CHANGING THE COGS

Brian Martin

CHANGING

THE COGS

ACTIVISTS AND THE POLITICS OF TECHNOLOGY

Brian Martin

Author's note

This book is not an intellectual treatise on technology and society nor a field
manual for environmental activists. Rather, it treats a middle ground, proposing to
citizen activists some concepts and lines of thought for evaluating the relation between
actions and goals. It does not pretend to present final answers, but hopefully will
encourage thought, discussion and action.

The main topic here is science and technology as they relate to problems of
energy and the environment. The analysis concerns only industrialised countries, and
furthermore is strongly slanted towards the situation in the English-speaking countries.
It particularly draws upon material about the U.S., because there is more of such
material, because there is considerably less secrecy about policy-making there, and
because what happens in the U.S. is of vital concern to activists everywhere. But there
is a need for a different analysis and strategy for each set of circumstances; in
particular, the critique here would need to be altered to apply to the Communist
countries, where the problems of organising for social change seem even greater than in
the Western industrialised countries.

The comments and help of the following people have been most valuable in the
development of this work: David Allworth, Meredith Ardley, Marilyn Chalkley, Mark
Diesendorf, Richard Dunford, Di Elliffe, Jack Gilding, Sue Goodall, Peter Murphy, Barry
Naughten, William H. Plows, Di Roberts, Richard Routley, Val Routley, Mike Russo,
Hugh Saddler, Ian Sharpe, Roger Stuart, John Tarrant, Pat Tracy, Peta Watt and Adrian
Young.

The Australian National University Students' Association provided for all the
typesetting and thus has made an essential contribution to the successful completion
of this book.

I would be most pleased to receive comments, criticism or suggestions from any
reader, and to further discuss the material here. I may be contacted c/- Friends of the
Earth (Canberra), P.O. Box 1875, Canberra City, ACT 2601, Australia.

Brian Martin.

TABLE OF CONTENTS

Some sample problems and proposed methods for solving them

Problem	Conservative solution	Liberal* solution	Self-management/ alternative life style solution.
Air and water pollution	Continued operation of present economic system; technological fixes	Present economic system plus regulation; technological fixes	Change in the basis for economic and social planning to include ecological factors at a fundamental level (for example, comprehensive reuse of materials).
Oil shortage	Faster exploitation of reserves; use of fission and coal	Regulations affecting oil consumption; use of fission and coal	Renewable energy sources and technology; restructuring of production, transport and the community to reduce energy needs
Poverty	Individual initiative (stimulated by lack of welfare); economic growth	Welfare programmes; economic growth	Production for social need; more collective goods; technologies making possible individual and communal self-sufficiency
War	More armaments	More armaments; detente	Disarmament; 'defence' based on preplanned organised political and economic noncooperation.
Alienation	Medical drugs; mental institutions; gaols	Minor concessions toward worker and community participation; medical drugs; mental institutions; gaols.	Workers' control; community-scale participatory democracy

Note: Naturally there are wide divergences in the solutions proposed with each 'group'. As well, there are further 'groups' with their particular sets of solutions, such as various brands of communists, churches, and ecological reactionaries such as Garrett Hardin (who says, in effect, "if the poor countries don't cut their population growth rate, let their populations starve").

* "Liberal" here refers to 'small-l liberals'. These are often represented by labour parties, as in Britain and Australia. It is not to be confused with the Australian Liberal Party!
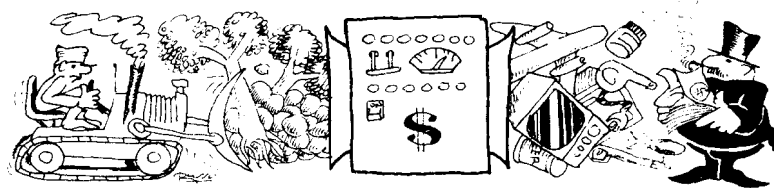
1. INTRODUCTION

It is common knowledge today — except among some proponents of nuclear power, and others who trust blindly in big technology— that there are massive problems involving scientific knowledge and technological development. These problems are most apparent in the gulf between the **possible** development of science and technology — to eliminate poverty, ignorance and degrading work— and its **actual** development in terms of nuclear weapons systems, space programmes and aerosol deodorants.

Although the **problems** involving energy and the environment may be clear, there is considerable disagreement over the **solutions**. Some sample problems and types of solutions proposed by different groups are listed on page 4.

The solutions offered by the 'conservatives' and by the 'liberals' have failed in many ways. In spite of economic growth, poverty and exploitation persist. People are for the most part no more satisfied with their jobs or their lives than before. Large institutions — government bureaucracies, transport systems, mass communications networks — more and more dominate people's lives, with increasingly harmful effects (some of the symptoms are suicide, cynicism and apathy drug-taking, vandalism and domestic violence). And overhanging all hopes for the future are the massive threats of ecological catastrophe and nuclear war.

'Self-management' is an alternative which looks to the ability of people to control and manage their own affairs to

the best interests of everyone — in workplaces, in local communities, in defence. Participation in and control over the decisions affecting one's life makes life more vital and worthwhile. It also avoids the problems of abuse of power by elites and experts and by hierarchical institutions.

The movement towards 'alternative life styles' brings an awareness of the need to rethink how to best satisfy human needs, needs such as meaningful activity, health, security, movement, production of goods and energy. Rather than relying on massive inflexible institutions with often nasty side effects, an alternative is to reorganise the way we live: learning by doing, promotion of health (rather than solely treatment of illness), decentralised living in harmony with nature, an emphasis on community and work satisfaction rather than accumulating possessions and power.

The advantages of self-management and alternative life styles are many and significant. And these alternatives are entirely feasible: there is plenty of evidence and experience to support their superiority over the present way society operates. But there are obstacles. The obstacles to self-management and alternative life styles are powerful vested interests and institutional resistance to change.

From here on the discussion will be set in the framework of the goals of the self-management/alternative life styles group. This does not require of the reader agreement with any particular future state or utopia, but only agreement that these are the directions society ought to be moving towards, or at least exploring. (A common argument used by those who disagree with change but who don't want to admit it is to disagree with some hypothetical final state, and to ignore the major issue of whether it is worth moving in that **direction.**)

Chapters 2, 3 and 4 are about how to achieve the goals of the 'self-management/alternative life styles' group, not in terms of prescriptions of tactics, but in terms of looking at structures in society and seeing how actions may lead to change in those structures, overcoming both opposition and cooption.

2. WHAT SORT OF A MOVEMENT?

Main points:

In order to promote desirable social change most successfully, a citizens' movement should
— attempt to change structures, not just policies (see section 2A);
— make positive proposals (see section 2B);
— be democratic, not elitist (see section 2C);
— be nonviolent (see section 2D);
— work at down-to-earth issues (see section 2E);
— not become discouraged (see section 2F).

Aim of this chapter:

To present some provocative ideas about what a citizens' movement should be like.

Personally, I believe that desirable social change is best pursued through a democratic citizens' movement working nonviolently to remove repressive structures in society and to promote equitable and democratic ones in their place.

In some activist circles, this basic approach is conventional wisdom. In others, it is a dangerous diversion or even a heresy. In either case, some of the most vital questions that any movement must face, whether directly and consciously or by default, are treated in the following sections.

2A. STRUCTURES OR POLICIES?

To achieve desirable change, is it sufficient to influence policies, or is it necessary to alter the social, political, and economic structures that led to that policy? In almost every case, in the long run the basic problems will not be solved until structures are changed.

Efforts to prevent a war may be successful on particular occasions (as at Munich or during the 1962 Cuban missile crisis). But as long as the basic institutions remain — military establishments and their overkill capacity, international political and economic rivalries, belief systems glorifying nationalism and sacrificial bravery — the problem of war must be met afresh time and time again.

Remember **Kaiparowits?** It was that gigantic coal-burning powerplant that was going to be built in the midst of all that glorious parkland in southern Utah. And then the sponsoring utility companies unexpectedly announced in April 1976 that the 3,000-megawatt project was dead. Kaput! Finished! Escalating costs and declining power demands, plus delays caused by regulatory agencies and environmentalist concerns, killed it.

There was great cheering among environmentalists, and there was gloom in southern Utah and the board-rooms of utility companies.

Well, Kaiparowits, like Lazarus, has risen. The form—a coal gasification plant—is different, but the substance is the same. And along with Kaiparowits stands a host of progeny, some of which will be a greater threat to those parklands than the parent that spawned them.

Efforts to stop a chemical company from polluting the water in one locality may be successful on particular occasions. But as long as the economic system is organised towards the goal of individual (company) profitability whatever the consequences to the environment or public health, continual efforts will have to be made to prevent further abuses.

Real, long-lasting change requires changes in structures. For example, the basis of the economy — production of goods and services to serve the ends of profitability — might be changed so that production is oriented first and foremost to serve people's needs, through workers controlling the production process, and the community having a say in what is produced. Organisations might be developed to encourage citizens to take control over community planning and the operation of community services. Defence might be organised on the basis of pre-planned and coordinated political and economic noncooperation by all citizens.

Problem: Workers at asbestos factories die because of unsafe working conditions.

Reform solution: Pass more restrictive laws.

Limitations of reform solution: There is only minimum compliance (or noncompliance) by the employing company because of the economic cost (to the company) of safety; the problem seems to have been solved, so discontent is muffled.

Structure change solution: Workers have control over factory procedures; the community has a voice in what is produced; worker and community health and safety are fundamental considerations in decisions about production.

Extra **advantages** of structure change solution: Higher worker job satisfaction (no bosses!); no production of unnecessary or harmful goods (for example, bicycles replace cars and their asbestos brake linings).

Reform of present policies, reform within the constraints of the hypothetically pluralist society we live in, is not enough. Experience has shown that basic problems — poverty, injustice, racism, sexism, militarism, destruction of the environment, and indeed nearly everything else that is nasty on a wide scale — will not be overcome through tinkering with the system as it is.

IAN SHARPE 78

The fundamental importance of structures means that it is of relatively little use attacking individuals or replacing them without altering the structures which condition their actions. Amazing as it may seem, almost all people — including the President, the Pope and the Prime Minister — mean well for all of society in what they do.

The best intentions
"And I know that we very often just cannot get the point across, but I know many people in the industry, and certainly in our company, and I know that most of us have the best intentions. We are trying to do what is right for the people, for the public. And we are trying to do the right thing as far as the environment is concerned, also, in terms of balancing things." — Electric power company official.

Most people live in a total environment — family upbringing, educational experiences, job, friends, social class, established practices, and accepted ideas — that justifies (or provides means for justifying) conventional actions in the circumstances. Attacking only the individuals in these circumstances — though often useful as a tactic — does not normally lead to significant change.

"It is essential to recognize that in a complex society, systems rather than individuals are the root of oppression . . . . If every general, admiral, and the heads of corporations that comprise the military industrial complex were killed because they involved the nation in an unpopular war, it would not eliminate the war system."
—John M. Swomley, Jr.

"I have learned not to confuse power patterns with the personalities of the individuals involved; in other words, to hate conditions, not individuals." — Saul Alinsky.

Challenges to structures are very threatening to those who defend and promote and benefit from those structures. Some groups which seek change may only want to redistribute power while maintaining inequality of power (groups such as new political parties, upstart business empires, professional groups seeking a rise in status). From the point of view of the leaders of the institutions of the status quo, such groups can be understood and tolerated — if not always appreciated. They will settle down once they find their place. It is the rules of the game which are sacred. Those who challenge the rules, who demonstrate deviance from established values or procedures — ranging from feminists and ecological activists to hippies and Black Panthers — must be depoliticised, diverted, coopted or repressed.

Will change come as revolution or evolution? If change means changes in structures, then this takes considerable time — time to establish new methods and organisations for community decision-making, time to develop production and distribution of goods and

services managed and controlled by workers and community, time for people to become accustomed to relating to each other without the barriers of hierarchy and competition. However, any fundamental change in such structures is revolutionary by definition — it is not part of the 'natural' development of previous structures.

Structural change is revolutionary, then, though not in the prevalent sense that it necessarily involves a sudden replacement of political rulers. A top-level political change, of course, may be part of a process of fundamental structural change; but it certainly is not a prerequisite, nor is it the only change required (as the numerous failures and shortcomings of virtually all coups and top-level takeovers demonstrates). It is important to remember that **revolution is a process, not an event.**

Structure change in education

"Must structural change precede educational change? Or is it possible to alter the purposes, biases, and actual functioning of schools without at the same time changing, radically, the structures through which they are organized and controlled? If my reading of history is roughly accurate, the answer to the second question is no. Forms of organizational structure are not and cannot be neutral. The relationships between bureaucracy, class bias, and racism are fixed. They emerged together a century ago, and they have remained essentially unchanged ever since. To attack one without the other would seem to be, if I am right, at best a waste of time and at worst another diversion from the serious need for social and educational reform within American society." — Michael B. Katz

2B. BUILDING OR DESTROYING?

In the movement to change structures in society, there are two basic approaches: building new structures and getting rid of old structures. Neither of these can be successful without the other.

Building new structures means such things as setting up local collectives for producing goods; setting up cooperative stores and health clinics; developing patterns of adult-child interaction which reduce socially promoted aggression, competition, apathy and sexism.

Attacking old structures means such things as working against the nuclear power establishment, the military establishment, the giant corporations, or the local power structure of a community that perpetuates poverty, racism, and sexism.

Building new structures can never be successful if the old are not attacked as well, because most people will not have the option or the incentive to escape the established institutions. Setting up an ecologically based, peaceful commune will not in itself lead to the downfall of the nuclear industry nor the military. (Setting a good example unfortunately does not often lead to a chain reaction of change — as demonstrated by bicycle riders, nonsmokers and altruistic people — because there are too many forces working in the opposite direction.) At its worst, building new structures can be an easy way for privileged members of the middle class to opt out of the more difficult work of building alternatives which provide a direct threat to what exists.

Attacking old structures without a simultaneous development of the ideas and practice of the new will also be unsuccessful in the long run. Unless a positive alternative is offered, it is too easy for backers of the status quo to justify their position. But more importantly, without a developing alternative — both in theory and practice — even the collapse of old structures is likely to be followed by new structures with many features of the old. An example is the Russian Revolution, in which centralised political control, hierarchy, and lack of workers' control in production were features of the new basis of society as well as the old.* At its worst, attacking old structures

---

* In this case, the anti-Soviet policies and military intervention carried out by the Western powers helped promote and justify the repressive new structures.

IAN SHARPE 78
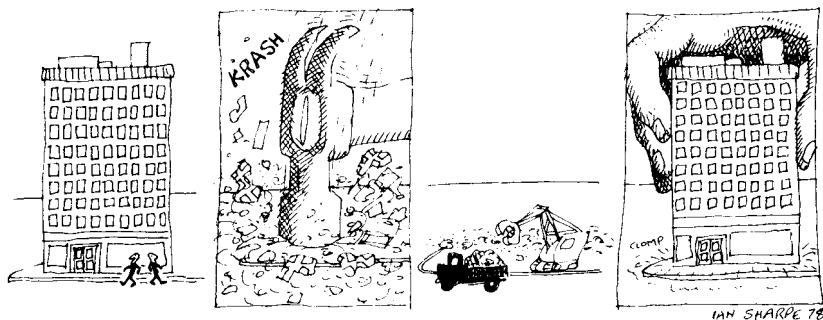
can be little more than mindless opposition to any policy that continues established practices.

At their best, building new structures and attacking old structures can be integrated and provide strength and inspiration for each other.

This booklet is mainly concerned with analysing and dismantling old structures. Fortunately, there is at least one excellent down-to-earth account of building new structures (David Morris and Karl Hess, *Neighborhood power*), and as well a growing movement towards learning webs and skill exchanges, alternative schools and health services, food coops and other neighbourhood enterprises, women's refuges, and communal farming and living.

In the short term, attacking old structures is more important, because people develop their lives around these structures and accept them so thoroughly that many new structures have little chance of getting going. In the long term, building new structures is vital; it also is not easy, because powerful groups in society will also be promoting new structures that will serve their needs in changed circumstances.

2C. DEMOCRACY OR HIERARCHY?

To a considerable degree, new structures in society reflect the groups which bring them about. If the group is doctrinaire, elitist, or middle class, then any new structure it brings into being is likely to be doctrinaire, elitist, or middle class. For an elite to take power in the name of the people is usually a hoax: all that is accomplished is the replacement of one set of rulers by another.

A movement for change in society towards greater democracy, local control, and less hierarchy must also be open and participatory. This means developing means for collective decision-making, encouraging participation by all interested people, and making all policies and actions open and without secrecy. Direct action can be organised through affinity groups, in which a group of 12 or so people learn about each other, role-play their response to opposition, arrest or attack, and in general strive to operate effectively as a group based on trust, mutual support and collective decision-making and action.

In general, small groups are ideal to practise the social relations of an 'ideal' society. The groups can be affinity groups (as described above), anti-war groups, radical science collectives, farming collectives or consumer pressure groups. What can be practised is discussion and action without formal hierarchy, giving responsibility and experience to different people, consensus decision-making, prevention of splintering, deciding what to do about dissidents, and tolerance. These ways of interacting can also be acted out in wider circumstances: schools, workplaces, amusements.

The movement must be democratic, but it also must be well organised. A disorganised, 'spontaneous' social movement is about as likely to bring about significant change in society as a disorganised, 'spontaneous' farmer is to survive on the land: namely, very unlikely unless luck is in one's favour. The challenge is to develop organisational techniques which foster participation and which still give effective coordination.

(Organisers and members of activist organisations may learn something from the books by Saul Alinsky, Dave Dellinger and Si Kahn.)

There is no necessary contradiction between democracy and organisation in a social movement. Admittedly, hierarchical, elitist organisations are often considered to be 'efficient': but the 'efficiency' — as in an army or factory — is seldom for the purpose of equality, freedom, or even producing goods. (Instead, the 'efficiency' is usually only meaningful in terms of profit or control from the top — see section 4A.) The challenge then is to develop democratic organisations that are also effective in acting towards their goals.

> "The industrial management expert Professor Seymour Melman of Columbia University has compared the performance of Israeli plants operating under egalitarian cooperative lines within the kibbutzim with that of plants under hierarchical managerial controls outside the kibbutzim . . . . He found that the cooperative enterprises showed 26 percent higher productivity of labor, 24 percent higher productivity of capital, 115 percent larger net profit per production worker, and 13 percent lower administrative costs." — L. S. Stavrianos

In a democratic social movement, there is no place for a fixed, dogmatic 'line'. A 'line' is a reflection of authoritarian power relations which are built into present organisations. The alternative to a 'line' is diversity, tolerance, debate and critical thought. Once again, this can be quite compatible with solidarity and effective action.

> "a genuinely revolutionary movement must mirror now the unity and diversity that is a prerequisite of any humanized society of the future. Solidarity, yes; uniformity, no!" — Dave Dellinger
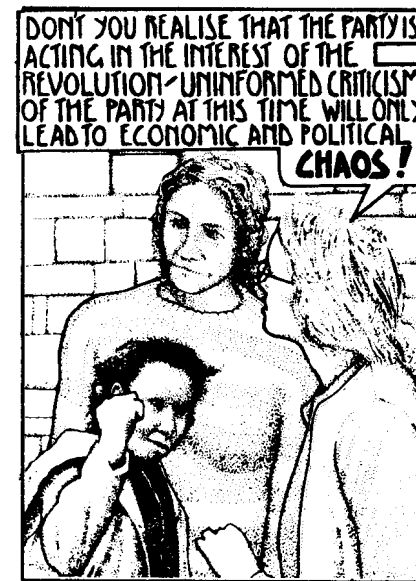
If a social movement is truly self-managed, then all its members (not just the activists) will know where it is going and why. American labour activists of the 1930's believed that strikes and militant actions were inherently revolutionary, even if the workers were only seeking higher wages and better material working conditions. Movements organised in this way have generally failed to achieve fundamental structural change by being coopted. Revolutionary organising around issues — whether against a freeway or for workers' control — needs to be accompanied by widespread consciousness of the meaning and goal of the effort — not just knowledge held only by activist leaders. Developing this sort of widespread consciousness requires an open, democratic, participatory, egalitarian and self-critical organisation — a big step towards a society with the same characteristics!

"Friends of the Earth is the only Australia-wide environmental organization which consciously strives toward non-hierarchical structures. This has effectively encouraged many women to become active (or to stay active) in the environment movement. Although figures vary with time due to the volunteer nature of FOE (!), in my experience there have been roughly equal numbers of women and men involved, which is good for everyone.

Women who have typed or made tea or sat silently while friends (usually male) have fought over power know how authoritarian organizations intimidate the less confident, encourage passivity, and crush independence. FOE (Aust.) has adopted the collective-type structures used by the women's movement and revolutionary anarchists. Such structures discourage centralization of power and enable the sharing of information, skills and jobs. When the collectives are working well, newcomers aren't intimidated by oppressive power relationships and may become active very quickly. Radicalization becomes a much easier process." — Di Elliffe.

2D. NONVIOLENCE OR VIOLENCE?

The first thing to remember in any discussion about violence is that the overwhelming majority of violence is carried out on the part of establishment powers. Some of this violence is overt, such as when police break up demonstrations or victimise blacks. The majority, however, is institutional: it is the result of established practices carried out 'normally'. Such violence is suffered by the poor (malnutrition, disease), by minorities, by women, by prisoners, by workers (unsafe working conditions), and by the general public (war, unsafe products, and overused or unsuitable technologies such as automobiles, nuclear power, and food additives). Armed robberies or terrorist bombings are big news; but poisoning of children from eating lead-based paint (conditions which landlords refuse to remedy), or the continual drugging and ill-treatment of many mental patients and elderly people in institutions, scarcely gets notice.

Police arresting militant workers.

It is in this context that the question of nonviolence or violence on the part of a movement for change arises.

Violence as a means for attaining social change has several severe flaws: it often causes suffering; it abdicates moral superiority and alienates potential supporters; it requires secrecy and hence leads to undemocratic decision-making; and if successful, it tends to lead towards a violent and authoritarian new ruling elite.

"revolutions grow out of the disintegration of consent, not out of violence. The reason violence is so often associated with revolution is that few have tested the power of government or the consent of the governed — except those who in their anger and frustration have been prepared to use violence." — John M. Swomley, Jr.

Nonviolent action as a policy and as a technique avoids these problems: its means reflect its ends. With nonviolent action, energy is aimed at policies or structures, and not at their supporters.

Nonviolent action includes such activities as

— exposure of current institutions (letters, articles, speeches,
    protests, sit-ins, non-compliance with regulations —
    all to demonstrate the inequity or oppression
    represented by the institutions)
— strikes
— work-ins (workers — or students! — taking control over
    the performance of their job)
— boycotts (of elections, segregated buses, foods with
    harmful additives, goods from countries with
    repressive governments)
— planting trees and crops on vacant land; riding bicycles
    on freeways; squatting in empty buildings
— refusal to pay taxes, rates or rents
— disruption of the functioning of companies and
    government bureaucracies by phone campaigns,
    sit-ins, continual requests, or depositing nonreuseable
    cans and bottles at factory doorsteps
— resistance to military conscription; refusal to obey orders
— work-to-rules campaigns; refusal to compromise with
    safety on the job
— occupation of government buildings and public squares
— setting up alternative institutions and establishing
    widespread loyalty to them.

"a serious movement cannot abandon a campaign because the
government threatens to impose casualties. In particular, a nonviolent
movement will be weak and historically insignificant unless the
willingness of its members to die or suffer imprisonment is at least as
strong as their refusal to kill or imprison others. For a nonviolent
movement to retreat before the threat of violence simply confirms the
prejudice, instilled by existing societies of both Left and Right, that
in a showdown, violence is the only serious answer to violence."—
Dave Dellinger

As a **tactic** (rather than policy) nonviolence and violence
each have advantages and disadvantages in different circumstances.
In advanced industrial countries, the power of the state and the
bias of the media are so overwhelming that violent tactics are
almost always counterproductive. Often violence on the part of
protesters is encouraged by establishment agents, to discredit the
movement. But even if violence is sometimes tactically
advantageous, this must be weighed against its great disadvantages
as even a possible policy.

Although there is a long history of nonviolent action (very
often successful), most people — including radical groups — are
unaware of it. Perhaps the attention given to violent revolutions
by the mass media and by so many intellectuals serves to ensure
that revolutionary efforts are relatively unattractive to the public,
whether or not they are successful.

Workers from the General and Municipal Workers Union, Britain.

Repression and public policy

"It has most often been the case that groups have been violently repressed, not when they have made their activities more militant and terroristic, but when they have softened their rhetoric and pursued mass-organizing techniques. The IWW [International Workers of the World], for example, was put on trial and raided at the point when it stopped talking about armed self-defense and began to stress its nonviolent aspects. There is a logic to this. The continued escalation of rhetoric often comes about when a group has little mass support; revolutionary rhetoric then serves as a surrogate for the lack of anything else. Since little support exists, there is no real reason to repress because there is no real danger. In those periods, the role of the state is actually the opposite of trying to repress revolutionary rhetoric out of existence; in fact, through its undercover agents, the state seeks to encourage the group to engage in more terroristic words, not, as most people hold, in order to repress it later, but to isolate it from a mass base. If a group gets through that period and does begin to organise, then its rhetoric and tactics will become decidedly less militant and terroristic, as if almost by law. But it is at this point, when the state's policy of encouraging more militancy breaks down, that the use of violence by the state is substituted as a form of repression, because that is when the group is most dangerous. It is interesting that the most severe repression of the Black Panther party came, not after it carried guns into the California legislature, but after it instituted a program of free breakfasts, as it tried to build a mass base." —Alan Wolfe.

Comment on violence and nonviolence

" When considered at the level of absolute principles the issue of violence versus nonviolence can be a misleading one. The proponents of either position need to define what they mean by the distinction (not an easy task), then to justify their means in relation to the likely consequence of adopting it within a specific context (a no easier task). The point, as it relates to nonviolence, can be illustrated by the case of Gandhian nationalism in India— perhaps the most celebrated example of 'nonviolent' political practice. Moreover, its success is often drawn upon by today's Western activists as a precedent justifying nonviolence as an absolute principle. What, then, was the role of nonviolence in Indian nationalism, and what was the nature of the success?

Gandhi was deeply committed to nonviolence as a fundamental moral principle. But Gandhian ideology and political practice were also ideally suited to a political movement dominated by India's capitalists and rich peasantry. Both of these classes wanted to capture state power from the colonialists, but without catalysing a challenge to their dominance by the classes they (often violently) exploited. Their ends required, in fact, the practice of a controlled, mass-backed limited violence against the colonial state. Whenever the mass movement began to proceed to a more radical assault on the British and to develop its own momentum, beyond the limits set by these dominant classes, it was suspended for this reason: the nonviolence principle was used to preclude the more radical alternative.

The Gandhian strategy was successful in replacing British rule with capitalist-rich peasant rule. But Gandhi belatedly found the result to be deeply disturbing: the practice of violence — in its many forms — against the exploited continued to be widespread and systematic. Contemporary Indian society is shot through with a violence which was inherent in the very structure and strategy of the Indian nationalist movement and which is, arguably, much more extensive than in some societies which experienced violent, but more socially equitable anti-colonial movements."— Roger Stuart.

2E. DOWN-TO-EARTH ISSUES

A grass-roots movement for progressive social change will get little support unless it is concerned with issues that are important in people's daily lives: jobs, security, satisfaction in work, moral values, communion between people. At the same time, the issue — if concern over it is to lead to changes in structures in society — must be crucial in some way to the continuation or expansion of current structures. Such an issue can form the basis for a transitional demand* (or nonreformist reform).


Nuclear power satisfies both requirements. It affects people's lives through gulping up society's economic resources, through increased insecurity from breakdowns or terrorism, and through its threats to health and peace in present and future generations. Nuclear power is also a major industry, extending and promoting the trend towards technological gigantism, dependence on expertise, and enormous centralised investment and control.

Whaling satisfies (at the moment) only the first requirement: it offends people's moral scruples (whales are such beautiful and intelligent creatures); it also highlights the folly of the selfish quest for economic gain by the whaling countries. However, stopping whaling would have little impact on the way society operates (though it would help whale society considerably).

---

* More precisely, a transitional demand is a meaningful issue which mobilises a large fraction of the populace due to its rationality even within the present system, yet which cannot be defused fundamentally without further significantly undermining the system and opening the way for further demands.

Even after a successful anti-whaling campaign, it might be necessary to mount anti-fishing campaigns or anti-phytoplankton harvesting campaigns.

The campaign against Rockefeller interests (manifested in demonstrations against Nelson Rockefeller and "Rocky" comic books) satisfies only the second requirement. To challenge Rockefeller interests (that is, to challenge the existence of massive economic empires controlled by a relatively small group of people) obviously threatens to change structures. Unfortunately, this campaign has few important links with most people's lives. (It might be more successful if waged by the
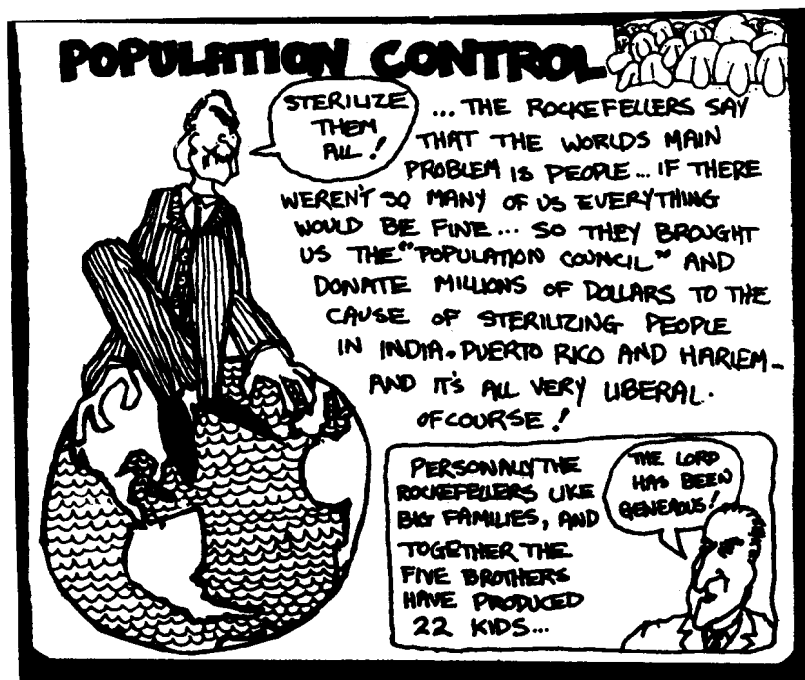
more downtrodden employees of Rockefeller-controlled companies.) It also has the disadvantage of focussing on personalities rather than the structures which make it possible for these personalities to exert undue power.

IAN SHARPE 78

The 'youth culture' — the use of illegal drugs such as marijuana, pop and folk music, and 'alternative' styles of dress and personal appearance (long hair and beads) — has little radical significance. The protest against prevailing cultural styles may annoy some people, but does not affect them in the most fundamental areas such as jobs. Neither are changes in fashion or acceptance of new drugs or music likely to have any effect on structures in society. Indeed, pop music and mod clothes are already controlled by commercial interests, and the legalisation of marijuana is likely to be a great source of profit for the cigarette companies. As part of a grass-roots movement for progressive social change, the surface manifestations of 'alternative culture' are mostly negative, both in repelling potential supporters and in diverting attention from important issues.

Protests against whaling or Rockefeller certainly are not useless. Every campaign has some use, especially if it makes a lot of people think and act (as the anti-whaling campaign obviously has). But if a major goal is to promote change in structures, then activists need to look carefully at different issues in terms of priorities (which is always done, whether consciously or not), and to emphasise those features of any given issue that have the greatest implications for building a movement for social change.

Comment on radicalism

" Many conventional 'radicals' want to write off issues concerned with the natural environment, such as whales and forests, as not raising radical issues, as not likely to bring radical change, or as 'of concern only to the bourgeoisie'. What is counted as 'radical' depends of course on what is counted as important or central in social change. Such positions then tend to see only the changing of economic inequalities or of the relations of production as really important, and count only those environmental issues which touch on these problems as radical, if they allow that any environmental issues at all are radical.

Such positions do not go nearly deep enough in questioning basic attitudes which underlie the status quo, and share far too many assumptions with the going system, especially assumptions concerning nature. It is central to the smooth operation of the going system that nature should be envisaged as a 'resource', a commodity available without much restriction for exploitation and use for material or other priceable gain, that the land should be seen as real estate (rather than seen in the fashion of the aborigines, for example), that animals should be seen as machines to be used for increased output and profits (rather than as fellow creatures to be respected), and so on. The operation of a market economy — which depends upon the use of all natural materials, land and

animals, as tradeable and alienable commodities — depends upon the maintenance of such attitudes, and the relative lack of restriction in their use which results. Such attitudes are what make possible large-scale mass-production farming, mass production forestry and mining enterprises, as opposed to alternative, smaller scale and less depersonalised, types of production which can proceed on the basis of respectful and needful use. Environmental issues concerned with the natural world can challenge and change these basic and deep-rooted attitudes, and therefore can be very 'radical' indeed.

Historically many of these attitudes to nature had their origin in the so-called Enlightenment, the main point of origin of the ideology of liberal capitalism. The conventional radical alternatives to capitalism, especially Marxist alternatives, share many of these Enlightenment attitudes, especially attitudes to science and exploitative or 'commodity' attitudes to the natural world, sometimes exhibiting these attitudes in an even more exaggerated and pernicious form (for example, conventional Marxist attitudes to progress, the benefits of science, and the prosecution of wars against nature, and frequently anti-ruralism). Thus they do not offer a sufficiently far-reaching alternative to capitalism — they can be seen as wanting to change the management of the firm but usually as wanting to keep on producing essentially the same line of goods."
— Richard Routley and Val Routley.

2F. THE FUTURE OF SOCIAL CHANGE MOVEMENTS

Academic detachment and action

"We cannot escape the necessity for action, and our conviction that there is much to be said on all sides does not absolve us from the necessity for acting vigorously and effectively on the side on which we think the truest and wisest things can be said." — Robert H. Thouless

One of the most common responses that activists meet from uncommitted but vaguely sympathetic people takes the following forms:

"I agree with your aims, but I think your cause is hopeless. Why do you bother?"
"You'll never stop nuclear power, so you might as well accept it and try to make it safe."
"It doesn't matter what I think or what people think, the government will do what it (and the companies) want."

This sort of attitude of resignation and fatalism is of course a self-fulfilling prophecy; but its underlying premise is also contradicted by historical experience.

First, it should be remembered that this attitude may be adopted unconsciously to justify a person's inaction, or to justify support for a cause (such as nuclear power) that is morally or intellectually unfashionable. A person's **stated** motivations for inaction may actually be a **justification.**

Second, citizen movements have very often had an enormous impact on society. Even when the changes that were made were pushed through by elite groups (laws passed by governments, altered industrial policies), they often were in response to citizen protest and unrest. Examples of positive achievements promoted by citizen movements are
— the ending of slavery
— improved working conditions
— voting in elections by a large fraction of the populace.
Examples of harmful developments prevented partly through citizen action (or fear of public opinion) are
— the use of nuclear weapons since the bombing of Nagasaki
— the use of nuclear explosives to dig another canal across the Isthmus of Panama (the Cuna Indians among others were adamant on this issue)
— the use of underground nuclear explosions to stimulate production of oil and natural gas (actually, this has been done in the Soviet Union, where little citizen protest is allowed).
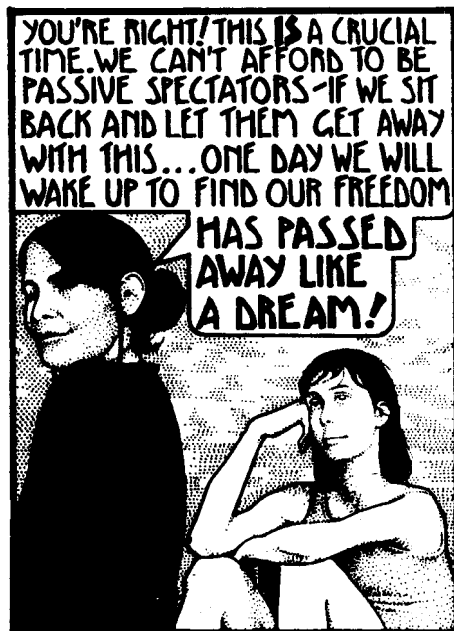
Citizen action often seems futile, for several reasons. First, from the point of view of a single **individual**, achievement of change seems impossibly difficult. But this should only serve to recall the importance of **collective** action, of effective **organisation** by concerned citizens. Second, the general attitude of fatalism is one that is fostered by the present organisation of society, because it is functional in preventing threats to the status quo. For these reasons, citizen movements should work to challenge those values which help to maintain the existing society and restrain collective citizen action: the values of individualism, competitiveness, fatalism, passiveness, narrow-mindedness, and respect for constituted authority (just because it is constituted).

Challenging these values will also, in the long run, strengthen all citizens' movements. This is because collective action is not the result of the self-interest of the individual activists; rather, most activists are motivated by their own moral commitments. A reduction in individualism and competitiveness (which are fostered now through nuclear families, education, the media, and the economic system) would therefore lead to greatly increased involvement in collective action by many people.

Objectivity and action

"Liberals,* in common with many conservatives, lay claim to the precious quality of impartiality, of cold objectivity, and to a sense of mystical impartial justice which enables them to view both sides of an issue. Since there are always at least two sides to every question and all justice on one side involves a certain degree of injustice to the other side, liberals are hesitant to act. Their opinions are studded with 'but on the other hand'. Caught on the horns of this dilemma they are paralyzed into immobility. They become utterly incapable of action. They discuss and discuss and end in disgust.

Liberals* charge radicals with passionate partisanship. To this accusation the radical's jaw tightens as [she or] he snaps, 'Guilty! We are partisan for the people. Furthermore, we know that all people are partisan. The only nonpartisan people are those who are dead. You too are partisan — if not for the people, then for whom?' "

"I still feel the same contempt for and still reject so-called objective decisions made without passion and anger. Objectivity, like the claim that one is nonpartisan or reasonable, is usually a defensive posture used by those who fear involvement in the passions, partisanships, conflicts, and changes that make up life; they fear life. An 'objective' decision is generally lifeless. It is academic and the word 'academic' is a synonym for irrelevant."
—Saul D. Alinsky.

* see footnote on page 4.

Finally, citizen action often seems futile because in the short and the long term it is unsuccessful. But of course just because results may not come for years or decades, or because a particular campaign is unsuccessful, or because everything wanted is not attained, is no reason not to try. Unsuccessful campaigns may be valuable in themselves, in gaining organisational experience and overcoming passiveness. Furthermore, it is vitally important to learn from failures.

To be realistic, the possibility of near total failure in changing society for the better must be faced. On the other hand, it may be that the contradictions of the present world system will cause its downfall precisely when it seems most stable.

L.S. Stavrianos believes that a new 'Dark Age' — due to a nuclear war or massive economic and environmental breakdown, in any case accompanied by a breakdown of major societal institutions — would actually hold great promise for those who believe in self-management, due to the local initiative and organised community action that would be required to survive. But it would be unduly pessimistic to put one's faith in disaster: 'disasters' are likely to favour only those who are prepared.
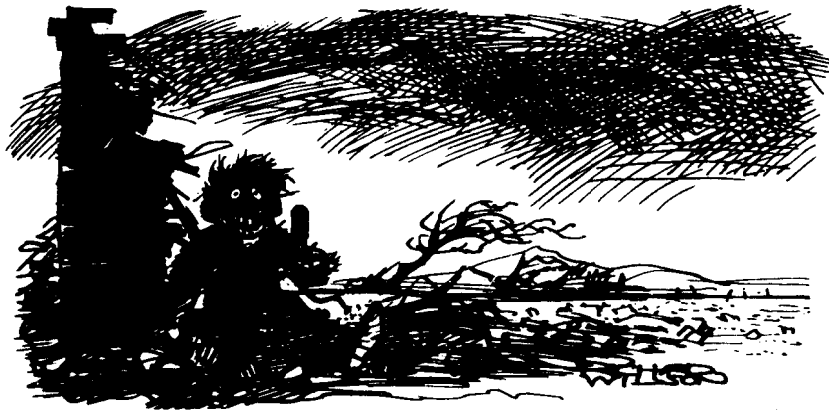
"And now for the GOOD news ..."

---

3. TECHNOLOGY AND THE STRUCTURE OF SOCIETY

Main points:
  A. The choice of a technology, and the particular forms it takes, are deeply influenced by the social, political and economic structures in society (see section 3A).
  B. Technology, once adopted, influences the course of social, political and economic development in society (see section 3B).
  C. There are three major links between technology and society: organisations (see section 3C), infrastructure (see section 3D), and ideas (see section 3E).
Aim of this chapter:
  To point out the links between technology and society, and to provide clues as to where and how groups can intervene in the process of technological innovation with the aim of promoting more desirable structures in society.

3A. THE SOCIAL AND POLITICAL ORIGINS OF TECHNOLOGY

Any particular piece of equipment, or a type of technology, is selectively useful for certain purposes and for certain people. An axe could conceivably be used to butter a piece of bread, but it is easier and more natural to use it to chop logs: the axe is selectively useful for chopping logs. Similarly, knowledge of nuclear physics could conceivably be valuable to a nomad in Afghanistan, but such knowledge is more readily used by builders of nuclear weapons and nuclear power plants.

IAN SHARPE 78

Some academics and other defenders of the status quo say that technology is neutral — that it is not selectively useful. But these people are seldom seen demonstrating the 'good' uses of anti-personnel or biological weapons before they eat breakfast. Of course not. The idea of neutral technology itself is useful mainly in discouraging others from becoming aware of the social and political dimensions of technology and their implications.

The reason for the selective usefulness of technology is that it does not develop and is not used in a social and political vacuum. Instead, technology is always designed and used by humans, for human purposes. If some humans — such as corporation executives or high government officials — have more power than others over technological development, then technological development to some extent will reflect their interests and the interests of the organisations or social classes they represent or serve.

Reasons for the forms of some particular technologies

Technology	Basis for design
Anti-personnel fragmentation bombs	Such bombs may kill, but incapacitation is also a goal: the victim then must be treated and fed, putting a drain on the enemy's resources. The many small pieces of metal make medical treatment very difficult.
Assembly line	The assembly line is no more 'efficient' than other ways of organising the production of goods; however, it enables managers to keep a tight control on workers; makes workers . easily replaceable and hence discourages worker organisations and solidarity; and by reducing the skills required for most jobs, and hence the salaries, increases profitability.
Telephone switch systems in offices	The particular connections used in large switchboards or in boss-secretary situations are designed to promote efficient communication in a way that fits in with office hierarchies and the division of labour.
Hard-to-fix appliances	Built-in obsolescence in consumer goods ensures stability or growth in sales, while also preventing the beginning of the development of local skills (i.e. not under the aegis of the manager) or cooperative production.
? (Durable, cheap, easy-to-put-together bicycles, harvesting tools, heaters, etc.)	The 'self-managed' design promotes individual and group initiative by enabling individuals and groups to have greatest decision-making power over design, production, and use of the technology

The same comments apply to the non-physical aspects of technology: the craft skills of workers, principles of manufacture, sales, and work organisation, and the scientific knowledge that leads to (and grows out of) technological development. If a worker learns how to put ten different screws in place within 52 seconds, over and over again, this is selectively useful to those who have established a factory assembly line with a tightly controlled and finely meshed division of labour. Knowledge is never neutral either, as anyone who has been to school will realise. As society develops, some types of knowledge become obsolete — such as learning Latin or how to multiply using logarithms — because their uses die out or are superseded. Other types of knowledge — such as real estate manipulations or computer programming — become important.

Of course, some types of technology are more narrowly useful than others. But all science and technology is selectively useful to some degree.

The social and political origins of technology do not just come from a choice, once upon a time, among two or more alternatives. Instead, they involve the tiniest details as well as the broad features of a technological development. Every aspect of technology is designed for its particular function in a situation where social, political and economic imperatives are foremost. Of course there are other impacts (such as aesthetics and chance) and constraints on the development of technology, too — for example, it must do the required job. But there are many ways to keep warm, as we all know (except for a few nuclear power proponents). It is social, political and economic factors which are vital in deciding whether technology is developed to collect solar energy, to burn coal, or to transport people to Hawaii for the winter.

A note on economics: although some technologies are adopted for economic reasons primarily (profitability, control over market), this does not mean they are necessarily 'efficient' in any sense. The economic system is based on certain value assumptions — such as that the economic preferences of a rich person are more important than those of a poor person. Different value assumptions would require a different economic system. Hence, neutral judgements cannot be made on the basis of economic comparisons. As has been pointed out by Herman Daly and Amory Lovins, the prices of resources are determined by the choice of an energy path, and this choice is primarily a social and political one.

Implications

The process of technological innovation cannot be left to itself, since it will then fall under the control of the powerful vested interests in society, with the ill effects that this so often brings about. Activists working for a self-managed society need to promote community intervention into, and eventually community control over, the process of technological innovation, both through campaigns against undesirable technologies (nuclear power, SSTs) and by developing and promoting alternative technologies which are closely linked with alternative social and political arrangements.

As society changes, new productive forces and influential social groups emerge (such as computers and the technologically-based social planner). Analysis of such changes may give insight into potentialities for intervention into the process of technological change as it interacts with social change.
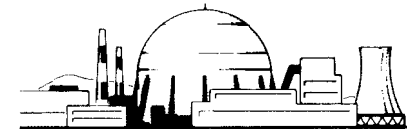
CASE: Solar or Nuclear?

As is well known to many people, the decision to develop nuclear power as a major source of energy was not based on its superiority as a technology, but on a number of reasons rooted in politics and bureaucracy.

The 1951 Swedish Fuels Commission "saw active energy-saving efforts as the best way to overcome a threatening overdependence on oil. At that time the avowed intention was to encourage the insulation of dwellings, to develop wind power and heat pumps, etc.

By the time the Fuels Commission published its final report in 1956, all thoughts of pursuing an active conservation policy were forgotten. The dependence on imports would not be solved by the exercise of restraint on the user side but by resort to nuclear power, i.e. with measures on the supply side."

"We can only speculate on why the mood shifted from 1951 to 1956. One reason, certainly, was the emergence of domestic nuclear power as an alternative to oil. In the late 1940s, moreover, the giant oil fields in the Middle East began to produce in volume, which brought gradually falling oil prices in its train. Another reason, presumably, was that an active policy of energy conservation is simply much more complicated to administer than an active policy for increasing the supply." — Måns Lönnroth, Peter Steen and Thomas B. Johansson.

"The Paley Commission was established [by President Truman's administration] to appraise the natural resources available to the U.S. by 1975 and to formulate policies which would meet resource demands at the lowest economic cost . . . . Only two sources of energy supply would be available to alleviate the demand for foreign oil — uranium and solar energies. The Paley Commission opted for the solar alternative . . . . But the anticipated growth of solar technology never occurred. Inherent in the political and

technical traditions of the 1950s were a number of prejudices which effectively limited a solar policy.

Technically, solar energy was an ugly duckling. Energy systems in the 1950s depended heavily, as they do today, on coal and oil, both of which are high-temperature, concentrated energy sources. Of the two alternative sources, only uranium would fit the existing engineering systems . . . . Solar energy, because of its diffuse, low-temperature applications, could not be easily substituted as a fuel in existing power plants and was summarily dismissed by the engineering community and corporation managers.

In economic terms, the use of solar energy represented a major threat to the energy industry. The delivery system for conventional energy supply was characterized by its increasing centralization. In the case of electrical production, whole communities often depended upon a single utility for electricity. Solar energy, with its ability to provide energy at the site of the individual buildings, meant that consumers would be using less and less of a utility's service, thereby diminishing the need for more generating capacity. If electrical consumption no longer increased, neither would profits.

The utilities and reactor manufacturers were uninterested in solar technologies because they threatened to erode industry's political influence."
— Ralph Nader and John Abbotts

"I, certainly, absolutely am convinced that the government never developed nuclear power out of a coherent analysis of the energy question. Never. In the first place, it [energy analysis] wasn't done at all, in the beginning, because all they were interested in were bombs. And then when it was done, it was a political ploy on Eisenhower's part. You remember Operation Candor [the government's program to reassure the public about fallout]? And all that jazz. It was at the same time, when they decided they had to have some kind of nonwarlike excuse for continuing the development of nuclear energy. Let me put it this way. I tend to look at the whole nuclear-power thing as a kind of political Potёmkin Village. A very expensive one, constructed in order to make Eisenhower's political position credible. It's the most expensive charade in history." — Barry Commoner

superiority, but in the substitution of the capitalist's for the worker's control of the work process and quantity of output."

III. The social function of heirarchical control of production is to provide for the accumulation of capital . . . In the absence of hierarchical control of production, society would either have to fashion egalitarian institutions for accumulating capital or content itself with the level of capital already accumulated.

IV. The emphasis on accumulation accounts in large part for the failure of Soviet-style socialism to 'overtake and surpass' the capitalist world in developing egalitarian forms of work organization. In according first priority to the accumulation of capital, the Soviet Union repeated the history of capitalism, at least as regards the relationship of men and women to their work."
— Stephen Marglin

CASE: Origins and development of the manufacturing division of labour

Stephen Marglin, in a detailed study of the origins of the economic division of labour in the time of the industrial revolution, finds that the organisation of technology — its adaptation to a fine division of labour — is strongly shaped by social and economic organisation. He argues that "a new method of production does not have to be technologically superior to be adopted; innovation depends as much on economic and social institutions — on who is in control of production and under what constraints control is exercised." His conclusions, for which he gives detailed backing, are as follows.

"I. The capitalist division of labour, typified by Adam Smith's famous example of pin manufacture, was the result of a search not for a technologically superior organization of work, but for an organization which guaranteed to the entrepreneur an essential role in the production process, as integrator of the separate efforts of his workers into a marketable product.

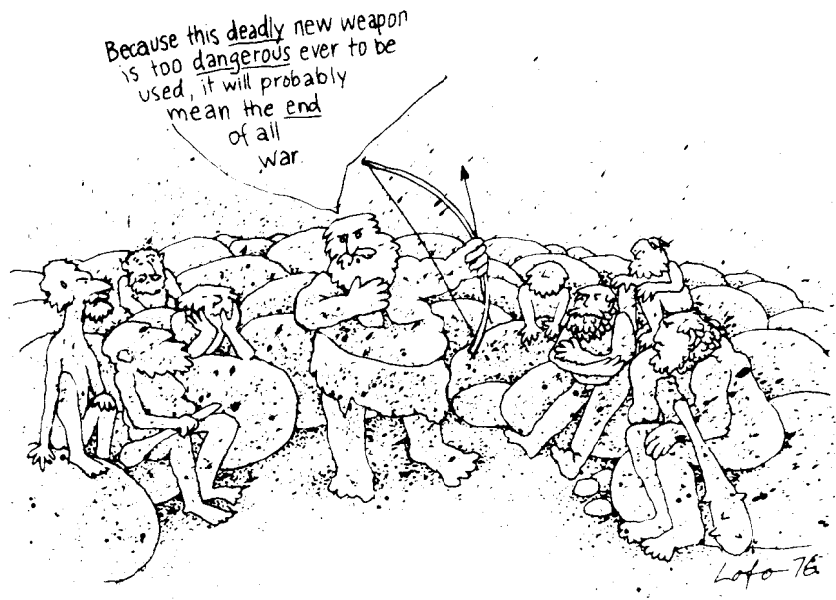II. Likewise, the origin and success of the factory lay not in technological

Machinery and control of workers

"in the manufacture of wearing apparel, every aspect of the production process is being energetically attacked. Since this is an industry which is characterized by the existence of many shops, most of them relatively small, a great many are still in the stage of traditional "rationalization", breaking down operations into a large number of smaller and simpler steps. At the same time these steps are being speeded up by the introduction of a variety of devices, chiefly attachments to sewing machines such as needle positioners, automatic thread cutters, pleaters, and hemmers. The use of two- or three-layer bonded materials, which eliminate separate linings, and synthetic fabrics, which may be processed by novel methods such as the electronic fusing of seams in place of sewing, opens up new vistas for cheapening and transforming mass-produced clothing . . .

Despite the variety of means used in all the innovations we have been describing [metalwork, furniture production, meatpacking, manufacture of wearing apparel, typesetting], their unifying feature is the same as that which we noted at the outset of this discussion: the progressive elimination of the control functions of the worker, insofar as possible, and their transfer to a device which is controlled, again insofar as possible, by management from outside the direct process. It is this which dominates the new place of the worker in production processes, and it is this above all which is slighted or entirely neglected in conventional assessments."
— Harry Braverman.

Because this deadly new weapon is too dangerous ever to be used, it will probably mean the end of all war.

3B. THE SOCIAL AND POLITICAL CONSEQUENCES OF TECHNOLOGY

A technology may have its origins in social and political circumstances. But once it is introduced, it also has social and political consequences. These consequences include new industries (automobile industry), new social patterns (suburban living), new cultural and aesthetic forms (radio, TV, electronic music), and new associations of ideas (material possessions as status symbols).

Which comes first: technology, or the social and political conditions which give rise to it and which are influenced by it? Actually, of course, there is a constant interaction between the two. But from the point of view of the people who actually intervene in the process — who make decisions about which technology to promote or what research to provide funds for — the social and political conditions come first. This is because decisions are made to support or oppose particular technologies precisely **because** they

have particular social and political consequences (although misjudgments about the consequences can be made). Powerful organisations and social groups — such as electricity utilities and elite nuclear scientists — are in favour of nuclear power precisely because it will increase their economic and political power (though their conscious motivations may be of the highest moral order — such is the power of rationalisation!). Citizens' groups are opposed to nuclear power for the same reason.

Marx expressed the difference between feudalism and capital capitalism in an aphorism:

"The hand mill gives you a society with the feudal lord, the steam mill a society with the industrial capitalist."

Some modern-day environmentalists seem to believe in the same sort of technological determinism:

Nuclear power gives you a society with a nuclear bureaucratic elite, solar energy a society with local community control.

This way of thinking is inadequate because it doesn't take into account the social and political origins of technology. Nuclear power very likely will be associated with concentrated economic and political power in the hands of leaders of the nuclear establishment because this establishment, as it developed, succeeded in shaping policies and programmes (such as dependence on electricity) and making alliances that enabled it to grow and prosper. Similarly, solar energy on its own will not bring about the local community control unless solar energy is introduced as part of an energy policy decided upon and promoted at the community level itself.

In short then, political and social conditions do not directly lead to particular technologies, nor vice versa. There are many links in the chain of interaction between them. Three of the most important are organisations, infrastructure, and ideas (sections C, D, and E following).

	Automobile	Nuclear power
Social	Promotion of nuclear suburban family Limited mobility of non-car-owners Isolation of individual while travelling Independence of affluent youth	Insecurity due to threat of accident, terrorism or war Increased state surveillance to guard against terrorists and criminals
Economic	High expenditure on transport (autos, roads, travelling, medical expenses)	Electricity-based economy requiring heavy expenditure in energy sector, and shifts to different technologies (e.g. electric transport)
Organisations	Automobile manufacturers Road constructors Oil companies Rubber companies, etc.	Reactor manufacturers Electrical utilities Mining companies Nuclear engineering departments, etc.
Infrastructure	Freeways, destruction of public transport Refineries Automobile plants Suburban sprawl Drive-in movie theatres	Uranium mines Enrichment plants Nuclear power plants Reprocessing plants High voltage grid Electric appliances
Ideas	The car as status symbol 'Freedom' of open road Ideal of home in suburbs	The nuclear expert as source of social wisdom 'Cleanness' of electricity
Miscellaneous (personal, physiological, cultural)	Suffering of accident victims Reduced physical fitness Demolition derby	Increased cancer rates among workers and public

Implications

The likely social and political consequences of a technology provide a good basis for deciding whether it is worth promoting or not. But because the social and political consequences of technology often reflect its origins, it is important to look at who is backing the technology, and what if any established organisations or practices will be benefited or threatened by it. In other words, it is important to look at the political circumstances in which it is being introduced. If big corporations are pushing energy conservation and small solar collectors, perhaps the implications of these changes are no longer so threatening.

On the other hand, technologies do not automatically serve the interests of their promoters. It will often be worthwhile to work with groups promoting a technology (such as small entrepreneurs backing local solar heaters) which has the greatest current potential for stimulating consciousness of alternatives and organised action towards reaching them.

Another way of saying this is that the subversive potential of technology depends on social conditions. Evergy conservation can be subversive of established structures if introduced in a way that organises people, changes their awareness, and/or challenges the energy industry. But energy conservation isn't subversive if it serves to stabilise the system in the face of social and political problems arising from energy shortages. And to make the matter complicated, of course, both these effects are likely to occur in practice.

The selective usefulness of resources

"Non-renewable energy resources in general, and fossil fuels in particular, possess unique characteristics which make them eminently suitable for exploitation by ruling oligarchies in the furtherance of their own interests. Fossil fuels are *concentrated* in discrete locations, on land that can be bought (or seized! — unlike the renewable resouces, which in general are pretty evenly distributed throughout the globe. Their extraction from the Earth requires large amounts of capital and a high degree of technological expertise, which, as the citizens of the North of Scotland have discovered, means that only Governments and the largest multinational corporations can afford to finance such undertakings."

"In so far as energy can be said to have political characteristics, then, the non-renewable energy sources can be classed as hierarchical, authoritarian and exploitative. The Earth's *renewable* energy resources, on the other hand, are non-hierarchical and egalitarian. They are accessible in almost every part of nearly every country to persons possessing a minimum of capital and technical knowledge. And they are non-exploitative not only in the sense that they cannot be "used up", but also in the sense that they are distributed in fairly low concentrations everywhere, so that it is difficult to accumulate inordinate amounts in one place — a fact which is a decided disincentive to the entrepreneurially-minded."

"It is entirely possible that, given the political will to find such a solution, techniques can be developed to enable solar cells to be made in small, worker-controlled factories using a minimum of non-renewable resources, and with no adverse environmental effects."

"The potential uses and abuses of solar energy illustrate, however, the important truth that the political and economic system within which a technology is required to operate is just as important in determining its results — adverse or beneficial — as the characteristics of the technology itself. Solar power may be *potentially* a universally-distributed, non-polluting, inexhaustible, free power source, but in a capitalist, (or state-capitalist), exploitative, centralised market economy it can be turned into a commodity like any other — though the task is considerably more difficult than with, say, fossil fuels or mineral resources."
—Godfrey Boyle.

URANIUM DEPOSITS AND AREAS FAVOURABLE FOR URANIUM MINERALISATION
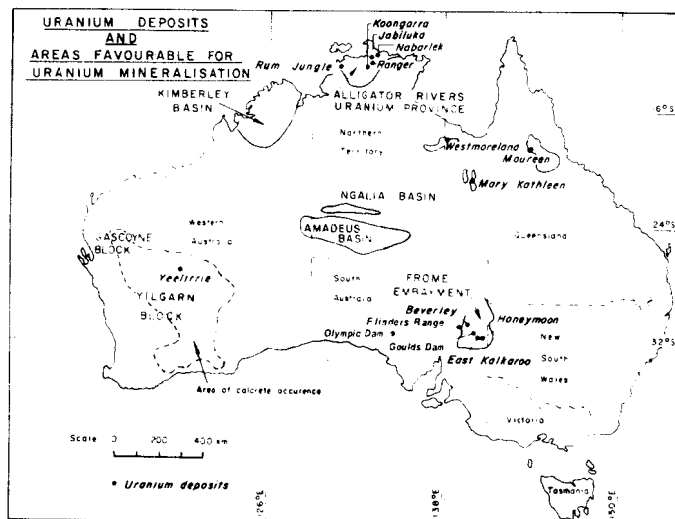
3C. ORGANISATIONS

Organisations develop to serve particular social, political and economic interests. The total range and influence of organisations in society — banks, corporations, government departments, armies, professional societies, sporting clubs and food collectives — therefore reflect fairly closely the distribution of power in society. Powerful groups in society, such as the wealthy, control and are served by the more powerful organisations.

In short, organisations (like technology) both result from and influence social and political processes in society.

Bureaucracy

"Bureaucracy came about because men confronted particular kinds of social problems with particular social purposes. Those purposes reflected class attitudes and class interests. Modern bureaucracy is a bourgeois invention; it represents a crystallization of bourgeois social attitudes. To its founders . . . . the purposes of the school system and its structure were clearly interrelated. They understood that part of the message they wished to have transmitted, the attitudes they wished formed, would inhere in the structural arrangements themselves rather than in explicit didactic procedures. What they did not admit, although it is hard to see how they could have failed to realize it, was that the bureaucuratic structure, apparently so equitable and favorable to the poor, would in fact give differential advantage to the affluent and their children, thereby reinforcing rather than altering existing patterns of social structure. Through bureaucracy, the myth of equal opportunity has been fostered, while the amount of social mobility has been strictly regulated."
—Michael B. Katz.

Organisational resistance to change in the U.S. Navy: continuous-aim firing

"Here was a reform that greatly and demonstrably increased the fighting effectiveness of a service that maintains itself almost exclusively to fight. Why then this refusal to accept so carefully documented a case, a case proved incontestably by records and experience? Why should virtually all the rulers of a society so resolutely seek to reject a change that so markedly improved its chances for survival in any contest with competing societies? There are the obvious reasons that will occur to all of you — the source of the proposed reform was an obscure junior officer 8000 miles away; he was, and this is a significant factor, criticizing gear and machinery designed by the very men in the bureaus to whom he was sending his criticisms."

"A less obvious cause appears by far the most important one. It has to do with the fact that the Navy is not only an armed force; it is a society. Men spend their whole lives in it and tend to find the definition of their whole being within it."

"Now the question still is, why this blind reaction to technological change[?] . . . . The opposition, where it occurs, of the soldier and the sailor to such change springs from the normal human instinct to protect oneself, and more especially, one's way of life. Military organizations are societies built around and upon the prevailing weapons systems. Intuitively and quite correctly the military man feels that a change in weapon portends a change in the arrangements of his society." — Elting E. Morison

It should be remembered that many organisations do not do what they say they do. Businesses may proclaim that they are concerned about the environment and publicise a few company actions beneficial to the environment. Often, of course, this is only a public relations exercise hiding a lack of any real change in policy.

The structure of an organisation reflects the social and political forces that created it and which maintain it. For example, most of the powerful organisations in society — in business and government — are hierarchical: most of the decision-making power is concentrated at the top. Organisations are set up to compete for political and economic influence, in the same way that money competes in the economy for resources and labour.

```
commands        General
    ↓              |              ↑
               Colonel
    ↓              |              ↑
               Major
    ↓              |              ↑
               Captain
    ↓              |              ↑
               Lieutenant
    ↓              |              ↑
               Sergeant
    ↓              |              ↑
               Private       information
```
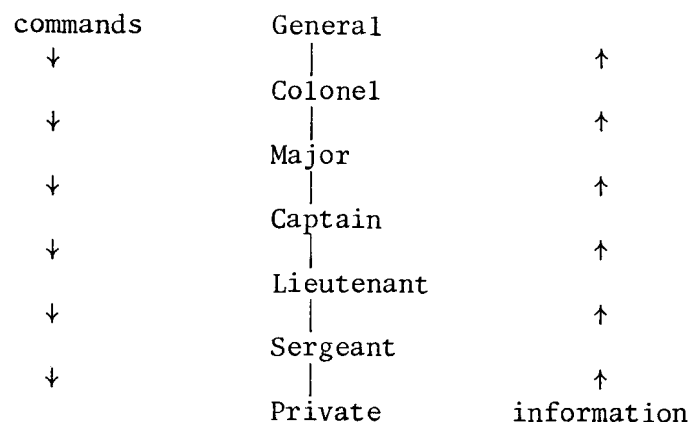
This suggests that there are two ways to enter upon political and social change by interacting with organisations: by attacking the power and legitimacy of existing organisations, and by setting up new organisations with desirable characteristics (decentralised groups; ways for people in groups to relate to each other honestly and freely and nonthreateningly, in a democratic framework).

Are democratic organisations possible?

"democracy within private associations is [not] impossible, but . . . present forms of society render it impossible. The undemocratic nature of private associations in the United States is crucial to the operation of the democratic state for two reasons. First, it enables the leaders to form alliances with the rulers of the democratic state or their agents. In a crisis situation, the leaders then work for the state against the interests of their constituents and engage in ideological repression in order to justify their activity. Second, undemocratic private groups reinforce cynical and fatalistic values, as well as authoritarianism. With the privilege of leadership restricted to a few, the many are encouraged to remain passive, good citizens of the democratic state.

The relationship between the rulers of the democratic state and the leaders of America's labor unions provides the best example of the first situation. Labor is the one group that has the numbers and potential political power to be a genuine threat to the existence of capitalism; hence, its repression is most vital. This repression has very often taken the form of ideological repression by the leaders of labor unions operating as intermediaries."

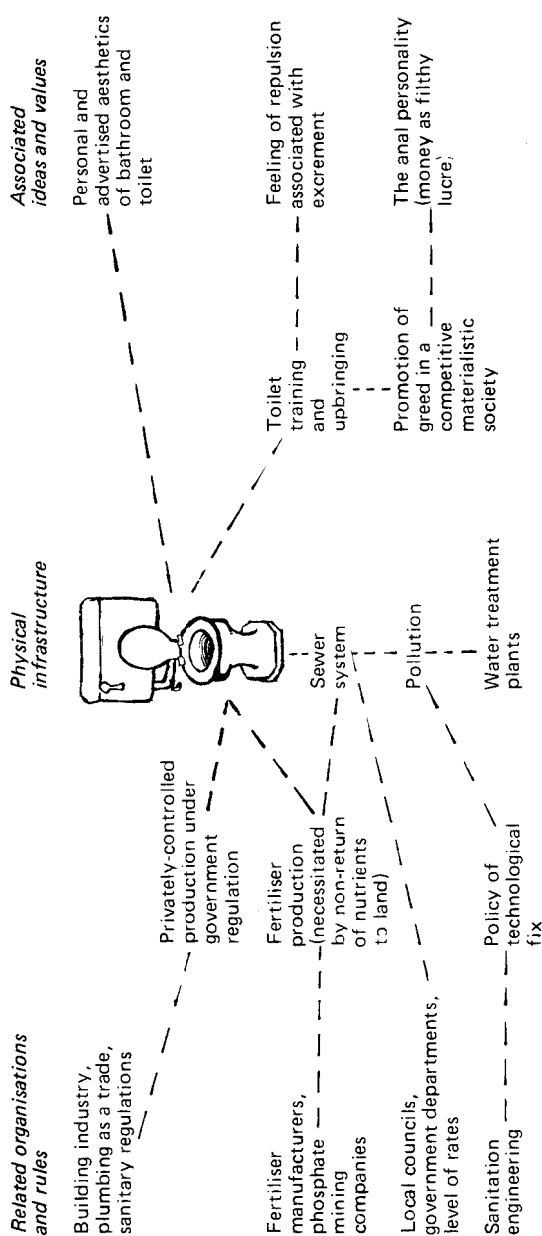*The family as an influential organisation*

"specific attitudes are changing fast, and many children think differently from their parents about specific events. Nonetheless, the family still plays an important role . . . . the family's major importance is in creating support for things that will ensure 'the stability of basic institutions.' Thus, *the chief importance of the family is in indirect repression, teaching values that support the political consensus, rather than inculcating any specific politics."* — Alan Wolfe
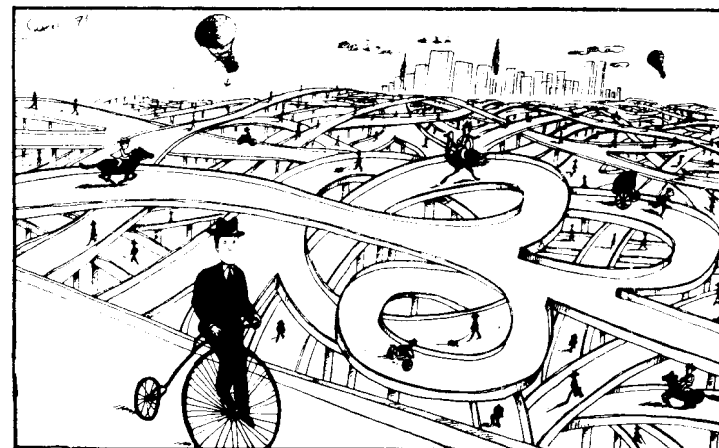
3D. INFRASTRUCTURES

Infrastructure refers to existing facilities and tools in society, both physical and conceptual. It includes roads and the equipment and ready resources to build them; and it includes knowledge of road construction, both in books and in people's heads.

Associated with any technology is an infrastructure, whether large or small (see diagram on excretion, and table in section 3B on automobiles and nuclear power). The infrastructures associated with different technologies overlap and penetrate each other. For example, the infrastructure associated with automobiles and with the manufacture of rubber overlap in the production of tyres and other vehicle accessories made of rubber, and in the knowledge and skills involved in the design and production of these facilities. (Organisations and ideas could be considered part of an infrastructure; they are separated here for convenience.)

The left part of the page is a diagram. Its text reads:

Aspects of the infrastructure of excretion

Column headings:
- *Related organisations and rules*
- *Physical infrastructure*
- *Associated ideas and values*

Labels:

Related organisations and rules:
- Building industry, plumbing as a trade, sanitary regulations
- Privately-controlled production under government regulation
- Fertiliser production (necessitated by non-return of nutrients to land)
- Fertiliser manufacturers, phosphate mining companies
- Local councils, government departments, level of rates
- Sanitation engineering

Physical infrastructure:
- Sewer system
- Pollution
- Water treatment plants
- Policy of technological fix

Associated ideas and values:
- Personal and advertised aesthetics of bathroom and toilet
- Feeling of repulsion associated with excrement
- Toilet training and upbringing
- Promotion of greed in a competitive materialistic society
- The anal personality (money as filthy lucre)

This infrastructure makes it difficult to move to a more ecologically sound waste recycling system based on collecting and returning excrement to the soil (which, not incidentally either, would be most efficiently organised at the local community level).

Infrastructures are extremely important and powerful in shaping the development of technology and society. An infrastructure represents an investment in a particular way of doing things; to do things in a different way often requires scrapping much or all of this investment. The organisations associated with an infrastructure usually have a strong vested interest in continuing with and expanding that infrastructure. Finally, the ideas used to justify actions and policies having to do with an infrastructure make it difficult for individuals to imagine alternatives. Often it **seems** uneconomic, politically difficult, and irrational to try to develop a different technology with its different infrastructure.

Most of all, the infrastructure of society — the buildings, cars, roads, appliances, and associated knowledge — is what seems real to most people. It is what they experience, interact with and use each day. People's hopes and joys, fears and sorrows, are strongly linked with that which physically exists around them and with which they interact intellectually and emotionally. With these sorts of links and associations, it is often difficult indeed to imagine and fight for alternatives.

For a movement working for progressive social change, there is a need (1) to prevent the creation and expansion of infrastructures facilitating repression and perpetuating inequality (technologies which thwart worker control, secret police), (2) to develop new infrastructures (learning networks, bicycle paths, organic food production), and (3) to defend and promote those existing infrastructures (imperfect though they may be) which form a valuable basis for a good society (inexpensive telephone, TV, electronics, printing, household tools, parks, trees, cultural monuments, etc.) — it's disastrous to try to destroy everything that exists.

Even the existing infrastructure sometimes can be turned against itself through suitable demands and actions: demands that existing roads be totally or partially reserved for pedestrians and bicyclists; squatting in vacant buildings; or cultivating unused public areas in cities. Unfortunately many infrastructures are not so flexible: supplies of napalm will need to be destroyed.

IAN SHARPE 78

3E. IDEAS

Ideas are vitally important in the way society develops. But in many cases ideas are more a **result** of the way society is than they are a **cause** of the way society is. Therefore, in promoting social change, too much reliance should not be placed on the power of ideas.

Many ideas serve mainly to justify actions and policies. Such ideas help people to accept actions and policies which they might otherwise question or oppose. For example, the glorification of the idea of 'motherhood' (and associated images) helps to promote policy measures encouraging population growth, and helps to make women accept a subordinate role in the home and the workplace.

"no society can function without ideological legitimation" — Alan Swingewood

Ideas do not appear in people's minds out of nowhere — they are developed out of actual historical circumstances, and used by particular groups of people to serve their own purposes. Therefore, the relation between ideas and the reality they supposedly describe may be nonexistent or contradictory. This is particularly the case for ideas which justify actions and policies, since the groups which promote such ideas have a vested interest in the actions or policies that are being justified. Such is the case for the idea of the divine right of kings or the idea of the sub-human nature of black people.

We are all familiar with rhetoric — the mouthings of most politicians about honesty and democracy, for example — which is used to mask what is actually being done (or not being done). Ideas that justify actions and policies are like a currency system of portable rhetoric: they can be used by different people and groups to hide what is actually going on. And like rhetoric, many people actually believe in these ideas.

For the individual, changing one's ideas (for example, through being convinced by an argument) sometimes may lead to changes in personal behaviour. More often, the converse happens: external events and new experiences and life circumstances lead to acceptance of different ideas. Participation in a demonstration or a workers' collective is much more likely to lead to changes in ideas than any amount of argumentation and presentation of 'facts' is to lead to participation in a demonstration. (This does not mean that talking and arguing are worthless. Far from it. But often it may be more effective to suggest to a person to write a letter or arrange a meeting than to read a book or listen to a lecture.)

Often a policy or action (of an individual or an organisation) is made on the basis of vested interests or on the basis of underlying 'gut' values. If the motives involved are not socially or politically respectable, arguments and reasons will be brought forward (if required) to justify the policy or action.

Arguments for exporting Australian uranium

Argument	Ostensible basis	Underlying value
We can't stop it anyway	Conservation of effort	Fatalism (personal or promotional); Inaction (justified by fatalism)
The alternative is starvation in the Third World	Neoclassical economics (more nuclear power for the rich countries will lower their use of oil, reducing the price of oil for the poor countries)	Primacy of interests of companies or government (justified by apparent compassion)
It will slow the proliferation of nuclear weapons	Supplies of uranium will slow the move to reprocessing and breeder technology	Primacy of interests of companies or government (justified by apparent concern)
Experts know best	Issues are technical	Denial of responsibility; Concurrence with values of interests which the experts serve
It will be profitable	Primacy of profit	Primacy of profit [an honest argument!]

Although these arguments can be challenged, changes of policy or behaviour will not occur if the motivating factors are untouched — a new argument can always be produced. (Just imagine the Liberal Party changing its uranium policy because the official justifications — which did not include primary emphasis on profit and royalties — for the policy were found to be inadequate!) If repeated often enough and seriously enough, many people may accept rhetoric as explanation.

This means that it is important to challenge **values** as well as to challenge **arguments**. Some of the 'gut' feelings currently common in Western industrialised social democratic societies are:

(a) The inevitability and/or desirability of hierarchies and the detailed division of labour;

(b) Prejudice against other races/women/working class/unemployed/youth/nonconformity;

(c) Fear of freedom (authoritarian personality);

(d) Fear of change (but, contradictorily — surprise! — little fear of change brought about by industry, government, or other accepted powers);

(e) The inevitability of existing organisations/ideas/policies/decision-makers;

(f) The neutrality of science/law/economics;

(g) The conviction that people can't govern themselves or take care of themselves (hence the need for leaders and experts).

Such values are not independent of social conditions, of course, but are a consequence of political, economic and social arrangements (or, from the point of view of individuals, of personal experiences which take place within these arrangements).

Ideological repression

"contemporary repressive techniques focus more on indirect approaches, maintaining certain values, rather than indoctrinating certain attitudes. *The goal of ideological repression now is to win support for the capitalist system,* not for any one of its policies . . . The ultimate goal of ideological repression is to help people support their own repressors."

"The reason why ideological repression succeeds only partially, and often fails, is really very simple. The

reality of most people's lives in this society is so much at odds with what they are being told that occasionally the reality breaks through, and no amount of ideological repression will work ... whatever the 'radicalizing' experience, it grows not out of a whim, but out of one of the basic paradoxes facing liberal society. If an act of violent repression leads someone to question his or her political values, that is one way that those who rule America undermine their own support. Institutional rigidity is another. Conditions of poverty or feelings of guilt from overwhelming affluence are still others. *The society that creates the need for ideological repression also creates the conditions needed for immunity to it."* — Alan Wolfe.

Although ideas are often a reflection of the way society is organised, they are still very important in maintaining or changing institutions in society. Therefore, activists need to challenge the ideas used to justify the status quo, and to present the reasons for an alternative society, at every level: person-to-person interaction, art, mass media, practical examples (arrangement of chairs in a room, alternative technology).

One stage is to critically analyse current ideas and institutions (exposing the values underlying advertisements, policies, etc.). However, this stage is limited — though not useless — if restricted to academic articles and discussion. The real challenge is to criticise undesirable established ideas and values, and to raise alternatives, in the same form and manner in which those values are normally or ideally fostered: art with 'revolutionary' form and content; scientific research that exposes and pinpoints the non-neutrality of science; a life style and personal manner that challenges stereotypes. The task is not easy, and establishment channels of communication are allergic to most such material. But there are reasons for encouragement. The effort to challenge ideas and values used to support repression, and to present alternatives to them, can be carried out by individuals and small groups, and at every level of sophistication. And, most importantly, the 'alternative' ideas such as self-management, equality and justice have the great advantage of serving the people they are addressed to, rather than the interests of powerful and privileged groups.

Even those ideas which have been most highly distorted — such as 'democracy' and 'love' — have a great potential for

making people aware of the contradictions and limitations of the society in which they live. Ideas are like tools. Alone they cannot bring about change that would not come about anyway (in spite of what Ivan Illich, Amory Lovins, and others seem to think). Together with collective interest and organised action, they can be effective indeed.

The limitations of radical ideas

"Even if intellectual dissent flourished, as it began to do in the 1960s, and even if it took shape in a coherent critical theory, as it has not yet done, this would still be inadequate for the transformation of society. In order to bring about radical change there is needed a social movement which embodies the practical experiences and interests of large numbers of [people]."— T.B. Bottomore

---

Reason and the status quo

"It appears that scholarship in ethics does not induce struggle for a moral institution; scholarship in political science does not stimulate struggle for an egalitarian institution; scholarship in social work does not quicken outrage against the institution's exploitation of the poor.

If devotion to reason can reside so comfortably alongside injustice, perhaps reason is simply another power tool, advancing technological domination while suppressing life-giving intuition and creativity.

Certainly the intellect functions to buttress the status quo; sometimes it is actually called "the knowledge industry". But art frequently functions to support the status quo, as well as religion, mobility, and sex. The world is not so simple that everything which has some use to the Establishment is of no value to ourselves.

The real problem with reason is the way it has been socially structured. When it is exclusive in its claims ("the only way to truth"), authoritarian in its social relations, elitist in its approach, and servant to unjust institutions, it is unworthy. But when the intellect is used as one approach to truth, in a movement for social change which is democratic and rooted in the people, it is liberating."— George Lakey

Anti-science and anti-anti-science

Apologists for the status quo (who usually are not conscious that they are apologists) sometimes defend existing arrangements directly; more often they **divert** attention from crucial aspects of these arrangements by being concerned with side issues.

Since the 1960's there has been an increasing disenchantment with science and scientific achievements on the part of the general public (and, most threateningly to scientists, on the part of students). As a result of this, quite a number of prominent intellectuals (such as Eric Ashby and John Passmore) have voiced a concern over the irrational movement towards 'anti-science' — a denial of the value of the scientific outlook. While there are no doubt some who espouse 'anti-science', this concern is strategically placed to draw attention away from the central question concerning science: which social groups have control (through funding and power to exploit new developments) over the direction of scientific research and the uses of new technologies? A look at such developments as the neutron bomb, tranquillisers, hard tomatoes, and fusion reactors shows that it is govenment and business that exercise the majority of this control.

The concern over 'anti-science' therefore serves mainly to divert attention away from the realities of science and technology mobilised to serve the interests of government and business.

CASE: The idea of growth

"Growth is the secular religion of American society, providing a social goal, a basis for political solidarity, and a source of individual motivation; the pursuit of happiness has come to be defined almost exclusively in material terms, and the entire society — individuals, enterprises, the government itself — has an enormous vested interest in the continuation of growth . . . . Even social problems have been handled by substituting economic growth for political principle, transforming noneconomic issues into ones that could be solved by economic bargaining. For example, when labor pressed its class demands, the response was to legitimize its status as a bargaining unit in the division of the spoils . . . . In return for labor's abandonment of uncompromisable demands for socialism, others at the economic trough squeezed over enough for labor to get its share."
—William Ophuls

"our social and political structures, not to mention our technological and economic structures, rely fundamentally on the promise of continued growth; the implications of a switch to a 'steady-state economy' would therefore be huge. It might be suggested that the only reason for the lack of massive unrest amongst the 'less well paid' and under-privileged at the moment is that the promise of growth helps sustain belief in the possibilities of future betterments in spite of the existence of huge inequalities. But what happens if the economic 'cake' cannot be enlarged due to the ecological limits on growth?"

"The ecological crisis then is not simply a threat to our present modes of technology; it is potentially a threat to the whole social system." — David Elliott and Ruth Elliott

"The basic 'contradiction' that capitalism faces, then, is the following: Economic growth is a prerequisite to social stability; yet [people] have essentially satisfiable material needs . . . economic growth leads to the capacity for the satisfaction of these needs; hence economic growth, the prerequisite for stability, leads to instability.

There are two ways in which American capitalism has succeeded to date in handling this basic contradiction, this dialectic of economic growth. First, it has used the control of communications media ever more forcefully to emphasize the anticipatory justification of the system: If you are not well off, you will be later and your children will be even more so, because of economic growth. Secondly, it has used fundamental irrationalities of production to increase the mass of goods and services without contributing to their ability to satisfy human needs. It is the role of political activity to unmask these internal mechanisms, and an understanding of the dialectic of economic growth must be a core building block in socialist consciousness."—Herbert Gintis.

How language is coopted

(This advertisement illustrates how the ideas of a progressive social movement (radical feminism) may be twisted and used to (attempt to) reinforce the very social relationships that the movement is trying to alter.)

The liberated wife is gaining new territories. A few years ago her almost exclusive domain in the home was confined to the kitchen and laundry. But today, with a little help from such people as Sydney designer Barry Little, she can spread her wings and capture another room to call her own—the bathroom.

Mr Little, president of The Society of Interior Designers of Australia, designed this palatial bathroom for the liberated wife.

Mr Little said: "It reflects 'her' new image. It is functional as well as luxurious; it is hard yet soft; it is glittering yet it is subdued; it is a definite statement in strong contrasts of colour and texture."

The room has bright orange walls and a white tiled floor. Two sets of steps, complete with mirrored risers, lead to the elevated bathing area and rest room/beauty parlour, decorated with silver, palm-tree patterned wallpaper and a chaise-longue.

Curved transparent perspex screens separate the sunken circular bathtub from the shower. Identical screens are also used around the bidet and toilet.

Mood lighting comes from adjustable twin lamps, mounted on a stainless steel stand, and a portable perspex lamp in the shape of a giant sea egg.

Just add piping hot water (supplied from an economical off-peak electric water heater—this appeals to the liberated wife's practical side) and today's thoroughly modern wife can relax in her new symbol of liberation—the bathroom.

4. POLITICAL POWER AND TECHNOLOGICAL INNOVATION

Main points:

A. The groups in society which have the greatest influence on technological innovation today are the 'power-holders'. The power-holders agree on several basic issues and goals: private or bureaucratic control over production, economic inequality, and political inequality (see section 4A).

B. The likely responses to technological innovation that threatens to change these features of society are opposition from conservative power-holders and opposition plus cooption from moderate power-holders (see section 4B).

C. Initiatives in one arena — environmental, political, economic, etc. — are often displaced, in their effect, into another arena (see section 4C).

D. Environmentalists and other activists need to probe the possibilities for their own and other group's promotion of progressive social change (see section 4D).

Aim of this chapter:

To point out the necessity for activists to be aware of groups opposing progressive fundamental change in society, and of the general strategies likely to be adopted by these groups.

"Most of us view the world not as it is but as we would like it to be .... Political realists see the world as it is: an arena of power politics moved primarily by perceived immediate self-interests, where morality is rhetorical rationale for expedient action and self-interest. — Saul Alinsky.
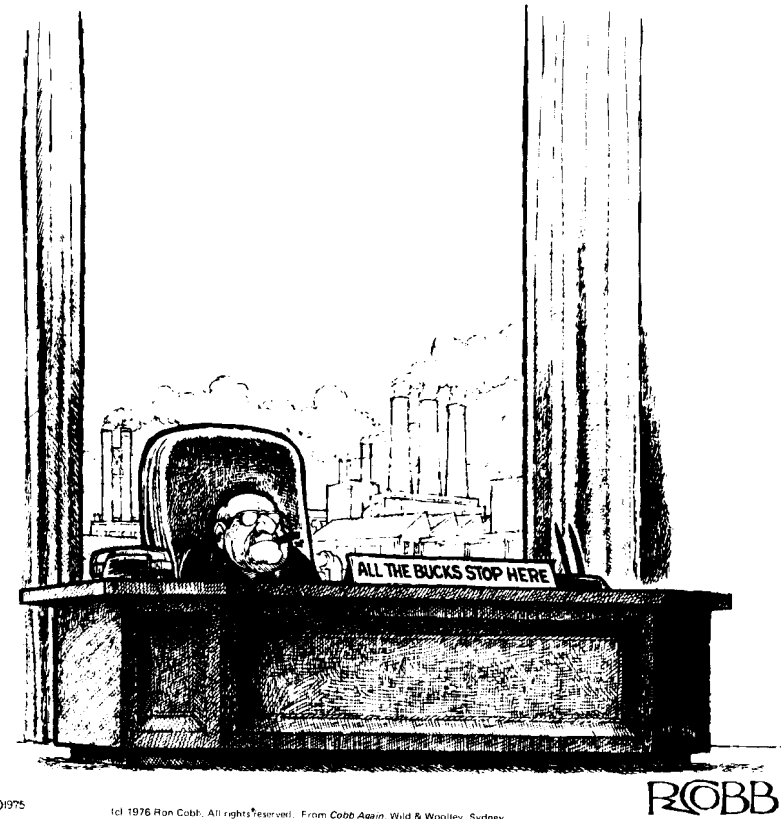
4A. POWER-HOLDERS

For an environmentalist seeking to understand and enter into the process of technological change, it is necessary to look at the major groups in society which have power to influence this process. The most important of the groups may be called the 'power-holders': the people who wield much more economic and political power than the rest of the populace. The power-holders are made up of owners and top managers of the major corporations and financial institutions, top government officials (both in the bureacracy and elected), and a few other influential members of the community (such as military, church, and academic elites).

IAN SHARPE 78
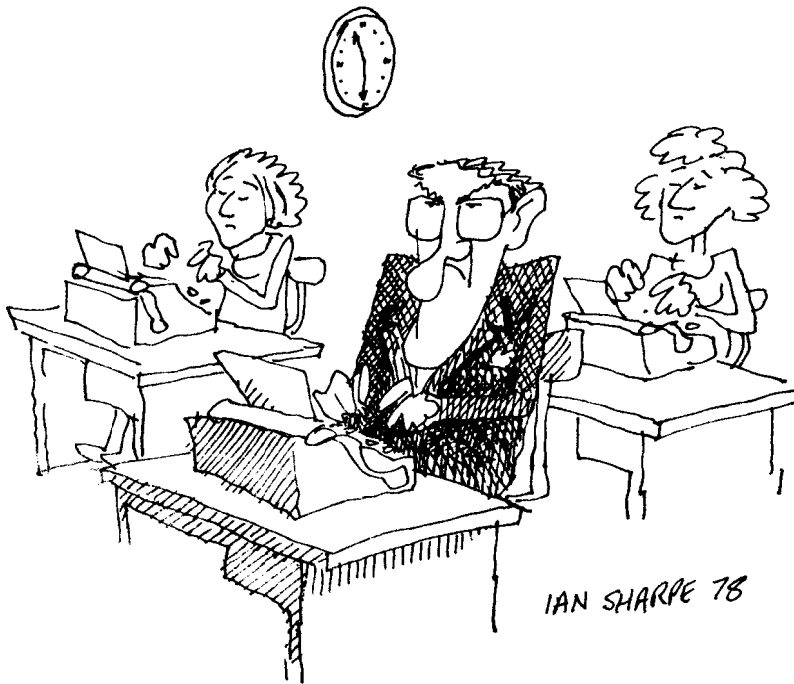
The existence of power-holders is common knowledge. We all know that Malcolm Fraser (as long as he is Prime Minister, at least), the chairmen of the boards of BHP and of General Motors, and media magnates (as long as they remain in their positions) have thousands of times as much political and economic power as most other people. Furthermore, we all know that this power is due mainly to their position in the hierarchy, not to their special personal competence (hence the need to change structures). Malcolm Fraser as a typist in a pool or as a process worker would have little power, little job satisfaction, little prestige, and little chance of promotion no matter how well he did his job — as any pool typist or process worker knows.

In forming the effective energy policy of a country, the most important influences will come from some of the power-holders: owners and top management of oil and coal companies and companies heavily using energy (steel, aluminium), and top bureaucrats in electricity utilities, atomic energy authorities and in government departments involved with energy policy.

There is a considerable degree of social interaction among the power-holders (see the works of G. William Domhoff and Ralph Miliband). However, more important are the common interests shared by the power-holders, interests which arise from the way the economic and political systems are organised. Business leaders often agree about energy policy because they each have the aims of maximising profit, stabilising shares of the market, and stabilising the market itself — that is, they all operate within a system of politically regulated capitalism. Leaders of electricity utilities, atomic energy authorities, and reactor manufacturers (and sub-contractors) often agree about the desirability of nuclear power because it will bring them increased bureaucratic power or economic return. Political leaders often promote the interests of business because they receive financial support for the political party from businesses, because the influential media depend on business patronage and are big business themselves, because economic recession due to withdrawal of business support would lead to political failure, and most of all because the system for wielding political power (through government bureaucracy) is closely tied to business interests (through organisational and infrastructure links, for example).

The importance of conflict in business

"[Conflict in business] is a constant force on the actions of businessmen, pushing towards profit making, corporate growth, and resistance to working-class politics."

"For there is competition between businessmen, of a much great variety than simply competitive selling of products in the marketplace. The system of share ownership of public companies makes management in principle vulnerable to rival groups buying up shares and attempting a takeover. (As the takeover battle between the transport firms TNT and Ansett showed, even corporate heavyweights are vulnerable to this.) Managements which do not maintain a high rate of profit on their assets are vulnerable to 'asset stripping' raiders (who buy up a company's shares cheap, take over, and sell off the undervalued assets, like Gordon Barton with the publishing firm Angus & Robertson)."

"If the controllers of companies are constrained to act in certain ways by pressures inherent in a system of private property, then it does not matter very much who they are." — R.W. Connell

It is worth stating explicitly that the idea of 'power-holders' does not mean that there is any sort of conspiracy involved. There is a considerable amount of planning by some groups, but this is not necessarily highly secret or illegal (though, of course, there is some secret, illegal plotting). The agreement over policy and action on the part of many power-holders is a 'natural' result of the economic and political structures which define their vested interests and shape their (and our) perceptions.

Naturally there are differences over desirable policy within the ranks of the power-holders. But it is important first of all to be aware of the degree of agreement. On fundamental issues, the agreement will be nearly universal.

Some of the very basic issues and goals on which power-holders are in agreement are private (or bureaucratic) control over production, economic inequality and political inequality.

(1) Private or bureaucratic control over production. A small powerful fraction of the populace owns or controls productive facilities — such as land, factories, mining equipment, electricity transmission lines, and oil wells. In talking of control over production, 'control' means the dominating (but not total) power over **how** goods are produced (e.g. the assembly line), **what** goods are produced (e.g. home appliances) and **who** produces them (e.g. workers hired by a company).

In addition, many of the facilities needed to protect and expand productive capacity — education, communication and transport, tariffs and tax rates — are similarly under the control of a small fraction of the populace. Most people are forced to put their labour power at the service of the power-holders and the institutions they control in order to make a decent living.

Control over **production** is much more fundamental than control over **consumption**. A certain amount of initiative in the use of technology at the consumer level does not threaten existing power structures. For example, there is an expanding market for the 'home handyman' (half of whom are women) — tools and materials for tile laying, wallpapering, carpentry, etc. The cost of such products, and the requirement for spare time to use them, somewhat limits them to the affluent. But certainly there is little marketing of tools for the 'home producer'!

(2) Economic inequality. The distribution of wealth and income in the community is very unequal. This is both a consequence and a cause of private control over production.

Those groups which control production use that control to award themselves with wealth and special privileges. And groups with wealth and special privileges can use these advantages to help maintain and increase their control over production.

Economic inequality is closely linked to social injustice: substandard housing for many poor people, mansions and butlers for the rich; small, ill-kept and dangerous public parks in poor areas, private clubs and overseas holidays for the rich; victimisation by police and harsh penalties from the courts for the poor, little or no prosecution of corporate criminals, of slum landlords or of those who implement criminal social and military policies.

The expensive executive

For example, just along the Avenue of the Americas from Radio City in New York is the Sperry Rand Corporation headquarters. The Chairman J. Paul Lyet and the President Robert E. Macdonald of this huge conglomerate both have their suites on the 42nd floor.

Apart from their private elevator these two men occupy a space that would accommodate around 300 office workers at normal desk spacing. When Mr Lyet took over his post, the previous incumbent having been run over by a New York Police car while crossing the avenue to lunch in the Hemisphere Club, the company spent a rumored $100.000 redecorating his suite. It seems to me that it was not an excessive cost.

Mr Lyet also has the use of the corporate jet. It is a nice jet, not in the class of Hugh Hefner's all black DC-9, but a nice little jet. This recalls the 49, count them 49, private jets I saw lined up at Washington National Airport one Monday morning all waiting for their personal executives.

In Europe the average top executive lives far better than his U.S. counterpart. An unkind observer has said that this is because the Europeans have better taste and have been at the privilege game a lot longer. The top men in EEC companies are likely to have a mistress or two as part of their take-home package.

But perhaps the ultimate action of executive placation was the decision to pull down a 65-metre-high hill at one of IBM's plants in the U.S. The reason: it spoiled the view from the windows of the office of one of the founder's sons.

— Frank Linton-Simpkins

(3) Political inequality. A small fraction of the populace has a dominant control over the basic design of society. In setting up, promoting, and getting acceptance for basic structures — the parliamentary system, government departments, military and police forces, community planning (often by default), professions and their support (medical and hospital care, schools and universities), the media — the average member of society has very little say.

The power elite

"Leaders within the upper class do not labor alone in dominating the political process. They have the help of hired employees: high-level managers and officials in corporations, law firms, foundations and associations controlled by members of the upper class. Together, these upper-class leaders and their high-level employees constitute the power elite . . . .

It functions to maintain and manage a socioeconomic system which is organized in such a way that it yields an amazing proportion of its wealth to a minuscule upper class of big businessmen and their descendants." — G. William Domhoff

Closely linked with each of these three features is the existence of formal hierarchies: from company director down to cleaner, from top civil servant down to welfare recipient. A person's political power or economic influence comes almost entirely from the person's formal position, not from the persuasiveness of the person's opinions nor from general respect for the person's moral stature. If you have lots of money, people will listen and obey; if you're poor, no one will care (unless you start 'stirring up trouble'). The influence of hierarchical position, and not of the person in the position, once again reflects the importance of structures.

Freedom of the individual vs. control over the design of society by a few: a contradiction?

Individuals seem to have a great deal of freedom. They can choose what products to buy (Kellogg's or Nabisco), choose where to live, vote as they like, etc. These freedoms are not trivial, and need to be defended whenever attacked. But these freedoms operate within general constraints. The choice of what to produce is made by leaders of business. Choices about the planning of cities and of transport and of the location of jobs are made by business and government. The choices about how employment is organised (what a person has to do in a job) are made by the employers. It is in this broader sense that control over the design of society is in the hands of a relatively small number of people.

Because of private control over production and economic and political inequality, freedoms are not equally useful to all people. We all have the 'freedom to dine at the Ritz', but not everyone can afford to eat there frequently. This also applies to the 'freedom' to express one's opinion by advertising on TV or publishing a newspaper.

"The law in its majestic equality forbids the rich as well as the poor to beg, to sleep under bridges and to steal bread."—Anatole France.

In any case, the proper comparison is not between the freedoms we have and no freedoms at all. It is between the freedoms we have and those we might have if society were organised in a better way.

It is true that the attitudes of many members of the general public are similar to the attitudes of members of powerful groups. (Another sizable fraction of the public are resigned to their lack of power.) This similarity of attitudes is partly the result of manipulation (media presentation of happiness through material possessions, the suppression of rail transport by General Motors, etc.). However, when members of the public develop attitudes like those of power-holders, it is mainly the result of structures — organisations, infrastructures, and sets of ideas.

People accept and use automobiles in part because they are convinced by advertising and because alternatives are suppressed, but mainly because massive organisations promote automobiles and the road system and fuels needed to run them, and because the autos and roads and petrol are there (infrastructure), conveniently

and at a low price. In these circumstances, only a few people will actively pursue alternatives; the rest do only what is entirely reasonable, **in the circumstances.** Appealing to people's reason or emotion to achieve change will not be very successful, as a rule; changing the structures will.

In short, power in society is held by those who have the opportunity — or take the initiative — to shape structures.
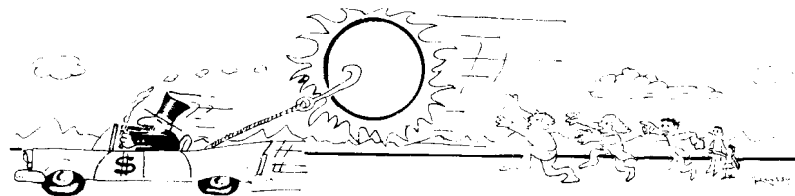
4B. OPPOSITION AND COOPTION

The power-holders agree, because their vested interests are similar, about the goals of private or bureaucratic control over production, and of economic and political inequality. But within the ranks of the power-holders, there is considerable disagreement. Once again, this mainly results from their varied vested interests.

In the first place, there will be disagreement over small issues because the direct interests of different power-holders will conflict. For example, there may be disagreements between oil companies and government over the size of subsidies to the industry, or of the tax on petrol. However, such disagreements are seldom concerned with the basic issues such as economic inequality.

Secondly, the power-holders may be roughly divided into two groups — conservative and moderate — according to their general social philosophy. Conservative power-holders generally support the existing structures and policies in society in a narrow sense. For example, they would support measures to increase profitability in the short term.

Moderate power-holders generally are more prepared to support adaptive measures, especially in the face of social or political threats to the stability of the system as a whole. For example, they would support government intervention to keep the economy running smoothly.

From the point of view of citizens, the difference between the two factions of the power-holders appears as different **tactics.**

Generally speaking, conservative power-holders usually adopt a policy of **opposition** to challenges to existing structures. Moderate power-holders usually adopt a policy of both opposition and, just in case, **cooption.** Cooption is change promoted by vested interests that makes concessions to the challenge to the status quo and weakens its force, while maintaining — as much as possible — the essential features of existing society.

Activists for progressive social and political change will have to contend with both these sorts of responses, often at the same time. Most activists will be very familiar with the response of opposition, and will be familiar with strategies and campaigns to meet it (for example, resident groups mobilising to oppose 'development'). The challenge then is to choose issues and adopt strategies that also avoid the more subtle and successful response of cooption.

Of the policies of opposition and cooption, in **the short term** opposition is the most important, while in **the long term** cooption is often a major problem. In making this assessment, I am assuming that a movement for change on the part of citizens and workers in normal circumstances cannot be fully stopped. Cooption is also more important in the long term because it **seems** to be a compromise between conservative vested interests and grass-roots reform movements. However, the compromise is strongly weighted in favour of the power-holders as long as the basic features of society are unchanged.

The table on pages 66-67 suggests some of the strategies of opposition and cooption that may be expected in response to issues in energy.

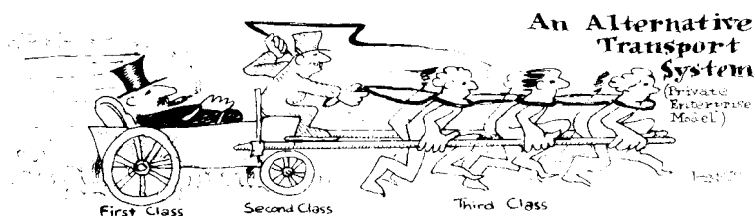# The potential for opposition to and cooption of energy strategy measures

Measure	Possible (in principle) implications	Source of opposition	Cooptive response	Source of cooption
Energy conservation	Rational use of energy for socially desirable goals, within strict environmental and resource constraints	Groups with direct vested interests in heavy energy use (electricity utilities, uranium mining companies)	Adopt energy conservation measures which do not challenge existing practices or values (e.g. more efficient motors, home insulation)	All except opposition (e.g. all companies that can save money by using energy more efficiently)
Solar energy for heating	Self-suffiency and self-management in energy: local production of solar energy; collective use in small groups of households, community energy planning	Groups with vested interests in centralised high technology (electricity utilities, oil companies, auto industry, appliance manufacturers, steel and aluminium producers)	Emphasis on research into more sophisticated applications (such as electricity from solar energy); solar technology which is designed so that it must be bought on the market at a relatively high price; laws (tax concessions, regulation concerning safety and visual amenity) to ensure that benefits go first to richer members of the community; economic subsidies, if required to promote centralised production and centralised organisation of installation, distribution and use (e.g. solar systems as part of conventional house construction)	Companies hoping to profit from selling solar technology; government and business elites concerned about the economic instability (high costs, long lead times) and political instability (terrorism, proliferation, citizen unrest) caused by high technologies
Less energy for transport	Rationality, equality and self-management in transport; bicycles; vehicles which are simple, slow, resource-efficient, and capable of being locally produced; redesign of the community to reduce transport needs; redefinition of work roles (so that much production, education, and recreation could be done in local areas)	Groups with vested interests in high energy transport (automobile manufacturers, oil companies)	(a) Smaller, lighter, more efficient cars; maximum speed limits (b) High fuel costs (hurting mainly the poor) (c) Car pooling incentives; public transport systems which are capital intensive and require centralised planning and control, and which preferentially serve well-off groups	(a) all groups (eventually) (b) Most groups (except those which thrive on high mobility, e.g. tourist industry) (c) Government bureaucracies and sub-contracted companies building and controlling the systems; Companies benefiting from commuting facilities or retail trade
Collective goods and services	Equity, self-management, community interaction; local production of food in community lots; low-cost local laundries; community movie/TV; heavy power tools, trucks, and boats for use by any community members	Virtually all power-holders	Less planned obsolescence	Companies wishing to ensure that their market remains that of each individual or household (or governments applying regulations to ensure that this happens)
Fewer luxuries for the rich	Equality; more goods for poor	All	None	
Less military production	Disarmament; peace; reduction in state oppression	All	None	

Cooption in action

"Since onsite solar equipment would undoubtedly be designed, manufactured, financed, installed, and operated by the same organizations currently associated with the construction of buildings and industrial facilities, the impact on American society as a whole will probably be very minimal." — Office of Technology Assessment

"Westinghouse Corp. in the US will prepare preliminary designs for a *solar total energy system for a Texas military complex*, under a contract from the US Dept. of Energy. The system would provide electricity, space heating and hot water for Ft. Hood, said to be one of the largest military installations in the US. The project will provide the basis for evaluating the economic practicability of solar total energy systems." *Solar Focus*

The consequences of the various struggles are likely **not** to result in the high technology future ruled by experts hoped for by Philip Baxter and Ernest Titterton, nor in a rational use of soft technologies for doing the things that are done now as presented by Amory Lovins and Denis Hayes, **nor** (unfortunately) in a utopia of self-managed, harmonious, ecologically sound communities as hoped for by many environmentalists.

An Alternative Transport System (Private Enterprise Model)

First Class   Second Class   Third Class

Instead, it is more likely (assuming that a major nuclear war doesn't leave us on the beach beforehand) that the future will see a mixture of technologies, serving different groups and purposes. A two-level energy economy of the future might include on the one hand centralised, high capital and high risk technologies for industrial power production in key sectors — the consequences of organisations and infrastructures reflecting this trend today. On the other hand, there might be relatively independent individuals and localities surviving on a combination of old and new small-scale technologies — the consequences of the efforts (and money) of middle class groups to escape the oppression and cost of the high technologies. In such a society, the poor might well be in as poor and as weak a position as before.

Obviously this is only one possibility. The future is not fixed. The lesson to learn from these possibilities is to emphasise those movements which are not easily coopted (such as the antiwar movement), and to emphasise those demands of any social movement which are not easily coopted.

	Issue more easily coopted	Issue less easily coopted
Movement against nuclear power	Problems of nuclear reactor safety and radioactive waste disposal	Nuclear technology's inflexibility, high capital cost, dependence on experts, and restriction on possible democratic involvement in energy decision-making
Feminism	Demand for equal pay and equal opportunity	Demand to abolish authoritarianism, patriarchy and manipulation in social relations (family, job, community)
Workplace struggles	Demand for higher pay and better material working conditions	Demand for worker self-management

Of course, in formulating an actual demand, all factors should be taken into account: likely sources of support, opposition and cooption. In many cases the 'issue more easily coopted' may be a central one. The important thing is not to forget about the possibility of cooption during the day-to-day efforts to build support and counter stiff opposition.

The following cases and examples illustrate the importance of cooption in struggles over energy futures.

Business concern over the social implications of energy policy

The following two advertisements from the February 1977 issue of the magazine *Smithsonian* (which, as its other advertisements suggest, is subscribed to mainly by well-to-do members of the community) show that there is some concern — enough to rate public expression — over the structural implications of energy problems.

It is perhaps surprising that Bethlehem Steel would ask citizens to express themselves about the issue. But on the other hand, they do say "Take it to the top" and not "Join a local citizens' action group"!

If we don't deal now with the energy problem in its entirety, we may soon be facing an even bigger problem-how to sustain our economy and our social structures when there's not enough energy to go around.

Cumberland Electric Membership Corporation is a rural electric cooperative which provides light and power for more than 37,000 farms, homes, businesses and industries in a five-county area of middle Tennessee. Cumberland averages 8.3 meters per mile of line; the national average for rural electric systems is four.

Joan R. Dolinger, manager of Cumberland EMC, Clarksville, Tenn., is president of the National Rural Electric Cooperative Association, through which America's rural electric systems formulate and espouse policies on national issues.
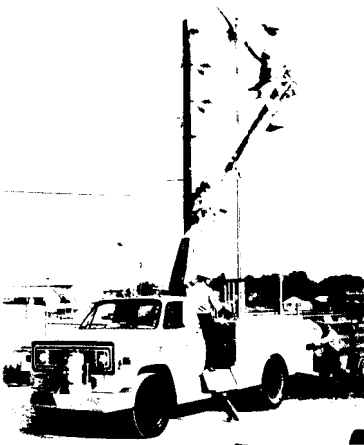
Rural Electrification in the United States
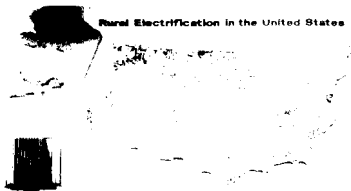
Nationwide, some 1000 consumer-owned, non-profit rural electric cooperatives and public power districts serve 25 million consumers in 46 of the 50 states. They own and maintain nearly two million miles of line — 42% of the nation's total.

Write "Viewpoints," NRECA, 2000 Florida Ave., N.W., Washington, D.C. 20009 for further information on the energy positions of the nation's rural electric systems.

We've said it before; we're saying it again. The longer we delay development of a comprehensive national program to ensure adequate energy for the future, the more unmanageable the problem becomes. The problem is multi-faceted, highly complicated. The answers aren't all that easy to come by. But in every critical situation, there's a point where debate must give way to decision—and action. With energy, we think that point has been reached.

In the weeks ahead, we're going to be speaking out on some of the tough decisions that must be made ... pushing for commonsense, people-oriented approaches.

It is our responsibility to do so, as meaningfully and forcefully as we can.

America's rural electric systems [RE logo] ®

Time is running out.

Tell President Carter what you think he should do about energy.

We've paid for the page opposite. It contains no message. We leave that for you. Because a message from thousands of voters carries more clout in Washington than a message from us.

It's that simple. We hope thousands of you will write. We hope your messages will help spur action on a national energy policy.

Speak out, America

There's a new administration in Washington. New directions. New ideas. New ears. Let them hear what you have to say.

The cost of energy keeps going up. (That's no surprise to you if you've paid a fuel bill lately.) Domestic oil and gas resources dwindle. Each year America grows more dependent on foreign oil, not less.

The Mid-east oil embargo in 1973-74 meant higher prices, gas lines, more unemployment, more inflation. At that time, our country imported 38% of the oil we consumed. Today, America imports 42%. And the OPEC nations just raised the price of oil again.
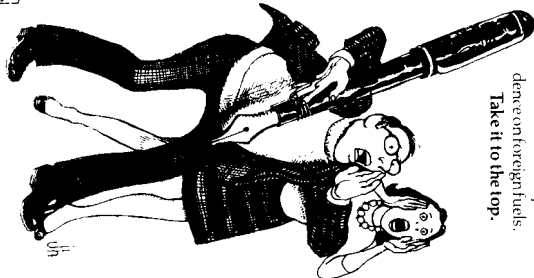
Tell it to the President

America needs a sane and sensible energy policy. And we need it now. The one thing we can't do is wait. Our scarcest resource—time —is running out.

Use the page at right to tell the President you want action now on an energy policy. In your own words, and for your own reasons. Then tear it out and send it to President Carter.

What's in it for you? The same thing that's in it for us. More abundant supplies of energy. Less waste. Increased development of domestic resources. And decreased dependence on foreign fuels.

Take it to the top.

Bethlehem [logo]

Dear Mr. President:

Respectfully,

The President
The White House
Washington, D.C. 20500

Concern over the social and political implications of energy policy

The Ford Foundation is a 'voice of the establishment', in that many of the projects it funds reflect interests and attitudes of at least a portion of power-holders in the U.S. — especially the moderate power-holders. The following quotes are from the major report of the Energy Policy Project of the Ford Foundation.

"The Project's engineering and economic studies convince us that saving energy is possible without either disruptive social change or coercive government action. But this will require skill, forethought, and consistency at every level of government, as well as ground rules that make it reasonable for energy producers and consumers to live with slower growth." — the authors

"In looking to the future, the report gives inadequate attention to the question imposed by the finite nature of fossil fuels and what happens when the readily available supplies of oil and gas are exhausted. The approach of that situation in the short term of two or three decades is not presented as a sufficiently serious problem. We believe it deserves more thorough appraisal in terms of its implications for survival of industrial society, for international comity, and for the environmental and economic effects of transition processes that would be triggered long before the marginal resources are depleted. A position on this question is basic to much of the controversy that centers on the amount of attention to be given to development of alternative sources such as solar energy, or possible fusion to support a hydrogen-electric economy, or nuclear power." — statement of the Advisory Board

---

A survey

To investigate attitudes to changes in energy policy and in social practices, I studied a number of publications. To get the business/industry viewpoint, I looked at *The Wall Street Journal* and *Business Week*; for academics, *Science*; for environmentalists, *Not Man Apart*. (I didn't get around to looking at further viewpoints, such as government agencies or left wing groups, mainly because my results — and indications of these further viewpoings — gave such an overwhelming conclusion.) I looked for direct or indirect advocacy of one of three types of technological futures: high technology, low technology non-disturbing to the status quo, and low techology promoting social change.

The overwhelming majority of the viewpoints, I found, fell in the first two categories.

Recycling

"Eventually, most paper becomes urban trash. Ideally, much of it should instead be recycled — a process that would save trees, energy, and money. But unrecycled paper, along with rotten vegetables, cotton rags, and other organic garbage, contains energy that can be economically recaptured. Milan, Italy, runs its trolleys and electric buses partly on power produced from trash. Baltimore, Maryland, expects to heat much of its downtown business district soon with fuel obtained by distilling 1,000 tons of garbage a day." — Denis Hayes

Comment. But Hayes does not question the necessity for producing the trash in the first place. The "unrecycled paper" no doubt consists largely of old newspapers, advertising (of course old newspapers are also mostly advertising), packaging and perhaps the output of government and business bureaucracies. The 'rationality' of burning urban trash is contained within the larger irrationality of the structures which produce it — and which do not need to be concerned with impacts before use (forests) or after (waste).

"Who are our potential allies?"

"1. Business. In a private-enterprise economy, it's foolish to ignore the main engine of action: money. If you want to get something done, almost *anything*, you figure out how someone can make a profit doing it and the job gets done. Let's take for example two solar power systems: the cultivation of algae from which gas and oil can be made, and the use of windmills to produce hydrogen. If Congress voted to give Tenneco or El Paso Gas (or maybe Lockheed) a juicy cost-plus contract to build the first large-scale algae and wind systems, do you suppose the contracts would be *rejected?* We need to make alternative energy technologies *irresistible* to significant business interests. We need a greedy energy-alternatives lobby comparable to the moon-program and space-shuttle lobbies." —Egan O'Connor

Comment. It is clear that O'Connor is not interested in fundamentally altering the distribution of economic power in society, at least not via the transition from nuclear to solar technology. As he says in the same article, "My primary goals are (1) stopping nuclear fission, and (2) starting solar power in a big way." O'Connor's unspoken assumption is that technology (nuclear power) is the sole problem, and that economic and political inequality is a separate issue. Still, in the short run, efforts such as O'Connor's can help mobilise many citizens in the fight against conservative power-holders associated with the nuclear industry.

The Exxon Energy Course for Women. Topic #4.

CONSERVING ENERGY: IT'S AS IMPORTANT TODAY AS IT WAS DURING THE SHORTAGE OF '73-'74. HERE'S WHY, AND WHAT YOU CAN DO.

During the winter of 1973/1974, Americans realized that it was critical to "save a watt" and "not be foolish". Energy conservation was the watchword because some of the foreign oil we were using was cut off, and domestic supplies of gas and oil had not been able to meet all of our needs for some time.

Today energy conservation is practiced by many Americans. But greater efforts, by more people, are needed because conserving energy is absolutely vital.

CONSERVATION: ANOTHER ENERGY SOURCE.

Gas and oil are finite, nonreplaceable resources. That's why Exxon is working on developing other sources of energy, as well as on ways of finding more gas and oil. But development takes time, 3 to 7 years to establish a coal mine, and it's going to take time before enough solar systems can be put into use to make a substantial contribution to our energy needs.

No doubt you're wondering how you and others can save energy, and if your individual efforts can save enough to really do any good. Absolutely! And one of the best places each of us can save energy is at home. When you consider the impact of 57 million American family dwelling units, the savings add up fast. In fact, the National Petroleum Council estimates that 14% of the energy now used in America's dwelling units could be saved ... the equivalent of 11 billion gallons of petroleum products per year. So you see, your share is much more than just a drop in the barrel.
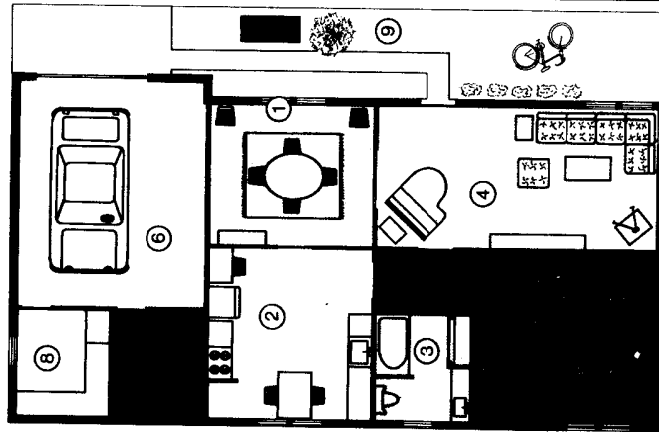
SAVING ENERGY ALSO SAVES MONEY.

The wise use of energy is also wise money-management for it can save on your fuel and electric bills. Some examples: HEAT. Each degree above 68°F on your thermostat can add 3% to the amount of energy needed, and a proportionate amount to your heating bill. LIGHT. One 100-watt bulb burning for 10 hours uses the equivalent of 1 pound of coal ... you pay for it on your electric bill. WATER. If a faucet leaks one drop of water per second, it can waste 700 gallons a year. If it's not water, that's both energy and money down the drain.

There are countless ways to save energy. Our tip is to find the ways that are most practicable for you. You'll find familiar suggestions— and perhaps some surprises—right on the next page.

CHECK YOUR HOME AGAINST THIS HOME.

① Is your insulation adequate? Attic? Outside walls? Around doors? Have storm windows? Proper insulation is the single greatest way to cut heating bills. (Check a contractor for local requirements.)

② Try this: close your refrigerator door on a new dollar bill. Does it hold the bill tightly? If not, the refrigerator probably needs a new gasket.

Check the Energy Efficiency Rating when buying any appliance, including air conditioners.

Another energy-saver is to thaw meats before cooking.

③ Surprise! Taking showers instead of baths uses only about ½ as much hot water.

④ No one is watching ... better turn off the TV. And how about switching to lower wattage light bulbs wherever you can?

⑤ Is that air conditioner really needed every time you use it? Car pool and combine trips.

⑥ And when you drive stay under 55 mph—you'll use 11% less gasoline than driving at 65 mph.

Regular tune-ups and proper tire pressure save fuel, too.

⑦ Be sure to wash and dry only full loads of clothes. Also, are you washing with cold water when-ever you can?

⑧ Are power tools needed, even for that small job? Muscle power might do it as well.

⑨ Use your own energy—save the gallon's. Bicycle!

Also make a habit of using mass transit. And encourage your friends to do the same thing, too.

Comment on the Exxon Energy Course for Women No.4

(1) Note the emphasis on individual actions, carried out in the home. There is no mention of collective efforts (community control over power production). There is no mention of altering the energy expense (and irrationality) of planned obsolescence. Finally, there is no mention of worker involvement in energy conservation in industry (for example, in Exxon itself), where it is naturally assumed that management will make the decisions.

(2) The general emphasis on saving energy is no threat to Exxon, since as a multinational corporation involved in virtually–all energy sources, Exxon will expect to make a profit as long as energy is sold on the market. Exxon's economic and political influence (and the influence of other like-minded oil companies) no doubt will be used to ensure that changes in the direction of energy conservation and renewable energy sources will take place in a way that ensures the continued profitability and influence of Exxon.

(3) In the medium term, Exxon's corporate interests are furthered by energy conservation: dependence on oil as a major source of energy can then be prolonged, and Exxon can use its earnings to enter (and shape) the market for new energy sources.

(4) Item 9 is rhetoric for the sake of a good public image. In the absence of any effort by Exxon to change organisations and infrastructures (for example, road building, city planning), its suggestions carry little weight. Indeed, the entire advertisement can be seen in this light.

The response of power-holders to a steady-state economy

A steady-state economy, in which new investment is only just enough to replace worn-out equipment, is certainly compatible with capitalism. This is in spite of what some marxists would say— after all, many Western economies have been in a 'steady-state' for the past several years. The real issue is whether a capitalist or bureaucratic socialist society with a steady-state economy could survive the *political* problems resulting from lack of economic growth.

In section 3E, the functions of the idea of economic growth in justifying economic inequality and therefore dampening social protest were discussed. The prime function of the idea of growth is to put an emphasis on quantity (how. much is produced), and draw attention away from *what* is produced, *how* it is produced, and *who* gets it. But is it possible that unrest caused by awareness of economic inequality (and injustice) could be contained by other means?

One possibility is that material growth — production and use of goods causing a rapid increase in entropy —

could be largely replaced by growth in 'goods' that use little energy: information (via computer networks, videophones, numerous TV channels), by scarce objects conferring status (antiques, art work, rare trees!), by symbolic attributes (degrees, self-actualisation certificates), or even by a pursuit of local, middle class self-sufficiency (shades of the environmentalist's ideal world!)

Alternatively, or in addition, new ideas to justify inequality might be promoted by power-holders: the meritocracy; genetic inferiority of the poor; or the need to unite (that is, to ignore inequity) to prevent terrorism, environmental catastrophe, or whatever.

The idea of the need for a steady-state economy will remain subversive for quite a long time. But the subversiveness of the idea always depends on social circumstances, which will eventually change. Therefore activists will need to couple the ideas of the steady-state economy and of ecologically sound life styles with the ideas of economic equality and justice (and also with organised actions towards these goals), as well as to counter any new ideas raised to justify inequity.

The 'Progressive' era in the U.S.

During the 'Progressive' era in the U.S. — roughly 1900 to 1920 — large groups of the populace voiced discontent, and followers of populism and socialism developed considerable political strength. This era may have some similarities to the present era and its environmental (and other) discontent. The following quotes suggest some of the reasons for the essential failure of the progressive movement.

"The irony of progressive reform as a broadly based effort for democracy and equal opportunity is that, in the end, it helped bring about a different kind of society from what most progressives wanted. If one can speak of a typical progressive, he or she would be a person devoted to competition, direct democracy, community, and a form of government that was small yet responsive. . . But the United States came to be governed by a large, powerful, centralized bureaucracy . . . . Our America is not what progressives had hoped to form . . . . Most honestly believed that regulation would work well enough to prevent great corporations from achieving the primacy they now enjoy. They failed to appreciate that asserting middle-class claims did not change the fundamental balance of power in society. " —William L. O'Neill

"If economic rationalization could not be attained by mergers and voluntary economic methods, a growing number of important businessmen reasoned, perhaps political means might succeed. At the same time, it was increasingly obvious that change was inevitable in a political democracy where Grangers, Populists, and trade unionists had significant and disturbing followings and might tap a socially dangerous grievance at some future time and threaten the entire fabric of the status quo, and that the best way to thwart change was to channelize it. If the direction of that change also solved the internal problems of the industrial and financial structure, or accommodated to the increasingly obvious fact that the creation of a national economy and market demanded national solutions that extended beyond the boundaries of states more responsive

to the ordinary people, so much the better. Nor was it possible for many businessmen to ignore the fact that, in addition to sanctions the federal government might provide to ward off hostile criticisms, the national government was still an attractive potential source of windfall profits, subsidies, and resources." — Gabriel Kolko

"The original impetus for many reforms came from those at or near the bottom of the American social structure, from those who benefited least from the rapid increase in the productivity of the industrial plant of the United States and from expansion at home and abroad. But in the current century, particularly on the federal level, few reforms were enacted without the tacit approval, if not the guidance, of the large corporate interests. And, much more important, businessmen were able to harness to their own ends the desire of intellectuals and middle class reformers to bring together 'thoughful men of all classes' in 'a vanguard for the building of the good community'. These ends were the stabilization, rationalization, and continued expansion of the existing political economy, and subsumed under that, the circumscription of the Socialist movement with its ill-formed, but nevertheless dangerous ideas for an alternative form of social organization." — James Weinstein

"If conservative businessmen, particularly smaller manufacturing interests in the Midwest with parochial perspectives organized into the National Association of Manufacturers, opposed the creation of a coordinated state-directed repressive agency, it was their

more liberal counterparts who advocated it. This is a crucial point that often is not understood. *The creation of a modern repressive state was the work of reformers,* liberals who had to fight vested interests in order to get what they wanted. Just as the first major wave of reform in the nineteenth century turned to state legislatures to regulate railroads and other industries, so these repressive reformers turned to the states to create state police agencies." — Alan Wolfe

"The populists did not appreciate the degree to which dissidence based merely on economic interests (as opposed to the entire social, cultural, economic, and psychological *situation* in which exploited classes find themselves) could be accommodated and absorbed by the corporate system, while leaving the system essentially intact. Nor did they forsee how easily aroused indignation can lapse back into indifference, once immediate grievances are satisfied. Much more than the socialists, who were geared to a patient long-term effort to create a mass consciousness of the moral superiority of a socialist order, American populists have always been easy prey to disillusionment, when hopes of speedy change turn to dust." —Christopher Lasch

Labour unions and the power elite in the U.S., 1900-1937

"The misunderstood story of how the power elite came to terms with labor unions, which is usually viewed as a complete defeat for big business, is a complex one."

"The first factor that must be kept in mind, and the one most often overlooked, is that there was disagreement within the corporate elite as to how to deal with labor. On the moderate side were the big businessmen of the National Civic Federation, who from the start took a more conciliatory attitude toward labor organizations. They understood the conservative potential of American trade unionism. They sought to mold and strengthen conservative trends that were contending with socialistic ones."
"Disagreeing with the NCF was the big business mentality symbolized by the National Association of Manufacturers, which adopted an anti-labor union stance in 1902 and maintained it vehemently from that time forward."
However, "in actual practice, and from the point of view of the common worker, there was often very little difference between the moderate and conservative approaches. Examples can be found of members of both groups who dismissed workers for joining unions, hired thugs to beat up striking workers, hired spies to report union organizers, and indulged in other ugly practices that call into question the image most members of the upper class like to hold of themselves. However, the important point here is that moderate mentality was willing to concede certain points *if* labor really showed major strength. . . . In short, carrot *and* stick was the moderate policy, stick was the conservative policy." — G. William Domhoff

4C. WHERE CAN PRESSURE BE APPLIED?

Often the efforts or threat of a citizen's movement or pressure group can lead power-holders to make various concessions and changes. (This can also happen in the 'normal' operation of the economy and political system.) However, unless basic structures are changed, the problem that led to the change is likely to appear elsewhere in society, in another form.

1. For example, a basic failure of the **economic** system is its neglect of environmental and resource limits, and in general its neglect of anything not directly influencing profitability. This failure may not cause economic malfunctioning, but instead produce problems in the **political** arena: local citizen opposition to the mining of low grade ores or to the construction of massive power plants of no value to the local community. (Such political 'problems' are of course only problems for the power-holders; from the point of view of citizen activists, such 'problems' are a means to a solution!)

2. Another example: there are political problems caused by industrial pollution and **management** problems caused by worker demands for high wages, high levels of safety, and job satisfaction. These 'problems' may be displaced by exporting industrial plants to poor countries where workers are low paid and docile. In the long term this may lead to conflict due to the increase in exploitation of masses of poor people and the denial of their freedom to make the decisions concerning the development of their societies.

3. In the other direction, the **political** action undertaken by citizen opponents of nuclear power — appearing at environmental inquiries and intervening in licensing procedures, or occupying sites of planned nuclear facilities — has an effect on the nuclear industrial establishment mainly in the **economic** realm: higher costs due to tighter safety regulations and due to delays in building programmes.

In a similar way, problems of various sorts — political, environmental, social, economic, administrative, technical — may be displaced from one area to another in different forms through the pressures of events and the policies of power-holders (and, of course, citizen activists).

The implications of this for activists are twofold. First, a growing citizen's movement based around environmental issues may have the basis of its protest more or less permanently displaced into other areas, through more stringent pollution regulations, new regulatory bodies, or export of polluting industries. Environmentalists cannot be successful on their own. In the long run, they must depend on, work with and join forces with other citizen efforts. (In the case of the above examples,

this would include action to expose bureaucratic 'rationality and efficiency', to establish local decision-making, and to thwart exploitation of the people of poor countries.)

Second, by broadening the basis of its efforts, a citizens' movement can to some extent prevent displacement of the problems facing the power-holders. For example, stringent pollution regulations may be used to blame environmentalists for the loss of jobs. This can be prevented (to some extent) by publicising the economic impacts of different pollution policies, highlighting the numerous existing health hazards suffered by workers, and by establishing links with workers' groups.

Finally, it is worth remembering that the struggle to build new structures and institutions (see section 2B) is a powerful way to prevent the efforts of a citizens' movement from being displaced.

4D. WHO WILL LEAD THE WAY TO CHANGE?

"It no longer seems merely mistaken, but is more nearly archaic, to think of the proletariat as an 'historical agent' with true political initiatives in societal transformation" — Alvin W. Gouldner

What groups in society will lead the way to progressive social change — if such change actually comes about? Marxists have

traditionally turned to the working class and the radical intellectuals. However, with the decline of working class radicalism (especially in the U.S.) some theorists and activists have turned to other groups: minorities, students, the very poor and outcasts, youth, females. But none of these appear yet to have the strength, consciousness or solidarity to bring about significant change — or even to strongly link their efforts with workers.

Environmental activists, to a large extent, are middle class. Does this mean that their efforts are inevitably reformist?

Some would say so, but the answer is really not so easy. Modern industrial societies are complex, and it is no longer fully adequate, for political purposes, to nicely divide the populace into classes. Changing technology, changing life styles, changing modes of social control, and new avenues for dissent introduce the complexities. Nowadays, for example, public servants are both oppressors and oppressed. For the most part their jobs provide little intrinsic satisfaction, and they have little control over the functioning of their workplace or of the society as a whole. (Alienation — popularly known as apathy — still lives!) On the other hand, they enjoy exceptional creature comforts, made available partly at the expense and suffering of lower-paid workers and exploited people in poor countries.

Furthermore, there have not (yet!) been any successful movements towards self-management (that is, that have institutionalised their ideas) in advanced industrial countries, so it is premature to decide who is and who is not an effective revolutionary.

Out of this come some suggestions for environmental activists.

First, it is worth analysing and probing (through organising efforts or direct action, for example) the changing nature of productive forces and social control mechanisms, in order to understand and experience the current dynamics of society. On the side of the power-holders, there may be new elements — such as urban planners, top scientists, utility executives — who introduce new interests and perspectives into the forces behind that dynamic process called the status quo. Both the interests of (prospective) new power-holders, and conflicts between existing power-holders may offer opportunities for activists to promote their interests. (For example, there may be some advantages in working with some solar energy entrepreneurs.) On the side of non-power-holders, new social groups arising from changed conditions (computer experts, unemployed, child care enterprises) may hold the potential for instigating or supporting efforts for change.

Second, it is worth making links or alliances with many diverse groups — with workers (on questions of jobs, work conditions, workers' control), with those living 'alternative' life styles (on questions of forming democratic organisations, forming ideas of future societies), with community groups (on questions of transport, life styles, community decision-making), and with church groups, women's groups, farmers, and so forth. Such interaction can inspire thought and action by all parties involved, and begin to break down the isolation and helplessness created by the present structures in society.

Third, it is worth trying to change one's own life style, and trying to influence others to do so as well. And life style means much more than riding a bicycle or becoming a vegetarian. It means social relations: interacting with family, friends, work associates and fellow activists. Change in society doesn't just mean change 'out there'.

"We had better aim not at seizing power but at eroding, undermining, dissolving, democratizing, decentralizing, and distributing it. But when this becomes our goal, it becomes clear that there can be no single sector of society that will make the revolution." — Dave Dellinger

Comment on individualism
"Individualism is often referred to unfavourably and treated as suspect, particularly in some forms of radicalism. It is painted as exclusively selfish and competitive, as one and the same with capitalism through its sanctioning of concentrations of power and property in the hands of some individuals. It is contrasted usually with collective action and organisation, which is seen as the source of all good.

This is a false contrast and should be rejected. We should distinguish, in the

fashion of Malatesta, between capitalist individualism, which does promote the development of some individuals at the expense of others, and non-dominating individualism, which does not. In the latter the individual is still one of the basic moral, social and economic units. But individuals are not enabled to use their labour, property or capacities to gain power over others, for example through investment, employment, or the monopolisation of skills. Institutions are organised so as to give individuals maximum control over their own lives, within the social framework and within the limits of equal control for others.

This sort of individualism agrees that the present organisation of society isolates people and discourages cooperative action and promotes competition, and prevents the formation of true communities. It hopes for a spectrum of individual and collective or cooperative activity, and is in this sense pluralistic, but believes that collective and cooperative activity cannot be freely undertaken unless the possibility of some forms of individually controlled life and production also exists. It sees the sort of collectivism which emphasises the subordination of individuals to the collective and removes the possibility of individually controlled economic life, as likely to stifle individual independence and self-reliance in thought and life, and as potentially authoritarian. To exchange such collective domination for present forms of domination is to exchange one set of masters for another.

Appreciation of the falsity of the usual individualism/collectivism contrast should lead to the realisation that there are attractive alternatives to capitalism different from and less authoritarian than those almost exclusively collectivist forms of society and organisation usually presented now as the only alternatives."
— Richard Routley and Val Routley

Further reading

Saul D. Alinsky, *Rules for radicals: a practical primer for realistic radicals* (New York: Random House, 1971). Insights and rules for community organisers from a long-time successful organiser.

Roberta Ash, *Social movements in America* (Chicago: Markham, 1972). A critical analysis of social movements.

Godfrey Boyle, Peter Harper and the editors of *Undercurrents* (eds.), *Radical technology* (Harmondsworth: Penguin, 1976). A sourcebook of technologies which are selectively useful in working towards local autonomy and self-management.

Harry Braverman, *Labor and monopoly capital: the degradation of work in the twentieth century* (New York: Monthly Review Press, 1974). An analysis of the role of labour in capitalist society, treating the relation of labour and management, the use of science and technology in designing the production process, the penetration of the market system into all facets of life, and the place of new working class occupations.

R.W. Connell, *Ruling class, ruling culture: studies of conflict, power and hegemony in Australian life* (Cambridge: Cambridge University Press, 1977). Studies of the ruling class in Australia.

Dave Dellinger, *More power than we know: the people's movement towards democracy* (Garden City: Anchor Press/Doubleday, 1975). Experiences and insights from a long time revolutionary about movement tactics, strategy, organisation and nonviolence.

David Dickson, *Alternative technology and the politics of technical change* (London: Fontana/Collins, 1974). A view of technology as the embodiment of the social and political relations between classes in society; also includes a critical analysis of the politics of the alternative technology movement.

G. William Domhoff, *The higher circles: the governing class in America* (New York: Vintage, 1971). Empirical studies of the United States' upper class and power elite and their influence in business, government, and the shaping of structures and policies.

Murray Edelman, *Politics as symbolic action: mass arousal and quiescence* (Chicago: Markham, 1971). A study of how political perceptions are generated.

David Elliott and Ruth Elliott, *The control of technology* (London: Wykeham, 1976). A study of the mutual interaction of technology and the different groups in society which develop it, use it and are affected by it.

Hans Magnus Enzensberger, "A critique of political ecology", *New left review* No. 84, 3-31 (March-April 1974); also in *Politics and crime* (New York: The Seabury Press, 1974), pp. 156-198; also in Hilary Rose and Steven Rose (eds.), *The political economy of science: ideology of/in the natural sciences* (London: Macmillan, 1976), pp. 161-195. A critical discussion of the middle class origins and preoccupations of the ecological movement.

André Gorz, *Strategy for labor: a radical proposal* (Boston: Beacon Press, 1967). A critique of modern industrial society, and elaboration of the idea of transitional demands (nonreformist reforms) on the part of workers.

Daniel Guérin, *Anarchism* (New York: Monthly Review Press, 1970). An introduction to the theory and history of libertarian socialism.

Jürgen Habermas, *Legitimation crisis* (London: Heinemann, 1976). An analysis of the different crises facing capitalist society — economic, rationality, legitimation, and motivation crises — and the links between them (difficult to read).

Si Kahn, *How people get power: organizing oppressed communities for action* (New York: McGraw-Hill, 1970). A manual for organisers.

Michael B. Katz, *Class, bureaucracy, and schools: the illusion of educational change in America* (New York: Praeger, 1971). A historical account of education in the 1800's, demonstrating the way in which social and political values were expressed in the formation of organisations.

George Lakey, *Strategy for a living revolution* (New York: Grossman, 1973). An account of the different types and stages of revolutionary nonviolent action, both historically and as a possibility for the future.

Stephen A. Marglin, "What do bosses do? The origins and functions of hierarchy in capitalist production", *Review of radical political economics, 6,* 60-112 (1974). An analysis of the origins of the capitalist division of labour in the capitalists' control of the work process rather than in its technological superiority.

Ralph Miliband, *The state in capitalist society* (London: Weidenfeld and Nicolson, 1969). An analysis of the state system (government, military, etc.) and the way it serves the interests of power-holders.

David Morris and Karl Hess, *Neighborhood power: the new localism* (Boston: Beacon, 1975). An account of how an established community has been restructuring itself in the direction of fostering local interaction, developing local enterprises, and moving towards local control over community capital and production, with practical comments about what has been done and what may be done further in these areas.

Albert E. Scheflen with Alice Scheflen, *Body language and the social order: communication as behavioral control* (Englewood Cliffs: Prentice-Hall, 1972). A survey of the ways in which social control is promoted through the communication system, especially through nonverbal communication.

Gene Sharp, *The politics of nonviolent action* (Boston: Porter Sargent, 1973). A massive compendium of instances and types of nonviolent action.

John M. Swomley, Jr., *Liberation ethics* (New York: Macmillan, 1972). An ethically based argument for revolutionary change through nonviolent action.

James Weinstein, *Ambiguous legacy: the left in American politics* (New York: New Viewpoints, 1975). A history of the left in the U.S. and an analysis of the effectiveness of its courses of action.

Alan Wolfe, *The seamy side of democracy: repression in America* (New York: David McKay, 1973). A wide-ranging analysis of repression in liberal democratic societies, covering repression both private and public, ideological and violent, and the origins of the modern apparatus of repression.

Sources for quotes and graphics

When full bibliographic details for quotes are not given here, see the further reading on pages 82-83.

Cover: graphic by Ivan Goodacre drawn for this book.
5: graphic by Mike Russo from *Chain reaction, 3* (2), 1977, p.20. Reproduced by permission of Friends of the Earth Australia.
7: graphic artist and original source unknown.
8: Philip L. Fradkin, "Son of a gun, it's son of Kaiparowits", *Audubon Magazine*, May 1977, p.146.
10: graphic by Ian Sharpe drawn for this book.
10: Electric power company official quoted in Sheldon Novick, *The electric war: the fight over nuclear power* (San Francisco: Sierra Club Books, 1976), p.208.
11: John M. Swomley, Jr., p.41.
11: Saul Alinsky, *Reveille for radicals* (New York: Vintage, 1969), p.x.
12: Michael B. Katz, pp.xxiv-xxv.
14: graphic by Ian Sharpe drawn for this book.
16: L.S. Stavrianos, *The promise of the coming Dark Age* (San Francisco: W.H. Freeman, 1976), p.72.
16: Dave Dellinger, p.118.
17: graphic by Cliff Harper from *New times*, Class War Comix No. 1, Eric Publications, 76 Peckham Road, London SE5.
18: Di Elliffe, comments based on the first draft of this book.
19: graphic from *Front line*, No.6, June 1977, p.14.
19: John M. Swomley, Jr., p.66.
20: Dave Dellinger, pp.138-139.
21: graphic from Wednesday Group posters (Sally Greenhill, 357 Liverpool Road, London N1), reprinted in *Spare rib*, issue 64, November 1977, p.25.
22: Alan Wolfe, pp.214-215.
22: Roger Stuart, comments based on the first draft of this book.
24: graphic from "The incredible Rocky — Australian edition", 1976, p.38.
25: graphic by Ian Sharpe drawn for this book.
26: Richard Routley and Val Routley, comments based on the first draft of this book.
26: Robert H. Thouless, *Straight and crooked thinking* (London: Pan, 1974), p.167.
28: graphic by Cliff Harper from *New times*, Class War Comix No.1, Eric Publications, 76 Peckham Road, London SE5.
29: Saul Alinsky, *Reveille for radicals* (New York: Vintage, 1969), pp.20, ix.
30: graphic by Richard Wilson, original source unknown.
32: graphic by Ian Sharpe drawn for this book.
35: solar house graphic from an advertisement for Acorn Structures Inc., Concord, Massachusetts.
35: nuclear power plant graphic artist and original source unknown.
35: Måns Lönnroth, Peter Steen and Thomas B. Johansson, *Energy in transition: a report on energy policy and future options* (Uddevalla, Sweden: Secretariat for Future Studies, 1977), pp.13-14.
35-36: Ralph Nader and John Abbotts, *The menace of atomic energy* (Collingwood, Victoria: Outback Press, 1977), pp.29-31.
36: Barry Commoner quoted in Sheldon Novick, *The electric war: the fight over nuclear power* (San Francisco: Sierra Club Books, 1976), p.22.
36-37: Stephen Marglin, pp.64, 62-63.
37: graphic from *Science for people*, No.39, late spring 1978, p.20, artist unknown.
37: Harry Braverman, pp.211-212.
38: graphic by Rolf Heimann from *Nation review* (date unknown). Reproduced by permission of Monobloc Pty Ltd, Melbourne.
41: graphic by Patrick Cook from *The national times*, week ending August 19, 1978, p.20. Reproduced by permission of John Fairfax Limited, Sydney.
42: Godfrey Boyle, *Living on the sun: harnessing renewable energy for an equitable society* (London: Calder & Boyars, 1975), pp.14, 16, 58.
42: graphic from Organisation for Economic Cooperation and Development Nuclear Energy Agency/International Atomic Energy Agency, *Uranium: resources, production and demand* (Paris: OECD, 1977), p.128.
43: Michael B. Katz, p.xxiii.
43: Elting E. Morison, *Men, machines, and modern times* (Cambridge, Massachusetts: MIT Press, 1966), pp.33-36.
45: Alan Wolfe, pp.166-167.
46: graphic drawn for this book, artist anonymous by request.
47: graphic artist and original source unknown.
48: Alan Swingewood, *The novel & revolution* (London: Macmillan, 1975), p.145.
49: graphic by Ian Sharpe drawn for this book.
51-52: Alan Wolfe, pp.133, 172-173.
53: T.B. Bottomore, *Sociology as social criticism* (London: George Allen & Unwin, 1975), p.209.
53: George Lakey, pp.4-5.
54: William Ophuls, *Ecology and the politics of scarcity* (San Francisco: W.H. Freeman, 1977), p.185.
54: graphic by Ron Cobb from *The Cobb book* (Sydney: Wild & Woolley, 1975).
54-55: David Elliott and Ruth Elliott, pp.28, 17.
55: Herbert Gintis, "The new working class and revolutionary youth", *Socialist revolution, 1* (3), May/June 1970, pp.42-43.
55: advertisement from *Cookery news*, No.83, 1974 (Sydney: The Sydney County Council).
56: Saul Alinsky, pp.12-13.
57: graphic by Ron Cobb from *Cobb again* (Sydney: Wild & Woolley, 1976).
58: graphic by Ian Sharpe drawn for this book.
59: R.W. Connell, pp.48, 47.
61: Frank Linton-Simpkins, "The expensive executive", *Weekend Australian*, October 22-23, 1977. Reproduced by permission of News Limited, Sydney.
62: G. William Domhoff, pp.106-107.
65: graphic by Mike Russo from *Chain reaction, 3* (2), 1977, p.18. Reproduced by permission of Friends of the Earth Australia.
66: Office of Technology Assessment, "Application of solar technology to today's energy needs" (Washington, D.C.: OTA, Prepublication draft June 1977), p.16.
66: *Solar focus*, No.1, October 1978, p.7.
68: graphic by Mike Russo from *Chain reaction, 3* (2), 1977, p.19. Reproduced by permission of Friends of the Earth Australia.
70: advertisement from *Smithsonian, 7*, February 1977, p.7.
71: advertisement from *Smithsonian, 7*, February 1977, pp.62-63.
72: Energy Policy Project of the Ford Foundation, *A time to choose: America's energy future* (Cambridge, Massachusetts: Ballinger, 1974), pp.3, 352.
73: Denis Hayes, *Rays of hope: the transition to a post-petroleum world* (New York: W.W. Norton, 1977), p.190.
73: Egan O'Connor, "Moratorium politics", reprinted from *Not man apart* by Environmental Action Reprint Service, 2239 E. Colfax Ave., Denver, Colorado 80206.
74: advertisement from *Woman's Day* (U.S.), March 8, 1977, pp.152-153.
76: William L. O'Neill, *The progressive years: America comes of age* (New York: Harper & Row, 1975), p.157.
76: Gabriel Kolko, *The triumph of conservatism: a reinterpretation of American history, 1900-1916* (New York: Free Press, 1963), p.58.
76: James Weinstein, *The corporate ideal in the liberal state: 1900-1918* (Boston: Beacon Press, 1968), pp.ix-x.
76-77: Alan Wolfe, p.211.
77: Christopher Lasch, *The agony of the American left* (London: Andre Deutsch, 1970), pp.8-9.
77: G. William Domhoff, pp.218-220.
79: Alvin W. Gouldner, *The dialectic of ideology and technology: the origins, grammar, and future of ideology* (New York: Seabury Press, 1976), p.176.
79: graphic from *Solidarity*, artist unknown.
81: Dave Dellinger, p.316.
81-82: Richard Routley and Val Routley, comments based on the first draft of this book.

Changing the cogs: activists and the politics of technology

What are the best ways to achieve beneficial change in society?
Will widespread use of solar energy and other renewable energy sources bring about a good society?
What technologies will be promoted by vested interests in government and big business?

Changing the cogs provides a framework for tackling these sorts of questions. It is about the relationship of politics and technology, and in particular about the role of citizen activists and of powerful groups in society in affecting technological innovation.

Changing the cogs does not offer any final answers. But it provides information and ideas for those concerned about technology and the struggle for a better society.