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# *An Unresolved Dilemma: Human Society and the Environment*

TRACY A. SKOPEK AND MARK SOMMA

Human societies remain trapped between two choices: environmental sustainability at the cost of ferocious traditionalism or the achievement of steady material progress at the cost of a fatal environmental decline. Across the long stretch of history, by default or design, one of these two choices dominates the relationship between human society and the environment. The likelihood is that, after centuries of unchecked growth, modern nations are moving into another period of devolved societies and strict limits on reproduction and environmental behavior.

Empires arose early in human history in southern Mesopotamia, a region subsequently referred to as the “cradle of civilization.” Unlike the current bleak landscape of southern Iraq, a great unbroken forest covered the area at the time, surrounding early Sumerian cities. But by the beginning of the second millennium BC, southern Mesopotamia had become deforested. The loss of forestland destroyed watersheds and accelerated the salinization of the soil and, by 1700 BC, the area had become a land of poor farmers and villages. This pattern of deforestation repeated itself across the world as early empires and their glory-seeking rulers sought endless amounts of wood to build bigger and bigger cities with temples, palaces, and monuments to ensure that history remembered them.

As with their modern counterparts, ancient empires warned themselves of the penalties of ignoring environmental damage. One mythological story, “Journey to the Forests of Cedar,” in the *Epic of Gilgamesh*, illustrates early accounts of forest depletion.<sup>1</sup> For timber to expand the city of Uruk, where he rules in the third millennium BC, Gilgamesh kills Humbaba, the forest guardian who protected a great forest. Gilgamesh and his followers then strip the forest. The gods warn Gilgamesh in dreams they send to him on his forest journey that floods and droughts would follow his killing of Humbaba and the cutting of the cedar forests.

The fabled tale of Gilgamesh parallels the archaeological records left by ancient Mesopotamian societies, which show the steady march from abundance to rationing to the disappearance of forestland despite the exhortations and policies that attempted to stem the decline. To meet consumption demands and to repair and expand irrigation canals, Sumerian rulers from the

Third (and greatest) Dynasty of Ur in the late third millennium BC sent their armies north as far as southern Turkey to conquer kingdoms and woodlands.<sup>2</sup> As deforestation led to flooding and soil salinization, grain production in Sumeria diminished considerably and Sumerian supremacy was replaced by northern kingdoms like Babylonia, which became the dominant Mesopotamian power.<sup>3</sup> Following his Sumerian predecessors, famed Babylonian ruler Hammurabi established strict rules to ration wood consumption and wrote of the woodland, “[things] *are very pressing in the opinion of the palace*” as depletion began to affect his empire in the second millennium BC.<sup>4</sup>

In contrast to large empires, smaller societies that relied on a combination of sustainable farming practices and hunting and gathering seemed capable of lasting almost indefinitely. Some survived thousands of years in relative isolation until more aggressive and acquisitive societies brought them into contact, and thus competition, with the larger outside world. The contact and competition destroyed countless numbers of these smaller, sustainable societies. They didn’t fall on their own; they were instead overcome and absorbed by more powerful neighbors. As we shall see later, when the conquering society fell, quite often smaller, sustainable societies emerged from the ruins.

How did sustainable societies manage to survive for thousands of years without destroying their local and regional environments? Every human society exploits the physical and natural environment around it. Even the smallest hunting and gathering tribe can deplete local resources and profoundly change local ecologies. Doubtless, a painful iteration of rises and declines was experienced as generations learned to protect their local resources within the natural variations of the physical environments and ecologies they shared. From the Amazon Basin to the African Sahel, from the New Guinea highlands to pre-Columbian California, sustainable societies adopted practices that allowed generation after generation to survive.

Sustainable societies are those that exhibit behaviors that sharply reduce or prevent damage to the surrounding physical and biological environments. While all human societies make alterations, sustainable societies produce relatively little alteration over long periods of time, thus allowing societies and ecologies to adjust with minimal damage to each. These sustainable behaviors include strict limitations on population growth, restrictions on technological development, closed economy or restricted terms of trade, and the perpetuation of society at the expense of personal gain.<sup>5</sup>

In contrast, arising from and in close proximity to sustainable societies, unsustainable but spectacularly successful societies, often noted in history as empires, rose to prominence and then fell. Unsustainable societies exhibit rapid, unchecked population growth, pursuit of material goods, an accelerating trend toward transforming natural resources into social resources, and the pursuit of technology to increase productivity.<sup>6</sup> Their governments pursue power aggressively, and they tend to exhaust local, and then regional, resources rapidly. Partly driven by the need for resource acquisition, and partly by their hierarchical governing systems, they develop sophisticated war technology and conquered their neighbors. But they never create a sustainable society.

As they felt the consequences of scarcity and environmental destruction, they accelerated their aggressive, often successful, approaches to expanded resource acquisition and a more efficient use of the declining resource base. However, nearly every empire fell directly or indirectly due to its reliance on resource depletion and the strategies that it used to address that depletion. “*Falling*” as used here is a socioeconomic and political term. The society realizes a sharp loss of social, economic and political complexity.

Why do large, successful, progressive societies fail to adopt practices that could prevent their own decline? The world’s empires recognized their environmental dilemma. Historical accounts often read like modern political commentary on the subject of environmental problems. This paper posits two primary reasons why progressive societies fail to resolve their environmental contradictions: ideological loyalty and elite intransigence. But political history is also a story of folly and hubris, or as Barbara Tuchman dryly labeled her commentary on history and government, “The Pursuit of Policy Contrary to Self-Interest.”<sup>7</sup> Certainly that is true in our interaction with the physical environment and ecologies.

Much of human innovation has risen from the need to increase productivity in the face of population and resource pressure. When faced with such challenges, we assume that our innovative prowess will reassert itself and solve the problem. Unfortunately, our capacity for consuming resources and degrading the environment surpasses our ability to craft and implement innovative solutions. It’s here that two inexorable forces—our faith in ideologies and powerful elites who fear the loss of power—paralyze our ability to make necessary changes, and we fall. The empire becomes a runaway train unable to slow or significantly alter its path until it crashes with dramatic effect.

Do sustainable societies have anything to teach unsustainable societies that might prevent environmental destruction without ending their inventiveness and material progress? Small, sustainable societies are not hotbeds of innovation and enterprise. The close-knit bonds of tribal and village life dissuade inventiveness or innovation and their decentralized political and economic systems prevent the pooling of capital or labor needed for major projects of any kind. In the case of war, that's probably a good thing. In the case of medicine, it probably isn't.

This pattern of static, no-growth sustainable societies or innovative, high-growth unsustainable societies has occurred in every part of the world. Jungles and deserts hid for centuries the remains of once grand empires that fell. Small village societies reside where their ancestors built large societies with imperial ambitions. Over the past century, globalization advanced so swiftly that the division of unsustainable and sustainable societies has been blurred. The cross-fertilization of ideologies, techniques of production, and inventiveness has fostered a worldwide commercial empire based on capitalism that is facing serious global environmental changes. But despite its impressive scope and breadth, capitalism cannot address the environmental and ecological crises that it has spawned any more than its ideological predecessors could. Human societies remain locked within one of these two paths.

It is outside the scope of this limited inquiry to address why low-growth sustainable societies transform into high-growth unsustainable societies. As always, key questions in historical inquiry include why an event took place when it did instead of some other time, and why it occurred in one place and not another. Recently, Jared Diamond sought to answer these questions by relying on environmental conditions. His argument is drawn from a large body of literature, primarily anthropological, that explains the broad dimensions of human cultures using local or regional physical, environmental, and ecological circumstances. Some societies are prone to aggregation and increased productivity because of a favorable environment and ecology, while others remain static due to unfavorable ones.

His argument resonates if for no other reason than that it provides one theoretical end to the vast, evanescent string ball that represents the complexities of human society. We may not be able to unravel the whole string from the work of cultural geographers but, like untangling a gnarled ball of fishing line, having one end of it to work with gives us a real advantage. Human societies cycle through periods of growth and decline; cultural geographers' grip on one end of the string provides a reoccurring insight.

### ***Ferocious Traditionalism***

For thousands of years, the New Guinea highlands have nurtured successful and sustainable human society. New Guinea farmland was terraced, drained, fenced, and intensively managed, but continued to support a large population. Complex drainage systems arose as early as nine thousand years ago. New Guinea farmers possess a tremendous amount of knowledge about plants and demonstrate wonderful agricultural skills. But they live in an area with few broad plains for farming, because most of the land consists of steep hillsides divided by impassable ravines.

With no systematic control of food production and land ownership, New Guinea highland society had no central political organization, and made little cultural or material progress. Each village had a governing culture that relied heavily on consensus, tradition, and the influence of charismatic individuals to make decisions. Thus, outside of food production, material inventiveness wasn't encouraged, and, if attempted or successful, was never spread. It was a society frozen in time, but capable of surviving indefinitely. And yet, village life in New Guinea was less than ideal.

With rare exceptions like the Ik of Uganda or some of the San People (Bushmen) in southern Africa, villages are the starting point for human society, as well as its basic governmental and economic units. Villages exist at the minimal level of complexity required for an enduring culture and all of the diverse political organizations of human society rise from villages. When we fall, we always fall into villages, and when we rise, we always rise from villages. But successful village life places powerful behavioral demands on people and visits harsh punishments on transgressors.

Despite the romanticization of so-called indigenous peoples, first-hand reports refer continuously to the violence, the intra- and inter-tribal conflict, and the propensity of tribal members to pack up and move to other tribes as result of real or imagined slights. Quite often, indigenous village life resembles Shirley Jackson's 1948<sup>8</sup> short story *The Lottery* more than it resembles the utopian Garden of Eden posited by postindustrial commentators. Within the secure embrace of tribal and clan membership exist the demanding, often stultifying, mores and expectations of unchanging cultures.

Much of these cultural traditions were, in a sense, survival strategies—physical, environmental, and ecological behaviors that protected local resources from depletion and stemmed population increases. Existing for thousands of years within a local ecosystem requires a stricter control of economic behavior and procreation than is deemed acceptable to larger so-

cieties with a wider array of economic and cultural choices. Strict adherence to these restrictive practices creates patterns of behavior within the society that are broken at one's peril. This ferocious traditionalism is the price that societies pay for sustainability.

Among sustainable societies, population growth has to be strictly limited. Even a very small annual increase in population numbers can result in terrible destruction of local resources. An increase of one-half of one percent doubles a population in 135 years. Sustainable societies existed for thousands of years, which means they must have controlled population growth quite strictly. Population growth turns on the number of fertile women, and the rate at which they give birth, so controlling population requires stringent control of the reproductive behavior of women. Typically, women are devalued and considered subordinate to, or property of, male patriarchs. Their menstrual blood is considered unclean, even poisonous. A regular and often fatal danger for women is the accusation of witchcraft. Strict rules govern sexual activity, including efforts to delay sexual activity by young people. Abortion and infanticide are practiced, with infanticide more often visited on girls than boys.

All these practices were found among the highland peoples of New Guinea who adopted strict rules to govern the sexual behavior of men and women. Various tribes and clans regarded menstrual blood as poisonous to men, and referred to sexual organs as something "bad."<sup>9</sup> Among some tribes, sex was taboo for over two hundred days each year, and women were accused and killed for witchcraft.

As with many peoples whose protein supply is limited and whose pressure to limit reproduction is profound, some New Guinea and Australian tribes practiced cannibalism. Accounts from observers and scientists working in nineteenth century Australia recorded consistent patterns of infanticide and cannibalism. Adulterous women were subject to cannibalistic killing, and children, particularly girls, were also the victims of cannibalistic killing. Palmerston, in his 1887 dispatches, describes coming upon cannibalistic feasts: "*The hideous habit of murdering and eating little girls is carried on far more in these jungles than in any other part of the colonies, which accounts for the female children being so scarce.*"<sup>10</sup>

Even where cannibalism is not prevalent, male warfare and female infanticide strongly influence demographics. The ratio of boys to girls is 150:100 in the Yanomamo villages located in the most intensive tribal war zones along the Venezuela-Brazil border.<sup>11</sup> Chagnon writes: "*The data are con-*

*sistent with the argument that intensive warfare leads to large villages and increased female infanticide. ...Much of the fighting has to do with the acquisition of women, who are in short supply.”<sup>12</sup>*

The egalitarianism and close-knit ties of village communities appeal to the atomized, mobile individuals of post-industrial societies. Identification by family or clan characterizes self-identity, and people are embedded in the security and camaraderie of large families and clans. Visitors often comment on the warmth and closeness of family, tribe, or clan members. But these come at a price. Individual achievement, outside strict boundaries, is not prized. The social culture dissuades individuals from becoming “different.”

Egalitarianism among hunter-gatherer and simple farming societies is implemented via social pressure and expectations, and places limits on individual achievement. Among the Bushmen foragers of the Kalahari Desert, the most prolific hunters are subjected to complaints, even scorn, about the size and value of their kills. Bushmen explain that social distinctions cannot be allowed to take root or the cohesiveness of tribal equality will break. If an individual tribe or clan member can achieve superior status from increased productivity, the incentive for each member to transform ecological resources into social resources would quickly deplete local ecologies.

Few policies yet exist in contemporary society to reflect the ferocious traditionalism of sustainable societies. One example melding ferocious traditionalism with a modern Leviathan is China’s one-child policy. It is not as restrictive as often discussed, but has resulted in female infanticide, particularly in families that already have one daughter. Sex ratios among infants in China are 117 boys to 100 girls.<sup>13</sup> While female infanticide was a common practice before 1990, sex-selective abortions have contributed strongly since then to the imbalance in sex ratios.<sup>14</sup>

### ***Unsustainable Societies and Material Progress***

In the sixteenth century, England began its rise to imperial power. Underpinning its early success was the stripping of the woodlands to provide fuel and building materials for iron, glass, copper, sailing ships, canal building, and then railroads. Beginning with the invasion of Ireland by Henry II in 1171, and continuing into the early seventeenth century, English aristocrats ordered the destruction of entire forests in Ireland as wood prices rose in England.<sup>15</sup> English conquests also provided wood to English factories from the Americas and India. Two hundred years of imperial trade and conserva-



tion politics accompanied the English development effort until 1747, when Abraham Darby discovered that coal could be purified into coke and used as an industrial fuel.<sup>16</sup> Only the shift to coal saved the woodlands in England and her colonies, but not before some of England's greatest woodlands declined by as much as eighty percent.<sup>17</sup>

Acquisitive and aggressive societies meet their needs by taking from others. Their capital resources for investment, the seductive power of their consumptiveness, and their military prowess allow high-growth societies to look outward for resources. Imperial conquest becomes compounded by resource depletion at home and the rise of power elites. Having the wherewithal to take from others, they promptly exercise that prerogative and initiate an expanding series of conflicts with other societies.

Typically, but with some exceptions such as the Mongol conquest of China, the more productive material culture defeats the less productive one and requires the vanquished to adopt certain practices of economy and production. Whether by brute force, economic leverage, or diplomatic treaty, the more powerful society imposes its will on the less powerful. But in adopting the practices, by choice or by force, the vanquished lose their sustainable relationship to their local environment. The consequences at the local and regional level can be devastating, and, in our time, the effects have reached global environmental dimensions.

But the ecological depletion caused by the pursuit of material gain doesn't occur silently, without notice or comment. As the effects of resource depletion or ecological damage become apparent, many observers voice their concerns publicly and push for a change in behavior. Books are written, speeches made, and policies adjusted, but somehow the needed changes don't occur. Many of the imperial declines include chronicles by contemporary witnesses who describe in detail the combination of eroding resources and degraded environmental conditions.

A typical example of what successful societies do when faced with the environmental consequences of their own growth and consumption patterns is illustrated by the story of the Pueblo people of the Southwestern United States, whose eleventh- and twelfth-century predecessors are known as the Anasazi. An established elite managed the Anasazi empire with a keen eye to its own comfort and security. After a population and building boom in the eleventh and twelfth centuries, a combination of drought, civil war, and religious conflict brought down the Anasazi, and many of its people migrated south to the valleys and drainages of the Little Colorado River and the Rio

Grande. Before they fell, the Anasazi increased the number of dams and canals to store and divert water, moved to more defensive positions atop mesas, and built watchtowers and walls to protect themselves from raiding parties. To support the increased building, they imported timber from distant forests as local sources were depleted. Logs weighing as much as seven hundred pounds and measuring sixteen feet long were brought from outlying mountain ranges, such as the Chuska Mountains over fifty miles (eighty kilometers) to the west.<sup>18</sup> The need for increased road building and the loss of farm labor to timber production and road maintenance lowered the marginal productivity of Anasazi society, and environmental degradation accelerated even as economic activity increased.

The cohesive system that characterized the Anasazi's Chaco Canyon capital began to break down, perhaps in response to a severe region-wide drought, to water management that led to arroyo-cutting, and to deforestation. As with their irrigation-dependent predecessors in southern Mesopotamia, the Anasazi developed a water management system in a very dry place. Their success fueled population and economic growth, and when the inevitable environmental problems arose, the Anasazi responded by building more dams and diversions, more storage chambers for food, and increasing production in marginal outlying areas. Religious and ceremonial leaders built additional temples and shrines in hopes of bringing divine relief. Raiding increased, provoked by high taxes, famine, and drought, and archaeological evidence of killings by raiding parties also showed signs of cannibalism.<sup>19</sup>

By the fifteenth century, the great societies of the Anasazi were gone, replaced by villages dependent on small-scale farming. Also gone, and not yet returned, are the pinyon and juniper forests of Chaco Canyon.<sup>20</sup>

The symptoms of decline are familiar to historians and archaeologists. As resource scarcity is felt in the availability—or lack thereof—of goods and services, people make increased efforts to acquire new resources. The efforts grow frantic as the need to stave off crises becomes a reoccurring theme. Competition within society grows more intense, and external conquests become an accepted and legitimate practice. As the reserves of commodities shrink, normal variances of environmental conditions like weather, previously handled with ease, hit society with much greater impact. Exogenous events like hurricanes or earthquakes inflict greater damage as the reserves needed to rebuild are exhausted. The response is to redouble efforts based on successful practices of the past. Eventually, the confidence in past practice and ideology proves fatal to future success. We do what we already know how to do, but faster.

The Anasazi were dependent on irrigated farming, hunting, and timber. Modern empires are dependent on fossil fuels, especially oil. Like their Anasazi predecessors, contemporary leaders engage in desperate moves as they begin to run out of their primary resources. On September 5, 2006, Chevron Corporation announced that a consortium of oil companies had discovered oil deep under the Gulf of Mexico. One of their drilling wells had reached through 7000 feet of seawater and then more than 20,000 feet under the sea floor to a total depth of 28,175 feet. The oil was contained in ancient bedrock deep under the ocean. To drill so deep under the ocean floor and pump oil to the surface represents a spectacular engineering feat. But it is also a measure of desperation. The cost to develop that one oil field so deep in the ocean is estimated at 3.5 billion dollars, a figure that does not include the environmental costs of drilling, pumping, transportation, storage, distribution, and burning of that oil.

The current pressure to secure fossil fuel resources by constant exploration and war parallels the long-distance timber gathering of the Anasazi, their construction of larger food storage centers, and the endemic conflict of their downfall. It is a recurring pattern over human history. It's doing what you already know how to do, but doing it faster to keep pace with the acceleration of your problems. It's achieving stunning short-term success at the cost of worsening long-term consequences. It's the investment of the elite in the continuation of their wealth and power at the cost of future stability. It's an ancient tale retold.

### *Ideological Loyalty*

The sustained power that civilizations hold over their peoples is not based on physical force or economic control. Any society's hold on its people rests on loyalty. First theology, then political philosophy, become the bedrock faith that captures the loyalty and obedience of people and grants legitimacy to their rulers. Citizens of large organized states police themselves based on their faith that the "principles" of their individual societies derive from a god or from a certain political form and process. Their material and imperial successes are seen as proof of the value of these principles and thus become a reliable guide to future behavior and a reason to adhere to unreasonable demands by rulers.

Smaller, sustainable societies are as aware of the value and restraints of their traditionalism as unsustainable societies are conscious of their devotion

to innovation and acquisitiveness. Each type of society cloaks the rationale for its ideology with reverence for the past, the word of god(s), or their sense of human nature. By habit and the teaching of societal leaders, people believe in the inherent good sense of their ideology, even when empirical evidence runs contrary. We come to accept contrary evidence as a test of our loyalty, without considering whether it is a test of our good sense. The progress and power of the society becomes proof that its ideological underpinnings remain inviolable guides. We are loyal to our ideologies and traditions for many reasons including that the price of disloyalty can be quite high.

The rewards of conformity can be great, as well. For scholars and writers, for instance, the desire to advance careers and gain the favor of those in high rank persuades them to write within the current mainstream of thought and to fit their views within accepted frameworks. We are not so far removed from times when the people followed the religion of their king. The successes, real and imagined, of a powerful and influential culture operate as a continuous check against criticism and dissent. To recommend substantive alteration to the existing governing or economic paradigms remains a heretical act, even in the face of mounting evidence of decline or failure. If nothing else, these constraints act as inertia to slow and delay not only our understanding of changing circumstances, but also our ability to alter our behavior to meet new challenges. Our failure to grasp the significance of transformational environmental change follows directly from our information bias and our ideological fidelity.

A set of cognitive and informational constraints blinds us to the importance of our observations and limits our ability to grasp underlying patterns. Partisanship and loyalty to our cultural background pushes us toward the importance of one set of facts and away from another. The concatenation of “facts” based on errors in judgment becomes the foundation for overconfidence and a concurrent failure to understand the real meaning of phenomena. We already know where and how to expect the next favored fact, and, not surprisingly, we find it just where we expected. An ancillary problem occurs as the complexity of circumstances and observations prevents us from placing significant and transformational events in their proper context. Critical changes of great consequence are ignored except by a few, while minor changes of little long-term importance are loudly announced. For instance, virtually everyone circa the United States in the fall of 2006 knew that the Democrats won a majority of seats in Congress and that the U.S. stock market hit an all-time high, but few knew that recent reports showed a phenom-

enal loss of coral reefs throughout the world.<sup>21</sup> History will likely record that the latter proved to be a change of great influence while the former was of little consequence.

All records, by the way that they are gathered, processed and catalogued, include systematic bias. Even scientific inquiry follows information pathways that prejudice records. Bruno Latour<sup>22</sup> details a series of scientific investigative steps that reduced nature to collected specimens in a field study without context. The scientific value of the specimens was amplified because of their comparability and standardization with similar specimens from other ecosystems. His descriptive accounts of the reduction of nature to specimens in a field report and the amplification of those specimens as the definitive parts of a particular ecosystem shows the transformation of an Amazon soil sample into a scientific study. Each step in the reduction/amplification process moves nature and field report farther apart, and reduces our understanding of nature to a set of comparable specimens absent their relationship to whole ecosystems. The advantages of the technocratic/reductionist epistemology are confirmed in the practical successes of science while the limits and dangers of that epistemology receive little critical attention.

As a matter of ease, and with the active assistance of those who seek to persuade us, we acquaint ourselves with new information via analogy and comparison.<sup>23</sup> Yet, based on our information bias, we use improper analogy and comparison. If the power of partial comparison or analogy appeals to our limited understanding, we promote the analogy to metaphor. As with Latour's work in the Amazon, the analogous value of the chosen specimens of nature from different ecosystems becomes the basis for elevating the comparison from analogy of specimens to metaphors of whole ecosystems. We make similar errors in trying to transplant social systems from one culture to another. As long as carefully chosen pieces of cultural analogy recommend themselves to us, we assume that the whole is comparable, not merely a few pieces.

Our shared understanding of the power of the metaphor becomes the basis for our confidence in the truth of the assertion. But when circumstances arise that have little recent historical parallel, and with which we have little experience, our inclination to metaphor dissuades us from active investigation. One current example of the power of metaphor relates to the use of air pollution and greenhouse gas "markets." Our belief in markets persuades us that they'll work like magic in almost any situation; we insist that new circumstances, like the filling of environmental sinks, are analogous to old

circumstances, like the most efficient way to translate commons resources into individual economic gains. Thus market advocates export the metaphor of invisible-hand magic to situations that have little in common with the circumstances that allowed market systems to work so well in the past.

### ***Elite Intransigence and Conflict***

Jack Goldstone presents a common pathway of political decline in his book, *Revolution and Rebellion*.<sup>24</sup> Goldstone describes, as have others including Eisenstadt and Tilly,<sup>25</sup> the deterioration of political authority as governments respond to economic pressure in ways that alienate elites and the general population. Intra-elite conflicts arise as powerful families and business interests seek their own stability and power. This exacerbates the inability of the central government to rule effectively. General unrest devolves into insurgencies and the mobilization of the population into competing factions led by contending elites. External wars and conflicts arise over resource shortages. In January 1991 the United States military came to the oil fields of the Middle East to push a dictator out of his recent conquest, and ensure stability in global oil distribution. In March 2003 the United States military returned again for an indefinite stay as a surging Islamic culture and growing population threatened economic and political stability. Once again, an imperial power found itself embroiled in incessant warfare to protect its supply of resources.

A universal extravagance exists among elites in hierarchical systems and, in combination with faulty administration caused by a focus on short-term interest, elite behavior often accelerates the onset of long-term crises. Mancur Olson's work<sup>26</sup> on the short-term goal orientation of modern interest groups, and the increasing complexity of rules and loopholes, reflects a contemporary account of the historical behavior pattern of elites. Tied to their fortunes and the ideologies that favored them, elites are unlikely to initiate revolutionary change that threatens their wealth and power. Instead, they seek to stave off revolutions with appeals to loyalty, subsidy to supporters, and the use of force.

Capitalism arose as an ideology premised on environmental plenty and became an established text with John Locke in the late seventeenth century as he refined his social contract argument with Thomas Hobbes. Hobbes argued that our chaotic and passionate nature should surrender to a powerful sovereign who would establish rules so we can pursue our selfish interests

within a binding framework of laws. He believed a strong polity was needed to keep the adversarial nature of people in check and to prevent a small minority of greedy and violent people from trapping us in a cycle of conflict. But Locke, who lived in calmer and more prosperous times than Hobbes, and who grasped the enormous untapped commons of the Americas, moved away from Hobbes' requirement for an autocratic leader. Locke believed that the social contract was a natural condition of society, so he placed the creation of a civil society as the first step and the establishment of a polity as the second. Locke's confidence in people's social comity and his rejection of Hobbes' Leviathan is premised on ecological abundance.

But it was Adam Smith who articulated the importance of self-interest as the basis of capitalist ideology, as well as the value of private property and the recognition that material progress is the measure of society. Smith argued that individuals should be free to pursue their own interests, as long as they do not violate the laws of justice. He presented the "invisible hand" argument that economic prosperity grows from the selfish economic behavior of people operating within a polity that facilitates, not dominates, such behavior. He believed, as did Locke, that reason, moral sentiment and prosperity are sufficient to keep people behaving within reasonable bounds. Ferocious traditionalism or the authoritarianism of Hobbes was neither needed nor desired.

Ever since Locke and Smith, and bolstered by the political revolutions of electoral democracy, a consensus formed that contemporary material accomplishments are the product of the capitalist ideology. The requirement of a large ecological commons and the vastness of the environmental "sinks" went unnoticed by all but a few. Locke and Smith's admonition to focus on private property and free exchange as the basis for a successful society was adopted widely and provided the impetus for transforming nature into material progress with swift and stunning success. In short order, self-interest and private ownership of resources and production became the basis for elite power in modern societies. Holding onto that power became synonymous with maintaining capitalism and private control of the economy.

The fierce loyalty of cultural leaders to their free market economic ideology and its political partner, electoral republics, became the basis for aggressive, acquisitive imperial behavior. It is this ideological loyalty that blocks consideration, much less implementation, of new economic or cultural paradigms that lead us toward a more benign and careful exploitation of the physical environmental and ecology. Even in the face of compelling evi-

dence of ecological decline, faith in the ideology dominates the discussion of the environmental problems and proposed solutions. The abundant consumption, security, and individualism of contemporary unsustainable societies explains the strong faith placed in capitalism and electoral democracies by their citizens, but as William Ophuls pointed out, “...*liberal democracy as we know it...is doomed by ecological scarcity,*” and “.....*such central tenets as individualism, may no longer be viable.*”<sup>27</sup>

### ***Reform Movements and Ritual***

In 1970, the State of California, encouraged by local activists, claimed that a tidal wetlands in the southern city of Huntington Beach and across the famous Pacific Coast Highway from the ocean needed protection from development. That decision launched an ongoing battle to protect the Bolsa Chica wetlands and restore the wetlands’ link to the ocean. On August 24, 2006, construction to lift the Pacific Coast Highway was completed, and a channel that links the wetlands to the ocean was opened. A tidal basin of 366 acres now receives full tidal action, and approximately two hundred more acres adjoining the tidal basin will become wildlife and marine life habitat. Restoring the Bolsa Chica is a wonderful accomplishment.

But the project exemplifies a desperate response to continued environmental and ecological decline, not a genuine effort toward a solution. This small project consumed up to \$150 million, not including the costs of 35 years of political and legal conflict. Much of the financing for the wetland restoration came from the Long Beach Port Authority and the Los Angeles Port Authority. In return for funding up to \$50 million of the restoration, the ports received mitigation credit that allowed them to expand into undeveloped wetland and marine areas. The average cost of remediation acreage ranges from \$150,000 to \$300,000 per acre. Mitigation credits allow a 2:1 swap for inner harbor development and a 1:1 swap for outer harbor development. The 45-acre expansion at the Long Beach port required only 22.5 acres of the port authority’s mitigation credits from Bolsa Chica.<sup>28</sup> The mitigation policy also allows developers to “bank” credits for development in the future.

The city of Huntington Beach has permitted home development surrounding the Bolsa Chica. The permits remain subject to environmental review and litigation, but some home construction is already underway. Meanwhile, the legal battles continue as oil companies, who owned the wetlands for



much of the twentieth century, still operate oil pump jacks in the wetlands, and seek to profit from selling the portion of the wetlands not owned by the state to home developers.

As spectacular a success as the Bolsa Chica represents for local activists, it's a net loss for the almost completely disappeared southern California wetlands. It's a "reform" without any real change. Bolsa Chica illustrates perfectly the costs, conflicts, politics, and media attention of environmental "boutique" projects that make us feel good about our efforts but have little real impact on the larger problem, while legitimizing development into other rare ecological areas.

In his 1932 book *The Myth of Civilisation*, Robert Briffault rails against the belief that "liberal reforms" can transform organizations established to promote the interests of the powerful into organizations that promote the interests of "mankind at large."<sup>29</sup> He consciously adopts the realism view that politics is an unsentimental business that distributes power and resources while maintaining order and stability. In like fashion, wealthy and powerful individuals and organizations that benefit from externalizing or ignoring environmental and ecological damage are unlikely to initiate radical change. They relegate their environmentalism to public documents and pronouncements, except where immediate effects require tactical changes in behavior such as the removal of lead from gasoline.

Like our predecessors, we are aware of the environmental and ecological problems associated with economic and population growth. As early as the *Epic of Gilgamesh*, the destruction of nature and the need for ecological conservation was clear. Reform movements arose then, as they do now. The contemporary political context of public opinion, interest group advocacy, and electoral strategies reflects "environmentalism."

We promote environmental expertise in academic departments that feed graduates into a web of government agencies, consulting companies, non-profit advocacy groups, and corporate offices. Successful operators in this web shift skillfully from position to position. They focus on mitigating the damage of industrial and post-industrial society without genuinely confronting the fundamental momentum of acquisitiveness that is accelerating the ecological decline. They seek to smooth the ecological rough edges of capitalism and consumerism with boutique projects like the Bolsa Chica wetlands that are brief in time, small in scope, and almost without consequence in the broader society or the natural environment. They promote "smart growth," the merger of our consumption-based economy with synthetic nature.

In this view, nature is understood as an environmental and ecological infrastructure that requires integration with the production of goods and services. The public is taught that the environment is a complex machine that we can learn to steer properly and repair as needed. We can also learn to extract from nature products that benefit us, especially in the commercial sense. Yellowstone National Park, one of the premier “wilderness” parks in the United States, is the site of over two hundred continuing experiments by scientists. On-site “enhancement” and bio-prospecting for animals and plants with commercially valuable DNA occur frequently. The common complaint among U.S. Park Service officials is not the intrusion on “wilderness,” but the failure of “benefit sharing” as the profits from the research aren’t shared with the Park Service.<sup>30</sup>

Members of unsustainable societies exhibit landscape amnesia as their sense of nature diminishes and becomes limited to gardens and parks. Successive generations establish continuously lowered parameters for biodiversity, e.g., national parks as “wilderness” with a managed population of monitored and tagged animals. The loss of the great biodiversity reservoirs like the Amazon or the oceans is divorced from ordinary behavior and the loss is felt like nostalgia; poignant but with no direct impact or connection to our own lives.

Legislatures and agencies promulgate environmental laws that are enforced with decidedly mixed results. Like drug laws, a key set of entrepreneurial actors and a large set of active consumers continuously ignore the rules. Also, like drug laws, the transaction costs of inspection, enforcement, compliance and litigation of environmental laws are unusually burdensome. The goal of business operators is to lower the unit cost of production, and the goal of consumers is to maximize the choice and convenience of product use. Even committed environmentalists realize that much of their usual behavior alters the physical environment and damages ecologies.

In addition to the reliance on incremental reforms to the system, empires also turn to ritual and process as a means of addressing intractable problems. Across human history, legality joined theology as a primary arena for ritual. In November 2006 the United States Supreme Court heard arguments from state governments and environmental organizations that the federal government is required to regulate greenhouse gases like carbon dioxide. The federal government argued that the Clean Air Act, as interpreted by the federal Environmental Protection Agency (EPA), does not treat greenhouse gases as air pollution and therefore the EPA does not have the authority to regulate

them.<sup>31</sup> Much of the debate turned on whether the states had “standing” to sue. Standing requires proving that there is an injury to the plaintiff and that the action demanded in the lawsuit relieves that injury. Even if the Supreme Court rules that the states have standing, and confirms the EPA’s statutory authority to regulate greenhouse gases under the Clean Air Act, the court is likely to leave it to the EPA to decide whether to actually regulate carbon dioxide and other greenhouse gases.

While the Supreme Court debate represents a valiant effort by state governments and environmental advocacy groups to address the problem of global warming, the entire episode has a somewhat ritualistic quality. Given the scope and breadth of atmospheric change and its attendant consequences, legal arguments about “standing to sue” illustrate the inability to address the problem. So we turn to process as a substitute for action. The battle is no longer over addressing the grave problem of global warming; it has, instead, devolved into arguments about relative minutiae. Surely, our predecessors among the world’s fallen civilizations also turned to the comfort and familiarity of tradition and ritual as they sought answers to their environmental crises.

### ***Learning From the Fall***

The saga of the Hopi provides an illustration of how a society may view the world after falling. The Hopi are the descendants of the people who built and lost a successful irrigation society in the now Southwestern United States. Their cultural experience incorporates the earthy wisdom of a people who make a subsistence living from farming, ranching and hunting/gathering into the lessons of a society that recently fell from its lofty perch of material success. Their architecture is quite famous, as is their cosmology. They had the earth rotating on its axis. Their sense of physiology mirrors that of Tibetan Buddhism or India’s Hinduism with their identification of psychophysical centers located in key junctures of the body. The Hopi’s striking blend of theoretical knowledge and ascetic behaviors makes them irresistible to New Age spiritualists and ecologists.<sup>32</sup>

Their theology includes a single god-creator; a vast void before the creation of the universe; the subsequent creation of life; an initial period of peace and unity called the First World, followed by the failure of humans to maintain respect for their god and their fall as the earth was destroyed by fire; a second period of opportunity followed by the abandonment of their

god; another fall from grace and another earth destruction but this time by ice. Once again, humans emerged chastened into the third period, in which they reproduced rapidly, developed cities and thus civilization. The difficulty of maintaining goodness in civilization manifested itself and once again the world was destroyed, this time by flooding. The people emerged into the fourth period, which is the current time. Hopi *kivas*, or subterranean rooms, represent this emergence with the kiva as a womb in the earth and the ladder leading out as the umbilical cord.

Serving as a linguistic clue to their expansion and contraction as a civilization, the Hopi developed terminology to describe the dissolution of societies and their regress to an earlier, simpler way of life. They now see the simpler life as the more pious, and make references to the unsustainability of faster-paced, materially-progressive and spiritually corrupt life. Their term, *tusky-apqatsi*, refers to a crazed or frenzied life, and similar terms exist for a life of quarreling, a life of mutual disrespect, and for abusive and corrupt behavior in sexual practices or the use of alcohol and drugs. Many of these terms are subsumed under a Hopi philosophical concept termed *koyaanisqatsi*, meaning the corrupt life or life out of balance. These terms and the current Hopi admonitions against a materially ambitious and behaviorally liberal life arise from their experience of societal crashes occurring with some frequency, mostly notably the swift decline of the late thirteenth century.

The experience that we have determines the knowledge that we value. Too often, one sort of knowledge is perceived by its owners to be evidence of intellectual superiority over another sort of knowledge. People from aggressive, acquisitive societies find their prosperity to be the most compelling evidence of the superiority of their kinds of knowledge. In these unsustainable, material societies, the skills of business and politics and technology represent the most desired knowledge. In smaller sustainable societies, gardening, farming, gathering, simple carpentry, and tool-making represent the most desired and valuable knowledge. Each set of people are likely to view the others' knowledge base as inadequate, and given the distinct worldview of the observer, both are right. But it is rare when a society learns from its own past and comes to value a different kind of knowledge. Is it possible for unsustainable societies to integrate some of the lessons of sustainable societies and borrow practices that will allow us to meld our desire for continued material progress with protection for the environment?

## Conclusion

On August 29, 2005, Hurricane Katrina struck the north-central Gulf Coast, especially the city of New Orleans. The levees designed to protect the city from floods were breached and 80 percent of the city was submerged. On the day that the hurricane engulfed New Orleans, the city ceased to function. As help from outside did not arrive for days, even weeks, city residents discovered how quickly an advanced civilization can disappear. To date, much of the city remains empty. Costs to rebuild are estimated to exceed \$200 billion. Building a city below sea level in a hurricane zone may have been an act of hubris; rebuilding the same city after the sea reclaimed it may be an act of foolishness. Hurricane Katrina shows us the vulnerability of contemporary human society to environmental changes like global warming, and illustrates how much we resemble the overbuilt and overpopulated empires of the past. The panic, the destruction, and the “*ecological flight*”<sup>33</sup> of Katrina victims foreshadow the sudden dislocations that serve as the defining moments of decline, and give an advanced society a stark view of the circumstances faced by citizens of developing societies.

Garrett Hardin<sup>34</sup> reminds us of a key lesson of complex systems: “*We can never do merely one thing.*” The more we alter physical and ecological environments, the more widely the effects ripple. At some point, the marginal returns of increasing complexity diminish such that more of the same activity makes the problem worse, not better. Sustainable societies respond to this dilemma by limiting their actions and thus limiting their effect on the environment and remaining within manageable parameters. Unsustainable societies respond to such problems by attempting to address each symptom in isolation, independent from the whole. Our innovative nature makes this strategy viable, with spectacular short-term success, but guarantees long-term decline.

The real test for capitalism arrives as environmental sinks fill and can no longer absorb its externalities. If the natural social comity of Locke and Smith ever existed, it certainly doesn’t exist in the modern nation-state. It may take centuries to build from village society to advanced civilization, but it only takes a day to regress to village society. The social ties that hold civilizations together can’t survive the loss of prosperity, security, and power that comes from resource depletion and environmental decline.

Imperial history mirrors Tolstoy’s observation that “*Happy families are all alike; every unhappy family is unhappy in its own way.*” The long and detailed narrative of the fall of great societies is filled with high drama—revolts and revolutions, the stirring glory of imperial war, famine and disease,

and the grand pageantry of elite extravagance. The charismatic and epic nature of the drama blinds us to the pedestrian realities of environmental and ecological problems, but fits neatly with our historical bias that man is the measure of all things. Collecting all the passion and drama of collapse under a single theoretical framework has daunted scholars since ancient times. What is indisputable is that all empires fall, and at the core of the crisis lies environmental, ecological, and resource problems.

Human society, quickly globalizing, has now reached the capability to profoundly alter the environment at a global level. Such vast reservoirs as the oceans and the atmosphere are now subject to human-induced alteration. Yet, despite the realization of these alarming conditions, contemporary human society seems incapable of shifting its organizational, economic, political, or infrastructural gears. As with times past, the likely result is a painful devolution, and the rise of simpler, sustainable practices while history awaits the next iteration of progressive, acquisitive societies.

Few alternatives present themselves. William Ophuls' mistake may be his belief that an autocratic leviathan can replicate the successful ferocious traditionalism of village society at the level of empire. No previous empire, including any with impressive elite-driven ferocities of their own, could overcome the ideological loyalty and elite intransigence that prevented environmental and resource depletion. Despite the acceleration of reform activity, like rationing or the increase in imperial conquest to secure resources or the warm embrace of theological and legal ritual, ideological loyalty and elite inflexibility led to stagnation and decline.

Nascent attempts at revolutionary environmental solutions like Arne Naess' deep ecology or Murray Bookchin's social ecology aim to synthesize sustainable, decentralized societies with material innovation and progress. Those listening closely to revolutionary environmental admonitions can hear the echo of the ferocious traditionalism of sustainable societies even as the advocates for those visions seem blind to the realities of sustainable village life. Such contemporary issues as immigration, population control, the use of fossil fuel, the protection of wilderness, and consumer choice are subject to harsh pronouncements from deep-ecology based groups like Earth First! or the Animal Liberation Front. Aldo Leopold, often cited as a precursor to deep ecology, stated that "...an ethic, ecologically, is a limitation on freedom of action in the struggle for existence."<sup>35</sup>

Bookchin argued that "*One of our chief goals must be to radically decentralize our industrialized urban areas into humanly-scaled cities and towns artfully tailored to the carrying capacities of the eco-communities in which*

they are located.”<sup>36</sup> His vision, shared by many in the social and radical ecology movements, proposes a decentralized and autonomous set of small towns communally managed with strict reproductive and ecological restrictions. The soft glow of Bookchin’s utopian commune is not consistent with the harsh realities of village life that meet the requirements of ecological sustainability.

What Bookchin, and so many others, fail to take into account is that much of human society lived in exactly these kinds of communities, but endured only with the adoption of social and behavior constraints that would be anathematic to the tolerance and individual liberties that social ecologists take for granted. Ophuls’ prediction that we’ll turn to an environmental Leviathan to address our depleted and polluted environment requires the wherewithal to maintain a Leviathan-sized society. No imperial Leviathan in the past successfully met the challenge. More likely, we’ll ride the decline to devolved societies with new forms of ferocious traditionalism to guide our survival.

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