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Re-thinking the Obvious: Modernity and Living Respect-
fully with Nature

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Three men enter a motel hoping to obtain a room for the night. To save money they decide to share. The desk clerk tells them a room is \$30.00. Each pays \$10. After they have left the manager tells the clerk the room is actually \$25. He sends the clerk to their room with \$5 to refund to its occupants. On the way over the clerk decides it is too complicated to divide \$5 three ways, and so pockets \$2, giving each of the men \$1. \$10 minus \$1 equals \$9. Three times \$9 equals \$27. The desk clerk kept \$2. Where is the other dollar?

The facts are accurate but the way the problem is presented prevents its solution. I think many environmental analyses of the modern world commit a similar error. The facts they present are accurate, but the way in which they are presented precludes our finding insights which may be essential to discovering how human society might be brought into harmony with its natural environment. The difference between these two cases is that we know for sure that something is fishy about the brain teaser, while no such assurance of error accompanies the doomsday scripts so common within the environmental movement. They might be true. But they might not. Consequently we need to be very careful about how the problems they describe are presented.

The high stakes behind the environmental challenge makes it important that our description of the problem does not preclude our finding its solution, if one exists. The sheer magnitude of the contemporary threat to nature from unchecked industrialism, population growth, and the pillaging of what natural areas still survive can easily breed despair on our part. There is no lack of instances where human societies decisively degraded their environment, ultimately undermining their own well being as well as that of the nonhuman world. Over population, destructive agriculture, short sighted forestry, and warfare have brought more than one culture to ruin, even when more perceptive observers could see where events were taking them.

Despair grows when we contemplate the failure of so many earlier societies to solve their environmental problems, and see that ours is committing the same kinds of mistakes on an even larger scale. But the present environmental crisis is much more complex than earlier ones. Because modern society is qualitatively different from previous kinds of human communities, old problems recur in new contexts and new problems have arisen as well. Pollution of entire seas, ozone depletion, production of enormous numbers and amounts of untested chemicals, and global warming simply were not issues in earlier times, but they are now.

The preceding should tell us one thing for sure. If a solution exists, it will be found in significant degree in how the modern world differs from earlier societies. I will argue here that the modern institutions so often blamed for our present problems are quite ambiguous with regard to their long term implications for the environment. On the one hand, they are responsible for the greater scale of traditional environmental problems and the presence of new ones. On the other, and this is what too many environmentalists have ignored or discounted, they inject new elements into the human relationship with the rest of nature which may powerfully assist in any ultimate reconciliation. In this paper I will emphasize this latter point: that modern institutions contain important elements contributing to any lasting solution to humankind's relationship with the rest of the world.

I am sure I do not have to remind my readers of the enormous environmental destruction perpetrated upon the natural world by modern institutions. I assume here that we all agree that the increased scale of human activity, and its general subordination to the priorities of big organizations, have had an enormously destructive impact upon the diversity of life and the ecological health of the planet. I agree that deep and profound changes are needed in the way modern society relates to its environment if we are to establish a respectful relationship with wild nature. And I also agree that these changes are anything but guaranteed. It is easy to become depressed by the many and all too accurate accounts of environmentally destructive actions by corporations and governments, and by their ineradicable propensity to lie to and generally mislead the general public about what they are doing. But, as with the recital of facts in the brain teaser, this perspective, while accurate in its particulars, may be very incomplete in the pattern it describes, and so unintentionally hide possible avenues towards solutions to the problem.

What is Modernity?

Political economy is the study of the relationships between two institutions characteristic of the modern world: the representative democratic state and the market economy. Neither have close equivalents in earlier times. What both have in common, and which sets them off from premodern equivalents, is the formal equality in legal status of all people acting within their confines or living within their jurisdictions. The sole significant exceptions are children and noncitizens. And the former automatically become equal members upon attaining a common minimal age.

One of the most distinguishing features that sets the contemporary world apart from earlier kinds of human society is its inhabitants' overwhelming reliance on abstract procedural rules, ideally applying equally to all, to guide interactions between one another. Such equality in status means that individuals can choose

for themselves what purposes they will pursue and with whom they will pursue them. No hierarchically imposed order of values or purposes governing the society as a whole.

A society whose residents enjoy equal legal status cannot be ordered as a hierarchy, although hierarchies may exist within it. Within modern societies what status differences do exist, such as a person's standing within a corporation, are subordinated to more fundamental principles of equality of status politically, legally, and with regard to economic transactions. Consequently, as a rule hierarchy exists at a subordinate level, within a contractual context which always implies the importance of consent. As a result, in the modern context hierarchy normally grows out of mutually cooperative enterprises.

The larger patterns of cooperation that arise within the modern world are spontaneous, in the sense that they are not the deliberate planned outcome of any of the participants. They arise as unintended consequences of people following certain kinds of procedural rules while pursuing their own ends. This is why the market order is almost completely anonymous. The large democratic nation state is essentially the same. When we act within either we can have no significant knowledge of the impact our plans will have upon the order as a whole. As a result, the role played by our personal ethics and values is different than that played in societies largely constituted by face to face and reputational relationships. We have yet fully to come to terms with the different contexts modernity provides us for following our ethical principles.

Because we continually try to apply standards of personal responsibility to systems of interaction whose ultimate impact is not intended by anyone, we are often frustrated by our apparent powerlessness to influence larger patterns of human impact on the natural world. It is easy in such cases simply to blame our present environmental crisis on these impersonal processes, and lose sight of the fact that most large pre-modern societies also generated environmental crises, crises which they failed to solve. Clarity of relationship need not guarantee good outcomes, and the spontaneous orders of the modern world may bring unexpected benefits to solving the challenge of living in a good way upon the Earth.

I will argue here for the counterintuitive notion that the modern world may have unintentionally created four fundamental changes in human society which promise a potentially harmonious future relationship of humankind with the rest of nature. These accomplishments are unique among human civilizations since the development of the first agricultural cultures. They do not guarantee that we will manage to harmonize humankind with the environment, but they make such harmony possible in a far more fundamental way than could heretofore have been hoped. Because of them, and despite the present holocaust devastating the natural world, humankind may in due time learn to act as, in Aldo Leopold's words, a "plain citizen" on this sacred Earth.

Modernity's Four Environmental Achievements

I will summarize these four achievements, and then explore each in greater detail. The first is that, by freeing the large majority of people from direct personal dependence upon agriculture, the average citizen of the modern world no longer is personally preoccupied with struggling against and controlling nature. Second, by eliminating the economic value of children while reducing the importance of physical strength in almost all human activities, the modern world has created powerful pressures able to reduce our population in absolute terms. Third, with the political and economic rise of liberal democracies to world dominance, the majority of humankind now lives within political systems which do not fight wars with others of their own kind. Fourth, we have shifted the character of production from reliance primarily upon physical matter to increasing reliance on kinds of capital which can increase without any increasing demand upon physical resources - and even decrease our need for physical resources.

Some of these claims are often disputed in environmental circles, and other points are usually ignored. There are also countervailing pressures. But before we can evaluate these counter arguments and trends we need to understand the assets which modernity brings to humanity's task of harmonizing our relationship with the natural world. Without understanding them, simply listing the problems and challenges brought forth by the modern world can quickly seem overwhelming. When we are overwhelmed we cease looking for solutions and retreat into passivity, strike out blindly, or simply become scolds.¹

I. Agriculture, Cities, and the Control of Nature

It may be, as Paul Shepard argued, that humanity's happiest state existed when we lived in widely scattered hunting and gathering cultures. Be that as it may, for thousands of years this has not been a viable option for most human beings. It is certainly not the case today. We need to remember that because they were so thoroughly integrated into natural rhythms, hunting and gathering societies appear to have been vulnerable to population pressures, the local extirpation of game, climatic shifts, and other challenges. In responding locally to these challenges, some were most likely ultimately pushed towards adopting settled agriculture as a way of life.

Richard Nelson relates a story told by the Koyukon Indians of Alaska: "Some of these young kids, one time they asked Chief Henry if it wouldn't be better if the white man never came around here in the first place. He looked at them, and all he said was, 'Did you ever have to keep alive by eating ptarmigan droppings?'"² Since the intrusion of the modern world into their lives the Koyukon people have ceased worrying about death by starvation. In gentler climes this worry could be dealt with by agriculture, and often was.

Once established, agricultural societies generally became economically and militarily stronger than their hunting and gathering neighbors. Over time they came to dominate those portions of the globe where farming was possible and, after the creation of military technologies requiring factories and settled populations, the rest of the globe as well. Happily, neither Europe nor China need worry any longer about Mongol hordes. Today hunting and gathering groups survive primarily by living in portions of the world of little interest to modern society. Such portions are continually diminishing.

With the advent of settled agriculture nature ceased to be the provider of human needs and took on a far more ambiguous role. The need to wrest predictable production from specific places on the Earth decisively changed humankind's relationship with the Earth, encouraging greater distrust and an increased bias towards seeking control and domination. Concepts such as "weeds," "vermin," and "pests," are far more characteristic of agricultural societies than hunting and gathering ones, because it is in that context that the presence of uncontrolled beings is most undesirable.

Once established, agricultural societies were almost never able to return to pre-agricultural ways of life. One of the few exceptions were some plains Indian peoples of North America, where the arrival of the horse allowed a brief return to a hunting and gathering life, before European invasion ended it for good. Usually the cultural dynamic was in the other direction. The population growth made possible in farming societies pushed them towards greater expansion and more intensive use of agricultural lands.

Spiritual values could modify this more antagonistic relationship of human beings towards nature, but they rarely overcame it. In the Bible, which is usually interpreted as an anthropocentric document, God commands "Defile not therefore the land which ye shall inhabit, wherein I dwell; for I the Lord dwell among the children of Israel." (Numbers 35:34) Nor was the Sabbath simply for human beings. In Leviticus 25:2-4 God says

When ye come into the land which I give you, then shall the land keep a sabbath unto the Lord. Six years thy shalt sow thy field, and six years thou shalt prune thy vineyard, and gather in the fruit thereof; But in the seventh year shall be a sabbath of rest unto the land, a sabbath for the Lord: thou shalt neither sow thy field nor prune thy vineyard. That which groweth of its own accord of thy harvest thou shalt not reap, neither gather the grapes of thy vine undressed: for it is a year of rest unto the land.

Animals were to be included even more often. Exodus 24:12 commands "Six days thou shalt do thy work, and on the seventh day thou shalt rest: that thine ox and thine ass may rest, and the son of thy handmaid, and the stranger, may be refreshed." Clearly the land and animals have a right to consideration

over and above their utility to human purposes. But these, and many other, spiritual considerations were often set aside whenever the chance to make money intervened. And with agriculture, opportunities for trade and for the greater accumulation of wealth, became increasingly frequent. I have never yet heard so-called "fundamentalists" choose to follow, or even acknowledge, these particular quotations when discussing environmentalism. Japan demonstrates that Pagan and Buddhist societies need be no better.

As agricultural societies became wealthier, increasingly production could be for sale rather than for use. The opportunity for acquiring increasing wealth has always been a powerful force for forgetting or loosening ethical constraints. As the commercialization of agriculture progressed, the incentives for adopting the logic of domination over the land and its inhabitants only increased.

The inherent antagonism of commercial agriculture to natural processes marks a fundamental inadequacy of Wendell Berry's moving paean to the virtues of small scale farming. In their pursuit of wealth, America's small farmers eradicated the forests of the East, and many of the larger animals that lived there as well. Many contemporary Western farmers and ranchers are no more enlightened. Alexis de Tocqueville observed of American farmers in 1840, when agribusiness was unknown, "Almost all the farmers of the United States combine some trade with agriculture; most of them make agriculture itself a trade."³ The pursuit of the almighty buck has long been a tradition of American agriculture.

I agree with Berry that, compared to agribusiness, small farms are generally preferable in terms of local culture and sensitivity to the needs of the land. But to the extent that commercial interests motivate him, the land to which the farmer is sensitive is only "useful" land. Wild land is "waste." The major difference between agribusiness and small farms is that individuals often own land and farm because they like doing so, as well as to make a living. These more complex motivations allow for additional values to enter into a farmer's decisions of how to treat the land. A corporation is largely incapable of caring about anything but the bottom line. Even so, we should not put on too rosy a set of glasses when looking backwards at the time when we were a country of small farms. A small farmer intent on maximizing his income is no less rapacious (per unit of land) to native animals and plants than a corporation.

Small scale agriculture is part of the solution to resolve our crisis with nature. But in the absence of other values and other institutions the well being of the land and its wild inhabitants will still remain ultimately subject to purely commercial standards. A farmer who farms because he loves to farm, and makes money so that he can continue to do so, can be ecologically beneficial. But a farmer who farms mostly in order to make money is always a threat to his land and to the environment generally.

Yet there is a paradox here. Because he focuses almost entirely upon the harm done by modern society to farmers and the land, Berry misses it. As agricul-

ture became increasingly productive and exploitive of nature, it also steadily decreased the number of people required to grow its products. Increasing numbers of people moved away from farms to the cities. To be sure, governmental policies accelerated this transition. But even in their absence there would have been a marked growth of cities and decline in the number of people practicing agriculture. Political intervention and lobbying by special interests accelerated and intensified a process which would have happened in any event.

People in the cities are insulated from direct dependence upon nature. This automatically changes their perception of it. To a large extent city dwellers now go into nature seeking personal renewal and spiritual insight. For them, nature as a storehouse of material products has become less important than nature as a provider of other values. With their lack of daily intimate exposure to the natural world comes ignorance. Sometimes urbanites' ignorance of nature takes on ludicrous forms, as with animal rights advocates who disapprove of predation in the wild.⁴ But at a more profound level we find even in these people a refusal to consider animals simply to be objects more or less useful for human purposes.

The greater respect for nature's intrinsic value on the part of urbanites is part of a recurrent pattern with respect to the power of moral values in the modern world. It was Whites in free states who most strongly opposed American slavery, in part because they had no direct personal stake in perpetuating it. Therefore they could make a more balanced ethical evaluation of it. One hundred years later the same pattern repeated itself in the Civil Rights movement. It was northern whites, and not those who lived in the South, who provided the all important element of White support for the abolition of legally mandated racism. As a group, we waffle and rationalize when our personal well being is linked with exploitive practices. When it is not, we see ethical issues much more clearly, and can often act bravely because of them.

An agricultural expert will have vastly more knowledge of the natural world than the average city dweller who visits a national park. But that knowledge will be focused upon how the natural world can be manipulated and controlled, so as to be reliably put to work satisfying human needs and desires. A city dweller's sentimental attachment to natural beauty will seem pretty weak stuff by comparison. But it is precisely urbanites' perception that nature is more than simply a fund of resources that gives hope that humankind will ultimately come to live in harmony with the rest of the world.

It is no accident that in the United States environmentalist sentiment has often been rooted in its cities. As society urbanizes it develops a population far more receptive to ecocentric values than was earlier the case. For example, in a comprehensive study of American environmental values 90

I think there are two reasons for this urban based affection for the natural world. First, as mentioned, urbanites are personally insulated from a predatory interest in the natural world. For example, many factors pressure ranchers and farmers

to kill predators or suck rivers dry. Greed is a major one. Poor ranching and farming practices is another. Pressure to preserve predators and protect rivers comes almost entirely from urbanites.

Second, people living in cities are surrounded by a completely artificial environment where virtually everything in sight was built for economic reasons, and will last only so long as its persistence is profitable to someone. Urban parks and backyards are controlled by human purposes to a degree that even the most "managed" national park is not. In a secular society such as ours the only place most people can go truly to experience values that are not the outcome of someone's plan to make money or court admiration is in nature. And everyone needs exposure to such values.

For example, even while the population of hunters is falling, the number of birders, photographers, hikers, and the like continues to grow. Some environmentalists peevishly argue that outdoor recreation can be nearly as exploitive of nature as extractive industry. This is largely hooey. To be sure, ski resorts, especially those cancerous growths that bloat into destination resorts, are a blight. But there is nothing about most recreational uses of nature that need be destructive of ecosystems. While in the summer the valley floor is incredibly crowded, Yosemite's back country receives only a tiny percentage of the park's visitors. Most of them stick to trails. The most popular trails into Yosemite's back country can be relatively overcrowded, but most of the backcountry has no maintained trails of any sort. A couple of years ago on a fall backpack through Yosemite's high country, once I left the maintained trails I did not see a person until I returned to maintained paths. And even a crowded trail is a far cry from clearcuts, dams, and fields of crops.

There is a great deal about the pure logic of agriculture, especially commercial agriculture, that is necessarily destructive of natural values. By contrast, outdoor recreation need not be predicated upon control of nature, although some types of it certainly are. It is a mistake to equate soluble environmental problems that come from uses such as recreation with activities whose internal logic puts practitioners in the position of trying to control and channel nature to their own ends.

The rise of an urban based and dominated society creates a deep popular reservoir of support for preserving environmental values free from commercial exploitation. So far as we know, no society since the demise of hunting and gathering peoples has possessed such an attitude on the part of a majority of its members. Environmentalists who pour scorn on cities and urbanites need to think deeply about this fact.

II. An End to War

Throughout history war and the preparation for war has been one of the most environmentally destructive of human activities. In classical times the Mediterranean region suffered severe deforestation and worse in no small part due to incessant warfare. Many a European and Asian forest was felled to provide wood for ships. Destruction of the enemy's farmland was also a common element in pre-industrial warfare. Modern war is even more environmentally destructive, particularly with the manufacture and use of nuclear weapons.

The logic of war, and of preparation for war, forces a society to evaluate everything in terms of its security. Economic development contributes to a society's military power. So does population growth. Concern with the well-being of the non-human world does not.

However, even while the human and environmental cost of war skyrocketed, the world's dominant economic and military powers have slowly become democratic. The true significance of the twentieth century's seemingly interminable wars has been almost completely missed. There has been a clear pattern to these conflicts.

This century began with a war between liberal democracies (allied with Czarist Russia) and the strongest economic and military bulwarks remaining of the old pre-democratic European order. At its conclusion, all major undemocratic powers on both sides had suffered defeat and the destruction of their regimes. World War Two witnessed a second challenge to the democratic world, this time by forces on the antidemocratic political right. It ended with their destruction as well. The Cold War was characterized by a similar antidemocratic challenge coming from the antidemocratic left. That challenge also failed, fortunately without the waging of a major war.

Today, for the first time in human history, the majority of the world's people live within liberal democracies, and little exists internationally to threaten their military, economic, or cultural superiority. Equally important, there is no longer any expansionist antidemocratic ideology possessing much appeal to a sizable portion of the world's people or powers. Representative democracies have become the overwhelming economic, political, and military powers in the world today.

This development is of world historical importance because, alone among human political forms, liberal democracies have not waged war upon others of their own kind. I do not mean to say that such a war is impossible, because we should never underestimate the power of human stupidity and pride. But war is extraordinarily unlikely and, should it break out between two democratic powers, would not turn into a wider conflict. We are leaving one of the most war filled centuries in human history. Because of those wars, the one that we are ushering in may be one of the most peaceful.

There are a number of reasons for this development, but perhaps the most important is that except when faced with powerful external threats, representative democracies do not act as political hierarchies. They consist instead of many competing hierarchies, no single one of which enjoys hegemonic power. It has so far proven virtually impossible for two democratic societies to ratchet up mutual tensions to the point of serious military engagements. Indeed, only in societies where liberal institutions and practices are still quite weak is the possibility of a mutual war at all a cause for worry, as with Greece and Turkey or, less likely, with India and Pakistan. The evolution of peaceful societies brings to a potential end one of the worst scourges of human kind. It also brings to an end the subordination of all values to military priorities.⁶

III. Problems of Population

It used to be that successful families were big families. That is no longer the case. Children in the developed world have ceased to be economic assets. Instead they have become increasingly expensive members of the household. In economists' amoral terms, children have shifted from being capital improvements to consumer goods. With every rise in the cost of education and increase in the technical skills needed to make a decent living, this pressure increases because there is a longer and more expensive gap between children's birth and the time when they can begin supporting themselves.

At the same time, the rise of technology in production has expanded the range of choice for women in particular far beyond what it was in pre-industrial times. Indeed, this expansion has taken place at a much faster rate than cultural attitudes have changed. The result is a widespread and quite justified awareness of the harmful impact sexism plays within the workplace. And with that awareness come efforts to reduce it. For my purposes, what is important is that these expanding opportunities for women have occurred simultaneously with the rising costs of raising children.

Related to these changes, the importance of familial ties has declined markedly. Expanding opportunities have weakened the tendency of children to follow in their parents' footsteps. The nuclear household maintains weaker ties with more distant circles of relatives. This development is commonly perceived as mostly a loss, and indeed, loss has taken place. But at the same time the role of chosen friendships outside the family has increased. As family ties weaken concern with the family's strength across generations weakens as well. This further reduces pressures on younger generations to have lots of children.

While critics of modernity, including many environmentalists, have considered such a weakening of family ties to be pure loss, they are in error. To be sure, a life without intimate attachments to concrete people and places is an impoverished

thing. But a life largely ignorant of different people and different ways is also impoverished. And this latter way of living has historically fostered suspicion of strangers and other ways of living. In my own case, as a child I and my brothers were frequently told "people are no damn good" in an attempt to build family solidarity.

At their best, local communities and strong familial ties are wonderful, at their worst they are terrible beyond words. Weakening ties weakens bad and good alike, but unevenly. The bad is the more weakened because fleeing from it becomes easier. The good can be maintained to the extent participants want to do so. And other horizons are widened in the process.

The result of all these changes is smaller families which, in Europe and the most prosperous and non-immigrant portions of the US, have reached zero or negative population growth rates. Indeed, the European and Asian American population of North America has been at below-replacement fertility rates for at least 25 years. Today's American population growth is entirely a result of immigration, and the larger families which characterize immigrants. This situation is also a first for the human race. It suggests that growing well being may ultimately lead to a decline in the number of human beings.

The obvious and common response to this point by many environmentalists is that while in the absence of immigration the developed world's population is stable or even falling, each member of the developed world consumes far more resources than people in less developed regions. In its most important details I think this argument misses the point, but addressing this important criticism takes us to the fourth major change.

IV. The Changing Character of Capital

Capital combined with labor makes modern production possible. Capital is usually considered a material resource with money being its most valuable form because of the ease with which it may be exchanged for any other resource. This traditional notion of capital is too simplistic. Capital takes three forms: material, human, and social, and over time the latter two grow in importance.

Human capital is knowledge able to be employed in the production of goods and services. It can include both physical skills and knowledge, which can be appropriately termed intellectual capital. Significantly, intellectual capital can to some degree be substituted for physical capital and, as it expands, dependency on physical capital can to some as yet undetermined degree be lessened.

Social capital is a more difficult concept to grasp. In Robert Putnam's words, social capital refers to "features of social life - networks, norms, and trust - that enable participants to act together more effectively to pursue shared objec-

tives.”⁷ The greater the social capital the more easily groups and societies can cooperate for mutual benefit. As with physical and intellectual capital, social capital is unevenly distributed within and between human societies.

For my purposes social and intellectual capital are the most important of the forms capital takes. Liberal modernity is largely the product of an increase in social capital which enabled some Western societies to develop modern economies. These economies generated the economic and military power sufficient to dominate societies far more numerous than they. The usual explanation, that Western expansion was based upon the exploitation of other peoples, puts the cart before the horse. It cannot explain why a small island off the coast of Europe was able to control most of Africa, South Asia, Australia, northern North America, and countless islands and footholds in Central and South America. It cannot explain the success of French, Danish, Belgian, and other Northern European imperialisms either.

Many societies throughout history have plundered one another, but never developed anything approximating modern economic and military power. Even Spain, the first Western society to plunder North and South America (locals did the plundering before the Spanish arrived), failed to develop such an economy and military capacity. The crucial factor for such economies was not physical wealth, for if it were Spain, controlling the gold of the Americas, should have been the crucible for European industrialization. Instead, what proved decisive was social capital which, by easing traditional barriers to cooperation, enabled far more intricate and powerful networks of cooperation to arise than had ever before been the case. The reliance of the modern world on abstract, formal, and purely procedural rules has often been criticized, and many of these criticisms have weight. But too little appreciated is the insight that such rules make human collaboration easier by reducing the extent of agreement necessary for cooperation to be mutually productive.

Here, again, modernity’s critics usually have it backwards. They emphasize competition as modernity’s defining characteristic. But the competition which is most unique to the modern world is the inevitable outgrowth of interrelationships between different cooperative groups, usually called companies, to win business from consumers. This kind of competition is the unavoidable outgrowth of people freely choosing among goods and services. All the other kinds of competition we see today, such as that for jobs and status, are hardly unique to the modern world. Consequently, the popular focus on competition as the underlying feature of modernity is a misdiagnosis.

As cooperation becomes more complex, specialized knowledge becomes increasingly important in determining what can be produced, and how it can best be done. As a result, intellectual capital has grown increasingly central within the context of the modern world. The growth of intellectual capital has two paradoxical impacts upon physical capital. First, and most worrisome, it continually finds uses to which things can be put. Once something becomes a product, it

will then be manipulated and shaped along a fairly narrow set of criteria, so that, for example, forests become tree farms. But at the same time, intellectual capital enables more to be done with less, so that, to use the same example, according to some foresters tree farm technologies would enable the entire world's present need for timber resources to be met from 200 million acres, an area slightly smaller than Venezuela.⁸ Since much forestry today is for fiber, there is the possibility of much timber land being saved by growing high fiber short lived crops such as hemp.

It is the social division of knowledge, combined with institutional arrangements which make it possible easily to employ that knowledge, which is now decisive for determining not only a society's prosperity, but also its influence upon others. That is the fundamental reason why societies which are relatively poor in natural resources, such as Hong Kong, Japan, the Netherlands, and Denmark are often far more prosperous than societies which are rich in material wealth but suffer a lack of intellectual and/or social capital.

The experience of Russia is sad confirmation that the social habits which generate and sustain social capital cannot be simply assumed. Soviet society systematically destroyed independent networks of mutual trust and cooperation. It rewarded habits which are counterproductive within the institutional context of liberal modernity. Despite abundant physical capital and world class intellectual capital, it is proving difficult for the Russian people to shift from the socialist system which failed them to the liberal system that holds promise for their future, largely because of the lack of adequate social capital within their society, and of institutions able to expand it.

Far from the prosperity of the developed world depending upon its economic exploitation of the undeveloped world, in general the less developed world is becoming progressively less important to the developed world. The overwhelming bulk of trade by developed nations is with one another. The major genuinely vital material not produced mostly from within the developed nations today is oil. Some rare metals such as chromium also come from the third world. But in all these cases their location is an accident of geography. The developed world would get on just as well if these resources were located entirely within their borders.

If recent announcements about advances in fuel cell technologies, electric cars, and hybrid engines is any sign of the future, even petroleum's central place in the world's economy may begin to fade. Indeed, the possible advent of fuel cell technology in power generation and automobile engines also suggests a spectacular example of the substitution of intellectual capital for physical capital. Not only are the ingredients needed for successful fuel cells virtually inexhaustible (stationary fuel cells use hydrogen) their emission of harmful gases is insignificant. Most emit water. Hybrids designed for automobiles also emit CO₂. But should hydrogen be able to be bottled safely for automobile use, they too would emit only water and petroleum would plummet in importance. The first com-

mercial fuel cell automobiles are slated for production by Toyota and Daimler Benz early in the new millennium.

The Partial Decoupling of Society from Nature

I do not mean to belittle the environmental problems of modern technology. But they must be clearly understood. New chemicals, acid rain, ozone depletion, and global warming are major threats. But the circumstances which created these problems are not fundamental to modern practices. However, the trends I have just described are fundamental.

The shift of emphasis from physical to intellectual and social capital is of enormous significance with regard to developing a genuinely ecologically friendly society. To the extent that information and technique is enabling more to be done with less, what is happening is a partial, but very significant, decoupling of human society from the natural world. We do not need raw materials so much. Societal evolution is increasingly based upon information which can be rapidly transmitted within a single generation whereas the natural world is based upon changes transmitted genetically, from one generation to another. 9

This transformation is happening basically for two reasons. First, growing knowledge is making it possible to substitute abundant resources for scarce resources. For example, fiber optics are replacing copper wire, aluminum has replaced tin in cans, and fiber glass and ceramics are replacing many uses of metal. Second, growing knowledge is increasing the efficiency of many products. Today some cars advertise they will not need a tune up for 100,000 miles. Substitutability and efficiency partially decouple us from our dependence upon natural resources, that is, upon physical capital. These are two of the reasons why Paul Ehrlich lost his famous bet with Julian Simon over whether natural resources would rise or fall in price.

A third reason is more troublesome, and demonstrates that we cannot simply assume that, left to its own logic, liberal modernity will inevitably solve our environmental problems. Very often, particularly in less developed regions, the price paid by the resource extractor does not come close to the costs imposed upon the environment. When prices do not adequately incorporate the costs of many activities, they serve as misleading guides for people making production decisions. Prices only work when they incorporate a reasonable approximation of the true costs of production. I will explore this point at greater length below.

An additional danger of a partially decoupled society is that there is no linkage between social and individual time horizons in either government or the market with recognition of the time needed to preserve sustainable resources. At least traditional farmers were compelled on pain of starvation to preserve the fertility of their land. This weakened linkage is a major source of the dangerous tendency

of many modern practices to destroy their natural environment. For example, if substitutes can be found for a natural resource there will be little or no economic motivation to preserve it. This is a major weakness in "free market" environmentalist thought. But at the same time, this decoupling has resulted in more sophisticated technologies and networks of human cooperation which sometimes treat the natural world more benignly than before, and potentially can do so even more.

We can now return to the point made so often by some environmentalists: that the greater consumption by inhabitants of developed nations is a bigger environmental problem than those created by larger numbers of third world peoples who individually consume much less. For the most part, no. Most of what is consumed within the developed world has been produced within that world. This point includes most material goods. As substitutability increases and more is able to be done with less, levels of consumption need not be correlated with ecological degradation.

The recent spread of manufacturing to less developed parts of the world is modifying this point, and it will do so ultimately by having these societies join the ranks of the developed world as well. To the extent that they do so, their presently artificially inflated populations will come under pressures to decline, and the influence of all the other factors I listed above will probably grow as well. Until that happens the natural environment in their regions will be assaulted by both the problems of overpopulation in traditional economies and the capacity of modern resource extraction methods to do enormous damage when they are shielded from paying the costs of their actions.

These four accomplishments of urbanization, an end to war, declining population, and the shift of emphasis from physical to social and intellectual capital mean that it is not simply utopian to envision a society which is serving a stable or even slowly declining population through reliance upon technologies which respect the importance of preserving the health and vitality of natural ecosystems and the forms of life dependent upon them. This has not been a reasonable possibility at any time since the demise of hunting and gathering societies, if then. It is possible today.

But a possibility does not automatically translate into an inevitability. There are plenty of trends able to slow or limit the potentials I have described. But it is not my intention here to explore them, largely because they are well known, to virtually all readers of these pages. I am instead asking what insights the perspective of political economy can offer us into ways to solve the environmental problems confronting our world.

A True Insight

If we probe more deeply into the causes for the enormous creative power unleashed by liberal modernity, we ultimately come to two basic principles, one an important insight, the other an assumption whose validity has rapidly begun to decrease. We need to understand both if we are to discover how liberal modernity might be brought into basic harmony with the natural order which ultimately sustains it.

The insight is that under conditions of scattered and uncertain knowledge and unforeseeable opportunities, leaving decision-making to the discretion of individuals acquainted with local conditions allows for more useful knowledge to be discovered and usefully employed than any other possible institutional arrangement. Central to this insight is awareness that while there are significant differences in individual talents and capacities, people are more equal than not and, equally importantly, their differences are unpredictably distributed among populations. In addition, it recognizes that opportunities are also unevenly and unpredictably distributed across society, and that they must first be discovered before they can be utilized. Awareness of this insight helps undergird the fundamentally democratic and equalitarian ethos of liberal modernity. It is the antidote to hierarchy and status driven societies.

The implications of this insight are profound with regard to environmental policy. The world of nature is enormously complex and often poorly understood. Plant and animal communities vary widely in their basic relationships from one region to another. Often local knowledge will have important contributions to maintaining or establishing sustainable and respectful relationships with the natural world. Consequently, environmental policy needs to make it possible for local communities to make use of knowledge which may not be known by higher levels of political authority. This can be most effectively done if outcomes are specified but the means for achieving those outcomes are left to those most directly involved to determine.

My description of National Forest Trusts in the Fall, 1996 issue of *The Trumpeter* is an example of such a strategy. Incentive-based programs aimed at the recovery of endangered species would be another example of a policy likely to make maximal use of local knowledge and creativity. Such a strategy does not preclude national prohibitions of environmentally destructive practices such as the widescale use of CFCs, but would bias policy makers and environmentalists towards preferring those most able to make use of knowledge not possessed by those in positions of political authority.

A Failing Assumption

The failing assumption is that within a regime of private property rights, most of the negative and positive effects arising from their use will rebound upon the owners of those rights. "Externalities" inevitably result, but on balance they are assumed to be positive. This assumption fails today on both anthropocentric and ecocentric grounds. Beginning first with the human world, the assumption holds that when private property rights are respected, not only will people enter into cooperative arrangements from which they expect to benefit, but also that respect for the corresponding rights of others will prevent some people's use of their rights from impinging negatively upon those of others. The only legitimate exception here is that new exchange opportunities may divert business away from those who had been benefiting from the previous status quo. But such losses are considered basically transitional.

Generally speaking, this assumption ignores those whose needs and wants are not being served and who are not directly losing exchange opportunities from having customers or clients lured away to other providers. It does assume, however, that insofar as needs and wants of others can be anticipated or discovered, a private property regime provides the most favorable circumstances for inducing other people to seek to meet the anticipated desires of others. At this point this assumption integrates with the central insight of liberal modernity that knowledge is scattered and must be discovered before it can be put to use serving human beings.

Within the realm purely of market relationships this assumption often holds true. A regime of private property encourages property owners to be open to opportunities where they can prosper by meeting the needs and desires of others who are in a position to pay. And as the market elaborates itself, the number of people in a position to pay increases.

However, the expansion of market relations begins to impinge upon other kinds of human community where the basic relationships are not those of producers and consumers. More intimate human communities, such as the families, neighborhoods, and towns rooted in face to face and reputational knowledge, are increasingly threatened by the expansion of the impersonal modern community. The internal logic of market exchange encourages the progressive integration of human communities along purely economic lines. NAFTA's threat to local self-governance is a particularly extreme and one sided example of this tendency. As a result, the market place is gradually dissolved into the market order. That is, economic relationships cease being face to face, allowing a variety of factors to enter into exchange decisions, and are replaced instead by completely impersonal and financial relationships instead. This transformation results in important and increasing scale effects.

A face to face relationship can serve a wide variety of needs and goods, in part

because it is intrinsically complex. On the other hand, an impersonal relationship is one which has been simplified to its lowest common denominator, usually price. As the market place is dissolved into the market order, relationships become more and more broad, at the price of becoming less and less deep. The system of cooperation confronting us allows for a progressively smaller realm where our personal values may be effectively expressed.

Systemically the inhabitants of liberal communities are people only insofar as virtually every particular characteristic has been abstracted away from them. It is a community of abstract consumers and, though less so because of the domination of economic values, abstract citizens. The traditional dimensions of human character and worth are largely missing from these abstractions.

For example, large banks cannot economically lend to small scale borrowers needing loans for diverse economic opportunities. When large banks employing impersonal standards take over smaller banks able to use local knowledge, often community residents and businesses are injured. Standardization is the enemy of ecology, whether it be a human or natural one. Yet we are more than simply members of the abstract liberal community of impersonal strangers, however important membership in that community may be.

A second characteristic implied by this dominant view of property rights is that property is inert unless animated by the purposes of its owner. This is the most basic anthropocentric bias in the ideology of modernity. It institutionalizes the status of every human being as possessing despotic power over everything he or she "owns." While liberal modernity continually undermines the remaining areas of arbitrary power of one person over another, it is largely blind to ethical issues of how we treat other beings and nature.¹⁰

Within the basic framework of liberal society, characterized as it is by contractual relations between human beings enjoying equal status, this view of property rights remains largely true. Animals, plants, and the land do not make formal contracts. The assumption's limited and contingent character becomes evident only when we extend our gaze beyond the limits of impersonal liberal society.

Perhaps the first cracks in this institutionalized despotism were limits placed upon how owners treated certain of their pets. Because pets entered into the small scale human community of the family, those who consistently mistreated theirs were judged to act inappropriately. However, animals outside the intimate human community, such as farm animals, particularly those raised for consumption, and wildlife, are given vastly less protection. Even so, laws against the mistreatment of (some) animals mark perhaps the first extension of legal obligations to others outside the human community.

Ecocentric insights take us much farther. In particular, not only are we drawn to a respectful relationship with other living beings in general, in addition we are drawn to understand the importance of limiting the decoupling of the modern

world with the world of nature. In nature virtually every thing produced by a life form is useful to another life form. There is a continual recycling that takes place, helping not only to preserve, but also to enrich the living world. Most contemporary human production does not do this. Modern agribusiness even makes animal manure a poisonous pollutant rather than a rejuvenator of the earth.

Requirements that all products of modern production either quickly biodegrade or be able to be recycled will not bring the modern world to a halt. But they will lead to a revolution in how new chemicals are introduced and in how physical production takes place. Perhaps the simplest way to accomplish such a goal while making maximal use of dispersed knowledge, unpredictable insights, and unknown opportunities would be a graduated tax. It would be highest for products that neither biodegrade nor can be easily recycled. It would cease to exist for those which can. Given the unparalleled capacity for the modern world to discover substitutes, such a tax would encourage the rapid creation of a society which did not pollute its environment or leave unusable waste lying about. The dramatic results of deposit laws for glass demonstrate how effective such measures can be.

Those who recycle waste would receive the tax money collected for products that do not biodegrade. Those who produce rapidly biodegradable products would be free of taxation. Over time the tax rate on harmful products could be gradually raised until they were used only for absolutely essential purposes for which no substitutes had (yet) been discovered. The very creativity which led to the creation of harmful and unusable waste could be harnessed to eliminate it.

Conclusion

The central insight arising from this analysis is that the modern world offers us opportunities as well as threats in trying to develop a respectful relationship with the rest of nature. Consequently, where possible the fundamental institutions of the modern world need to be encouraged to develop in ways harmonious with such a relationship. Reforming property rights and relying upon and enhancing positive incentives for property right holders to use their holdings in environmentally respectful ways holds far more promise than is usually granted.

Second, the moral dimension of environmentalism is becoming increasingly important in human life. Because this moral insight is no longer in as fundamental contradiction with our relationship to nature as it was, it can have greater strength in the public's mind than before. The role of ecocentric thought, far from being largely irrelevant as even many environmentalists claim, helps to provide the ethical impetus by which many people can take their unease with

how the modern world treats nature, and channel it into the political and social energy needed to change that treatment.

Third, while there is great need for institutional innovation, the innovations needed are in harmony with the most basic principles underlying the modern world. Far from attacking the institutions of modernity, they will often prove fundamental elements in any solutions we discover to our environmental crises.

I am well aware that much of what I have written here goes against the received wisdom of many environmental writers, including some whom I deeply respect and admire. I hope this article will spark a debate which will either rapidly demonstrate my errors or will result in a far more thoughtful and wise confrontation between environmentalists, particularly ecocentric ones, and the modern world.

Notes

1 Despite many perceptive observations and much beautiful writing, I think that Jack Turner's *The Abstract Wild* is an excellent, and troubling, example of what happens when despair leads to becoming a scold. (Tucson: University of Arizona Press, 1996).

2 Richard K. Nelson, *Make Prayers to the Raven: A Koyukon View of the Northern Forest* (Chicago: University of Chicago Press, 1983), pp. 214-215.

3 Alexis de Tocqueville, *Democracy in America*, vol. II., (New York: Schocken, 1961) p. 188.

4 Tom Regan *The Case for Animal Rights*, (Berkeley: University of California, 1983), p. 296 and Peter Singer, *Animal Liberation*, 2nd ed., (New York: New York Review of Books, 1990), p. 226.

5 Willett Kempton, James S. Boster, and Jennifer A. Hartley, *Environmental Values in American Culture*, (Cambridge: MIT Press, 1995) p. 258. Cited in Harold Glasser, *Ethical Perspectives and Environmental Policy Analysis*, in *Handbook of Environmental and Resource Economics*, Jeroen C. J. M. van den Bergh, ed., forthcoming.

6 Gus diZerega, *Democracy and Peace: The Self-Organizing Basis for Peace*, *The Review of Politics*, 57:2, Spring, 1995, 279-308.

7 Robert D. Putnam, *The Strange Disappearance of Civic America*, *The American Prospect*, Winter, 1996, p. 34.

8 Mark Sagoff, *Do We Consume Too Much?* *The Atlantic Monthly*, June 1997, p. 90.

9 Biotechnologies promise even to alter the development of many life forms of commercial value. A great many ethical and prudential problems are connected with biotechnology, but a detailed discussion of them will take us far afield of my present task. Suffice it here to say that in my view it is both ethically and prudentially undesirable to allow the patenting of cells, genes, and life in any form. Living beings are not objects. See my *Deep Ecology and Liberalism: The Greener Implications of Evolutionary Liberal Theory*, *The Review of Politics*, 58:4, Fall, 1996, 699-734.

10 I develop the case for how liberal principles can be harmonized with ecocentric thought in my *Deep Ecology and Liberals*.

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