

Education and the Environmental Movement

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Education about 'the environment' played a vital role in the survival of the human species for many millennia. In gatherer-hunter societies, part of being a member of the society was learning about weather, climate, plants, animals, geography and other aspects of nature. Part of this learning was obtained by first-hand experience and part through stories, instruction, rituals and other intimate parts of the culture.

Many people with modern urban lifestyles are cut off from such traditional modes of interacting with and learning about the natural environment. Indeed, 'the environment' has become much more a humanly constructed one. People can directly experience some features of their environment, such as smelling exhaust fumes and driving on freeways, but many vital parts of modern life are normally only grasped through the medium of specialists, especially scientists. This includes many aspects of manufacturing, mining, energy systems, transport systems, chemicals, drugs, food production and communications. Assaults on humans in their humanly constructed environment as well as assaults on what is seen to be the 'natural environment' (which often has been extensively modified by humans) often require experts to establish or decipher knowledge. This includes areas such as the hazards of nuclear materials, threats to stratospheric ozone due to aerosols from spray cans, and the health effects of food additives. Much knowledge of the environment relies ultimately on the same division of labour and specialised expertise which is characteristic of the systems of production and social control which give rise to environmental problems.

In the late 1960s the modern environmental movement developed in the rich countries. It was a social movement built around concern for various 'environmental problems', including pollution and destruction of natural ecosystems. The environmental movement has been a typical social

movement in most respects. At the core are the dedicated activists, devoted full-time to collecting information, organising groups and meetings, lobbying, speaking, writing and protesting. Some of these core activists are paid (often at a minimal wage) but many are not. The next level of participants are the active members: those who regularly attend meetings, write letters, join protests or otherwise give their energies to the issue. Then there are the occasional participants, those who may join a demonstration on a special occasion, or attend a public meeting now and again. Finally, outside the movement proper, are the passive supporters: people who support the goals and activities of the environmental movement but who do not participate themselves.

My focus in this chapter is on the relationship between the environmental movement and education about the environment. I start by looking at educational efforts within the movement and by the movement. Then, moving outwards, the movement has had an impact on the media and on various academic environmental programmes, which have also been influenced by government, corporate and professional groups with contrary goals. In particular I look at the relationship between experts inside and outside the movement.

In all these areas, knowledge about the environment has been the subject of struggles concerning its validity, meaning, implications, legitimacy and accessibility. Education about the environment is far from the learning of neutral facts. Rather, it is a political exercise at every stage.

When was the last time you obtained some information about an environmental issue? Most likely, it was through watching television or reading a newspaper, or perhaps reading a magazine, talking with a friend or listening to the radio. At least, this answer would apply to the bulk of the population. Only a small fraction of people actively keep up with environmental issues to the extent of regularly reading books or specialist journals, attending public meetings or participating in environmental action groups. Does this mean that the organised environmental movement is really peripheral to most public education about the environment?

I intend to deal with this question by concentrating on a particular case study: education about the issue of uranium mining and nuclear power in Australia. I choose this case because I was directly involved for many years, and also

because, from what I know of other issues, the processes involved are typical. This account is not meant to be a full description of the debate over uranium mining, but simply enough detail to put educational aspects of it into perspective.

THE URANIUM ISSUE¹

Although the British government tested nuclear weapons in Australia in the 1950s and there had been uranium mining in the country since the 1950s, the major debate about the nuclear fuel cycle did not begin until the 1970s. A major impetus for concern came from overseas, particularly the United States. An enormous expansion of nuclear power programmes was underway, and this triggered a parallel expansion of opposition.

The first nuclear power plants were constructed in Britain, the United States and the Soviet Union in the mid-1950s. Nuclear power was an offshoot of nuclear weapons programmes, relying on technologies and expertise developed under military auspices. In the 1950s, nuclear power was heralded as a peaceful application of nuclear technology and was supported by people from all parts of the political spectrum.

The environmental movement became a mass phenomenon in western societies in the late 1960s. There have been environmental problems for centuries, and they have particularly affected members of the working class. In the 1960s the environment became a cause for some members of the middle class, as the impact of the industrial production and consumer society affected the lives of the more affluent members of the community. Also involved was the upsurge of social concern in the 1960s which was manifest in the student movement, the black movement and the women's movement.

The early environmental movement drew upon many precursors, including various conservation societies, scientists who had been studying the problems for years, and scientist-writers such as Rachel Carson. The interaction between scientists and activists in the anti-nuclear power movement has been typical of the process.

In the United States, there were citizen protests against some of the early nuclear power plants. These local opponents were able to draw on a few scientists and other

experts who produced findings critical of nuclear power.²

Several factors made nuclear power a prime target for opposition. The rise of the environmental movement meant that the existence of any environmental impacts of a technology made it vulnerable to attack. Nuclear power was particularly vulnerable because it was not yet entrenched, as was, for example, the automobile. Therefore nuclear power could be opposed outright, as well as regulated to make it safer. Nuclear power was associated with nuclear weapons both technologically and conceptually, and this became a more important negative factor in the 1970s after the signing of the Nuclear Non-proliferation Treaty. Finally, nuclear power has always been a technology which necessarily flaunts its dependence on experts and powerful political and economic interests. Unlike television, which insinuates itself into people's homes as a personal technology (even though there is centralised control of programming), nuclear power became categorised as an alien technology.

These factors are not just of historical or sociological interest in explaining why nuclear power was opposed. They also have influenced the way in which information about nuclear power has been used by the anti-nuclear power movement.

Especially in the United States, the early opposition to nuclear power was almost entirely on environmental grounds: thermal pollution, reactor accidents, release of radiation during shipments, radioactive waste disposal. The environmental movement had made such concerns socially legitimate, whereas opposition on issues such as proliferation of nuclear weapons or centralisation of political power did not have the same social resonance. The result was a gradually widening concern about the environmental impacts of nuclear power both by citizen opponents and by a few scientists who had studied the issue.

The issue developed in Australia partly in response to concern developing overseas and partly in response to events in Australia. There had been only one nuclear power plant proposed for Australia, and that had been aborted in 1971 on cost considerations. The main social issue debated at the time, in the late 1960s, was whether the plant would provide a basis for Australian nuclear weapons. The environmental impacts of nuclear technology received much wider attention in Australia in the early 1970s with popular opposition to the French government's testing of nuclear

weapons in the South Pacific.

Because of its large reserves of cheap coal, nuclear power has never been a viable economic proposition in Australia. But the Australian continent also has large and rich reserves of uranium, and so it was the issue of uranium mining and export which became the focus of the nuclear power debate in the country. The uranium market began an upturn in the early 1970s due to the expansion of nuclear power programmes worldwide. Because Australian uranium deposits are far from urban populations, the main direct effects of mining are on the miners themselves and on Aborigines and the local environment. Hence much of the focus of the Australian anti-uranium movement has been on the global concern of proliferation of nuclear weapons, to which uranium mining would be a contribution. This is in striking contrast to other countries where most protests against nuclear facilities have been built initially around the concern of local residents.

A few activists within the environmental movement helped to bring the uranium issue onto the movement agenda in the early 1970s. Some of them had been in the United States and were familiar with the new group Friends of the Earth (FOE), which had been founded in 1969 by David Brower who had broken with the Sierra Club on its refusal to take a stand against nuclear power. Friends of the Earth groups were established in Australia, and among other things took up the uranium issue.

Also involved at the beginning of the anti-uranium movement in Australia were some trade unions. Trade unions in Australia have a history of activism on social issues outside the immediate interests of their members, most notably the green bans in the early 1970s.³ This applies to only some unions some of the time, but nevertheless the potential for an alliance between trade unionists and environmentalists is much greater than in most other countries.

EDUCATION WITHIN THE MOVEMENT

A vital first step for any movement is internal education. At the very least, a core of activists must become knowledgeable about the issues so that the case can be presented and argued to the wider public through leaflets, talks, letters, broadcasts and so forth.

The earliest anti-uranium 'experts' were mainly self-taught. They read the technical and political writings on the subject, and in many cases contributed to this literature through their own investigations. These experts included a number of scientists and academics and also some full-time activists who became knowledgeable without a background in any way related to nuclear power, in the fashion of US anti-nuclear intervener Dan Ford, an economist who became a formidable expert on nuclear reactor safety.

The self-learning process was encouraged by an 'informal college' of leading anti-uranium figures: those who wrote articles and leaflets, who testified at public inquiries and who debated the issues with pro-nuclear opponents in public meetings and the media. The stimulus and testing ground for learning was public debate. The informal college operated then as it does now by exchange of writings, personal discussions (for example, at national anti-uranium meetings) and many telephone calls. The subjects discussed included technical points (can nuclear weapons be made from reactor-grade plutonium?) and political points (how are Aboriginal communities responding to the uranium debate?) The learning was always directed. It was to be used in the public debate, not for academic essays. When the other side came up with a 'fact' or a new argument, then there would be efforts made to formulate a response. 'There are now reactor programmes in 35 countries.' 'Yes, but it was the governments and not the people who made the decisions in those countries. We need a full public debate before participating in the nuclear fuel cycle.'

On many environmental issues, there are only a few movement experts who do most of the public speaking, appear regularly on the media and give most of the testimony at environmental inquiries. Relying on a few experts has the advantage of always putting forward people with experience, confidence and a public reputation. But it has the disadvantage of making the movement vulnerable to the loss of those people, and giving them undue influence over the public image and direction of the movement.

In the Australian anti-uranium movement in some places there has been considerable dependence on a few movement experts, but in other places there has been a conscious attempt to spread the expertise to as many people as possible. Partly this preference for broadening the knowledge base grew out of FOE-Australia's more radical grass-roots orientation: a belief in decentralised decision-making

and sharing of skills within the movement. This contrasted with FOE-US and FOE-UK where national offices have played a major role in defining directions, providing materials and employing key figures, and where the issues have been tackled more by lobbying and providing a 'respectable' alternative than by popular mobilisation and direct action.⁴

'Spreading the expertise' has many ramifications. It means getting as many people as possible to be involved in writing letters and leaflets, in speaking to groups of all kinds and in attending movement conferences. For example, at the peak of the uranium debate, in 1977 and 1978, there was a heavy demand for speakers at schools, Rotary clubs, church groups and so forth. In some places a concerted attempt was made to train new people to do some of this speaking. By this stage a mass of new anti-uranium groups had been formed, usually under the name Movement Against Uranium Mining, and a host of new people involved, such as academics and members of political parties. These new people brought new sets of viewpoints, knowledge and experience in activism, and added to the mix of expertise in the movement.

Also important in the learning process within the movement were the numerous movement newsletters, petitions, leaflets and correspondence, all of which were circulated to other groups on a routine basis. The FOE national magazine Chain Reaction and some shorter-lived publications also provided valuable sharing of material.

EDUCATION BY THE MOVEMENT

The transition from education within the movement to education by the movement is not a sharp one. Typically, a newsletter produced by a local group goes out to all paid members, and often is passed out free at rallies and other events. Some of the paid members are activists who regularly attend meetings, but others joined to 'support the cause'. The newsletter is a prime source of information for them. Often it includes reprints of local or overseas articles as well as local news and copy written by local activists.

The front line of movement information has been the leaflet. These slips of paper, passed out freely and often thrown away by recipients, range from scrappy arguments quickly rushed into print to carefully worded arguments

developed after anguished efforts to reach agreement. Leaflets are passed out at rallies, bookstalls, talks and any other available opportunity. They have the advantage of being easy and cheap to produce locally, of being short enough for most readers to digest, and of being a satisfying enterprise for some activists: preparing copy, collecting cartoons, laying out and arranging printing.

Books have also played an important role in the debate, in providing depth of argument for those who wanted it. In the early years the amount of detailed local anti-uranium material was limited, and there was heavy reliance on a few overseas books such as Lovins and Price's Non-nuclear Futures (1975) and Patterson's Nuclear Power (1976). The short Australian book Red Light for Yellowcake, published by FOE in 1977, filled a gap and sold tens of thousands of copies. Even Red Light included a major portion by US writer Denis Hayes. In later years many further books were published, leading to surfeit rather than scarcity of materials.⁵

The closest thing to the leaflet's verbal counterpart is the talk. Anti-uranium activists have given talks to church groups, Rotary clubs, political party branch meetings, school classes and all sorts of other groups. Talks give an added dimension: a reasonable-looking, reasonable-sounding person is arguing the case against uranium mining. The speaker as a person is part of the message. Also used with talks were slide shows (including several good ones made by movement activists), films (including the ubiquitous The War Game, used to show the consequences of nuclear proliferation) and leaflets.

The movement may have emphasised education and information, but it frequently seemed that many members of the 'public' wanted to know only enough to make up their minds - which often was to oppose uranium mining. Bookstalls, which were set up at shopping centres, public meetings and rallies, would typically contain two categories of material: information (books, magazines and leaflets) and symbols of opposition (badges, stickers and T-shirts). The usual experience was a brisk business in selling symbols with little interest in the information, even that provided free.

There are two typical strategies used by social movements to utilise the information and arguments at their disposal. One is to lobby government or corporate decision-makers. For this purpose it is usually considered important to be either 'respectable' and authoritative (since the

information seldom speaks for itself), or to be known to be speaking on behalf of a formidable pressure group - or both. The anti-uranium movement used lobbying to some extent, but concentrated on a different strategy: mobilising grassroots opposition amongst the public and especially within the labour movement. In 1976 it was consciously decided to 'take the issue to the public', through campaigns such as a national signature drive, a national leaflet to be distributed to all households, and rallies, public meetings, bookstalls, publicity stunts and all sorts of other means.

It was believed by movement activists that once people knew the full range of arguments, both for and against nuclear power, most of them would oppose it. Ironically, many of the proponents of nuclear power believed the same thing, except that 'real knowledge' would convince people to support nuclear power. Of course, the content and style of the 'information' disseminated by the two sides was quite different. Both sides subscribed to the belief that knowledge by itself would lead to changes in attitudes and behaviour. Actually, it was knowledge in conjunction with some sort of active involvement with the issues - discussions, personal contact with nuclear opponents, participation in rallies - that swung many to oppose nuclear power. The anti-uranium movement was more successful at this since it was a movement from the grassroots, unlike the pro-nuclear forces.

As well as aiming to educate 'the public' about the case against uranium mining, the movement focused on several groups, such as schools, churches, professions and, in particular, the labour movement. Labour was seen as crucial to stopping uranium mining. Trade unions could take direct action against mining, and a Labour government could legislate to prevent or stop it. A concerted attempt was made to reach the grassroots of the labour movement, for example through speaking to shop floor and Labour Party meetings. This effort had spectacular success in 1977 when both the Australian Council of Trade Unions and the Australian Labour Party adopted policies opposing uranium mining.

THE MEDIA

The mass media have played an important role in disseminating information about nuclear issues. Some of the owners

and editors have been highly resistant to reporting the case against uranium, but ultimately the strength of the movement turned much of the media into allies, unwitting or otherwise.

Until 1975, the wisdom of uranium mining was virtually unquestioned by anyone, including all political parties. At this stage in the 'debate', the very existence of opposition was newsworthy. The coverage of rallies and bike rides organised by FOE emphasised the scruffy, 'ratbag' image which did indeed fit many of the protesters. Some members of the movement played on this image through outrageous stunts, such as when one activist, wearing a skeleton suit, sat on a table next to where the leader of the Country Party, a leading supporter of uranium mining, was giving a talk.

As opposition developed, a more serious discussion of the issues was included in the media. Several events aided this process. The Labour government in 1975 set up an inquiry into uranium, and the Liberal-Country Party government which came to power in November that year felt obliged to wait for the findings of the inquiry, which were in October 1976 and May 1977. Thus there was a real decision to be made, which did not seem entirely prejudged. The rapidly expanding anti-uranium movement, a massive advertising campaign by the pro-uranium lobby, the debates within the labour movement, developments in the uranium market overseas, plus overseas opposition - all these generated a large amount of media attention. Newspapers were inundated by letters to the editor. Some refused to print letters in opposition, but many did, and this helped air the arguments and reveal the existence of opposition.

Some journalists were sympathetic to the anti-uranium cause, while others just became attuned to a change in 'newsworthiness' which meant that nuclear issues were worth reporting. The uranium issue was more readily brought to the attention of anyone who read newspapers or watched television. Even the slightest nuclear accident became a story. Once this transition had occurred, the movement had succeeded in its effort to take the issue into the mainstream. But this was far from having won its demands.

Increased media attention to the uranium issue was not completely beneficial to the movement. By itself media coverage didn't bring all that many people into the movement: personal contact remained the key factor in

recruitment. Treatments in newspapers and especially on television turned the issue into a spectacle, something 'out there' to be watched and concerned about but not directly involved in.⁶ Jerry Mander argues that television as a medium is inherently unsuitable for conveying a feeling for the environment.⁷

The anti-uranium movement seldom used paid advertising. The main reason was its high cost. Movement organisations were usually in debt as it was. Uranium, as a political issue, did not stimulate the outpouring of monetary contributions which have occurred when the issue was whaling or the flooding of the Franklin River. For the cost of a one-page ad in a major daily paper, an organiser could be employed for several months (at low wages, to be sure).

There is also an ideological reason for avoiding advertisements: they are not a grassroots method. They are one-directional, and do not involve either activists or the public in actively debating the issues. Furthermore, the usual anti-uranium advertisement that did get organised was based on signatures of well-known people, thus emphasising authority rather than the issues. Advertisements are not an effective investment by a movement with little money and numerous supporters willing to contribute their labour. The pro-uranium lobby, with enormous funds but little mass base, has relied on advertisements extensively.

FORMAL EDUCATION

The anti-nuclear power movement has put some effort into institutions for formal education, by talking to school classes, putting on occasional adult education courses and encouraging academics to study and research the issues. Sometimes this effort was systematic and directed, as when approaches were made to teachers' unions. But by and large the introduction of discussions of nuclear power, renewable energy and related topics into education systems has come as a spinoff of the movement's general activities. Once uranium became an important topic for public debate, with treatments in the media, teachers and academics promoted treatment of the area on their own initiative. A few have been members of anti-uranium groups, but most simply came to believe that here was an issue worth discussing with their students.

The availability of information on the subject made this

process much easier. Once books and magazines were available, some librarians would order them and some teachers would use them to prepare lessons. (The pro-nuclear lobby for its part produced quite a few materials which were distributed free to schools.) Some new texts for science and social science courses would include treatments of 'the energy question'. A few of the teachers invited anti-uranium speakers along to talk to their classes, show slide shows and pass out leaflets, but eventually this became superfluous: the issue had entered the mainstream of political discourse.

Although the uranium issue was no longer stigmatised as only the latest preoccupation of a few greenies, at the same time the legitimating of the issue also meant its partial deradicalisation. The more strident pro- and anti-uranium claims are usually softened or omitted in textbook presentations. The important political and social aspects of the debate - such as the likelihood of attacks on civil liberties in the nuclear society, and the changes in lifestyle which might accompany either a soft or a hard energy future - tend to be avoided in favour of accounts of the hazards and efficiencies of different energy sources.

While the development of formal environmental education owes much to the initial and continuing stimulus of the environmental movement, there is little discussion of social movements and of the powerful institutions implicated in environmental problems in most educational writings on the environment, which usually present the environment as a neutral subject cut off from political and economic controversy. It has been a continual amazement to me to see how little material from formal environmental education is of any use to environmental activists. This is because the structure of the educational system encourages passive absorption of information rather than social action.

Academic environmental studies programmes have largely been set up in response to the rise of the environment movement and the popularisation of environmental concerns.⁸ These programmes are important beyond their size in that a sizeable proportion of full-time professional intellectuals who deal with environmental issues are found in them. It is not so much that these intellectuals do a lot that others couldn't do, but that any work they do has a much higher status because of their position.

Some academic programmes are technocratic in content and style. They bring together experts from a

variety of fields, such as biology, physics, chemistry, engineering and so forth, to deal with technical problems related to environmental issues. Much of this work is of the technical fix variety: setting water pollution standards, examining traffic flow problems, looking at 'safe' mining practices.⁹ Once the environment became a 'socially significant' area, lots of scientists joined the bandwagon by relabelling their research - for example, surface physics became a contribution to solar collector research - in the same way that scientists have relabelled a multitude of projects as cancer research.

Technocratic environmental research is an adaptation of research work to the standard pattern of specialisation and professionalisation which makes most science selectively useful to governments and corporations (or just the scientists themselves). Community groups seldom have any use for such research. Technocratic environmental researchers, if they enter public debates at all, are careful to distance themselves from the 'political' advocates. The researchers are political themselves, but this is hidden behind the mask of neutrality and objectivity.

Other academic programmes take a much more critical perspective on environmental issues, emphasising the wider political and social factors and the different ways in which the issues can be approached. Whether or not they have direct ties to environmental groups, they draw on and feed back into the environmental concerns felt by many people. Programmes of this sort often face difficulties in the academic system. One example is the Human Sciences Programme at the Australian National University. From its first mooring in 1970 it has been the object of attacks by powerful figures in the ANU hierarchy. Typical complaints are that it is not sufficiently 'rigorous', that it is unnecessary and that there are deficiencies in its running. The Programme has been vindicated by several reviews, but that has not stopped the attacks. There was an attempt to deny tenure to Jeremy Evans, one of the key members of the Programme, and a long-term whittling away of staff numbers, undercutting the viability of the Programme. Other such programmes have suffered similar attacks.

The real reason for the attacks is that transdisciplinary environmental studies programmes pose a serious threat to the academic system of power, which is built on hierarchy and knowledge specialisation. Academics build fiefdoms on exclusive claims to bodies of knowledge, usually amalga-

mated around 'disciplines' such as biochemistry or history and specialities within them. This division of knowledge allows particular disciplines to be tied to particular outside groups, such as engineering to corporations and law to the legal profession. The more 'pure' subjects such as physics and philosophy provide status for academia as a whole; specialisation and jargon separate them from the general public. Transdisciplinary programmes pose a double threat. They trespass on the knowledge territories of several disciplines, and they also organise knowledge in a fashion which can be useful to non-elite groups either practically or to legitimate their concerns. As long as the relevant social movement is strong, critical academic programmes can survive. Otherwise, many of them will be attacked and/or become more cautious and conservative. This applies to areas such as women's studies and peace studies as well as environmental studies.

Critical intellectuals with insider status are always threatening to the powers that be. In its rallies, leaflets and lobbying, the environmental movement can be dismissed by many people as being uninformed and 'emotional'. But when professionals from corporations, government or academia speak out, this is not so easily ignored. One of the most powerful blows to the authority of the nuclear industry was the resignation of three nuclear engineers from General Electric in 1976.¹⁰

Attempts are regularly made to silence critics who have some formal status, by smear campaigns, blocking tenure or promotion, or dismissal.¹¹ In 1971, Clyde Manwell, Professor of Zoology at the University of Adelaide, and his wife Ann Baker made some criticisms of the South Australian government's fruit fly spraying programme. This led to an attempt to dismiss Manwell from his post, a case which was not resolved until 1975. It is revealing that several 'members of the public' had publicly criticised the fruit fly spraying programme prior to Manwell and Baker, but they had not been attacked in state parliament or at their jobs. The attacks were launched precisely because Manwell, as a professor, had much greater status and hence credibility.

At the Australian National University in the early 1970s, Richard and Val Routley wrote a book, Fight for the Forests, which was very critical of forestry planning and practice, and which was to be published through the Research School of Social Sciences where Richard Routley

worked. There was an attempt to block publication of the book, instigated from within the Department of Forestry at the ANU. After the publication of the book, Richard Routley was barred from using the Forestry Department library for six months. The Routleys are philosophers; if they had been in the field of forestry it is unlikely they would have survived in their professional positions. I have been informed of numerous cases of suppression of dissidents within forestry.

These and other cases show that knowledge about the environment is not something that simply develops as a result of neutral processes of research and education. There are active political interventions into knowledge creation, certification and dissemination. The dominant formal power lies in the hands of institutions which cause environmental problems, mainly corporations and governments. Against this, the environmental movement has sometimes tried to muster logic, counter-expertise and inside connections (the respectable approach) and sometimes tried to mobilise grassroots action. Both approaches have their strengths and weaknesses. The 'respectable' approach has a good chance of success when the demands made are widely popular and do not challenge powerful vested interests. Whaling could be stopped in most countries because the whalers did not muster sufficient political clout against popular concern - though even in this case massive campaigns had to be mounted. Stopping whaling does not pose any fundamental questioning of the systems of capitalism or industrialism, and even the connections with the domination of nature were not developed at the time.

The nuclear power industry is a much more formidable opponent, and the critique of the 'hard energy path' raises crucial questions about centralisation of energy sources, energy-intensive lifestyles and destruction of indigenous cultures. The 'debate' has always been at cross-purposes, with proponents and opponents raising different concerns, because ultimately different values and social interests have underlaid different views on the subject. More revealing than the ostensible 'arguments' have been the political dynamics of the debate. Nuclear dissenters from within the establishment have been transferred, dismissed and denigrated. At stake is the unanimity of 'expert' opinion, with expertise defined as nuclear expertise rather than expertise in the wider value judgements about what energy futures are desirable. The anti-nuclear movement has provided the

encouragement and support for dissent by insiders and has also developed its own critical understanding. But more important has been the spreading of knowledge to all sorts of people, beyond the small circle of 'counter-experts'. In an immediate sense this has been done to mobilise opposition, but it has a deeper aspect. It has been an attempt to undercut the very value of specialist knowledge as a resource that can best be wielded by experts. By spelling out the wider values involved in the debate and the way they relate to the technical issues, some activists have hoped to build a different basis for social decision-making, in which expertise is at the service of the people rather than the elites. This goal is vague enough, and the degree of success in moving towards it has probably not been all that great. But an important part of the anti-nuclear power movement has been the very attempt to move in this direction.

DECLINE OF THE ANTI-URANIUM MOVEMENT

The peak years of the Australian anti-uranium movement were 1976-79. In August 1977 the government gave the go-ahead for mining, but with significant reservations made in response to popular opposition. It took the government a year to manipulate acquiescence of the Aborigines required by its own legislation, and mining began in 1979. In that year the anti-uranium movement had planned several major campaigns, including promotion of nuclear-free zones, a boycott of the Australia New Zealand Bank which has close links with the uranium industry, and collection of signatures on a 'statement of defiance' to the harsh provisions of the law under which uranium mining proceeded. All these campaigns provided an interaction of direct action and education. For example, in order to promote the boycott, people would need to be informed of the financial aspects of the nuclear industry and as well as reasons to oppose the industry.

While these campaigns were in many ways the most coherent ones yet planned by the Australian movement, the outcome was quite different. The movement went into a rapid decline due to demoralisation brought about by the beginning of mining. Only the nuclear-free zones campaign had much success. Most of the activists did not have a sufficiently long-term perspective on the issue to be able to maintain energy during the short-term failure to stop

mining.

One of the problems was that the movement had staked a lot on the election of a Labour government. But Labour was soundly defeated in 1977 and 1980. 'Education' of the public and the labour movement was successful as far as it went, but it did not provide an alternative strategy to election of the Labour Party.¹² Another problem was that the media tired of the issue, and many activists lost enthusiasm for an issue no longer in the limelight.

The years 1980-82 were quiet ones for the uranium debate. With the election of a Labour government in March 1983 there was a resurgence of activity: now was the chance to implement the party's anti-uranium policy. But Labour Party elites who had always favoured uranium had not been napping. In 1982 at the Party's national conference the anti-uranium platform was watered down in a clever move which by-passed grassroots opposition to uranium in Party branches. Once in government, key Labour elites further sabotaged the platform and among other things allowed Roxby Downs, potentially the largest uranium mine in the western world, to proceed.

The successes of the movement are not as apparent as the failures, but remain large. The prospects for nuclear power, uranium enrichment or reprocessing are slim in Australia: moves to introduce them would trigger a groundswell of opposition. Even uranium mining is encountering many obstacles, including major direct actions at Roxby Downs and continuing trade union resistance in the Northern Territory. These successes owe a lot to the education campaigns in the earlier years of the anti-uranium campaign. While the organised movement has dwindled in size and energy, the concern about the nuclear issue has spread further and further, especially via schools and the media.

In summary, the role of social movement organisations is especially vital in the early stages of an issue, when few people know that there is an issue at all. Dissemination of information, developing arguments, questioning established truths, formulating alternatives - 'education' in the widest sense - is of central importance for movements. For the movement to have an effective base, rather than depending on a few experts, education within the movement is crucial. The very existence of the movement, plus its own efforts, leads to education of wider publics. At all stages, the credibility of proponents on either side of the 'debate' is the

subject of struggle, and this is manifest in attempts to suppress experts who support the movement.

This is a pretty picture which hides some less attractive sides to the role of 'education' in social movements. The biggest problem is that 'knowledge' is frequently subjugated to the short-term needs of the movement. Those arguments and claims which gain the greatest media attention are played up. In the nuclear debate this has often led to fearmongering about cancers and genetic defects and lack of attention to the more politically-oriented objections to nuclear power, based on proliferation, threats to civil liberties and centralisation of power. Seldom have movement activists openly criticised anti-nuclear figures such as Helen Caldicott for their exaggerations and technical errors. While a focus on the hazards of nuclear power sometimes can bring more people into the movement, its danger lies in diverting attention away from long-term strategies to challenge the institutions promoting nuclear power. Trumpeting the dangers of a technology does not in itself provide a way of overcoming it, as the case of nuclear weapons shows.

Related to this is the lack of internal criticism in the movement. Certain dogmas develop, such as that it is impossible to dispose of high-level radioactive waste 'safely' or that renewable energy sources have been neglected entirely because of subsidies to conventional sources. The pro-nuclear arguments are studied by only a few in the movement, and even then the strengths of the pro-nuclear case are hardly ever acknowledged. (It is no excuse that the same criticism applies with even greater force to the supporters of nuclear power.) Internal criticism is difficult to sustain in a movement in which much activism is based on moral outrage, but in the long run the lack of critical thinking weakens the movement, since arguments are not sufficiently tested and improved. Focusing on the less political safety issues opens the movement to challenge. Most members of the general public would probably name radioactive waste disposal as their key concern about nuclear power, whereas those who have studied the issues in more depth typically see proliferation, political hazards of a nuclear society and other arguments as equally significant. The issues of safety are more vulnerable to solution by technical fix, such as a new improved method of waste disposal. Those familiar with the issue believe that the technical and political aspects of waste disposal cannot be

separated, but these subtleties gain little circulation.

The quest by environmental organisations for 'respectability' poses another threat to the wider discussions of issues: the suppression of radicals within the movement. The anti-uranium movement, a much more radical movement itself within the wider environmental movement, has not been subject to this problem to a great extent, but I know of two cases in which paid workers in Australian environmental or consumer organisations have been dismissed because of their radical stands.

What happens in the course of many campaigns is that information becomes a 'resource' which is used to promote the cause rather than to enlighten people so that they can judge the issues for themselves. In the narrow sense people always do judge the issues for themselves, but the question here is whether they are encouraged to grasp the full range of evidence and arguments. When movements produce glossy brochures or pay for large newspaper advertisements, as in the case of the campaign to stop the flooding of the Franklin River in south-west Tasmania, they are still providing information, but that information is often mobilised to sway emotions rather than encourage critical thinking. It is typically argued that these methods are essential to support a valid cause, and that in any case the other side is using even less edifying methods, such as the promise of large pay-offs. That may be true, but it remains yet another case of the ends allegedly justifying the means. Those issues which lend themselves to this sort of promotion are the 'goody-goody' ones of wilderness and rare species. Less spectacular issues such as soil degradation or the build-up of carbon dioxide in the atmosphere receive less attention. The dissemination of information, development of strategies and hard thinking necessary to deal with this sort of issue are neglected when information becomes a commodity used to sell the latest environmental concern.

This orientation is one reason why there are seldom more than a few people with a depth of knowledge about any given environmental issue. In the uranium debate, the number of people on either side with a wide grasp of the arguments has always been quite small. This is a more serious weakness for the environmentalists, since they seldom have the formal endorsement of professional bodies to provide 'authoritative backing' for their views - and therefore they rely more on the arguments themselves.

The availability of knowledgeable people to the

movement is also a major factor here. Only a relatively small fraction of those with a grasp of the issues are willing to openly identify themselves with the movement. These are the ones who develop the arguments for public debate. There are others, such as quite a few scientists, who know a lot about the issues but who do not want to become open partisans on one side or the other. Academics often fall in this category: they decline to 'descend' to the sordid arenas of newspapers, radio programmes and dinner club talks. Thus there is a sizeable reservoir of potential expertise which remains untapped by either environmentalists or their opponents. The detached observers of the debate will rarely approach environmental organisations offering to help, while activists often can't be bothered seeking out reluctant scientists and academics.

Another category of knowledgeable people lost to the movement are those who enter the parliamentary or bureaucratic arenas. In about 1977, several of the most knowledgeable and effective anti-uranium activists took up jobs working for Labour Members of Parliament in Canberra. Similarly, with a Labour government in Victoria in the 1980s, a number of key environmental activists in that state have joined the Victorian public service to implement environmental programmes. In a few cases these activists remained effective campaigners within the Labour Party or the state bureaucracy; in all too many others they adapted their spots to the party or bureaucratic power structures. What was lost in most cases was a continuing interaction with the outside movement. This is inevitable to some extent: it is very difficult to be both a prominent activist and a credible voice inside a bureaucratic organisation. Once again, the fault lay on both sides. Those moving 'inside the system' became oriented to bureaucratic imperatives and lost the incentive to keep in contact with outside activists, while the outside activists became disillusioned with those they saw as partly or wholly coopted by the system.

When the links between insider and outsider activists can be maintained, the results can be very fruitful. This was one of the strengths of the anti-uranium movement for many years: community activists and labour movement activists supported each other and exchanged invaluable information and campaigning suggestions. In more recent years, this linkage has weakened. In the non-violent direct actions held at Roxby Downs in 1983 and 1984, there was

relatively little mutual support between workers and protesters. (Significantly, the managers did everything they could to prevent contact between the groups). The polarisation between workers and environmentalists has been much greater in other campaigns, notably in forestry. Some environmentalists have engaged in a virtual cult of protest and direct action without laying the groundwork of developing sound arguments and programmes and undertaking education campaigns to reach workers who, superficially at least, are threatened by environmental demands.

This recent tendency in the Australian environmental movement reflects a more basic difficulty in most social movements, namely the orientation to reactive protest and the failure to develop long-term perspectives and campaigns. A long-term perspective immediately highlights the need for developing expertise, spreading knowledge and laying the basis for continued commitment. The Freire approach among others provides a way to develop strategies of this sort.¹³ The continuing difficulty is to engage people in long-term efforts. There is a core of dedicated activists who might undertake such programmes, but they are typically pressed to act on the latest urgent issues and are prone to burnout. Those who are not so heavily involved are less likely to commit themselves to an issue sufficiently. When the current concern fades from public view, they are likely to take up different, more 'trendy' issues. Finally, institutionalised education about the environment carries on, but seldom with a strong orientation to action: it is education for individual understanding, not education for social action.

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