ONE

We Are at a Fork in the Road

As we "Westerners" think about prophets, we are likely to call up images from the Old Testament of wise men predicting the future. Their predictions often were accompanied by dire warnings that unless people changed their ways God would be displeased and their lives would be filled with much pain and sadness. The people looked to these prophets as authoritative interpreters of how the world works and also of how people should behave. Most environmentalists do not think of themselves as prophets but, like prophets of old, they warn the people that they must change their ways if they wish to have a good life. Consider the following:

1) In April, 1983, a U.S. national news network ran a story showing a wisp of a girl with flowing red hair in a rubber raft with an outboard motor carrying a "Greenpeace" banner. She was circling around a large vessel off the coast of Los Angeles that was engaged in the early stages of exploration for offshore drilling of oil. As the media filmed the dramatic scene, she called out with a bullhorn to the people on the vessel to cease their activities and did her best to disrupt them. Greenpeace is a militant environmental organization that has used confrontational tactics to try to stop whaling, killing of seal pups, offshore oil and gas drilling and production, and so forth. They believe that the many forms of sea life are seriously threatened by the intrusive activities of humans. They are opposed by people who wish to use the resources of the seas and seabeds for human purposes even if those activities should result in injury or even destruction of other species. There is a clear conflict in values between the two groups, who are operating from very different beliefs about the proper relationship between humans and nature.

2) Tasmania is a lush island south of mainland Australia with approximately 450,000 inhabitants. The people there live a tranquil life, far removed from many of the cares of the rest of the world, but they also experience high unemployment. Some of them believe that they should more fully exploit their natural resources to build up their industry, provide jobs and get richer. In the southwest sector of the island, the Franklin River flows through a remote and lovely valley where there is a unique temperate rain forest that was declared a "World Heritage" area by UNESCO.

The Hydro-Electric Commission of the State of Tasmania covets the hydroelectric potential for the valley and decided to build a dam and power project there that would have the effect of destroying this unique

ecosystem. The Tasmanian Wilderness Society was originally formed in 1976 to save the Franklin River. It organized a coalition of 16 major conservation groups. This Wilderness Society announced plans for a non-violent blockade of the project in July 1982. The blockade commenced in Dec. 1982. Over the next few months more than 2600 people joined the action and 1272 were arrested; naturally it drew worldwide media attention. When a federal election was called on Feb. 3, 1983, the Coalition announced that it would campaign for the Labor Party.

The environmentalists concentrated their electioneering in key districts and won a resounding victory. Robert J. Hawke, the leader of the Labor Party, and the newly elected Prime Minister, promised the day after his election on March 5, 1983, that the dam "will not be built."

3) Amory Lovins, an experimental physicist working with the "Friends of the Earth" organization, has become a leading advocate of an alternative energy policy. He particularly attracted attention by publishing an article in foreign affairs in 1976 with the title, "Energy Strategy: The Road Not Taken?" This was followed by publication of a book titled, *Soft Energy Paths: Toward a Durable Peace* (1977). Lovins advocates scaling down the energy needs of modern society by using conserving technologies and behavior and by developing many dispersed, smaller, and more manageable sources of energy (such as solar heating, windmills, and small hydro) rather than gigantic technologically complex and potentially damaging installations (such as nuclear power plants). The dispute over "soft" vs. "hard" energy paths is not only over the best way to get the energy we "need" but also over the kind of society in which the disputants would like to live.

4) The Ogallala Aquifer is a gigantic underground aquifer (fresh water reservoir) underlying a large portion of the plains states from Texas north to the Dakotas. Humans learned a few decades ago that fresh water could be brought to the surface for irrigation by using gigantic electrically-powered pumps. These irrigated lands have become so productive and created so much wealth in a semi-arid part of the United States that others are attracted to the activity and nearly everyone who can is sinking wells to tap into this great resource. The exploitive use of this resource is becoming a "tragedy of the commons" as each well-holder extracts all the wealth he can with little regard for the common good. The aquifer is drying up and the agri-businesses that face displacement are now casting about vigorously to find alternative sources of fresh water. Their attention naturally has focused on the Great Lakes Basin since it contains the largest amount of surface fresh water available anywhere on the planet. They propose building a canal from Lake Superior across Minnesota and over to the plains states. Given the power that modern humans command, such a project is technologically feasible. Environmentalists, particularly those in the Great Lake Basin, dispute the wisdom of such an action, claiming that large

scale diversion of fresh water from the basin would seriously damage the ecosystem as well as weaken the economic base of the people who live in the basin. Researchers currently are busily calculating the costs and benefits of such a project but the more basic question is how we should relate to nature as we conduct our lives; the dispute finally will be settled by political means.

5) The natural biological life (aquatic animals and plants) of many lakes in Northeast Canada and the United States has been stunted, or killed off altogether, by a phenomenon called acid precipitation. While some of this "acid rain" is produced by automobile exhausts, it is believed that the largest contributors are electric power plants burning cheap high sulphur coal; especially those in the Ohio Valley. Their emissions contain sulphur dioxide that, when carried aloft and mixed with water vapor, turns into sulphuric acid and falls hundreds of miles away in the form of acid precipitation. In order to meet local air pollution standards, many of these plants have built exceedingly tall smoke stacks to disperse the pollutants; but this tactic thrusts the SO_2 high into the clouds and thus produces even more acid rain. Acid precipitation is causing considerable damage to the fishing and tourism industries in Canada and has led to a major dispute between Canada and the United States. Early in the Reagan administration, when environmentalists and the governments of the affected areas pressed the U.S. government to take vigorous action to stop acid rain, David Stockman, the Director of the Budget, traded off the two values by inquiring why people should have to pay higher electric rates to save a few fish. This choice illustrates the divergent ways humans see themselves relating to nature.

6) Love Canal was dug by William Love in the 1890's in an attempt to divert water from the Niagara River over the escarpment to an electric power plant that would provide energy for a new industrial city. Financial setbacks brought the project to a close after only about a mile of the canal had been dug. Later, Hooker Chemical Company purchased the land and buried chemical wastes in the canal during the 1930's and 40's. During the 50's, homes were built in the area and the Niagara Falls School Board bought the dumpsite (which had been capped with clay), where they subsequently built a school and playground.

By the 1970's, many of the steel drums that enclosed the chemicals had corroded and the contents leaked out, mixed with that of other chemicals in the dump, and leached laterally through the soil to the basements of nearby homes. Residents in the area began to notice health effects during the 1970's, and in 1978 not only the residents but the whole world learned that the chemicals in Love's canal were seriously injuring the people who lived there. The State Health Commissioner ordered the school closed and the neighborhood residents formed a "Love Canal Homeowners Association." This was the opening salvo in a long series of altercations between citizens and their governments as

they struggled to mitigate the calamity that had befallen these innocent people (Levine, 1982). In May 1980, shortly after a chromosomal study was released to the residents suggesting that many of them may have suffered chromosomal damage, the Homeowners Association dramatized their grievance by holding two EPA officials hostage. Both the state and the federal governments were forced into making new policies for protecting people from toxic chemical waste by the series of dramatic episodes at Love Canal.

Disparate as these vignettes are in place and topic, they have a great deal in common. In each case, and in many other thousands that could be cited, there is a story of people rising up to tell their fellows that we have been abusing our environment and threatening the balance of our ecosystems. Just like the prophets of old, they are urging us to change our ways, to choose a new direction at the fork in the road, if we wish to continue having a good life on this planet. Having the capability to do something does not necessarily justify our proceeding to do it. Our knowledge and power enable us to dominate other species and set us apart from them; yet, our very success could become our failure, say these prophets. Dinosaurs lived on this planet for about 550 million years while humans have lived here for only 2 or 3 million years. How is it then, in such a relatively short period of time, that humans have come to dominate life on earth so completely? What are the chances that humans can live on this planet as long as dinosaurs?

Throughout most of their existence on this planet, humans have lived in hunter/gatherer societies that minimally disturbed the biosphere. They believed that humans had to be adaptive and adjusted their lifestyle to the demands of nature. The agricultural revolution that began about 10,000 years ago in the Middle East, Asia, and Europe led humans to develop a more exploitive role toward nature. They learned to raise plants and animals specifically to meet human needs. Modest alterations of ecosystems, such as irrigation or flood control, were undertaken to further adapt the environment to human needs. In these agricultural/small-city cultures, the belief that humans should adapt to nature persisted but the alternative belief that humans could manipulate and alter nature for their own purposes also was growing. Most of the world's great religions were spawned in this era.

Over the past 400 years, humans have experienced another fundamental revolution in their relationship to nature; the scientific-technical-industrial revolution has made it possible for humans to take an increasingly "exuberant" role toward nature. My use of the concept "exuberance" is taken from Catton (*Overshoot,* 1980) who defines ecological exuberance as "the lavish use of resources by members of a freely expanding population" that can lead to an optimistic, almost euphoric, mood. Humans have used their science, knowledge, imagination, and tools to extract materials from nature and to dominate nature in ways that would have been incomprehensible to our fore-

bearers. We can travel around the planet with amazing swiftness, we can level mountains, change the course of rivers, clear away gigantic forests, and alter climates. We can develop, store, and transmit information with the speed of light; our capability for collective memory and thinking allows us to understand phenomena, tackle problems, and create solutions that were unimaginable only a generation ago. We have come to expect constant change, but change is accelerating so quickly that many people feel that their heads are reeling.

As people ponder a number of developments, and look to the future, they are coming to realize that the exuberant posture of humans toward nature is producing some unfortunate consequences. The agricultural and industrial revolutions have enabled human population to grow at an unprecedented pace. Currently the gain of births over deaths, worldwide, is about 70 million per year. If the present rate of population growth were to continue into the future as long as the elasped time since the beginning of the industrial revolution, there would be only about 1.5 square yards of exposed land surface for each person. Obviously, such a thing would never happen because humans would experience "die off" long before that density could develop. It does demonstrate, however, that humans must find some way to control population growth. Some observers believe that the human species already is in an overgrowth situation that biologists call "overshoot" (Catton, 1980).

As population has grown, so has the rate of resource consumption. We have already extracted from the earth's crust most of the readily obtainable minerals and fossil energy. These constitute a kind of "ghost acreage" that enables humans to produce more food and other consumer goods than would be possible without the use of fossil energy (Catton, 1980). We must now search for minerals and energy in more difficult and dangerous locations and transport them over long distances, at a significantly increased risk to ourselves and our biosphere. Environmental prophets warn that since minerals and energy are in finite supply, our descendants face the prospect of severe shortages of food, minerals, and energy. As more and more people compete for few resources, prices are likely to rise and the overall material standard of living is likely to decline.

Not only are we growing faster and using things up more swiftly, say the prophets, but we are crowding other species out of their niches (Ehrlich and Ehrlich, 1981). We are slashing down forests, flooding river valleys, putting every possible bit of land into cultivation, and inadvertently creating deserts. Furthermore, we are poisoning our environment with our wastes; in many areas the air is unhealthy to breathe, the water is unhealthy to drink, and our food may be contaminated. We are discovering that many of our products and by-products are harmful to us instead of nurturing our good health, happiness, and well being. We can unleash sufficient nuclear energy to obliterate most life on this planet. At the same time that humans rejoice and feel proud

of their ability to dominate nature, there are nagging doubts that we may not be on the right road to a high quality of life. Does the swift development of our species carry the seeds of our own destruction?

Prophecy and Society Choice

In most primitive communities, the prophets (chiefs, priests, wise men, witch doctors) who interpreted for their people how the world works, usually claimed that a god or other spirits determine the workings of nature and the fortunes of humans as they live in nature. These "wise men" had the ability to remember and preserve that which was believed to be good from the past, and to prescribe "correct" forms of behavior in the present that the people were told would provide a happy and fulfilling future. These prophets urged their people to adopt certain beliefs and behavior that assuredly would lead to eternal life in some future heaven. Their interpretations as to how the world works were given authority by mystical connections to an infallible, all-powerful god that not only told humans what they must do but also could shape nature itself, for it was this very god that had created nature. Even though we moderns are skeptical of the pretentious claims to know how the world works put forth by the prophets of old, we can recognize the importance for social cohesion of having an agreed upon "story" that guides the beliefs and behavior of the people.

In modern society there are no widely recognized infallible prophets to tell us how the world works and how we should behave. Science is now being looked to as the authority to tell us how our natural world works, although we are continually discovering how much we still do not know. In addition, science and technology have given humans the power and capability to do many things that have far-reaching social, economic and political consequences, some of which may be life-threatening. Yet, the canons of science lead scientists to strive to keep it value free; furthermore, scientists will not try to give society a code of ethics. Instead, we fall back on an ethical code, inherited from organized religion, that was mainly developed in a pre-scientific era when humans had less capability to dominate and exploit nature. Our ethical/normative structure is so far out of step with the power and capability provided by modern science than many people are questioning the wisdom of following the normative prescriptions from old traditions. Many of them believe that these old traditions are incapable of guiding us as we strive presently to avoid destroying our own biosphere and civilization.

It would be helpful if today's society could find some modern-day prophets who understand, much better than ever before, how the world works physically and socially and who also have the breadth and depth of vision to develop a new ethical/normative belief structure that would enable humans to so guide their affairs, and redirect the course of their society, that they could live lives of reasonably high quality in a long-

run sustainable relationship with nature. A new group of leaders, known simply as environmentalists, is trying to combine a sophisticated understanding of the natural workings of the world with a newly developing environmentally-oriented ethic. These leaders have the potential for becoming modern-day prophets to guide society toward a better way of life, one that is sustainable in nature over the long run. This book is an examination of their role in modern society as they attempt to fulfill the mission they have chosen.

Mindless Pursuit of "Progress" in the Old Dominant Social Paradigm

A paradigm may be defined as a society's dominant belief structure that organizes the way that people perceive and interpret the functioning of the world around them. Thomas Kuhn (1962), a philosopher/historian of science, has elucidated the way that scientific disciplines or communities are dominated by an accepted belief paradigm that shapes the way the people participating in that discipline think about their subject matter. From time to time, paradigms are proven to be faulty in certain respects and they undergo a shift toward a new, more adequate paradigm. Such shifts generally are resisted strongly and occur only when the old paradigm has proved to be no longer serviceable or acceptable. Schwartz and Ogilvy (1979) suggest that paradigm shift is occuring in many academic disciplines at the present time.

The idea of a dominant paradigm can be applied to cultures or societies, as well as to scientific disciplines; in such cases we refer to them as dominant social paradigms. Every organized society has a dominant social paradigm (DSP) which consists of the values, metaphysical beliefs, institutions, habits, etc., that collectively provide social lenses through which individuals and groups interpret their social world. Social paradigms condition individual goals and expectations, provide a definition of social problems, establish a structure of social and physical rewards for various types of preferred behavior, and create shared gains and deprivations which make social harmony in complex societies possible (Pirages, 1982, p. 6).

A social paradigm contains the survival information needed for the maintenance of a culture. It results from generations of social learning whereby dysfunctional values and beliefs are discarded in favor of those more suited to collective survival. It is extremely difficult to dislodge important elements of a dominant social paradigm once it becomes firmly entrenched because individual integrity and socially shared definitions of reality are anchored in it (Pirages, 1982, p.7). Nearly all of the values, norms, beliefs and institutions of the society are oriented toward maintenance of the paradigm.

> [A paradigm] is dominant not in the statistical sense of being held by most people, but in the sense that it is the paradigm held by dominant groups in industrial societies; and in the sense that it

> serves to legitimate and justify the institutions and practices of a market economy. . . . it is the taken-for-granted common-sensical view which usually determines the outcome of debates on environmental issues. (Cotgrove, 1982, p. 27)

> Paradigms are not only beliefs about what the world is like and guides to action; they also serve the function of legitimating or justifying courses of action. That is to say, they function as ideologies. . . . Hence, conflicts over what constitutes the paradigm by which action should be guided and judged to be reasonable is *[sic]* itself a part of the political process. The struggle to universalize a paradigm is part of the struggle for power. (Cotgrove, 1982, p. 88)

As solid as such structures of beliefs, values and institutions may seem, they *do change* over time for reasons that we only partially understand. The social structures built around slavery and colonialism have crumbled and given way to new structures that reject those once accepted patterns for relationships among people. The beliefs about the proper relationship between humans and nature are, if anything, more fundamental than the beliefs about the proper relationships among people. We noted above that the transformation of human societies from a predominantly hunter/gatherer mode to an agricultural mode was accompanied by a change from the belief that humans must adapt to nature to the belief that humans could alter nature to meet their needs. The scientific-technical-industrial revolution, in turn, was accompanied by a belief that humans could dominate nature and control it to suit their purposes.

Characteristics of the 20th-Century Industrial Dominant Social Paradigm

Catton and Dunlap (1980) postulate that the "dominant western worldview" rests on the following four basic beliefs:

1) People are fundamentally different from all other creatures on earth over which they have dominion.
2) People are masters of their destiny; they can choose their goals and learn to do whatever is necessary to achieve them.
3) The world is vast, and thus provides unlimited opportunities for humans.
4) The history of humanity is one of progress; for every problem there is a solution, and thus progress need never cease.

Notice the emphasis that is placed on man's superiority in nature.

This exuberant posture of humans toward nature becomes translated at a more concrete level into the following premises about the way that we should structure our society and conduct our public business:

1) Good economic conditions (generally this means economic growth) ought to be the dominant object of public policy.
2) Science and technology are to be revered and promoted because they can be used to dominate nature and accumulate material wealth.
3) Promoting new technology and enterprises to extract even more from nature and accumulate more wealth entails physical and social risks which society should encourage.
4) Society works best if people are differentially rewarded for skills, initiative, and achievement as this will maximize productivity; rewarding people equally depresses productivity and wealth.
5) Decisional structures and practices of a society must be oriented toward efficiency and decisiveness; it is inefficient to let many people have a say in decisions because it slows things down too much and prevents us from "getting on with the job."
6) The supply and demand market is the best mechanism for regulating economic relationships; hence, it is best to minimize regulation and taxes. The public good is better served when people use their own resources in the competition of the market place. Since the market works very adequately for assuring the public good, it is bad policy for public agencies to use forecasting and planning to try to bring about the public good.
7) The socio-economic system works best if it is oriented to maximize the wealth of individuals now living; there is no need to be concerned about future generations since the market will work things out when that time comes. (This is claimed despite the fact that the market has no mechanism to register the demands of future members of the species.)

These beliefs are stated in extreme form to accent their coherent structure and central emphasis; they represent a polar position usually identified with the "right" in modern industrial societies. Some of these beliefs, particularly numbers 4, 6, and 7 with their emphasis on the market, have been challenged from the "left" (Marxists, Socialists, and Communists). It is important to note, however, that the other four beliefs as well as those identified by Catton and Dunlap, are accepted by the "left." Both left and right adopt the same fundamental posture that humans should dominate nature. Some contemporary "Neo-Marxists" are re-interpreting Marx to incorporate a more protective stance toward nature (Agger, 1979). Examination of the practices of modern society also discloses that we do not carry out DSP beliefs in their pure form: wealth is not the only object of public policy; we do try to protect people from risk; we open many decisions to input from the public even if it slows things down; the market system is modified by an overlay

of regulation, taxes, and provision for the future. It is ironic, however, that the political coalitions that recently (early '80's) won power in England, the United States, and Germany espoused a return to the fundamental premises of the DSP identified above.

Despite the current political dominance of the DSP perspective, increasing numbers of people in advanced industrial societies have come to doubt the validity of these premises. Their doubts and their challenge go even deeper than the challenge from the left because they are questioning and challenging the basic structure and purpose of modern industrial society.

The Challenge to the Old DSP

Several overlapping social thrusts (e.g. the environmental movement, the peace movement, the women's movement, and the civil rights movement) in modern industrial societies are challenging the validity of the old DSP. The following are some of the considerations cited by those who vigorously object to the way that modern society is working:

1) A society working according to the old DSP generates great differences in wealth and opportunity; these differences are so extensive that many people believe them to be unjust.
2) Unbridled industrial activity has generated dangerous pollution and has inflicted serious damage to nature that may be irreversible.
3) Many people have been put at risk and seriously injured because of the negligent acts of persons and firms who are only acting normally within the old DSP to maximize their own wealth.
4) Natural resources are being depleted so swiftly that we now face serious shortages, high inflation, and the prospect that our children will have no choice but to accept a lower material standard since there will be insufficient resources to go around at present consumption levels.
5) Many of the "entitlements" (social security, unemployment benefits, etc.) that people have come to expect because of high rates of economic growth over the past several decades, very likely can no longer be sustained by our economic system. Being cheated out of one's "entitlement" is far more difficult to handle psychologically than suffering the whims of capricious nature (floods, tornadoes, crop failure, etc.).
6) Humans now possess the capability, through nuclear weapons, to destroy the whole human race as well as most of the other species in the biosphere. It requires only one breakdown in social control for this awesome power to be unleashed.
7) Quality of life studies have shown that a person's ability to achieve control of his own fate is an important element for

> realizing quality of life. Modern society is so complicated and crowded that it is difficult for most people to achieve a satisfactory level of personal fate control within the market system. Economic forces inflict on the average individual such evils as inflation, unemployment, pollution, and widespread uncertainty about the future. Control over these forces can only be realized in concert with others as a collective good. Many people have a sense of losing, or of already having lost, control of their lives. They perceive that they are buffetted and controlled by forces that they cannot understand and that they have no hope of influencing. In modern society, particularly in America, people may achieve private affluence but they are subjected to public squalor. They would like to turn to the government to improve the collective components of their lives but at the very time when government is most needed, it is increasingly disabled because our national consensus is dissolving (see Chapter 2).

If the society, working according to the old DSP, is experiencing such difficult problems, why don't we simply change it? While most people feel that modern society does indeed have many of the difficulties just mentioned, there also are many things that people feel are good about modern society. Inhabitants of advanced industrial countries have been relieved of a great deal of the heavy physical drudgery that their forebearers had to endure. Modern medicine makes it possible for people to recover from or cope with many of the injuries and illnesses that shortened the lives of their ancestors. Even ordinary people now have the opportunity to travel to exotic places, to experience the thrill of power (e.g. drive through wilderness in an off-road vehicle), to eat exotic food that formerly only the nobles could afford, to bring the best entertainment in the world into their own living rooms. The list could be extended, but you get the idea. At one level of analysis it is valid to say that humans never had it so good. Ironically, it is the very achievements of modern science and technology, such as those just mentioned, that eventuates in the sense of unease about the way society is working that was spelled out in the seven points delineated above. For example, travel by masses of people to exotic places not only destroys their exotic character but consumes prodigious amounts of fossil energy. When the energy is depleted, such travel will no longer be possible and many other energy dependent activities also will be impossible. The very success of modern society could well lead to its failure.

Why don't we keep what is good about modern society and fix up those things that aren't working well? At first blush that sounds eminently sensible. Some people believe that the major problems of modern society can be solved by developing more and better technology. Many others, however, are persuaded that the fundamental problems of society are

not reachable by technology; they believe that fundamental social change is required. As we shall see later in the book, this basic difference in the diagnosis of our society's ills is a major distinguishing characteristic between contending groups in our policy. No doubt technological development will continue but, if our social problems are as deeply embedded in our culture as the environmentalists claim they are, technological development will not be sufficient for their solution.

Even if technology alone can't solve our social problems, why don't we try to get people to change the way they behave? Normative-ethical systems based in religion have traditionally been used throughout human history to guide the behavior of people. Most of the religiously based ethical systems that command a wide following today were developed many centuries ago when humans had much less power and capability to dominate nature. Most of these religions set humans apart from other animals granting humans the "right" to dominate and control nature. Because the prophets of old could not anticipate the power and exuberance that modern technology would place in the hands of humans, our religious heritage provides little guidance for problems like the following:

1) Human population is growing so swiftly that its numbers must be limited either by interference with normal reproduction (birth control or abortion) or by premature death (disease or famine).
2) Humans can distort or obliterate the biosphere (slash down forests, move mountains, redirect rivers, etc.), foreclosing its use for other purposes.
3) Humans crowd many other species out of their niches and drive some of them to extinction.
4) Humans can, through nuclear war, devastate much of the planet's biosphere and destroy all life in those areas.
5) A minority of the world's population, located in a few privileged countries, can dig out, and use up, in a few centuries most of the planet's storehouse of metals and fossil energy.
6) Humans can invent new life forms.
7) Humans can keep bodies "alive" even though the brain is "dead."

No, turning back to old moral precepts will not solve the problems of modern society.

Changing the way we behave is difficult for another reason. Our technological/industrial structure carries a momentum and an imperative that is almost irresistible; we can't slow down or stop even if we would like to. Our ethical understanding is insufficiently developed to control the behavior of modern corporations, technological development, or nations.

Automobile manufacturing in the United States provides an example of this paradox. Although automobiles provide such important advantages for people as freedom in getting about, they also profligately use up our precious resources, they pollute the air, they get clogged in traffic jams, they contribute an exceedingly high accidental injury and death rate, and they seem to dominate our lives. Even though we already have plenty of them, we feel compelled to keep turning out new cars at a prodigious rate in order to avoid cutbacks and unemployment in the auto industry that would also create generally poor economic conditions and considerable unemployment in supportive industries (such as steelmaking).

Our leaders feel compelled to press for continued economic growth, even though it may be unattainable, because we do not have adequate social mechanisms for finding ways to meaningfully use the talents of people who lose their jobs when there is a slowdown in economic activity. The pressures of the competitive market require business firms to cut costs and discard unneeded workers; thus dumping on the larger society the responsibility to care for them. Paradoxically, our economic system is less inclined to serve the needs of all the people who live and work within it and is more inclined to serve the unquestioned goal of increasing material output. How did it happen that we developed a technical-industrial-economic system that dominates the people instead of the people being able to dominate and control it?

Technical development combined with fierce competition presents the most unstoppable of juggernauts. Scientific and economic institutions feel that they must develop new technology in order to keep ahead of the competition. If a new technology is under development, we feel we must proceed to production, even though it may present some risks and even though we are not sure that it will provide benefits that outweigh the problems and costs associated with its development and use. If we don't move ahead, another country (e.g. Japan or Russia) will develop the technology and we will fall behind in our struggle to maintain world leadership. This same reasoning is used by competitive companies.

Many humans now wish fervently that we had never developed nuclear weapons and nuclear power, but we felt we had to before the Germans or the Russians did. National pride and national competition forced the English, the French, and the Russians to develop supersonic airliners even though they are wasteful and engender more costs than benefits; it is now generally conceded that that technology was a failure. It has been estimated that American chemical companies develop approximately 3,000 new chemicals per year. It is nearly impossible to screen and thoroughly evaluate so many chemicals in a year. We occasionally discover after a chemical has been produced and put in use that it poses a severe risk to the health of humans and other species.

In modern society, progress has become almost a religious precept; we often say, "We cannot stand in the way of progress." Those that

attempt to do so surely will be condemned by many others. But the environmental prophets ask, is progress such a blessing that we must pursue it mindlessly? Are we achieving real progress if it results in the "fouling of our nests"? Are we achieving real progress if our lives are driven by technological "advances" that sweep us along without our assent? Are we achieving real progress when we persist in population and resource consumption growth rates that cannot be sustained and could well result in reducing the overall carrying capacity of the planet?

Many environmentalists are urging the people in modern society to recognize that we have reached a fork in the road.[2] If we continue our present path, they say, it will lead to severe damage of the ecosystem as well as undermine the institutions and the quality of life of the people in modern society. They urge us to take a new direction that will lead to a better way of life in a long-run sustainable relationship with nature. They urge us to cast aside old notions of progress and seek "real progress" by changing our lifestyles and the fundamental way that we do things in our society. The environmentalists are studying, educating, warning people, and seeking political power to try to get modern society to alter its course.

These modern-day prophets, these environmentalists, are beginning to develop a new environmental paradigm (NEP) (Dunlap and Van Liere, 1978; Pirages and Ehrlich, 1974) that has been receiving wide and thorough discussion within the environmental movement. The supporters of the NEP have become something of a vanguard pointing the way to a better society and also pointing out the dire consequences of continuing on our old path. This does not mean they renounce all technology, all industrial production, all growth, or all material goods. They are, however, advocating thoughtful consideration of where we are going, careful and subdued production and consumption, conservation of resources, protection of the environment, and the basic values of compassion, justice, and quality of life.

This NEP is so challenging to the old DSP that it has stimulated a rearguard effort to defend the old DSP. These competing paradigms are highly contrastive; "the protagonists face each other in a spirit of exasperation, talking past each other with mutual incomprehension. It is a dialogue of the blind talking to the deaf. Nor can the debate be settled by appeals to the facts. We need to grasp the implicit cultural meanings which underlie the dialogue." (Cotgrove, 1982, p. 33)

> It is because protagonists to the debate approach issues from different cultural contexts, which generate different and conflicting implicit meanings, that there is mutual exasperation and charges and countercharges of irrationality and unreason. What is sensible from one point of view is nonsense from another. It is the implicit, self-evident, taken-for-granted character of paradigms which clogs the channels of communication. (Cotgrove, 1982, p. 82)

In this book, we will examine the composition of this vanguard of modern day prophets, their organization and tactics, and the role they play in the politics of modern society as they try to stimulate that society to change its direction. Information for this inquiry will be drawn partly from the writings of other scholars and observers, partly from personal experience, but, rather substantially, from findings of a three-nation (England, Germany, and the United States) study of environmental beliefs and values that was first conducted in 1980 and repeated in 1982.

The Three-nation Study of Environmental Beliefs and Values

Researchers from the International Institute for Environment and Society, part of the Science Center in Berlin, the Department of Sociology at the University of Bath in England, and the Environmental Studies Center at the State Unviersity of New York at Buffalo designed and carried out a three-nation comparative study of environmental beliefs and values that had the following characteristics:

1) The research instrument (a mail questionnaire which took about 20 minutes to fill out) was made as comparable as possible in all three countries.
2) The study was longitudinal so that the development of environmental beliefs and values could be observed over time. The first two phases of the study were conducted in 1980 and 1982.
3) Information about environmental beliefs and values was sought from the broad public in each of the three countries as well as from important societal elites who were likely to be crucial actors in making environmental policy and in fostering or opposing social change with respect to environmental matters. The elite groups included environmentalists, business leaders, and public officials in each of the countries. In addition, a sample of labor leaders was drawn in the U.S. in 1980 and 1982 and in England in 1980. The U.S. study in 1980 also included a sample of media gatekeepers. (See Table 1.1 for a delineation of the groups sampled, the total number of respondents returning the questionnaire in each group, and the response rate for each group for both 1980 and 1982.)
4) The questionnaire was designed to disclose the basic belief and value structures (paradigms) that lie beneath superficial attitudes, and to show the distributions of these structures throughout the population in each of the three countries. Basic postures toward the environment as well as beliefs about specific aspects of the environmental problem, technology, political processes and social change were measured. See

TABLE 1.1
Sample Sizes and Return Rates
by Group/Each Country/Each Year

Group Sampled/by Country	1980		1982	
	Number of Respondents	Return Rate	Number of Respondents	Return Rate
United States				
General Public	1513	53.0%	695	53%
Environmentalists	225	68.0%	274	57%
Labor Leaders	85	47.0%	130	46%
Appointed Officials	153	61.0%	115	54%
Elected Officials	78	30.0%	48	22%
Business Leaders	223	49.0%	202	59%
Media Gatekeepers	105	41.0%	–	–
England				
General Public	725	42.0%	439	50%
Conservation Society	176	75.5%	365	75%
Nature Conservationists	200	82.0%		
Labor Leaders	308	65.0%	–	–
Public Officials	188	38.0%	172	38%
Business Leaders	261	53.5%	247	51%
Germany				
General Public	1088	49.0%	1129	60%
Environmentalists	98	22.0%	273	47%
Public Officials	102	25.5%	111	21%
Business Leaders	130	32.5%	155	31%

Appendices A & B for copies of the questionnaires used in both years. (Personal interviews would have allowed more thorough exploration of environmental beliefs and values but insufficient funding foreclosed their use.)

The sampling procedures were quite complex and are reviewed in detail in Appendix E. Utilizing elite samples as well as the public sample sharpened belief diversity, enabling us to study the belief structures more effectively. This strategy was very useful for our study of the relationships among variables. As a sample of variance, our samples were quite effective. They were somewhat less effective in estimating the incidence of certain beliefs and their distribution through the population. Our analysis disclosed, for example, that the U.S. sample underrepresents blacks and persons from the lowest levels of education (persons who probably had difficulty understanding and completing the questionnaire). We have an excellent cross-section, however, of those people who are most likely to understand environmental questions, to play an active role in contests over environmental issues, and to be active in abetting or resisting social change. We found remarkable stability of response distributions, group by group, as we compared 1980 responses with those in 1982. This suggests that our measuring instruments and our samples were reasonably satisfactory for the task.

Having studied the data from many angles, I am quite confident that the findings to be reported in this book are a reasonably accurate estimate of the values and beliefs of people in the real world. I also believe that the story revealed here is a reasonably accurate reflection of the socio-political processes currently underway in contemporary industrialized societies. A more complete discussion of the specifics of design and sampling for the study can be found in Appendix E.

This book is not intended to be a full report of everything that we learned in the study. Most relevant to the discussion here is a set of items that measured preferred emphases for the future direction of our society. Our analysis of these and related items, which showed the presence in modern society of fairly distinct belief paradigms about how our physical and social systems work, has contributed much to our understanding of the role of environmentalists in politics and social change.

Beliefs, Behavior, and Learning

Many of the inferences about beliefs that we make in this book will be based on responses to questionnaire items. As we have reported these findings to various audiences, we have often been challenged: "How do you know that the way that people respond to a question in a questionnaire reflects what they really believe? I'll bet when it really comes to the crunch, people won't follow up by taking appropriate action." Such comments assume that there is a close linkage between belief and behavior and that the only "real" measure of belief is the way that people behave. This assumption is faulty. Beliefs can, and do, exist separately from behavior. More importantly, persons hold many beliefs simultaneously and, for any given behavior option, several beliefs may be brought to bear in making the decision. For example, the pleadings of a lover or a close friend to go off and do something that is fun could deflect even the most dedicated environmentalist from attending a meeting of his environmental group. However, the behavior (skipping the meeting) does not reflect a change in beliefs about environmentalism. Also, deciding whether or not to do something usually entails a rough calculation as to whether the expected outcome is worth the time and energy cost of doing it. If one believes that the "system" is unlikely to respond to one's efforts (as many people do these days), the potential action will not be taken even though one believes fervently that new beliefs, values and behavior patterns are needed.

Be cautious, then, about inferring from beliefs to behavior and from behavior to beliefs. Asking people what they believe is a far better basis for inferring what they "really" believe than are the inferences one could make from studying their behavior. *It is important to study both beliefs and behavior, keeping in mind their conceptual distinction, and studying the connection between them.*

It is especially important to keep these points in mind when studying people who are unlearning and relearning their beliefs, values, and behavior patterns. The changeover does not proceed at the same pace in each of these realms. We should expect, for example, that a belief and value change may occur several years in advance of a change in behavioral patterns. We all know from our own life experiences that people usually accept a new understanding at the mental level long before it is fully realized at the behavioral level. Changing from a "discarding" to a "recycling" mode of behavior takes considerable time to relearn. Abandoning the attractions of a highpowered automobile for the subdued performance of a fuel-efficient vehicle in order to conserve resources may be very difficult for a person to accept in actual behavior even though that person may recognize at an intellectual level that it will be necessary in future society. It takes many months, or years, of reinforcements and social structural support to get the mass of people in society to change basic behavior patterns. We should expect, then, that belief change is likely to be the leading edge, and considerably in advance, of behavior change.

Despite the point just made, we also should recognize that it sometimes happens that forced behavior change will lead to belief change. This is the theory behind legally enforced desegregation. It was assumed by lawmakers and judges that if it was made illegal to keep blacks and whites separated while conducting their daily business, they would eventually learn to get along together.[3] Similarly, one could argue that if polluters are no longer allowed to pollute, they will eventually learn that pollution is not a wise behavioral policy for society. The reader should recognize, then, that belief and value changes do eventually result in behavioral changes and that behavioral changes also can feed back upon beliefs and values and change them. Again, we admonish readers that it is important to measure both beliefs and behavior, keep them conceptually distinct, and look for connections between them.

The slow relearning of both beliefs and behaviors that occurs when a fundamental social change is underway leads to an interesting question: Would we know a fundamental social change while it is happening to us or would we see it only in retrospect? Did the people who experienced the agricultural revolution or the industrial revolution recognize that they were experiencing a fundamental social change? Our day-to-day lives continue in familiar patterns even though a long-term change may be occurring that, when accumulated over several decades, will amount to a fundamental revolution. Therefore, we should not expect the average person to feel that he is part of a social revolution. We must understand that in order to see a social revolution in process, we must look beneath the surface of behavior patterns, opinions, and socio-political discourse.

While thinking about this, it would be well to ask where to expect abandonment of the old DSP to occur most readily? An environmental vanguard has already abandoned the DSP and is urging the people to

take a new direction (see Chapters 2 and 3). The "establishment" is likely to defend the present system; for them, the old DSP continues to work reasonably well. Most of the leadership groups in a society have a deep emotional investment, as well as strong self-interest, in the preservation of the system. They will fight to preserve the system and will be the last to abandon it. It seems, then, that the place to look for this gradual change in beliefs, and ultimately in behavior patterns, is in the large mass of people who fall somewhere between the vanguard and rearguard advocates. These people are much more ready psychologically to abandon the DSP—not necessarily because they have a vision of a better society—but because they are becoming disenchanted with the old "system" that no longer works well for them. Even though these people may not recognize the social change they are living through, many of them have already abandoned a substantial portion of the old DSP, as will be shown by the findings discussed in this book. Whether the environmentalists can attract these people to their new environmental paradigm remains to be seen. Maybe this book can help the reader to see a complex and fundamental change at work that can only be discerned as we look beneath the surface of our daily lives.

NOTES

1. The Continental Group Report (1982) shows that persons who strongly adhere to fundamentalist religion(s) in the U.S. are significantly more likely to believe that humans should exploit nature for material goods rather than preserve nature as valuable for itself.
2. Not all environmentalists urge social change, see Chapter 2. Also we recognize that there are several other groups, e.g. neo-Marxists, that criticize the old DSP and offer alternative paradigms.
3. While this policy has not been totally successful, many believe that it has had some of its intended impact.