle designs.

by Mick Harris.

● page 43

REVIEWS

FROZEN FIRE

The perils of Liquefied Natural Gas.

by Andrew Herington.

SOLAR HOME BOOK

by Simon Thornton.

SHORT REVIEWS:

SOLUTIONS TO YOUR PROBLEMS

New Film review.

by Vivian Dews.

● Page 46

RESOURCES

● Page 48

ANTARCTICA AND WHALES

Latest news on the oceans front.

THIS ISSUE was produced by: Barbara Hutton, Rolf Heimann, Judy Wilks, Leigh Holloway, Linda Bradburn, Angela Pugsley, Pat Lowther, Andrew Herington, Michael Harris, Sarina, Gabrielle, Brian Appleford, Linnel Secomb, Mark Carter, Bruce Parnell, Jenny Hocking, Anita Hoare, Sally Doble, Candy and the writers.

COVER: Rolf Heimann.

EDITOR: Barbara Hutton.

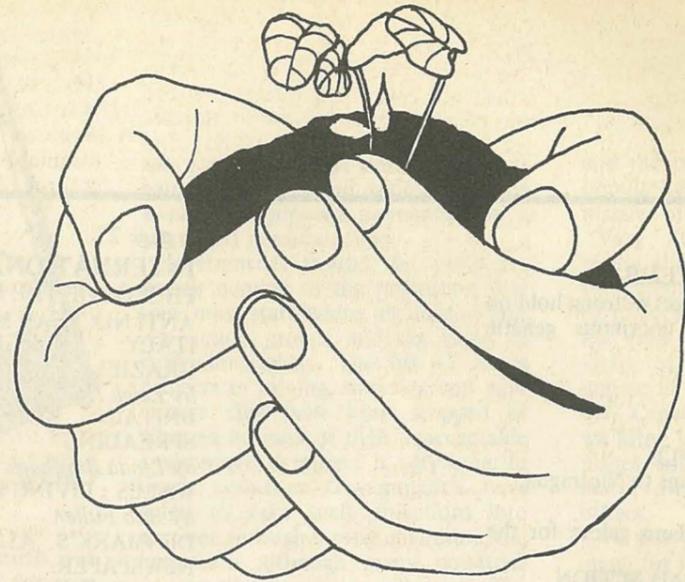
GRAPHICS: John Nicholson, Michael Russo, Barbara and Rolf. Photographs courtesy of various travellers and overseas groups as credited.

LAYOUT: Everyone we could lay our hands on.

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VANISHING SEEDS

Amazing though it may seem, all the world's major food crops originated in tropical areas, where genetic diversity is much greater than in the cooler zones. Potatoes were imported into Ireland from the Caribbean. Wheat originated in Ethiopia. The same holds true for fruit, vegetables, even trees: the number of species of plants found in tropical rainforest is orders of magnitude greater than in forests in the temperate regions.

Since the "Green Revolution" of the '60s an alarming development has taken place. The world's food crops are all derived from traditional crops (and their wild relatives) but these traditional crops are fast disappearing, replaced by new, specialized hybrid seeds. The new strains are bred to give a high yield, and this initially attracts farmers. But the cost is high. Expensive imports of fertilizer, irrigation and pesticides are needed with the new seeds. The genetic

uniformity of the hybrid seeds means that if they are vulnerable to one particular pest or disease then the whole harvest is likely to be wiped out. There will be no resistant plants with a different genetic make-up among the crop left standing when the pest has passed through.

The disastrous Irish potato famine in the 1840s was largely due to the fact that only one strain of potatoes had been introduced into Ireland from the Americans, and it happened to be susceptible to blight.

Farmers who change over to the new seeds become totally dependent on the seed company for future crops. The hybrid seeds must be fertilized in the laboratory, not by the normal process of cross-fertilization in the open field, so farmers must buy their planting seed from the company every year. They may find that the new seeds are not as hardy, and cannot survive in poor growing conditions as

well as the old but if the last of the old seed disappeared into the cooking pot a year ago, it is too late to change back.

Gene banks in danger

The disappearance of native species of crops not only affects farmers in the third world, but could also have a disastrous effect on world food production. The hybrids derived from traditional crops need regular infusions of new genetic material if they are to remain healthy and free from disease. And if the original crops are lost their wide genetic range is lost to the world forever: no more varieties can ever be developed from them using techniques of selective breeding.

Regional and global "gene banks" have been set up to store samples of vanishing germplasm but they are poorly funded and have experienced disastrous equipment failures resulting

in the loss of genetic resources. The biggest seed bank, the National Seed Storage Laboratory in Colorado USA is situated midway between the largest munitions manufacturing plants in the USA and a nuclear reactor.

Ironically, most seed banks are sited outside the third world where the vast bulk of seed stocks originated. Third world governments are forced to depend on the West for access to their own germplasm. This system could be seen as stealing from the poor to give to the rich. Many seed stocks are now held by private companies. Although the total extent of corporate germplasm collections is a mystery it is known that in some crops a single enterprise dominates total world holdings; eg. UNITED BRANDS controls two thirds of the world's banana seeds.

Plant patenting

Recently legislation has been passed in the UK, Western Europe and New Zealand, giving companies the ownership rights over new varieties of seeds. This means in effect that new seeds can be patented and users must pay royalties on them. Since this legislation was passed the structure of the industry has changed dramatically big transnational companies such as Royal

Dutch Shell (Shell Oil), ITT, Cargill, Ranks Hows & McDougall, Ciba Geigy and Union Carbide have bought out the smaller seed companies. The giant companies are interested in breeding plants which are, firstly, patentable: — this means that promising new seeds which are cheap and disease-resistant are being ignored by the companies because they do not exhibit the uniformity necessary for patenting them as a distinct new strain, and secondly, in developing seeds relying on fertilizers and chemicals, which the companies also produce.

The big chemical companies are now involved in several phases of the food industry, and can thus make profits at various points along the chain of distribution and production. This means that they breed seeds suitable to their chemical, processing or retail interests, but not necessarily for the profit of the farmer or the nutrition of the consumer. When seeds become the private property of corporations their availability is likely to be restricted. This is already happening. It is estimated that 75% of Europe's vegetable stock will be lost by the end of the '80s. When the corporate few have proprietary rights over basic food crop seeds the implications are grave for the many in the third world who are struggling for a regular feed.

The FREE ACCESS TO SEEDS COMMITTEE has been formed in Melbourne to oppose the "Plant Variety Act", an example of restrictive varietal legislation which the Federal Government plans to introduce early this year. This committee maintains that plants should be regarded as the common heritage of all people, and unsuitable for any form of exclusive control through patents, trademarks etc. Seeds ought to be accessible to all people and their circulation unrestricted. The committee will also campaign for greater public involvement in conservation and breeding. Genetic diversity in crops must be increased as a matter of urgency. The key to mobilizing public involvement in this issue lies in destroying the myth that the western world has the answer to food security through high energy and fertilizer input technologies, and the myth that agricultural companies will bring innovation and creativity to plant breeding rather than uniformity and chemical dependence. The Free Access to Seed Committee can be contacted through the Food Justice Centre, Friends of the Earth, 366 Smith St. Collingwood, Vic, 3066. Help is urgently required.

— Mark Cole.

FRIENDS OF THE EARTH BOOKSHOP
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366 SMITH ST. COLLINGWOOD
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- ★ STICKERS: "Ban Lead Petrol", "Save the Seals", "The Earth Needs Friends" and many others.
- ★ WOODEN TOYS, hobby horses, trains, crafts, candles, metalwork, plants in bottles.
- ★ SAVE THE HARP SEALS pendants, hand-made clothes, bags, op-shop clothes.

Wake of the Whale

Wake of the Whale

text by Kenneth Brower
 photographs taken in the wild
 by William Curtsinger.
 published by
 Hutchinson/FOE.

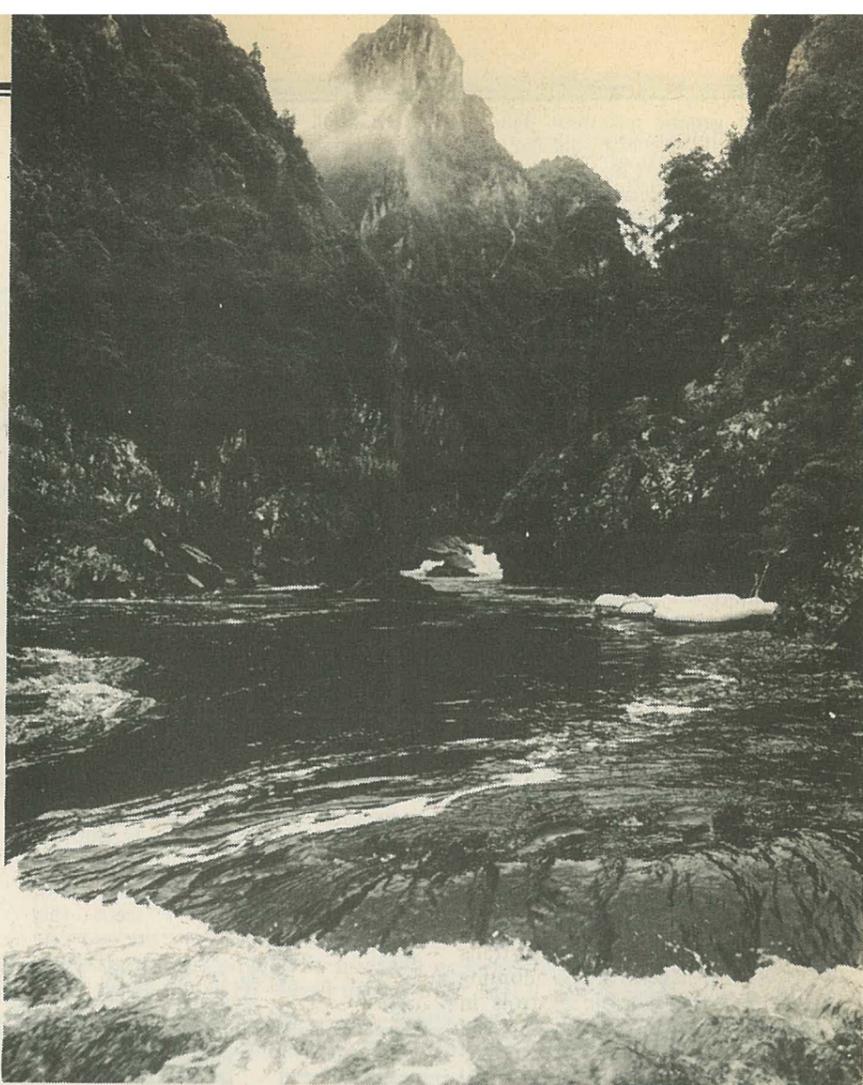


A magnificent achievement in underwater photography: Curtsinger has followed marine mammals for 10 years, pursuing harp seals under the ice in the gulf of St Lawrence, photographing killer whales, dolphins, Alaskan walrus, sperm whales, and the complex courtship of the rare right whale.

The text is a lively plea for the survival of these intelligent, threatened creatures.

\$29.95
OUT NOW

AMAZING SCENES for the Franklin



The Tasmanian Hydro Electric Commissions's scheme to build yet another dam in the South West wilderness region, (this time flooding the valley of the as yet untouched Franklin River) has whipped up a wave of protest, inside and outside Tasmania.

So now, for the first time, the HEC has produced a report on the matter including an Environmental Impact Statement. The Report, in twelve beautifully produced volumes is priced at \$370 (it would make an ideal gift for someone). In it, the HEC compares the feasibility of supplying electricity from hydrocarbons, nuclear power, and various renewable sources (tidal power, solar and wind power etc), dismissing all of them except coal and of course electricity from the Franklin/Lower Gordon River scheme.

Nuclear energy is wistfully rejected on the grounds that it "could not be developed in time" to meet Tasmania's pressing need for more electricity. In fact the HEC would like to introduce nuclear power: it meets all the Commission's criteria of "proven technology", price, etc. ("safety" is not listed among the criteria), but, though the Hydro Electric Commission is virtually a power unto itself in Tasmania it would not go so far as to attempt to force nuclear power onto a Labor state government.

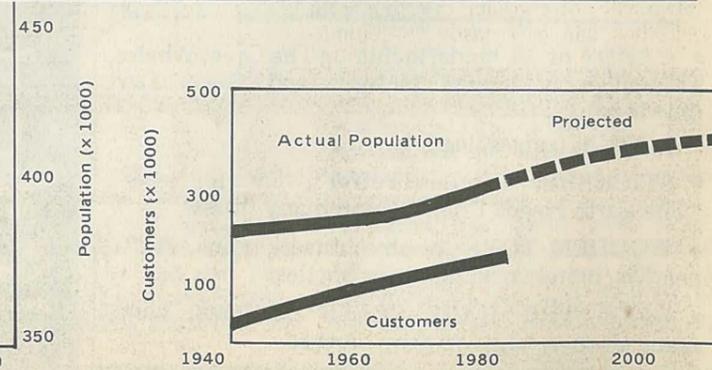
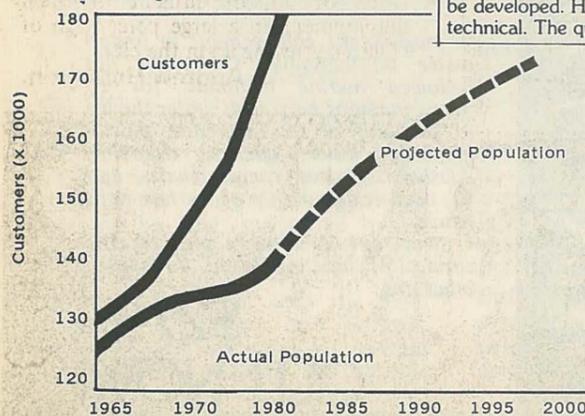
"There are lies, damned lies and statistics"

It is said that statistics can't lie. But, as the graph on the left shows, statistics can be juggled to give a totally false impression. The graph is from page 8 of the H.E.C.'s 2,000 page report. (Gordon River Stage 2).

Note that the number of HEC customers appears to be soaring. This has been achieved by a cunning choice of scales.

The graph to the right is the same graph but redrawn so that both "customers" and "population" are on the same scale. In reality, it can be seen that HEC customers parallels the growth in population (which has, in fact, been levelling off for the last 20 years).

This is a very simple graph and it has little relevance to the question of which energy source should be developed. However, the HEC's report does contain many figures and graphs which are highly technical. The question is — Can we put any trust in them?



One possibility not examined in the report is **energy conservation**. Some may ask why Tasmania needs all this extra generating capacity. Tasmanians have the second highest per capita energy consumption in the world — nearly four times the Australian aver-

age and rising fast. The people of the USA are small-time users in comparison.

Why does Tasmania have such a high rate of energy consumption? Is it because the locals forget to turn off their electric blankets in the daytime?

No, the reason is the HEC's policy of selling vast quantities of electricity at less than a cent a kilowatt hour to energy-gluttonous industries such as aluminium smelting, while charging ordinary householders 2.6c per kwh.

Ministers delay Lead Action

In early February the State and Federal Transport Ministers finally met to decide on the future of pollution controls on cars. Over the previous six months there had been massive public campaigns in Sydney and Melbourne waged by environmental and child care groups aimed at having lead removed from petrol, and equally vocal campaigns from the big oil companies for having the lead content actually increased.

Before the Ministers was a milestone report from the intergovernmental Committee on Motor Vehicle Emissions (COMVE). Despite the heavy presence of oil industry representatives on this committee (there are no community representatives) its remarkable conclusion is that Australia should follow America, by adopting the U.S. 1975 emission controls in 1985 along with national use of lead free petrol. Whilst this was encouraging support for the environmental lobby many observers believe current pollution is so severe that the new standards should be introduced as soon as is technically possible, (about 1982).

However, a further setback arose when the oil industry used its strong political control on some of the Ministers to get the vote on adoption of the new emission controls delayed for another year. Although the Ministers will meet several times before next February they will not consider the issue again till then and have made no commit-

ment to introducing the new controls.

The only Government to stand in defence of the environment was NSW whose energetic Minister for Planning and Environment, Paul Landa, has led

the fight for pollution control. NSW announced straight after the Minister's meeting that they saw the proposed plan as too slow to save Sydney from massive pollution problems and reiterated their intention to proceed with the 3rd stage of the existing ADR 27A (originally proposed to be introduced in 1979 but repeatedly delayed). ADR 27A has been violently attacked by the motor lobby because of alleged inefficiency but if NSW introduce the new controls the rest of Australia would probably be forced to follow suit because of the difficulty of producing two different types of car.

The car manufacturers have only themselves to blame for this predicament as it is only very recently that they have started supporting the realistic alternatives to ADR 27A (such as lead free petrol and catalytic converters), thereby breaking ranks with the oil industry. The fact that they disregarded the very predictable public concern at the increasing pollution health risk and failed to plan along the same lines as their parent companies overseas is a measure of their lack of foresight. The two industries must now swallow what is to them a very bitter financial pill: However, it is a very small pill and will relieve the community of much greater costs borne through a polluted environment, damaged health and, worst of all, impairment of brain development in a large percentage of children growing up in the city.

Andrew Herington.



EVERY EXHAUST CLOUD HAS A LEAD LINING

breathe easy · ban lead-petrol

FRIENDS OF THE PEOPLE

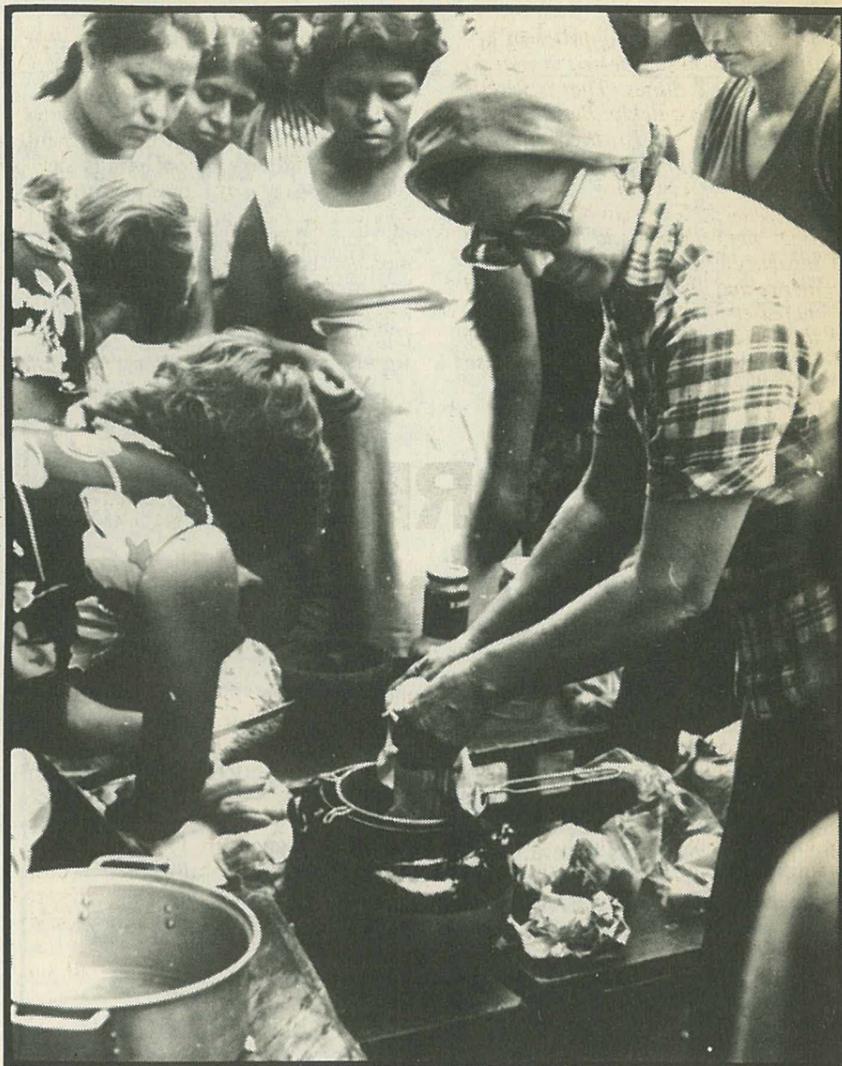
When people control the food they grow it tastes different – and better!"

This is how Dulce Aldama of Los Amigos de la Tierra, the Mexican branch of F.O.E. explains the growth of FOE Mexico's co-operative movement to introduce soybeans as a cheap source of protein.

Los Amigos de la Tierra have started up 377 groups of about 25 to 30 people, mostly peasant women, who work together to grow the soybeans, prepare them and make soymilk etc. for their families. FOE Mexico has no formal membership and no joining fee ("We charge commitment only") but members work collectively on the soybean project and others such as a low-cost, self-sufficient housing scheme in northern Cuernavaca.

Even though Mexico is a poor country, and a net importer of soybeans, "Los Amigos" have managed to scrape together 80 tons of soybean grain and half a ton of seeds for planting to give to the people of Nicaragua who are struggling to rebuild their country after years of corrupt government and a draining civil war to oust the dictator, General Somoza.

The soybeans donated by people in Mexico will cover only short term relief to children, patients in hospital, old people's homes, and women's organizations in the countryside. Friends of the Earth in the USA and Mexico are appealing for soybeans or money so that the project can be continued on a long term basis till such time as the country can grow its own soybeans. Meanwhile eight campaigners from Los Amigos de la Tierra have gone to Managua to teach people how to use the soybeans. The new Sandinista Government is helping them, and has promised to carry on the campaign when they go back to Mexico. The "Amigos" are mainly pro-



Dulce Aldama shows women how to prepare soybeans.

fessional people – school teachers, social workers, engineers etc. and they are offering their professional help to the new government, as well as setting up the soybean project. Arturo Aldama, one of the team, explains in a letter to the USA how they work together:

What we do in Mexico and propose to do in Nicaragua is the following: We give a three or four days small nutrition course in which we introduce the home techniques to obtain milk, "meat", cheese and scores of dishes from soybean grains. At the same time this mainly practical course shows the importance of protein; the adulteration and pollu-

tion in foods. the food additives; characteristics of natural food vs. processed foods; the impact of multinational concerns in the economics and political life of our country.

These courses are designed mainly for peasants and poor people in city slums. We don't charge any money. However, each persons taking the course is committed to repeat it to some other person or group. This procedure has been used to promote small coops in the states of Morelos, Veracruz, Mexico, Caxaca, Hidalgo and Queretaro, and in the Federal District (Mexico City).

The nutrition training program fulfills a great need: lack of protein in our people's dishes. That is why it has spread so quickly. Besides being and end in itself, the nutrition course has showed itself to be an excellent means for developing conscience. The soybean groups meet periodically and quite often regularly to exchange their improvements and discoveries (the method increases creativity). In a short time the groups (mainly made up by women) learn how to organise

themselves in order to discuss their problems and needs, and to promote community activities.

In Mexico, women involved in the project have noticed an improvement in their children's school results since they have had soya products to eat, and this is a powerful encouragement to them. But Dulce Aldamos, also a member of the team, gives a further explanation for their willingness to keep on going. "People are happy to find how they can be useful, especially women. If women have something im-

portant to give and do, then they have real influence, first in their families, then in their communities."

SOURCE:

Letters from Los Amigos de la Tierra, Apartado Postal 269, Cuernavaca, Morelos, Mexico and from FOE USA's newspaper, "Not Man Apart".

Donations should be sent to the Nicaragua Appeal c/o FOE USA (see address, on p.).

THERE ARE CHANGES IN THE WIND...

Plans are in an advanced stage to build the world's largest wind turbines, which will tower 350 feet above the ground. At present the world's largest wind power generator is the MOD 1 generator, which produces 2,000 kw of electricity in an 18 m.p.h. wind and stands 235 feet tall, overlooking the countryside of Boone, N.C. in the United States.

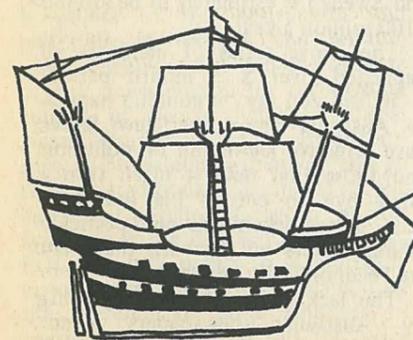
The new series of generators, the MOD 2, will initially be constructed as a group of three experimental

machines. The turbines should produce electricity at a cost of 8 to 9 cents per kilowatt hour, which is competitive with rates at a number of locations around the USA. If the prototype turbines prove successful they may be mass produced in batches of 100 or more, bringing the cost down to 4 or 5 cents per kilowatt hour. The new machines would be sold to utilities in clusters of at least 25, at a cost of approximately \$2 million each.

The new MOD 2 generators should deliver 2500 kilowatts of energy in a 14 mile per hour wind. This means that they will produce about twice as much electricity per year as the present MOD 1 machine. When all three machines are operating they should produce 7.5 megawatts, enough power for 2-3,000 average homes.

NASA is carrying on further research to produce wind turbines for other applications: to power smaller utilities, industries and farms.

SAILING SHIPS TO RETURN ?



Due to the rising cost of fuel the large merchant ships of the past may make a comeback, redesigned to use modern materials and equipment. At their height, the clippers of last century could average 9 knots on the return trip from Melbourne to London, and were up to 300 feet in length.

Scientists and architects meeting at the Royal Institution of Naval Architects in London last July concluded that it would now be highly economic to build a merchant sailing ship using modern technology.

One set of plans for a modern sailing ship involves a 482 ft, five-masted all-metal ship equipped with sophisticated weather-monitoring and navigational devices, stabilizers and a computer to control and trim the forty driving sails.

It would carry 12,000 tons of cargo and would complete the London/Australia run in 45 days, compared with 35 days taken by modern diesel vessels. Running costs would be one fifth less per ton than diesel shipping costs.

Mick Harris.

INTERNATIONAL NEWS

EUROPE'S POLLUTION CRISIS

From "Frankfurter Rundschau" (West German daily paper).

So you dream of Europe, its idyllic landscapes and romantic castles. You've heard about how neat and tidy the villages and cities are.

Well read on and think again.

A scandal has erupted after residents of Lengrich, West Germany, forced an investigation when sheep and trees near a cement factory started dying. It emerged the company had been using iron oxide contaminated with highly dangerous thallium. An area 2.5 kilometres around the plant was found to be highly contaminated. All crops were destroyed and cattle, pigs and sheep were killed. Pregnant women were urged to have examinations.

The thallium contaminated oxide had been supplied to France, Holland, Switzerland, Austria, Belgium and 17 other factories in Germany. The company responsible had known of the danger since 1975.

— It was recently revealed that 40 freighters carrying 200,000 grenades filled with mustard gas and deadly Tabun nerve gas were sunk in the Baltic Sea (between Poland and Sweden) after World War 2. It is not known what will happen when the canisters corrode, although some of the dumping is within 3 miles of a popular holiday resort.

— Several cases of lead poisoning have been reported near a smelting works in the Harz area of West Germany. Lead levels in vegetables were found to be up to 45 times the maximum permissible level, with Cadmium levels up to 60 times the maximum.

— A German company manufacturing lindane pesticides was found to be releasing 15 times more than the permissible level of Benzol, a powerful carcinogen causing leukemia. The company was later discovered to have disconnected a special filtering device overnight, and did not adhere to the continual 2 hourly measurements as previously agreed upon.

— In August several hundred residents

of Augusta, Sicily went on strike against proposed delays in new environmental legislation. Three petrochemical refineries in the town were responsible for massive pollution of the sea which led to the death of 15 tonnes of fish. Air pollution from the factories is blamed for Augusta having one of the highest cancer rates in Italy.

— A tanker full of tetraethyl lead (the lead additive used in petrol) has sunk in the Mediterranean.

Tetraethyl lead is highly toxic: even a tiny drop can kill a person, and it is easily absorbed through the skin. The quantity in the tanker is enough to kill all life in the entire Mediterranean sea. No-one knows who is responsible for trying to salvage the wreck or even if it is possible to recover the chemical

— Acid rain caused by heavy sulphur dioxide and nitrous oxides pollution from Central Europe has killed life in many Scandinavian areas. The loss of fish due to acid rain in Norway and Sweden is estimated to be around \$100 million a year.

The above series of incidents all happened over a 3 month period.

Before you say "it couldn't happen in Australia" remember few States have effective legislation on pollution and those that have it often turn a blind eye to certain big industries such as petrochemicals and pesticide manufacturers on the basis that they are "economically necessary".

The lack of investigative reporting by Australian newspapers mean similar scandals could go unreported here.



FOE MALAYSIA

In Malaysia there are 42 major rivers so polluted that no fish life survives. The Straits of Malacca have the highest rate of ship accidents in the world and are consequently highly polluted: 57% of the beaches on the east coast are reported to be polluted by oils spills and operational discharges from oil tankers. Rapid deforestation, bad construction practices and poor drainage systems have all contributed to massive soil erosion and flooding. If current logging rates continue Malaysia's forests will be depleted within 12 years.

Malaysia is suffering environmental degradation from rapid development of industry directed at serving the needs of the Western countries. High-pollution industries have relocated in Malaysia and many other third world countries to escape anti-pollution laws and to profit from lower wage rates.

Sahabat Alam Malaysia (SAM) — FOE Malaysia

Sahabat Alam Malaysia was established following a highly successful 1978 seminar, "Crisis in the Malaysian Environment", which was sponsored by the closely-related Consumers Association of Penang.

Since then SAM has been involved in a wide range of environmental issues, many of which arise from the problems of rapid industrialisation and the disruption of traditional lifestyles. The issues range from the familiar ones of deforestation, air and water pollution, pesticides, wildlife protection and urban development through to problems unfamiliar in Australia — such as cholera, snail fever (schistosomiasis), mining safety, land wastage and tourist exploitation.

For example FOE Malaysia has queried the value of the \$100 million earned in tourist dollars by Malaysia. It points to the destruction and pollution of beaches and wildlife reserves by tourists, and the absence of any consideration for the existing culture of people living in tourist areas. "Third World people are encouraged to be 'interesting natives' and go through traditional movements for the benefit of goggling strangers." Identifying one of the most serious problems, FOE Malaysia points to malnutrition in areas near tourist resorts caused by the presence of large amounts of tourist money forcing up the price of food.



Malaysia has an "Internal Security Act" which was instituted after the Malaysian Emergency of 1969. This Act's meaning is very broad and vague, but in operation it is extremely repressive. It means people can be incarcerated for any reason at all, and it makes it extremely difficult for activist groups to function in any demonstratively public way.

The bulk of SAM's work involves amassing information on various issues and working with and through local communities in an attempt to lobby authorities and government. But most of the lobbying is done on a small scale, the targets being local authorities.

Timber Crisis

Timber, a major income earner for Malaysia is facing a crisis. Forests are being depleted at an alarming rate — a crisis facing many Asian countries. SAM has documented the huge amount of wastage that results during harvesting and processing, a thoughtless waste of a precious natural resource.

Another reason for the growing scarcity of timber is the increasing amount of forest lands that are being given over to mining and industry. Between 1971 and 1978 a total of 7.1 million acres, or an average of 889,500 acres annually were being felled. Thus, as logging increases at an alarming rate, the amount of land available for reforestation is slowly but surely dwindling. If logging continues at its current rate, Malaysia's forests will be depleted of timber within twelve years.

MALAYSIA — NUCLEAR POWER IN A DEVELOPING COUNTRY

The \$22 million Tun Ismail Atomic Research Centre (PUSPATI) is expected to be operational by 1981 at Bangi, Selangor State. The one megawatt reactor will be used to produce radioisotopes for use in medicine and agriculture, and to promote research in related aspects of nuclear technology.

Sahabat Alam Malaysia (FOE Malaysia) has launched a campaign against the development of nuclear power in Malaysia.

FOE Malaysia in a paper entitled *Malaysia Should Not Go Nuclear* points out the stupidity of spending \$22 million on sophisticated nuclear technology when Malaysia is struggling to provide even basic care and social services for its people.

With a climate and lifestyle ideally suited to solar power or biogas, Malaysians have no need of nuclear power.

No doubt this reactor is part of a plan to attract major heavy industries to Malaysia in the same way that the notorious Bataan reactor was planned as the core to a "free trade zone".

*Sahabat Alam Malaysia can be contacted through its president,

Encik S.M. Mohd. Idris
SAM,
7 Cantonment Rd,
Penang.



Mick Conway of "Matchbox" eats fire at the press launching of *MUSICIANS AGAINST NUCLEAR ENERGY*.

MUSICIANS BAND TOGETHER AGAINST NUCLEAR MADNESS

Without wanting to appear callous, the Harrisburg, Three Mile Island accident last year was a very timely event for the anti-nuclear movement.

Not only did it force the world to once again confront one of the basic dangers of an atomic age — the breakdown of a nuclear reactor — it also sparked off a massive re-surgence of opposition to nuclear power. Much of this condemnation came not only from the environmental movement, but also from the medical and scientific professions, politicians — and prominent members of the world of film and music — a most influential avenue of communication.

First came the film "The China Syndrome". Although actually pro-

duced before the Harrisburg accident, it gathered momentum with its timely release, pushing its point of the reality of a nuclear disaster home, even harder.

Around the same time, a bunch of musicians in America formed themselves into a group known as "MUSICIANS UNITED FOR SANE ENERGY" (MUSE). That coalition just happened to include such notables as Jackson Browne, James Taylor, Carly Simon, Bonnie Raitt, Nicolette Larson, Brian Ferry, John Hall and Warren Oats, Ry Cooder, The Doobie Brothers, Crosby Stills and Nash, and many, many more.

MUSE is defined as being "a group of artists and activists working for a

future built on the natural power of the sun, and for an end to the threat of atomic power plants and nuclear weapons."¹ To date they have staged four concerts at Madison Square Gardens, released the triple album "No Nukes", a short film "Save The Planet", have another feature length film of the concerts on the way and produced a 56 page booklet from the same concerts outlining the perils of uranium mining, nuclear power and radiation.

Like "The China Syndrome", MUSE has shown that organised, commercial promotion can be a powerful and effective form of activism, and can work in a positive way for the advocacy of an end to the insanity of

nuclear power. Through the medium of music and film, both productions have introduced thousands more people to the whole nuclear debate. They have communicated to a wide cross-section of society who may never have read a leaflet, attended a rally or even concerned themselves with the issue before.

Another important result from the MUSE activities is that the MUSE Foundation intends distributing its proceeds to pro-solar groups in the United States. Funds will be divided "among grass-roots organisations, national efforts and a co-ordinated media campaign focussing on the feasibility of safe, re-newable energy sources."² This must surely add more impetus to the increasingly desperate struggle to fight all aspects of nuclear power and work toward a non-nuclear future.

As the MUSE booklet concludes "No single industry threatens our survival or the quality of our lives with such brutal finality as that of atomic power . . . the health of the human race, and each of individually is inseparable from that of the planet."

MANE is Here.

Following the success of MUSE in America, Friends of the Earth, (Vic) has established its Australian counterpart — MUSICIANS AGAINST NUCLEAR ENERGY (M.A.N.E.)

MANE has been created for several reasons. The response from the commercial, daily and music media to MUSE was more than favourable — particularly from some music publications usually notorious for their avoidance in the past of anything remotely political. Although this was certainly a positive step, it seems somewhat ludicrous that no mention was made in any of these extensive reviews of the nuclear situation here in Australia, particularly as we hold about 25 per cent of economically recoverable uranium supplies and are being railroaded into gearing up for the development of nuclear power. There was also no mention of the many Australian bands and musicians who have supported the anti-uranium movement consistently over the last few years.

MANE

Supporters to date...

REDGUM, MATCHBOX, BAM BU, ALIENS, THE COBBERS, THE KEVINS, AUSTRALIAN CRAWL, THE ANGELS, SWEET JAYNE, PATCHWORK, BWANA, EXTRACTORS, LOOSE TROUSERS, ERIC GRADMAN, MAN AND MACHINE, JO JO ZEP AND THE FALCONS, MOVING CLOUD, ROBYN YOULTON, CHRIS GOODALL, HONEY-DRIPPERS, X.L. CAPRIS, INCREDIBLE SHAMBLES BAND, MOTHER GOOSE, BEN WITHAM, CITY, TREMORS, AIRWAVES, THE END, BERLIN, MATAHARI, THE ROMANTICS, THE VIRGINS, PATRICK McPARTLON, ATILLA AND THE PANEL BEATERS, ROSS RYAN BAND, and DAVE DOUGLAS, COLIN RICHARDSON, MICK HORAN (Sound and lighting technicians), STREETPOETS and THE COMMUNE FOLK CLUB.

Thus, we see MANE as an important communication vehicle. We hope that by presenting several concerts and other activities during the year that MANE will become accessible to as diverse a range of people as MUSE reached in America. And of course we want to support the Australian artists who support us. Since MANE's conception in early January, there is every indication that this will be the case. We now have over 30 bands, sound and lighting technicians, solo artists and many other people who have come forward with support.

It is interesting that there have been some media reports lately suggesting that the public is moving away from politicised music and musicians and

looking to music with a happy or escapist flavour to it. This seems to be a contradiction when looked at in the light of the success of artists like, Jeannie Lewis, Redgum, Matchbox, Peggy Seeger and Ewan McColl, Tom Robinson Band, Bob Marley and in earlier years Bob Dylan and Joan Baez. As John Schumann, singer/song-writer from the Adelaide band Redgum, said recently . . . "It is wrong to say that people will only listen to happy or escapist music. Certainly in times of socio-economic depression people are going to look to blot out the reality of their existence — but on the other hand they are also going to look for support, ideas and struggle from music — that's been the case with music throughout history."⁴

Throughout 1980 MANE will be staging several concerts encompassing diverse musical tastes — (Rock'n'Roll, New Wave, Folk, Jazz, Classical, Theatre etc.) We plan to end the year with "Australia's biggest ever anti-nuclear" concert. At present the group is based in Melbourne, however interest has been expressed from at least three other States to develop the concept into a national organisation.

All money raised by MANE will be channelled into the already established "Uranium Fighting Fund" operating on a grant allocating system which is accessible to every anti-nuclear group within the Australian Uranium Moratorium. This will provide funding for approved projects to keep uranium in the ground, support aboriginal land-rights and promote alternative energy sources.

If you are interested in MANE and would like more information, or can offer any assistance please contact Cris, Judy or Brian at FOE Collingwood.

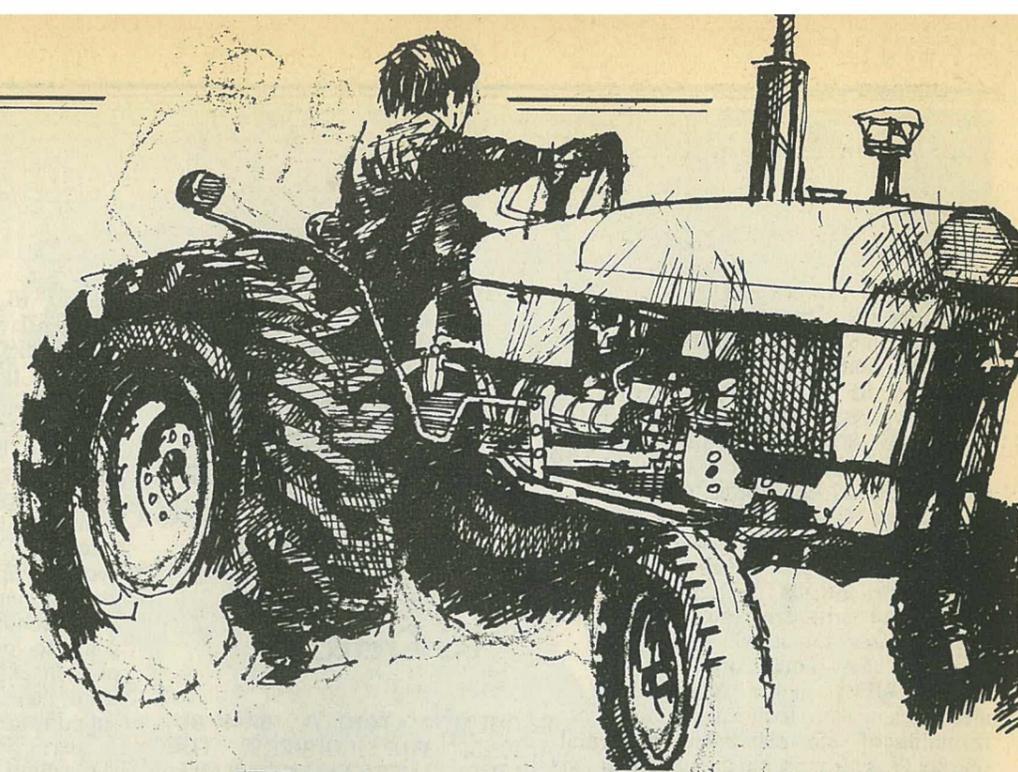
Copies of the MUSE "No Nukes" album, programme booklets and Redgum album "If You Don't Fight You Lose" are now available from the FOE Collingwood bookshop.

Cris Hattersley.

REFS:

- 1,2,3. from "No Nukes" programme booklet THE MUSE FOUNDATION 1979.
4. from 3CR interview with Redgum, January 1980.

John Nicholas



The Great Australian Food Abundance - Can it last?

How many of us think of Australian farmers when we buy our week's food supply? When, where and how was it produced? Can present production levels be maintained? What problems result from current farming methods, and what are the alternatives? Our food is among the cheapest in the world (15% of an average family's budget compared to over 60% or more in many non-western countries), and we produce a considerable amount for export. Yet behind this present position of relative calm and prosperity for Australian farmers lies a past of continual change and upheaval - and a future of uncertainty.

The drift to the city

The movement from farms to cities in Australia began late last century, and only recently began to taper off. For instance in 1871 44% of wage earner were engaged in agriculture; by 1978 this had dropped to 6%. Over the last 50 years Australia's population has doubled: yet the rural population has declined and the permanent agricultural workforce decreased to less than half in this period - which works out at an average of 120 farmers leaving the land every week for the past fifty years.

How is it that we can have half the number of farmers compared to 50 years ago, and yet feed twice the population? The answer of course lies in mechanisation: the number of tractors in use in Australia rose from 42,000 (0.09 tractors per farm worker) in 1939 to 330,000 (1.2 tractors per farm worker) in 1975.

But mechanisation didn't on its own provide for the dramatic increase in food produced per farmer. Growing green manure crops, hand-hoeing potatoes and controlling weeds and diseases by careful farm management become impractical under modern broad-scale agriculture. It's cheaper and simpler to use chemicals. Thus overall artificial fertiliser use in Australia had grown from 463,000 tonnes in 1922 to 3 million tonnes in 1976. Expenditure on agricultural spray chemicals in Australia now amounts to about \$40 per family per year (\$120 million). Few of these chemicals were in use before 1945. The overall changes in Australian agriculture are shown in the following diagram:

NOTE: 40 hectares of crop in Australia is taken as the base unit in each case

1901	1939	1951	1976
* ten horses	* five horses	* three horses	* 0.9 tractors
* 1 tonne artificial fertiliser	* 0.2 tractors	* 0.62 tractors	* 8.1 tonnes artificial fertiliser
* 14.3 farm workers	* 3.5 tonnes artificial fertiliser	* 8.3 tonnes artificial fertiliser	* 0.7 farm workers
	* 2.5 farm workers	* 2.0 farm workers	

From this we can see clearly the replacement of human labour and horses with machines and chemicals. Thus although only 6% of our workforce are on farms, another 6% are "farmers" working in the cities producing the machines, fertilisers and other farm services, and a further 500,000 city people (8% of the workforce) work in jobs that process and sell the food that Australian farmers produce: making a total of twenty percent of our workforce engaged in the food chain at one point or other.

The Calm

Since 1970 the total area of rural holdings has remained constant at about 500 million hectares, or 64.5% of the total Australian land area (the remaining land is mainly desert - little of it is ever likely to be farmed). Of these 500 million hectares, only 15 million (3%) are cropped, and a further 27 million (5%) are under sown pastures and grasses. The remainder is used for grazing, or is fallow or lying idle. According to the CSIRO Division of Land Research, the potential for growing more crops (e.g. wheat) on land currently used for grazing is limited because of restrictions of rainfall and climate. They point out that many areas already being cropped are in fact marginal due to declining soil fertility, soil erosion and unreliable rainfall. They believe a major breakthrough would be needed to put much extra land under crops.

The usage of tractors has also remained constant since 1970 in terms of numbers, although tractors are getting progressively larger and harvesters self-propelled. Artificial fertiliser use hasn't increased much since the 1960's. The main changes still going on are a continuing slow decline in the permanent rural workforce, technological change, and a continued growth in the use of pesticides and weedicides.

Future problems

How long is this situation of calm likely to last? Some major problems are looming.

Availability of soil nutrients

Due to widespread deficiency of phosphate in Australian soils, by far the main fertiliser used is super-phosphate, with between 2 and 3 million tonnes applied each year. We are dependent on phosphatic rock imported from Nauru and Christmas Island. A plant developed at Duchess in Queensland using local rock recently closed due to economic and technical difficulties.

Dr Gifford of the CSIRO has estimated that present known phosphatic rock reserves in Australia, Nauru and Christmas Island could support 60 million people for up to 300 years at our current application rates, but estimates very enormously. It may be prohibitively expensive to ship rock vast distances within a few decades due to the energy consumed: the international situation may change: even the cost of mining and processing may become a limiting factor.

Unfortunately we can't rely on recycling garbage or sewage to maintain current rates of application of phosphate. I estimate that the total amount of phosphate in our sewers and garbage is less than 15% of the amount applied to our soils. And not many nutrients are lost in animal manures, because few animals are raised in intensive systems (e.g. feed-lots) here - most manure remains on the land to help next year's crop or pasture. Where I live (Monbulk), competition is intense for the poultry manure from the nearby giant poultry farms.

The second major nutrient needed for food growing is nitrogen. Artificial nitrogen fertiliser use in Australia is 350,000 tonnes per year. The nitrogen in the fertiliser all comes from a renewable source - the air - but its production requires vast amounts of natural gas, refinery gas or electricity.

We would be far better off introducing more rotations involving legumes, plants which have nitrogen-fixing bacteria on nodules on their roots. One hectare of clover, for instance, can fix the nitrogen equivalent of about half a tonne of nitrogen fertiliser per year, which is

about the level applied to corn and sugar cane (these are high users of nitrogen).

We should also be returning to farms more of the nutrients in sewage and garbage. I estimate that nearly as much nitrogen turns up in sewage and garbage as is put on the land as artificial fertiliser.

Potassium, the third main element needed for plant growth, is seldom yet deficient in Australian soils, and only about 100,000 tonnes are applied each year. However potassium levels are declining every year as crops and animals are taken from the land and the nutrients not returned. As with nitrogen, my calculations seem to indicate that potassium levels could be maintained by recycling more of our garbage and sewage. This would be a mammoth task to say the least, but plants exist (e.g. in Auckland) which compost garbage, and countries like China regard sewage as a valuable resource.

Energy Use

Farming is supposed to be about harvesting solar energy in the form of food, but modern agriculture has changed all that. We have now reached a situation where farmers in countries like America, the United Kingdom and Holland produce less energy as food than they consume as fossil fuel. In Australia farmers are still net harvesters of energy at the farm gate (by a factor of two) but by the time a unit of food energy reaches our dining tables, more than five units of fuel energy have been expended getting it there (see "Energetics of Agriculture and Food Production" by Gifford and Millington, CSIRO). Overall the food producing system (tractors, fertilisers, transport, processing, packaging etc) accounts for about 10% - 15% of primary energy use in Australia. Modern agriculture would collapse without ample and cheap supplies of oil.

Agricultural Chemicals

It is a common reaction (I had it myself when I started farming) to group all agricultural chemicals under the one heading - evil. In fact there

are three main types, which in ascending order of damage to humans and environmental are:

Fungicides — these chemicals have been used for centuries, and many modern fungicides are in fact much safer than the older sprays. For instance the latest *"Horticultural Handbook"* describes lime sulphur as a "smelly, persistent insecticide and fungicide largely replaced by more modern and less noxious chemicals" (as a past user I thoroughly agree). Even fairly pure organic gardening books allow use of what is still one of the major fungicides — a mixture of copper and lime. Its continued use has been shown to lead to high Bordeaux mixture.

Fungicides represent only 8% of sales of agricultural chemicals, and I find it hard to imagine powdery mildew, black spot, leaf curl, shot hole, brown rot and the like being controlled without their use: although the quantities used could be reduced by better sanitation and more careful monitoring

Insecticides — The small number of people left farming the land, monocultures and the resultant pest problem have stimulated a massive industry, producing literally hundreds of different types of insecticides. Sales in Australia have reached \$60 million per year, representing nearly 50% of sales of agricultural chemicals. The largest single group is the pyrethrins, followed by the organic phosphate and then DDT.

How effective have these chemicals been against pests? In some cases (e.g. potatoes) significant control has been achieved, but, for instance, *"Organic Farming: Yesterday's and Tomorrow's Agriculture"* quotes losses in apples of 10.4% in 1910–35, 12.4% in 1942–51 and 13.0% in 1951–60, despite a massive increase in the use of insecticides. Although they state that in part this reflects higher appearance standards for saleable fruit, the authors also blame the decline in cultural and sanitation controls formerly practised in orchards to counteract pests.

Thus use of insecticides is a product of the method of farming. I believe that much of the concern over the environmental and human health



aspects of their use is well founded and that we should work towards farming methods that markedly reduce insecticide use.

Weedicides (herbicides) — sales now amount to \$50 million per year in Australia, and sales of 24D and 245T (both suspected of causing birth deformities) together represents 61% of this figure. The development of herbicides has mainly taken place in the last 20 years, in response to growing pressure worldwide to produce more food *per farmer* and heavy promotion by the chemical companies. They haven't been in use long enough for us to know their full effects: I have heard of people buying a bulldozed orchard and finding that years later nothing would grow in the weedicide — sprayed lines where the trees used to be. Weeds can be *and are* easily controlled by cultivation and mulching. In the interest of protecting our environmental and human health I would like to see the use of weedicides phased out of Australian agriculture.

Soil erosion

Top soil is our most precious resource of all. Yet the amount of attention being paid to the control of soil erosion in Australia is very small. We have all seen eroded gullies and heard of the salinity problem, but it was only when the (then)

Department of Environmental, Housing and Community Development released (in April 1978) a report entitled "A Basis for Soil Conservation Policy in Australia" that the magnitude of Australia's soil erosion problem became apparent. Their findings were clear and straightforward: over fifty per cent of the land in Australia under agricultural or pastoral use requires treatment for land degradation if its productivity is to be maintained.

The long term future of Australian agriculture is obviously in peril.

Possible Solutions

A common link in all the problems for Australian agriculture I have listed — reliance on fossil fuels, growing dependence on agricultural chemicals and environmental damage such as erosion — is the lack of *sustainable* method of food production. We are riding on the crest of a wave that will inevitably break. Government agencies, farmers and the community in general must experiment with alternatives in the search for a long lasting form of agriculture. The Chinese are still producing food from their land after thousands of years — we are already creating vast deserts after only 100 years or less of cultivation.

What *are* some of the possibilities?

A movement back to the land

Given that one of the major problems of Australian agriculture is lack of human labour, a movement back to the land to farm it more intensively would certainly in theory at least, seem worthwhile. To get some idea of the extent of the desire to return to the land, I had a survey published in "Earth Garden" — the main back-to-the-land magazine we have seen in Australia.

From this survey (the details of which are included in the first edition of "Earth Garden" 1980) it became clear that most respondents had above-average education and income, little knowledge of farming and few hopes of earning their income from the land i.e. they were mainly the so-called "hobby farmers". But their reasons for moving to the country were firm

and definite: they were disillusioned with the pace and the aspirations of city life and wanted a simpler, more basic and more rewarding lifestyle. The question most enthusiastically answered concerned problems experienced in moving to the land — many people wrote pages and pages! Obviously most were really giving it a go, and *not one* of the farm respondents wanted to move back to the city.

How large such a movement could become — given sufficient incentives — is unknown. Earth Garden editors estimated a couple of years ago that the movement numbered about 20,000 people, but particularly in these times of high unemployment the figure may be much higher than this.

The advantages include:

- a more decentralised population meaning that more food can be grown nearer (or at) people's homes, and putting sewage and garbage back on the land becomes more feasible
- more people on the land, and thus the potential for better control of pests, diseases, weeds and soil erosion
- the possibility of reducing consumption of fossil fuel energy, agricultural chemicals and artificial fertilisers.

But for a significant movement to take place the enthusiasm of individuals would not be sufficient. Large-scale government involvement would be needed to buy, subdivide and resell particularly large farms; subsidise city people (for the amount of the dole or more) to work on farms; provide low-interest loans to people to establish a farm (as long as they could demonstrate financial viability) and co-ordinate the development of the schools, health care and other services needed by the new settlers. When last there were government incentives for people to move to farms — in the 1920's and after World War II — many problems were experienced, so the present government would not take too kindly to the idea.

Organic farming

Organic gardening could certainly lead to a reduced dependence on agricultural chemicals. Green manure crops, such as clover, fix atmospheric nitrogen and "mine" the subsoil for otherwise unobtainable nutrients (including phosphate from previously applied fertiliser). The value of using more compost and sewage has already been discussed. More experiments into biological control, the breeding of disease-resistant varieties, careful monitoring of soil fertility and insect populations and so on would undoubtedly help too. The problem is that Australian farms are so large and often so remote: the above solution cannot be easily super-imposed onto 50-hectares peach orchards run by one family, or 1000-hectares wheat/sheep farms run by two people. The organic gardening movement has thus been concentrated in Australia so far mainly among home gardeners. Such techniques should be more widespread, but it will take time for Australian farmers to be convinced of their relevance.

Farming in the city

An exciting idea, but it is important to be realistic about the quantities of food that could be grown in this way.

Dairying, raising meat and growing grains — which provide by far the major portion of most Australia's diet — are obviously impractical in the city due to lack of space, and the gross inefficiency of small plots of wheat etc.

Fruit growing really is difficult. After tending 400 fruit trees from planting to (at last!) fruiting, I am convinced you can't grow fruit without a lot of attention and at least some spraying indeed it's one's responsibility due to the risk of spread of diseases and pests. Unless more people are working part time, only the keen gardeners with big backyards or garden allotments will be able to grow a major proportion of their year's fruit — let alone produce a surplus for those without space, time or skills.

Vegetable growing is already widespread in Australia on home garden

plots. If the allotment movement were to take off here in a big way (Britain has nearly half a million allotments occupying a total area of 20,000 hectares), then some of the 100,000 or so hectares in Australia used for commercial vegetable growing could go out of production. As this represents less than 1% of cropped land and less than 0.02% of the total area of rural holdings, the overall effect on Australian agriculture would obviously be small: but significant in that compost and sewage could be utilised, cultivation could be mainly by hand, and more food growing in the city could help break down the alienation many feel from the land.

Perhaps what we need is a combination of all the above — more people on the land, more use of compost and manures and other organic farming techniques, and more utilisation of disused land, particularly around cities. Note that I don't necessarily mean smaller farms — it may work out better to have more people per farm. With Australia exporting nearly 60% (\$3500 million) of our overall agricultural production (\$6000 million) we are obviously competing on a world market and 95 other countries would still (for awhile) be able to produce wheat more cheaply using large tractors and self-propelled \$45,000 harvesters. So it would be very difficult for smaller farms to survive without massive subsidies — unless their production becomes increasingly geared to Australia's needs, leading to an eventual reduction in our agricultural exports. One answer may be to promote the concept of co-operative ownership of land, machinery etc. However Australians don't have a particularly good past history regarding co-operatives — farmers I've spoken to regard them as a last attempt should they be unable to afford machinery or market their produce (note too that only 29% of the *Earth Garden* survey respondents had tried machinery sharing — and comments include "limited", "tools only", "with neighbour", "half share" and "I don't like it as items always been returned damaged").

The answers to the possibilities for a sustainable method of food produc-

tion are thus far from clearcut. But an interest in this field definitely exists in Australia. The phenomenal response to Bill Mollison's *Permaculture* concept, the dramatic increase in sales of books on self-sufficiency, and the growth in hobby farming all indicate the degree of interest. What can we do to help this issue grow and develop?

- Research and publish information on the environmental effects of modern agriculture in Australia. This is an area that has been neglected for too long — partly because the damage being done is far too subtle. Too often we read American publications and just assume the situation is similar here — it isn't.
- Oppose the entry of big corporations into agricultural production.

Radical Agriculture raises the spectre of a new kind of agricultural feudalism, with farmers employed by big companies who hand out seed and petrol and pay the totally dependent farmers an ever-decreasing amount for their produce. The situation is indeed one for concern. Peter Leman (Chain Reaction, 4 no. 2/3) wrote.

"Over the last fifteen years, the food industry, first in America and now on a worldwide basis, has been taken over by monopolies — agribusiness — which control every stage of production".

In fact, according to Richard Merrill's *Radical Agriculture*:

"The new corporate farmers account for only 7 per cent of total food production, but they have made significant inroads in certain areas"

The percentage is even less in Australia, but already we are seeing the signs e.g. a farmer I know grew beans in Victoria for Edgells. They provided the seed, and supervised the growing of the crop. He was completely dependent on them to come with sophisticated machinery to harvest the

beans, and they very nearly didn't due to a strike at their factory (fine print on his contract exempted them from such circumstances — he would have received no compensation).

Poultry production has also become dominated by companies, but the rest of Australian agriculture is still dominated *so far* by the family farm.

- Lobby for schemes to encourage more people back on to the land as already discussed, and establish more allotments on disused land.
- Work at breaking down the city/country gap. At present 90% of Australian farmers feel that city people don't understand them, and state they don't understand city people. From the other angle 96% of city people state they don't understand farmers and 93% believed farmers don't understand them. The communication gap is alarming. Until it is broken down, it is hard to imagine the fundamental changes needed for Australian agriculture to ever take place.

- Fight the increased packaging and processing of food. Dr Hannon of the University of Illinois estimates that the McDonald's hamburger chain in America uses the energy equivalent of 12.7 million tonnes of coal per year, and requires the sustained yield of an 80,000 hectare forest to keep its restaurants supplied with paper!
Ian Pausacker

NOTE: Ian Pausacker and John Andrews are working on a book on possible sustainable futures for Australia. The above is a preliminary report of Ian's research into farming. For their detailed findings, watch for their book towards the end 1980 (it is being published by Penguin Books Australia).



THE FOOD JUSTICE CENTRE

of Friends of the Earth

Melbourne 366 Smith Street, Collingwood
Sydney 232 Castlereagh Street, Sydney

The Food Justice Centre is a campaign centred on food justice in Australia and the Third World. It aims to act as a catalyst for food activism and to promote awareness of other food-justice related organisations such as Community Aid Abroad, Action for World Development and Freedom From Hunger Campaign. It was established at Collingwood FOE in the latter half of 1979 and at Sydney FOE this year.

ACHIEVEMENTS SO FAR

In November a wide ranging national conference "The Politics of Food" attracted over 230 participants. Many groups and individuals throughout Australia have since become involved in specifically food related issues. Conference papers are to be published shortly. A campaign to educate Australians on the dangers of take over of our seed industry by transnational corporations is now in its fourth month at the Centre.

Recently a well attended film night "The Politics of Hunger" was held in Melbourne. Our first issue of a bi-monthly newsletter "Food News" has just been published.

FUTURE PLANS

Another national conference will be organized for post mid year. Its emphasis will be on the consumer both in Australia and overseas. A booklet on this theme will be produced post conference.

Negotiations are underway for an adult education course, a research project on nutrition from a political viewpoint and a multi-media exhibition on food.

BECOME A FRIEND OF THE FOOD JUSTICE CENTRE by helping us remain financial

I would like to donate \$. . . to your work.

Newsletter & Membership \$10

Name

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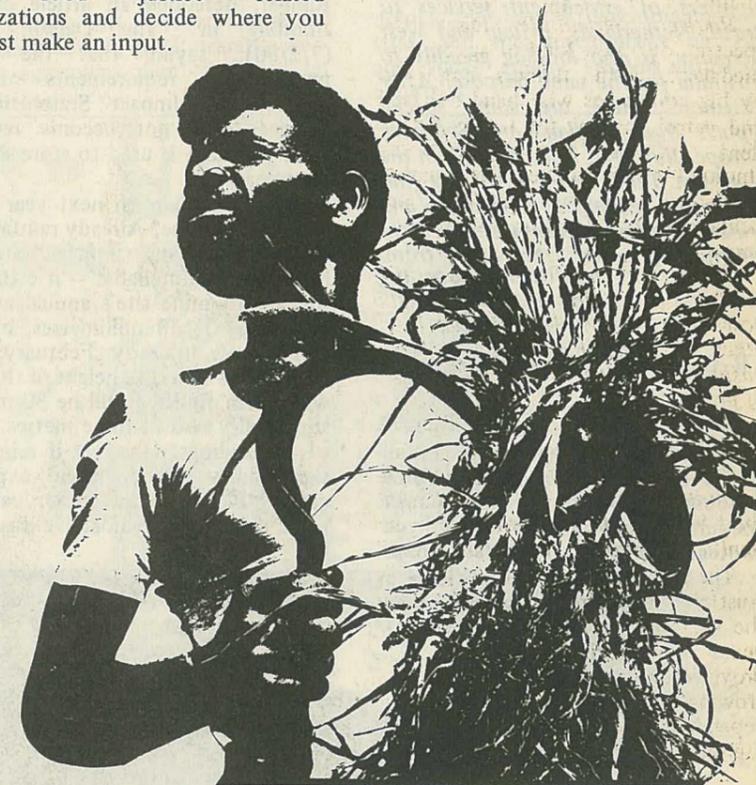
Send to: Food Justice Centre,
366 Smith Street,
Collingwood, Vic. 3066.

STAFF

A full-time co-ordinator works with several volunteer part-time staff. Your assistance is welcome.

WHAT CAN WE DO?

Find out more about what the centre is doing. Its resources are there for you to use and build on. Find out about other food justice related organizations and decide where you can best make an input.



"Some get the gravy, and some get the gristle,

some get the marrow bone and some get nothing,

though there's plenty to spare."

Joni Mitchell.

CHANCY

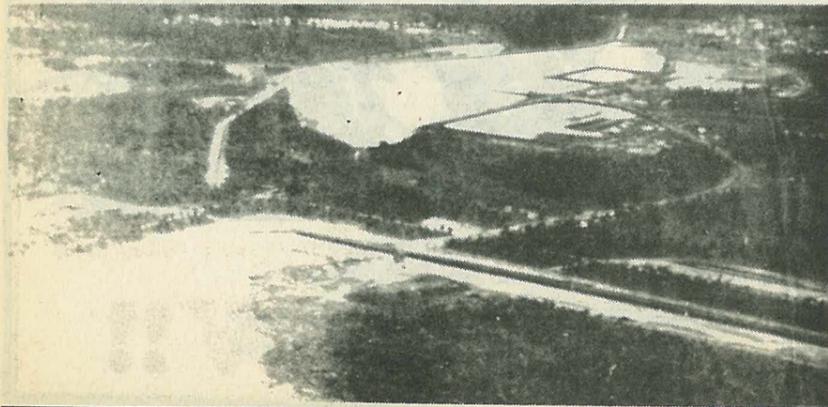
URANIUM . . . NEWS . . . NUCLEAR . . . NEWS . . . URANIUM . . . NEWS . . . NUCLEAR . . . NEWS . . . URANIUM . . . NEWS

In line with the theme of this issue of Chain Reaction, "Chancy" has also gone international. Attempting to amass a series of articles on the international nuclear scene so that they all fit in together nicely is nigh impossible. The global anti-nuclear movement is extremely diverse, operating on many different levels and from a wide variety of fronts. The basic theme of this month's "Chancy" is that the pieces are about places and events we don't hear all that much about. For example, did you know that URENCO, suppliers of enrichment services to Brazil, Netherlands, Britain and West Germany, is also looking greedily to Australia for the same purpose? After "Chancy" there are some special reports from Scotland and Southern Europe. But first, some news from the Northern Territory. I hope you find interesting reading in "Chancy", and remember, there's always plenty more information where this came from.

Judy Wilks

RANGER DAM FLOODS

An unusually high monsoonal rainfall in the Northern Territory is causing flooding problems at the Ranger uranium mine. Engineers were forced to breach the walls of the partly built



tailings dam, where radioactive ore residues and water will be stored, when it was feared that flooding would occur. The water in the dam was channelled into the nearby Magella Creek.

According to Ranger's Environmental Statement (1974) the tailings dam is supposedly a 'closed circuit system', whereby no release of tailings, mill water, radioactive elements or dissolved heavy metals takes place, apart from limited seepage. Mr. L.J. Nicholls, Manager of Operations at Ranger, defended an article on the flooding in "The Darwin Star" (7/2/80), saying that the water management requirements of the Environment Impact Statement for Ranger 'does not become relevant until the dam is used to store tailings next year.'

What will happen next year when the dam is in use? Already rainfall estimates in the Ranger impact statement have proved unreliable - it estimated the Jabiru mine site's annual average rainfall as 1,150 millimetres, but on three days in early February, 400 millimetres fell. The height of the dam wall when finished will be 30 metres, supposedly two or three metres ahead of the tailings. However if rainfall is significantly higher than expected could the water overflow, carrying toxic metals and radioactive dust with it?

OENPELLI ABORIGINES GO TO SUPREME COURT.

On February 11 the Supreme Court hearing of a claim by two Aboriginal tribes, to stop Queensland Mines from using 18 kilometres of road to Nabarlek in Arnhem Land, began. Aborigines from the Gumurdul and Nayunggal tribes of Oenpelli claim they were not consulted by the Northern Land Council about granting Queensland Mines access to the road.

The Aborigines claim that heavy transport is destroying the road, and that trucks hurtle through the outskirts of Oenpelli endangering the lives of pedestrians.

NRC RUBBER STAMPS FILIPINO REACTOR.

The U.S. Nuclear Regulatory Commission (NRC) has given the green light for the Westinghouse Corporation to export a nuclear reactor to the Philippines. In a 3-2 vote, the NRC decided *not* to investigate the impact on Filipino people, and the 33,000 Americans stationed at nearby Clark Air Force Base and Subic Bay Naval Base. Instead, the NRC ruled that it could only block an export-licence if it would have an adverse effect on the "global commons", a term defining the high seas that are beyond the jurisdiction of any one nation.

In January 1979 an executive order issued by President Carter requested environmental assessments of nuclear reactor exports. Yet the NRC insists that it does not have the authority to carry out such an assessment, because it would interfere with Filipino internal affairs.

Work on the Filipino reactor, at Bataan near Manila, was halted in June last year pending an inquiry into the safety of the plant.

It is well known that the site of the reactor (which is partially constructed) is:

- on the slope of an active volcano and in the vicinity of three others.
- boxed-in by three earthquake fault-lines within 100-300 metres of it.
- in an area where a tidal wave struck in 1971.

These were among the factors which generated massive international opposition and held the licence up for 2 years.

The NRC has not looked at these problems at all.

A leaflet prepared by the U.S. group Campaign for a Nuclear Free Philippines summed up the hypocrisy as follows:

"When the U.S. trains Marcos' police in torture technique, when it provides Marcos with guns, planes and bombs to kill his own people, this is called "foreign aid". But when Filipinos and Americans demand that the U.S. be responsible for what it exports to the Philippines, it is called interference . . . After allowing the continued operation of unsafe nuclear power plants throughout the U.S., the NRC is now co-operating with the nuclear industry to dump its unsaleable goods in the Philippines. The NRC is nothing but a rubber stamp of the nuclear industry."

Consistent protests by Filipinos against the reactor export over the last four years have been met by increased militarization of the area around the reactor. But the Filipinos continue to speak out, risking imprisonment and torture.

OUTRAGEOUS I.N.F.C.E. REPORT RELEASED.

"If I take nuclear waste and mix it with concrete and use to it to make roads, I've eventually improved the environment because at the moment tar is used and it's carcinogenic. And not only is it carcinogenic, but those chemicals live for a very long time. Radioactivity decays." So says Dr Walter Marshall, deputy chairman of the British Atomic Energy Authority, and one of Britain's leading proponents of large-scale investment in nuclear reactors. He also happens to be a member of the International Fuel Cycle Evaluation study group (INFCE).

Among other things, the recently released INFCE report advocates the use of fast breeder reactors *above* that of conventional reactors, for both

safety and environmental reasons. The report claims that fast-breeders release less radioactivity into the air than present-day thermal reactors . . . are we supposed to take this as meaning that conventional reactors are constantly emitting radioactivity?

President Carter instigated the INFCE study in 1977 in the hope of putting a break on nuclear weapons proliferation; particularly through rapid development of breeder reactors. The spread of reprocessing capacity around the world means that there is also more weapons-grade plutonium about. The possibility of an "international plutonium regime" is one, says INFCE, that we're just going to have to get used to. It takes two years on average to build a commercial reprocessing plant, and between one to three weeks to build a bomb from reprocessed plutonium.

Carter's anti-proliferation policy has been significantly damaged by the findings of the INFCE study group, and it will cast further doubt on Australia's already weak uranium safeguards agreement plan, modelled on the Carter policy.

CONFERENCE FOR A NUCLEAR FREE PACIFIC

This conference is being held in Hawaii during the week 10-18 May. Much hard work has gone into organising this conference, especially in terms of ensuring that there is a balanced representation from indigenous groups and western activists. This is the first sort of conference ever to have been held whereby the notion of nuclear-free zones will be extended into a regional context. Australia hopes to send four delegates, which is quite a large representation given that conference organisers want to keep the numbers down to around forty, to enable it to be a *working* conference.

The aim of the conference is to 'denuclearize' and demilitarize the Pacific Ocean, by way of strengthening the independence and self-determination movements on small Pacific Islands. There will also be emphasis on reactor sales and technology transfers to developing countries, and the development of safe and viable energy systems in these countries.

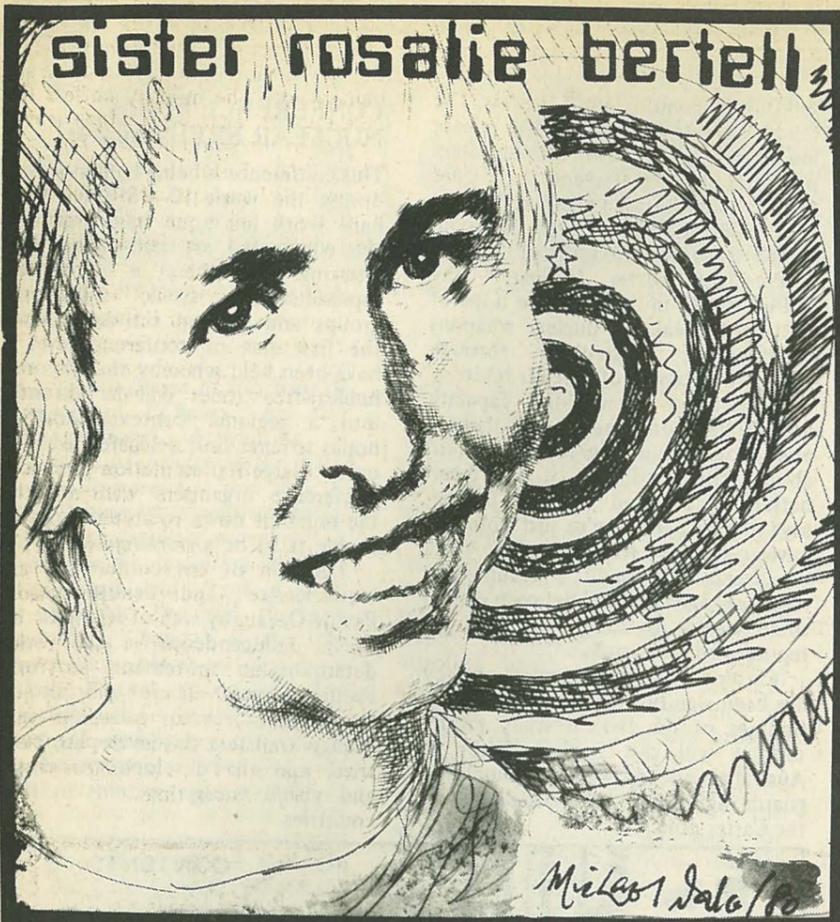
AN ORDINARY PERSONS GUIDE TO THE NUCLEAR FUEL CYCLE
PAUL MARSHALL 60c

CONTENTS

- What is uranium?
- The mining process
- Why enrich uranium?
- The enrichment process
- The politics of enrichment
- Background
- How reactors work
- Reactor problems
- Irradiation
- Component failure
- Human error
- Accidents
- How wastes are formed
- Categories of wastes
- Highly radioactive wastes - to reprocess or not to reprocess
- Actinide incineration
- Solidification
- Final disposal
- Medium-level wastes
- Low-level wastes
- Old reactors
- Background radiation
- Inadequate radiation standards
- What price future lives
- Breeder reactors
- Serious problems

Friends of the Earth 1980

OUT NOW!!



ATTEMPT ON NUN'S LIFE?

Sister Bertell works as a Director of Research with the Ministry of Concern for Public Health, an international task force on energy sources and, their health effects. She was also a member of the Citizen's Advisory Committee, which assisted with the investigation into the causes of the Harrisburg nuclear power plant accident.

It seems these activities have made Sister Bertell unpopular with the US nuclear industry. London's **Sunday Observer** has reported that a nuclear industry official warned her in February, 1978, that she should stay out of New York City. However it appears that she ignored the warning.

On Thursday, 4 October 1979, she delivered a lecture on ionizing radiation at a medical centre in Rochester, New York. At about 4 pm she left the hospital and drove off on Route 490 West. The following description of what happened then is taken from the affidavit which she gave to the police afterwards.

"I became aware of a white car which was crowding into the middle lane, in which I was travelling, from the left lane. It was an older car, painted a dull white . . . I blew the horn and braked to prevent a collision, slowing enough to allow the white car to enter the middle lane, just missing my car.

"I then noticed the white car moving to the far right of the middle lane . . . At this point I noticed a metal object dropping from the white car directly in line with my front left tyre. It appeared to be a gallon can, similar to those in which gasoline is carried. The can appeared bashed-in on the right side and rusted.

"Traffic was heavy - it was between 4.15 and 4.30 pm - and it was impossible to move into another lane. I tried to straddle the metal can, but it hit the inside of the front left wheel, doing damage to the wheel frame and making a slit hole in the tyre. Although the tyre was a new steel-belted radial the damage was so

extensive that it caused an immediate blow-out." Dr Bertell managed to steer the car into the emergency lane and stop.

"After about ten minutes I saw a car marked 'Sheriff' and waved to the driver."

The driver of the car was not wearing a badge or any official insignia, but he assured her that he had called the city police and that they would arrive any moment.

He seemed anxious to know whether Sister Rosalie had taken the licence number of the white car, and whether she had found the metal container. When it became apparent that she had not, he left her there stranded.

Sister Bertell has since made enquiries at the Monroe County Sheriff's office and discovered that the car she saw was not an official Sheriff's vehicle and that no-one had called the police at or about the time of the incident. Chief Gerew, of the Sheriff's office seemed genuinely interested in the matter, but regretted that there was nothing more he could do without further information.

Sister Bertell toured Australia in February and March at the invitation of the Amalgamated Metal Workers and Shipwrights Union and other Australian unions. JUDY WILKS listened to her speak at a meeting in Melbourne.

WHAT DOES ROSALIE BERTELL HAVE TO SAY?

Rosalie Bertell, nursing sister and Catholic nun, has many harsh words to say about "nuclear" (as she calls it). I went to listen expecting her talk to be largely about the health effects of low-level radiation, her area of research. I was surprised when Sister Bertell in a most sane and convincing fashion began by urging those present to be relentless in exposing the military, for the nuclear industry is only a front for the military and nuclear proliferation. "Nuclear", she said, could never have "made it" had it not been supported by the U.S. Government.

For those of us who usually see nuclear power in an energy-oriented framework, the clarity with which she explained her perspective to listeners was enlightening and inspiring. The

rationale behind the nuclear web that is choking the planet is so horrific and so immense in its implications that it tends to paralyse the average person's understanding of it. This is the hardest task facing anti-nuclear activists - the necessity of helping people to understand what it's all about so that they can move within their own framework.

One area that is yet unexplored in this effort is that of public health. Not enough effort is being made from both inside and outside the medical profession to enlist its skills in the monitoring of environmental health hazards, specifically low-level radiation. Sister Bertell believes that low-level radiation (from nuclear power plants, uranium mines, buried wastes and X-Rays) is a form of pollution. The danger to health from radiation is not just cancers, but also the effect that it has on the ageing process. One spinal X-Ray is equivalent to one year of natural ageing, which accelerates the onset of ageing-related diseases such as heart problems. Of course, the effects of exposure to high levels of radiation are completely different, and they involve the mutation and killing of cells.

According to Sister Bertell, when the bomb was dropped on Hiroshima

it meant that peace-time was eliminated. Ever since then the world has been in a state of constant preparedness for war: large amounts of money are draining into the military coffers for their nuclear weaponry, which leaves the rest of the world hungry. The U.S. Rocky Flats installation makes 3-4 nuclear bombs a day, all of which are 3000 times more powerful than the one which fell on Hiroshima. The Department of Energy has a written mandate to develop nuclear weapons; in fact it was through this department that the neutron bomb came about.

The world cannot cope with any more radioactivity. It will take 400 years to get rid of the radioactivity that is currently in the biosphere.

The spin-off from increased nuclear proliferation is that through the efforts of all those opposed to it, we can be pushed towards 'one world'. If present trends continue our days are sorely numbered; but through pressure for disarmament, for example by demanding that countries take notice of the United Nations and the World Court, international co-operation and a global peace economy will prevail. Sister Bertell sees this as an extremely exciting prospect . . . so long as sanity takes a grip of us in time.

World Information Service on Energy

The World Information Service on Energy (WISE) came into being because of a need expressed by many anti nuclear and alternative energy groups and individuals around the world to communicate with one another across geographical and language barriers. WISE is a non profit organisation under Dutch law committed to independence of all political or ideological allegiances.

WISE produces regular detailed bulletins on current developments (like many of the items in this Chain Reaction) and has recently started a "Keep it in the ground" bulletin dealing with uranium mining.

Subscription fees are \$7:00 for 6 issues either through FOE Melbourne or direct to WISE 2e Weteringplantsoen 9 1017 ZD Amsterdam, The Netherlands.



above: Filming an interview with Dick Mulwagu at Nabarlek.

DIRT CHEAP

"Dirt Cheap" is a stunning new feature film on mining and aboriginal land rights filmed at the time of the signing of the Ranger Agreement. It will be released in theatres around Australia from July. Full details on the film and current events in the Northern Territory will feature in the next Chain Reaction. The film has been financed by the NSW Film Commission, various trade unions, church groups and Friends of the Earth, and produced by Marg Clancy, David Hay and Ned Lander.



7 YEAR BAN ON URANIUM MINING IN BRITISH COLUMBIA

In late February Premier Bennett of British Columbia, Canada, made a surprise decision to impose a seven year moratorium on uranium mining. This decision was taken while Dr David Bates, Chairman of the B.C. Commission of Inquiry into mining was on a fact-finding mission in Australia. The Inquiry was terminated at the time the moratorium was announced.

B.C. has two major uranium reserves — the Birch Island-Clearwater area north of Kamloops and the Beaverdell area south of Kelowna. A contract worth \$300 million had been tentatively signed with the Korea Electric Co. of South Korea.

Reactions to Premier Bennett's announcement ranged from "explosive anger" on the mining industry's behalf, to cheers and celebrations amongst the anti-uranium alliance. Both sides agree that it was a wholly political decision, taken out of context of scientific data and the findings so far of the Bates Inquiry.

The Premier justified his decision by saying that B.C. can continue to meet its economic goals without the need to develop its uranium resources, and that nuclear power does not have a role in the B.C. government's energy strategy. He said that it was clearly the mood of the people that they were not prepared to live with uranium mining.

Although environmentalists, medical authorities and others opposed to uranium mining were delighted with the decision, their reservations about it were expressed by Dr Bob MacKenzie who has lead the citizens' struggle: "Our sense of relief is tremendous today, but an important point is that the questions we raised can be forgotten in seven years. Some sort of legislation has to be put into place to make this permanent."

Judy Wilks

SWEDEN

The Swedish Referendum results in which 57% of Swedes voted for a phasing out of nuclear power over an estimated 25 years have left many question marks in the air.

The average Swede must have been more than a little confused when confronted by the three ambiguous alternatives or "lines", which went as follows:

1. That the six reactors on line and the other six planned be allowed to go ahead; *but* that they should be phased out over the next 25 years.
2. Much the same as 1. except that extra conditions were attached; namely that renewable energy resources and energy conservation be looked into and developed as soon as possible, and that electricity generation be put into public ownership.
3. That nuclear power be phased out over the next 10 years, and be replaced by a programme of renewable energy and stringent energy conservation measures.

Or, in the words of Amoy Lovins; the first alternative meant "more is better", the second "more is less" and the third "do more with less".

Eighteen per cent of Swedes voted for No 1; 40% for No 2; and 39% for No 3.

Yet there are a number of issues which will tend to confuse these results. Firstly, the results of the referendum are not binding. It is now up to the Swedish Government to interpret them in the manner it feels fit. And for the staunchly anti-nuclear Prime Minister Falldin, it will be a difficult task to implement a programme that he is so strongly opposed to. The 25 year phasing out period is an arbitrary figure, and was originally devised from the time period needed to phase in the 12 reactors.

There is also nothing in the three alternatives which says that these reactors cannot be replaced with new ones in case of an accident. Or looking at this from another angle, they could *all* very well be closed down in case of a serious accident. After all, it was the Three Mile Island accident which started the referendum ball rolling.

If oil prices were to rise sharply, the nuclear programme would be stepped up rapidly, and the 25 year phasing out period may be extended.

Another anomaly in the results is that the requirements of the Nuclear Stipulation Act will still have to be

met. It is not as if the referendum results have automatically solved the problems surrounding waste disposal.

The referendum also omitted consideration of the future of Sweden's uranium reserves, and what role it is anticipating they will play in Sweden's nuclear programme.

However the referendum results are implemented, it is almost certain that the nuclear issue will continue to destabilise Swedish government. The referendum results like many other hotly debated factors in their nuclear power programme, will be dealt with according to political expediency.

by Judy Wilks

PROTESTORS SET LEGAL PRECEDENT ANTI-NUCLEAR CHARGES DROPPED

In January the Sacramento, California, District Attorney dropped trespassing and resisting arrest charges against 11 defendants who had occupied the Rancho Seco nuclear power plant at the height of the Three Mile Island crisis.

It was the first occupation of an operating nuclear plant and the subsequent trial, during July and August 1979, was the first in which a California judge allowed the defence of necessity in an anti-nuclear action. At that trial one defendant was acquitted, one was convicted because he did not testify, and in 9 cases the jury could not reach a verdict.

This case is important because it has established the legal precedent that anti-nuclear protestors can argue their motivations and bring on expert witnesses (as was done in the Rancho Seco trials) to make those motivations credible.

The Rancho Seco precedent is already being used in several anti-nuclear cases throughout America, including a case in New York.

Jodi Adams
Greenpeace

BAD NEWS FOR JAPAN'S NUCLEAR INDUSTRY

A report released by the CIA has predicted that nuclear power development by 1985 will be half that assumed by the Japanese government. It gave two major reasons for this cut-back.

- (1) A number of structural defects in plants.
- (2) The increasing risks to workers.

INTERNATIONAL NEWS

00A



EUROPE — homeland of most Australians. Chain Reaction takes a break from text to give you some photos of energy activities there over the past year.

Photos gathered for CR by Leigh Holloway.

Candlelight procession in Copenhagen calling for closing the nearby Swedish Barseback nuclear power station.

Uranium demonstration,
Edinburgh.



SCRAM



SCRAM
Outside the West German Consulate,
Edinburgh.

LEIGH HOLLOWAY



International anti-nuclear demon-
stration, Polish Embassy, Brussels.
Speeches in several languages — hence
two megaphones.

Italian, French, Spanish, German,
Dutch, British, Belgian, American and
Australian demonstrators at the Wall
of Berlin — travelling from Brussels to
Warsaw seeking disarmament by the
NATO and Warsaw pacts.

PARTITO RADICALE



Street march in
the Orkney Islands,
Scotland, opposing
uranium mining.

CIMRA



WISE

World Information Service on Energy
staff — Lin Pugh, Ann Kirschenmann,
Barri Madwin, and Frank van Zaanen.

Poster for
demonstration, Merida,
Spain.



Graffiti, Madrid.



Posters for
lecture series, Sicily.

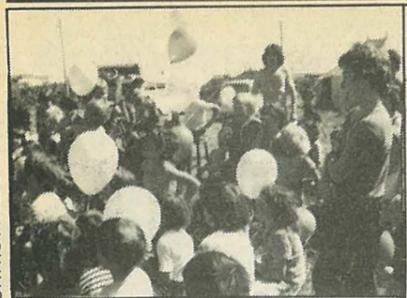
LEIGH HOLLOWAY



LEIGH HOLLOWAY



CHRISTINE STEER



Children watch puppet show at Ireland's 2nd Anti-Nuclear Power Show.

Occupation of the Torness nuclear power station site, Scotland.

OOA



SCRAM

SCRAM

Solar hot water service on Copenhagen rooftop, Steep, so the snow slides off.

SCRAM



Margaret Thatcher, British Prime Minister, almost accepts a bunch of dead flowers, Edinburgh.

Nessie, The Torness Alliance monster checks out the site security.

STOP URENCO ~ STOP ENRICHMENT

The Stop Urenco campaign is an alliance of environmental and other groups concerned about the dangers of enrichment and the activities of Urenco. Most opposition has been in the Netherlands, where over the past few years nonviolent protests have continually taken place outside the Almelo plant. But the Alliance is also growing in Britain, where rallies have been held outside the Capenhurst plant in Cheshire.

In November 1979 directors of URENCO held talks with the South Australian government re proposed enrichment plans in that state. Possible sites for an enrichment plant include Port Noarlunga, Port Stanvac, Hallett Cove, Virginia and Port Pirie.

Fissile uranium (uranium 235, the type which breaks down and causes a chain reaction) makes up less than 1% of naturally-occurring uranium ore.

The proportion must be raised to 3-6% of fissile uranium to fuel most reactors, apart from the Canada reactor in Canada and the British Magnox reactor, which can use unenriched fuel.

Increasing the amount of fissile uranium to 90 per cent or so makes the material suitable for nuclear weapons. *So anyone with an enrichment plant can, without much trouble, apply the technology to make weapons material. Fortunately, in the past, this has not been easy. But the Urenco consortium, consisting of British, Dutch and West German companies, have developed a method known as the gas centrifuge which will enrich uranium more easily and cheaply than other methods. Urenco has built plants in Holland*

cheaply than other methods. Urenco has built plants in Holland and Britain and is in the process of expanding them to supply enriched uranium for electricity utilities in a number of countries.

The technology Urenco uses is also contributing to the spread of nuclear weapons. A Pakistani metallurgist

secretly obtained the plans of the Dutch Urenco plant, returned to Pakistan, and set out to obtain the necessary materials to construct such a plant. Pakistan is believed to have an experimental plant operating and may have a bomb within two years. The bomb programme, which has the support of other Islamic countries, has led to a rekindling of India's nuclear programme. Pakistan has shown that the gas centrifuge developed by Urenco is probably the easiest way to make weapons-grade nuclear material.

Urenco's irresponsibility does not finish with its technology and its service. As an essential part of the nuclear industry it is contributing to the environmental, social and moral problems created by the use of nuclear power from the mining of uranium to the disposal of waste. Urenco through its shareholder RTZ is involved in uranium enrichment in South-African controlled Namibia. Urenco is involved in a wide range of dubious activities.

Urenco's part in the Brazilian bomb.

One country contracted to obtain enriched uranium from URENCO is Brazil. Brazil has an ambitious nuclear programme and hopes to obtain from West Germany an almost complete nuclear industry. But its need for expensive nuclear power is doubtful and many observers believe Brazil's programme will be used to manufacture nuclear weapons to enable it to become the dominant state in Latin America.

In June 1975 Brazil signed an agreement with West Germany that would virtually give Brazil a complete nuclear package - eight reactors, a fuel fabrication plant, a jet nozzle enrichment plant and a reprocessing plant. The contract, worth nearly \$3 billion, was not only the largest nuclear deal signed between two countries but also the biggest deal in German history. URENCO obtained the contract to supply enrichment services until Brazil's own plant came into operation. The USA strongly opposed this deal.

Brazil claims that its signature on the Treaty of Tlatelolco, which outlaws nuclear weapons in Latin America is proof enough of its peaceful nuclear intentions. But the fact remains that this treaty allows "peaceful" nuclear explosions, which are technically indistinguishable from military explosives, and is thus next to useless. Furthermore, Brazil has not signed the Nuclear Non-Proliferation Treaty. In the 1950's, Brazil made an abortive attempt to revive the Nazi A-bomb project. A secret deal was made to ship three gas centrifuges to Brazil but the plan was uncovered just before shipment.

Brazil's nuclear programme has encountered large and costly difficulties. The first reactor was built on a site which had been selected without geological survey. Earthquakes are a hazard in the area, and examination revealed that the plant was being built on a huge floating rock that was being pushed out to sea due to earth sliding down mountains behind it. Additional construction and lengthy delays have been so costly that a hydro electric plant of similar generating capacity plus transmission lines could have been built for half the price.

It is interesting to note that at the time the contract was signed between Brazil and West Germany a group of Brazilian scientists spoke out about the dangers of the programme and pointed to the potential of hydro and solar power. But the troubles are not only economic and technical. Although the deal was supposed to give the Brazilians an independent nuclear industry, little is being done to train engineers and technicians needed to run the programme.

Brazil's nuclear programme has been halved as far as reactor construction goes, but it is likely that enrichment and reprocessing facilities will still be built in order to keep the weapons option open.

-From a manuscript on enrichment by Rob Francis, ex-FOE Manchester.

INTERNATIONAL NEWS

ENERGIA NUCLEARE? NO GRAZIE!

Italy is the homeland of one of the biggest ethnic groups in the Australian community yet, surprisingly, virtually nothing about the anti-nuclear movement there has appeared in the Australian or U.S. news media. This report by Leigh Holloway is one of the first in any English-language publication.

Rome: Opposition to nuclear power is growing in Italy as the central Government attempts to foist nuclear power plants on unwilling regional authorities around the country.

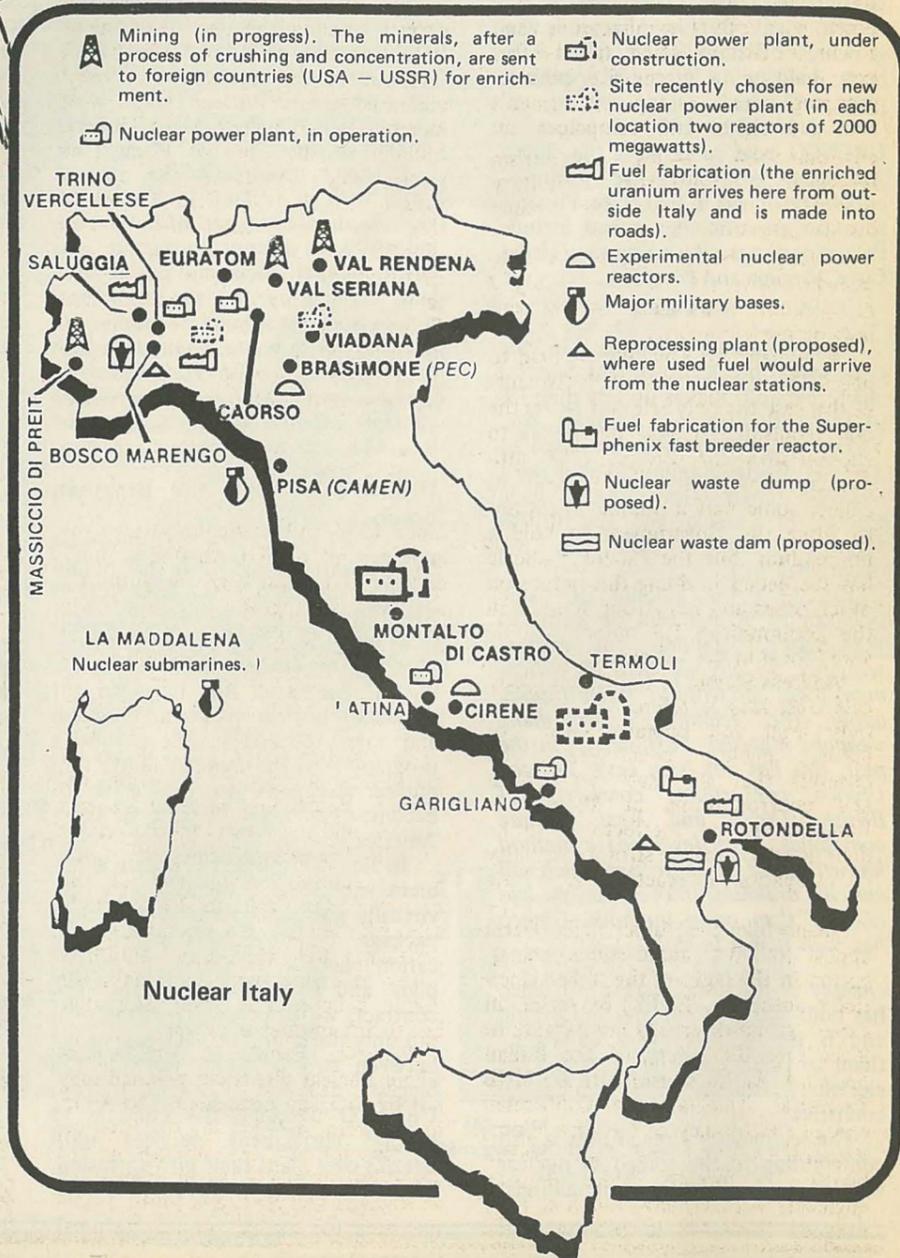
There are already four operating nuclear power stations in Italy with a capacity of 1 400 MW, but they have only been operating at around 40% efficiency. Two more stations are under construction, due to be completed in 1986, and ten stations are proposed for construction.

The Italian government has designated four areas for new nuclear power stations - Lombardia and Piemonte in the north, Lazio and Molise.

Under Italian law the national Government can nominate regions where nuclear plants are to be built, leaving the regional authorities with the unenviable task of selecting sites for the power stations. The regional authorities have no power to reject nuclear installations altogether. Despite this, the Molise regional authority has said it is absolutely against nuclear power in its area and has asked the national authorities to make geological surveys before any further consideration is given to the environmental issues.

The other regions have been taking time on the hot question of choosing locations, utilizing what little power they have under the national consultative legislation.

The national government has decided on one site in the Lazio region near Rome - Montalto di Castro. There have been frequent demonstrations in this area, especially since construction work commenced in 1977.



The project had only reached the excavation and foundation stage when it was stopped and the regional authority has called for safety studies.

At the centre of the organised opposition to nuclear power are the Amici della Terra (Friends of the Earth) with several regional groups and a central office in Rome, and the Partito Radicale, a progressive political grouping which champions women's and gay rights and campaigns on environmental issues, militarism (especially compulsory military service), world hunger, and against nuclear power.

Among other strategies, the anti-nuclear movement is considering a referendum challenging the present laws on nuclear power.

A referendum can only be held to negate an existing Act of Parliament: in this case the only relevant Act is the one requiring regional authorities to choose sites for reactors. The anti-nuclear movement would have to collect some half a million signatures to force the Government to hold a referendum, but the Partito Radicale has succeeded in doing this before on other issues and has strong support in the community: 1.3 million people voted for it in the last election.

Andreas Steiner of the Partito Radicale describes a referendum as "the only legal and operative way" of halting nuclear construction. He observes that the mass occupations and confrontations at Malville in France have been "ineffective". But he does not discount the strong possibility of occupations of reactor sites in Italy.

Meanwhile the Amici della Terra appear to have caused some consternation in the ranks of the Italian electricity authority (ENEL) by hiring an expert group of energy consultants to investigate the safety of the Italian program. ADT's consultants are MHB Technical Associates, a Californian energy consultancy of Gregory Minor, Richard Hubbard and Dale Bridenbaugh - former senior nuclear engineers with General Electric. They resigned from GE in protest at the

dangers of nuclear power. Their report on Italian reactor safety, financed by public donations, will be released early this year. It will be available in both English and Italian.

ENEL, the electricity authority, is taking the investigation seriously enough to allow them access to one of Italy's nuclear plants, and the Italian Government has appointed its own commission into nuclear safety, with members which include Aurelio Peccei, founder of the Club of Rome (the group which produced the conservationist's classic, "Limits to Growth") But, not surprisingly, most of the members are pro-nuclear. In January ENEL held a conference on nuclear safety and invited Hubbard and Bridenbaugh to attend - however no impartial geologists capable of commenting on geological risks to nuclear plants were invited to the conference.

BLACK OUTS

Since 1975 and particularly since the appointment of Sr Corbellini as president of ENEL last year, the authority has given the appearance of interest in renewable sources of power and energy conservation. However it has not given up manoeuvring for an expanded nuclear power program in Italy.

This winter ENEL plans electricity black-outs in some parts of the country. People will be given a week's warning and the power will be off for a 1½ hour period. Officially the reason is the country's shortage of oil. Friends of the Earth and Partito Radicale believe the real explanation is political: the electricity authority hopes to create panic and make the public believe there is no alternative but to accept nuclear power.

However people in the regions where nuclear plants are planned may not be so easily persuaded. The Amici della Terra in Milan say that support for the anti-nuclear campaign is not keen, but in nearby small towns such as Viadana and Sartirana (both potential sites for nuclear power stations)

and Novazza (a potential uranium mining area) there is much active support. In Viadana some 5,000 people signed a petition for the referendum.

The Caorso nuclear power plant, 65 km from Milan, came on line at the end of 1977. Last year it was crippled by strikes and technical problems. Mechanics struck for improved safety measures. Although the strikes lasted only 6 or 7 days they put the plant out of operation for some 6 months.

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(Adt publish la Tartaruga.)

Partito Radicale
Secretaria per le iniziative internazionali
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Telephone 06-6547771 or 6547160
(PR publish an international newsletter, in English.)

WISE - Italian edition
Servizio mondiale d'informazione energetica
c/ Movimento nonviolento
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Amici della Terra
Libreria Centofiori
Piazza le Dateo 5, 20129 Milano
Italia
Telephone 738 1670

La Nuova Ecologia (magazine)
Redazione
c/o Universita Popolare
Piazza S. Alessandro 4
20123 Milano
Italia

Riprendiamoci la natura
periodico di controinformazione sulla
scienze e la vita dell'uomo nella societa-
capitalistica
Da Re Maurizio
Casella Postale 1076
50100 Firenze 7
Italia



Protest at Torness, Scotland

The British nuclear cycle — a world dustbin?

Britain has a long and committed involvement with the nuclear industry; from the first Magnox reactors used to produce plutonium to, Prime Minister Maggie Thatcher's latest plans for 20 pressurised water reactors. Besides nuclear power stations yellow cake is converted to hexafluoride at Springfield fuel rods are produced at Capenhurst, and there is a reprocessing plant at Windscale, all in the North East. Highly radioactive and toxic waste is imported for treatment from Japan, Sweden, USA etc: arriving at southern and eastern ports it travels by rail in 'coffins' (waste flasks) up to Windscale. Dounreay, the experimental fast breeder reactor, lies in the north of Scotland; uranium mining has been proposed in the Orkneys and drilling of holes in the Cheviots and other places for use as permanent waste repositories. Although nuclear plants are in areas of small population, with waste transport through the centre of London and other processes, few people are far from the hazards of the nuclear industry. Opposition often began in these remote areas but has spread and is growing.

Windscale — Reprocessing an interesting and saleable commodity

The Irish sea is the most radioactive stretch of water in the world, due to legal and illegal emissions from the nuclear waste reprocessing plant at Windscale. It has a history of accidents including a major fire in 1957 which resulted in radioactivity being blown over the neighbouring countryside and 2,000,000 litres of milk had to be poured away. Frequently fuel rods have caught fire in the cooling ponds and there was a large leak in one of the tanks allowing gallons of radioactive water to seep underground. It is only a matter of time before it reaches the sea. The leukaemia rate in the surrounding countryside has greatly increased in the past 10 years and several workers have successfully claimed compensation from BNFL. An Inquiry was held before opening the new head-end plant (which will reprocess more highly radioactive waste) and many anti-nuclear groups including Friends of the Earth put in large amounts of time and money opposing the expansion. In the final report they realised their efforts had been in vain — evidence they produced

was either ignored or misrepresented. Other ways to oppose nuclear power had to be found and used.

Direct Action and the Torness Alliance

Despite vast over-capacity of electricity generating equipment the Government proposed that an Advanced Gas cooled Reactor (AGR) should be built 30 miles from Edinburgh. The cost, £750 million, helped keep the flagging power plant industry alive. Anti-nuclear groups nationwide banded together to form a direct action alliance dedicated to stopping the power station construction by non-violent means.

The Torness Alliance is structured on the U.S. Clamshell Alliance. There is much emphasis on affinity group structure and non-violence training. Alliance meetings are punctuated by songs and games to improve working relations between members. Decisions are taken by consensus and not by voting: although this method can be very slow it assures that all problems are thoroughly talked over before a course of action is attempted. Not everyone present has to agree to the decision, they may prefer to go along

with the majority and not block consensus. Effective demonstrations result from well-trained leaderless organisation — only then can the changing circumstances during the demonstration be met with effectively. A rule of the thumb is never to decide anything with less than 4 people during non-violent action if consensus meetings are not possible.

Torness Gathering May 79.

Anger at the imposition of a nuclear station at Torness found a focus in May '79 when the Torness Alliance decided to hold a festival and direct action at the reactor site.

Various alliance groups shared the festival organisation. SCRAM (Scottish Campaign to Resist the Atomic Menace) based in Edinburgh, co-ordinated site preparation. Other groups produced the Torness occupiers' handbook, complete with maps, songs, legal information; some organised transport; many people came up before hand to help from Exeter, Wales, Lancashire. Friday night and controlled chaos as everyone arrived at the campsite, but miraculously everything was ready: information hut, reception committees (rostered), natural compost toilets (bring your own grass). Saturday local people streamed down to the festival site for shows, talks, films, book stalls, displays — and a petition of 20,000 signatures was gathered.

On Saturday night in the large marquee the direct action was discussed. This would be the third occupation of Torness — public opposition had been growing since 1973. In May

'78 4000 people had marched and camped on the proposed site — November '78 protestors risked life and limb lying down in front of bulldozers removing the last cottage ruins. For many the emotions and anger against Torness power station were great and thus this Saturday meeting was long and hard as plans and tactics were hotly disputed. At 2 am weary spokespeople came back to the affinity groups to explain that the occupation would begin at 8 am that morning. Local farmers donated bales of hay and as the main group began the 2 mile walk to the reactor site we loaded up transit vans, parked them on the grass verge next to the fence, and built a staircase over the fence. Up the road a cheering crowd of colourful banners singing: (To the tune of "My old man's a dustperson")

"Oh we're the nuclear dusters with all our nuclear waste,

We don't know where to put it,

Oh!, Ain't it a disgrace!

We've taken it to China, we've even tried the pole,

We'll take it to the Cheviots and stick it down a hole!

2000 demonstrators climbed onto the reactor site and spent the day planting trees, painting fences, rebuilding the cottage. Police had been informed of the non-violent nature of the demonstration and kept a low profile. The occupation was reported in the national press and T.V. On Tuesday as workers came back to the site the demonstrators marched off having decided they did not want a conflict to arise. An opinion poll taken by SCRAM a few weeks later showed 90% of people in the area were opposed to the Torness reactor.



Direct action blossoms

Enthusied by the gathering at Torness, introduced to direct non-violent action, the anti-nuke movement continued to grow as general opinion against nuclear power increased. Many other actions took place subsequently. At Capenhurst the stop Urenco Alliance co-ordinated a direct action. Some people tried to chain themselves to the factory gates while others lay in a human chain across the road to prevent the gates being opened. At first unsuccessful we regrouped, held affinity group discussions, came to a consensus about further action — we made the chain about 100 yards from the police either side of a parked car and in front bicyclists rode in circles. Stop URENCO was painted on the entrance road. Other actions included "die-ins", occupations of cranes, demonstrations in Edinburgh, stink bombs at the Uranium Institute dinner. In the Orkneys the people blankly refused to allow mining exploration. In London a report that the waste flasks were substandard sparked off a transport campaign included a large demonstration in January — meanwhile local groups proposed trying to stop the trains by direct action. One group that organised such an action was infiltrated by railworkers and the train re-routed.

An umbrella organisation to co-ordinate a national campaign, the ANC (Anti Nuclear Campaign) with miners' unions, environmentalists, scientists, anti-nuke groups, SCRAM and FOE was launched in December. Maggie Thatcher has a fight on her hands and she has already asked that the nuclear industry be given a low profile in the press. People are realising the nuclear industry in Britain is a threat to their health, welfare and freedom, for the nuclear state gives civil liberty a low priority. Direct Action though not everyone's choice has brought publicity and attention to focus on this issue and given expression to the opposition to the nuclear industry. It has built bonds of trust between activists which are the strength of any anti-nuclear movement: A fight for the future!

by Linda Bradburn
and John Leach.

Living by example

For anyone, like me, who is interested in appropriate technology, a visit to the Centre for Alternative Technology in Machynlleth (pronounced, approximately Mc-CAN-THLETH) in Wales is a must.

"Alternative Technology" is a much used catchword these days, but for most people their knowledge and experience of it is still limited to what they have read in books and magazines, or very occasionally seen in a shop window. How few of us have actually had the opportunity to see these devices working in the setting for which they were built, namely to provide people with their daily energy requirements from renewable rather than finite sources.

The Centre is situated about 3 miles outside the town of Machynlleth itself. Its site is the disused slate quarry of Llwyngwern. Commercial quarrying stopped there about 25 years ago and until 1974 it remained idle. Then a small group, who had set up a registered charity called the Society for Environmental Improvement, decided to settle there and attempt to demonstrate that one could live adequately and happily on natural resources with the minimum of wastage and pollution. Five years later, the results of their activities have produced an integrated demonstration of alternative living which attracts some 60,000 visitors a year. However it is not *just* a demonstration, since the Centre is now the permanent home of approximately half of the 30 staff who work there. The remainder live in the town of Machynlleth itself.

When you arrive at the Centre you begin at the reception building, and if you visit in November, as I did, it's a good idea to start with a hot drink and a homemade goodie to warm you up before you set off. The reception building has a number of poster displays explaining the workings of the Centre. Instruments displayed on a board also indicate "where power is coming from at that time". The Centre publishes a visitor's guide, which is a must since it ensures above all that nothing is missed out, and also makes a good souvenir.

Once outside the reception building you follow red arrows around the Centre past all the main exhibits. The arrow system is not quite so ominous as it sounds and the path through the Centre is designed to give maximum access to everything while preserving the ecology of the quarry as far as possible. They are rightly very proud of the regrowth that has occurred naturally there, and the young silver birches look particularly beautiful set against the slate.

Probably the first thing you notice is the 4 Swiss concentrating collectors they have mounted on a hillside. These are going to be used to provide steam to a Stuart Cygnet 1½ HP steam engine, which in turn will power a small generator. Their experience to date with these collectors, as with other manufacturers' brand equipment, showed that it wasn't without its teething problems — things that you'd have thought the manufacturers would have sorted out, like plastic gear wheels on the tracking mechanism melting.

Close by are the staff cottages, which are actually 'out of

bounds', understandably so because living in such a Centre would not exactly be very private. These cottages, rebuilt from ruins, have all sorts of energy conserving features, including different forms of insulation, both internal and external. They also employ solar hot water panels, both commercial types and their own D.I.Y. (Do It Yourself) variety. Small electrical requirements come from a 200W Winco Windcharger mounted way up on a hilltop.

One of the main sources of energy for the Centre is water, and they are fortunate in having two storage reservoirs high above the quarry. These are left over from the quarrying days and originally fed a 30ft diameter water wheel which in turn powered the slate cutting machinery. Now they feed a Pelton Wheel with approximately 140 gallons of water a minute and 100ft head. From this an alternator produces about 2kw of power at 240 AC. After leaving the turbine, some of the water is reused to demonstrate other water power devices, namely a hydraulic ram which continually "clacks" away or a 10ft diameter D.I.Y. timber overshot water wheel. Most of the water, however, drops a further 150 feet to the carpark area where it is used to power another 3kw Pelton Turbine.

The Centre is by no means devoted purely to energy sources. An area of the quarry has been turned into an 'Organic Garden' with the objective of showing visitors how they can grow their own food with the minimum of cost and effort while at the same time maintaining soil fertility. The display in the garden area includes compost boxes, natural fertilisers and pest control and four-cycle rotation of the 6 vegetable plots. Cold frames and greenhouses are also used. Integral with the growing of food is the fish culture which is practised at the Centre. A solar heated dome tank houses the fish for their first year. They are then transferred to a fattening tank, also solar heated, where they continue to grow to an edible size in their second year. Another food source is the animal small-holding and this is integrated into the energy and growing model by a methane generator which processes the animal and human waste into gas and fertiliser.

It was about this time in our visit that we had a taste of the sort of weather one would experience living at the Centre. When we had arrived, the winter sun was managing quite successfully to find the holes between some fairly black rain clouds. Quite suddenly the sky began to darken and for ten minutes or so we were subjected to a heavy hailstorm. When this cleared it left the slate glistening with moisture. The whole area looked beautiful, almost fairy-like.

The remainder of our tour took us past the wind and solar displays. These consisted of some brand-names and some homemade devices assembled in two distinct groups, their purpose being to give people an opportunity to have a close-up view. In the case of the solar display, having the collectors mounted outside also gives the opportunity for long term weathering effects to be recorded. There were at least 25 panels of various sizes, materials and constructions there, many of them having critical information about their performance attached beneath them. This struck me as a

good idea, since it gave prospective purchasers of solar equipment the chance to learn some of the prerequisites of a good solar collector.

Nearly at the end of our visit, we found ourselves inside the "Conservation House". This was a house donated by a well known English building firm, the purpose of which was to demonstrate how energy consumption could be cut to a minimum. It had, amongst other things, 450mm (18") insulation and quadruple glazing. Both my friend and I found the silence inside the house a little disconcerting, and decided that we would not have liked to live there.

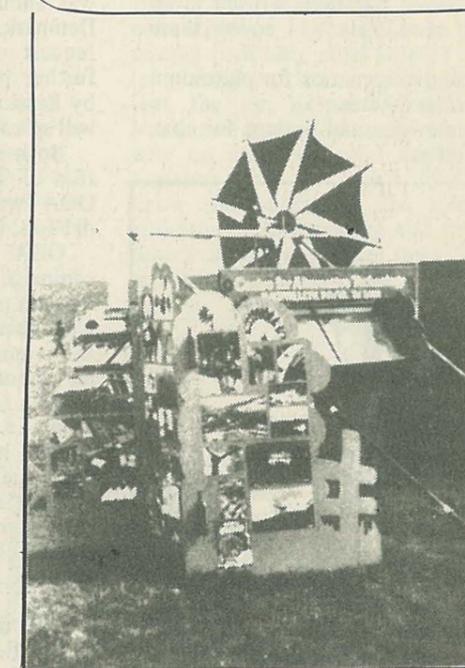
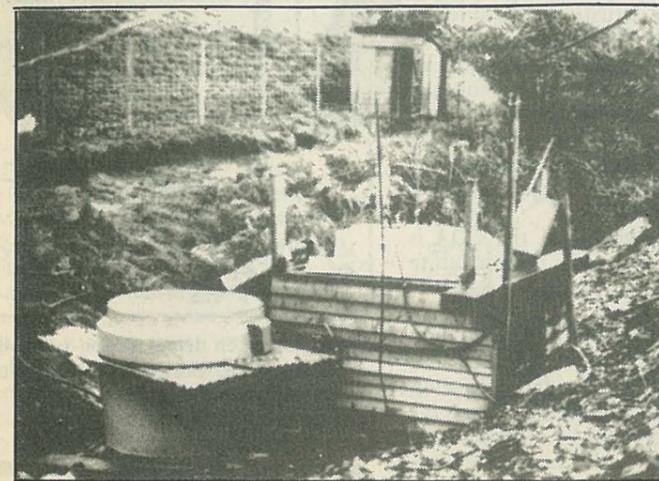
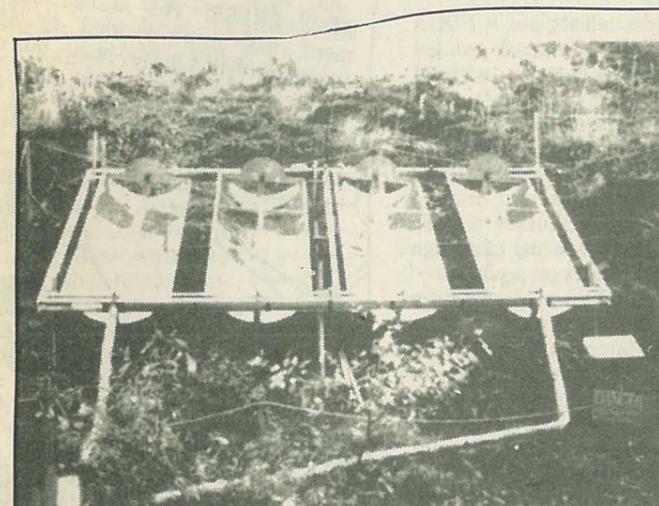
Before leaving the Centre, we paid a visit to the exhibition building which also includes energy saving devices like a 100m² trickle type solar roof and a huge underground interseasonal heat store. The building is used for audiovisual displays and lectures. It also includes the main Centre offices and an excellent bookshop.

Having spent nearly 2½ hours wandering around (you could spend twice that!) we were both fairly cold, and as

we left the quarry we were recommended to try the "Quarry Shop" for lunch. This is a shop run by the Centre in the town, where you can buy all the usual sort of whole-foods, etc. The homemade soup, bread, cakes and coffee, however, were magnificent! Our judgement was probably clouded because by that time we were both cold and hungry, and so we were not hard to please. It was a good place to end our visit, and gave us the chance to write raving postcards to friends at home about what we'd seen.

In my mind there is no doubt that the Centre is achieving what it set out to do in demonstrating the viability of how more appropriate forms of technology can be utilised in our daily lives with only slight adjustment to our lifestyles. Nor does the Centre appear to be resting on its laurels. There seemed to be many plans for development and improvement, and a revisit in a couple of years would probably be well worth while. The one question that was left in my mind, and still is, is when and where will we have a sister Centre for Alternative Technology here in Australia.

Bob Fuller



DANISH CAMPAIGN SPREADS



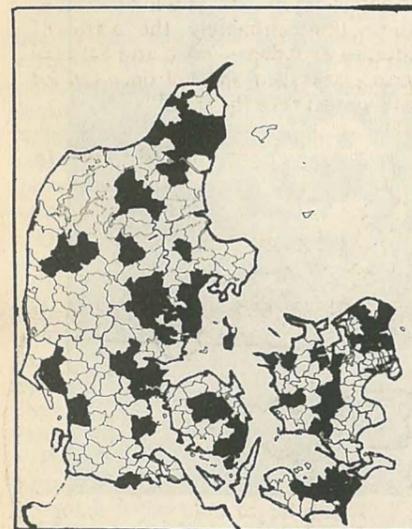
Copenhagen: A newspaper on energy is being distributed to every home in Denmark, giving the anti-nuclear case and information about alternatives.

It is the latest project of the OOA – Organisationen til Oplysning om Atomkraft (Organisation for Information on Atomic Power) – creators of the Smiling Sun symbol.

The paper is called 'Denmark without Nuclear Power'. It is 12 magazine size pages, in full colour, very well illustrated.

The paper has been written in an easy to read style and covers these areas:

- alternative scenarios for plutonium and solar futures
- the relevance and options for coal, oil and gas



Denmark – shaded areas have already been letter-boxed with the OOA paper.

- how to save energy – the effectiveness of insulation, modifications to appliances
- wind power, solar power and biogas.

The articles in the paper have been written by a number of the OOA members, working in groups. The professional design work has been voluntary, too.

As their press release put it "OOA wants to show that Denmark can get by – and even do better – without nuclear energy".

The initial printing in November was enough for 10% of all homes in Denmark. Within each copy is a request for donations to finance further printing. Distribution will be by hand and OOA hope the campaign will spread "like ripples on a pond".

Both before and after the distribution of the paper local groups of the OOA will invite people to attend debates, films exhibitions, etc.

OOA have run a very strong campaign for the last few years and opinion polls show majority agreement with their views. But, they feel that this commitment is largely based on an emotional reaction to nuclear power. In the situation of a referendum – a possibility for a Government finding it hard to take a decision on the issue – they feel that emotional support might not be enough. Their aim is to build a more solid educational effort, so that people have stronger reasons to reject nuclear power.

The main demand of the OOA is that official plans for a Danish future without nuclear energy should be formed.

OOA say it is absolutely unacceptable that the Government has not published information showing alternative energy options, to inform the country about various possibilities for energy savings and energy supplies.

Without such information the politicians – let alone the public, in the case of a referendum – have a completely distorted basis for evaluation and discussion, with no alternatives to choose between.

Within the governing minority party (Social demokratiet) there is an internal campaign to change the official pro-nuclear policy. Plans for nuclear power have already been delayed because of public opposition and the government has postponed announcing its own policy. Because of the difficulty of coming to a decision on nuclear policy the government may well call a referendum.

Leigh Holloway.

STOP PRESS: The Danish Government has now decided to again postpone their nuclear plans, but may revise their decision at any time. The OOA newspaper has reached stage four of its distribution – around 2 million copies.



The newspaper discusses the possibility of exchange between Danish wind power and Norwegian hydro-electric works.

PEDALS NOT PETROL

*Get your old bicycle out of the shed
Dust off the dusty old dust
Squirt in some oil, pump up the tyres
Scrape off the rusty old rust
Early one morning just roll out of bed
Cycling along can be fun
Your health will improve, the moment you move
On a bicycle built for one.*

The words of the song and the rhythm of the pedals kept time as we slowly made our way through the maze of Greater London and out onto the open road. The Great Two-Wheeled Tour of England had begun.

In spite of all the (if you'll pardon the pun) ups and downs, the following three months turned out to be a lot easier than we'd thought. Once we adjusted to the idea that we were reliant solely on the combination of our own bodies and two 5-speed bikes to take us where we wanted to go and accepted the uncertainty of never knowing where our bed for the night would be, we realized that cycling is the ONLY way to see England.

On a bike you are virtually forced, for your own safety and sanity, to stay off the major boring highways that look like the major boring highways anywhere in the world, and seek out instead the minor roads, sometimes no more than a stony pathway between the fields or a tiny lane too narrow for a car. On a road like this in Norfolk the only other traffic we came across in a whole morning's cycling were three horse-drawn caravans and a farm cart. No acrid fumes, near-collisions with reckless drivers or engine noise that drowns out the sound of the munching cows on the other side of the hedge or the wind in the grass.

Rather than following a predictable route from one crowded tourist attraction to the next, we preferred just to cycle from youth hostel to hostel, doing about twenty to thirty miles a day and taking the time to enjoy the countryside as we went.

Every day we discovered something special – morris dancing on the village

green, a superb "ploughman's lunch" (bread, cheese and pickle) and half-of-cider in the local, an ancient villager who explained with pride the history of a tiny Saxon church or a friendly bike-shop owner who invited us in for a cup of coffee while he fixed our machines. Travelling like this we felt totally immersed in the experience – the rise and fall of the land, the feel of the sun, rain and wind in our faces and the stillness and peace of secluded villages with odd names like Guiting Power or Lower Slaughter.

While using two-wheeled transport has its obvious drawbacks, it does have the advantage of forcing you to travel light and keep your food, shelter and clothing arrangements simple. For three months travelling I took two changes of clothes, a set of Japara waterproofs, a towel and a hostel sleeping sheet packed in a rucksack.

Most of the time we stayed in youth hostels (costing between 2 and 3 dollars a night) and did our own cooking; we carried supplies of muesli, dried fruit and nuts, powdered milk and coffee and bought things like fruit, vegetables, cheese, eggs and yoghurt fresh each day.

Unless you descend to sleeping under hedges and semi-starving yourself this would undoubtedly have to be the cheapest way to get around – about \$5 a day for food and shelter and under \$2 a day for transport.

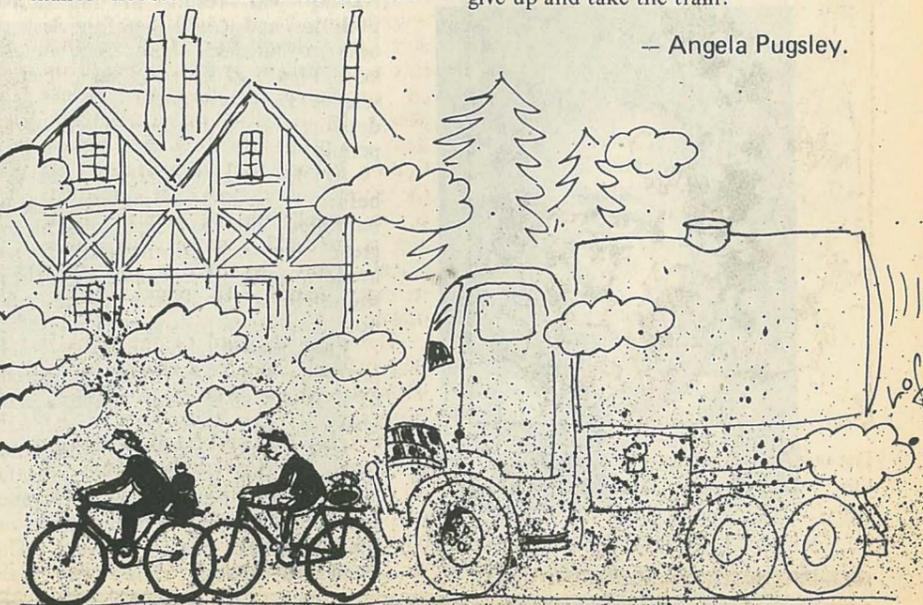
Most youth hostels are buried deep in the countryside and are housed in buildings like thousand-year-old water mills, Norman castles or 15th century manor houses – one even had the

dubious added attraction of being haunted! Evenings spent cooking simple communal meals or swapping travel advice and anecdotes with fellow cyclists in the cosiness of a hostel common-room were as preferable to staying in plush hotels as is freewheeling along, to being carted around in a bus with pathetically inadequate ten-minute toilet and photo stops at "points of interest". The sense of well-being which comes from having done it all yourself, independent of tour-guides, exorbitant prices or hours spent idly on railway stations cursing the ineptitude of British Rail, is nothing short of superb.

From a practical point of view the entire venture was relatively painless to organize. Arriving in London armed with the addresses of several recommended bike shops, we spent a while checking out the situation and each ended up buying a 5-speed light-weight touring bike with carrier and lights for under £100. Two days later we strapped our packs onto the carriers and set off into the wild blue yonder.

I don't deny of course that there were occasions when seemingly endless steep hills, gale-force headwinds, nauseating car fumes and huge trucks passing perilously close seemed intent on making our lives a misery. Curses rent the air, despairing cries were heard and again and again we asked why on earth we were doing it to ourselves. But . . . you'll be glad to know that ultimately the spirit of adventure, independence and rational lunacy prevailed and not once did we give up and take the train!

– Angela Pugsley.



INTERNATIONAL NEWS

URANIUM LAND OWNERS FIRST MEETING

Copenhagen: For the first time indigenous people from Australia, Greenland, Namibia and North America have met to discuss and publicise their fight against uranium mining.

The Conference – Uranium Mining: New threat to the people of the Third and Fourth World – was held here on 19 and 20 October, 1979.

The indigenous people took control right from the beginning, as seemed highly appropriate. Bindi Williams, an Australian Aboriginal, chaired the Conference.

It was originally organised by the International Work Group for Indigenous Affairs (IWGIA), the Organisation for Information on Atomic Power (OOA) and the Danish Association for International Co-operation (MS).

However the day before the Conference the panelists from 3rd and 4th World areas met and decided to totally re-arrange the Conference agenda. It



Winona LaDuke – fighting, what she terms, “the last Indian war”

would not be unfair to say that this took the organising groups a little by surprise. For once those who have been so oppressed were in control.

Opening the Conference, Bindi Williams welcomed the participants and said “this is a chance we have been waiting to have for a long, long time.”

The conference was held at the University of Copenhagen and attracted over two hundred people – mostly Danes, but also included Australians, Americans, other Europeans and people from both the Orkney Islands (Scotland) and Ireland equally concerned about the prospects of uranium mining in their areas.

At the conference Kaj Fleist was first speaker. He is an Inuit and spoke on behalf of the Siummut Party – a socialist party in Greenland. He told the audience that the life of the Greenlandic people is based on natural resources. “The possible future extraction of uranium near the town of Narsaq will result in radioactive pollution and it will therefore destroy our possibilities. These facts cannot be hidden by the so-called objective science. Destruction of the land means destruction of the Greenlandic people.”

At the press conference, the day before, he said “If uranium is going to be mined, first the people must have a great deal of information, spread broadly among them, and then there should be a referendum. Money cannot compensate for spoiled land.”

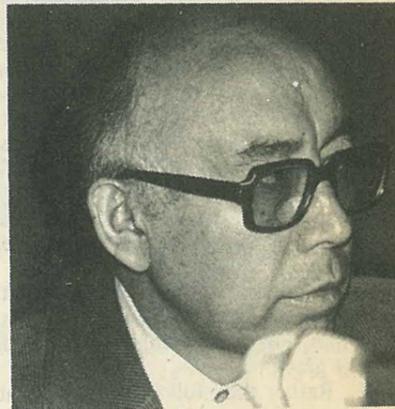
Karl Isaksen, a fellow Inuit, interjected to add a statement “on behalf of all Inuits, all uranium mining will be resisted – with violence.”

Jens Karlsen, also from Greenland, spoke about the situation in the Narsaq area – not far from the Kvanefjeld uranium find, at a mountain on the south-east coast. He said “The Municipal Council knows very little

about what is happening, they are disoriented and get informed in a wrong way. They have wrong information.” He voiced concern about the impact of uranium mining on “the environment, the local population, and the employment structure of the area.”

Robert Petersen, Professor of the Inuit Institute, in Nuuk, Greenland also spoke. He said that “the decision and control should be in Greenland . . . the Greenland point of view should be dominant.” He expressed grave concern about the impact of uranium development, on all aspects of life in his country. The sincerity of the softly spoken professor was impressive. “We do not want to use the Greenland ice cap for nuclear waste storage,” he said.

Hadino Hishongwa, South West African Peoples Organisation (SWAPO) representative in Scandinavia spoke next. He spoke of the illegal occupation of Namibia by the South Africa regime, and the export of uranium in contravention of the United Nations special Decree No. 1 on Namibia. He told how Britain, West Germany and France were all directly involved in the uranium exports – which this year total some 7,500 tons. He said there is “no peaceful nuclear plant, we are sitting on a bomb”. He noted that the Danes may have a referendum on the



Robert Petersen – “no possibilities today for accepting uranium mining in Greenland”

nuclear question, and said, “but we have no voice. Our land has been taken away from us, the uranium stolen from our country.” He asked that the participants “join us, for the security of our people”.

Later, in answer to questions, he gave a strong assurance “We do not want to export it (the uranium) even when we are independent. We do not need it. It must be completely stopped.” He said it was a question of “do we want to exist or not?”

Alun Roberts of the Campaign Against the Namibian Uranium Contract also spoke. He read out a message from Featus Naholo, SWAPO National Secretary for Foreign Relations. It had been smuggled out by underground contacts, in December last year. It told how “There is no protection from the poisonous effects of radiation from the uranium at the Rossing mine in Namibia. Bad treatment from the South African Security Police is commonplace. Strikes by Rossing workers have been put down by South African Security Police by the use of dogs and guns. Black workers have to stay in single quarters (near the mine) in unsanitary conditions while whites receive good housing (well away from the mine) in Snakopmurd at only minimal rental.

CANUC is based in London and Alun reported that it was formed in 1977 to research and campaign against those organisations holding contracts from the Rossing mine in Namibia. The mine is operated by the Riotinto Zinc Corporation – the same massive corporation whose subsidiary Conzinc Riotinto of Australia have the majority control over the Mary Kathleen uranium mine in Queensland. Surprise, surprise!

In the *New Internationalist* (January 1979) Alun gave a detailed report on ‘How the British government is stealing Namibia’s uranium’. In it, he says, that Britain has a contract with RTZ for 7,500 tons of Namibia’s uranium.

Since the contract was signed several things have given the government sufficient grounds for implementing the cancellation clause. First is SWAPO’s opposition to the mining and export. SWAPO is the U.N. recognised “authentic representative of the Namibian people”. In 1976 SWAPO

stated that “the British Government contract ensures the short-term viability of Rossing and provides South Africa with vested interests in maintaining an illegal occupation of our country.” Second, there have been technical setbacks at the mine.

“The delivery of these supplies involves a highly secretive transportation route intended to outwit any country seeking to enforce part 5 of the U.N. Decree: ‘Any vehicle, ship or container found to be carrying . . . resources produced in or emanating from the territory of Namibia shall be subject to seizure and forfeiture by, or on behalf of, the United Nations Council for Namibia . . .’ These seizures can be made in any U.N. member state through which such containers pass. Rather than risk direct supplies by sea the RTZ uranium is therefore flown direct to Paris. France like Britain has disregarded the U.N. attempts to halt the exploitation of Namibia’s resources.

Mick Miller, Chairperson of the North Queensland Land Council, then spoke about the “battle over the use of uranium”. “For 6 years we have fought it off in Australia” he said, because “we know what damage it can do. It has been in our legends for thousands of years.”

At the press conference Mick told how the Ranger company had given silver pens to the few Aboriginals who



Hadino Hishongwa – “join us, for the security of our people”

signed that contract. He emphasised very strongly that the contract did not have the endorsement of the Aboriginals in the area. “Only three of the forty landowners signed, the others refused.”

Two Native Americans also addressed the Conference – Winona LaDuke of Rapid City (South Dakota), representing the International Indian Treaty Council and Herb Blatchford, a Navajo from Albuquerque (New Mexico), representing the American Indian Environmental Council.

“We know from our elders that these areas create life, but only as long as the uranium is in the ground. When it comes to the surface it hurts all life, all organic life,” Herb told the press conference.

Winona told how the Native Americans are now on only 4% of their original land – and yet with 36 active uranium mines among them. “We are a nuclear energy colony.”

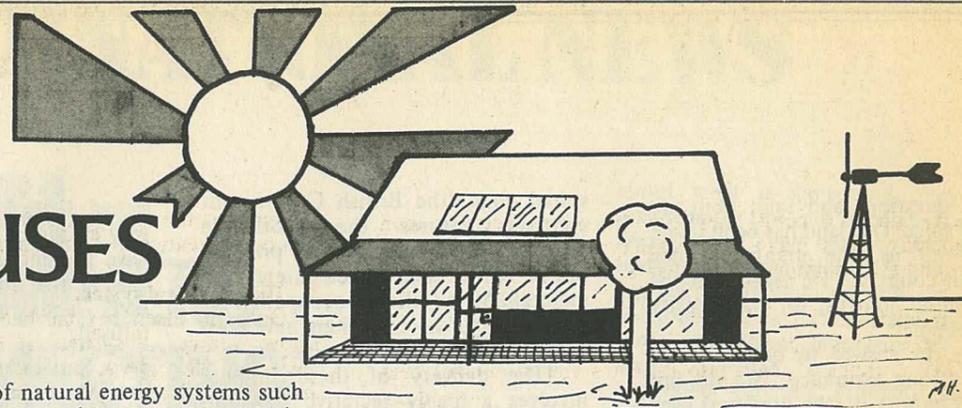
She said there have been spills of 100 million gallons of tailings waste water. The U.S. Government classifies theirs a “national, sacrifice area”.

A number of achievements are attributable to the conference, or at least have been encouraged along by it:

- Inuits in Greenland are establishing a movement against uranium mining. This is a step forward. (Previously many felt they did not have enough information on the issue. The Conference was a big help towards this change.)
- A support group is being established in Denmark to help the Inuit fight against uranium mining. (Greenland has internal self-government now, but resources are still controlled by the Danish Government.)
- The Danish press and television gave generous coverage to the Conference, which was held a few days before the national election.
- The World Information Service on Energy (based in Amsterdam) was requested to publish frequent bulletins on the uranium question – and is now doing so. WISE is also helping organise a second international gathering of people opposed to uranium mining.

Leigh Holloway.

SOLAR HOUSES



Houses which make use of natural energy systems such as the sun, wind and water, are becoming increasingly popular, as our conventional energy sources of oil, gas and coal are gradually depleted. Even in conventional urban houses simple energy saving features such as insulation are growing in importance.

Structures which supply all their own needs (that is autonomous houses) make use of both Passive and Active energy systems.

A passive design feature generally has no moving parts, but is part of the house's initial shape and construction. An example of this type of feature is a concrete slab floor. This acts as a form of energy storage because of its ability to absorb heat easily and release it slowly.

An active design feature is one where there is a functional component, as in a solar water heater. (In this case the functional component or moving part would be the water in the pipes of the water heater.)

PASSIVE DESIGN FEATURES:

1. Structure Facing North.

Because we are located south of the equator and the sun spends most of its time over or near the equator, the sun is usually in the northern part of our sky. Thus if we build a house with the living rooms facing north, we can be sure of getting as much sun as possible. The sun will then effectively give the maximum amount of light and heat to the northern side of the house which (if the window area is maximized) will make the house warmer and lighter.

2. Bedrooms South Side.

For the same reason the southern side of the structure will tend to be fairly cool making it practical to use this side of the house for an activity such as sleeping. Windows are kept to a minimum to reduce heat loss, while being big enough to provide light.

3. East/West Walls Shorter than North/South Walls.

By maximising the length of the north/south walls it is possible to maximize the collection of heat from the sun. Keeping East/West walls short reduces heat-gain in summer.

4. Eaves on North Face

Eaves make use of the sun's position in the sky to let in sunlight during the winter and keep it out during summer. This is possible because the sun is lower in the sky in winter and can shine in under the eaves while it is excluded in summer.

5. Roof suitable for mounting Solar Collectors

If the roof of the house is designed facing north at the correct angle, solar collector plates can be mounted directly

on the roof. The angle varies according to the location of the house, (refer table). If the roof is also built high enough it is also possible to mount a water storage tank which can be connected to the absorbers to form a thermosyphon system.



6. High Thermal Mass.

Materials such as brick, concrete, and bluestone have a high thermal mass. That is, they take a long time to change temperature. If maximum use is made of these in the walls, floor, etc, then the temperature of the building stays much more constant day and night.

7. Internal Substances.

Surfaces of internal walls and floor should be good heat emitters, to allow heat to be absorbed and re-radiated. Concrete floors near north windows should have quarry tiles rather than carpet. Brick walls should ideally be unplastered as plaster acts as a barrier preventing the movement of heat into and out of the walls or floor.

8. Minimum Area.

The more space there is in a home the more there is to

ANGLES OF FLAT PLATE COLLECTORS

City	Latitude Sth	Angle
Adelaide	35°	31°
Brisbane	27°	24°
Canberra	35°	32°
Darwin	13°	12°
Hobart	43°	39°
Melbourne	38°	35°
Perth	32°	29°
Sydney	34°	31°

heat, light and cool. Therefore the more energy is used generally. This makes it necessary to design the house around the minimum practical area.

9. Insulation.

An obvious necessity, especially in the roof. The use of heavy curtains at night also insulates and minimizes heat loss.

ACTIVE DESIGN FEATURES

1. Solar Water Heating.

At the moment this is the most common active design feature in Australian houses. The table below shows the annual savings in electricity, assuming 1 kWh costs 1 cent.

SAVINGS WITH SOLAR HOT WATER (per annum)

City	Collector Area	Saving
Adelaide	4 m ²	\$58
Brisbane	4 m ²	\$58
Canberra	4 m ²	\$58
Darwin	3 m ²	\$52
Hobart	5 m ²	\$60
Melbourne	5 m ²	\$60
Perth	4 m ²	\$58
Sydney	4 m ²	\$58

2. Wind Power.

The wind can be used to both pump water and generate electricity. Sizes available in Australia vary from several hundred watts up to about 5000. Costs vary. A secondhand reconditioned 1,000 watt generator could cost about \$1,000. A new 1,000 watt generator would be likely to cost 2 to 3,000 dollars. The tower adds to the cost.

3. Hydro-electricity.

Australia is a dry continent so the use of water to generate power is limited. If water is available it can be used in two ways: 1. In low head, high volume water wheels, or 2. low volume, high head turbines, such as pelton wheels.

Water can also be used as an energy storage, by the use of a dam or by pumping it into tanks at a high level, where it can later be released and used to drive a turbine.

4. Solar Cells.

Solar cells convert sun light directly into electricity. The present high cost is a problem here. They do have their applications for charging small battery systems in remote locations, but they are generally too expensive for the domestic situation.

5. Other Electricity Sources.

Backup generators are common in autonomous houses. They are of use during a period of particularly high power usage or if a lack of wind or water result in inadequate

Solar Houses.

charging of the storage system. The generators can even be run on alternative fuels such as methane.

6. The Electrical system.

Once the electricity has been obtained from one of the above sources, a system of distribution and storage is necessary. Storage is generally by the use of Lead-Acid batteries. Voltages used are generally between 12 volts and 110 volts. The cost of the battery bank varies according to its size. But you could expect to pay about \$800 for a 110 volt bank and \$400 for a 32 volt bank.

7. Methane.

If fairly large quantities of organic waste are available, from people plus animals or plants, then methane gas can be generated in a methane digester. This gas can then be used for cooking, heating or any other suitable function.

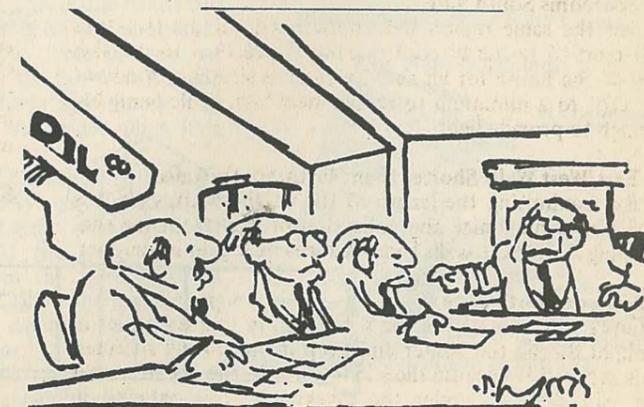
8. Rock Pebble Storage.

Small stones can be used as a heat bank and used for both heating and cooling a home. To warm the house air heated in flat plate air heating panels is passed into the rock storage system. The rocks hold the heat, and air can be pumped through later to supply warm air to the house. To cool the house, cool air is taken in at night and passed through the rock storage. Then during the day cool air is pumped into the home.

9. Combustion Stoves.

This can be used for cooking, heating and water heating. Fireplaces can also be very useful for these uses.

Few Autonomous houses have all these features, but all have some or most. The following are a selection of a number of autonomous and energy saving houses. Some have a number of energy saving features but still rely on external inputs, such as electricity, gas and water; others are completely autonomous and supply all their own needs.



"Our problem, once solar energy is in operation, is to find a way to have the citizens whose homes are heated by the sun continue to pay us every month."

Solar Houses

Location: Endeavour Hills, Melbourne.
Design: Williamson Span, Architects and Engineers, Gas and Fuel Corporation of Victoria. Tomkin Homes (Aust) Pty Ltd.

Size: 14 squares.

Construction: Double Brick.

Passive energy features: Faces north; eaves; roof suitable for solar heating panels, bedrooms south side, concrete slab floor, high thermal mass, minimum area, and insulation.

Active design features: Solar water heating.

The architects anticipated that this house would only use 35% of the energy used in a normal house. The house makes use of a number of energy features not present in any of the other houses, such as an insulating strip of 25mm polystyrene at the edge of the concrete slab and the injection of urea-formaldehyde foam into the cavity in the walls.

It has six modular solar collector panels linked to a Beasley 370 litre gas-boosted tank. It is anticipated that the system will supply up to 80% of the energy required for water heating.

The design results in the house having two distinct temperature zones. The northern rooms, such as the living room and kitchen maintain temperatures between 21 and 28 degrees. The

southern side which includes the bedrooms maintain temperatures between 19 and 26 degrees.

Location: Forestville, Sydney, N.S.W.
Design: I.G. Cole.

Construction: Stone and Brick.

Passive Energy Features: Faces north; Bedrooms south side; Eaves on North Face; Roof suitable for Solar Collectors; High Thermal Mass; Minimum Area; Insulation.

Active Energy Features: Solar Water Heating.

This was intended to be a typical suburban house in terms of construction, maintenance and aesthetics, but at the same time utilizing energy saving features to keep the home cool in summer and warm in winter.

Heating in winter is achieved by means of coils laid under a metal floor surface for maximum heat conduction. Water heated by flat plate collectors is stored in a 1,200 litre water store under the house until needed for heating. A separate 300 litre solar hot water system, with electrical boosting provides for domestic hot water.

The architect estimates that 60% of heating and cooling needs will be met by the passive design features and the active solar systems help make up the difference. The passive design features

did not increase the cost of the building while the active heating system added 12 per cent to the building cost.

Location: Montemazula, Forest Range, S.A.

Design: R. Job and L.D. Byass.

Construction: Brick.

Passive Energy Features: Structure faces north; Roof suitable for Solar Collectors; High Thermal mass; Minimum Area; Insulation.

Active Energy Systems: Solar Water Heating; Windpower; Combustion Stove and Fireplace.

The aim here was to design a low cost, temperature-stabilised house, which uses low grade forms of energy such as solar and wind.

Apart from the more conventional passive design features the house makes use of some novel features. Large northern areas of glazed window with reflective boosting are used as well as limited glazing on the east and west. A solar greenhouse on the north side and skylight louvres help to moderate temperature in the house.

The house is built around a 55,000 litre water tank which acts as a heat store. This store can be boosted by a slow combustion stove, while the air heating system can be boosted by a high efficiency open fireplace.

During hot weather cooling is aided by hot air extracting fans and by evaporative cooling of air drawn across the concrete tank into the conservatory (greenhouse).

A 3 metre diameter vertical axis windmill powering a heat pump, linked to the heat store, is also planned.

Location: Moora Moora co-operative, Mt Toole-be-wong, Victoria.

Size: 15 squares.

Construction: Pise Rammed Earth, and Cedar boarding.

Passive energy features: Faces north; eaves; Roof faces north at about 40 degrees; minimum area; and insulation.

Active energy features: Solar water heating; wind generator; backup generator; 12 volt electrical system; rock pebble storage; and combustion stove.

This house was constructed by the



MONTEMALZULA HOUSE

Photo: Solar Home Book.

owners and is a single-level house built of natural materials. Recycled materials include the oregon structural members and the pine and oregon boards which line the interior. The floors are constructed from yellow box sleepers, cut in half and sanded and polished. The house has a greenhouse on the north wall which helps in the heating of the structure, as well as providing a good environment for the growth of plants.

Established Houses.

The amount that can be done to make established houses energy efficient varies greatly. While some houses seem to be designed to waste energy, others are quite efficient to begin with, having good insulation, concrete floors, brick walls etc.

There are a number of ways of making established structures more energy efficient.

1. Insulation. If the house is not already insulated, insulation can often be added to the roof, (where most heat loss and heat penetration takes place). A number of organic forms of insulation are available, such as Alpinite (a form of dried seaweed),

and a cellulose insulation made from newspaper, which cost roughly half the cost of fibreglass insulation. Insulation of the walls of houses can be achieved by the use of heavy cloth wall hangings. Windows are extremely poor when it comes to keeping heat in or out. Using heavy curtains at night helps solve this problem.

2. Deciduous Trees North Side. If you look at an old weather board house, you'll almost always find that the paint on the north side is in the worst condition. This is due to the hot summer sun, shining on the paintwork. Planting deciduous trees in front of the north side of the house will shade the house in summer and expose it in winter to warm the house when it is needed.

3. Solar Water Heating. This can be fitted to virtually any established house. In some cases a structure must be built to hold the water heating panels, and often the tank must be mounted lower than the collectors, resulting in the need for a pump to circulate the water.

4. Sealing the house. Draughts under doors, or around loose windows can result in unwanted gains or losses of heat. This is especially likely to be a problem in old houses, but often be solved by the use of plastic self-adhesive

Solar Houses

weather stripping. It costs about \$1.00 to do each door or window. The bottoms of doors can be sealed by the use of draught excluders which cost about \$4.00.

5. Fireplaces. Fireplaces which are not in use allow a large amount of air to enter or leave the home. These can be sealed by the use of a piece of cardboard. Fireplaces in use should have a damper fitted. This can be adjusted so once the fire is established less heat is allowed to go up the chimney and more goes into the room being heated.

Mick Harris.

SOLAR HOUSE

SOLAR SLAB HEATING
AND POT BELLY STOVE
BEASLEY 280L. HWS.

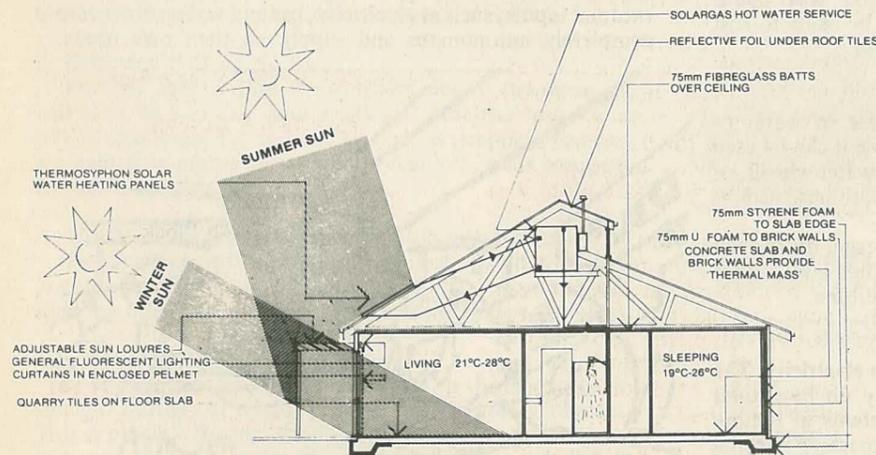
Insulated Mud Brick Slate Floors,
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3 Bedrooms.
Wide 76 ft Bush Block.

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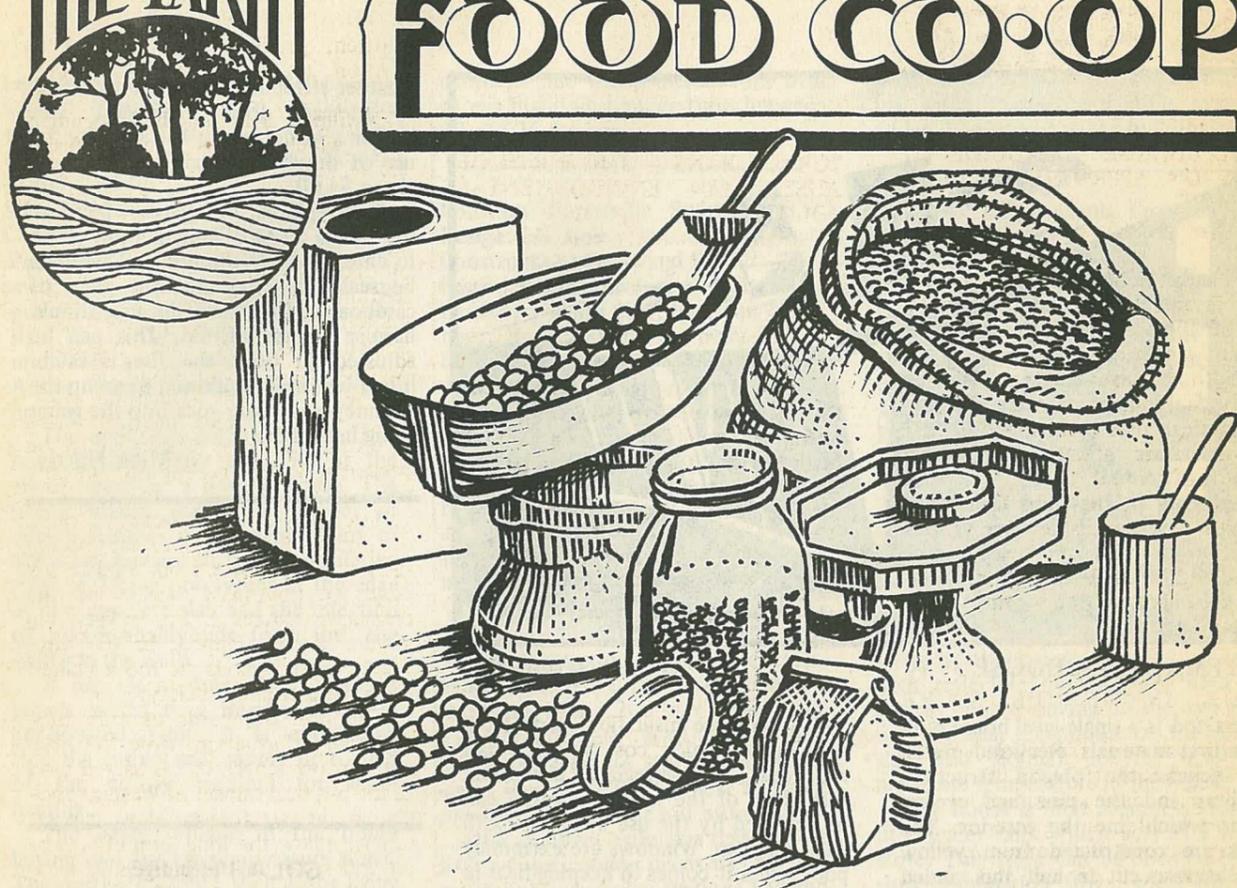
65 SCENIC CRESCENT, ELTHAM.
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DESIGNERS & BUILDERS OF
SOLAR & LOW ENERGY HOUSES.



CROSS-SECTION LOW ENERGY HOUSE
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FOOD CO-OP



The food co-op was founded by members in 1975 who wanted to provide people with the opportunity of pooling together their money and energy by buying cheap wholesome food in bulk (and thus also minimising its packaging).

These broad guidelines are still retained although membership has greatly increased - it is now in the 100's. It has largely ceased to be a co-operative in the true sense that all members actively contribute to its running. Many still have this feeling but through force of circumstance, eg. full time employment are unable to be active, whilst others do not share in this feeling and regard the co-op as they would any other shop. The spectrum is from highly active involvement to sheer abuse.

At any one time the Co-op is run by 2 co-ordinators and 11 people in the shop on a weekly roster. These 11 work voluntarily in 3 shifts on a day

to day basis. Co-ordinators ensure that the roster is filled, goods purchased, prices adjusted, and deal with general organisation.

Members are asked to bring their own containers, weigh out goods themselves, and calculate their own bill: trust is obviously an important factor and usually well-founded. This self-help method of operating involves the members to a great extent and also allows the food to be offered more cheaply. Because of limited storage space the price of certain items is sometimes not so competitive as it otherwise could be and is more related to fluctuating market prices.

We have no facilities for fresh fruit and vegetable storage or dairy products. The range of other food is extensive and we try to encourage nutritious, healthy eating. Thus we store, whole grains and flours, natural honey, rather than processed or refined foods. High turnover in the

shop ensures freshness. As well as supplying the normal range of nuts, beans, etc. we also stock such esoteric items as Miso and Tahini. These are essential to a non-meat diet; the former providing a range of B vitamins which non-meat eaters may be short on; the later is a high protein food originally from the Middle East.

Besides food, the co-op has books both recipe type and health food. There is a board so people can advertise trips, accommodation, etc.

We try to provide an opportunity for individual involvement and remain open to members ideas (especially if they are willing to put in the work to implement them), to foster communication and the atmosphere of an old time general store. The tensions of supermarket shopping and its accompanying mentality are absent whilst healthy, wholesome foods are encouraged - for our health and the health of the environment. **Deborah Bye**

BOOK · REVIEWS IN BRIEF....

"REEL CHANGE - A GUIDE TO FILMS ON APPROPRIATE TECHNOLOGY"

FOE San Francisco 1979 60 pgs. \$4.50.

A handy guide to American films available on alternative energy sources. Over 80 films are reviewed in a readable and sometimes humorous style. The authors have tried to describe exactly the content of each film and its practical uses pointing out that film titles are always a very bad indicator of content.

A number of the films favourably reviewed are available in various Australian libraries but clearly a lot more could be useful here. This would be a good present for a sympathetic librarian.

"THE FUTURE OF THE AUTOMOBILE IN AN OIL SHORT WORLD"

Lester Brown et al. Worldwatch Paper 32. 64 pages Sept. 1979. \$2.00.

An up to date assessment of the transport problem in a global context. Looking beyond the normal energy/urban transport debate this book discusses how long we can really expect the current system of private transport to survive and the conflict between global development needs and continued growth in the use of cars. Lastly it looks at ways existing technology might change to meet some of the problems and at several soft energy alternatives of cycling, public transport and renewable liquid fuels.

"GREEN BANS - THE BIRTH OF AUSTRALIAN ENVIRONMENTAL POLITICS"

by Richard Roddewig, Hale and Ironmonger 1978. 180 pgs. \$7.95.

The story of Jack Munday and the Green Bans told from a new perspective, that of an American lawyer visiting Australia during the early seventies. Looking back on events in a historical perspective raises some interesting new points about what was one of the early highpoints of the fight for the environment (if not the actual birth place as claimed in the book).

"POLITICS POLLUTION AND THE GREAT BARRIER REEF"

Australian Littoral Society 1979. 8 pages. 30c.

At last a succinct booklet on the threats to the Great Barrier Reef from oil drilling and spills. Elegantly written pieces by Judith Wright, Greg Miller, Des O'Connell and Brian Gilbert explain the risks involved and the effect of oil on tropical reefs. The current state of technology to deal with oil slicks is also detailed. A number of tables and diagrams clearly summarise the dangers to marine ecosystems and in total present a compelling case for declaration of the entire Reef region as a Marine Park as originally proposed in the 1975 Great Barrier Reef Marine Park Authority Act.

All books are available from FOE, Melbourne.

Friends of the Earth on air ~

Friends of the Earth is now on air in at least three cities:

SYDNEY - has a half-hour program of news and features fortnightly on Thursdays at 9.20 p.m. Tune to FM radio 2SER-FM (the NSW Institute of Technology and

Macquarie University's jointly-run radio station).

PERTH - FOE can be heard on the "Four Seasons" show, 10 p.m. every second Monday on Community Radio 6NR (after the Christmas holidays.)

MELBOURNE - FOE has a half-hour show on the "Habitat and Heritage" program, every Monday at 10.30 a.m. on Community Radio 3CR ("837 kHz on your dial").

FILM REVIEW

"SOLUTIONS TO YOUR PROBLEMS"

Written, produced and directed by Lynton Brown, 1978. 31 minutes.

This film is a fictionalised documentary which shows the confusion created by our consumer economy,

The film follows the investigations of a journalist from "Shrinking Earth" on an assignment to study the impact of consumerism on the natural environment. His search for information leads him to interview well-known ecologists and marketing executives, thus confronting us with arguments for and against the widespread felling of trees, and introducing issues ranging from clearfelling to the packaging and marketing of consumer products.

Interspersed between these discussions are flashes of the journalist's own lifestyle. On one level he is a dedicated journalist, aware of the destructive forces in our society. On another he is trapped: he too buys over-packaged goods, he too is caught up in the consumer society.

The film bombards us with fragments of information, from the Aboriginal's reverence for his sacred land to the physical impact of Western civilization on our forests. How, it asks, can we know the long-term effects of our life-style on the indigenous ecology when white occupation is such a recent phenomenon in the history of the giant forests? A human life is a mere speck in comparison with the life-span of a single tree. Yet it is apparent that we have already inflicted irreversible damage on these forests, all for the sake of an industry that has not made an overall profit since the 50's.

Most people's lives are based on the assumption that technology can provide the solution to all our problems. We cannot afford to accept that this is true. As more waste products are produced, more facilities for recycling or disposing of them are introduced - but the consumer pays at every level.

A confusing film but well worth seeing! Recommended for secondary students and discussion groups.

"Solutions to Your Problems" is available from the National Forests Action Council, 118 Errol St, North Melbourne Phone (03) 329 5519.

BOOK REVIEWS

"The Australia and New Zealand Solar Home Book" by S.V. Szokolay and R.W. Sale. \$7.95

"The Solar Home Book" with its bright yellow cover and prominent black title is an easy book to find in a bookshop, although difficult to steal. I suggest you do as I did: sell a few mining shares and buy it. It is written with you, the badly educated and technically ignorant, in mind. The text is clear and concise, while the use of jargon is minimized (or at least optimized).

The cover shows a solar home designed by the author. It is typical of the 'Solar Punk' style of architecture, as opposed to the 'Rustic Vegetarian' style found in Eltham here in Melbourne. It is a reminder that solar housing design is still a nascent art, in the throes of a difficult birth. But enough! Let us press on to page one without further digression.

The first word of any book must be the hardest to write, I have always suspected. Arthur Koestler began "The Ghost in the Machine" with the word 'in', and here the authors have chosen to do the same. This is no doubt merely a coincidence, and indeed the two books part ways from the next word onwards.

While Koestler discusses art and discovery, Szokolay and Sale delve into the history of Greco-Roman naval warfare. For anyone wondering what this topic has to do with solar energy, I can promise an interesting surprise. The historical section is then followed by a mercifully brief summary of energy use in Australia, followed in turn by a look at the principles of flat plate solar collectors. Anyone contemplating building a solar hot water service will find this, and the later chapter on solar water heating, an extremely practical and helpful source of information. Construction details are clearly set out for do-it-yourself buffs.

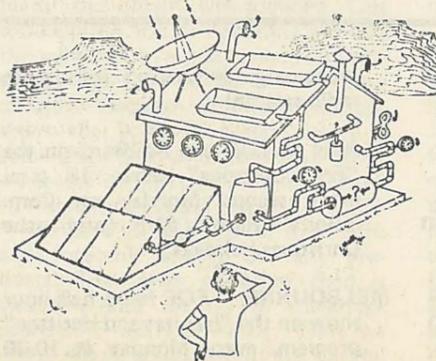
This brings me to discuss the style of authors. They fall squarely into the "linear analytic" school of English writing. Irony, metaphor, and parody are pruned back with the enthusiasm of a literary Kevin Heinze, to leave a sparse work of simple clarity. For example, there is little ambiguity in the words "Before installation, inspect

the underside of the roof for leaks" found on page 72. Nowhere in the book will one find the self indulgent retrospection of Powell and Proust, and indeed anyone expecting anything resembling an autobiography of either of the authors will be sadly disappointed by the self-effacing nature of the work.

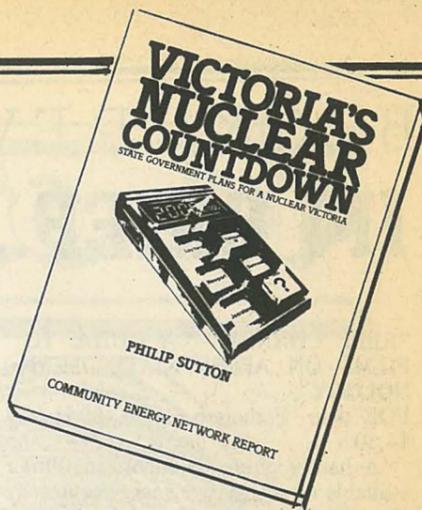
And so now to the core of the book, which deals with solar house design. The authors deal with human comfort and climate, then explain how the fabric of a building can be used to get in extra sun in winter, store the heat in the walls and floor, and prevent escape of heat by using insulation. In summer, vegetation, insulation and eave overhang reduce the heat getting into a dwelling, while brick walls and concrete floor soak up heat to keep the occupants cool. While this information is invaluable for anyone planning a new house, most of us do not have this opportunity. But we are not neglected! The authors also provide a generous section on saving energy in existing homes: by installing curtains and pelmets, weatherstripping, wearing thick socks and earmuffs, staying in bed all day, and so on.

I can thoroughly recommend this book, which has, I shall also mention, a section on 'active' solar heating and cooling systems, an illustrated list of solar houses in Australia, and a Directory of Solar Equipment and Services. It will become a standard reference on solar housing, in the same way that Runyon Sprout's 'Counter-Culture or Counter-Lunch?' has become the bible of those interested in food politics.

Simon Thornton



Must a Solar House be so Complicated?



VICTORIA'S NUCLEAR COUNTDOWN

Despite the promises that Victoria will not be "going nuclear", given to us by the liberal government before the election in May last year, it seems our friends at the S.E.C. have other ideas.

These plans are investigated in the latest Community Energy Network report entitled "Victoria's Nuclear Countdown". The report's author, Mr Phillip Sutton, claims that the key decisions on building reactors in Victoria can be made in two years.

Beginning with the State Electricity Commission Act, Mr Sutton points out that the SEC is required by its act to promote the establishment of new industries requiring large amounts of cheap electricity — committing our finite supply of coal to high energy consuming industry is bad enough (energy intensive industry is not usually labor intensive), but consider too the strong possibility that Victoria will participate in a conversion project with Japan to make synthetic oil and gas from coal.

Greater energy consumption and commercially-scaled conversion programs will mean intense competition for the limited supply of the most economically winnable coal. This cheapest coal will have to be used to keep down the cost of producing very expensive synthetic oil.

These deposits of coal are the easiest to mine, they are traditionally used first, and they are the deposits being used now.

The report quotes from the Victorian Governments "Green Paper on Energy", released in 1977.

"Should the depletion of oil and gas reserves cause an introduction of brown coal liquefaction or gasification processes, competition for the State's more easily won reserves of brown

coal could strengthen considerably. Should this occur the generation of electricity by environmentally acceptable nuclear technology is likely to be competitive and may be essential in order to maintain ready supplies of fuels at acceptable price levels."

The report suggests another development which could tip the balance in favour of a nuclear reactor in the Portland area.

★ Portland is being put forward as an area of industrial expansion with Alcoa locating a major aluminium smelter there. At the moment the Government intends to spend \$140 million building high tension lines to carry power from Latrobe Valley to Portland.

★ being on the coast and a shipping port are obvious advantages for the site of a nuclear power station.

★ the SEC is very keen to balance its power load by having a power station in the west of the State.

★ the federal government has long encouraged the idea of a tri-state link up of electricity grids between South Australia, Victoria and Tasmania.

★ the area around Portland has no great resources of coal, gas or oil.

The picture one has after reading this report is that by the end of this century Victoria's first nuclear power plant will be in operation. This will be the direct outcome of the energy policy being pursued by this State's encumbent liberal government . . . aided and abetted by the SEC.

FROZEN FIRE

Liquefied Natural Gas (LNG) is a terrifying substance. Transported in supertankers at minus 165° centigrade, it explodes on contact with water, cannot be put out once alight and if it escapes rapidly spreads as a cold deadly cloud hugging the ground. An exploding supertanker of LNG would have the explosive power of 55 Hiroshima size bombs.



A petrol tanker goes up in flames in an inner suburb of Melbourne. How much worse would an accident like this be if the fuel had been liquid petroleum gas under high pressure?

When the Chief of an American Fire Department was asked what would happen if he had to contain an LNG fire he replied "I would expect to die, I would expect my men to die, I would expect most of the people in the community to die".

Can the human mind even conceive what it would be like in a catastrophic LNG fire? When a truck of propylene (a similar liquefied gas) skidded off into a crowded holiday camp in Spain in 1978, 43 cubic metres of liquid gas vaporized and swelled into a fireball with heat so intense that people who were not killed outright came running out of the fire with arms and legs looking like sausages burst in a frying pan.

Over 200 people were killed and virtually all of the 500 people at the camp suffered burns or other injuries. It is to these victims both living and dead that Friends of the Earth's latest book "Frozen Fire" is dedicated.

Natural gas is used in many places in the safe form of a gas piped into homes and factories or as compressed natural gas in cars in N.S.W. Liquefying natural gas brings out several of its most dangerous properties and creates perhaps the most dense form of energy apart from nuclear power.

"Frozen Fire" was written for Friends of the Earth by Danish born Lee Davis. It categorises the state of the LNG industry around the world including the shocking accident record and the indifferent attitude of the Governments and the large multi-

national companies that control the industry.

Australia is about to join the Liquefied Natural Gas network through the \$4 billion North West Shelf export gas project. About 75% of the gas in the off-shore deposits will be exported in massive super-tankers mainly to Japan. The major dangers lie in the liquidation plants, the shipping terminals and in transporting the LNG. After a succession of oil refinery fires around Australia it is hard to believe that technology will infallibly control such a dangerous substance.

Meanwhile in Victoria the Gas and Fuel Corporation is building Australia's first LNG storage facility at Dandenong to channel additional gas into its system at times of peak usage. Whilst the dangers inherent in moving LNG are less in this type of plant the vast quantity of gas involved makes it a fragile time bomb which is being constructed on the outskirts of a growing city.

"Frozen Fire" is extremely readable and yet it is authoritative and goes into the LNG problem in great detail. Hopefully it will be an opening shot in a campaign to raise public awareness of the dangers of this technology. More importantly it should underline the fact that there are few easy solutions to the energy crisis.

RESOURCES

These publications are available from FRIENDS OF THE EARTH, 366 Smith Street, Collingwood. Most of them are available at other state offices of Friends of the Earth.

Wholesale rates to friendly groups, people running street stalls etc. are as cheap as possible: usually 30-40% off the listed price. Phone us for details.

Recent Publications

- An Ordinary Person's Guide to
THE NUCLEAR FUEL CYCLE
 Paul Marshall FOE, MAUM Syd. 1980. 60c
VICT. NUCLEAR COUNTDOWN
 Philip Sutton, Community Energy Network 1980. State Govt. Plans for a Nuclear Victoria. \$1.50
THREE MILE ISLAND - The Real Story
 FOE Research Paper No. 2 \$1.00
NUCLEAR POWER
 (Walt Patterson, FOE UK 1976) Lucid explanations of how it works and how it fails. \$2.50
THE MENACE OF ATOMIC ENERGY
 Ralph Nader & John Abbots. USA 1977 \$2.75
RED LIGHT FOR YELLOWCAKE
 Barrett, Falk & Hayes, FOE Aust. 1976. \$1.00
URANIUM, THE LAW AND YOU
 (FOE Australia 1978) Nuclear society necessitates a drastic loss of civil liberties! \$2.50

Uranium and Nuclear Power

- URANIUM ENRICHMENT - A threat to us all.** C.A.N.E. South Australia. Free
URANIUM MINING: IMPACT ON THE AUSTRALIAN ECONOMY
THE NUCLEAR POWER EXPERIENCE IN JAPAN
NUCLEAR PROLIFERATION & AUSTRALIAN URANIUM
 Three pamphlets produced by FOE Australia (1977) ea. 20c
GROUND FOR CONCERN
 (Mary Elliot, FOE Australia 1978) The social, political and environmental implications of the nuclear fuel cycle - and some alternatives. Penguin bestseller. \$3.95

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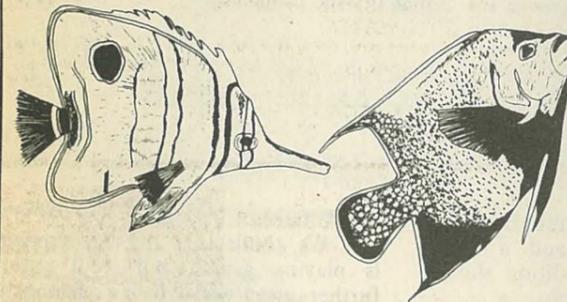
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FOE Melbourne has recently become the distributor in Australia of the noted British magazine "Undercurrents" which deals with alternative lifestyles the politics of energy and radical technology. The previous distributor went bankrupt (!).

This is a unique chance to get copies for only 75c each or a reasonably complete collection from the last three years for \$5 (Librarians take note!).

New subscriptions are \$7:50 seairmail, \$15:00 airmail either through FOE Melbourne or direct to Undercurrents, 12 South Uley Dursley Glos. GL11 5SS England.

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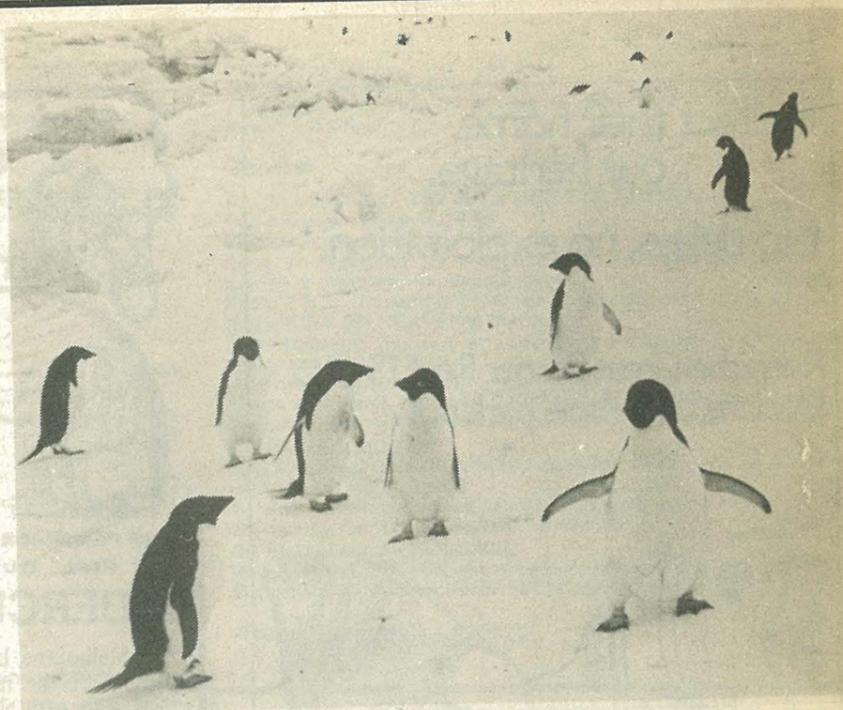
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ANTARCTIC NEWS

The Antarctic and Southern Ocean Coalition (ASOC) has recently been established in the U.S.A. to coordinate joint international action to protect Antarctica. Friends of the Earth and the Australian Conservation Foundation are two of the founding members of a unique international conservation effort, and groups from all over the world are joining, in time for action to be taken before the meeting in May of the Antarctic Treaty Nations.

Half a dozen offices of Friends of the Earth around the world have also recently formed an "Antarctic Working Group" which will hopefully provide an up to date information service on Antarctic developments.

Conservation groups within Australia are cooperating en masse to present the Government with their views on the future of the Antarctic Continent, and the next Parliamentary session will see the first step in a long campaign take place.



FOE's book on Antarctic has now completely sold out, and a much revised and improved edition should be available very soon.

The new Minister for Science and Environment Mr Thomson, has promised an environmental protection act

for Antarctica.

We think that the Government is playing games, but we'll report further after we've had a chance to review the document.

For more information contact Michael Kennedy, FOE Sydney.

WHALES & WHALING

The first nation to try and buck the IWC's 1979 decisions on whale quotas was Russia (as reported by Greenpeace in CR Vol 5 No 2). Russia had asked for a postal vote to increase the sperm quotas in. Fortunately, the vote was fairly predictable; 3 in favour, 3 absences, 16 against and no vote at all from Brazil. It left one to wonder what the Japanese might try next.

Since then two more potentially serious incidents have occurred. Firstly, on the eve of the last day of the 90 day objection period, Spain lodged an objection to her quota of 143 fin whales. Spain had only joined the IWC in time for the 1979 meeting, and was only really given the quota as a pat on the head for joining. No one is quite sure what game Spain is actually play-

ing, but in any event must be totally condemned for her action. All the major Australian environmental groups concerned with whaling have lodged their own objections with the Spanish Government while the Australian Government has done the same. It should also be remembered that whalers such as the notorious "Sierra" operating from taking blue whales and humpback whales, both protected by the IWC as endangered species.

Secondly, Peru (again a brand new member of the IWC) who was given a quota for sperm and brydes whales in 1980, on condition that she would cease whaling for the remainder of 1979 (July-December) has broken complete faith with the IWC and resumed whaling. It has been assumed that she is killing whales from the

quota given to her by the South Pacific Commission before she joined the IWC. Peru obviously can't be trusted, and her reasons for joining the IWC seem rather dubious to say the least. Japan has her finger in the pie somewhere along the line. The Australian Government has not yet acted (18/1/80) as it says that the facts of the situation are unclear. We're giving them all the help we can???

Michael Kennedy,
Sydney

(ALL info via Marine Action Centre Newsletter).

TIT BITS; The infamous pirate ship Sierra was recently sunk after a mysterious explosion. The Australian Government has given \$5,000.00 to the upcoming whale ethics and cruelty meeting in the USA.

Friends of the Earth are all around you...



Victoria

VICTORIAN RESOURCE CENTRE: 366 Smith Street, Collingwood 3066. Phone (03) 419-8700.

New South Wales

SYDNEY: 232 Castlereagh St., Sydney 2000. Phone (02) 235-8037.

Australian Capital Territory

CANBERRA: FOE, PO Box 1875, Canberra City ACT 2601. Phone (062) 47-3064.

Northern Territory

DARWIN: PO Box 2120, Darwin 5794. Phone (089) 81-3804.

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BRISBANE: FOE, West End Resource Centre, 75b Vulture St., West End (mail to PO Box 667, South Brisbane 4101). Phone (07) 44-1766.

South Australia

ADELAIDE: 310 Angas St., Adelaide 5000. Phone (08) 223-6917.

Tasmania

HOBART: FOE, C/o The Environment Centre, 102 Bathurst St., Hobart 7000. Phone (002) 34-5543.

Western Australia

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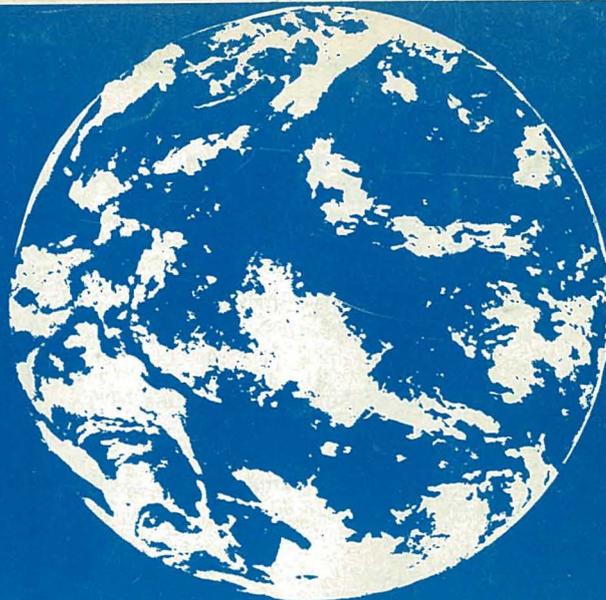
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41 000 Zagreb, Adzijina 6.

National Centre for Alternative Technology.

Llwyngwern Quarry,
Machynlleth, Powys, Wales, Machynlleth 2400.

The Earth

And why it needs you for a friend.



A huge number of Australians care about the environment but not many do anything about it. Opinion polls show a big majority oppose the construction of nuclear power stations, the killing of whales, the construction of freeways and the unabated pollution of the environment.

Yet the 40 or more Friends of the Earth groups around Australia are continually struggling to find people interested in working to solve these problems.

What is Friends of the Earth doing?

FOE has been working since 1973 in Australia opposing uranium mining, the killing of whales and many other environmental issues. We are currently building campaigns to preserve Antarctica, eliminate lead from petrol, develop awareness on Food problems, oil from coal and shale, hazardous chemicals, the aluminium "boom" and many others. To effectively respond to these issues we need your help.

You can help in three ways

With money — by becoming a member or making a donation you help to keep FOE active fighting campaigns, lobbying, researching and producing new publications to communicate the problem to the public. Tax deductible donations can be made to the Australian Conservation Foundation, 672B Glenferrie Road, Hawthorn, indicating a preference that the money be used to support the work of Friends of the Earth.

With involvement — by joining one of the state or local groups you help by promoting its activities and spreading the message. If there isn't a group in your area we can help you start one by finding other interested people.

With ideas — FOE gets into new areas when people turn up with new ideas, new ideas attract new people and this has been the essence of FOE's phenomenal growth over the years. If you are already working on a problem we can help with resources or vocal support for your group.

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Return to the State group listed on the inside cover.