

CONSERVATION AND DEVELOPMENT— AN OLD CHALLENGE

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Abstract

A basic conflict between conservation and development is generally seen as a contemporary phenomenon. This is not the case. Throughout history the city and the wilderness have been both idea and environment for urban man. The conflict between them is expressed in the earliest mythology and has recurred constantly. The industrialization of recent centuries, and particularly of recent decades, has sharpened the debate but it is ancient nonetheless.

That conflict is misdirected: conservation and development are interdependent. They are the same process on different time scales. Development is the use and management of the biosphere to provide for the present. Conservation is the use and management of the biosphere to provide for the future.

The widespread concern about the environment in industrialised, developed nations today combines scientific and emotional components. The scientific component is a new and valuable appreciation of, and commitment to, the global ecology. The emotional component is more an anti-technology mood, and is an historically cyclic phenomenon of complex origins.

Modern environmentalism is a complex amalgamation of those ecological concerns with wide-ranging socio-economic and political reforms. Those reforms generally involve the concept of restricted economic growth, especially in Western economies, and derive from a pessimistic world view historically common among intellectuals. The ideology directing the environmental agenda today is known as deep ecology. It accords all nature, including inanimate elements, equal rights with man, and rejects the notion of resources because it defines nature in terms of value to man. Conservation is denounced as controlled exploitation.

It is environmentalism, not conservationism, which is in conflict with development. A balanced reconciliation of conservation and development is proposed in the concept of sustainable development. That balance and reconciliation are imperative but are not part of the programme of most environmentalists, either privately or in government. Their pessimism about man, technology and the future must be challenged. There is no solution in a return to the forest, literally or metaphorically.

Introduction

About ten thousand years ago, when men began to turn from hunting to farming, they had first to cut down the trees. It was a painful task. The spirits of the trees had long been kith and kin. The cleared fields gave back harvest. The hamlets clustered into villages; the villages circled into cities. From those first cities would come the written word, the beginnings of mathematics and science, new gods, new technologies.

Far beyond the city walls, that first urban man could see the forests of his origins, and he looked on them now with both fear and longing. Those dark woods hid plundering hordes that ever threatened to overrun him. At the same time, he had inherited what the poet T.S. Eliot (1940) would later call "an insoluble memory of something lost in the forest". Perhaps it was a sense of unity with nature. Or some nostalgic memory of the freedom of the wild. Whatever the reasons, he was torn between the city and the forest. He still is.

That painful passage from forest dweller to urban man was first told in the Epic of Gilgamesh, dating from about 2000 years before Christ. Gilgamesh was the king of the

Sumerian city of Uruk, and the epic recounts his struggle, and his reconciliation, with the forces of nature and civilization.

This is not simply historical trivia. The Epic of Gilgamesh is one of the oldest written myths of Western civilization. Four thousand years ago, when men first sat down to write about what troubled them, they wrote about the conflict they felt between the city and the forest, not only as environment but as idea.

The first lesson of history, then, is that current feelings and fears about nature and civilization are not simply recent phenomena. They may be in modern guise, with modern causes and components appended, but there are ancient ideas and emotions involved. This paper is about those ideas and emotions, about their ancient origins, their influence in recent centuries, and their modern expression.

The historical perspective allows a view of the present against the patterns of the past. That is especially important today when so much of the environmental debate is focused on the perceived needs and preferences of future generations. We disagree with previous generations on matters of science

and ethics, and it is reasonable to assume future generations will disagree with us. It does seem unlikely that we are the first generation on earth to be 'right'. The historical perspective cautions against too easy arrogance at today's 'wisdom', and it warns against too hasty action.

In the context of New Zealand, for instance, it might promote a more balanced perspective on the impact of human settlement here than is currently vogue. Many New Zealand government publications, for instance, present Maori culture as being in harmony with nature; but the European, in conflict (e.g. Marsden, 1988; Cronin 1988a). History reminds us that the Polynesian colonists had their own often fatal impact on the New Zealand landscape (Cumberland, 1987).

The city of Christchurch is built above a standing forest that was interred in six metres of gravel c800 years ago when Maori-lit fires stripped bare the watershed of the Waimakariri River. This is nothing against Maori culture; it is a question of historical truth. They cleared huge areas of forest, causing extensive erosion, silting of the rivers, and pollution of nearshore shellfish beds and fish breeding areas. Hunting wiped out whole colonies of seals, and dozens of species of birds rapidly became extinct, including the giant moa (Thorne and Raymond, 1989).

The Europeans who followed did the same. Both races wrought havoc as they sought their happiness here, and the society would be better served by an image of that common history, than the social divisiveness inherent in the prevailing romanticism.

We face a great challenge today in our effort to reconcile conservation and development, and better sustain all life on earth. Gilgamesh reminds us that the challenge is as old as it is current. It is likely then, that history offers some lessons, and our learning them may be an imperative for the future.

Beginnings

The Epic of Gilgamesh describes allegorically the founding of the city, the domestication of the savage, and the acceptance of the authority of the king. It also tells, through Gilgamesh's melancholy, that the passage was not an easy one. Gilgamesh and his companion, the wild man Enkidu, go into the forest to gather timber for the city, and to slay the source of evil and unhappiness there. Enkidu is really Gilgamesh's alter ego: one is nature; the other, civilization. Each was unfulfilled without the other. Enkidu is killed later, and Gilgamesh himself reverts to savagery, journeys to the underworld where he is reconciled with his mortality, and goes back to the city to die. So, the legend says, city man is incomplete without the wilderness. It also says that the city is man's destiny, not the forest (Sinclair, 1977).

The basic themes of the environmental debate - the confrontation between the forest and the city, between primitive and urban man, between nature and civilization - are all there in the Epic of Gilgamesh, and they have been there throughout history, powerful forces in the psyche and on the battlefield. Gilgamesh offered an understanding of them as partners, but that has not been - is not- the prevailing view.

In ancient Greece the conflict was between the Stoics, who saw the world as made for man, and the Epicureans who saw man as part of the world but no master of it. The early Greeks saw the earth as a goddess, and called her Ga. They argued about agriculture. Did it aid her fertility or diminish

it? Wise husbandry was needed. They had a chant: Ma Ga, Ma Ga. We even understand it: Ma Ga, Mother Earth (Hughes, 1985). Invading tribes from the north brought the warrior sky god, Zeus, with them. Beliefs merged; gods wed: Sky Father; Earth Mother - the one to rain and fertilize the other.

(Nor is this simply historical trivia. Here in New Zealand the legend of Papa, the Earth Mother, and Rangi, the Sky Father is frequently cited as evidence of a bond with nature and an 'earth-wisdom' inherent to Maori culture (e.g. Pasrata in Cronin, 1988a). History reminds us that Western culture has, at its beginnings in ancient Greece and elsewhere, this same legend.)

In the Judaeo-Christian tradition, much of the biblical emphasis is on the evils of the city and the purity of the wilderness: the slavery of Egyptian cities, for example; the decadence of Sodom. Christ's first days were a flight from the city and its dangers. As a man he went often into the wilderness, seeking purification there, and in the end, like Gilgamesh, he went back to the city to die. It is too often forgotten that Christ also went to the city for knowledge and learning.

The Old Testament (Genesis) directive that man shall have 'dominion' over all the earth is frequently cited as the ecological flaw in Judaeo-Christian thought. This is too selective a reading: Genesis also declared that the 'green herb' in the Garden of Eden, the safety of the ark, the Covenant of the Rainbow, and the command to multiply were for all the animals, not simply man. The rejection of the divinity of nature was fundamental to the evolution of both Judaic theology and Greek science, but it did not lead immediately or inevitably to an exploitive disregard for nature.

Christianity viewed the world as made for man but, into the Medieval era, it still viewed nature as sacred, being part of God's creation. The dominant approach to nature was almost preservationist: clearing forests - the haunt of the old nature Gods - was endorsed but otherwise nature was to be left as God made it. It was the Protestant Reformation of the 16th Century that desecrated nature, and 17th Century Newtonian science that seemed to render it inanimate. Thereafter the counter-view - that man is free to master and develop the natural world - has been more loudly heard. No doubt, too loudly at times, but it must be seen in its historical context, and not generalized across the millennia into some simplistic comment on Christianity and Western culture.

Concern about overpopulation is a common theme of those ancient times. Abraham worried about it. Euripides blamed the Trojan wars on it. Plato and other Greek philosophers wrote about it, as well as related food shortages and environmental degradation (Simon, 1981)

The myth of the Noble Savage also dates from these early centuries, from the Roman historian Tacitus, and his romantic image of the warring Germanic tribes. He saw them as chaste and frugal, living in balance with the land and nature, and he contrasted them with the materialism of Roman society. It has remained a favourite theme of urban intellectuals. (Those northern hordes later over-ran Rome. They proved disinterested in urbanity and much of the accumulated wisdom that went with it, and the dark forests regrew across the European mind. During those dark ages, scientific knowledge was preserved and developed mainly in Arabic courts and cities. Carried back to Europe by the

Crusaders, this knowledge helped light the way out of the Dark Ages.)

The debate about the city and the wilderness, their relationship to each other, and their relative value, is as old as urban man. The dream of a simple, purer life away from the confines and congestion of the city is an ancient dream. It is part of that 'inconsolable memory'. But the turn back to the forest, back from science to superstition, is a flight from reason. Across the centuries it has been a recurring dream and a popular flight.

The Great See-saw

In more recent centuries, since the Industrial Revolution, it is technology and its impact, rather than the city itself, which has become the symbolic antithesis of nature. The pull between them has continued and there have been distinct changes in the Western man's preferences for one or the other. There has, for instance, been a distinct tilt towards nature at the end of the 16th, 18th, 19th and 20th centuries.

The Australian historian, Geoffrey Blainey (1989), has recently presented a detailed analysis of those changes. He has dubbed it, accurately if inelegantly, the Great See-saw. In his words: 'Love of nature sits at one end of the see-saw, love of technology at the other. Sometimes the one end is heavier, sometimes the other; betwixt the beam is balanced more or less, but ever rocking back and forth'.

The causes and effects of the tilt on that see-saw are complex. Intellectual, cultural, technological, and economic factors all influence it and are influenced by it. Sometimes one factor leads, sometimes another. They influence each other.

The prevailing tilt has a profound effect on the attitudes of the day. For instance, a tilt towards nature is invariably accompanied by an increased respect for primitive peoples:

they are seen as living closer to nature. A tilt against technology brings fears of famine and diminishing resources. Technology embodies man's skills as a problem-solver and supplier, and when faith in those skills is lost, concerns develop over future supplies and security.

The alternating swing, between nature and technology over recent centuries is shown diagrammatically in Figure 1.

There is a very dramatic swing to nature around 1800. This was the Age of Romanticism. Earlier in the century the mood had been quite different, very positive. The intellectual revolution of the Enlightenment had swept across Europe, rejecting the pessimism and fatalism of classical and biblical world-views. History was seen for the very first time as progressive evolution. Scientific knowledge was the key to the future. There was even a new word: optimism.

The Romantics rejected all that. Man may have evolved from the trees to the boulevards of Paris, they argued, but the last stage was less than the first. Chief spokesman for this was Jean Jacques Rousseau, who revitalized the myth of the noble savage. Tahiti had just been discovered. Here was Eden and man before the Fall. (The Romantics had much to recommend them - the belief in the worth of other cultures, their appreciation of the arts - but they were true heirs of the young Gilgamesh, unhappy in the city and civilization.)

Captain Cook described Australian aborigines as 'living in a tranquillity.. far happier than we Europeans' (Smith, 1984). Not long before, Dampier had described them as 'the miserablest people on earth'. Nothing had changed in Australia; it was all in the European mind.

In Europe itself, poor working conditions and pollution in the rapidly expanding cities bred a romantic nostalgia about rural life, and the peasants toiling there. The resentment of technology found early violent expression in the Luddites.

The English clergyman Thomas Malthus claimed that food production was increasing arithmetically (1-2-3-4) but

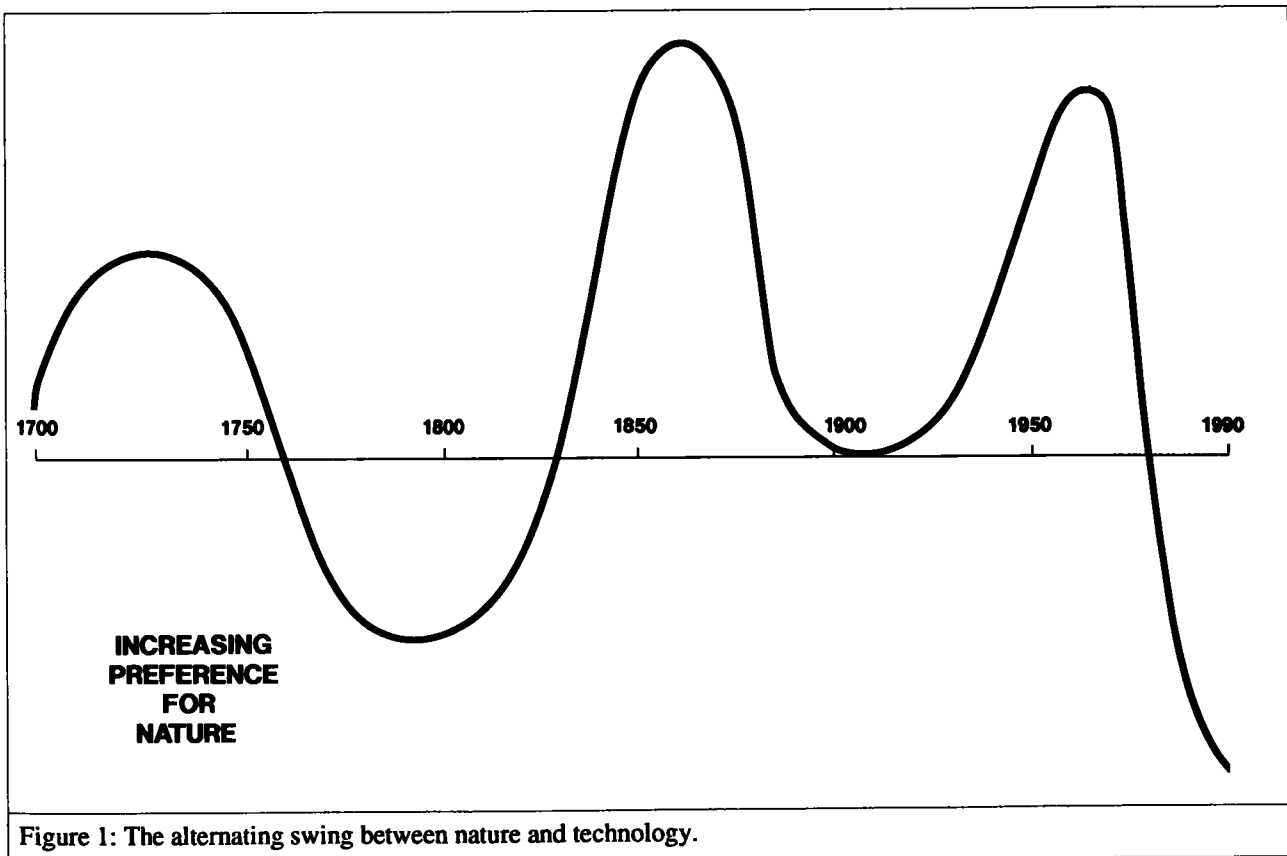


Figure 1: The alternating swing between nature and technology.

population was growing geometrically (1-2-4-8). The result was clear: sustained human progress was impossible. Population growth and industrial development had to be stopped.

Familiar sounds across the centuries!

By the mid 19th Century the see-saw was full tilt the other way. We live under the blessed light of science, textbooks proclaimed. The great European success in exploration, science and commerce were equated with moral and cultural progress. The native wasn't noble any more; he was a savage. Freedom wasn't with the wandering tribes, but with industrial civilization.

Malthusian pessimism was discredited. Man's increasing numbers and needs did not beget disaster, but invention and innovation. The steamship, the railway and the telegraph were all praised as instruments of peace, bringing people and nations closer together. International business was hailed as a civilizing wand!

The mood began to falter about 1870. Such progress and prosperity seem ultimately to breed disbelief. The facts don't change; the perceptions do - and the see-saw begins to tilt. A few years earlier people were rejoicing in a smaller world; now it raised fears about dwindling resources.

This reaction intensified as the century ended, greatly influenced by trends in anthropology and psychology, especially Freud. The intellectuals reassigned urban man his old unhappy fate, and hailed anew the wisdom of the primitive tribes. Nature based societies such as the Boy Scouts sprang up. The conservation movement emerged in the USA, arguing from the outset over conservation versus preservation.

Still, the tilt lacked the force of earlier cycles and the see-saw rocked back and forth until the end of World War 2. The 1950s brought a revolution in everything technological. Wages were rising. Prices were stable. Prosperity seemed there for all. Poor nations were simply underdeveloped. Optimism was on an all time high - and that should have been the warning. The see-saw was set to tilt back - and sharply.

In 1969 man landed on the moon. That was really the end of the era of technology. Even as man took that giant step, the warning bells were ringing up to crisis level. Amid the carillon that rang in the era of environmentalism were the familiar bells of expanding population, dwindling food supplies, and diminishing resources.

Optimists and Pessimists

Blainey (1989) has labelled the preference for nature versus technology as, respectively, pessimism and optimism. These are labels which reflect man's view of himself and the future, and his influence in it. Some of the main aspects of these two views are shown in the table below.

Both views obviously exist today but it is the pessimistic view which dominates. The social attitudes and values that characterise that view are widespread: fears of population explosions and depleted resources; widespread discontent with urban society; the 'native' is again the noble savage.

Conservation and Environmentalism

The mood in Western society today - firmly pro-nature and almost as firmly anti-technology - has much in common with the mood and values prevailing 200 years ago. However, there are also factors and aspects today that are very different - and disturbingly so:

Optimists	Pessimists
Man is intelligent	Man is not as clever as he thinks
Industrial civilisation is good	Industrial civilisation is bad
New technology is good	New technology is bad
City life is noblest	Primitive life is noblest
Reason is the highest virtue	Instinct and emotion are the highest virtue
Modern man is the ideal	The noble savage is the ideal
Nature must be harnessed	Nature is bountiful if left alone
Science will provide	Nature will provide
The golden age lies in the present and future	The golden age lies in the past and a faraway utopian future

- Acid rain, atmospheric pollution, soil degradation.
- The population of the earth has trebled since 1900.
- The consumption of fossil fuels has increased thirty-fold in that time.
- Industrial production has increased fifty times this century; forty times since 1950.

There may be a cyclic component involved, but some of today's concerns about population growth and diminishing resources do seem better founded. They would seem, therefore, to have both a rational (scientific) and an irrational (emotional) component.

The rational component might usefully be defined as pro-nature. It has a scientific basis in the recognition that our care of the environment has often been inadequate in the past, and that better care is essential in the future. That much is simple enough and is to be applauded and encouraged. The irrational component, by contrast, may be seen as anti-technology.

This distinction between anti-technology and pro-nature is not simply semantics. Being pro-nature does not require a person to be anti-technology. It is rational to be concerned about the environment, and wiser use of our technology. It is irrational to be afraid, even hateful, of that technology, and the future it offers.

Yet this anti-technology sentiment, with all the attendant pessimism and fear of the future, is widespread throughout the world today, especially in the Western industrialised nations. What are its origins and why is it so popular?

History tells us that it is a cyclic phenomenon and that the origins are probably complex. There is obviously widespread and deep concern about the global ecology. Yet much of that concern and fear is emotion-driven, and persists regardless of the facts. The present may be drawing added intensity from the conjunction of several cycles. The end of a century seems to prompt social unease about the future: witness the swing to nature at the end of four of the past five centuries. How much more so then at the end of the millennium; for

centuries Western man believed the world would end in the year 2000 AD!

Blainey (1989) details a great variety of economic, political, social and intellectual forces weighing on the see-saw in recent decades, but they can be simplified into three main factors: public concerns, social dynamics and intellectual trends (Arnold, 1982).

Public Concern

Concern about the environment had its beginnings in the 1950s with the worries about atmospheric pollution. It was stimulated by books - Rachel Carson's (1962) *Silent Spring*, for instance - and by colour television: nature's beauty and man's pollutants were suddenly and sensationally in everyone's living room. Media coverage of environmental accidents such as the Santa Barbara oil spill cast local events as international disasters.

Not all the information was accurate. Some of it was deliberately inaccurate. It raised awareness, and some of that was good, but it also falsely alarmed the public who became increasingly nervous about the future. A doomsday mentality began to develop.

In 1972, the Club of Rome predicted global collapse within a century. This was the same old Malthusian pessimism revisited, but it was now 'proven' by detailed computer analyses of world system models. Public reaction was not surprising. The technology that put man on the moon now foretold demise on earth. That wasn't true, of course - but that didn't matter. When the Club of Rome changed its predictions four years later, no one seemed to notice.

The Greenhouse Effect emerged in the late 1970s as the fundamental environmental issue. The 'ozone hole' also served to internationalize the public perspective and motivate a co-ordinated global response.

Part of the public response was a valid concern, but there was also an increasing nervousness about the present and future value of technology. This was not simply a loss of faith in technology and the future; it was the feeling that the technology itself was to blame. A creeping pessimism about Western industrial civilization slowly displaced the optimism of earlier decades.

Social Dynamics

Changes in social structure and affluence were occurring over the same period. In 1950 most people in Australia and New Zealand were anxious for security and material well-being, and they were staunch advocates of industry and technology. In the relative affluence of the 1980s things looked very different to many people.

Ironically, it is technology itself which caused that change. It brought the economic growth that provided the affluence; it improved production methods and triggered the massive changes in occupational structure; it provided the funding and motivation for expanded education; and it created the mass communication industry. Post-war technology progressively moved people out of the primary sector, many into the expanding civil service. Over two-thirds of our population now work in the service sector. They live mainly in urban and suburban centres comfortably buffered from, generally unaware of, and not very sympathetic to, the resource industries that ultimately support them.

Television speaks daily to this audience. News reportage is preoccupied with minority positions and protests, and business and industry are derided in most entertainment

programmes. A recent analysis of the top 200 USA television shows found that two-thirds of the business men were portrayed as evil, and over half of the business activities shown were illegal (Samuels, 1981). A similar bias has been noted in Australia (Karadzic, 1989).

These factors combined to create a mentality that is prejudiced against industry and development. In 1970, 70% of the American people believed that companies 'struck a fair balance between profit and public interest'; by 1980, the figure was reduced to 19% (Isaac, 1983). Half the population had changed its mind. The results of a similar poll in New Zealand probably would not be as dramatic, but the same shift in public perception of business and businessmen occurred.

These social dynamics had their most profound effect at the upper to middle-class level. Generally well educated and professionally employed, this group proved receptive to intellectual trends of the 1960s and 1970s, and emerged as the leaders of the environmental movement.

Intellectual Trends

Those intellectual trends were many and varied, and all seemed critical in one way or another of Western society. Many were simply the latest version of age old discontents, from anti-civilization generally to Malthusian concerns about population outgrowing food supplies. Most incorporated an anti-capitalist bias. All were given widespread publicity by the generally sympathetic media, and boosted considerably by the whole counter-culture movement of the Vietnam era.

In the context of the emerging environmentalism, the most influential trends were the opposition to western industrial expansion and population growth. Industrial growth was consuming the earth's resources and polluting the environment - all the while exploiting the third world. The exploding population bomb (Ehlich 1968) was just as potentially destructive. Both concerns had some validity but they were wrongly generalized into an attack of Western technology, and on man himself. The former was an error of judgement: technology wasn't inherently bad; it just needed improving. The anti-humanity trend was the more disturbing, finding extreme measure in the advocacy of totalitarian measures to restrict population.

By the mid 1960s these disparate intellectual trends and social dynamics saw the emergence of a new breed - the environmentalist. In the USA the arrival was signalled by the 'take-over' of the traditionally aristocratic conservation groups such as the Sierra Club, and the successful lobbying for the Wilderness Act 1964. In Australia the change was marked in the early 1970s by the realignment of the Australian Conservation Foundation from research and education to activism. The conservation movement was 'transformed from a genteel collection of armchair dwellers and bushwalkers to a huge movement of often militant crusaders' (Time, 1988). The catalytic event in Australia was the damming of Lake Pedder; in New Zealand it was the proposed damming of Lake Manapouri (Wilson, 1982).

The movement became environmentalism, and the agenda went far beyond trees.

Energy and the New Ideology

From the beginning the petroleum industry was on the front lines. Commoner's (1972) influential *Closing Circle* attributed the environmental crisis to the post-war

development of the petroleum and chemical industries. Activists with very different social and political aspirations found a common cause in limiting energy supplies, and the exploration for them. Industry, capitalism, population, pollution, etc., could all be slowed by restricting the energy supplies available to society. The subsequent linking of fossil fuels with the Greenhouse Effect has ensured pride of place for petroleum in the environmentalists' hall of infamy. Other energy sources have fared no better.

'More profound (was) the gradual realization of all the various groups ...that ecology implies the indivisibility of total systems: that matters of energy, agriculture, health, transport, land use and so forth were not susceptible of separate solution but implied structural attack on the political and economic system itself' (Cockburn and Ridgeway in Arnold, 1982).

The enemy was not the logger or the miner per se; they were only enemy agents; the real enemy was the entire complex of our culture, especially its Western ethos, and its basis in capitalistic individualism. The argument may be about trees or trout but the battle is about development and growth, about stopping them.

The battleground is not the environment, said former US Secretary of the Interior Jim Watts. It is ideology (Arnold, 1982).

By the early 1970s the fundamentals of that new ideology were clear (Barbour, 1973):

- Man is inseparable from nature and dependent on the environment. Western religion and culture are based on man's dominion over nature and lead inevitably to its destruction.
- The earth's resources have finite limits and will be exhausted if growth in population and living standards continue unabated. Changes in values and social institutions are essential.
- Industrial development progressively destroys the earth's ecology and must be restricted by political and legislative means.
- Uncontrolled technology is the main threat to the earth. The consumption of natural resources and the creation of waste products must be minimized. Individual liberties may need to be sacrificed to social demands.
- Poverty and pollution are linked products of the capitalist economic system. Changes in political power are necessary to redistribute wealth and make technology an equitable instrument for human welfare.

The agenda dictated by this ideology obviously involves caring for the environment but it also includes major social, economic and political reform. For some of the ideologues, the environment was the main issue; for others it was the socio-political reformation. For most, however, the two were inseparable and together became commonly known as environmentalism.

This is not simply semantics. These are very important distinctions. Ecology is a scientific discipline. Conservation is an ethical dictate of that science. The superposition of the socio-political reform onto that scientific discipline converts conservationism to environmentalism.

Intellectuals and Bureaucrats

This distinction between conservation and environmentalism is not clear to most people. That confusion works to the

benefit of the environmentalists, both as regards private support for their organizations and within the political process.

There is no doubt that conservation, historically an aristocratic tradition, has been transformed into a popular concept. However, that groundswell is largely about conservation, not environmentalism and its attendant ideology and agenda.

Control of the environmental agenda comes from 'a highly specific segment of the population' (Time, 1988): middle and upper class, well educated, relatively affluent, working in the public sector and service industries. Bred of the affluence, education and social dynamics of the post-war decades, this group emerged during the 1970s as a powerful force in Western society.

Kristol (1978) called them 'the new class' and argued that they are acting 'on a hidden agenda: to propel the nation from that modified form of capitalism we call the welfare state towards an economic system so stringently regulated in detail as to fulfil many of the traditional anti-capitalist aspirations of the left'. If they do constitute a new class, it's only that there are now more of them. Simply, they are the modern intellectuals, and like so many intellectuals before them they are unhappy with the society they live in, and they seek to change it. Schumpeter (1939) defined them as the people who wield the power of the spoken and written word, and saw in them the demise of capitalism.

Intellectuals usually seek control and change through the bureaucracy; lacking a sword, they wield the pen. A properly functioning bureaucracy is essential to a democratic society but intellectuals tend to regard it less as administrative than authoritative. They believe that society can be regulated and legislated to perfection, and they create extensive and invasive bureaucracies to the end. Meztger (1979) coined the term 'co-ercive utopians' for these people.

Environmentalists, more than most seem to be drawn to the bureaucracy. If ecology means that 'everything relates to everything', then everything must be evaluated for its environmental impact, and environmental regulations must apply to any and every activity. This philosophic rationale underpins the path to power; the more regulations that apply, the greater the restraint on development, and the greater the control for the environmentalists.

Overlap and exchange of personnel between government agencies and environmental organizations ensures common purpose. Yesterday's protest leader is tomorrow's ministerial adviser. Government funding is available through this network, either as administrative grants or for commissioned work.

The environmentalists sharply reject any charges of a hidden agenda, and deny any gap in information or aspiration between leaders and supporters. The environmentalists do speak and write relatively openly about their philosophy and aims in newsletters, press interviews, etc. The question is whether the general public hears those statements, or understands the implications.

The vast majority of people in countries such as Australia and New Zealand accept the need for some changes to social and industrial practices to better protect the environment. It is debatable, however, whether the public perception of those changes, and their impact on the style and quality of life currently enjoyed, is in accord with the environmentalists' agenda.

The average person supports conservation. The average environmentalist is plumbing a deeper ecology.

Deep Ecology

The conservation ethic that emerged through the 1960s was utilitarian: man was messing up his environment and too rapidly consuming the earth's resources. Wiser and more efficient practices were needed. This was an old idea revisited: the 'gospel of efficiency' preached by American conservationists early this century. Men saw themselves anew as caretaker, steward or simply friend of the earth, and accepted a new ethical and moral responsibility for it. The motivation remained self-interest. In the jargon of the day, the conservation ethic was anthropocentric - based on man. Still, it carried a profound respect and commitment to the biosphere in all its diversity.

It is, however, the more radical gospel of environmentalism that has emerged as the dominant ideology. This is more commonly referred to as deep ecology. This term was coined by the Norwegian philosopher Arne Naess in 1973 but did not receive widespread public use until recently. It did, however, attract considerable attention from the intellectuals during the late 1970s and 1980s, and has become the only 'ecologically sustainable' ethic for most environmentalists.

Deep ecology involves a fundamental shift in perception: it is not man's rights that are at issue, but nature's rights. All forms of life have an equal right to live and blossom; as Naess put it, to 'self-realization', irrespective of any usefulness to man.

The guiding principle is ecological egalitarianism - equality of species. Man has no more rights or ethical status than any other part of nature. Initially the deep ecologists were focused on living species but the term, Life, soon took on what Naess called a "more comprehensive non technical" meaning: life was expanded to include non-living things such as rocks and rivers (Devall and Sessions, 1985).

Deep ecologists see their views as part of a natural evolution of the human concept of ethics and natural rights, extending out from self to clan to tribe, and so on, ultimately embracing the universe (Nash, 1990). This evolution is seen in the progressive granting of rights to different groups: slaves, women, wilderness, endangered species. In this context, deep ecologists see themselves as the cutting edge of the western liberal tradition, following in the footsteps of those who fought to free the slaves - a vision of history which accords them considerable security in their self-righteousness. It's easier for deep ecologists, Naess offered, because of their 'fundamental view of what's meaningful in life, what's worth maintaining'.

Deep ecology, like environmentalism generally, may be not precisely a religion, but it functions very much like a religion for many people, defining their place in the universe. It has all the trappings of a religion: sacred texts, revered dogma, the process of conversion, the promise of salvation, and so on. The commitment to Christianity, so widespread and comfortable through the 1950s, slid away over the following decades and has now been replaced for many by this nature-mysticism.

Raping the Carboniferous

Deep ecology 'leads to an uncompromising stand against the main thrust of modern technocratic culture which alienates

humans from the rest of nature (and) from themselves and each other'... Deep ecology is incompatible with economic growth as conceived and implemented today by the industrial states (Devall and Sessions, 1985).

The business of petroleum exploration is incompatible with deep ecology. In the language of ecofeminism, we are raping the forests of the Carboniferous, to misquote only slightly the former Secretary for the Environment under President Carter, W.D. Ruckelshaus (1989).

Petroleum exploration companies, and their representative organizations such as APEA and PEANZ, are talking about wiser use of resources, about multiple land use, about scientific resource management, and so on. Deep ecology condemns such notions as part of the RCD ideology (Devall and Sessions, 1985).

RCD? Resource Conservation and Development

Our industry sees that as an ethical and moral objective. We seek a dialogue with government and environmental groups towards this end. Deep ecologists are not remotely interested in that end. They oppose the whole concept of resource development. Indeed, they object to the very concept of resources because it is implicitly defining and valuing nature in terms of use by man (Nash, 1990).

In fact, many deep ecologists reject the principle of conservation. It has, in their perspective, an historical analogue in early 19th Century efforts to improve plantation living conditions for slaves. They argue that those improvements served to prolong slavery when the only meaningful ideal was its abolition. So too with nature: the only meaningful reform for deep ecologists was - is - the liberation of nature from human dominance and exploitation.

For all its 'intellectual incoherence' (Passmore, 1974) the ideology of deep ecology is widespread in the Western world today and a significant influence on national and international policies and legislation. It is the driving philosophy in the environmental movement and it is supported by many, if not most, in government environmental agencies.

In the USA, for instance, over 75 "Green organizations" recently endorsed deep ecology as their "philosophic backbone" (Nash, 1990).

A New Zealand Ministry of the Environment publication (Cronin, 1988b) lists the following range of human valuations of nature:

Man-made world: nature unimportant

Resource use

Stewardship

Respect for nature

Holistic world view

Ecofeminism/deep ecology/the new physics

Traditional wisdom

Synthesis: Ecological science/ecofeminism/new physics with eastern and traditional cosmologies.

Deep ecology, like ecofeminism and Maori lore, is clearly seen as part of the proper attitude to nature; 'resource use' is considered next to the worst. This suggests rather strongly that the resource industry should not be surprised by obstructionist attitudes and regulations from those environmental groups or government agencies.

Thinking Like a Mountain

Deep ecology is essentially an irrational anti-science movement. It embodies a particular distaste for modern

science with its computers, genetic engineering, cybernetics, information theory and other developments, and denounces the notion that science can provide a technological solution to the world's ills. This hostility is clearly revealed in their labelling of this optimistic belief as the New Age/Aquarian Conspiracy (Devall and Sessions, 1985).

Deep ecologists follow Rousseau and the Romanticists of two centuries ago in believing that free speculation of the mind is superior in revealing nature than 'cold', analytical science. In defining deep ecology Arne Naess said that it involved 'a shift from science to wisdom'. Devall and Sessions (1985) noted that it 'goes beyond the so called factual scientific level to the level of self and earth wisdom. The foundations of deep ecology are the basic intuitions and experiencing of ourselves and Nature'.

Thus John Muir, an intellectual ancestor of the deep ecologists is said to have worked out his glacial theory of the formation of the Sierra Nevada by lying down on the ice-polished granite surface in order to think like a glacier!

The Australian philosopher, John Passmore (criticised for being a shallow ecologist), has noted (Passmore, 1974) that "environmentalism is the latest weapon between rationality and mysticism". No-one can venture far onto the battlefield without agreeing. Deep ecology is definitely on the front lines.

Not that the deep ecologists would disagree. They accept that they have rejected Western rationalism and turned towards mysticism. In the popular Chinese terminology of yin and yang, rational knowledge is yang or masculine. Yang is rejected in favour of yin, the feminine. The rational tradition is seen to wrongly favour competition over co-operation, expansion over conservation, science over religion, rational knowledge over intuitive wisdom. The move is to feminine values, and finds syncretic expression in eco-feminism.

Their perception of the need for balance is valid; it is indeed an ancient wisdom that we must balance the yin and yang, and Western culture is the richer for the reintroduction of Eastern ideas in recent decades. But their pursuit of the mystical and the intuitive, and their denial of Western rationalism are out of balance too - and offer neither vision nor solution for the future.

It is one thing to suggest that we need to be more prudent in our use of technology; quite another to suggest that ecological problems can be solved by abandoning the analytical critical approach and going in search of a new metaphysics. The solution lies only in the Western rational tradition; mystic contemplation can reveal nothing of the problems nor the steps to solve them (Passmore, 1974).

Deep ecology is wrong too in its view that man has no more value or ethical standing than the rocks and the trees. Despite their denials, this is anti-human, and has obvious and ominous implications. If humans are no more than trees, the moral restraint on eliminating excess numbers becomes terrifyingly small. Reverence for all life is an ancient and admirable moral perspective but it has no context outside the human mind and soul and, correspondingly, must reaffirm a reverence for human life above all else.

We can struggle to think like a mountain, to use Aldo Leopold's much quoted image from the 1940s, but the mountain can never return the favour. Paradoxically then, what is initially an exercise in ecological humility turns into a confirmation of our natural uniqueness (French, 1985).

Pessimism Rules

Viewed against history deep ecology is part of that age old urban intellectual tradition that is characterised by a pessimism about civilization and the future, and a romanticised view of nature and primitive society. That pessimism pervades almost everything written about the environment.

The abbreviated summary points below are from the US Global 2000 report, but are indistinguishable from similar reports in all our countries, and figure daily in the leading stories of the world's newspapers.

The world in 2000 will be more crowded, more polluted, less stable ecologically and more vulnerable to disruption... serious stresses involving population, resources and the environment...people will be poorer in many ways than they are today... the outlook for food and other necessities of life will be no better. For many it will be worse... life for most will be more precarious. (Global 2000, 1983)

This is indeed a bleak sounding future. Yet, in 1983 when scientists from around the world presented data on the quality of human life, the state of the environment, food supplies, natural resources, and so on, they came to very different conclusions.

The world in 2000 will be less crowded (though more populated), less polluted, more stable ecologically and less vulnerable to resource-supply disruption... less stress involving population, resources and the environment... the world's people will be richer in most ways...the outlook for food and other necessities of life will be better...life for most people on earth will be less precarious. (Simon and Hahn, 1984)

The results of their findings are available in the book, *The Resourceful Earth - A Response to Global 2000*.

When the New Zealand Ministry for the Environment produces publications to advise and educate the public (e.g. Cronin, 1988a), and makes reference to the doom and gloom of Global 2000., why aren't there balancing arguments from *The Resourceful Earth*? If there are references to Ehlich (1968), Rivkin, (1980), Commoner (1962), and Lovins (1977) for example - all of whom are environmental gurus - why are there no references to Simon (1981), Tucker (1982), Idso (1989), and Singer (1988) - all of whom present a counter view?

It raises questions as to whether the Government - or at least, the Government bureaucracy - is really trying to present a balanced view at all.

Sustainable Development

The concept of sustainable development was cast on the world stage by the UN-sponsored World Commission on Environment and Development (WCED), commonly called the Brundtland Commission. This concept sought a restoration of some balance between conservation and development, and it did so in positive tones. 'Our Common Future is not a prediction of ever increasing environmental decay, poverty and hardship in an over populated world among ever decreasing resources. We see instead the possibility of a new era of economic growth' (WCED, 1987).

I spoke on this theme in Darwin, Australia two years ago (Purcell, 1990a, b). My optimism then was linked to the concept of sustainable development, and the optimism

inherent in it. At the same time, however, I sounded a note of caution and concern.

Australia, like New Zealand, was moving towards a national strategy based on the concept of sustainable development. The Australian National Conservation Strategy actually declared, by way of its opening remarks, that conservation and development are equally necessary for our survival. It offered the insight that they are different expressions of the one process (Department of Home Affairs and Environment, 1983).

I found that a powerful thought: **development and conservation are not inherently in conflict: they are part of the one process.** Indeed they are. That process is the human endeavour to sustain and improve life on earth.

Development is the use and management of the biosphere to provide for the present; conservation is the use and management of the biosphere to provide for the future.

They are the same process on different time scales.

It seemed possible that such concepts might mark the beginning of a return to optimism. Perhaps that Great See-saw was beginning to tilt back. It was too early to tell, and I worried about powerful forces at the far end. I still do.

On the international scene, sustainable development is seen by many, including some of its architects, as the imperative for a new world order. A restructuring of modern civilization, on a scale comparable to the late Neolithic agricultural revolution and the Industrial Revolution of the last two centuries, was foreseen by Macneil (1989) and Rucklehaus (1989), two members of the WCED. The main impediment to instituting those essential changes were 'the free-market system and democracy' (Rucklehaus, 1989). That has a rather ominous sound.

The scale of the international bureaucracy foreseen as past of the new order was equally alarming. Special taxes are to apply on energy, resources, fossil fuels, etc. Direct government ownership of resources is advocated. National environmental agencies are to be expanded and given more power. All government policies and programmes are to be subject to the environmentalist's overview. New international institutions will be created, and authorized to collect, e.g. a climate-protection levy on industrial countries, and redistribute the money to the developing countries. Ultimate wisdom on environmental matters would emanate from a global institution involving 'non-government and quasi-government organizations... pulled together into a co-operative network' (Macneil, 1989; Rucklehaus, 1989)

On the national scale, the concern is that the concept will be manipulated out of effective existence by those who purport to champion it. Sustainable development obviously involves development and is, accordingly, anathema to many environmentalists. Secondly, it requires an evaluation of the environment in economic terms, in order to weigh it against development value, and that is even more repugnant to most.

The obvious strategy for the environmentalists has been to so heartily embrace the concept that they squeeze it to their shape. In Australia, the term was soon modified to 'ecologically sustainable development'. In New Zealand, the dread-word, development, was removed entirely and the concept recast as 'sustainable management'.

Some of the reasons for those changes - New Zealand concerns about the global scenario in the WCED concept, for instance - were very valid, but semantics are important

too. That is also a lesson of history: from Adam to Bacon to present day committees, the conferring of names is the holding of power!

Clearly, ecologically sustainable development means little or no development to those who consider any development to be ecologically unsustainable. Similarly, 'sustainable management' need not include the concept of development at all. I know it does include development in the eyes of many; I fear it doesn't in the eyes of many others.

Why not 'economically sustainable ecology'? We need healthy economies to support the conservation programme we desire. We need development to raise the standard of living of many people in the third world. Population growth will flatten as the economies improve. That development will require energy, and the Pacific Rim on which Christchurch rides, is an important part of that growth and need.

The vast majority of people want economic growth, individually and nationally. Development of the national potential, and conservation of the nation's resources are both essential. The concept of sustainable development is directed towards those interlocking needs. It is the way of the future. Whether or not it proves acceptable to environmentalists will ultimately show whether their main aspirations lie with protecting the environment or restructuring society.

Boats against the Current

The Second Law of Thermodynamics is cited regularly by environmentalists as ultimate scientific proof of their position. This principle of entropy says that when energy is converted from a more organised to a less organised form, the energy to restore to its original form is greater than the energy originally released. In simple terms, energy used means energy lost. In cosmological terms, energy is constantly dissipating to lower levels, like a river flowing downhill, into a vast, low-grade-energy sink. The earth is spinning down to die, and the universe with it, unless other forces, natural or supernatural, come into play.

Environmentalists argue that using energy and resources only speeds the end. Thus science is said to substantiate their claim to the moral ground, and to denounce progress and technology as inevitably destructive. This is a despairing view, and its claim to morality is false.

Ilya Prigogine won the 1977 Nobel Prize for work on the Second Law of Thermodynamics. Technological progress and the building of civilization are not flawed, he has concluded (Prigogine, 1985); they are in keeping with the universe, for they are building order of chaos.

Living organisms, are 'negative entropy machines'; they create order in the entropic disorder around them, just as order emerges out of the random disorder of some chemical and physical reactions. Prigogine's genius was to recognize these phenomena as back currents of higher order, running against and driven by the flow of disorder.

The river may be flowing downhill, but along the edges are eddies that swirl and sweep upstream. Prigogine saw that 'we are those little back currents, small pockets of non random organization where entropy is momentarily reversed' (Arnold, 1982). We take energy from the downward flow, and use it to move upstream. We flow down again, draw strength anew, and sweep back.

'So we beat on', as F Scott Fitzgerald said, 'boats against the current, borne back ceaselessly into the past'. For the

past is higher order and our journeying there ultimately prolongs the passage to the sea.

When we use energy so, we are not robbing the future; we are building it. Obviously we must use non-renewable energy no more than necessary, but solar and nuclear energy seem inexhaustible.

As we improve our technology, we are able to do more with less consumption of energy and resources. As we use less per unit output, the greater are our available reserves. That is conservation.

The environmentalists want us to believe that there is something fundamentally wrong in our technological society. It isn't so. Technology may be the cause of some of our problems, but it is the only hope for their solution. In pursuit of the solutions, we must be constructive not destructive. There is no future in the intellectual's pessimism. If there are flaws in our technology (and there are) we must develop that technology further, not dismantle it. If there are flaws in the way we use the technology, we must correct the flaws, not abandon the technology. We cannot undevelop, as Suzuki (1989) and others advocate.

Our role as explorers and producers of petroleum is to be part of that technology. We must minimize our disruption to the environment. We must maximise our energy efficiency.

Beyond that, we are simply part of the human process and we have no less claim to the moral high ground than any other group, green or otherwise.

Science is man's dialogue with nature, and we are hearing profoundly different sounds lately. The convergence of the New Physics and eastern mysticism is a returning to some of the older wisdom, and knowing it anew. The subatomic world, seen in relativity and quantum theory is showing us that matter - nature - is both entity and entirety at once. So, too, is our venture into chaos finding new order there, reconciling the mechanistic and entropic world views.

I like to think that we are poised, ready to learn, like Gilgamesh long ago, that both city and wilderness are essential to man's future and happiness. Conservation and development are really the same process on different time scales, and we must reconcile them within us. Such a reconciliation will be worth our efforts.

It would be wrong, US President Bush said recently, to pass on to future generations a world tainted by present thoughtlessness. It would be wrong too, to pass on a fear of the future. We would not be here if our ancestors had, in fear of the future, turned away from the resources they found around them, and within them.

The future needs our dreams, not our despair.

References

- ARNOLD, R., 1982: *At the eye of the Storm: James Watt and the Environmentalists*. Regnery Gateway, Chicago.
- BARBOUR, I., (Ed), 1973: *Western Man and Environmental Ethics*. Addison-Wesley, Reading.
- BLAINEY, G., 1989: *The Great Seesaw: A New View of the Western World, 1750-2000*. Macmillan, Melbourne.
- CARSON, R., 1962: *Silent Spring*. Houghton Mifflin, Boston.
- COMMONER, B., 1972: *The Closing Circle*. Bantam Books, New York.
- CRONIN, K., 1988a: *Ecological Principles for Resource Management*. Ministry for the Environment, Wellington.
- CRONIN, K., 1988b: *The Intrinsic Value of Ecosystems in Resource Management Law Reform Working Paper 24, Part B, 5*.
- CUMBERLAND, K.B., 1987: *Landmarks. Readers Digest*, Sydney.
- DEPARTMENT OF HOME AFFAIRS AND ENVIRONMENT, 1983: *National Conservation Strategy for Australia: Resource Conservation for Sustainable Development*. Australian Government Printer, 1983.
- DEVAL, B. AND SESSIONS, G., 1985: *Deep Ecology*. Gibbs Smith, Salt Lake City.
- EHRlich, P., 1968: *The Population Bomb*. Ballantine Books, New York.
- ELIOT, T.S., 1940: *The Cocktail Party*. Faber and Faber, London.
- FRENCH, R.S., 1985: *Environmental Values and History: Comment in Bailes, K.E. (Ed) Environmental History*. University Press of America, New York
- GLOBAL 2000 Report to the President, 1980: U.S. Government Printing Office, Washington, D.C.
- HUGHES, J.D., 1985: *Gaia: Environmental Problems in Chthonic Perspective in Bailes, K.E. (Ed) Environmental History*. University Press of America, New York
- IDSO, S., 1989: *Carbon Dioxide and Global Change: Earth in Transition - IBR Press*, Tempe, Arizona.
- ISAAC, R.J. AND ISAAC, E., 1983: *The Coercive Utopians: Social Deception by America's Power Players*. Regnery Greenway, Chicago.
- KARADZIC, N., 1989: *A Country Practice: Feminized Community: IPA Review*, June-August, 1989, 62-6.
- KRISTOL, I., 1978 - *Two Cheers for Capitalism*. Basic Books, New York.
- LOVINS, A., 1977, *Soft Energy Paths*: Harper and Row, New York.
- MACNEIL, J., 1989, *Strategies for Sustainable Development: Scientific American*, 261, 3, 104-113.
- MARSDEN, M., 1988: *The natural World and Natural Resources: Maori Values Systems and Perspectives in Resource Management Law Reform Working Paper 20, Part A, 1*.
- METZGER, H.P., 1979: *The Coercive Utopians: Their Hidden Agenda*. Public Service Company of Colorado, Denver.
- NASH, R., 1990: *The Rights of Nature*. Primavera Press, Sydney.

- PASSMORE, J., 1974: Man's Responsibility to Nature: Ecological Problems and Western Traditions. Gerald Duckworth & Co Ltd.
- PRIGOGINE, I., 1985: Order out of Chaos. Man's New Dialogue with Nature. Fontana, London.
- PURCELL, P.G., 1990a: Conservation, Development and Environmentalism - Historical Perspective and Future Imperatives. Australian Petroleum Exploration Society Journal, Vol 30, Pt 1.
- PURCELL, P.G., 1990b: Conservation, Development and Environmentalism - Historical Perspective and Future Imperatives. Australian Petroleum Exploration Society Journal, Vol 30, Pt 2.
- RUCKLEHAUS, W.D., 1989: Towards a Sustainable World. Scientific American, 261, 3, 114-20B
- SAMUELS, P., 198: TV Writers put the boot into business. The Bulletin, August 4, 1981, 123.
- SCHUMPETER, J.A., 1939: Capitalism, Socialism and Democracy. Allen and Unwin, London.
- SIMON, J.L., 198: The Ultimate Resource. Princeton University Press, Princeton.
- SIMON, J. L. AND HAHN, H., 1984: The Resourceful Earth - A Response to Global 2000 - Basil Blackwell, New York.
- SINCLAIR, A., 1977: The Savage: A History of Misunderstanding. Weindenfield and Nicolson, London.
- SINGER, S. F., 1988: Fact and Fantasy on Greenhouse Earth. Wall Street Journal, 212 (42), 22.
- SMITH, B., 1984: European Vision and the South Pacific - Harper and Row, Sydney.
- SUZUKI, D., 1990: Inventing the Future. Essays on Science, Technology and Nature. Allen and Unwin, Sydney.
- TIME, 1988: Earth-Fire: The Struggle for Australia. November 28, 1988, 15-41.
- THORNE, A. AND RAYMOND, R., 1989: Man on the Rim: Angus and Robertson, Sydney
- TUCKER, W., 1982: Progress and Privilege: America in the Age of Environmentalism. Anchor Press/Doubleday, New York.
- WILSON, R., 1982: From Manapouri to Aramoana - Earthworks Press, Auckland, New Zealand.
- World Commission on Environment and Development, 1987: Our Common Future. Oxford University Press, London.

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