Malcolm Wiener Center for Social Policy

Toward a New Theory of Environmental Society

by

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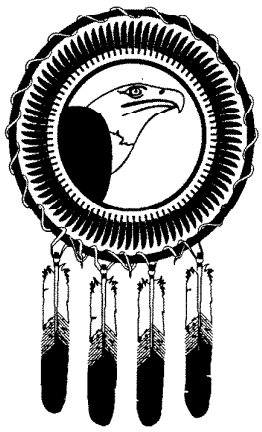

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Abstract

Following Parsons (1957), all societies are ever-evolving systems searching for structural compatibility. Although it cannot be said of today's Native Americans, pre-contact Native American societies had vibrant economies working in *conjunction* with healthy environmental sub-systems. Societies begin to deteriorate when the compatibility between sub-systems is disrupted, which can lead to a spiraling down instead of societal growth. The mainstream society is facing this type of disruption due to increasing environmental problems. At present, much of the work within the wide realm of environmental economics either treats the two sub-systems as combative - exploit or leave alone - or as a simple matter of accurately identifying the costs and benefits. Although recent works, Hayden (1993) and Dietz and van der Straaten (1992) for example, have focused on institutional changes and systemic compatibility, much work remains to be completed in designing the institutions and understanding the systemic linkages. Norgaard (1994) provides the last theoretical linkage with his discussion of coevolution theory. The interdependence between the environment, economic activity, ways of thinking and social organizations, completes the circle back to a discussion of Native American viewpoints. As Momaday (1991) indicated, much can be learned from understanding Native American institutions and systems of social interaction with the environment.

Toward a New Theory of Environmental Society

> ***When the last Red Man and Woman have vanished with the wilderness, and their memory is only the shadow of a cloud moving across the prairie, will the stones and forest still be there? My ancestors said to me, This we know: The earth does not belong to us. We belong to the earth.*** **(Jeffers, 1991, 15)**[1]

The lure of gold and the lust for silver started it. The slaughter of the fur trade and the greed for buffalo skins continued it. Current federal mining law, below market price grazing permits, and the carnage of the rain forests perpetuates it. Additionally, the effluent by-products of industrial production and consumption exacerbate the deleterious effects on Mother Earth.

Modern pop culture describes and prescribes remedies. Theoreticians in a variety of fields indicate the root causes, discuss the validity of policy initiatives, and develop measurement techniques. Miners, hunters and ranchers rant and rave about proposed solutions. Politicians straddle fences. Business executives either fight against proposed regulation or exploit their being "green". International forums are held and treaties are signed. And Mother Earth continues to suffer.

> ***The earth is our mother. What befalls the earth befalls all the sons and daughters of the earth.*** **(Jeffers, 1991, 18)**

In 1994, President Clinton invited all U.S. Native American heads of

state to the White House for a three day conference. The conference focused on improving relationships between the United States government and the Native American governments. Other than giving lip service to the issue, the conference steered clear of the fact that a major resource was available to discuss environmental issues. Never before had so many Native American leaders been present in one location, and the potential of that gathering was lost.

More recently, the change in the national power structure has changed the focus of attention away from environmental protection and toward economic protection. The Clean Air and Water acts, the Endangered Species legislation and other preventative regulations are under attack. The Republican Contract With America proposes new federal that would "require the federal government to reimburse individuals and companies that cannot develop their land or expand their businesses because of environmental restraints." (Grant, 1995, 70) This philosophy is in direct contradiction of the one stating that sustaining the environment with a sustaining economy is possible.

Other newly proposed legislation will limit the federal government's ability to pass new regulations unless it is "scientifically proven" that the benefits of the regulation outweigh the costs. In other words, the economic subsystem is placed in a superior position to environmental, health, and safety issues. The proposed H.R. 1022 would place severe limitations on any new regulations that may result in either supposedly unfunded mandates on

states and localities - such as local water testing - or economic restrictions - such as effluent control.[2]

Norgaard (1994) argues that economic progress within western culture, which has been extremely successful beginning around 1600 and especially since the industrial revolution, came about because of the Judeo-Christian beliefs that humankind has governance upon the Earth. "Many people operate on the ***belief*** that progress will occur through continued technological advance unless ***scientifically*** proven otherwise. (Page 54, emphasis in original.) Alternatively, this belief in progress is the default assumption of modern western culture. However, new realities have invoked the beginning of distrust in the assumption. "During the twentieth century we have also learned that many new technologies not only sequentially deplete different qualities of resources but also degrade the environment." (Norgaard, 1994, 55)

This paper discusses a paradigm for thinking about environmental economics within the framework of several seemingly disjointed ideas. To paraphrase Martin (1978, 166-7): "I propose to answer the question in a round-about and limited sort of way... The question (of environmental economics) is thus circuitously answered ..."

In order to show that Native American environmental philosophy is compatible with a productive economy, a short history of pre-contact and early post-contact[3] economic activity is presented. The extent, duration, and success of Native American economic activity clearly shows that stewardship

of the environment is compatible with economic activity.

This is followed by a brief discussion of Parsonian social theory. Momaday (1970), Deloria Jr. (1970) and others have argued how the path to environmental sustainability can be advanced by adopting Native American philosophies; however, Martin (1978) and others have argued that this adoption is impossible given the mainstream society's social structure. Parsonian theory provides a paradigm for explaining the dynamics of bringing an environmental philosophy into compatibility with a productive economy.

The third facet of the new theory of environmental society involves a discussion of current, and past, thinking about environmental economics. The third main section briefly details various aspects of past theories and methodologies of environmental economics. In particular, the work of Norgaard will be discussed in the context of the newly developing institutional interests.

The fourth and concluding section of this paper presents an assimilation of the previous sections. Following Parsons, societies are dynamic systems of various intertwined sub-systems, and this evolutionary process adjusts depending on the magnitude of alterations in the environment. As such, the mainstream society - and mainstream economists - have much to adopt from Native American economic and environmental philosophies. This does not imply a full reversion to pre-contact technologies and activities. Rather, much like Native American tribes are

adopting aspects of the mainstream economic system, the mainstream economic system can adopt aspects of Native American environmental philosophy. The end result, in both cases, can be improved and sustaining social welfare.

> ***This we know: All things are connected like the blood that unites us. We did not weave the web of life. We are merely a strand in it. Whatever we do to the web, we do to ourselves.*** (Jeffers, 1991, 21)

Pre-Contact Native American Economic Activity

History books tell the stories. Movies show the scenes. Novels explain the tales. More importantly, past and present racism depend on the false facts. And most importantly, past and present federal policy are steeped in the ideal. However, the converse is obviously true: Native Americans had extensive and vibrant economic systems of production and trade during the centuries of pre-contact. These systems were as varied as modern day systems across the globe. Various social, political, and religious structures resulted in a great diversity across the Americas. Variations in climate and ecosystems also influenced the production and trade systems. But the evidence is unequivocal: extensive production occurred side by side with trade activity across the vastness of the Americas.

It is important for the current argument to show a compatibility between a healthy and sustainable treatment of the environmental systems and a prosperous economy. Although there is a vast literature on Native American caretaking, and an equally impressive literature on the extended

trade and productions systems of pre-contact Native America, this paper brings the two together in order to show this compatibility. By viewing the interaction between pre-contact economic activity with environmental management an understanding of this concord is found.

One example of an extensive trading network is the Hopewell culture. Weatherford (1991) discusses evidence of a vast economic system within this society. In studying the Hopewell culture, initially identified in present Ohio, in 400 A.D. "we see trade networks that spanned about two-thirds of what is now the United States." (Weatherford, 1991, 98) Thomas (1994, 129-42) indicates the Hopewell society began to develop around 200 B.C. and quickly became the "first Pan-Indian" religion stretching from "Mississippi to Minnesota, from Nebraska to Virginia." (134) The extensive trading network, linking peoples with different languages, developed in part to avoid subsistence problems due to local crop or harvest failures. As the trade developed, materials other than food were traded. This increased trade resulted in artistic and cultural advances as locally new materials and technologies were adapted with older ones. As Thomas concludes, this vast trading network "not only forestalled famine, but also dispersed tons of exotic items across the eastern half of the continent." (139)

The centers of the Hopewell trading network, only minimally based on agriculture, began to diminish around 500 A.D.. As the Roman Empire took a dominant position after the Hellenistic Age, a new culture and social structure began to replace the Hopewell culture. The Mississippian culture,

strongly based on agriculture, had evolved by 700 A.D., and had fully developed by 850 A.D.. The political center of the Mississippian was Cahokia.

Consider the metropolitan area of Cahokia as a second example of extended economic activity.[4] In 1250, this city, located on the Mississippi river in modern Illinois, was larger than London. The estimated 20,000 residents made it one of the world's largest urban centers. Besides the extensive agricultural system required to support a city of this size, an extensive trade system existed with other areas. From excavation sites, it has been show that this trade network was vast in size, particularly considering the only transportation methods were water and foot. Importing copper from the Great Lakes, black chert from Oklahoma and Arkansas, mica from North Carolina, shells from the Gulf of Mexico, salt and lead from Illinois, and stone from Wyoming, "Cahokia united a trading empire larger than the combined area of France, the United Kingdom, Spain, Germany, Austria, Italy, Belgium, the Netherlands, Ireland, Greece, Denmark, Romania, Switzerland, Czechoslovakia, Yugoslavia, Portugal, Luxembourg, and Bulgaria." (Weatherford, 1991, 13-4)

This vast trading network could only have supported itself if an intricate economic system was in place. Although no direct evidence of the structure of the system exists, the extent of the network into areas where the cultures are known clearly points to some type of market system being in place. The Cahokia society did not politically control this vast area of

trade, instead an intricate system of market transactions must have taken place. Many of the listed items could only have been imported through a series of trades as the product took several months or years to travel from the sources to Cahokia. These paths led through the territories of several distinct cultures. Presumably, the mica was shipped from North Carolina from the Cherokees. The mica would have had to travel through, at least, modern Tennessee, Kentucky, and southern Illinois before reaching Cahokia. This trek must have taken months or years and several trades.

Weatherford surmises that Cahokia fell because of dispersion of European diseases. The diseases advanced at a faster pace than the European explorers and settlers, so by the time Europeans arrived, the city was deserted. Clear evidence exists that this phenomenon occurred throughout the Americas. (Indeed, Martin (1978) bases his hypothesis on it. See below.) As in any congested urban area, infectious diseases are extremely rampant, thus providing some validity to Weatherford's argument, although Taylor and Sturtevant (1991, 15) indicate that Cahokia began to decline in 1250. Thomas (1994) dates the decline beginning around 1300, possibly due to climatic change. The vastness of the trading network, the comparative size of the urban area, and the extent of the building complexes at Cahokia show clear evidence of a complex economic and social structure regardless of the reason of the communities demise.

The better known examples of the Aztec, Inca, Maya, and Iroquois also show evidence of successful - until contact - economic systems spanning

vast areas of the Americas. As with western societies and cultures of the same time period, ebbs and flows occurred within the main powers. The Hopewell society diminished and was replaced. The Mississippian culture diminished and was replaced. The lack of historical information leads some to believe that these societies seemingly disappeared as if some sort of extinction occurred. Rather, new archeological evidence shows that the process was one of replacement and social evolution. The introduction of new agricultural techniques put the Hopewell society at a disadvantage compared with those people who adapted more quickly. Foreshadowing the discussion below, this major technological change not only influenced the economic structures, but also had influences on the religious, political and cultural aspects of the society.

The evidence of these trading networks is more impressive considering the required interactions between peoples of different cultures, and more importantly, languages. In a moment of extreme racism, de Tocqueville (1835, 21) wrote: "These American languages seem to be the product of new combinations: those who invented them must have possessed an intellectual drive of which present day Indians hardly seem capable."

Nonetheless, trade took place between peoples with vastly differing languages. The following example shows how this trade might have been accomplished. After Henry Hudson was forced to winter on the shore of James Bay - with a small party of supporters - the following was recorded:

(Thistle, 1986, 3-4)

> A Cree hunter did happen upon Hudson's landfall in the Spring of 1611. Expedition survivor Abacuck Pricket reported that the Cree hunter who arrived at Hudson's camp found himself the centre of much attention. Upon being given a knife, a looking-glass and a handful of buttons, the hunter left, making signs that he would soon return. Showing himself no stranger to the process of trade, he brought back two deer and two beaver skins. Pricket reported the following transaction: "He had a scrip under his arme, out of which hee drew out those things which the Master had given him. Hee tooke the Knife and laid it upon one of the Beaver skinnes and his Glasses and Buttons upon the other, and so gave them to the Master, who received them and the Savage tooke those things which the Master had given him, and put them in his scrip againe." The bargaining then began in earnest: "then the Master showed him an Hatchet, for which hee would have given the Master one of his Deere skinnes, but our Master would have them both, and so hee had, although not willingly."

This example shows several important aspécts of the methods of trade. First, Thistle postulates that this was likely the first contact between any Cree and any European; however, the activity of trade was present. Although some European artifacts may have reached this far north and west by 1611, it is highly unlikely that local trade for European items was

common. Thus trade activity, with disparate languages, must have been common between the Cree and other tribes, since it was the hunter who seemingly initiated the trade activity. Second, although no time period is given between the hunter's leaving and returning, it can be surmised that it was not days or weeks. Therefore the beaver skins show a certain level of "investment" on the hunter's part. Apparently, though an argument can be made otherwise, these skins had already been prepared by the hunter or his family. Whatever other reason the skins were stocked for, the hunter immediately recognized their trade value. Third, a series of relative prices were known or determined by the hunter. Whether or not the goods - knife looking-glass and buttons - were known to him prior to this meeting, he clearly stipulated a series of prices: one knife for either one beaver skin or one looking glass and the buttons. Fourth, the concept of variable prices and barter are present in the example. these are all aspects of a complex economic system. Lastly, even though Hudson's party was in desperate straits, they took advantage of the hunter.

Thus trade mechanisms were evidently present with pre-contact Native American societies. A second aspect of a productive economy is the production technology used. The following examples show how production was accomplished ***without*** resulting in a deteriorating environment.

Weatherford (1991, 92-5) discusses the intricate production technology required to produce outerwear for Arctic climates. Preparing and layering the skins of several types of mammals was essential. Using feathers

from several species of birds as insolation required extensive knowledge of both the characteristics of the feathers and the various actions necessary for hunting. Too little insolation resulted in frostbite at best; whereas, too much insolation resulted in perspiration, which subsequently froze. Thus the amount and type of insolation for each body part and for different activities had to be taken into account when producing outerwear.

Weatherford (1991, 103-7) also describes the extraordinary architectural knowledge required to build the Mesa Verde community. This knowledge included an understanding of seasonality, solar efficiency, defensive tactics, and agriculture. Weatherford and many others also describe the production of baskets and pottery. The variations in technique show adaptation to local conditions, resources, and needs.

Resource management was also practiced extensively. Perhaps the most useful technique was the use of fire. Controlled fire was used for several different reasons and resulted in many benefits. Although Holbrook (1943) mistakenly argues that controlled fires did not occur prior to contact, he certainly explains the first benefit of using controlled fires: regularly burning the undergrowth and detris in a forest significantly reduces the harm caused by natural and unnatural fires. Controlled fires combined with regular collecting of firewood provided an increased degree of safety when natural or accidental fires do occur.

Several other benefits result from controlled fires. (Weatherford, 1991, 37-47) Since the controlled fires tend to burn the undergrowth only,

mature trees have less competition for nutrients and water. Indeed, the burning replenishes the soil resulting in straighter and stronger trees: "The European invader regarded these forests as primeval, and their like has not been seen since his steel saws ripped them into boards. But the Cherokees and other Indians had been subtly managing them for thousands of years." (Wright, 1992, 98)

Other benefits included better grazing for game animals when the undergrowth was cleared and new growth grew. Furthermore, better grazing meant not only better hunting for the humans, but also for predators, which improved the humans' hunting for predators.

Another use of fires was the clearing of a trail system: "Through the use of fire, Indians maintained large grassy corridors through forests such as those of the Shenandoah Valley, which later served as major migration routes for European settlers." (Weatherford, 1991, 43) The trails were also useful in other ways after contact: "When European traders set up in business, they needed only to establish posts on the St. Lawrence, Connecticut, Hudson, and Delaware rivers and Chesapeake Bay to tap into the preexisting native network. Indian traders came to them over preexisting trails on land and by interlaced streams." (Jennings, 1992, 363-4)

Besides managing the forest utilizing fire, pre-contact Native Americans also practiced wildlife management techniques. Unlike forest management, wildlife management involves more than simply taking care

of the animals by preventing over hunting. Two aspects are relevant to show the complexity of the economic systems.

According to Pierre Esprit Radisson, the Cree only harvested adult beavers, leaving the young behind for future hunting. This resource management "could only exist if different groups of Indians respected each other's rights to certain (beaver) lodges." (Bishop, 1981, 26) Thereby showing a sustainable socioterritorial organization. This facet of the society is vital to understanding the allocation of scarce resources. In terms of the property rights school, in order to sustain a viable herd or crop it is essential that the investment be vested to some degree. Further evidence shows that hunting territories were generally respected, unless serious shortages were present in neighboring territories. When this happened, neighbors generally allowed "poaching" for subsistence.

The other aspect of wildlife management extends the investment approach: "The belief system, I would add, was geared to reinforcing maximum efficiency in subsistence activities so as to avoid 'the wages of poverty'". (Bishop, 1981, 53) Ray (1984, 2) extends this idea: "(I)t is clear that native people had developed resource management and redistribution strategies in the pre-contact period which sĕrved to minimize the risk of severe privation as a consequence of localized short-term scarcities of basic staples." (This follows Thomas' discussion of the Hopewell trade networks discussed above.)

Thus the herd management techniques of Native Americans in pre-

contact times helped maintain a steady supply of inputs into the production of various goods such as food, clothing, hunting materials, and the like.

A final type of resource management employed by Native Americans involves agriculture. Tribes in the Southwest, namely modern Arizona, built extended aqueduct systems well before Columbus- some of which are in use at present! In addition, an understanding of the natural cycles of the environment provided complex systems of crop management. Reporting on De Soto tour of Choctaw territory, Bakeless (1950, 53) states: "Near each Indian dwelling was a small field (for private use) ... More distant fields (for communal use), too big to be fenced, were not planted until the wild forest began to ripen, drawing the birds away from new seed."

Thus the economic system of the Choctaw included an understanding of both the natural environment and shared risk. The small fields required more work to build fences to deter grazing mammals and constant supervision to prevent raiding by birds. These were primarily managed by individual families. The larger fields required much less work, involved more risk and were worked communally. This system is analogous to a modern sole proprietor holding stock in a larger company.

Perhaps the best evidence of the complexity of the economic systems, production technologies, and trade systems present in the pre-contact Americas involves the modern giant of world agriculture: corn or maize. At the time of Columbus' travels, varieties of corn were grown from Canada to Chile, and from sea level to elevations over 10,000 feet. (Warden, 1966, 3)

The vast differences in climate, soil, growing season, and variety of corn shows how complex the social interaction in the Americas must have been. Without extensive trade, subtle horticultural knowledge, complex production techniques providing surpluses of other goods while experimentation with corn occurred, and resource management, the distribution of corn could never have occurred. The rationale for such a strong statement is rather simple: agriculturally productive corn, i.e. useful corn, is a manmade crop. Warden (1966, 6) explains that corn has no way of disbursing its seeds. Any field that is left unmanaged will fail completely within 3 or 4 growing seasons. Since the seeds fall so close to the parent plant and are closely grouped in the ears, the subsequent generations choke each other out until the field dies and is taken over by other vegetation. Therefore, corn could not have become so widely dispersed without trade and the other complexities mentioned. (Although theft or raids could have dispersed stores, the agricultural knowledge would not have been dispersed.)

The evidence provided clearly points to the complexities of pre-contact Native American societies. Unlike the idealized noble and simplistic savage living in an underutilized paradise, Native Americans developed complex trading networks and production technologies. As discussed below, the supposed lack of technological progress was not due to the simplistic nature of the people, but rather due a difference in utility functions and resource base. As is evident from studying early settlements, Europeans

were no more suited to live in the American environment than Native Americans were suited to adopt European culture in the ensuing years. The populations of the Americas, estimated up to 112 million at the time of Columbus[5], had diverse and complex systems for living within their environments.

The idea that these populations were simply hunters, gatherers, and minor farmers is misplaced. When discussing 19th Century anthropological methodology, Bieder (1986) describes the work of Albert Gallatin. Gallatin believed that Indian culture and production methods were governed by the environment. Gallatin stipulated that the degree and type of agricultural produce was governed by the overall environment. However, Gallatin and many other writers failed to recognize - as did writers studying European culture - that the culture and social structure also had a strong impact on the environment. Keep in mind the various resource management techniques described above, and it is clear that Native Americans significantly influenced and altered the pre-human environment. However, unlike the post-contact situation present today, the management techniques yielded a healthy and vibrant living place.

Thus the first part of the answer to the question concerning environmental economics is implied. Through archeological and early historical evidence this brief survey of pre-contact Native American societies shows the following. Vast trading networks were in place that covered the two continents. These networks involved all the aspects of a modern

economic system. Native peoples obviously made investments in capital goods and inventories. Production techniques were complex and relied on the vast trading networks for inputs. Specialization and a division of labor were present. Property rights were well defined for agricultural purposes as well as for harvesting the natural resources. Transportation systems were vast and well developed. In short, pre-contact Native American societies were not primitive subsistence hunting and gathering societies simply living in paradise in naive harmony with the environment. Quite the contrary is true. These societies managed vast resources within an environmental framework of sustainable development.

Parsonian Social Theory and the Environment

> *And what will happen when we say good-by to the swift pony and the hunt? It will be the end of living and the beginning of survival.* (Jeffers, 1991, 20)

Given the evidence above, pre-contact Native American societies clearly developed and maintained extensive economic systems. Furthermore, they did so within an environmental philosophy that caused the European settlers/invaders to believe the environment upon contact was of pristine and primeval quality uninfluenced by humans. The evidence is also clear that the Native American societies, with their extensive economies, had had substantial influence on the environment. Within a parsonian framework, Smith (1994b) describes how and why Native American social systems have faltered in the face of 200 years of federal policy, and for current purposes,

how indigenous cultures can lead the Native American reservations towards successful futures by developing their economies. Smith also argues, just as importantly, that developing reservation economies is vital to sustaining and developing Native American cultural identities.

For reasons akin to the problems facing Native American reservations, the mainstream economy in the United States, and the global economy in industrialized and developing countries have reached a point of disequilibrium. Among the reasons for this imbalance is the treatment of the environment.[6]

Following Smith, the current article invokes parsonian theory of social development to explain how the mainstream economies can learn from a Native American environmental policy. Parsonian theory explains how culture is a dynamically moving set of social sub-systems, and that when any one sub-system is knocked out of equilibrium with the others, then the whole set of sub-systems must adjust to the new environment.[7] Parsonian sub-systems can be briefly described as involving sectors of the social fabric. For example, subsystems include the economic system, religious system, familial system, artistic system, and for current purposes, the environmental system. An equilibrium is reached when the various subsystems reach a point of stasis. This by no means implies the social structure has reached a point of unconstrained or even constrained optimization; rather, give the governing body of constraints, the system has reached a point of stagnation. An example of this is best described using a

matriarchate invaded with a male only voting scheme. The social system, made up of subsystems, reaches a point where single parent families are predominant as the two subsystems fight for control. For this very reason, the author's father came from a single parent household: a male headed household. Clearly, this example does not point to an point of optimality.

Adam Smith (1776) contended economic development as simply a means to an end, and not an end in itself. In stating that consumption was the means and end of production, he realized that the production of goods and services, i.e. economic development, was accomplished because society has an interest in higher standards of living than are extant and is thus willing to work towards that end. Therefore, developing the economy by utilizing and developing the available resources is the method by which any society develops and maintains its culture. In Chicago-style economic parlance[8], the term "consumption" includes not only tangible goods and services, but also the time and environment necessary to participate in leisure activities.

Parsons (1957, 22 as quoted in Morse 1961, 146) extends the idea that economic production is not the final end of any society:

> The goal of the economy is not simply the production of income for the utility of an aggregate of individuals. It is the maximization of production relative to the whole complex of institutionalized value-systems and functions of the society, and its subsystems. As a matter of fact, if we view the goal of the economy as defined strictly by

> **socially structured goals, it becomes inappropriate even to refer to utility at this level in terms of individual preference lists. ... The categories of wealth, utility, and income are states or properties of the social systems and their units and do not apply to the personality of the individual except *through* the social system.**

Indeed, according to Parsons, the cultural aspects of a society even help to define the individual's preference structure. For example the mainstream society places heavy emphasis on individuality and financial success, thus placing a prominent significance on formal education, occupational choice and property rights; whereas, most indigenous societies place more emphasis on family, spiritual harmony, and stewardship; thereby placing more significance on informal education, interactive ceremonies, and sustaining ecosystems. *This influence on preference structure is vital for the current argument.*

Also worthy of note is the idea that developing a society's economic resources does not necessarily imply the culture is developing. Ward (1962, 17) in discussing the development of Western Europe and North America notes: "I do not know whether one would say of this new society that it is demonstrably happier. Sometimes I think people wonder whether it can be said to be more civilized. But there is one thing which is absolutely certain. It is sensationally richer." For more than three decade since Ward's concerns, the vastness of wealth in the industrialized countries has increased. But so have many social and environmental problems. The never-

before-imagined levels of consumption have occurred at the cost of extreme and dire environmental problems never imagined before either.

Devereux (1961, 38) continues this discussion of Parsonian theory by including an understanding that economic production techniques need to match with the remainder of the society's structure:

> Parsons has argued that a familistic system such as that in classical China would be drastically dysfunctional in an industrial capitalistic society such as our own. In effect, commitments made in one area of the social structure restrict alternatives in others. ... there are structural imperatives peculiar to each specific type of society, imperatives relevant to the structural compatibility and mutual articulation of the *various sub-systems in the same society with each other.* (Emphasis added.)

Restricting some forms of economic activity by implementing environmental regulation is one way of bringing environmental *imperatives* into compatibility with the other social structures. (This point is discussed further below.)

The structural compatibility between sub-systems is often severely disrupted. The resulting discord can cause drastic alterations in the interaction between sub-systems. As indicated above, prior to contact: "Inheritors of long traditions from their forebears, they tried to live in harmony and balance with the earth and the sky and take care of them both, each in their own way, for the well-being of their peoples and those who

follow them." (Iverson, 1992, 117) However, the harmony and balance was upset with contact. Martin (1978) presents a controversial hypothesis that the sub-arctic fur trade was successful because of the migration of European diseases prior to formal contact. According to Martin, the numerous deaths caused by migrating epidemics were blamed on animal spirits. As retribution for this attack on humans, the Native Americans took revenge on the wildlife. Since this was closely followed by the European traders' arrival, Martin argues, the fur trade was jump started because the symbiosis between man and nature was disrupted.

Martin's hypothesis has been attacked on several levels. (See Krech III, 1981 and Thistle, 1986 for example.) However, the aftermath of the beginning of the fur trade certainly introduced serious discord among the social sub-systems. Martin (1978, 10) references Rich (1960) to indicate, early in the fur trade period, that as prices rose, fewer pelts were delivered for trade. In essence, this backward bending supply curve (Martin incorrectly describes it as inelastic) is a common phenomenon in labor markets when income is well above subsistence levels. However, as the fur trade proceeded, the alterations in society moved the sub-systems toward a new equilibrium.

Martin (1981), responding to critiques of his hypothesis, indicates that over exploitation of fur bearers occurred due the increased availability of imports. Recalling the rationale for conservation given above, the availability of alternative food sources meant that conservation to avoid the

"wages of poverty" was no longer a pressing need. Ray (1981, 9) continues with a description of how the change in social environment altered the structural compatibility. "As noted, when country food stocks (wild) declined, native people had to spend more time searching for food; therefore, they had less time to devote to trapping activity... HBC (Hudson's Bay Company) imported flour and sold it well below cost to Indians. It was hoped that this subsidy would encourage trapping." Ray goes on to explain that a system of credit led to a dependence by the native people, which led to a "trading post subsistence" as the fur trade declined. Of course, the symbiosis between the trading post subsistence combined with a declining availability of game, Martin argues, led to a welfare mentality within the sub-arctic populations.

Smith (1994b) argues a similar case concerning reservation populations in the United States. Plotkin (1993) argues likewise concerning tribes in the Amazon rain forest. As discussed above, the movement of various sub-systems is not necessarily toward any type of optimal solution. Rather, the dislocations between aspects of the social fabric can lead to a spiraling down as adjustments occur.

Chief Seattle's quote above concerning the loss of the ponies and the resulting dissolution of his culture points out two periods of adjustment. First, the pony was a *post-contact* technology. Yet in the span of a few hundred years between the introduction of this technology and the signing of the treaty, the Plains Indians and others had fully incorporated it into

their overall society. This included adjustments in the religious, environmental and other sub-systems. The Chief foreshadowed what would happen to his people when the reservation system was introduced. Since the economic system would be disrupted with the lost of hunting as the main method of providing food and trade goods, he foresaw what would happen to the rest of the social structure. Indeed, many modern Native Americans living on reservations are at best merely surviving.[9]

Parsonian theory also indicates that society is in ever-evolving and fluid movement as the various sub-systems constantly strive for compatibility. This point is furthered by Morse (1961, 125):

> A basic distinction is drawn between the *production* of wealth and income and their actual use for the attainment of system goals. This seems to mean that there is conceived to be a basic distinction between (1) the allocation of resources and (2) the distribution of income. Economic theory treats these as two aspects of a single process. When Parsons implies that the former is the function of the Economy, the latter of the Polity, he is therefore making a sharp but perhaps important break with a well-established intellectual position. (Emphasis in original.)

Thus using parsonian theory, the very form of an individual's utility function is determined, in part, by the interaction between the various social sub-systems. Furthermore, the interaction between the economic subsystem and the remaining sub-systems in part determine the very

methods of production and distribution of output. Of particular importance is the interaction between the economic and environmental sub-systems.

The difference between the traditional Native American environmental views and traditional mainstream environmental views is of particular importance. Trosper (1992) discusses the importance of various mind sets and the successfulness of economic development programs. In terms of environmental mind sets, he distinguishes between world views where humans either live in harmony with nature - a Native American perspective - or where humans have a mastery over nature - a mainstream perspective. Brown (1970, 8) explains how the doctrine of "Manifest Destiny" led the European settlers to view America as a place for conquest. Not only were the Indians to be removed, assimilated, or conquered, but the land itself was to be reaped of all its riches. Besides the treatment of the Native Americans, this doctrine also led to the 1872 federal mining law and the Homestead Act: the mainstream world view was (is) one that includes using anything the land can provide. Countering this world view is a Native American one. The best terminology is the Navajo concept of Harmony. Saying that someone "walks in Harmony" is one of the greatest complements that can be bestowed upon a person. The phrase means the person is in harmony with the spirit, natural, and temporal worlds.

Currently, the mainstream societies are growing more and more concerned with environmental issues. From water to air to noise pollution, from the devastation of land, wildlife and flora to toxic waste buildups,

from soil erosion to rampant starvation, from the ozone shield to the prospect of global warming the global community is becoming increasingly concerned with the effects of pure economic growth and development. The problems concerning the environment are pervading both federal and global discussions. Local concerns are commonplace in small town newspapers. Clearly, the economic and environmental sub-systems of the mainstream society have reached a point of disequilibrium.

The structural incompatibility of mainstream society occurred as a direct result of the very process by which success has been available. Pirages (1977, 1) indicates: "Discovery of the fossil fuel benefits and new technologies caused a 'great transformation' in the norms, values, morals and growth expectations within newly industrialized societies."

In other words, as production and consumption increased so drastically during the Twentieth Century other sub-systems evolved to new levels as the rapidly expanding economic sub-system changed. However, these changes have had brutal influences on the environment. Now, as the century turns, environmental concerns are gaining more and more importance. In the past, when resources were exhausted - buffalo, timber, and oil fields - new resources were substituted according to marginal rates of substitution or new technologies were developed. The current status of environmental concerns goes beyond exhaustion issues: modern economic production results in severe, complex, and perhaps irreparable damage to extensive ecosystems. Increasingly, recognizing this causes increased debate,

policy analysis, and policy design. In other words: ***mainstream society is wrestling with the problem of regaining a structural compatibility.***

Environmental Economics: Current Thought

Although the discussion between growth and the environment may be said to begin with Malthus, it is usually dated to Pigou. As Baumol and Oates (1988) indicate, economists were seemingly well prepared for the "environmental revolution". Surveying the vast literature concerning methods of analyzing and measuring environmental impacts and corrections is well beyond the scope of the current paper; however, a brief survey of the main streams of thought is relevant. Cropper and Oates (1992) provide a detailed survey of the literature, and their 18 column bibliography furnishes an extensive reading list.

Beginning with Pigou, moving through the Coase Theorem, and being thoroughly discussed by Baumol and Oates, the theory of externalities has dominated economic thought concerning environmental issues. The idea of internalizing external effects of economic activity supposedly will lead to a social optimum when marginal social cost is equated with marginal social benefit. Although modern analysis is more complex than this simple description, the intent remains the same: identify the extent of the costs of economic activity and match those up with the perceived benefits. This cost-benefit approach has been used extensively for a wide variety of production and development issues. In theory, once property rights have been assigned and costs and benefits identified, a social welfare maximizing agenda is

reached. However useful this body of thought has been, many economists - as well as researchers in the sister disciplines - have pointed out flaws in the approach.

Ehrlich (1989) argues that the neoclassical analysis of development and externalities is founded on two commonly unrecognized axioms: resources are infinite and substitution can occur when any one resource is exhausted. Boulding (1966, 10) implicitly foreshadowed Ehrlich by stating: "This idea that both production and consumption are bad things rather than good things is very strange to economists." These ideas have led to the sustainable economy school. Some believe that activity can continue to grow; while others argue for a leveling off of activity. Instead of focusing on price mechanisms, this body of thought focuses on production limits, birth rate limits, depletion quotas and the like. [10]

The disagreement between bodies of thought has been argued to rest on an undervaluation of resources including a misconception of production as measured by GDP, differing discount rates, uncertainty concerning inventories of resources, and the like. The property rights school, focusing on internalized externalities, views development as possible and valuable as long as the true costs and benefits can be are identified. The sustainability school focuses on limits to growth due to a closed system. Although both of these schools of thought, as well as many other less familiar ones, have valuable conclusions and analytical techniques, recent research has pointed to the fact that something is missing in the overall

scheme.

Dietz and van der Straaten (1992) discuss the missing links between theory and policy. Focusing on the externality theory, they point out that the most commonly used policy instruments focus on permits. Hayden (1992) calls for "Changing the Ideological Metaphor" by concentrating on the social institutions and the links between various aspects of society. OECD (1984) indicates a mutual reinforcement between the economy and the environment, and calls for an "integration of environment and economic policies." Taylor and Owen (1991) argue for improved stewardship of the forests as a means of sustaining future usefulness and protecting various habitats.[11] Even the Ecotourism Society has entered the fray by defining ecotourism as "responsible travel which concerns environments and sustains the well-being of local people." (Jones, 1993, 7) Schelling (1992) discusses some of the issues involved with the global perspective of environmental problems: it may take a two percent decrease in GNP to avoid the global warming conflict.

However unlike the older schools, these newer concerns do not describe specific instruments or remedies. Instead, they only indicate the problems. When remedies are prescribed, they tend to fall back on the old neoclassical (property rights) viewpoint of allowing the market system do its work. In other words, the schemes are still exploitive in nature, but are disguised as being environmentally friendly.

For example, Jones (1993, 7) argues that: "Unless local people come

to view environmental conservation as economically profitable, we can kiss many of our unexploited wildlands goodbye." This statement is fraught with contradiction. The danger of exploitation of these "wildlands" - presumably as pristine and primeval condition as the North American forests were prior to contact - is not due to the local, typically indigenous, people of the area. Rather, the danger comes about from one of two avenues. Either large mining or timber companies are extracting the resources, or the local social systems have been pushed out of equilibrium because of outside influences, thereby requiring the local economic sub-system to become exploitive and extractive. Another contradiction lies in the proposed uses of these "unexploited wildlands." To view ecotourism as a nonexploitive use is false. One only has to look as far as the national parks and wilderness areas in the United States to see how tourism can have harmful effects on the environment *and* the local population. Although ecotourism may be less damaging than open pit mining, it is exploitive none-the-less. In short, the philosophy of exploitation, as shown above concerning the Doctrine of Manifest Destiny and the axioms of neoclassical economics, lies behind of much of the literature concerning the economic *use* of the environment.

While the resulting policies have had some success in protecting or revitalizing aspects of the environment, degradation continues on many fronts. The evidence coming out of eastern Europe is disquieting at best. The problems began under the former regimes, but appear to be continuing if not worsening. As Boulding argued in 1966 and Dietz and van der Straaten

voiced in 1992, a reformulation of the basic economic problem needs to be designed. As Hayden pointed out in 1993, a new *philosophy* of environmental issues needs to be developed.

Norgaard (1994 and elsewhere) develops a body of thought based on "coevolution theory". Similar to parsonian theory, the coevolution theory states that the various aspects of society coevolve in conjunction with the environment. Changes in the environment influence changes in the overall society and vice versa. One example involves the historical interactions between "Pests, Pesticides, Politics and Policy". (1994, 23ff) As DDT and other pesticides were introduced to combat various pests, it was quickly recognized that the pests mutated. This resulted in the development and introduction of new pesticides. The environmental problems, including non-target species effects, resulted in various political discussions and new policies.

Alternatively: "(I)n the coevolutionairy paradigm, the environment determines the fitness of how people behave as guided by alternative ways of knowing, forms of social organization, and types of technologies. Yet at the same time, how people know, organize and use tools determine the fitness characteristics of an evolving environment. At any point in time, each determines the other." (Norgaard, 1994, 46)

Although coevolution theory is essentially historical in nature since it cannot definitively predict the various mutations to come, it can determine some prescriptive remedies to obvious problems. Similar to

parsonian theory, Norgaard focuses on 'ways of knowing' and 'forms of social organization' when discussing the interaction between the environment and the economy. The severe discord between the social sub-systems, or the deteriorating coevolution of the universe of man due to environmental damage, calls for new 'ways of knowing' as well as new social organizations:

> (a)nd the emphasis shifts from flows of materials to flows of values, ways of thinking, technologies, ways of organizing people, and natural genetic material. Do not think of these flows, however, as mundane economic exchanges typical of modern trade... If the newly introduced value, way of thinking, technology, way of organizing, or species prove fit, it will subsequently affect the fitness of other components of the system and thereby change the coevolutionary path of the system, cultural and biological. (Norgaard, 1994, 175-6)

Hayden (1993) and Dietz and van der Straaten (1992), among others call for changing the institutional aspects of environmental concerns. These new ways of organizing people, when further developed, may change the path of the system. However, as is evidenced by the proposed H.R. 1022, new ways of thinking also need to be formed. The return to the default assumption that progress is bound to happen if enough resources are thrown at the problem, as discussed by Ehrlich (1989) has proven faulty. The superiority of the economic sub-system over the environment needs to be reassessed. Following Parsons and Norgaard, the two cannot be

separated, nor can they be ranked in importance. Within mainstream society this way of thinking may be new, but it is actually a very ancient way of thinking among Native Americans.

Toward a New Environmental Society

> *If we sell you our land, care for it as we have cared for it. Hold in your mind the memory of the land as it is when you receive it. Preserve the land and the air and the rivers for your children's children and love it as we have loved it.* (Jeffers, 1991, 23)

The idea of applying Native American ideals to the environment is certainly not new. As Martin (1981, 13) points out:[12] "So it was in the heat and froth of the 1960s environmental movement, yet another title - 'ecological Indian' - was conferred on the idealized Native American, who was paraded out before an admiring throng and hailed as the high priest of the Ecology Cult." Martin (1978) also argues that the Indian philosophy cannot be appropriate to the mainstream society because of a severe conflict between world views (as discussed by Trosper (1992)) and economic systems.

Others disagree. Momaday (1991, 437) argues: "I think that the Native American broad experience of the environment in the Americas is an important research resource for us. Native Americans need to be as informed (about pollution) as the rest of us, because they probably have more solutions."

An example of what Momaday infers about environmental knowledge

comes from the Hantavirus problem which appeared in the Spring of 1993. Zah (1993) reported that world specialists were lost as to the source of this deadly disease. Since many of the early deaths occurred on the Navajo Nation, traditional healers and elders were consulted by the Navajo government. Within days of consultation, the source of the virus was identified: deer mice. After two years of well-above average rainfall, the pinon trees had yielded a bumper crop of nuts. This expanded food source caused a mouse population explosion. Since this was the only major change in the environment, the elders suggested testing the mice, and the source was found.

The mainstream and global economies are straining to find solutions to the environmental problems resulting from rapid and extensive industrial development. Can Native American ideals and philosophies be of use in this search? As Momaday stipulated, most likely.

The essence of the solution comes from parsonian social theory. The problems are not simply environmental; rather, the problems stem from a disequilibrium between the various sub-systems, namely the economic and environmental sub-systems. Countering Martin's concern over world views, Pirages (1977), as discussed above, pointed out that the mainstream society moved through significant changes as the economic sub-system developed. These changes are continuing at present as environmental issues are debated. The challenge is to develop a structural compatibility between the various sub-systems that allows for a sustainable economy within the closed

environment - or to use Boulding's phrase on "Spaceship Earth."

Within the mainstream economy, the environmental sub-system has been one of choice: exploit a resource or leave it alone. As discussed above, many pre-contact Native American societies had extensive and complex economies while living in harmony with the environment. These environmental views did not ask the question of whether to exploit or not; rather, the question was one of how to live within the environment. This is the very question being asked by mainstream society today. Three examples show the distinction.

Nissenbaum and Shadle (1992) helped develop a land use policy for the Puyallup Tribe in Washington. After thoroughly consulting with the *elders* of the Tribe, studying Puyallup culture and history, the resulting policy has three interesting facets. First any proposed land use must have no *net* degradation of the fisheries habitat. Second, the proposal must include a description of all environmental impacts. Third, preference will be given to proposals that increase the salmon population and enhance the fisheries. Compare the overall philosophy of the Puyallup Tribe with that of H.R. 1022 where no net loss of *economic activity* is the decision criteria.

Anderson and Nabhan (1991) describe the difference between the two world views. The National Park system, as is its mission, set aside the Organpipe Cactus National Monument in southern Arizona. In doing so, the Tohono O'Odam people were no longer allowed to harvest and manage the ecosystem, as they had been doing for years. Once the choice was made to

protect instead of exploit - the only choices in the mainstream world view - the ecosystem began to deteriorate. The Park Service returned to the original management practices of burning, flooding, transplanting and seed-sowing to save the "natural" ecosystem.

Plotkin (1993) describes various forest management practices among tribes living in the Amazon rain forest. [13] One of his examples is the vast difference in productivity between the agricultural plots of the natives and the settlers. The Native Americans use a multiculture approach, thus making their gardens difficult to discern from the surrounding forest. The settlers use a clear cut approach in their monoculture gardens. Of course, the multiculture approach is vastly more productive and is less susceptible to disease and pests.

These examples of utilizing Native American practices, based on their environmental sub-systems, result in *more* economic output and *less* degradation of the environment. Plotkin's overall work shows how the various sub-systems can be developed to provide a growing and sustainable society with improved economic activity and sustained traditions.

After working with a particular rain forest tribe for over a decade, Plotkin provided a plant medicine handbook in the local language. He also helped develop a profit sharing and investment strategy with several international pharmaceutical companies for continued research. A result of all this has been a shaman apprenticeship program for several tribes where no apprentices were previously in training. He concludes (1993, 287):

> I feel strongly that this effort has helped validate their culture in the eyes of the Indians. Prior to this work, the Tiros had only one book written in their language: the holy Bible. This research constitutes a true partnership between Western and Indian cultures; both share in any potential material benefits, but more important, this approach to ethnobotany helps the indigenous peoples understand the potential global importance of a fundamental aspect of their culture.

Thus Plotkin shows how the ideas in this paper can be put into practice: economic development and a Native American environmental view can work together to provide a vibrant and developing society. The global society can be enhanced by this development if the sub-systems are allowed to reach a higher level of equilibrium.

Following Parsons (1957) and Norgaard (1994), all societies are coevolving systems searching for structural compatibility. Although it cannot be said of today's Native Americans, pre-contact Native American societies had vibrant economies working in conjunction with a healthy environmental sub-system. Societies begin to deteriorate when the compatibility between sub-systems is disrupted, which can lead to a spiraling down instead of societal growth. The mainstream society is facing this type of disruption due to increasing environmental problems. At present, much of the work within the wide realm of environmental economics either treats the two sub-systems as combative - exploit or leave alone - or as a simple matter of accurately identifying the costs and benefits.

Although recent work, Hayden (1993) and Dietz and van der Straaten (1992) for example, have focused on institutional changes and systemic compatibility, much work remains to be completed in designing the institutions and understanding the systemic linkages. As Momaday (1991) indicated, much can be learned from understanding Native American institutions and systems of social interaction with the environment.

> ***How can you buy the sky? How can you own the rain and the wind?***
> (Jeffers, 1991, 3)

References

Anderson, Kat and Nabhan, Gary Paul, "Gardeners in Eden," *Wilderness*, Fall 1991, 27-30.

Bakeless, John; *The Eyes of Discovery*, New York: Lippincott, 1950.

Baumol, William J., and Wallace E. Oates; *The Theory of Environmental Policy, Second Edition*, New York: Cambridge University Press, 1988.

Becker, Gary; *Economic Theory*, New York: Alfred A. Knopf, 1971.

Bieder, Robert E.; *Science Encounters the Indians, 1820-1880: the Early Years of American Ethnology*, Norman: University of Oklahoma Press, 1986.

Bishop, Charles A.; "Northeastern Indian Concepts of Conservation and the Fur trade: A Critique of Calvin Martin's Thesis," in Krech III, 1981.

Bishop, Charles A.; "The First Century: Adaptive Changes Among the Western James Bay Cree Between the Early Seventeenth and Early Eighteenth Centuries," in Krech III, 1984.

Black, Max, editor; *The Social Theories of Talcott Parsons*, Englewood Cliffs: Prentice-Hall Inc, 1961.

Boulding, Kenneth E.; "The Economics of the Coming Spaceship Earth," in Jarrett, 1966.

Brown, Dee; *Bury My Heart at Wounded Knee: An Indian History of the American West*, New York: Henry Holt, 1970.

Cornell, Stephen and Joseph P. Kalt, editors; *What Can Tribes Do? Strategies and Institutions in American Indian Economic Development*, Los Angeles:

University of California Los Angeles, 1992.

Cropper, Maureen L. and Wallace E. Oates; "Environmental Economics: A Survey," *Journal of Economic Literature*, XXX, June 1992, 675-740.

Daly, Herman E.; "The Steady-State Economy: What, Why and How," in Pirages, 1977.

Daniel, Joseph E., editor; *Ecotravel*, Boulder: Buzzworm Books, 1993.

Deloria Jr., Vine; *We Talk, You Listen: New Tribes, New Turf*, New York: Macmillan, 1970.

de Tocqueville, Alexis; *Democracy in America*, 1835. Edited by Mayer, J.P and Max Lerner, translated by George Lawrence, New York: Harper and Row, 1966.

Devereux, "Parsons' Sociological Theory", in Black 1961.

Dietz, Frank J. and Jan van der Straaten; "Rethinking Environmental Economics: Missing Links between Economic Theory and Environmental Policy," *Journal of Economic Issues*, XXVI, March 1992, 27-51.

Ehrlich, Paul R.; "Will Economists Learn to Respect Mother Nature?," *Business and Society Review*, Fall 1989, 60-63.

Grant, Linda; "Shutting Down The Regulatory Machine," *U.S. News and World Report*, February 13, 1995, 70-72.

Hayden, F. Gregory; "Ecosystem Valuation: Combining Economics, Philosophy, and Ecology," *Journal of Economic Issues*, XXVII, June 1993, 409-420.

Holbrook, Stewart H.; *Burning an Empire: The Story of American Forest Fires*,

Smith, Adam; *The Wealth and Nations*, 1776, reprinted New York: Penguin Classics, 1987.

Smith, Dean Howard; Book Review of Plotkin, *American Indian Culture and Research Journal*, 1994a.

Smith, Dean Howard; "The Issue of Compatibility Between Cultural Integrity and Economic Development among Native American Tribes," *American Indian Culture and Research Journal*, 18:2 ,1994b.

Stigler, George J.; *The Theory of Price, Third Edition*, New York, Macmillan, 1966.

Taylor, Colin F., and William C. Sturtevant; *The Native Americans: The Indigenous People of North America*, New York: Smithmark, 1991.

Taylor, Don and Carlton Owen; "Balancing Economics and the Environment," *Journal of Forestry*, November 1991, 13-16.

Thistle, Paul C.; *Indian-European Trade Relations in the Lower Saskatchewan River Region to 1840*, Winnipeg: University of Manitoba Press, 1986.

Thomas, David Hurst; *Exploring Ancient Native America: An Archaeological Guide*, New York: Macmillan, 1994.

Trosper, Ronald L.; "Mind Sets and Economic Development on Indian Reservations," in Cornell and Kalt, 1992.

Warden 2nd, Howard T.; *Native Inheritance*, New York: Harper and Row, 1966.

Ward, Barbara; *The Rich Nations and the Poor Nations*, New York: Norton, 1962.

Weatherford, Jack; *Native Roots: How The Indians Enriched America*, New York: Fawcett, 1991.

Zah, Peterson (President, Navajo Nation); comments made at the Reservation Economic Summit '93, Phoenix, June, 1993.

New York: Macmillan, 1943.

Iverson, Peter; "Taking Care of the Earth and Sky," in Josephy Jr., 1992.

Jarrett, Henry, editor; *Environmental Quality in a Growing Economy*, Baltimore: Johns Hopkins Press, 1966.

Jeffers, Susan; *Brother Sky, Sister Eagle: A Message from Chief Seattle*. New York: Dial Books, 1991.

Jennings, Francis; "American Frontiers," in Josephy Jr., 1992.

Jones, Lisa; "Ecotourism: Closing the Gap Between Intent and Action" in *Ecotravel*, 1993.

Josephy Jr., Alvin M., editor; *American in 1492: The World of Indian Peoples Before the Arrival of Columbus*, New York: Knopf, 1992.

Krech III, Shepard, editor; *Indians, Animals, and the Fur Trade: A Critique of Keepers of the Game*, Athens: University of Georgia Press, 1981.

Krech III, Shepard, editor; *The Subarctic Fur Trade: Native Social and Economic Adaptations*, Vancouver: University of British Columbia Press, 1984.

Martin, Calvin; *Keepers of the Game: Indian-Animal Relationships and the Fur Trade*, Berkeley: University of California Press, 1978.

Martin, Calvin, "The War Between Indians and Animals," in Krech III, 1981.

Mitchell, John G, editor; *Ecotactics: The Sierra Club Handbook for Environmental Activists*, New York: Simon and Schuster, 1970.

Momaday, N. Scott; "An American Land Ethic," in Mitchell, 1970.

Momaday, N. Scott; "Confronting Columbus Again," in Nabokov, 1991.

Originally in "Viewing the Shore: American Indian Perspectives on the Quintcentenary," *Northeast Indian Quarterly*, 7, Fall, 1990.

Morse, Chandler; "The Functional Imperatives," in Black, 1961.

Nabokov, Peter, editor; *Native American Testimony: A Chronicle of Indian-White Relations from Prophecy to the Present. 1492-1992*, New York: Viking, 1991.

Nissenbaum, Paul and Paul Shadle; "Building a System for Land Use Planning: A Case Study for the Puyallup Tribe," in Cornell and Kalt, 1992.

Norgaard, Richard B.; *Development Betrayed: the End of Progress and a Coevolutionary Revisioning of the Future*, New York: Routledge, 1994.

OECD; "Economics and the Environment: Not Conflict but Symbiosis," *The OECD Observer*, 130, September 1984, 30-4.

Parsons, Talcott; *Economy and Society*, Glencoe: The Free Press, 1957.

Pirages, Dennis Clark, editor; *The Sustainable Society: Implications for Limited Growth*, New York: Praeger Publishers, 1977.

Pirages, Dennis Clark; "Introduction: A Social Design for Sustainable Growth," in Pirages, 1977.

Plotkin, Mark J.; *Tales of a Shaman's Apprentice: An Ethnobotanist Searches for New Medicines in the Amazon Rain Forest*, New York: Viking, 1993.

Ray, Arthur J.; "Periodic Shortages, Native Welfare, and the Hudson's Bay Company. 1670-1930," in Krech III, 1984.

Schelling, Thomas C.; "Some Economics of Global Warming," *The American Economic Review*, 82, March 1992, 1-14.

Endnotes

1. The quotes in italics are attributed to Chief Seattle in 1854. His speech was made during treaty negotiations. Jeffers (1991) describes him as Suquamish; whereas, Nabakov (1991, 69) describes him as Duwamish. Wright (1992, 359, n55) indicates that the translation of his speech may have been somewhat modified over the years; however the intent of his speech has not been altered. The Jeffers reference is used herein.

2. This discussion, and that below, is not meant to imply that regulation cannot be absurd or detrimental in any variety of ways. Rather, it is used to show the distinct differences in philosophies. Compare the viewpoint of superiority of the economy in H.R. 1022 with that of the Puyallup Tribe's development strategy discussed below.

3. The delineation between pre and post-contact is somewhat vague. Clearly, if the temporary contact with Scandinavians is ignored, pre-contact was before 1492. However, that date is arbitrary except for a very few Native American peoples. Indeed, for some Alaska Natives, contact did not occur until the Second World War. As discussed below, Martin (1978) argues that the importance of contact came before a physical viewing of the Whites: his argument is based on contact with infectious diseases well in advance of introductions. For current purposes, the delineation will follow Martin: contact occurred when an impact was made upon the Native American society under investigation.

4. The following is extracted from Weatherford (1991) and Thomas (1994) .

Many other sources are available for more detailed discussions.

5. See Martin (1978, 44-47). Earlier estimates are lower than more recent estimates. Using earlier methods North America had a population of roughly 1 million. Using more recent techniques, the estimates grew substantially. The later estimates were confirmed by several methods of estimation. Using a range of 90-112 million for the hemisphere, North America had an estimated population of 9.8 to 12 million. Of course, the higher the actual population, the stronger the support for the arguments presented herein. Martin seems to agreed with the higher estimates.

6. Other reasons include population growth, drug abuse, failure of education systems, family make-up, and the like. As discussed below, all the sub-systems eventually reach a point of equilibrium (though not necessarily an optimal one). These other issues are well beyond the scope of the current discussion.

7. See Black (1961) for a detailed introduction to parsonian theory.

8. See for example Becker (1971), and his many articles on marriage, time allocation and discrimination. Also see George J. Stigler (1966). Of course Milton Friedman's infamous "no free lunch" dictum also points to the Chicago school.

9. See Smith (1994b) for a more detailed account of reservation life in a parsonian context.

10. See Daly (1977) for example.

11. Both authors are executives for a large forest products company.

12. See Martin (1978, 157) for an earlier discussion.

13. **See Smith (1994a) for a discussion of the economic implications of Plotkin's work.**