HEY!

PRESENTING: • OIL'S WELL
THAT ENDS... AUSTRALIA RUNS
DRY • ALTERNATIVE TRANSPORT
AND • RESTRUCTURING OUR
CITIES PLUS • WADO: URANIUM
ENRICHMENT IN PAPUA NEW GUINEA?

PLUS +
The Fox Commission has attempted to seek out the grey areas of compromise in the uranium debate, between black and white, environmentalist and miner. It gives a bit to both sides while studiously avoiding a clear recommendation one way or the other. But when an issue is ultimately one of life or death — the destruction or not of Black society and culture, and, when we consider nuclear proliferation, even the continued survival or not of the human race — we believe there should be no compromise.

As this issue rolls off the press, the Federal Government will be announcing the go-ahead to uranium mining in the NT. Even after the decision it would take two years to complete the construction phase at the Ranger mine between black and white, environmentalist and miner.

Black society and culture, and, when we consider Japan, Western Europe and the USA — no shareholder is going to complete the construction phase at the Ranger mine...

The new US policy and Australian uranium exports still encourage the expansion of the conventional nuclear industry based on thermal reactors, from which, it is claimed, enriched uranium will be used to fuel a nuclear plant in Central Australia. Many months on a plan for restructuring cities to reduce our consumption of oil, and restructure society to meet the realities of the future. This in Chain Reaction we look at the kinds of changes that are necessary in the area of transportation and the way we build our cities. Of prime concern is the number one resource waster and air polluter, the motor car.

What can be done to throw off the tyranny of the car? Established planners claim it is human nature that keeps us attached to the car, that we must retain the car-orientation of our cities and find other fuels for more new cars. This is deeply flawed and environmentally inappropriate. The way we build our cities is clearly not so and at last a group has done something to prove it. The Conservation of Urban Energy committee in Melbourne has been working for many months on a plan for restructuring cities to reduce dependence on the car and to rediscover our lost sense of community, and in the article starting on p. 18 we bring you a taste of what has been done so far.

Production Line Blues
The Australian car industry now and tomorrow. Possibilities for more socially and environmentally appropriate production.

Lucas Feedback
Vehicle Builders’ Union reaction to article “Make Cars, Join the Dole Queue or Work” (on initiative of Lucas Aerospace workers in the U.K.), published in last CR.

Book Review
“Alternative Technology”, David Dickson.

Energy Guide
How energy is used in Australia, emphasising use in transportation sector.

Beyond the Urban Fringe
A contrast between the transport needs of two new settlements near Melbourne: Endeavour Hills, later to be connected to the CFE group for allowing us to use their material in preparing the article starting on p. 18. We believe the ideas suggested there are worth exploring in our own context, and in the article we develop the theoretical ideas.

Transport, Time and Mobility
What is the net speed of car travel in Australia when we consider all the time spent in paying for and running it? Wabo Superdum — PNG Villages Lose Out Multinational Corporations plan inappropriate technology in Papua New Guinea for refining bauxite and enriching uranium.

FOE Resources
FOE Resources is the quarterly magazine of Friends of the Earth Australia, publishing feature articles and news on national and international environmental issues, and searching for the way towards a sustainable, convivial society which lives in harmony with its environment.

Original contributions to Chain Reaction — articles, news snippets, leaks, phone calls, drawings, cartoons, poems or short stories with some sort of environmental association are very welcome, but we can only guarantee to return them if they are accompanied by a stamped addressed envelope.
Melb., paign in Australia entered an ugly new phase. Mounted police led a ship loaded uranium. The scene was by Victorian police while being face as he was lying on the ground after his arrest. A Monash ty charged - almost St. Petersburg bravely sat there as the police arrested the rest for trespassing. All were released violence have been presented Dickie. Mr Dickie, of course, before receiving this evidence. police reports alone, he were specially trained so that they could meet the police without any force. At 8.30 pm on Swanson Dock in Columbus, the anti-uranium campaign in Australia entered the comparative calm of the high seas, her owners, the Columbus Line, announced that it would not be carrying any uranium from New Zealand while the WWF ban remains.

**Glebe Island**

Anti-uranium demonstrators were also active on the docks in Sydney. Between 20-23 June they tried to prevent the Columbus Australia and to refuse to handle any more cargo of uranium from being loaded onto the ship. The ship's captain ordered the ship's owners, Columbus Line, to stop the loading of the ship later the night before. The police arrested three for assaulting and/or resisting arrest, the rest for trespassing. A delegation to the ship's owners, Columbus Line, was halted. One crane operator refused to work. Three were arrested and were immediately spotted by police and taken away. The ship was docked and was later stopped by police. The police arrested three for assault and/or resisting arrest the rest for trespassing. All were released.

**Kathleen Mine in Queensland,** was an anti-radiation protest at the mine in a very heavy-handed manner. If they made no attempt to move people from the side of the ship, the police arrested again. Eventually the police were able to arrest the ship's captain, who chose the second option that night, and with charges of brutality ringing in their ears obviously backed a loser.

The ship sailed, early the following Wednesday, without picking up any of its intended cargo. The police charge on Saturday night decided not to work on the Columbus. On Monday morning a meeting of Melbourne wharfies decided on a 24-hour strike throughout the port of Melbourne in protest against the police action against demonstrators. After a 6½ hour stopwork meeting in Festival Hall on Tuesday, the Melbourne branch of the Waterside Workers' Federation voted to black-bag the Columbus Australia and to refuse to handle any more uranium.

The Federal WWF policy is to honour existing contracts, but the Melbourne branch is taking a tougher line.

Ted Bull, Melbourne Branch secretary, explained: "Until the whole question on the mining, handling, and treatment of uranium is settled to the satisfaction of the Australian people, we will not load, unload, handle or store any ships loading uranium or carrying uranium, or materials for the mining of uranium in this country." As the Columbus Australia entered the comparative calm of the high seas, her owners, the Columbus Line, announced that it would not be carrying any more uranium out of New Zealand while the WWF ban remains.
A planning report for the Shires of Hoskinton, Lillydale, Shortbroke and Upper Yarra recently described the mountain as a "dominant peak in the eastern ridge line. Seen from many places in the area, it forms a strong visual termination at the head of the Little Yarra Valley."
The National Trust recently classified the mountain along with Ben Cairn, Mt Victoria and Donna Blung for its scenic value.

Government loan
The State Government has also recognised the environmental and planning values of the Moora Moora mountain by guaranteeing a loan of $175,000 to purchase the land.

Japan's Uranium Needs: A Myth

The myth is repeated ad nauseam in the media that Japan has to have its own uranium program because the country is running out of resources and needs to diversify, and that the country is being forced to accept nuclear power for this reason.

Lay-offs at Lucas

"I doubt whether it will ever be possible to demonstrate the safety of the mining and treatment and use of uranium," stated Peter Duncan, the South Australian Attorney-General, in the S.A. Parliament.

From Dave Elliott in the UK

The latest on the initiative of Lucas Aerospace workers in the UK to challenge the government and private companies from defacing the countryside by installing unsightly alternative technologies.

Long predicted by the Lucas Aerospace Combine Stewards Committee, the threat of mass redundancies has now materialised in the shape of a motion that 1100 jobs would have to be lost by August. The Lucas workers plan to fight these redundancies and have made it clear that industrial action — including strikes — will be the response to any sackings. An overtime ban and selected blocking of movements of charts and operation.

The co-operation of the Combine Committee and the support of the Alternative Corporate plan drawn up last year have not been great. At a special meeting, held on March 1 in the House of Commons, and attended by the entire 30-strong Combine Stewards Committee, the stewards made the demand for official Mps that they wanted immediate talks to ensure the survival of the BP component had been reached with local management just before the recent redundancies, and the Departments of Industry and the Environment on the future of the industry. They also called for a government enquiry into the way Lucas Aerospace had been operating.

Public awareness and support for the anti-whaling movement is now at an all-time high. The Anti-Vivisection Society, Beauty without Cruelty, and the Anti-Vivisection Society have managed to create a media storm for the anti-whaling movement.

The motion to ban uranium mining, stated Peter Duncan, has been passed unanimously by the House of Assembly in May.

Mr Duncan, and passed unanimously in the House of Assembly in May. It "effectively bans any mining or treatment of uranium," stated Peter Duncan.

The S.A. Government has also referred to the S.A. Parliament a number of reports concerning the safety of the mining and treatment of uranium.

S.A. says no to U-mining

"I doubt whether it will ever be possible to demonstrate the safety of the mining and treatment and use of uranium," stated Peter Duncan, the South Australian Attorney-General. In the S.A. Parliament, he was speaking on the S.A. Government's recent decision to ban the mining and treatment of uranium in that State.

The House of assembly has banned uranium mining was moved by the S.A. Premier, Mr Duncan, and passed unanimously in the House of Assembly in May. It "effectively bans any mining or treatment of uranium," stated Peter Duncan.
On 7 April President Carter announced that the US would: 1. indefinitely defer the commercial introduction of plutonium, 2. defer the introduction of the breeder reactor, 3. embargo the export of nuclear technologies that would permit uranium enrichment or fuel reprocessing, 4. discuss internationally proposals for similar action by other nuclear energy countries, 5. ensure ready availability of uranium, and of used nuclear fuel storage sites on an international scale.

On 12 April, President Carter announced that the US would: 1. indefinitely defer the commercial introduction of plutonium, 2. defer the introduction of the breeder reactor, 3. embargo the export of nuclear technologies that would permit uranium enrichment or fuel reprocessing, 4. discuss internationally proposals for similar action by other nuclear energy countries, 5. ensure ready availability of uranium, and of used nuclear fuel storage sites on an international scale.

On 2 May, President Carter announced that the US would: 1. indefinitely defer the commercial introduction of plutonium, 2. defer the introduction of the breeder reactor, 3. embargo the export of nuclear technologies that would permit uranium enrichment or fuel reprocessing, 4. discuss internationally proposals for similar action by other nuclear energy countries, 5. ensure ready availability of uranium, and of used nuclear fuel storage sites on an international scale.
ABORIGINALS

The traditional owners of the Ranger site and the Northern Land Council are opposed to the mining of uranium. They have a justifiable complaint that plans for mining have been allowed to develop as far as they have without the Aboriginal people having an opportunity to be heard (p. 9).

Silas Roberts, Chairman of Northern Land Council: "We are worried that the Rights of this Inquiry will open the doors to mining companies and allow big mining on our sacred land . . . We do not want them to start digging. We will have towns all over the place and we'll be pushed into the background.

The people who belong to a particular area aren't part of that area and if that area is destroyed then they're destroyed also" (p. 47).

The Aboriginal communities are in a state of acute social stress, largely the result of a confrontation with European society, and they do not want their lands to be destroyed by mining companies (Kakadu), with Aboriginal participation in its management.

Proposes programmes of education, health care, and reduce alcohol dependence and improve white understanding of Aboriginal culture.

But all this cannot happen without mining.

Environmental

The Commissioners rejected the proposals put forward by the companies wishing to develop the Ranger deposit, and suggested alternative environmental controls to be adopted if mining should proceed (p. 335). They rejected the suggestion that a tailings dam at Ranger be a permanent storage for tailings and recommended that all tailings be returned to the mining pits.

They recognised that if mining goes ahead then stringent controls, environmental damage is inevitable. "Some seepage (of containment water) from the (temporary) tailings dam would be inevitable" (p. 90) and the "data are subject to considerable uncertainty" (p. 269).

They recommended against the present development of Noranda's mine at Kooragang, which is inside the proposed national park, because it would threaten the unique wildlife in the Woolooma wildlife sanctuary.

The report makes it clear that the most important markets for uranium are in the highly industrialised countries, particularly Japan, the US, and the countries of Western Europe, not the developing countries.

The Commissioners propose separate uranium mines (if any) starting with Ranger. They say [that] "they should not proceed simultaneously with Ranger".

The report states that a mining town of up to 1500 people would be employed at any one time (p. 364).

The whole inquiry into uranium mining has been an attempt to make it look as though the Government and mining companies are concerned about the feelings of Aboriginal people. But they're not. As the Fox Report states right at the finish, we are not going to take any notice of Aboriginal people, or words to that effect.

CR: Fox suggests that mines should be developed one at a time, not all together as the mining companies would like, in order to minimise the effects on the Aborigines and also keep the mining centre to a reasonably small size.

A delay of two years would reduce economic benefits by 17%; a delay of five years by approximately 38% (p. 179).

Presented in non-technical language, it looks at:

URANIUM MINING — a history of pollution and Aboriginal opposition and the prospect of war.

THE FOX REPORT — what it really said.

NUCLEAR Reactors — a quoted safety record and the potential for horrendous disaster.

Nuclear proliferation, waste leakage, nuclear terrorism — and many other key issues.

RED LIGHT FOR YELLOW CAKE: AVAILABLE FROM LEADING BOOKSHOPS AND NEWSAGENTS AND FROM FRIENDS OF THE ENVIRONMENT OFFICES.

Bruce McGuiness and Gary Foley: The Aboriginal Co-operative in Melbourne give their reaction to the second Fox Report on uranium mining.

Chain Reaction: The second Fox Report admits that uranium mining won't be beneficial to the Aborigines in the NT, yet right in the introduction it says that the Aboriginal opposition shouldn't prevail. What's your reaction to that?

Bruce McGuiness: The so-called government of this country claim that they will consult not only with the Aboriginal people in regards to mining, but with Australians generally. But taking it from the Aboriginal viewpoint, we are the most talked to and probably least listened to nation of people in the world. They put up the pretence of consulted us, they did it all the time. They have no intention in the first instance to listen to what Aboriginal people are saying. It's obvious to me that the whole inquiry into uranium mining has been an attempt to make it look as though the Government and mining companies are concerned about the feelings of Aboriginal people. But they're not. As the Fox Report states right at the finish, we are not going to take any notice of Aboriginal people, or words to that effect.

CR: But what do you think the effect on Aboriginal people of uranium mining will be?

BM: It can create black bourgeois, elite communities within the Northern Territory. Aboriginal people who are on land that has uranium in it will benefit more from uranium mining in terms of monetary gain than Aboriginal people alongside of them. The Northern Land Council will receive some of the royalties, but the bulk of the royalties will go to the communities from which the land is taken. Now that comes under the Land Rights legislation.

And now with the black bourgeois, you're going to have people who do not fully understand a cash economy, with the oil industry spending money to spend. The luxurious and materialistic things of capitalist society are going to be a part of Aboriginal life. It will be a part of them, and that will destroy those people in much the same way as it's done in urban centres right throughout Australia. We have Aboriginal people who have been brainwashed, indoctrinated into looking after the materialistic things in life and not the cultural values, their own cultural beliefs and their own way of relating to each other as people, as human beings, not only to themselves but to other people outside of them.

CR: It looks pretty clear that Fraser will give the go-ahead to mining. Do you see any hope in stopping it?

Gary Foley: Not unless the people of Australia — all people of Australia — are prepared to take some form of direct action against the Fraser government. But what you are talking about now is really insignificant in small groups of people throughout Australia trying to sabotage the mining of uranium. We have mining companies and their Australian lackeys have the resources and the facilities to crush any opposition to uranium mining. Like this.

The only way I see that we will be able to stop is when the Australian people have reached a stage of consciousness where they understand the full implications of not only uranium mining, but of all of the things and all of the things that we are putting up against in this country and seek them with that knowledge to bring about an independent socialist Australia. This is the only way that uranium mining movement at the moment is mistaken if they think they can do it without any major political, social and economic changes to Australian society.
When Jimmy Carter said that the oil crisis is a threat to the United States' "second only to nuclear war," he was not exaggerating. Most of the news and journal commentaries in Australia did not appreciate the full meaning of that blunt statement at the time, and few recognized that they thought it meant the Carter administration was exclusively concerned with Americans switching over from over-reliance on one source of energy, oil, to others they have more of, coal, natural gas, uranium and solar energy. The long-term security implications of Carter's policy were conveniently ignored. The crucial issue is: What happens to Australia if Carter's policies partly or wholly fail? If our oil supply falls to cut back on the oil imported and ends up cutting the rest of the world on the international market. In the mid-1970s, Australia would probably retaliate by nationalising every US industry within their jurisdiction prior to the inevitable collapse of the western-economic and political system. In this economic way over oil, third-world nations would be the first to suffer.

Western Europe will also be thirsting for oil in the 1980s, with the exception of Britain and Norway who will do not doubt be keeping their North Sea crude to themselves. The OECD has calculated that 57% of Western Europe's energy was derived from oil in 1974 and that this will have to be cut back to 40% of the total by 1985. But as overall energy consumption is growing, European demand for oil is likely to be as high or higher in 1985 than it is today. No European countries, except Sweden, have yet shown a true commitment to energy-conservation measures. Japan's oil needs are also likely to increase.

As Carter's energy supremo, James Schlesinger, spelled out to the Time conference: "Oil production should peak out around the world in the early 1990s... That means that in five years, things may have chewed up most of the possibility of further expansion of oil production". The strange thing about the present conservative Australian Government is that now the Carter administration has placed its conservative seal of approval on the need for a massive changeover in fuel-use patterns, it has failed to accept this policy for itself and failed to understand what will happen to the Australian economy if Carter fails to curb America's mal-usage of the world's oil. At present there is no Australian commitment to reducing the level of oil imports: on the contrary, official projections suggest that with the run-down of Bass Strait reserves Australia will be importing two to three times more oil in the mid 1980s than today. With this level of demand and the US competing for world oil, it is difficult to see how the Australian economy could avoid a collapse.

A consequence of the present American policy, one which would be totally unacceptable to all those who oppose internment mining and nuclear power, could be that Australian uranium was exported on a barter basis for oil. Aside from the moral questions involved and the shakiness of the international nuclear industry, this measure would do nothing to solve the fundamental economic contradictions implicit in existing patterns of resource depletion. Carter's reduction has proposed: a "standby tax on petrol"—price per gallon would rise 5 cents for each year after 1979 in which consumption exceeded Federal targets (see diagram below) by 1%, up to a maximum of $4.92 per barrel. A big car tax—placed on new cars that do not meet Federal mileage standards, and rebated to consumers who purchase more energy-efficient cars (see The Gas-Guzzler Tax table below).

- an increase in the price of domestic crude oil. So that parity with world oil prices was reached by 1980, providing more incentive to increase domestic production.
- So far US energy experts, while applauding what Carter is trying to do, are unanimous in saying his policy won't work. Indeed, how can any nation come to terms with a problem "second only to the threat of nuclear war" with hand-aid solutions like petrol and big-car taxes and the rest of his energy package? Some of the package stands a good chance of success, such as the incentives for installing insulation and solar energy in homes, but the crucial part of it affects millions of Americans who are physically and psychologically addicted to their motor cars is doomed to failure, since increased petrol taxes and taxes to improve fuel economy of cars are most unlikely to reduce oil consumption sufficiently. It even looks probable that Congress will prevent the petrol tax from being imposed.

It is interesting to compare Carter's policy to the energy-conservation work done by the Ford Environmental Protection Project (EPP) of the Ford Foundation in 1974. Firstly the conservation of Carter's policy is the best in the US. These additional measures include: slowing the growth in air travel, transfer of freight from trucks to rail, the growth in air travel, transfer of freight from trucks to rail, and the growth in air travel, transfer of freight from trucks to rail, and of course, reductions in highway congestion. In this system, funds raised could finance the conversion of car factories producing small-, medium-, and large-car tax would work much better than taxation measures, but he has not demanded himself to the other EPP aims which would have the important long-term effect of solving the whole structure of transportation in the US. These additional measures include: reducing urban traffic, public transportation and bikeways and walkways, and expanding new communities where the need for mobility is the least.

A tax on oil and other forms of energy is only likely to reduce consumption significantly if the revenue collected is used to finance a gradual change in the US industrial system towards energy conservation, the use of renewable energy sources, and towards a 'lower-energy society.' Generally, for example, revenue from a petrol tax could be used to introduce public transportation systems, with special emphasis on encouraging what is clearly an effective and necessary solution. If such initiatives are taken soon, a US President may well have an opportunity to introduce them within the next decade in the face of crippling oil shortages. It is an extremely critical period, dependent on the Australian Government. Once a comprehensive, well-working crisis here, fuel rationing could become a reality in Australia too.

The consequences of the US failing to curb its oil imports were made quite clear recently by Walter Levy, the pre-eminent international oil adviser. Speaking at a Time Energy Conference in the US in April, Levy warned that as oil shortages became more severe, the US could be placed in the politically perilous position of bidding against its own allies for oil. "We may be successful in the short run..." he said, "but we would not survive." This is an indirect way of saying that America would be in a state of "economic war" with its previous allies, including Australia, who would probably retaliate by nationalising every US industry within their jurisdiction prior to the inevitable collapse of the western-economic and political system. In this economic way over oil, third-world nations would be the first to suffer.

Western Europe will also be thirsting for oil in the 1980s, with the exception of Britain and Norway who will do not doubt be keeping their North Sea crude to themselves. The OECD has calculated that 57% of Western Europe's energy was derived from oil in 1974 and that this will have to be cut back to 40% of the total by 1985. But as overall energy consumption is growing, European demand for oil is likely to be as high or higher in 1985 than it is today. No European countries, except Sweden, have yet shown a true commitment to energy-conservation measures. Japan's oil needs are also likely to increase.

As Carter's energy supremo, James Schlesinger, spelled out to the Time conference: "Oil production should peak out around the world in the early 1990s... That means that in five years, things may have chewed up most of the possibility of further expansion of oil production". The strange thing about the present conservative Australian Government is that now the Carter administration has placed its conservative seal of approval on the need for a massive changeover in fuel-use patterns, it has failed to accept this policy for itself and failed to understand what will happen to the Australian economy if Carter fails to curb America's mal-usage of the world's oil. At present there is no Australian commitment to reducing the level of oil imports: on the contrary, official projections suggest that with the run-down of Bass Strait reserves Australia will be importing two to three times more oil in the mid 1980s than today. With this level of demand and the US competing for world oil, it is difficult to see how the Australian economy could avoid a collapse.

A consequence of the present American policy, one which would be totally unacceptable to all those who oppose internment mining and nuclear power, could be that Australian uranium was exported on a barter basis for oil. Aside from the moral questions involved and the shakiness of the international nuclear industry, this measure would do nothing to solve the fundamental economic contradictions implicit in existing patterns of resource depletion. Carter's reduction has proposed: a "standby tax on petrol"—price per gallon would rise 5 cents for each year after 1979 in which consumption exceeded Federal targets (see diagram below) by 1%, up to a maximum of $4.92 per barrel. A big car tax—placed on new cars that do not meet Federal mileage standards, and rebated to consumers who purchase more energy-efficient cars (see The Gas-Guzzler Tax table below).

- an increase in the price of domestic crude oil. So that parity with world oil prices was reached by 1980, providing more incentive to increase domestic production.
- So far US energy experts, while applauding what Carter is trying to do, are unanimous in saying his policy won't work. Indeed, how can any nation come to terms with a problem "second only to the threat of nuclear war" with hand-aid solutions like petrol and big-car taxes and the rest of his energy package? Some of the package stands a good chance of success, such as the incentives for installing insulation and solar energy in homes, but the crucial part of it affects millions of Americans who are physically and psychologically addicted to their motor cars is doomed to failure, since increased petrol taxes and taxes to improve fuel economy of cars are most unlikely to reduce oil consumption sufficiently. It even looks probable that Congress will prevent the petrol tax from being imposed.

It is interesting to compare Carter's policy to the energy-conservation work done by the Ford Environmental Protection Project (EPP) of the Ford Foundation in 1974. Firstly the conservation of Carter's policy is the best in the US. These additional measures include: slowing the growth in air travel, transfer of freight from trucks to rail, and the growth in air travel, transfer of freight from trucks to rail, and of course, reductions in highway congestion. In this system, funds raised could finance the conversion of car factories producing small-, medium-, and large-car tax would work much better than taxation measures, but he has not demanded himself to the other EPP aims which would have the important long-term effect of solving the whole structure of transportation in the US. These additional measures include: reducing urban traffic, public transportation and bikeways and walkways, and expanding new communities where the need for mobility is the least.

A tax on oil and other forms of energy is only likely to reduce consumption significantly if the revenue collected is used to finance a gradual change in the US industrial system towards energy conservation, the use of renewable energy sources, and towards a 'lower-energy society.' Generally, for example, revenue from a petrol tax could be used to introduce public transportation systems, with special emphasis on encouraging what is clearly an effective and necessary solution. If such initiatives are taken soon, a US President may well have an opportunity to introduce them within the next decade in the face of crippling oil shortages. It is an extremely critical period, dependent on the Australian Government. Once a comprehensive, well-working crisis here, fuel rationing could become a reality in Australia too.
THE ONLY WAY
An Oil Conservation Policy for Australia

The Lucky Country, with plenty of oil in Bass Strait but oil practically run dry within the next ten years (see p. 32), and thereafter the country will have to buy an ever-increasing quantity of crude oil on the world market. If President Carter's policy to reduce oil imports fails, as seems likely (see previous article), Australia will be buying oil in cutthroat competition with the United States, Western Europe and Japan. Oil prices could sky-rocket; oil supply could be cut off overnight, by, for example, a recurrence of Middle East hostility. The major political parties in Australia have any policies to deal with this imminent crisis.

The policy of the present Federal Government is based on letting the oil and car industries do exactly what they want. The consequences of this approach were clearly shown by J. E. Latre of the Australian Roads Research Board in a paper presented this May to the Australian Transport Forum in Melbourne. This paper showed (see graph below) just how much more oil-dependent Australia is becoming on imported oil by the late 1980s. Curve A and B represent two predictions based on current policies. Curve B is a wholly disastrous one based on 4.9% average annual growth in gross domestic product and a 1.7% p.a. population growth. This would require a four-fold increase in the present level of oil imports by 1986. The only way this import bill could be paid off would be to introduce a new mining boom, including full-scale mining for yellowcake. The full-steam ahead for yellowcake except that GDP and population growth are reduced to 3% and 1.25% respectively.

The most we can realistically expect from the present government is the policy represented by Curve C: a 3% p.a. growth rate, 1.25% p.a. population growth, coupled with strong energy-conservation measures in industry. Even in this scenario, oil imports will be running at twice their present level by 1985, which is still disastrous. Curve D (added by the author) represents the US policy of reducing the level of oil imports to three-quarters of what they are now by 1985. This would be a very radical policy for Australia because our domestic oil supplies will not last as long as those in the US, and a major shift away from private cars would be required to achieve it. Curve E (also added by the author) is based on a 'fail-safe' policy of oil conservation, as partially outlined in this article. Such a policy must be achieved if Australia is not to collapse economically and become either a right- or left-wing dictatorship, which one can be sure will lead to the loss of the benefits of all, while preserving the goodies for the diarchial elite.

Oil from coal, and future discoveries.

The graph further shows that squeezing oil from coal cannot make a significant contribution to the short-term. Even if it were possible to advance oil-from-coal projects by ten years, this method would not solve Australia's energy problems

The potential contribution from future oil discoveries in Australia, based on Esso estimates, is shown coming in after the mid 1980s. But the fraction of these yet-to-be-discovered reserves which will be economically recoverable remains unknown.

Oil in transport

To achieve the desired oil consumption objectives, the curve C, it would be necessary to bring in measures for conserving oil in all sectors of the economy. Here, we will focus on conserving oil in the transport sector, which has the largest single share of consumption, 54% of the total, and which offers scope for the largest savings.

Transportation in Australia is almost totally dependent on oil. Even though suburban railways using electricity derived from coal or gas move a very great number of people each day, the overwhelming usage of large cars with only a driver in them consumes so much petroleum that 99.5% of transport energy comes from oil.

The oil-conservation goal outlined in Curve C could be met without the introduction of any exotic new technology; it merely requires an adaptation of what already exists. An obvious starting point is to get more people using trains and trams, which are not only more energy efficient per passenger-km travelled, but generally use a more abundant energy source, coal. Trams too could satisfy more transport needs since they are typically several times more efficient in their fuel consumption per passenger-km than cars. Existing large cars could be used more efficiently by car-pooling and encouragement of shared taxis. Production of new large cars could be gradually reduced to a level and the production of smaller cars reduced at a somewhat slower rate, with energetic steps taken throughout the design and build of the car industry to provide alternative employment for the workers involved (see p. 28). The slow atrophy of human muscle power could be halted by more people turning to cycling, power-assisted cycling and walking.

To be more specific let us look at what an alternative transportation policy for Melbourne could be like. The illustration above shows two possible transportation futures for Melbourne, described in terms of passenger-km travelled by various modes. The curves assume an average car occupancy of 1.3 people and average carrying capacities for trains and trams. The pre-1976 data were assembled by the Melbourne & Metropolitan Board of Works.

One future represents a continuation of past trends of increasing travel by motor car, the other an alternative in which car travel declines and use of other modes increases while the total mileage travelled stays constant. The 'travel patterns for survival' option for Melbourne and public transport become the key means by urban transport by the end of the century.

More detailed discussion of some measures to implement this alternative transport option are discussed in turn in the following section. An important variable not considered here is land-use planning as it affects transport needs is the subject of the full paper presented on page 53. The travel in Melbourne diagram speaks for itself in suggesting a likely consequence if we continue to let motor cars take over our cities.

References

2. Ref. 1, Fig. 6.
Making Better use of Cars

The net effect of all these incentives should be that the pressure is positive encouragement for all people who travel more than four miles to work to share their cars or to become passengers in shared cars. The pattern of state or federal funding for such a scheme would be to provide a high initial investment followed by a period of decreasing fiscal cost, with a break-even point coming after a few years, and thereafter the cost savings to the community for an indefinite period. In addition to the lack of financial incentive, the shared vehicle drivers currently has other problems, for example:

- It is illegal for the car owner to charge his/her passengers.
- Third-party insurance does not cover passengers.
- The lack of a recognised fare structure makes the current illegal practice of charging an awkward and sometimes unpleasant act of negotiation that many people are not too eager to go through.
- The lack of a recognised code of behaviour that will enable both passengers and driver to know what is expected of each other means that people who share cars often have unpleasant disputes when they arise about routing, lateness or other matters, and they are thus discouraged from sharing.

Steps should be taken to overcome these legal and operational difficulties associated with car sharing. The establishment of a metropolitan-wide shared car system work, research and development could be done on specifying design modifications to existing vehicles to make them more suitable for sharing, and on the commissioning driver/passenger matching services. The latter have been used in connection with shared-systems of use in universities, and could be used in city systems in the past and much could be learnt from this experience. Most of the gain in getting car-sharing groups together could also have an important role to play even for example of bus companies and at each work location.

Finally there is the question of travel time. A very strong incentive to share vehicles would be to allow them priority lanes on major commuting routes, as has been tried successfully in various American cities.

Better New Cars

The net cost of passenger cars with four-cylinder engines and less aerodynamic resistance would bring about a great reduction in oil consumption, but this must also be accompanied by measures to take out "built-in obsolescence". If there are to be cars, they should at least be quickly repairable.

A further fuel economy measure would be to modify car engines and gearing systems so that aerodynamic capacity was reduced, and top economical cruising speed brought down to below 50 mph.

Shared Minibuses

After the initial debugging of the financial incentive scheme for shared-car users, it should be possible to give car-sharing companies to share the chance of buying modified minibuses as a tax-free incentive. The owner(s) of such a minibus could use it as a commuting vehicle carrying six to twelve people to work, and for any other use, for example, as a family/neighbourhood/other community minibus for leisure/tripping at the weekends.

The shared minibuses with bicycle racks at the rear are a logical step in the design of the most flexible transport vehicle of all: the minibus. The integration of bicycles with public transport systems would greatly increase both the catchment area at the start of the journey, and the area served along and at the end of the route, so following. It also offers the further advantage of allowing people to be dropped directly to their destinations without reliance on radio, radio-telephone systems may be used to reduce waiting times.

Power-Assisted Bicycles

The power-assisted bicycle was very popular in the UK and Europe in the 1960s and 1970s, and had a cruising speed of 20 mph and could be used even when there was a slight wind. The electrically driven bicycles with low-cost electric motors and battery packs could be used for many purposes, such as delivering the morning newspapers or for leisure purposes.

Specifications for the taxis require provision for taking aboard wheelchair and baby prams. Most, like the AMF above, use electrically driven motors or the traditional hand-pump to fill the tank of a standard car with petrol.
There were three basic types: two led onto the tyre of front or back with power units driving directly the rear wheel (see photo). Assisted bikes instead of mopeds or lightweight motor cycles because the trying to encourage route/way, especially when one is older people to start assisted bike by making them prove the older and with even better fuel economy. A machine with a cruising speed of 15 pedalling, 10-12 mph up could then travel up to 30 miles a day could cover shorter distances with little physical effort. The less fit the Jess effort required means they do waterproof gear.

It could cover shorter distances with much less effort than they would need on an ordinary bike. Travelling in wet weather is also easier for power-assisted riders and the less effort required means they do not sweat as much inside their waterproof gear.

With good acoustic muffling power-assisted bikes could be fairly quiet and their low petrol consumption would make air pollution minimal. The good fuel economy would also allow precious renewable transportable fuels such as methane or alcohol to be used. All these advantages, coupled with ease of parking and storage, make the power-assisted cycle eminently suitable for use as a feeder to the public transport system over distances up to 10 miles. Since most of the relevant patents have expired, all that is needed to get this machine redeveloped is for the Federal or State Governments to approach manufacturers and subsidise the research and development of those willing to do the job.

The power-assisted bicycle has been reintroduced in modern form in several countries; one of the most successful designs, developed in Australia, is illustrated opposite. This machine is still a prototype and has a unique high-efficiency pancake motor (see drawing). An Indian company will begin making machines of this design shortly, and we believe the Australian government should study how to introduce similar machines into this country. The front-wheel kit costs $115 including batteries. Another British company to develop a completely power-assisted cycle is Joseph Lucas, who have pioneered electric cars, buses and taxis. According to Mr. Lucas, this company is interested in developing this machine in any country prepared to classify it as a bicycle. The latter is already done in several American states and certain European countries, and it is clearly a necessary prerequisite if power-assisted cycling is going to really catch on.

Bicycles

In promoting a return to cycling it is most important to persuade the road building authorities to plan for and build into the road system the means for cyclists to avoid as much of the severe road congestion as possible. One promising way by which this could be achieved would be to plan a bike-route network on the relatively-unused residential street system in each of our cities (see illustrations). This scheme avoids the high costs of building a bikeway network (i.e. pathways on which cyclists only could travel) completely independent of the existing road system. Most residential streets are in fact ideal for cycling, since generally less than 1500 cars a day use them and they have good road surfaces. In Melbourne, for example, a short-term objective would be a 300-mile arterial route network to be brought into operation within three years. Small low-cost signs and a cheap bike-rout map would indicate which streets to follow. Similar schemes, with appropriate adjustments for local conditions, could be carried out in other cities.

In the long-term we believe a 1500-mile network for cyclists is required in Melbourne. Many structures to bridge or bypass the physical barriers that prevent direct travel, and full signing of the routes and complete integration of the network with the public transport system. Power-assisted bicycles could also use this network. Not all of this 1500-mile network would be on residential streets. Some routes would be on-suburban arterial roads along sub-arterial roads and a few main roads. About 300 miles would be on bicycle routes through parks, and along railway, electrical-supply and drainage embankments. A precise form would be impossible to predict in more than a general way at present. The routes to be used they must do more than provide a less-dangerous, more-quiet, pollution-free, or generally pleasant means of travel for cyclists; they must also provide as many direct routes, or short cuts, to the places cyclists want to go as is practical. Cyclists have referred to using many expensive bicycle paths in the USA because these facilities came from or went to nowhere, were unmaintained, or safer more-direct routes were found on other roads.

High priority must therefore be given to the bridging or bypassing of the many physical barriers to travel which an urban bikeway could encounter. These barriers include badly congested arterial roads, railway crossings, rivers and creeks. Of these, bypassing arterial roads with high traffic density is of major importance for a network based on residential streets. However, the small size and low weight of the bicycle, and the small width required for bikeways, allow off-road ways such as bridges or tunnels for bikes only to be constructed at relatively low-cost.

As the network would feed the public transport system as well as providing door-to-door bicycle travel, the combined effect should be a significant reduction in motor-traffic. Since it is seen to be an efficient and pleasant means of travel, the integrated bicycle/public-transport system should begin to generate its own particular kind of traffic and significantly alter the present usage patterns of the various modes of urban transportation.

**References**

2. To Alan Parker, Secretary, Bicycle Inst. of Vic., 1A Pocket St., Murrumbeena 3163.
3. To Liza Parker, Secretary, Bicycle Inst. of Vic., 1A Pocket St., Murrumbeena 3163.
The motor car is sold as a means to achieving mobility, mobility being presented as an essential freedom, as in the ad-man’s dream of Scene 1. The reality of the situation most of the time is nearer Scene 2. In our cities the car has become essential for most people to travel to work, take the kids to school, get to the shops, to the doctor, and even to escape into the country at weekends.

With this form of mobility it is the activity at the destination that is important; the journey itself is usually a nuisance. This mobility is precisely the converse ofjoyriding: it is enforced — incorporation, you could say. Cars indeed do give a greater range of personal mobility, but it is a mistake to argue that mobility in itself is the greatest good. On the latter argument, the reason for travel in the first place.

We are looking then for land-use changes which will provide maximum access with minimal mobility, and we hope to show further that these changes offer a very real possibility of improving the quality of urban living as well as conserving scarce energy reserves and the environment.

To nip charges of impracticality before they have a chance to bud, it should be noted that in what follows we are taking a long-term view. Even if the changes suggested were energetically worked on from right now, it could take perhaps many decades to accomplish the radical restructuring of urban areas proposed. However, it is a scheme which could be progressively worked towards, giving some relief from the present chaos during its early stages.

**RESTRUCTURING**

We will now sketch a broad design for a strategic regional plan for a large city incorporating integrated goals for transport, land use and human involvement. Too often in the past such grand designs have paid little if any attention to how people will be affected in their day-to-day lives. In what follows, then, we will look firstly at changes at the local, “grass-roots” or microplanning level, and only then proceed to the grand-scale or macroplanning level.

For change to take place in our cities as a whole, rather than merely in a few isolated pockets, it is clearly necessary to work simultaneously on two fronts: at local community level to mobilise popular support and allow wide participation in deciding on the direction of change; and an all-city level to coordinate diverse local activity and bring concerted pressure to bear on federal, state and municipal governments and instrumentalities.

The plan that follows was originally conceived for Melbourne, but we believe its principal concepts have broad relevance to practically all major Australian cities. For example, the approach bears close resemblance to that adopted by FOE S.A. in their submissions to the North Eastern Area Public Transport Review hearings in Adelaide.

**RECREATING COMMUNITY**

Aside from profligacy in energy use, pollution, and sheer pace of living, large sprawling cities have spawned a new ill-nis - that is, the emergence of old and young people, of insular families, of particular members of families, most commonly the car-less housewife, housebound and alone with the kids for most of the day while the husband escapes to work. Compared to the closely-knit social fabric of suburbs before the advent of the motor car and television, today’s conurbations are almost totally lacking in community, that elusive community of interest between people who live and work in and identity with a particular area, and the co-operation, sharing and caring which can thereby evolve.

Our first priority is accordingly to frame a restructuring of a city in such a way as will help to re-create community. To do this we propose the following five-tier hierarchy of community-involving activities, in locations adapted for the purpose, starting at the residential 'block' level and finishing with the central city area:

- **Tier 1** The domestic unit
- **Tier 2** Neighbourhood house serving a residential block
- **Tier 3** Local focus for neighbourhoods - an urban centre for the suburbs
- **Tier 4** Community focus at district centre level
- **Tier 5** People focus in central city area

**THE NEIGHBOURHOOD**

Invariably when we say the word 'neighbourhood' today, we use it in the sense of a physical area, not the people, the neighbours, who live there. This semantic shift mirrors a significant social change. Generally a city dweller’s closest friends are not his/her nearest neighbours, but rather fellow workers or people with a common leisure-time interest who more than likely live in a totally different part of the city. Hence of course the need for a motor car for social visits.

To begin the process of recreating community at the neighbourhood level we see a role for a 'neighbourhood house', an ordinary suburban house or other building reserved as a drop-in centre, meeting place and location for community activities for all the people in that neighbourhood — i.e., all the houses in a residential living distance of all the ‘Neighbours’ that it serves.

This way of creating community is by no means a utopian idea. Its beginnings can already be seen in many Australian cities in the form of drop-in centres, learning exchanges, day-care centres and some of the schemes which originated under the Australian Assistance Plan.

The concept of neighbourhood houses has evolved to fulfill a real-life need for supportive services in suburban areas. Typically they begin with a small group of mothers living within walking distance of each other organizing to know each other and making arrangements for themselves to meet a range of needs, such as:

- someone occasionally to look after the young children
- someone occasionally to be around when the kids come home from school

**THE CENTRAL CITY**

The central city is the place to which the suburbs, in many ways, relate. From an early stage, it should be noted that in what follows we are beginning at the residential 'block' level and we will look first at changes in the central city area.
Of course, a neighbourhood house could be started in countless other ways; for example, by a group of people forming a co-operative to buy bulk health foods with a minimum of packaging. Whatever the origins of the house it is essential for its growth into a true neighbourhood facility that it gradually attracts its activities and more and more people of all ages, male and female, from the block it serves.

Involvement with the neighbourhood house would be entirely voluntary. The underlying aim would be to break down the isolation of neighbours from neighbour by fulfilling genuine common needs and to assist people in developing a responsible and caring attitude towards each other.

In Melbourne neighbourhood houses along the lines described here have been started, for example, in St Kilda, Ivanhoe, Bundoora, and in Selby and Kallista in the Dandenongs. Each of these houses has a distinctive local character, though we believe they all have a unity of origin in the pressing needs so many suburban people have for re-establishing some tangible community feeling and warmth in their localities.

NUCLEAR FAMILY OR URBAN COMMUNE?

There is currently a growing movement in Australia urging that the basic domestic unit should also be reorganised. As the anthropologist Margaret Meade points out: "We now expect a tiny family unit to achieve what no other society has ever expected of a family. In effect we call upon the family to achieve alone what the whole clan used to do.

Over the past few years there has been a resurgence of interest in the possibility of communal living. The conception is that in place of the stereotype nuclear-family home (i.e. a completely separate living unit for each married couple and their children), it would be better living for all concerned if there were to be a sharing of certain aspects of domestic activity, such as cooking and eating, washing and cleaning, childcare and gardening, with a possibility of more social life in the home.

The neighbourhood-house movement and communal-living experiments are therefore different ways of widening the base of 'sharing and eating' to overcome isolation and consolidate a wider feeling of belonging than can usually be found within the detached suburban house. However, the relationships within an urban commune, as distinct from those in a neighbourhood house, are very intimate ones and demand compatible temperaments and complementary interests to a high degree as well as a highly developed sense of reliability and tolerance of each member to all other members of the extended group. For this reason there is a tendency for attempted urban communes to form, founder and re-form in an effort to obtain a viable group of people.

The stability of these communal groups is also hampered by a lack of accommodation suited to their purposes. We believe that all obstacles arising from conventional aspects of building method or design, geared as they are to the requirements of detached nuclear family housing, should be removed to facilitate urban communal-living experiments. Stable communes within the residential-block area, alongside nuclear-family houses for those continuing to prefer this form of domestic unit, would be entirely compatible with the establishment and strengthening of a neighbourhood house in the same block, since the house should benefit from the group's experiences of sharing, co-operation and mutual accountability.

THE LOCAL FOCUS

Beyond the neighbourhood house, the next stage proposed for potential community activity is a local urban centre in the suburb, a local focus (tier 3). Local focus would be situated within a short distance — easy cycling — of all people in the residential hinterland it serves. Further afield, within a single local area in the catchment area would say be no more than about 2 km away from the centre. Ideally a local focus should be built around and / or interchange for some other form of rapid urban transit.

Houses for those continuing to prefer this form of domestic unit, would be entirely compatible with the establishment and strengthening of a local focus. ideal a local focus would therefore be a mixed-use area comprising:

- a transport interchange
- a shopping centre
- light non-polluting industries, craft production of goods
- offices
- services — welfare, health, education, other cultural, entertainment and recreational facilities
- indoor spaces for community-involvement activities
- higher-density residential accommodation.

Local industries with strictly controlled environmental impact, workshops for craft production, and the array of offices, services, educational, entertainment, craft, hobby, indoor sport and social opportunities in the local focus, a good deal of the mobility enforced by long commuting work trips would be overcome.

Location of a shopping centre, and provision of educational, entertainment, craft, hobby, indoor sport and social opportunities in the local focus would further increase its magnetic pull on the surrounding residents, who now have to travel further afield in search of these facilities, and there is every indication that the focus would be to the satisfaction of both residents and visitorsnavy suburban people worked in the local focus, more than of the centre. Consequently, if a higher proportion of people in the surrounding area worked in the local focus, a good deal of the mobility enforced by long commuting work trips would be further increase its magnetic pull on the surrounding residents, who now have to travel further afield in search of these facilities, and there is every indication that the focus would be to the satisfaction of both residents and visitors.
as reducing the amount of commuting, this arrangement would also facilitate the co-operative sharing of facilities by different firms, and eventually the dissolution of big businesses into locally oriented and controlled operations.

OVERVIEW

The whole process of restructuring described so far amounts to an anti-randomness anti-spread-overal operation, increasing overall intensity of low-energy human activities in a hierarchy of selected urban nodes, as a partial substitute for excessive high-speed travel and non-sustainability.

The future viewed by a typical middle or outer suburban resident could consist of convenient access to diverse activities in ten or twenty nearby local foci, as well as those in any two to four district centres and the central city area. In Melbourne or Sydney this would mean access to the most significant activities of somewhere between 100,000 and 200,000 people — surely enough to satisfy most people's needs. Inner suburban dwellers would have access to even more activities.

To this point we have concentrated on restructuring cities in order to enrich and enliven people's lives, as well as reduce the demand for transportation. We must now consider transportation in more detail and discuss how this new design allows maximum access to desired locations via a meld of low-speed individual transportation and high-speed mass-transit systems.

THE MICROTRIP

Let us begin where we begin most of our journeys, from home. The future viewed by a typical middle or outer suburban resident would be one where our trips home would be made by bus and find out what's on in their locality. The shuttle buses would honeycomb the residential catchment area served by a local focus, funneling all passengers into the focus and bringing them back home again. A bus would not go beyond the boundaries of the one local focus catchment area. Any adjoining residential area would be served by its own shuttle-bus, which would connect with the neighboring local focus.

If the catchment area extended beyond 1½ miles from the centre, as would no doubt be the case in some outer suburban areas, it would probably be helpful to run semi-express buses from the more distant regions of the catchment: i.e., buses which honeycombed sections outside the 1½ miles to the local focus.

Finally, travel between two locations in different sectors of the catchment area could be either covered by bus to the nearest home and выход on another bus to the destination, or by direct cycling.

HOPELESSLY UNREALISTIC?

But, you may be thinking, isn't this grand scheme hopelessly unrealistic so far as the low-density outer suburbs are concerned, where the car must surely remain an indispensable all-purpose vehicle? The prospects for the new scheme are not that bad, however.

It will be remembered that ideally we require the local focus to be on a rail line. So let us consider what proportion of the population of our large cities live within 1½ miles of a railway station, i.e., 7½ minutes cycling distance at 12 mph. A calculation for Melbourne has shown that "only 15% of Melbourne's population is within 7½ minutes walking distance of a station, but over 85% are within enough for comfort and for suburban areas as a whole in Melbourne."

At the neighbourhood house plan of a residential and its catchment area. The compact mixed-use centre would typically be about a third of a mile across, and would serve an area of about ½ mile radius.
able to gain access to these urban centres by the 
bycycle/shuttle-bus system proposed, without the need 
for motor cars. Special semi-express buses, as mentioned 
before, could be used to transport residents living in areas 
beyond a 1½ mile radius to the centre.

AT THE FOCUS

The local focus would be a compact mixed-use centre, 
probably three to four stores high at its core, and 
embracing an area not much greater than one third of a
mile across. Travel within the focus could therefore 
be entirely pedestrian. Wherever practicable we suggest that 
the main pedestrian level should “straddle” the railway 
station, and that the main access roads for the buses and 
road transport carrying small freight should come into 
the focus at the same level as the station. This arrange-
ment would thus provide a grade separation between  
pedestrians and the other transport modes, and has the 
additional advantage of allowing the focus to be situated 
right at the centre of the focus without the track cutting 
the area into two.

To make people more at home in the local focus, 
there could be a semi-private waiting room for each 
neighbourhood at the electric-train interchange building. 
The waiting room could be equipped with lockers to leave 
parcels, have tea and coffee making facilities, a 
telephone, chairs and tables, and a noticeboard for mes-
sages and notices — another space where people could 
meet, talk and get to know each other and what’s on in 
their area.

THE MACROTIP

By “macrotip” we mean any journey longer than that 
from home to local focus. Two key types of macrotip 
would be travel between home and the nearest district 
centre and between home and the central city area. Since 
the local focus and district centres should be on the same 
radial rail line, both these journeys could be made by 
electric train. As suggested previously, there would for 
example in Melbourne, be several district centres on each 
radial line. The aim would be trains which provided as 
quick a service as cars for journeys between two places on 
the same line.

We suggest that district centres on different rail lines 
be connected by express, or semi-express, bus services
running circumferentially (or more precisely, cross-
radially) on priority lanes on existing arterial roads. Trams 
could partially fulfill the same role in the inner 
suburbs.

All district centres would thus be interconnected by 
rapid public transport, efficient enough to provide a ser-
vice from one centre to another as fast or faster than that 
possible by private cars. Cars would be excluded from 
local foci and district centres, allowing these to be more 
compact and free from the pollution and noise of serving 
a strong incentive for people to turn to the public trans-
port available at their bicycles.

In addition to the road and rail systems proposed we 
see a need for a third network, one for bicycles and 
power-assisted bicycles (see p. 16.)

In Melbourne there are at present 3600 miles of 
residential access streets, with low traffic density, con-
stituting a network pervading the whole metropolitan 
area. The basic situation in other major Australian cities 
is similar. We suggest therefore that it could be along 
these streets in the key that the whole regional network 
is designed. With this plan the need for a com-
pletely new system of highways would be obviated. With 
some extra road signs and road paint bicycles could safely 
share the kerbside of these back streets with cars, since 
the car traffic would only be low frequency, low speed 
and travelling only short distances.

The route network of this type — i.e. in the form of a 
grid system — would provide a further option for in-
dividual travel over the longer distances anywhere in the 
Metropolitan area. The main pedestrian level should be of 
high quality and non-violent manner, and for the most part without any breathing 
hills. There would not be many cyclists pedalling say the 
30 or 50 miles across the city, though we strongly 
recommend long-distance cycling to the people who now 
spend their weekends cruising around in unmuffled gas-
guzzling station wagons or barely treading the bush on 
trail bikes.

CROSS-RADIAL WORK TRIPS

With the shift of heavy and light industries and other 
employment to the suburbs of our major cities, a large 
number of people now travel in cross-radial directions 
between home and work, invariably by motor car. 
Wherever a factory or office is located between different 
radial rail lines, some distance from either track, the shuttle-
bus/train/express-bus system we have proposed would in 
general be of little use to employees who travelled cross-
radially to their workplaces. Basically we suggest that 
this problem could be dealt with by land-use changes and 
gradual relocation of employees to equivalent or better 
work opportunities nearer their homes or public tran-
sport.

The measures already proposed to create work oppor-
tunities in the local focus or district centre could be ex-
pected to discourage long cross-radial trips, but there 
would remain certain workplaces which would have to 
be located remotely from compact residential areas e.g. 
heavy noxious industries and land-intensive activities
such as bulk warehousing.

We suggest that this problem could largely be 
circumvented in the short-term by transporting employes 
to and from “remote” urban workplaces by chartered 
minibus or car-pooling, and by encouraging the use of 
bus/bicycle combination modes — i.e. allow bicycles to 
be carried on the back of express buses. Longer-term, 
the residential populations in district centres and local 
focus grew, it should be possible to draw the labour force 
for these industries from nearby local foci and the nearest 
district centre, rather than from more distant areas. The 
situation could be further eased by using all new indus-
turies which are incompatible with residential zones 
very close to rail lines.

BEYOND ESCAPISM

Perhaps no sight better illustrates the general dis-
satisfaction of city dwellers with modern urban life than 
the lines of cars streaming out of the city at weekends — 
people escaping to the country, though they usually find 
their country retreat or picnic spot packed with fellow · 
townies. The car-based holiday, spent mostly on the

Conservation of Urban Energy Group of the Conserva-
torio. Chain Reaction's.

This article is based on material supplied by the 
Conservation of Urban Energy Group of the Conserva-
torio Council of Victoria, 324 William St, Melbourne 
3000. The responsibility for what is said, of course, re-
mains Chain Reaction's.

Footnotes
1. Contact F.O.E. (S.A.), 310 Angas St, Adelaide 5000 for further in-
formation. (Tel. 08) 223-6917.

2. Calculation by Alan Parker, Secretary, Bicycle Institute of Vic-
toria.
It will reassure you when you need it. It will help restore your confidence should it ever desert you. It will soothe and solace you after a hectic day. It will insulate you from the noise and chaos of the outside world. It will rebuild your morale; your ambitions.

But most of all, it will remind you that your life has not been totally without success.

full-page spread for the Jaguar in the Observer 18 Jan. 76.

Cars are designed in sketches which are transferred to full size clay models. The clay is carefully sculpted and since the priority is to outward appearance the models are dummies with fake windows and no interiors. The interiors are designed later to fit into the shape dictated by the exterior "design". This is a classic example of separating design functions rather than integrating all steps equally.

"For over half a century the automobile has brought death, injury and the most inestimable sorrow and deprivation to millions of people.

Ralph Nader, Unsafe at Any Speed (1969)"

The grotesque lengths to which even governments are prepared to go to ensure 'freedom' for the driver is evidenced by the official US program for development and installation of a 'safety balloon' in car dashboards - which is to be inflated instantly and automatically when heavy objects impinge upon the car, thus replacing the constraints of seat belts. This will allow for increased speed on what is characteristically called, in this 'land of the free and the brave', by an ideologically fetching and fundamentally correct name: freeways.

"Highways and motor vehicles are truly the keystone of the American way of life"

George McCoy, President of the American Association of Highway Officials

"Materialized Ideology", Hakon Stang

Marshall McLuhan in Understanding Media

"Materialized Ideology", Hakon Stang

"Materialized Ideology", Hakon Stang

"Materialized Ideology", Hakon Stang
PRODUCTION LINE BLUES

The Car Industry now and tomorrow

It is commonly assumed that workers in the motor industry generally hang on to their jobs and would resist any attempt to scale down the production of automobiles. However, the workers themselves have seldom been asked what they think about this suggestion. In a recent letter to Chain Reaction (published in full on p.31), Len Townsend, Federal Secretary of the Vehicle Builders Employees' Federation, spells out his union's view:

"Workers in the vehicle industry generally work there for reasons of economic survival. Few of them have a great deal of loyalty to their particular employer or to the industry as a whole. Indeed, they do have, however, a real and real fear that government mismanagement will mean that their jobs in industry will disappear. We suggest not the great expansion of the private motor car, but a more efficient planning for public transport and for manufacturing industry generally which will lead to more secure employment, in the long term, for our members." (Emphasis added.)

We asked a worker what it was like working on the assembly line at the Fishermens Bend motor factory in Melbourne.

"Horrible," he said, "but you've got to keep your mouth shut or you'll get out as soon as I could." He was an immigrant from Yugoslavia and needed the work to build up to get a better job. We asked him why he didn't like the assembly line work.

"It's like being a robot. The men are working harder than the machines — the machines just move along. If you want to go to the toilet you have to wait for someone to come and relieve you. Sometimes they forget about you. What do you do?"

"Other workers at Fishermens Bend complained about the feeling of being 'constantly under observation' and unable to think because of the monotonous work. To get a better idea of working conditions in an automobile factory we visited the GMH at Dandenong, south-east of Melbourne. Most of the workers there are on the assembly line. It takes only about one or two days to train the workers. All they have to do is stand in one spot and perform a simple action, for example, fasten some bolts to an engine on each vehicle as it passes. On average they have 2½ minutes per vehicle for body assembly and 2½ minutes for mechanical assembly.

We noticed one worker who was standing in a trench, checking the doors of cars as they passed over his head. He was reading the new newspaper at the same time. Every time a car appeared above him he checked the engine and then returned to his newspaper for half a minute till the next car appeared.

Other workers were taking their tea-breaks in roped-off areas under the same factory roof. The noise was intolerable, but loud enough to force people to shout. Most of the people taking tea-breaks did not seem to be attempting conversation; some were reading while others were staring into space. Even in the foundry at Fishermens Bend there was no separate area for breaks and the workers complained that the workers there are gradually being deafened by the noise.

At Dandenong the noise and the pace of work is so fast that it has to be talked, and many workers do not speak English, so instructions for assembling the car (e.g. whether to fit air-conditioning or not) are stuck on the windows in a simple code. Workers do not need to be able to read, talk or think when they are on the production line. It is so fast that workers have to keep their heads down and switch off and work mechanically. This can have its disadvantages. For instance, when a worker makes a mistake he only has 2½ minutes at most to fix it up, and they can't tell anyone about it. By the time someone has made himself heard above the noise it is too late to stop the vehicle as it is well down the line. Our guide told us that once, due to a mix-up, sides of two-door cars were accidentally sent down the line to be paired off with sides of four-door cars. The result was a perfectly welded three-door car. The workers had no idea what they were doing.

"Quality, Quality, Quality!" say the signs plastered up at the Dandenong plant. The workers are exhorted in three languages to check the paintwork and the finish of the vehicles they turn out. However, less attention is paid to the engine and the brakes; the cars are not even given a proper test drive when they are completed. The workers know this and have little faith in what they are doing.

The level of dissatisfaction is clearly shown by the turnover of staff. Our guide at GMH said it is 50% per annum. Other figures put turnover at 110% per annum for Chrysler and GMH. Nearly 4000 members of the Vehicle Builders Union in the industry in 1972.3

The feeling of acting like brainless pieces of machinery alienates the workers. A unionist from the GMH factory at Fishermens Bend complained: "The big companies don't care if you're human beings, the more efficient they are."

What then are the companies doing wrong? The Industries Assistance Commission promises the production process itself for driving the workers away. — "Workers on the job experience monotony, physical tiredness and the feeling of having to work too fast... These problems are thought to a large extent to be caused by the production process. The assembly line, for example, is characterised by minute subdivisions of the work task, repetitive and low-skill operations, predetermined tools and mechanically controlled rhythms and speed of work.

Conditions at the Dandenong plant seemed quite good in terms of efficiency and profit. Workers are treated as cogs in the machine (e.g. whether to fit air-conditioning or not) are shown in a simple code. Workers do not need to be able to read, talk or think when they are on the production line. It is so fast that workers have to keep their heads down and switch off and work mechanically. This can have its disadvantages. For instance, when a worker makes a mistake he only has 2½ minutes at most to fix it up, and they can't tell anyone about it. By the time someone has made himself heard above the noise it is too late to stop the vehicle as it is well down the line. Our guide told us that once, due to a mix-up, sides of two-door cars were accidentally sent down the line to be paired off with sides of four-door cars. The result was a perfectly welded three-door car. The workers had no idea what they were doing.

"Quality, Quality, Quality!" say the signs plastered up at the Dandenong plant. The workers are exhorted in three languages to check the paintwork and the finish of the vehicles they turn out. However, less attention is paid to the engine and the brakes; the cars are not even given a proper test drive when they are completed. The workers know this and have little faith in what they are doing.

The level of dissatisfaction is clearly shown by the turnover of staff. Our guide at GMH said it is 50% per annum. Other figures put turnover at 110% per annum for Chrysler and GMH. Nearly 4000 members of the Vehicle Builders Union in the industry in 1972.3

The feeling of acting like brainless pieces of machinery alienates the workers. A unionist from the GMH factory at Fishermens Bend complained: "The big companies don't care if you're human beings, the more efficient they are."

The Uncertainty of Employment in the Motor Industry

The motor industry is more subject to fluctuations in demand than many other industries. New cars are prestige items, and whenever there is a downturn in the economy new car sales are among the first to suffer. Families will go without a second car when they need their money to pay the rent, and in a slump companies will not purchase new executive cars.

The motor industry magnifies every boom and bust of the economy. It is largely responsible for creating an artificially high demand for cars. It has used advertising and frequent model changes to sell more cars; whenever a new model appears on the market the old-model cars start to look outdated and lose some of their value, so that people are encouraged to trade them in and buy the latest style.

But every time there is a model change thousands of cars must be sold just to pay for the new presses. GMH has invested heavily in new labour-saving machinery and expects to pay for it by increasing sales. What will happen if the market stops growing?

The standard policy when overproduction occurs in the United States has simply been to lay-off workers and close down the plant (this has repercussions throughout the industry of course). When demand picks up, the workers, who have been waiting around, unemployed and relying on Government benefits, are re-employed. GMH, which is run under direction from the U.S., has repeatedly tried to do the same thing here but has run into trouble from the unions in Australia.

Recently GMH suffered a slump and asked workers to take a compulsory week of their holidays in May. When the union refused the offer the company threatened to lay-off 600 workers. The eventual outcome was that the management held talks with the union and they agreed to ask the Government jointly to drop vehicle sales tax by 12½% to boost sales. The eventual outcome was that the management held talks with the union and they agreed to ask the Government jointly to drop vehicle sales tax by 12½% to boost sales.
That's the in nominally capitalist and Chain Reaction 3 (1), 1977

The Future

stay (»terside - pay for long service.

... workers are saying that "if anyone each time there is a temporary slump a~e quite employed there. Some have been workin~
do...ever became necessary. Their
to... their
e... in the motor industry

their future in the motor industry is insecure and they frequently face retrenchment.

Conventional economists point out that the motor industry provides employment for thousands and claim that the economy would collapse without it. But if Lord Shaftebury tried to reduce the hours
and factories were providing the work and cars... long hours the economy would... The same argument is still being applied to adult factory workers.

It is not certain whether the motor industry really does have a healthy production process. Could these cars be making
to making other... But it is safe to say: When cars are being assembled there... time there is a major model change and welding, painting, and spray painting equipment, could be all used for other purposes, and the conveyors... the cost of the oil car - petrol imports, road building, insurance, and hospitals for the road accident fund -... They could be slowed down.

Car factories have readily been converted to making other things, even though the change will be... In wartime they could... these... are working. Cost-cutting and making something people really need.

Lucas Feedback

So far union reaction to the article "Make Cars, Join the Dole Queue, or What?" has been confined to... Lucas workers are identical to... socialists as they are working... Lucas workers have pointed out... The industry as a whole.

Indeed, they do have, however, a great and real fear, that government... In this respect, Lucas workers have been... Lucas workers have been active in the Lucas workers' national organization, and in order to deflect its course or redirect its... When we read the Lucas experience, the political consequences become evident. We hope to avoid that by taking close note of... The industry would be likely because their jobs... that... the Lucas workers have important suggestions to make about... Lucas workers have made valuable contributions to the discussion on the Lucas experience, and we believe, must be the only way which we can try to conserve the environment and at the same time conserve jobs. We believe that workers should have the right to demand socially useful alternative projects on which to work. However, in the present environment, it is possible that any real research into the area, as we are still very much concerned with the day-to-day survival of our members. Of course this tends to happen in most industries and can end up by obliterating the motor industry. Lucas workers, however, have international developments with which we are necessarily in close contact, and have already made one of the targets of their organization, national operations, and in order to deflect its course or redirect its course we would need powerful friends. We would be pleased to talk to you about these issues.

Dear Sir,

Many thanks for bringing my attention to the article "Make Cars, Join the Dole Queue, or What?" and the Lucas experience. We consider the arguments put forward by the Lucas workers a vital contribution to the discussion on the Lucas experience, and we hope to avoid that. We believe that workers should have the right to demand socially useful alternative projects on which to work. However, in the present environment, it is possible that any real research into the area, as we are still very much concerned with the day-to-day survival of our members. Of course this tends to happen in most industries and can end up by obliterating the motor industry. Lucas workers, however, have international developments with which we are necessarily in close contact, and have already made one of the targets of their organization, national operations, and in order to deflect its course or redirect its course we would need powerful friends. We would be pleased to talk to you about these issues.

Lucas Feedback

So far union reaction to the article "Make Cars, Join the Dole Queue, or What?" has been confined to... Lucas workers are identical to... socialists as they are working... Lucas workers have pointed out... The industry as a whole.

Indeed, they do have, however, a great and real fear, that government... In this respect, Lucas workers have been... Lucas workers have been active in the Lucas workers' national organization, and in order to deflect its course or redirect its... When we read the Lucas experience, the political consequences become evident. We hope to avoid that by taking close note of... The industry would be likely because their jobs... that... the Lucas workers have important suggestions to make about... Lucas workers have made valuable contributions to the discussion on the Lucas experience, and we believe, must be the only way which we can try to conserve the environment and at the same time conserve jobs. We believe that workers should have the right to demand socially useful alternative projects on which to work. However, in the present environment, it is possible that any real research into the area, as we are still very much concerned with the day-to-day survival of our members. Of course this tends to happen in most industries and can end up by obliterating the motor industry. Lucas workers, however, have international developments with which we are necessarily in close contact, and have already made one of the targets of their organization, national operations, and in order to deflect its course or redirect its course we would need powerful friends. We would be pleased to talk to you about these issues.
This is a guide to how energy is used in Australia, with emphasis on consumption for transportation purposes. The simple, and in many places, alarming conclusions arrived at here provide reasons for many of the changes in the type of transportation used, and in our overall need for transport which are suggested in this Chain Reaction.

1. What we've got
Australia's known economically recoverable energy reserves (1974/75 figures). Fossil fuels only are shown here. Uranium is excluded for obvious reasons.

2. What we're using
Australia's domestic consumption of energy (1974/75). While all accounts for only 1% of our reserves, we're using it to supply no less than 46.8% of our total annual energy requirements.

3. The way the barrel will empty
Consumption of domestic supplies fell from Bass Strait crude oil. The full barrel represents the total known Australian oil reserves which are economically recoverable (1974/75 figures). The shaded portion is what we've got left, and the layers marked show the likely consumption in the years ahead.

4. How the other fossil fuels are going
The total projected consumption of the other major fossil fuels up to the year 2000 as a percentage of the total known reserves. Clearly we are using oil far faster than any other energy resource.

5. Where the oil goes
The major part of our consumption of oil is for transport. Any attempt to conserve what we have left must concentrate on reducing the wasteful use of oil by private motor vehicles. However, attention should also be given to conserving factories over to other fuels (with appropriate anti-pollution measures), and in rationalising the use of fuel by aviation. The latest figures for Victoria (State Government Green Paper on Energy, March 1977) show that 45% of the total energy reaching consumers is used for transportation.

6. How we use it to get around
Private cars have the lion's share of the energy used in the transport sector, with more energy being used for private car tripping than for business or work journeys.

7. Energy intensiveness - typical Australian figures
There are many debates over the best way to compare the energy intensiveness of different transport modes. The energy intensiveness of a mode is the average amount of energy required for it to transport each passenger 1 km. This table was prepared in Melbourne by the Conservation of Urban Energy Study Group, and is based on Australian data and average loadings. The "Direct Energy" figures show the efficiency of each particular mode when compared solely by the amount of oil used to provide the fuel at the point of use (e.g. generating electricity, transporting petrol) and the energy needed to produce vehicles roads and railways.

Energy intensiveness by different loadings
This table comes from a detailed British study which looked not only at the way things are, but at what they could be. Clearly, getting higher numbers of passengers for each trip is the major step in improving efficiency, which is applicable as much to buses and trains as to cars. This is only possible by improving the planning of our cities and stopping urban sprawl. The outstanding energy efficiency of the bicycle is very apparent from this graph.
ENDEAUVH HILLS

Endeavour Hills is the latest addition to Melbourne's urban sprawl. A new suburb about 32 km from the city centre, it is being developed on 420 hectares of yesterday's farmland near the town of Dandenong, formerly 'gateway to Gippsland', now front gate to Melbourne. The new Mulgrave freeway forms one of the suburb's boundaries.

One of the houses at Endeavour Hills will be the celebrated 'Low-Energy Home', the winning design in a recent competition sponsored by the Victorian Gas and Fuel Corporation,ACHI Ltd, (an insurance firm) and The Age newspaper. But, we wondered, how much energy will the low-energy home dwellers be using for transport?

A recent survey of households in Sydney (Search, 7 (1-2), P. 35, 1976) showed that by far the largest fraction of direct household energy consumption, 68%, was in the form of petrol for the car(s), compared with only 32% for all other purposes, including heating, lighting, cooking etc. The situation in Endeavour Hills, which is designed around the motor car, is unlikely to be radically different.

It's not that Endeavour Hills is any worse than a typical suburb, more that it is so very similar, that will make its residents almost totally dependent on their cars for getting around.

Schools, a kindergarten, parkland and a large shopping centre, will be located within the area of the estate, although except for a few walkways the network of streets and courts is clearly planned for motor traffic and not for foot traffic. As a publicity leaflet points out: "To really appreciate Endeavour Hills you have to drive around it in your car."

In fact, most of the journeys within the estate, bicycle rides would have been ideally suited inclines are never great, neither are the distances. No special provision for bicycles' has been made. Dandenong, the middle suburban area around Oakleigh, Clayton and Huntingdale, and the city or inner suburbs.

He wouldn't hazard a guess at the breakdown between these categories, but said practically everyone used a car to get to work. The bus service for the estate is slow and infrequent, and has recently been down-graded to an even lower frequency.

People travel to the middle suburbs such as Clayton via the Mulgrave Freeway. A developers brochure promises that the latter will 'whisk you into the city of Melbourne in around 30 minutes' - presumably assuming that the present 10 km gap between the South Eastern and Mulgrave freeways will eventually be bridged in spite of the opposition of the citizens in its path. Terry Williamson and Willys Span told us that workplace locations for residents so far fell into three main categories: Dandenong, the middle suburban area around Oakleigh, Clayton and Huntingdale, and the city or inner suburbs.

People travel to the middle suburbs such as Clayton via the Mulgrave Freeway. A developers brochure promises that the latter will 'whisk you into the city of Melbourne in around 30 minutes' - presumably assuming that the present 10 km gap between the South Eastern and Mulgrave freeways will eventually be bridged in spite of the opposition of the citizens in its path. Terry Williamson and Willys Span, the architects of the low-energy home, calculate that it will operate on about 37% of the total energy requirements of an average home - 30% of the annual energy for hot water comes from a 4.8 m² array of solar collectors (see The Age, April 4, 1977). However, if we assume the breakdown for total (i.e. including petrol) direct household energy consumption quoted earlier, then the annual savings is reduced to about 20% of the total.

This wasn't part of the competition, but where you site 'low-energy houses' in relation to the needs of their residents - for work, education, community etc. is also important if the energy savings are to be really significant from a national point of view.

As Willys Span wryly suggested to us: "In ten years' time, people may even be able to live in Endeavour Hills because of the cost of petrol."

BEYOND THE TOWN

BEYOND THE

Mooroora

The Moora Moora co-operative community at Healesville, Victoria, is a group of people who are creating an alternative to suburban living. With a current membership of 34 people and planned size of 60 residents, the co-operative owns 245 hectares of mountain-top land about 65 km north-east of Melbourne.

A planning permit for 39 dwellings has been issued to the co-operative, and at present three low-cost homes are being constructed from natural materials. The community's publicity leaflet reads: "We are designing homes in six clusters, where communities, families and individuals can build clustered together in harmony with the environment. Our energy will also be drawn from the environment — from the sun, wind and water."

One Moora Moora member, Peter Cock, sees personal development in an alternative community as "taking responsibility for one's own existence."

From nature we get our shelter, our food and our clothing," he writes. "Struggling with the ingredients of survival is not only a prerequisite to personal growth, it is also an essential part of it."

At Moora Moora some members are growing their own food while others buy health foods. Some recycle op-shop clothes; others are starting to spin their own wool, naturapathy, herbal remedies and other 'natural health' measures are practised where it is felt to be appropriate. Work is not seen as an end in itself, but a means to an end. Some members work part-time and others are able to structure their work to suit their needs. Education is being developed as part of community life. Bicycles are used on the property and occasionally to get to Healesville, but rural communities in particular find a need for cars, especially during the period when they are building and settling in. So transport is a contentious issue at Moora Moora.

Members of the community are sensitive to the visual and atmospheric impact of cars but are finding the need, in some cases, to have more than one car per two people.

Neil Collier lives at the co-operative and works full-time as a teacher at Ringwood High School about 48 km away. His wife Fran is full-time matron of the Upper Yarra Bush Nursing Hospital at Yarra Junction. At present, they have a V W Beetle between them. Fran spends six nights in the hospital. This is proving unsatisfactory for them and they are now considering buying a Suzuki 4WD so that Fran can be home more often.

Mike and Dorothy Evans are also toying with the idea of buying another car, unregistered, for logging tours and building materials around the property.

Peter and Sandra own a Holden station wagon. They both work three days a week, Peter at Monash University (staying in Melbourne two nights) and Sandra at Lilydale. Peter is against owning more than one car on principle and has suggested that the community should again, to a policy to that effect. He would prefer to encourage cars to be owned on a 'cluster basis'.

Philip Ross commits to his work at the Healesville Sanctuary three days a week by bicycle. If he or his wife Pam need the use of a car, they borrow one belonging to other members of the community.

Leigh Norman, a mechanic, has three cars. He is unemployed because he wants to direct all his energies to improving the property and he has no money. So he uses his cars very rarely and often takes a lift to Healesville with another member. He prefers to leave the property at all.

I own two motor bikes, but (particularly in winter) I often take lifts with other members of the community.

As Peter Cock wrote in the Moora Moora newsletter: 'We are really dependent on the automobile, even though a few strong-bodied people have ridden their bicycles up the hills and even walked up to it. Where we can cut down on pollution and energy by trying to get things together, we do so.'

Members of the co-operative community see a high proportion of their needs being satisfied within the area of the co-operative. For travel outside this area they will need an efficient public transport system, in addition to their own vehicles.

Leigh Norman sums it up: "The people working full-time down below both can afford and are in more need of a car than the rural people. I look forward to the day when I no longer need a car."

More information, contact Moora Moora, P.O. Box 214, Healesville, 3777, or on (059) 62 4104 newsletter sub. $3 a year.

Mooroora

The Moora Moora Co-operative Community at Healesville, Victoria, is a group of people who are creating an alternative to suburban living. With a current membership of 34 people and planned size of 60 residents, the co-operative owns 245 hectares of mountain-top land about 65 km north-east of Melbourne.

A planning permit for 39 dwellings has been issued to the co-operative, and at present three low-cost homes are being constructed from natural materials. The community's publicity leaflet reads: "We are designing homes in six clusters, where communities, families and individuals can build clustered together in harmony with the environment. Our energy will also be drawn from the environment — from the sun, wind and water."

One Moora Moora member, Peter Cock, sees personal development in an alternative community as "taking responsibility for one's own existence."

From nature we get our shelter, our food and our clothing," he writes. "Struggling with the ingredients of survival is not only a prerequisite to personal growth, it is also an essential part of it."

At Moora Moora some members are growing their own food while others buy health foods. Some recycle op-shop clothes; others are starting to spin their own wool, naturapathy, herbal remedies and other 'natural health' measures are practised where it is felt to be appropriate. Work is not seen as an end in itself, but a means to an end. Some members work part-time and others are able to structure their work to suit their needs. Education is being developed as part of community life. Bicycles are used on the property and occasionally to get to Healesville, but rural communities in particular find a need for cars, especially during the period when they are building and settling in. So transport is a contentious issue at Moora Moora.

Members of the community are sensitive to the visual and atmospheric impact of cars but are finding the need, in some cases, to have more than one car per two people.

Neil Collier lives at the co-operative and works full-time as a teacher at Ringwood High School about 48 km away. His wife Fran is full-time matron of the Upper Yarra Bush Nursing Hospital at Yarra Junction. At present, they have a V W Beetle between them. Fran spends six nights in the hospital. This is proving unsatisfactory for them and they are now considering buying a Suzuki 4WD so that Fran can be home more often.

Mike and Dorothy Evans are also toying with the idea of buying another car, unregistered, for logging tours and building materials around the property.

Peter and Sandra own a Holden station wagon. They both work three days a week, Peter at Monash University (staying in Melbourne two nights) and Sandra at Lilydale. Peter is against owning more than one car on principle and has suggested that the community should again, to a policy to that effect. He would prefer to encourage cars to be owned on a 'cluster basis'.

Philip Ross commits to his work at the Healesville Sanctuary three days a week by bicycle. If he or his wife Pam need the use of a car, they borrow one belonging to other members of the community.

Leigh Norman, a mechanic, has three cars. He is unemployed because he wants to direct all his energies to improving the property and he has no money. So he uses his cars very rarely and often takes a lift to Healesville with another member. He prefers to leave the property at all.

I own two motor bikes, but (particularly in winter) I often take lifts with other members of the community.

As Peter Cock wrote in the Moora Moora newsletter: 'We are really dependent on the automobile, even though a few strong-bodied people have ridden their bicycles up the hills and even walked up to it. Where we can cut down on pollution and energy by trying to get things together, we do so.'

Members of the co-operative community see a high proportion of their needs being satisfied within the area of the co-operative. For travel outside this area they will need an efficient public transport system, in addition to their own vehicles.

Leigh Norman sums it up: "The people working full-time down below both can afford and are in more need of a car than the rural people. I look forward to the day when I no longer need a car."

More information, contact Moora Moora, P.O. Box 214, Healesville, 3777, or on (059) 62 4104 newsletter sub. $3 a year.
TRANSPORT, TIME & MOBILITY

Transportation, as well as wasting our fossil fuels, also makes surprisingly large inroads to another limited resource, namely the 24 hours allotted to each of us every day. Obviously time is consumed when we travel, but few people seem to be aware of the extent to which our time is required to pay the financial costs of journeys and the journeys that are made for us as part of the normal workings of the economy.

Various calculations have been made for the "net" speed of owning and using a motor car, most notably by Ivan Illich in his book Energy and Quality. Figures for Australia are given in the box below, and another set of figures incorporating the idea of "useful social mobility" are given by Gary Glazebrook in his paper "The 4 mph Car". All these calculations agree that the actual net speed of the motor car, after taking into account the hours of work needed to pay for the car, is much smaller than the official speed given in the box below, and another set of figures incorporating the idea of "useful social mobility" are given by Gary Glazebrook in his paper "The 4 mph Car", unpublished paper.

The increased efficiency of trams and trains is counteracted by the longer waiting times on stations and bus stops. Bicycles work out as fast as the more expensive cars (see box). This drive to work takes only a relatively short time but the car owner spends a great deal of time to earn the money to pay for the car. The cyclist on the other hand spends little time earning money for the bike but spends relatively more in riding. This has some benefits (fitness, taking life at a slower pace etc.) and some disadvantages (bad weather). The big advantage in a bicyclised society is that the total distance travelled would be much smaller and hence the time spent travelling much less, thus giving more time for meaningful activity rather than just travelling.

The above calculations, though no more than a rough guide, do nevertheless point to the illusory nature of the mobility apparent to most people think they travel. The 'Illich' for the Australian car.

* The average driver goes about 16,000 km a year.
* The most economical standard car (e.g. Honda Civic) costs $1865 a year to own and operate.
* To park it costs at least $150.
* To earn this $2015 at the average wage of $4.25 takes 474 hours.
* To actually drive the 16,000 kilometres takes an average of 400 hours (at 40 kph).
* Parking and servicing the car consumes a further 100 hours. Thus it takes 574 hours to travel 16,000 km.
* This is an average speed of 14.6 kph (10.25 mph).
* It's easy to ride a bike that fast.
* It lasts about six years.
* Maintenance and insurance cost on average about $30 and involve about five hours of the cyclist's time each year.
* The average cycling speed is 16 kph per hour.
* The average distance travelled each day is approx. 4 km.
* The community time cost in constructing and maintaining roads for bicycles averages 10 hours per year per bicycle.
* The community time cost in cycling then works out to be about 11 km per hour.

An 'Illich' for the Australian Car

And for the bike

* A typical bike costs around $150 new.

The above graph shows the actual net speed (see text) compared to the road speed for a typical cyclist at $15 an hour. Assuming money is earned at the rate of $5.75 an hour, it costs 10 cents per km to run and own the car (RACV 1977 costs for a Datsun 180B). Regardless of how fast you drive the car, the actual net speed is always less than 22 km per hour.

The increased efficiency of trams and trains is counteracted by the longer waiting times on stations and bus stops. Bicycles work out as fast as the more expensive cars (see box). This drive to work takes only a relatively short time but the car owner spends a great deal of time to earn the money to pay for the car. The cyclist on the other hand spends little time earning money for the bike but spends relatively more in riding. This has some benefits (fitness, taking life at a slower pace etc.) and some disadvantages (bad weather). The big advantage in a bicyclised society is that the total distance travelled would be much smaller and hence the time spent travelling much less, thus giving more time for meaningful activity rather than just travelling.

The above calculations, though no more than a rough guide, do nevertheless point to the illusory nature of the mobility apparent to most people think they travel. The 'Illich' for the Australian car.

* The average driver goes about 16,000 km a year.
* The most economical standard car (e.g. Honda Civic) costs $1865 a year to own and operate.
* To park it costs at least $150.
* To earn this $2015 at the average wage of $4.25 takes 474 hours.
* To actually drive the 16,000 kilometres takes an average of 400 hours (at 40 kph).
* Parking and servicing the car consumes a further 100 hours. Thus it takes 574 hours to travel 16,000 km.
* This is an average speed of 14.6 kph (10.25 mph).
* It's easy to ride a bike that fast.
* It lasts about six years.
* Maintenance and insurance cost on average about $30 and involve about five hours of the cyclist's time each year.
* The average cycling speed is 16 kph per hour.
* The average distance travelled each day is approx. 4 km.
* The community time cost in constructing and maintaining roads for bicycles averages 10 hours per year per bicycle.
* The community time cost in cycling then works out to be about 11 km per hour.

An 'Illich' for the Australian Car

And for the bike

* A typical bike costs around $150 new.

The above graph shows the actual net speed (see text) compared to the road speed for a typical cyclist at $15 an hour. Assuming money is earned at the rate of $5.75 an hour, it costs 10 cents per km to run and own the car (RACV 1977 costs for a Datsun 180B). Regardless of how fast you drive the car, the actual net speed is always less than 22 km per hour.
The Purari catchment area in PNG (left) and enlargement (below). The lower map shows the proposed dam site at Wabo and the area at Vailala (shaded) set aside for intensive agricultural development.

Opposition

A group of educated and conscientious people living in the Purari delta have organised themselves into the Purari Action group to fight the hydroelectric project and inform villagers in the area how they will be affected.

The Purari Action Group claims the indigenous people have nothing to gain from the project and much to lose. In a letter to the Government they state:

"We lose on all counts. In the name of economic development, you are prepared to sell out land, our resources and our people to multinational firms which have already committed so many horrible crimes in other parts of the world. You have listened to the colonial advisers who could not care less about what happens to our country and our people. You have let these colonial advisers manipulate you."

Appropriate Technology?

In 1973 the Papua New Guinea House of Assembly laid down eight guidelines for the future development of the country. A strong influence in the formulation of this policy was Junioh Ono Pakaka, an associate editor of the Ecologist (See Ecologist, Vol. 5, No. 6, 1973, pp 216-7), and well-known writer on appropriate technology for the third world. He spent nine months in PNG as an adviser to the newly independent nation.

The PNG government accordingly decided to foster development in a way that was tied to traditional village values and built upon village-scale technology. Foreign investment and technology were to be accepted only in so far as they complemented local initiative and remained under local control. The thrust of the policy was to promote national- and village-level self-reliance, rural improvement, reduction of the inequality in the distribution of incomes and services, and decentralisation.

Against this background, it is difficult to understand how a proposal such as the Purari Comprehensive Development Scheme could have been given any consideration.

Uranium Enrichment

The Purari scheme does not only involve hydroelectric power generation. A crucial component is an industrial complex with associated town of population 12,000, and a port capable of handling 6.5 million tonnes a year at Hall Sound. The intended industries are aluminium smelting, ferro-alloy processing, petro-chemical refinement and uranium enrichment. Hall Sound is about 800 km from the Australian uranium and bauxite deposits.

The third component of the project is the "eventual total development" of intensive agriculture, forestry and tourism along with a road and an inland navigation system.

The Japanese company, Nippon Koei, completed its feasibility study in 1972, and in April 1974, the Australian Snowy Mountains Engineering Corporation completed a review of the Nippon Koei plan.

The Purari Action Group is proposing what they see as a much more appropriate path, in fact, along the lines of the official government development policy.

"After appropriate development on a realistic scale, based on agriculture and farming, can be done to suit our way of life and for the welfare of all people in the Gulf District, there is no involvement of these giant foreign firms that are not investing their capital in their country because they love us."

"The Group suggests water wheels could be used to provide electricity in the villages and promote village-based industries and agriculture."

"This is a further argument in pointing out the detrimental effects superdams have had in other developing countries."

"The indigenous people in the dam areas of West Africa and Asia are poorer and suffer from more disease than before. There is plenty of cheap electricity for foreign enterprise but the Africans and Asians are still without electricity because they cannot afford it."

And the local Purari people are fond of quoting an example closer to home: the people in Arawa village were promised electricity when they closed their land for Arawa Town. Have they got it? Yes, just one miserable lamp in the middle of the village."

No light for Villagers

It is unlikely that the power generated will ever be used to provide lights in the local villages, since the scheme is designed as a self-contained system of large-scale power generation, high-voltage transmission and massive industrial consumption.

It is easy to see that the people who want the Purari project to go ahead are those who control the mining, processing and trading of such commodities as aluminium, steel, oil and uranium. These people are not Papua New Guineans.

The Purari Action Group is proposing what they see as a much more appropriate path, in fact, along the lines of the official government development policy.

"After appropriate development on a realistic scale, based on agriculture and farming, can be done to suit our way of life and for the welfare of all people in the Gulf District, there is no involvement of these giant foreign firms that are not investing their capital in their country because they love us."

"The Group suggests water wheels could be used to provide electricity in the villages and promote village-based industries and agriculture."

"This is a further argument in pointing out the detrimental effects superdams have had in other developing countries."

"The indigenous people in the dam areas of Africa and Asia are poorer and suffer from more disease than before. There is plenty of cheap electricity for foreign enterprise but the Africans and Asians are still without electricity because they cannot afford it."

And the local Purari people are fond of quoting an example closer to home: the people in Arawa village were promised electricity when they closed their land for Arawa Town. Have they got it? Yes, just one miserable lamp in the middle of the village."

A woman preparing sago in the traditional way, in the background the Purari River flows by carrying with it the silt which nourishes the crops of thousands of village people.