

# Beware the Conventional Wisdom

By Hugh M. Raup

*Our modern prophets of doom  
aren't necessarily on the inside track.*

These days vast numbers of sincere people hold the point of view that the human race is headed toward inevitable disaster. The rate of our decline, they believe, is so rapid that there isn't much time left to us. John Maddox (1972) has called this view *The Doomsday Syndrome*. Melvin Grayson and Thomas Shepard (1973) call it *The Disaster Lobby*, and Sherry Olson (1971) called one phase of it *The Depletion Myth*.

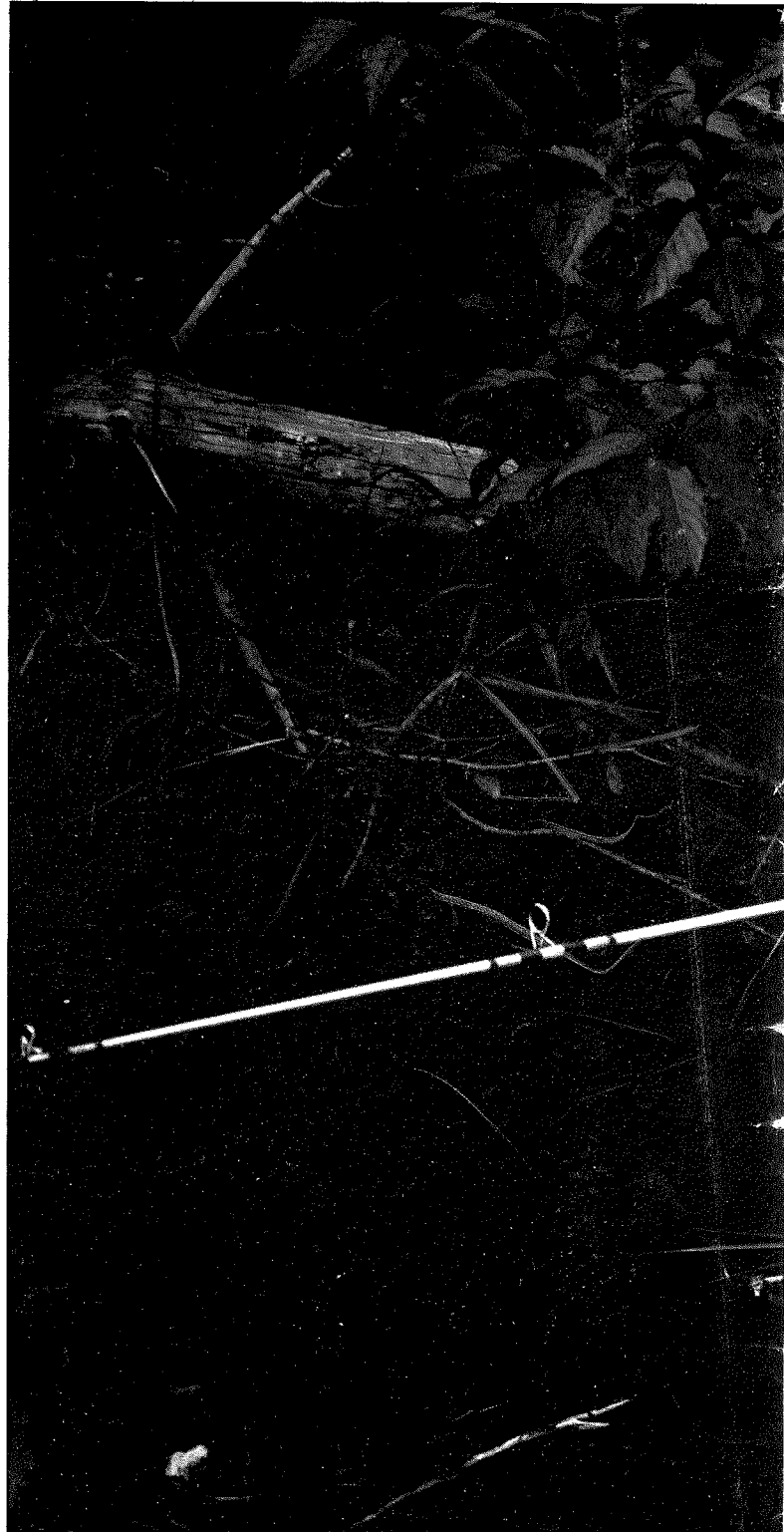
Localized beliefs of this sort are merely fads or fashions, but when they involve larger areas and many more people they become movements, and if they affect whole nations or large segments of nations they become the conventional wisdom. History is full of them. Most of the smaller ones don't last much longer than a few months or years, but others, such as the romantic movement of the 18th century, are still with us. Some, though they affect a whole nation, shortly become so unpopular that they disappear almost overnight.

Such a one was the prohibition movement. I lived through that one, and even saw it start, for as a boy I lived not far from its point of origin and knew some of the people involved. I was in high school when the Volstead Act went through Congress. It is difficult now to picture the milieu in which all this could happen. Even radio was in its infancy, so that communication had to be personal or through the printed word. But the personal became enormously effective, with every militant prohibitionist (and there were thousands of them) becoming an expert on the deleterious effects of the "demon rum," whether he had ever drunk any of it or not. They displayed their expertise in the schools, theaters, churches and in any other place they could find congregations of people. They were honest and sincere in what they said, but I shudder now that I realize how much of it was sheer nonsense and how many people accepted it as gospel truth.

I don't think that any of us can ever become immune to these pressures. Their purveyors can be very persuasive indeed. But I hope we can retain enough skepticism to at least raise questions. If what I have to say here has a central theme it is to take issue with the doomsday experts when they deny that the human race is capable of dealing successfully with the predicament they believe it to be in.

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David J. Spear

We live in a world of "experts" and "expertise." I suspect that there have always been experts. They were the shamans and witch doctors among primitive peoples. They were the political, religious and military leaders in ancient and medieval times. Nowadays they clothe their expertise in a thing called science, and look upon those earlier experts as imprecise amateurs.

The old shamans weren't worth their salt if they couldn't predict the future. I submit that they were pretty good. Their technical knowledge, in our terms, was extremely limited, but they knew a great deal about people. This was their real stock-in-trade.

We make the same prognostication requirements of our modern scientific seers as these earlier people made of their shamans. One of the most common questions asked about a research project nowadays is how much predictive value it has. The validity of this question got a great boost from our successes in the physical sciences. These successes required no knowledge of human reactions other than the reactions of those making or supporting the experiments. The predictions could be made successfully because the materials and variables involved were few in number, most of them well-known and calibrated with great precision.

In the last few decades natural resources and population seem to be favorite fields for prediction. In both of these fields our real knowledge is far from precise, and the variables we have to deal with are so many and so diverse that we have no mathematics or experimental methods to rationalize more than small isolated fragments of them. In spite of these deterrents, our resource and population experts go on making predictions as though they were working in the physical sciences. Much of their current prestige comes from their free use of numbers, which gives the impression of precision.

As a people we worship numbers. Madison Avenue found this out long ago. When I listen to radio or television shorts or commercials I can be sure that somewhere in nearly every one there will be numbers, always given in hushed tones which leave the impression that they are really the most important part of the story.

In describing our experts we could as well call them specialists. We live in an age of intense specialization. The day of the mechanic who could fix anything, or of the naturalist who was intelligent in

many fields of natural history, is nearly gone. Our specialists may be very efficient in their chosen fields, but are woefully ignorant outside them. This failing becomes serious when they try their hands at prediction in fields that have multiple variables.

Our specialized population expertise says, essentially, that people are just mouths to feed and bodies to shelter. These bodies don't *think*. On the other hand our experts say that the resources are severely limited, and are sure to run out in the near or distant future, because people will continue to breed and enlarge the number that have to be fed and sheltered. The resource projectionists are so heavily oriented to their own fields (the resources themselves) that they join with the demographers in forgetting that people can and do *think*. No shaman in an Eskimo or African tribe would forget that. If he did, he would pay with his position, if not with his life.

Examples of this sort of resource prediction can be cited by the hundreds. I will try to illustrate it first by a brief review of a U.S. forest report published in 1919.

At the time of World War I, a committee of American experts in forestry and wood utilization was assigned by the Society of American Foresters to prepare a report on the existing state of U.S. forests and their prospects for the future. The committee was chaired by Gifford Pinchot, who was regarded as the leader in his field. The report of the committee was entitled "Forest Devastation: A national danger and a plan to meet it." About 60 years have elapsed since this report was written, and it is useful to see how it looks in light of developments during this time.

The report was in two parts. The first was labeled, simply, "The Facts;" the second was a rather elaborate set of recommendations for legislation to accomplish the purposes set forth. Some members of the committee submitted minority opinions, but these were concerned primarily with the recommendations. There seems to have been no dissent from the published expression of what the facts were.

The report is based on a group of assumptions. They were the things called facts in the report. I have listed 10 of them.

1. A continuous supply of forest products is necessary for national defense and for general prosperity.

2. Shortage of timber was now, in 1919, beginning to appear in the United States.
3. We were consuming wood three times as fast as it was being produced.
4. Per capita consumption was declining, but the population was rising so fast that total consumption would increase.
5. Average production of wood by the trees was about two percent per year, and there was no way to increase it.
6. At present rates of consumption and production we would have a timber famine within 50 years.
7. There would always be a demand for good lumber.
8. Timber was essential to agriculture.
9. Forest devastation must be stopped.
10. We must invest in the culture of forests.

Throughout the report there is a tacit assumption that the primary products of the forests were and would continue to be saw timber of high quality, i.e., boards or planks with relatively few knots or none. This required large straight trees that would take 50 to 100 years to grow. This assumption tended to bias all of the figures given elsewhere in the report for standing crop, growth and yield in the U.S. Barrett and Morse, in their study of the economics of natural resource availability (1963), had much trouble finding reliable data on the forest resource, and the results from the data they had were not consistent with those from other fields. I think this was due primarily to the old bias toward a saw-timber economy which was built into the available data.

I first became aware of this bias when I became director of the Harvard Forest in 1946. We were at that time heating the main buildings and some of the smaller ones with fuelwood cut on the forest. The professional foresters on our research staff came to me and said that this would have to be stopped because we would soon run out of fuelwood. One reason they gave was that the hurricane of 1938 had removed about 750 acres of trees which would yield nothing for perhaps 20 or 25 years. I found this story hard to believe, and asked the men to make a new inventory. They did so, and came up with an abundance of fuelwood, enough to carry us comfortably for at least 20 years, by which time the young growth in the hurricane blow-downs would come into production and carry us for many more years. Our foresters, thoroughly indoctrinated with their professional assumptions, had based all their ideas for the productivity of the forest upon saw

timber. In their earlier inventories they had simply not seen, or at least they had disregarded, everything below a diameter of eight inches, and thus they had disregarded most of the fuelwood.

An important part of the Pinchot committee's report urged the culture of forests as a national defense measure. Just at that time the British were using the same reasoning. They had used up all the available timber in the United Kingdom during World War I, and had set up a forestry commission to remedy the situation. They began a gigantic tree-planting operation on millions of acres in the British Isles, the basic justification for which was national defense. In no other way could they justify the enormous investment involved. Their whole conception of national defense is now so completely altered that they can see no such use for all those plantations, and are scurrying about trying to find some way to get back at least a part of their capital. The last 60 years have seen a similar revision in our own country.

The Pinchot committee of experts said that a timber shortage was already present in the U.S. and would grow into a famine in the next 50 years. This conception, again, was based primarily on saw-timber inventories, and is analogous to the dire predictions made by my foresters with regard to fuelwood. It may have been true that in 1919 the nation was consuming three times as much wood as was being produced, but the figure is suspect because what they meant by "wood" is not made clear. The tone of their report strongly suggests that they were talking about saw timber of high quality and even in this case they may have been wrong. In the last 60 years they have proven wholly wrong about the famine.

Actually, no threat of a wood famine has ever appeared in this country. Ernest Gould (1967) has stated the situation thus: "Now, two-thirds of a century later (he was dating from 1900) . . . the future supply of wood products is assumed to be assured, and popular concern centers on the preservation of forests for environmental amenity, recreation, watershed control and maintaining the 'balance of nature' . . ."

The committee predicted that we would be using less wood per capita at the end of 50 years because of population increase and scarcity. This is true for per capita use, but apparently not due to scarcity, for we have more wood than we had in 1900 in spite of population increase. The Forest Service, which has

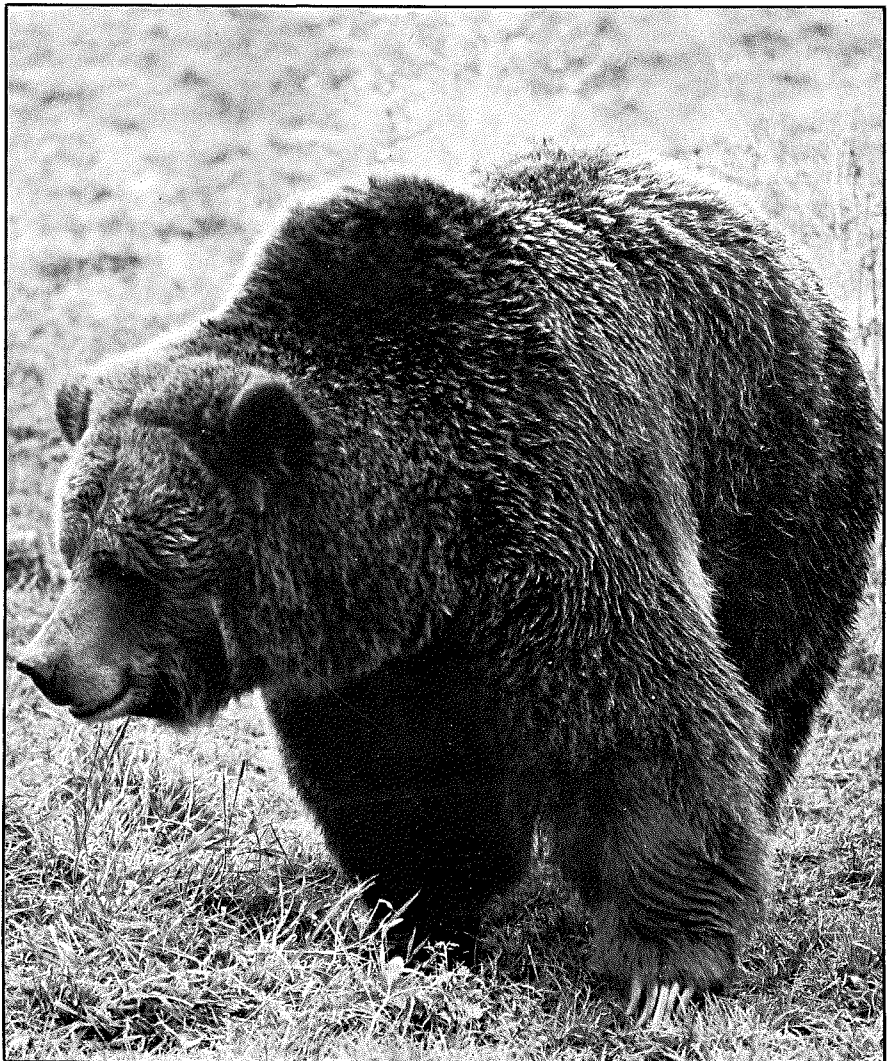
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*"The environmental movement has many of the characteristics of a revealed religion."*

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Jon Cates

been trying for many years to demonstrate impending famine, could see no possibility of it in its later inventories, without pushing the deadline far beyond most planning horizons. The committee attached dire social and economic consequences to a lowering of per capita consumption of wood, but no such national disaster has occurred, and our people are not only more numerous, but also more affluent.

operate their woodlots, even within the total budgetary structures of their enterprises (Barraclough and Gould 1955). An exception might be in some long time period which would not be commensurate with a farmer's planning horizon. In fact the existing pattern of farmland tenure rules it out.

Much was said by the committee about the immediate practicality of cultural practices for the renovation of forest

hybridization is about as old as agriculture, and the past 60 years have seen large developments in this field as it applies to forest trees. But the committee seemed oblivious of such research, which was going on even at the time they wrote. Great progress has been made in the ensuing years. In fact our progress probably has been considerably beyond what is economically feasible in America, even in the foreseeable future.

I have said little or nothing about the "forest devastation" which was the major element in the title of the committee's report. For this idea to have significance there had to be something to devastate. This was the "forest primeval," which was assumed to have been here when the first white settlers came to America. It has been the "biological datum plane" for American foresters throughout their whole development in the 20th century. It was visualized as a rich, productive forest that had developed in situ, essentially undisturbed for centuries, or even millenia. It was believed to have reached a kind of equilibrium in the balance of nature, delicately adjusted to its varied natural environments. It was thought that western Europeans had upset this balance by cutting and burning, and that this was forest devastation. Fire, especially, was looked upon as an evil to be avoided. The best-known symbol of this notion is Smokey the Bear.

This entire concept has all but collapsed. Accumulating evidence indicates that most of the forests seen by the first settlers were in their first generation following one or another kind of major disturbance by fire, insects, disease or windthrow. It is becoming apparent that the old forests were scarcely different from the present ones, and that the latter form a far better datum plane for planning than the assumed balanced forests of the theory. And it is probable that there were more and larger fires in presettlement time than subsequently.

Because western Europeans could not be blamed for these catastrophic events, most of the validity has dropped away from the idea that man has been the arch enemy of forest productivity. Most of our forests have not been devastated in the sense used by the committee.

Time has always been the forester's problem. The growth of trees is a slow process, and he has had to make long-term biological predictions. Also he has had to assume, essentially as an article of faith, that people would want his trees when the trees were ready for harvest 50 to 100 years in the future. The committee

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The committee belabored the dire consequences of the coming scarcity as it would affect agriculture. They had this to say: "The farmer is the greatest consumer of wood in the United States . . . Wood is the farmer's chief construction material. No substitute will make building so easy and rapid, or fill so many of his needs." In another place they said: "Every peacetime industry is dependent in some degree upon a supply of forest products. Food, clothing and shelter of every kind require wood for their production. No wood, no agriculture, no commerce. Without the products of the forest, civilization as we know it would stop."

Members of the committee seemed to have no doubts about the economic feasibility of farm woodlot operations, as seen in the following sentence: "Today the farm forest plays a growing part in the profitable working of the eastern farm . . . [the woodlots] are soon to become of vast importance, both to their fortunate owners and to the nation."

The committee had no conception of the mechanization of the modern American farm, nor of the steady decline during the last 60 years of the need for wood on the farms. The great barns of the past, which answered for vast quantities of lumber, are built now in very small numbers. Even the most advanced dairy farmers do very well with a small milkhouse and a few poles to support a metal roof. When the report was written, a large part of the wood used on farms was for fuel. This practice has all but disappeared.

Studies of typical farms throughout New England have shown in recent years that most farmers cannot afford to

production on cutover lands and abandoned farms. This idea had been lifted bodily from the western European forest economy. Even there it had never been economically feasible without some form of direct or indirect subsidy. In America where wood has always been abundant, there has never been much investment capital attracted to such programs. The committee rather carefully avoided this issue, but it is a crucial one. Even with the best of methods, and with a lot of good luck, investment in forest production probably would pay no more than about three percent. And this allows very little for risk and uncertainty, which are high in the culture of forests.

Perhaps an indication of the unattractive nature of forest production investment is the lack of innovation in the logging industry. I mean logging here in the broad sense of getting trees from the woods to the mills. Until very recently this process had been essentially unchanged for over a century, while nearly every other extractive process was developing by leaps and bounds. Wood has been so plentiful that the logging industry could afford to go on at the old stand. Innovations such as the chain saw and heavy harvesting machines have appeared, not in response to scarcity and a supposed need to culture trees, but in response to rising labor costs and competition for labor between woods operations and factories.

The following statement is found in the body of the Pinchot committee report: "Well-managed forests add wood at an average rate of two percent, and there is no way to increase it." The improvement of production rates by selection or

made its predictions in a closed, inflexible system. In the field of construction materials, for example, they failed to conceive of the phenomenal development of the plywood and chipboard industries, which turn out products that replace lumber for a host of uses and are much cheaper than lumber to process. They can be made of trees which are much lower in quality than those required for lumber, and can be grown in much shorter times. When the report was written, most of our paper was made from spruce. The committee did not visualize any change in this. It wasn't long thereafter that balsam fir was put to use for paper. Not many years later the hardwoods came into use, and at this point the supply of pulpwood became enormous, because our hardwoods grow rapidly and reproduce profusely after cutting. Now we are hearing a good deal about the production of paper pulp from annual crops, and I haven't much doubt that this will come. If it does, it will alter every phase of our paper-making economy.

Dr. E. M. Gould (1967) has computed a possible effect of further innovation in the process of fabricating wood products from chips. If, he says, all the wood used in the United States each year were converted to these fabricated products, just the annual growth on forests now existing in the northeastern states would cover all needs. This would be the amount of wood represented by only the outermost annual growth ring on the trees.

The committee visualized rising costs for the harvesting and transportation of western timber to "centers of consumption" which they obviously saw as primarily eastern markets. They did not imagine the intricate transportation system that has actually developed in the last 60 years, nor did they consider the possibility of a vast urban-industrial market in the West itself.

The forest is an amazingly flexible, adjustable thing. It is far more amenable to short-term planning than our foresters have dreamed. It can be adjusted to the changing wants of people so long as we do not try to force it into some pattern that we form by projecting beyond the planning horizons of the people. What kinds of demands can we expect them to make? Crooked trees may be just as valuable as straight ones. Clear openings in forested lands may have higher values than they would if they were covered with trees. The committee did not dream of the recreational and aesthetic values that have arisen in the last 60 years. Continued technological innovation can make little

trees as valuable as big ones. And if we make most of our lumber out of chips, and most of our paper out of annual crops, huge acreages of forest will cease to have any of the values assumed by the committee to be fixed.

Something of this sort is happening in western Europe where most of the basic ideas for American forestry originated. Svend Heiberg, a Danish forester who was for many years professor of silviculture at the New York State College of Forestry, gave some advice to western European foresters in 1963. He advised them to quit trying to grow commercially valuable wood in a vast strip of country extending from Spain through western France, much of West Germany, the low countries, and southern Sweden. He said that the recreational and aesthetic values in the woodlands of this region far exceeded any that could be gained by investment in the culture of commercial forests.

The Pinchot committee members left no room for people in their equation. They disregarded human adaptability, inventiveness and imagination. The behavior of the human mind during the last 60 years has reduced nearly every prediction they made to absurdity.

Nowadays we are flooded with predictions. They come to us daily via the news media. The materials with which they deal have been expanded far beyond the forests. We are bombarded with words like "environment," "ecology" and "ecosystem," which connote emotional and aesthetic values that the foresters left out. These are blanket words, used collectively to express the idea that every process which goes on in the world, animate or inanimate, is related in some highly variable cause-and-effect way to every other process. The old notion of the balance of nature raises its head again when we are told that these great systems of relationship are so delicately adjusted and fragile that if we disturb them we do so at our peril. The imminent doom predicted for our forests now extends to nearly everything, including ourselves. It is the "doomsday syndrome" (Maddox 1972), which is surely not new in the world. The seers of wisdom in every generation seem to have been certain that they were living at the peak of human knowledge, imagination and ingenuity. Having reached these heights, they seem to have been stricken with an occupational disease which caused them to view the future with alarm. There was no way to go but down.

To an amazing extent what we can call

environmentalism has become the conventional wisdom of our time. We do not have 60 years of experience that might allow us to assess its predictions. But we can at least stand aside and try to see it in some kind of perspective.

Environmentalism resembles the romantic movement of the 18th century. Both movements began, not as ground swells among vast numbers of common people, but in the more learned and affluent fringes of society. The romantics were reacting negatively to the heady rationalism of the 18th century, and to the industrial revolution which was growing out of it. Our environmentalists show the same reaction to modern science and technology. Both glorify nature (the wilder the better) as a release from the tribulations of mankind, and have idealized primitive man, the noble savage, as the last of the human race to be truly in tune with nature.

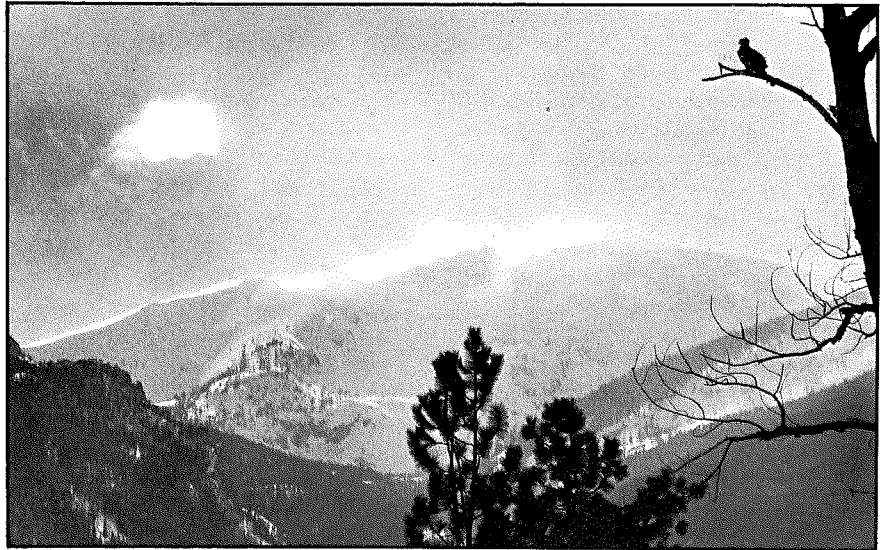
Much turns on what people think of when they speak of nature. Is man a part of it, or does he occupy a special niche that separates him from it? The environmentalists are delightfully ambiguous about this, often in the same paragraph. In common thought, however, I suspect that most people see nature as something that is around them, in woods, fields, streams, mountains and plains. They go away from human things to observe and study nature. The recent environmental movement has done a great deal to further this dichotomy, though it surely goes far back in the history of our race.

Wild nature is believed to be good for man, and unless he learns to use it as a therapeutic he cannot avoid his own destruction. He is described as sick, heavily burdened with physical, mental and social ills (Nicholson 1970). His only hope is in some form of back-to-nature movement. The ideas of wilderness and natural areas play a large role in this conception, but with a heavy load of ambiguity attached to them. Though they are thought to be man's only hope they are to be used by selected people.

We are told that wild nature is harmonious, and that it is good, or at least neutral. Man is regarded as having contributed only disharmony to it. Some believe that he began his destructive progress through the world when he first scratched up some soil in which to plant crops (Fraser 1960).

A sense of urgency runs through the movement. The end of civilization, or even of the world, is near at hand. There isn't much time left. Even if the common





Mike Sanderson

man were able to save himself, after a long period of individual and social evolution, there is not time enough to allow him to try it. We are told that he must be "cajoled, led or driven" to it by an elite corps of experts (Nicholson 1970).

The environmental movement has many of the characteristics of a revealed religion. It has its major prophets of doom such as Thomas Malthus and George Perkins March. Its later prophets have extended and embroidered those early jeremiads under such titles as *Our Plundered Planet*, *The Road to Survival*, *Deserts on the March* and *Silent Spring*. A space-age version carries the implication of doom in the limited resources of *Space-Ship Earth*. There is a self-appointed evangelical priesthood, like the shamans of old, which makes brilliant use of its own charisma and of the propaganda machine at hand in the communications media. Then there are the lesser clergy and the lay preacher/converts who carry the message to the pagan public. There are creeds galore, and there is heresy, for nearly every pronouncement that comes down from above is arguable.

A preoccupation with the idea of sin permeates this quasi-religious structure. The human race is pictured as having continuously sinned against nature and itself, getting into steadily worse messes, and never learning by experience. Man is regarded as a sort of willful pawn, living at the mercy of his environment and continually biting the hand that feeds him. I have found in the environmentalist literature descriptions of human relations with a natural environment in such terms as the following: Humans are accused of thoughtlessness, cupidity, ulterior motives, carelessness, defective

personalities and ignorance.

There is an implication that man is the only inherently vile and sinful living thing, and that whatever he does is more likely to be wrong than right. It sounds to me like the old doctrine of original sin, which is deeply embedded in the Judeo-Christian religion.

Sometime in the misty past a human-like being made the greatest discovery that our race ever made. He discovered himself. Herbert Muller (1952) has called it the beginning of consciousness. We can never know the sequence of impressions of which man first became conscious. An early one may have been fear, but I suspect that even earlier was a glimmer of what his remarkable brain could do for him. Along with fear and distress he also began to know the feelings of satisfaction and happiness and how to produce them. I think it possible that the old Hebrews who wrote down the story of the Garden of Eden were basing it upon some ancient and hazy tribal memory of man's first consciousness of himself. We are told that Adam and Eve got their knowledge by eating the fruit of a certain tree, which they had been forbidden to do; and for doing it they were banished. Their sin was not against themselves, or against nature as represented by the Garden. Rather, it was against a God who was jealous of his own omniscience. But as we have all been taught the idea of original sin goes far beyond the acquisition of knowledge. We have been told that all of us were "born in sin," which implies that the process of human procreation is in itself a sin.

I am not enough of a biblical scholar to trace the origin of this notion but the historian Herbert Muller (1952) could not find it in the Old Testament. He thought it began with St. Paul. Barbara

Tuchman (1978) in her study of 14th-century Europe, thinks that it was firmly installed in Christian dogma by St. Augustine. Whatever its origin, it is one of the strangest aberrations that the human mind has ever come up with. It makes a cardinal sin out of man's normal and pervasive impulse toward the perpetuation of his race — an impulse that he shares with every other living thing. It decries the animal heritage of man, separates him from the rest of nature, and gives rise to prevailing ambiguities in the environmental conventional wisdom of our time.

During most of my adult life I have been a student of wild vegetation and of the kinds of plants that make it up. I have never been able to find the harmony that is assumed to be there. I think it is merely another expression of the so-called balance of nature, which has been a millstone tied to ecology for over a century. All my experience of wild nature tells me that it is (and always has been) in a state of imbalance, disharmony and uncertainty. Civilized man has just added another kind of disturbance to the long list of cataclysms that the organic world has been living with since it came into existence. In this light the questions as to whether or not man is a part of nature, and whether or not he is the author of all the disharmony in nature, become rather pointless.

Adam and Eve leaving the garden are always pictured as bent and rather bedraggled figures, weeping and burdened with woe and fear. When they ate that fruit a whole new outlook on life appeared. They saw what they might be able to do if they could get out of that garden and exercise their new-found knowledge and curiosity. I don't think

they were banished. I think they ran away. Of course they were frightened. Everything in their new world was risky and uncertain, as it still is. But I think they were far from depressed by it. They were exhilarated.

Anyone who finds himself on the outer fringes of knowledge with only the unknown ahead of him, understands the meaning of this allegory. He knows that if he goes on he will be alone, dependent upon his own judgment or upon the validity of his guesses. His fears are legion. He must learn to live amicably with uncertainties, not only in the field with which he is working, but also in his reputation among his peers. He knows that it may be a long time before anyone ventures to follow him and check his findings.

If at this crucial point he turns back to the safety of mapped knowledge he consigns himself to the crowded ranks of those who follow rather than lead. If he manages to sublimate his fears and goes on in spite of them, he has a chance to experience the exhilaration that comes with the subjection of some part of the wilderness of the unknown.

The foresters came to grief because they left out of account the most important single natural resource we have — one that affects our use of all others — “the contriving brain and the skillful hand of man” (Malin 1955). The environmentalists do not merely leave it out. They do not trust it, and they try to suppress it. Their major tool of suppression is fear, especially fear of the unknown and of making mistakes as we approach it. But people have always made mistakes. It is the way we learn; and we *do* learn by experience. We wouldn't be here if we didn't.

Most of the trappings of environmentalism can, I think, be disposed of as intellectually groundless, or as fanatical aberrations. But we should look carefully and critically at the tendency of the movement as a whole to disregard, denigrate or even suppress our impulse to stifle our fears, to take chances and dangerous risks, and to go off the map if for no other purpose than the fun of seeing what we can see.

Conventional wisdom, valuable as it can be in achieving some kind of continuity and balance in our affairs, can in time become a dam holding back the flow of our development. Bernard DeVoto, in his study of the history of American geographical knowledge (1952), expressed this idea as follows: “In the infinitely difficult act of thinking, nothing is more difficult than to separate what is known from what is not known — unless it is to understand that the separation must be made. The pitfalls ready-made in the material with which the intelligence must work are not more formidable barriers to the achievement of knowledge than the traps intelligence sets for itself.” He illustrated this point repeatedly from the history of the exploration and settlement of the North American continent. He demonstrated that the whole process was impeded throughout by projections from the knowledge of the day, made by the greatest geographers of the day.

The richest farmland in North America (and perhaps in the world) is in Iowa, southern Illinois, northern Missouri, eastern Kansas, southeastern Nebraska, and southwestern Minnesota. When this region was first seen by Europeans it was covered with grasses. It was later known as the “humid” or “tall-grass” prairie. The

first agricultural settlers carefully avoided the prairie land. They laboriously removed the forests from the river valleys, and planted their settlements there. James Malin (1947), the great historian of the American grasslands, has demonstrated that settlement of the prairies was held up for at least a generation because the conventional agricultural wisdom of the time in western Europe and the Atlantic states held that any land that didn't have trees growing on it could not be fertile enough for crops (Malin 1947).

My own ideas about these things must by now be evident. To state them more succinctly I can do no better than quote from the last sentences of two books by authors who have avowed their faith in humanity more cogently than I can. Journalist Edmond Taylor (1969) said: “My confidence in the schemes for human betterment that I have seen my generation put forward tends with age to grow increasingly conditional and limited; my faith in man's potential for self-betterment grows steadily stronger and more absolute. That is why — paradoxical though it sounds — I believe more than ever that humanity and human civilization on this planet have the capacity to outgrow the crises that their own growth periodically generates, and will therefore keep on growing.”

Historian James Malin (1947) said: “The potentiality of man to solve problems has not yet been exhausted, and the potentiality of the resources latent in the earth to be brought into the horizon of usefulness is still beyond the power of man to conceive. The key to the situation is not the earth, but rather the minds of men determined to realize their own potential . . .”

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