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Conservation of Natural Resources--Ecology, Economics and Energy

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The use of natural resources will increasingly occupy the talent of lawyers over the decades ahead. More importantly, aside from the manner in which it will make demands upon the legal profession, this subject will also affect each of our lives in new dimensions. It will alter the very way of life to which we have become accustomed in this country. It will force us to reorder our priorities and to reconsider our values. In this Part One I will encapsulate two hundred years of development in the area of natural resources and, more particularly, the way in which our policies have developed with respect to conservation of natural resources.

We should make the fundamental recognition at the outset that the word conservation has had a variety of connotations. The two that we will deal with primarily are (1) conservation in the sense of wise utilization of natural resources, and (2) conservation in the sense of preservation of natural resources. While the distinction may appear to be a subtle one, we will come to see that the choices between wise utilization and preservation will pose some difficult issues that younger generations utilizing their legal education will face.

The year 1776 provides a fitting point of departure for our consideration of the different meanings placed on conservation as applied to natural resources. From 1776 to 1876 there was no motivation for recognition of choices to be made between utilization and preservation of natural resources. Rather, the seemingly boundless frontier of our nation provided an easy answer as to the

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1 THE AMERICAN HERITAGE DICTIONARY OF THE ENGLISH LANGUAGE 284 (1969); "conservation." 1. The act of conserving; preservation from loss, waste, or harm. 2. The official preservation of natural resources, such as topsoil, forests, and waterways.
way in which forests, underground deposits, streams, the land itself, and the air would be utilized for profit. The frontier attitude commenced strongly and still holds on. No one seriously considered that there could or should be an alternative to that frontier attitude until approximately a hundred years ago. It is with the one hundred years from about 1876 to the current time with which we want to deal in some slight detail.

Much, then, of the Part One is but a preface for considering the real heart of the problem: the way in which biologists, geologists, hydrologists, ecologists, as well as persons who are trained in the field of economics, engineering, and most importantly, persons who are trained in the law, are going to have to find new ways to communicate with understanding. If we are to solve problems that we have brought on ourselves, we are going to have to learn to act in concert on the realization that much that has been done must be undone.

We will select the year 1864 as the first point in time when a state decided to set aside and to save for the posterity of that state a small portion of land in the Yosemite Valley. During that same year a gentleman named George Perkins Marsh (keep in mind this is more than one hundred and ten years ago) wrote a book entitled, *Man and Nature: or Physical Geography as Modified by Human Action*. That book started some persons thinking and the federal Congress then took a new step forward. In 1872 it created Yellowstone National Park as the first in our national park system.

A visit to any of the myriad of our present national parks today presents a dramatic illustration of the problem of deciding how to go about preserving the scenic grandeur of our country while at the same time allowing scenic areas to be utilized by the large number of persons who want to share an experience in a national park. In 1971 the national parks had 201 million visitors.³ Jumping from 1872 to 1971 reveals the startling dimensions of the problem with which we must cope.

America has yet to develop a satisfactory policy with respect to how to divide up our resources and make them available to as many as possibly can enjoy them. We have not well defined just

what is the public interest. This has been and will continue to be a term that taxes the efforts of legislators, administrators, and members of the judiciary who seek to reckon with it. It is often used by special interest groups to advance their own positions and by Congress as part of legislative efforts in response to crisis oriented types of problems.

One of the early persons who became concerned about utilization of our natural resources was a German-born reformer named Carl Schurz, appointed as Secretary of Interior in 1876. He lamented, "defiant was Congress, and deaf the people seemed to be." His lamentation went to the degree to which timber was harvested, minerals extracted, and the waters of our streams were used without consideration of the long term effects which result from that sort of short range planning, or lack of planning.

Near the end of the last century, a different attitude developed largely as a result of the thinking of men such as Gifford Pinchot, John Muir and President Theodore Roosevelt. In a reversal of the policy which made the public lands of the United States readily available for economic utilization, the attitude developed of shifting the emphasis toward preserving much of those lands. About 750 million acres remain in the public domain within the United States, including Alaska and Hawaii. That is approximately one-third of the nation's land and it is that one-third with which we are primarily interested for the future.

At the turn of the century, Gifford Pinchot coined the term "conservation" in the sense of attempting to preserve a portion of the forests of the United States. Through his efforts and those of a few others, the conservation movement took root. Pinchot persuaded a number of influential congressmen to pass the Forest Reserve Act of 1897, sometimes called the Organic Act, with respect to the management of the forest service which today is under

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4 Cf. former Mr. Justice Douglas' dissent in Sierra Club v. Morton, 405 U.S. 727, 745 (1972): "'public interest' has so many differing shades of meaning as to be quite meaningless of the environmental front . . . ;" and discussion in text, infra.


8 G. PINCHOT, THE FIGHT FOR CONSERVATION (1910).

the jurisdiction of the Department of Agriculture in the federal government.

During President Theodore Roosevelt's first term he set aside from the public lands approximately 140 million acres of forest lands. Certain mineral lands were also withdrawn as were water power sites. For a short period of time, there was a very large discernible effort made to preserve a portion of natural resources in the state in which they were at the turn of the century.

Shortly after that the automobile was developed. A change in thinking about conservation can be correlated with the development of the automobile. Would we have the number and the type of automobiles of the weight to which they have been developed and of the horsepower to which they have been increased if in the early 1900's a technology assessment had been made of the potential for the automobile to endanger public health? Our larger cities today suffer with exhaust fumes containing carbon monoxide, hydrocarbons, nitrogen dioxide and photochemical oxidants. To attempt to combat all this, catalytic convertors capable of expelling sulfuric type of acids are being utilized. The automobile increased the effort to explore and develop the potential oil and gas lands held in private ownership and as a part of the public lands. The development of petroleum and its use for gasoline to power the internal combustion engine has exerted a strong effect on society.

It wasn't until the great depression that anyone reckoned with the possibility of our not being able to afford the style of life to which we had brought ourselves. The great depression introduced a new era of conservation with respect to natural resources.

This type of concern is most dramatically illustrated by the events which took place shortly after discovery of the East Texas oil field, at that time the largest in the Western Hemisphere. Much of the land overlying the pool was held in small lots. Each lot owner felt obliged to drill a well into the common pool to match the well drilled by a neighbor on one side or the other. This produced the effect of causing the next well to be followed by the next well, the next to be followed by the next, and so on. In some towns in East Texas the supports for the oil derricks cross as they penetrate into the ground because each lot owner was unwilling to forego drilling despite the lack of any market for the oil. There was an overabund-
ance of oil and yet, rather than cut off the valve, each owner produced as much as possible to keep other neighbors from getting more. Oil literally ran down the streams of East Texas! Governor Ross Sterling of Texas was forced to call out the militia and actually have the wells shut-off as a result of overproduction. At the Federal level this was followed by the Connally Hot Oil Act of 1935, and at the state level by efforts to achieve proration of production of oil limited to the anticipated market demand. Those days seem very remote from today when we feel the pinch of our inability to produce from domestic sources the quantity of oil to which we have accustomed ourselves to utilize in fueling our way of life.

About the same time that oil was flowing in that deplorable manner in East Texas, the Civilian Conservation Corps was developed at the federal level in order to provide jobs for people who were unable to find employment as a result of the economic catastrophe of the great depression. I keep referring to the great depression because a strong analogy may be drawn from what happened at that time, which we have been convinced until recently we could avoid in the future through fiscal and monetary control at the federal level. The analogy lies in the many respects in which we have overtaxed the carrying capacity, and thus, mortgaged our land, water, forests and air; that is, we have not paid the full debt. That mortgage is coming due.

One of the best examples of this phenomenon is the type of acid mine drainage common in West Virginia. William M. Aston's article in the Summer, 1975 issue of the *University Magazine* entitled "A Deferred Debt: Acid Mine Drainage," points out the necessity for ferreting ways to discharge what has been recognized now to have been a deferred debt through iron pyrite and its derivatives getting into the streams and creating what is referred to as "yellowboy." We now have to find a way to pay off that debt. The dimension of that debt, according to Chester L. Dodson, the Director of West Virginia University's Water Research Institute, assumes a magnitude of enormity. Dr. Dodson observes that we don't quite know how we are going to handle that problem but that we must develop a way to handle it.13

12 *West Virginia University Magazine*, Summer, 1975, at 2.
13 *Id.* at 6.
Returning to our continuing story and moving to the post World War II period, about 1954 there began to develop a somewhat different attitude concerning stretches of free flowing water and wilderness areas and areas which possess unique historic value or scenic grandeur. These few sentences were written in that year by Chief Judge Duffy of the Seventh Circuit Court of Appeals in an opinion upholding the Federal Power Commission's denial of a license to a power company to build a dam on the Namekagon River in Wisconsin.

The 22 miles of the Namekagon River from Trego Dam to its mouth is a beautiful stretch of water. The banks are, to a large extent, timbered with northern hardwoods and various species of pine.

A fast-flowing stream such as the Namekagon, where small mouth bass are propagated furnishes the type of fishing that has always been highly esteemed, yet has been quite uncommon. However, as such habitat has become increasingly rare the bass fishing situation in the Namekagon can be considered unique.

But perhaps the uniqueness of the river is more apparent to those who take a float trip. Many of such persons are from urban centers and to see wild life in a natural setting is a thrill indeed. Such a float trip is exciting as well as peaceful. Passing by heavily wooded banks on either side, with no noise or sound to be heard from highways or railroads, the canoeist has the illusion of being in a forest primeval, far from civilization. Each bend of the river is watched with anticipation for a deer may be seen on the bank, or, occasionally, a black bear scurrying for the timber. There are very few, if any, comparable stretches of river left in Wisconsin. A canoe trip on the Namekagon often calls for a repeat performance, one witness testifying that he made 90 canoe trips thereon.\(^{14}\)

This type of thinking is apparent today concerning a river that flows, in part, through West Virginia. This same type of dispute, involving what use should be made of the head waters of the New River on the border of North Carolina and Virginia is promising to be litigated.\(^{15}\) The courts will be called upon to decide whether the use of the shoreline and the river in that area should be left in their present natural state or should be used as a site for a dam to generate electric power through the use of hydroelectric engineering.

\(^{14}\) Namekagon Hydro Co. v. FPC, 216 F.2d 509, 512 (7th Cir. 1954).

\(^{15}\) The Norman (Okla.) Transcript, Aug. 17, 1975, at 34, col. 1.
The next case to be discussed also involved a river and a proposed hydroelectric type project. It is the foundation case for what has developed into a large amount of litigation in which many of the holdings are weaving a pattern of consistency respecting the mandates of the federal Congress. The circuit court involved based its interpretation of federal congressional intent on the time honored approach of reviewing the legislative history and the wording of a federal statute. But the unusual result of this commonly employed approach was to preserve much of what had not been thought to be within the area protected for preservation prior to that time. The case of *Scenic Hudson Preservation Conference v. F.P.C.*\(^\text{16}\) twice came before the Court of Appeals for the Second Circuit following the granting of a license to build a hydroelectric station by the Federal Power Commission. In its first decision in 1965, the court revoked the license granted by the Commission and writ of certiora was denied by the United States Supreme Court. Upon the second consideration in 1971,\(^\text{17}\) the court upheld the issuance of the license and again writ was denied by the United States Supreme Court.

The proposed site was approximately 50 miles north of New York City. It stands very close to the Military Academy at West Point and the point at which American revolutionaries stretched large chains across the Hudson River in order to prevent the British Navy from sailing up stream during the American Revolutionary War. This, then, is an area of unique, historic value.

Storm King Mountain, the proposed location of a pump storage type of hydroelectric project was selected by Consolidated Edison Company of New York for the location of its project. The project has not yet commenced despite some fourteen years which have elapsed since the project was announced in 1962. This amount of litigation and of determination points out the difficulty and the complexity that these decisions involve and the very hard choices that have to be made in the halls of our federal Congress and our state legislatures, by administrative agencies and by the judiciary. Perhaps one way to understand this quantity and this quality of resistance is to describe how this view of Storm King Mountain appeared to the scenic Hudson Preservation Conserva-

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tion Group as they symbolically, at least, stood on the east side of the Hudson River and gazed across the river at the west side.

Viewed from the eastern side of the Hudson, Storm King Mountain rises from the water on the west bank as a mighty sentinel silently guarding the northern approach to the gorge of the Hudson Highlands. There, in the gorge of the Highlands, the great chain of the Appalachians, extending largely unbroken from Maine to Georgia and traversed by the famed and much-hiked Appalachian Trail, is cut suddenly to sea level by the Hudson so that the great hills rise, it appears, directly from the water. Storm King Mountain, the most majestic of these hills, on the west, together with Breakneck Ridge on the east, form an imposing gateway for the 10-mile stretch of the Highlands which lie below this natural portal. Already marring the scenic beauty of the area at the point of greatest prominence of the slope between water and peak was the manmade gash of old Storm King Highway (at least, this was the environmentalist’s view of Storm King Mountain).

Symbolically, that Mountain stood as the last lonely outpost—the point beyond which what was then in an undisturbed, or relatively undisturbed, state was not to be disturbed. This citadel was to be preserved at whatever the cost in time, money, and energy. The irreducible issue for the environmentalist was simply that any degradation resulting from the alteration of this area of unique natural scenic beauty and historic interest would be just too much.”

To see both sides of the coin, if we had placed a man from Consolidated Edison alongside the environmentalist symbolically standing on the east side of the Hudson River and gazing toward the west and Storm King Mountain, this is what we might have heard:

“What a sight!”—would have said the environmentalist.
“What a site!”—would have said the power industry man.

“Neither would have understood a word the other said. And more importantly, neither would have thought that HE misunderstood a word the other side said, and the total lack of understanding would have gone unrecognized.”

In fact, at hearings held in the offices of the Bar of the City of

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19 H. Young, A Lawyer’s View, CHEMTECH MAGAZINE, June, 1973, at 332.
New York, when representatives of one side appeared, the other side left the room. This almost unbelievable scene ensued because of the inability of the parties to communicate with any degree of understanding over the issue of whether or not scenic beauty and historic interest should be left as they were regardless of the time, money, and energy involved.

A 1973 case involved the Monongahela National Forest and the interpretation of the Forest Reserve Act, sometimes referred to as the Organic Act of the Forest Service of 1897. Federal District Judges Maxwell in Elkins determined what Congress meant when it provided that certain types of trees were eligible to be cut by the Forest Service for timber after those trees were marked and designated. This made it impossible to follow the timber industry practice which had developed, and is employed in many areas of the United States, known as clear cutting in which all the trees in a given area are cut, regardless of age or quality or size. Judge Maxwell said that Congress intended that the individual trees had to be marked as a result of the language "marked and designated." This is now looked upon as potentially producing a spate of litigation in other national forests where clear cutting has been allowed by the Forest Service and the Department of Agriculture.

What we are thinking about in Part One and anticipating in Part Two is encapsulated in the title of philosopher John Passmore's book: *Man's Responsibility for Nature.* This paper considers the type of ethics to be adopted in striking a very delicate balance between utilization of our natural resources for some purposes and preservation of our natural resources for other purposes. That balance will be both difficult to strike and very delicate to maintain. One of my mentors or tormentors, depending on how one looks upon teachers, at Columbia, Charles Frankel, a social philosopher in whose legal philosophy seminar I participated, has, I think, said it very well. He defines responsibility, keeping in mind that John Passmore has said we do have a responsibility for nature, as "the product of definite social arrangements." Much of our muddling and our indecision in the past has been the lack of any definite

21 J. PASSMORE, MAN'S RESPONSIBILITY FOR NATURE (1974); see also the book review by Skinner, N.Y. Times Literary Section, June 14, 1974, at 638.
social attitude of a long range type with respect to how we will deal with this problem.

That last case is the important case of *Sierra Club v. Morton,* a 4 to 3 opinion by the United States Supreme Court, two justices not having participated. The majority decision, not significant for our purposes, held that the Sierra Club had not fulfilled the requirements of standing to sue. We want to examine two of the dissenting opinions. Former Justice Douglas, an avowed conservationist, in his dissenting opinion took the position that insofar as environmental concern is involved, the “public interest” had taken on so many differing shades of meaning that the term had become meaningless. More importantly, perhaps, Justice Blackman, a notably recognized conservative jurist, felt so disturbed at the prospect of Disney Enterprises developing a four season type of resort in the Mineral King Valley in California that he closed his dissenting opinion by quoting from John Donne’s Devotions, “No man is an Iland, intire of itselfe; . . . And therefore never send to know for whom the bell tolls; it tolls for thee.”

**PART TWO**

James Branch Cabell in 1926 said, “[t]he optimist proclaims that we live in the best of all possible worlds; and the pessimist fears this is true.” I suggest that quotation is the keynote in 1976, but for different reasons than it was in 1926.

The second part of this paper suggests the emergence of a new symbiosis in natural resources, and the reason why the elements of that new intimate relationship are unexpected. These elements are ecology, economics and energy. Part two considers these three components which have come together in an unexpected way and have formed an intimate relationship which has a vital potential effect on the future of natural resources, and the future of our life styles.

An old saying proclaims that politics makes strange bedfellows. Mixing together ecology, economics, and energy makes for equally strange bedfellows. This paper looks at each of the three

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23 *405 U.S. 727 (1972).*
24 *Id.* at 745.
25 *Id.* at 760 n.2.
26 *NATIONAL RESEARCH COUNCIL, RESOURCES AND MAN 157 (1969).*
and then examines how they have become inextricably intertwined so that they are now molded together, each having an effect upon the other.

I wish to look at ecology as the first component of this relationship called symbiosis. While I do not fully share the doomsday approach some ecologists have taken, it is worth noting that the ecological histories of societies now extinct have been studied in depth by present day historians. J. Donald Hughes in a book entitled *Ecology in Ancient Civilizations*, uses historical studies of the culture of the Roman and the Greek civilizations to conclude that many of the recently observed trends and signs in our society were recognized preceding the demise of those two highly developed civilizations. And so it is with a note, if not of doomsday, then of caution, that one should recognize ecology as one way of testing the life strength of a society through studying the life systems that support a society.

Ecology has made important contributions to our efforts to understand ourselves as individuals and as a society, particularly in very recent times. While there have been ecologists for many years, the word "ecologist" was not used in common parlance until quite recently. The intensified interest in what the term means and how ecology effects the way in which we live has only recently become a matter of popular concern.

As one development of a better understanding of ecology, the realization has grown that Americans have treated the land in an entirely different manner than did those people who lived here at the time our forebears arrived. The difference is one of substance and not just one of form. The native American Indians who occupied this country generally, and hunted in West Virginia in particular, looked upon themselves as an integral part of nature and sought to live in harmony with it. They had no idea that it was their mission or obligation to dominate and control nature to the point of destroying it.

This point is dramatically illustrated by American Indians of the southwestern part of the United States who lived in an area called the Black Mesa portion of northeastern Arizona and northwestern New Mexico. Indian reservations in that portion of our country were subject to substantial leases to coal companies. The

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Navaho and the Hopi Tribes consider themselves, in their approach toward their spiritual being, as having sprung from the soil. They look upon the sheep they attend and the pasturage on which the sheep feed as part of their family. The Black Mesa Defense Fund, organized to bring this spiritual belief to the attention of others in the United States, bought a full-page ad in The New York Times in May 1971. The headline in the ad stated that taking the coal from the Black Mesa was to the Indians like ripping apart St. Peter’s in order to get the marble out of the walls. In other words, the land has the same significance to them that St. Peter’s or the Wailing Wall has for other spiritual beliefs in this country.

This full-page ad followed by a few years another effort to bring to the attention of the American public the effort being made by the Bureau of Reclamation to build dams that would have flooded the Grand Canyon. Two economists took it upon themselves to go before Congress and testify. They argued persuasively that the cost-benefit ratio discount factor had been manipulated by the Bureau of Reclamation. They said, in fact, that if a proper factor were used then the cost would be greater than the benefits, contrary to what the Bureau’s cost-benefit ratio had indicated. With the help of these two economists and another full-page ad in The New York Times, the proposed dams were not constructed. The Sierra Club, which sponsored the ad with regard to the dams proposed for the Grand Canyon, attacked the argument made by the Bureau that if the Grand Canyon were flooded, it would then be possible to take a boat, go out on the water, and see at close range the formations that were above the water. The Sierra Club’s headline proclaimed that this was like filling the Sistine Chapel with water so one could lie on one’s back and have a better view of the ceiling!

In 1949 an anonymous publication appeared entitled A Sand County Almanac, which was later found to have been written by Aldo Leopold. He lamented the fact that we still considered land, soils, waters, plants, and trees only as a type of property right. He

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30 A. LEOPOLD, A SAND COUNTY ALMANAC 219 (1966 ed.): “The land ethic simply enlarges the boundaries of the community to include, soils, waters, plants, and animals, or collectively, the land.”
pleaded for some different approach in order to avoid the ecological collapse that was possible if we continued along the road followed prior to the time when concern arose for the life support systems on which we depend.

Leopold said, "[t]here is as yet no ethic dealing with man's relation to land and to the animals and plants which grow upon it. The extension to ethics of this . . . element . . . is an evolutionary possibility and an ecological necessity. A land ethic of course cannot prevent the alteration, management and use of . . . 'resources'; but it does affirm their right to continued existence, and, at least in spots, their continued existence in a natural state."

Dr. David E. White, Professor of Forest Economics at West Virginia University and the Director of Forestry, made a trip to Norway in 1971. Following his return he wrote an article for publication in the *West Virginia University Magazine* under the title, "Frontier Mentality Threatens the Development of West Virginia." He pointed out the very small amount of land which is capable of cultivation in Norway, much of which is north of the Artic Circle. But he also pointed out that the portion of the land that is subject to cultivation has been balanced between man and nature. White said:

[N]owhere is the conscious effort toward harmony between man and land more evident than in the Easterly Valley where the beautiful Glomma River flows through the County Stor-Elvdal on its southward journey to the Oslo fjord . . . the natural features such as the moors, the spruce-covered slopes, the rocky outcrops, and the river, seem to be complemented by the signs of man's tenure—the cultivated fields, the hedge rows, the thrifty farm buildings and occasional hunters' cabins, and the grazing farm animals. As I viewed the scene before me, I thought of Aldo Leopold's words: "When we see the land as a community to which we belong, we may begin to use it with love and respect. There is no other way for land to survive the impact of mechanized man, nor for us to reap from it the aesthetic harvest it is capable, under science, of contributing to culture. That land is a community is the basic concept of ecology; but that land is to be loved and respected as an extension of ethics."

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31 Id. at 217.
32 *West Virginia University Magazine*, Fall, 1972, at 23.
33 Id.
The third important aspect that ecology, sometimes called environmental concern, has brought to us is the realization that we cannot continue to operate on a crisis-oriented basis. Much of Part One reviewed the unsatisfying history we experienced because of the lack of a plan that provides both short range and long range goals for the future.

Congress in 1969 passed the National Environmental Policy Act (NEPA) which became effective January 1, 1970.\textsuperscript{11} President Nixon heralded the enactment of NEPA as the commencement of the decade that would be devoted to the environment. Of course, since that time, we have experienced the development of serious problems to be discussed next—the economic problem and more recently the energy problem.

The important aspect of NEPA from a lawyer’s standpoint is that the act looks forward whereas law is generally oriented to be considered after the fact. Typically, the law compensates a person for loss, damage or injury already done. NEPA attempts to prevent loss or damage by seeking to look ahead and to ferret out both unwanted by-products of an otherwise socially desirable goal and the benefits sought to be achieved from the realization of the primary goal. It is appropriate to borrow from our medical brethren at this point. Recall the ravages that poliomyelitis produced just a few years ago, before Dr. Salk worked out the sugar cube which prevented damage that in many instances couldn’t be compensated for by all the money in the world. We can look with confidence toward an increasing development by lawmakers in seeking ways to prevent unwanted consequences instead of attempting to compensate for them after they have taken place.

Let’s turn now to the second of these three components—economics. The first point I shall make with respect to economics involves how we are going to fund the necessary amount of research, development and construction required to supply the anticipated amount of energy demands expected during the next ten, fifteen, twenty years and to the end of this century. The Ford administration has proposed that the federal government spend at least a hundred billion dollars in an effort to pay for the necessary amount of research development and to allow the completion of fossil fuel and nuclear power plants that have been halted mid-way

through construction because of the inability of private utilities to continue to fund those plants. It is estimated that one hundred billion dollars is about one-seventh of the total amount of money needed. We are talking about vast sums of money. Thus economics is intricately related to ecology, biology, and energy development.

West Virginia has been singled out more than once as an area in which the economy has not developed to the degree that the natural resources and the quality of its citizens deserve. In 1972 the state had about 1.8 million people in its 55 counties. The population was distributed with about 30% in the nine southern most counties and with the balance in the other 46. These nine southern counties account for about 70% of the coal. One-third of the land in these nine counties was at that time owned by nine corporations. Over 50% of the land in these counties was controlled by the top 25 land owners. Of the nine corporations, only one was a West Virginia company doing business principally within the state. The richest coal producing county, McDowell County, was the largest producing county in the nation and 7 out-of-state corporations owned 76% of that county’s land. Between 1950 and 1970, McDowell lost nearly half of its population. In 1971, almost 1/3 of all the families in the county had incomes less than $3,000.00. More than half of the adults had not gone to high school. And yet the annual revenue of West Virginia amounted to some 600 million dollars. New sales for corporations were over 760 million dollars. It seems fair to say that these corporations exploited the state and “they were careful to place their people where necessary to protect their interest and and disregard the destruction of Appalachia’s long-term economic base.”

This is a situation involving natural resources and economics that needs to be restructured so that the economic values of the natural resources of an area can somehow be distributed on a more equitable basis than we have been able to achieve in the past.

The term used by economists to describe the way in which this sort or economic distortion has developed and which also describes the lack of concern for our natural environment is the same term

36 Id.
37 Id.
Dr. White used, a "frontier type of thinking". There is no longer any reason to continue to think on a frontier basis. Such thinking results in inequities in the utilization of natural resources and in the economic resource base of the state.

Dr. Kenneth Boulding has used the term "cowboy economy" to indicate the limitless sort of expanse that cowboys were supposed to have enjoyed yesterday. Boulding states that a more appropriate term to use today is "spaceship earth." He insists that an economist's standpoint demands a different set of approaches in thinking about how to treat land, water, plants, and animals.

Dr. Walter Keller has devoted much time attempting to determine procedures for reconciling the more easily quantified values with which economists are accustomed to working, with values that are very difficult to quantify, such as how much a tree is worth, or how much a free flowing stretch of water is worth. Dr. Keller is one of the first to admit that the gross national product is illusory in that it doesn't take into account much of what should go into our pricing system. Frequently somebody else uses and benefits from much that the general public pays the cost of.

The single most important aspect of the way in which the free market has not taken into account the true cost of much of what we have done results from looking upon land and air and water as a free good. That is, one into which unwanted side by-products can be disposed of through what we call pollution of the air or the water or the land. There is no economic cost associated with that discharge—or there wasn't until the attempt to clean-up water and air, land and noise, by the federal Congress. Economists refer to this as an externality. In other words, if one walks down the street and another is driving an automobile which has no exhaust controls on it and one doesn't own an automobile, then he suffers a potential health hazard as a result of breathing noxious fumes, potentially lethal fumes, and yet receives no benefit from the other's driving. Economists have now recognized that we must build into the pricing system the true cost of the generation of electric power, for example.

The next area in connection with energy strikes right at the jugular vein of the question of energy in this country. The fumes from the stacks of electric generating plants contain particulate matter and sulphur dioxide. The necessary equipment to scrub, clean or prevent much of those pollutants from coming into the air has been technologically feasible and available for some time, but electrostatic precipitators are not installed because to do so would make electricity more expensive to the individual consumer. Yet, as a social group, consumers pay another price. Some develop lung disorders, or disorders of other types that some are more sensitive to than others. So there is not a nexus between the use of the product and the full payment of it.

Electricity serves as a good focal point for considering how much growth and how much production we may look forward to. How much of our energy has been used in the generation of electric power? A native of Australia needs about 150 watts of energy per year, largely in the form of food, to survive. By 1905, in the United States, we were using 4,500 watts per person to keep ourselves moving around, fed and living at the level that had been achieved at that time. By 1973 the per capita amount of energy was about 13,000 watts per year. By contrast the other highly industrialized developed countries, Germany, Great Britain and Russia, were then using a third to a half per capita of that same amount of energy. It seems fair to ask how we became so extravagant in our attitude toward the utilization of energy, and why we felt we could use it so extravagantly with such disrespect for what was taking place in association with the generation of electric power?

By 1960, the United States had reached a point where it was doubling the quantity of electric power generated about every ten years. A study, commenced to determine where this electric power was being utilized found that it was being utilized for heating and air conditioning of homes, for commercial establishments, to some extent in the industrial sector, and to a very slight extent in the area of transportation. Most of it, though, was used in ways for which substitutes were available to supply the same sorts of necessities and amenities. Yet an almost unbelievable singlenessidedness continued to increase the generation of electric power.

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42 Id. at 22-24.
the same time, we were using petroleum at a rate, which if the annual increase of number of automobiles were to continue, would exhaust the entire known petroleum reserves in the United States through utilization of it primarily for transportation by the year 1985 or earlier.42

We have very good estimates made as early as the late 1950's by persons such as Dr. M. King Hubbard who was a consultant to the United States Geological Survey and to the Gulf Oil Corporation. He predicated that by 1969 we would have reached our peak of domestic petroleum production.43 But nobody believed Dr. Hubbard until after 1969! Then, everyone believed him. The peak of our domestic oil production occurred in later November of that year. And we have been unable, even with more vigorous efforts in the very recent past, to increase that base of oil and gas energy production.

We also have serious problems with respect to the continued development of nuclear type fuel for use in electric generating plants. Much doubt has developed, not only on the part of the environmental groups, but also among scientists who differ among themselves as to the relative safety of nuclear power plants. Some scientists have grave doubts about their ability to control, not so much the operations of nuclear reactors, but the storage for hundreds of years of the waste by-products of nuclear power. If nuclear fission is therefore discounted as a likely source of future energy, we are going to face in a very short time the necessity to develop types of energy that just a few years ago would have been considered science fiction. Those are the types of energy that harmonize with ecology and with economics. Solar power and wind power present very real possibilities for future development. They could be developed in areas of public domain, as energy farms or energy parks. In such an energy farm or park solar energy and wind power could be harnessed, collected and then transmitted from distant parts of the country just as electric power is presently distributed from the northwestern corner of New Mexico where the four corners plant is located and the power is consumed in San Diego and Los Angeles.

42 Id. at 24.
I want to suggest finally that with this new technology we are also going to have a different approach to the way in which we consume energy in the future. We are going to be much more of a saving society than a consuming or spending society. One need not look upon this as a reduction in the standard of our living because we could achieve the quantity of saving that we need to achieve if we made just a ten percent reduction in the quantity of energy that we use per capita each year. That is not enough to alter, except perhaps to improve, the quality of the way in which we live our lives.

The Wall Street Journal of August 14, 1975, reported that we are not alone in this recognition and realization. The Russians, according to The Wall Street Journal, have begun to stress the need for energy conservation. In June of this year, the Soviet Council administers called for special attention to all around economy in the utilization of fuel resources. That nation, with a government and philosophy very different from ours, is facing a common problem with us. The degree to which we have not been saving or the degree to which we have been wasteful apparently has been universal.

Finally, to borrow from the words of Dr. White in closing, "[h]ow are we to overcome the frontier mentality in our planning? How are we to avoid selfishness and to counterbalance with social purpose materialism? I don't know. But I suspect that Leopold has the best answer: 'when we see land as a community to which we belong, we may begin to use it with love and respect.'"

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44 See MACDONALD, supra note 40, at 26.  
46 See WHITE, supra note 33, at 27.