Current Trends in Human Ecology
As students of culture such as Max Weber and Clifford Geertz have suggested, we live “suspended in webs of meaning that [we ourselves have] spun” (Geertz 1973). These collective meanings serve as the basis of an ethical framework informing how people perceive, remember and communicate. The natural environment historically has influenced how cultures develop, and in turn has been affected by human action and belief systems. Research on culture and the environment offers a number of insights into ways in which these processes occur. Particularly, but not exclusively, with technological innovation and its cultural incorporation, human interactions with the environment have varied dramatically. Put another way, while humans have impacts on the natural environment, they often do so in ways that are influenced profoundly by the cultures of which they are part.

This article explores a number of aspects of culture, including the most deeply held ethical values. While various attitudes, such as those toward the environment, are rooted in ethical orientations, attitudes are potentially more quickly changing while culture changes very slowly, typically over the course of generations. This work examines what causes cultures to constrain and inform human action—particularly relative to the natural environment--while themselves changing slowly over time.

Issues of social change and cultural lag are crucial here. While it is not uncommon for cultural change to follow major technological innovation, that change may unfold over years or even generations. While there has always been technological innovation, its interaction with culture is now more problematic than in previous times because the rate of change is itself accelerating (McNeill 2000). This article explores linkages between culture and the environment, and suggests directions for research and informed public policy.
If institutions are where individuals and society come together, culture is the milieu in which those interactions occur and have meaning (Wuthnow 1987; Handel 1982). Culture can be seen as a way of organizing and prioritizing thought, value, belief and action around an ethical framework (for extended treatments, see Weber 1978 [1921], 1948, 1985 [1904]).

An important aspect of culture is that it often serves as the backdrop against which judgments of appropriateness are made (Archer 1988). Much of the power of culture lies in its taken-for-granted quality (Brown 1987). As Aristotle recognized, what made human communication meaningful was a common ethos, or set of values, norms and beliefs. Institutions and actions may be judged relative to culture, but rarely is the converse true.

As various thinkers in the Platonic tradition, most notably Immanuel Kant (1958 [1781], 1950 [1783]) and Phenomenologists such as Heidegger (1966 [1932], 1999), Husserl (1965), Schutz (1972) and Berger and Luckmann (1967) have pointed out in various ways, there is a human tendency to perceive, to remember and to make sense of one’s life-world in terms of underlying forms. These go by a number of different names, each emphasizing some particular aspect of how information is perceived, prioritized, remembered and communicated; what is seen as important and what is ignored or minimized; what is explicit and what is implied. Kant himself used the word “schema”, which was adopted by Twentieth Century thinkers, most notably Frederick Bartlett (1932) and Jean Piaget (1951, 1954). Schema has been used primarily in terms of how individuals store information.

When applying these ideas to larger communities, particularly but not exclusively scholarly communities, the term “paradigm” has been used. The metaphor of “frame” is also used by social scientists, particularly since Erving Goffman’s (1974) popularization of it. It is also used in computer and cognitive sciences in a somewhat analogous way. The “frame” problem in a computer’s “understanding” of natural language, for example, refers to how much of a problem is actually unstated. A human being tends to perceive partially ambiguous information by “filling in the blanks” in a certain way, typically in concert with one’s cultural expectations. This tendency is referred to by some students of human communication (particularly those identifying with the ethnomethodological school), as the “et cetera principle” (Mehan and Wood 1975; Handel 1982)\(^1\).

By observing ways in which people perceive, prioritize, think about and communicate information, we gain valuable insight into culture itself (DiMaggio 1997). We can then look at how people act on the environment, and how they make sense of and justify acting within a cultural context. This in turn will give us some insight into why some
cultural ways of seeing and tendencies for acting have differential effects on the environment.

**Cultures as Networks of Meaning**

Taken together, much of the aforementioned literatures converge to tell a compelling story. Culture can be seen as an interrelated set of complex networks of information and values (Alexander 2003). These networks serve as a backdrop against which behavior, mores and folkways, and other information are judged. Perceptions and ideas are found meaningful in relation to these networks (Douglas 1970). When judgments do occur, either explicitly or implicitly, they typically are made such that if there is dissonance between the cultural networks and the object of perception, it is the object that is found wanting and judged as strange, foreign, and worthy of rejection (Cooper 2007; McClure 1991; Festinger 1962 [1957]), rather than the culture itself (Swidler 2001; Archer 1988).

A property of networks in general, is that some aspects of them are more central and some more peripheral. As a general rule (and one that does need to be qualified), the more central actors or “nodes” are in a network, the more power and influence they are likely to have (Burt 1982). As interrelated networks of meaning, cultures have these characteristics, and thus can be seen and analyzed, at least in part, in network theoretic terms. An inseparable characteristic of cultures then, is that they carry within them priorities – some information is more important than others, some values and ways of behaving are preferable to others.

While the specifics of what is privileged varies from culture to culture, a universal of all cultures, is this implicit prioritization (H. Simon 1990; Bourdieu 1984). These priorities are reflected in artifacts of the culture, most notably the language; so much so that some theorists see language and culture as virtually the same thing. While I am not necessarily arguing that here, there is no doubt that some of the specific ways in which language is used serve to define and reinforce cultures and subcultures.

**Culture and Modernity**

Over the last several centuries society has seen dramatic changes, particularly of the sort associated with “modernity” (Dilthey 1976; White 1973; Kohn 2004) World population is now over six and one-half billion and rising, having passed the one billion mark only in the mid Nineteenth
Culture and the Natural Environment

Century (United Nations 1992; Cohen 1995). The transformation has been accompanied by rises in literacy and formal education, increasingly concentrated modes of production and urbanization, a steady supplanting of agrarian with industrial ways of living (Chase-Dunn and Hall 1997; Inglehart 1990, 1997; National Research Council 1999).

Modern society, as Snow (1998) famously remarked, has experienced a dehision between two “cultures”–one aligned with the humanities and the other more closely associated with scientism. What is modernity itself then? There are, of course, a number of ideas about that. In very broad brush terms, we might see modernization as a process that involves increasing complexity on a number of dimensions, particularly those involving technological changes and their attendant social forms.

A number of social observers, most notably Emile Durkheim (1964 [1893]; Durkheim and Mauss 1961 [1902]) and Georg Simmel (1955 [1908]) have suggested that the emergence of the individual as a social form has run parallel to the rise of modernity. Durkheim’s famous dictum from The Division of Labor in Society, in which he challenges the utilitarianism that had become popular in his time, is indicative here: “Society is not born of individuals, rather, the individual is born of society.”

How then does the modern individual, and her post-modern offspring, react to the increasing challenges of modernity? In the face of overwhelming complexity, there is a tendency to shut down and simply ignore mounting evidence of large scale challenges, even while opting for ever more elaborate escape strategies. As Marcuse (1964) saw by the mid Twentieth Century, there appears to be a shift away from critical engagement of pressing social problems, particularly by individuals feeling overpowered by highly technocratic cultures. In Marcuse’s dystopian scenario, reality seems so overwhelming that, at some point, the alienated modern/post-modern individual turns away from the complexity and simply seeks to escape into mind-numbing activities.

A number of ideas from epistemology and from empirical studies in cognitive and neural psychology are important to consider here, particularly in cultures where, as is increasingly the case, the technological and social conditions are ripe for what is sometimes referred to as “input overload” (Burns and LeMoyne 2003). Cultures and the institutions embedded in them become characterized by increasingly desperate and narrowly focused “fixes” to the overwhelming complexity of modernity/post-modernity. Politicians are taken seriously when they, for example, propose “abstinence education” for runaway population problems (Ehrlich and Ehrlich 1990), and global warming is dismissed as merely a fantasy created by some
other(s) perhaps vaguely characterized as “elitists” or “liberals” (see Burns and LeMoyne 2001).

Even “local” environmental problems often tend to involve large and complex ecosystems in a number of ways. Global warming and deforestation are, in a very real sense, macro-level problems. These in many ways are exacerbated by the structure of the only real global institution—the global economy (Burns et al. 1997, 2003; Ehrhardt-Martinez 1998). There is a mismatch between the scope of a number of environmental problems and the human institutions that, even under the best of circumstances, stand to address them (e.g. Shandra 2007; Smith and Wiest 2005; Robinson 2004).

Institutions and Cultural Lag

Institutions are embedded in the cultures of which they are part, and yet we are in a somewhat unique situation worldwide. Although international trade goes back hundreds of years (Wallerstein 1974), what is new now is the extent to which a truly global set of markets have emerged (Chase-Dunn et al. 2000; Chase-Dunn and Hall 1997). Beyond a mere cliché, the rise in “globalization” has made it increasingly likely to have commodity chains that involve many nations and even continents on a regular basis (Robinson 2004; Hornborg 1998). This has profound environmental consequences (Lofdahl 2002; Burns et al. 1997, 2003; Bell 1973, 1976).

Early in the Twentieth Century, William Ogburn (1961 [1932]) noted that while it is typical for culture to reflect material conditions such as the natural geography and the constraints people encounter in make their livings, there tends to be a time lag between the conditions people face and the cultural adaptations to them. Sometimes that lag could be even as long as several centuries. There is evidence that even in the face of overwhelming modernization there is a persistence of traditional values, and this is true across geographic regions as well as levels of development (Inglehart and Baker 2000).

Yet while constrained by tradition, institutions and ideas still tend to diffuse. John Meyer and his students and associates (e.g. Meyer 1977; Meyer et al. 1997), for example, have documented the increasing uniformity of institutions such as education systems and types of governance in the nation-state. Because of the associated decrease in opportunity costs, the rise of this “institutional isomorphism” (DiMaggio and Powell 1991) facilitates increasingly larger scale bureaucratic practises. These systems throughout the world have, in many ways, come to be so similar to one
another that Meyer argues they can be characterized as a “world polity” (Meyer 1980).

Recent work by some of Meyer’s students has attempted to extend the world polity analytic framework to environmental action on the nation-state level. Frank et al. (2000a, 2000b; also see Schofer and Hironaka 2005) find worldwide rises in a number of indicators, including the establishment of environmental impact assessment laws, entry into environmental treaties and the establishment of national parks and environmental ministries, as well as the number of chapters of environmental associations over the course of the Twentieth Century.

There tends to be institutional diffusion within a given society as well. The economy can be seen as a “lead institution” (see Rudel and Roper 1997) and one that, for hegemonic powers such as the U.S. and England, is followed closely by military adventure. In addition to being embedded in a dominant culture, institutions themselves can be said to have their own “institutional culture”. Particularly in global markets, ideas of classical economics such as the “law of comparative advantage” and the related principles of “laissez faire” and “economies of scale” increasingly inform the way global business is conducted. These ideas go back centuries, at least to the work of Adam Smith (1999 [1776]) and David Ricardo (2006 [1817]). Despite critiques (most notably Marx, e.g. 1967 [1867]), they have progressively come into their own over the last two centuries (Bell 1976; Hornborg 2001).

Different institutions change across an array of time trajectories. The economy tends to adapt to external circumstances such as changes in supply or demand for a critical resource quite rapidly. The polity adjusts a bit more slowly, with the culture tending to transform more slowly than either (Parsons 1951, 1966). If in fact there is an emerging world polity, it is firmly embedded in a culture that has had over two centuries to absorb the values of the laissez faire capitalism; to the extent there is an emerging ecological consciousness, it has only had a fraction of that time, and likely has nowhere near as deep a level of cultural immersion.

Culture and the Environment

Ever since the dawn of civilization, there has been environmental degradation, and since that time some cultures have in fact had values of sustainability and others less so (Ponting 1991). And yet the complexities of modern times and their aftermath really are characterized by environmental problems of unprecedented magnitude (McNeill 2000). We now have more
people on the earth using more resources with technology increasingly capable of making more profound incursions than ever before in history.

Cultural lag then is crucial to consider, particularly when seeking to understand the trajectory of environmental problems. Yet for reasons discussed, cultures tend to change very slowly, even glacially. With the advent of the industrial revolution, there has been a continuing and steadily increasing pace of change in the material culture. Yet our adaptive culture has not caught up. Rather, the gap arguably is widening.

As societies modernize, cultures increasingly embrace values of consumption (Schnaiberg and Gould 1994; Jorgenson and Burns 2007). While some theorists see signs of pro-environmental cultural values (Dunlap and Catton 1994, 2002; Catton and Dunlap 1978; Inglehart 1990, 1997) in some segments of societies, these appear to be increasingly swamped by a logic of global trade in which economies of scale — scales of extraction and production, as well as consumption — have increased to unsustainable sizes (Rice 2007; Roberts and Parks 2007; Hornborg et al. 2007).

There is an increase over time, particularly in the most developed countries, but also in developing countries, of the ecological “footprint” of consumption (see York et al. 2003; Jorgenson 2003, 2004; Jorgenson and Burns 2007). In fact, arguably the most powerful institution ever witnessed in human history has come into its own with the global market. To be sure, this is met with some cultural countertrends (Commoner 1992; also see Ritzer 1993), themselves not without their own set of problems. Yet these global markets have in some real and powerful ways served to forge a worldwide culture of consumption. This is not to imply that history does not hold a number of valuable lessons for us if we are able to heed them. Jared Diamond’s (2005) haunting work Collapse details a number of such lessons, as does much of the work of J.R. McNeill (2000) and others (e.g. Chew 2001; Ponting 1991).

**Why Understanding Cultural Lag Is Crucial to Environmental Consciousness**

A culture typically adapts over time to conform to demographic, technological and material conditions. The fact that scrimshaw was a part of some of the Inuit cultures reflected a presence of whalebone from the hunting and fishing that was part of the everyday reality of the people. Likewise, in industrialized societies, the “sexual revolution” could be seen as a function of a congeries of demographic and technological conditions.
coming together at once—the post World War II baby boom coming of age at a time when technological advances and their diffusion had led to relatively reliable birth control becoming more widely available; these were at a time coinciding with larger modernization processes, such as the move from agrarian to urban industrial societies with largely age-segregated sub-populations, among other factors.

There are other such examples as well, and an ethic of environmental stewardship, reflected partly in term of “attitudes” toward the environment can be seen in a similar framework. The inverse relationship between population density and the probability of adopting the “New Environmental Paradigm” or NEP (e.g. Dunlap and Catton 1994) is an instance of this principle in action.

The complexity of these issues needs to be appreciated. There is necessarily an implied ceteris paribus clause always in effect (that is to say, holding all else equal, which of course is seldom actually the case in complex ecological systems), and any discussion can always be nuanced with the addition of pertinent variables. One of many possible examples of how the picture may be further complicated can be found in the propensity of attitudes to become less flexible through the life course, yet more so with higher levels of education. Many aspects of a social ethos, including norms, values, beliefs and basic ways of seeing the world and in parsing new information are passed on from one generation to the next. Thus, ethics that were adaptive to a prior time are likely to persist, even though they may be maladaptive in the current and future times.

Put another way, rapid environmental change renders many aspects of the natural environment appreciably different from what was the case a generation or two ago—and yet many of the ideas and ways of relating to the environment have become part of the ethos of a socially constructed rugged individualism based in a time when environmental resources were seen as virtually endless.

In North America, for example, the myths of “explorers” such as Paul Bunyan and Davey Crockett have given way to the culture of the four-wheeler, snowmobile and power boat. Even as the environments needed to sustain these are being whittled away, sometimes by these very practises, unbridled selfishness may bask in the frame of rugged individualism, thereby lending it an air of legitimacy. The individualism trope, particularly though not exclusively in North America, may in turn be embedded in larger master frames such as “manifest destiny” and the idea of the “frontier” as articulated by historians such as Frederick Jackson Turner. There may as well be aspects of a religious or eschatological “promised land.” Ironically, there is evidence that in modern cultures, many of the
attitudes that diffuse most profoundly and enjoy general adoption are born in urban environments where unsustainable consumption patterns become entrenched; it is from there that they tend to diffuse to more rural areas (Fischer 1978; also see Grubler 1991).

Further adding to the problem is the phenomenon of willful ignorance, combined with the very real possibility of learned helplessness in the face of what may seem like overwhelming problems (Seligman and Maier 1967). Social psychologists have long known of the propensity to simply try to escape from seemingly intractable problems, often through rapid, meaningless, and mind-numbing activities (Marcuse 1964).

Perhaps ways in which researchers and journalists go about framing questions and discussing their findings may inadvertently feed the very public ethos that ultimately is part of the destruction of the environment. A not insignificant aspect of a society of mass consumerism, particularly one characterized by chronic information overload, is the rise of news as entertainment. The latest reportage on celebrities such as Michael Jackson, Martha Stewart, and O.J. Simpson tend to take priority over news of deforestation in the Amazon. Serious environmental problems are regularly reduced to a punch line in a joke (e.g. “...it’s cooler today in the valley—so much for Al Gore and his global warming...and now a word from our sponsor”). In a time when the special effects of PowerPoint presentations and the like capture attention, environmental messages become part of a bad news background that can be ignored—life is already depressing enough. This of course feeds into the willful ignorance that characterizes much of human attitudes toward the natural environment.

Enantiadromia

Enantiadromia can be defined as the tendency for an action to set up a reaction to it. In social systems, it is not uncommon for the reaction to have a greater impact than the action itself. This idea was first discussed by the pre-Socratic social observer, Heraclitus; it is a concept familiar to an array of disciplines from history (particularly see W.I. Thompson 1971, 1981) to Jungian psychology, and yet is largely ignored in ecological work.

As a general rule, the larger the action or incursion, the greater the reaction will be—and the reactions typically are only partially predictable at best. A property of virtually all systems, whether they are social or environmental systems, is that they can be conceptualized on a number of levels of analysis (Duncan 1964). The scientific method itself, and the technological processes that stem from it, are based in analysis (breaking a
problem down into smaller, presumably understandable, parts). As a consequence of this, even the most sophisticated of studies tends to focus on part of the system and to ignore others (Dietz and Rosa 1994).

Science has engaged in rear-guard action, justifying a materialist perspective, for example, in juxtaposition to that proposed by advocates of an “intelligent design” perspective, and it has amassed a literature to this end (e.g. Gould 1992, 1999; Kitcher 1983, 2007; for an historical overview, see Clark et al. 2007). Yet as modern science basks in the glow of its “triumph” over creationist perspectives of the past (e.g. Eldredge 2000), it tends to ignore large issues about how its methods may need some radical rethinking as society moves into the future.

This is not necessarily to argue against scientific analysis. Rather, it is to point out a limitation of the scientific method on which much of industrial and even some of post-industrial social development and the contemporary culture deriving from them are based. Small and, on some level seemingly ignorable, problems have--now aggregated over the two or more centuries since the beginning of the industrial revolution—brought the world to some staggering problems (Hornborg 2001).

While science has made wonderful breakthroughs, the method itself has not kept pace in development. Rather, it has reached something akin to a sacrosanct status in modern culture. Consider for example one of the truisms in statistical analysis and education about the probability of Type I error and the convention of the .05 or .01 Alpha level. This certainly has worked well in countless instances. Yet particularly where it is difficult if not impossible to isolate factors in an ecosystem, the slippage or “noise” in that system may cause important factors not to be discernible without years of measurement.

It may well be that the precautionary principle, rather than the traditional .05 level, would lead to healthier outcomes (Steingraber 1998). One of the few examples where this has been the case was when DDT was outlawed in the United States in the wake of Rachel Carson’s (1962) prophetic work, *The Silent Spring*. Based on a preponderance of what looked to be at the time (and did in fact prove later to be) significant dangers of DDT, it was banned. It is an unfortunate fact that it is still used in many developing countries. Further, insecticides, herbicides and fertilizers are on the market now that may be even more dangerous than DDT, and yet because there may not enough “proof” at a given time, they remain on the market. Even more ominous is that the pace of technology is such that new products can be developed faster than a thorough vetting can take place.

The combined force of global business and law has given rise to a culture in which burdens of proof lie not with those who would pollute, but
with those who would slow its pace. Adoption of the precautionary principle would shift the burden of proof, at least in part, to those who would seek to introduce and market potentially toxic substances—to prove that they are safe, rather than having advocates for the public good have to prove that they are not. As legal scholars have demonstrated, the time and expense associated with who has the burden of proof in many ways preordains the outcome (Gaskins 1992).

This ethical dilemma tends to be approached from the standpoint of what is good for business in the short run—what is “cost effective”. It may be that a cultural transformation would need to take place, where interests of global business are weighed against other values such as environmental stewardship and well being. In this as in other issues, a big part of what we think we know comes from how we make assumptions to fill in blanks about parts of the overall situation that are ambiguous or unknown. Cultural schemata provide the symbols and linkages we use to fill them.

Some Lessons and Questions from a Utilitarian Perspective

The foregoing discussion highlights several salient problems associated with linkages between culture and the environment. Some of those can be seen more clearly through the lens of individual self interest, which has become a central organizing principle of some cultures. It arguably is becoming more widespread in parallel with the globalization of markets, which depend on stoking desires in order to maintain a steady growth of markets and revenues. This situation of unquenchable growth in production, marketing and consumption of growth—characterized as a “treadmill of production” (see Schnaiberg and Gould 1994 for an in-depth discussion)—has profound environmental consequences.

A mismatch between individual and collective interests leads to phenomena such as the Tragedy of the Commons (Hardin 1968, 1993). In this situation, people maximize their own short-sighted individual self-interest by taking all that they can get away with, while the costs are borne by the collective and/or the environment on which they depend.

High levels of individualism have been associated with conservative voting patterns (Burns 1992), and this often is manifested not only in placing a low priority on environmental values, but also in not viewing it as unethical to advance one’s individual interests even though it may cause environmental damage. Taken together, we witness a condition where some significant swaths of “mainstream” culture have the effect of legitimizing environmentally unsustainable practises.
Polities are organized on the nation-state or local levels. As such, they typically feed into some variant of the tragedy of the commons problem. In his book *Earth in the Balance*, for example, Al Gore (1993) points out a situation where the hydrological balance around the Aral Sea has been permanently altered. What was once a region with plentiful fishing and farming, saw farmland converted to grow crops that are more lucrative in the short run such as cotton, but which required more water than could be sustained. The problem was exacerbated by the fact that more than one country—in this case, Kazakhstan and Uzbekistan—acting in what they saw as their own national interests, sought to take more from the common waters of the Aral Sea basin than did their neighbors. This led to an acceleration of incursion into the natural cycles such that much of the region is now desertified and unable to grow even the crops it had been producing for centuries.

So the tragedy of the commons operates not only on the individual plane, but on a number of aggregate levels as well. What moves action toward or away from a tragedy of the commons scenario? A key variable here appears to be the relative openness or closedness of networks (Coleman 1986; Granovetter 1985; Burt 1982). People tend to have a sense of responsibility to the collective to the extent they are in a closed network, such that results their actions come back to them, albeit through a chain of linkages to others. In small, relatively closed social groups, there tend to be strong norms of altruism, and severe sanctions for their violation. In large, relatively open groups, norms tend to be less stringent.

How do these insights apply then to the current situation, in which we have more people in the world than ever, and the groupings of people are, on some level (because of, *inter alia*, the internet and other vehicles of mass communication), less geographically based than ever before? We will consider institutions more explicitly below, yet it bears noting that even in social aggregates, individuals still attempt to maximize their own self interests; and this is every bit as true for leaders as for non-leaders (Fain et al. 1994).

As new communities arise, so do new normative systems. There is, of course, cultural lag in this process, and there is no guarantee that either the old norms or the new will adequately address environmental concerns. In fact, given the pace of technological change, there is the very real possibility that, even though norms also may be changing to be more environmentally friendly (and I am not necessarily implying here that they are), they still may be increasingly inadequate to the conditions created in the growing climate of hyper production and consumption. This is precisely
because the material conditions such as those associated with technology are changing even faster than the cultural adaptations to them.

**Why Institutional Fixes by Themselves Do Not Work**

Culture has meta-institutional properties. It serves as a common backdrop against which institutions have meaning. To the extent there are institutional linkages (e.g. between the school system and the family on one hand and labor markets on the other), they take place within a cultural context.

It is almost never the case that institutional “fixes” ever actually remedy a problem in any kind of meaningful way. Changing one institution in isolation typically catalyzes enantiadromic processes with a chain of consequences. Put another way, since institutions are embedded within cultures, an isolated change in one tends to set a reaction in the rest of the culture to restore the equilibrium that was in place before the change. History is replete with examples. Recent attempts to impose a Western style “democracy” in a nation where there is widespread tribalism, low formal education and a dearth of free markets, *inter alia*, have tended to be adventures in frustration at best.

Advances in technology increase in pace. There is now greater ability than ever in history to make incursions into the earth to extract her resources. As the philosopher Martin Heidegger (1966 [1932], 1999, 2006) observed, technology becomes “enframed” in culture—advances in technology such as the invention and use of the internal combustion automobile, the computer, the chainsaw and the snowmobile go far beyond the uses for which they originally were designed. Ideas, vocabularies and sentiments about them become embedded in the popular imagination, thoughts and discourse. In short, over time, they become inextricably part of the culture and become integrated into the very being of the people.

While it is tempting as well to think that many or all environmental problems will be taken care of once the cultural lag process has allowed the adaptive culture to catch up with environmental problems, this approach is fraught with problems. Buttel (2000), for example, offers cogent criticism of world polity theory on a number of accounts. The fact that developing countries have begun to establish environmental ministries and have entered into treaties does not necessarily translate into environmentally friendly action (for an alternative view, see Schofer and Hironaka 2005); this may be particularly true in places where the perception was one of having been coerced by more powerful nations or institutions such as the World Bank.
and/or the International Monetary Fund. There tends to be a “top down” bias as well in discounting the role of scientists, environmental organizations, and other actors within a given nation-state.

Even if the world polity is moving in the general direction of environmental stewardship (which as Buttel points out is problematic at best), it still may be the case that environmental degradation is occurring in so many ways at such a great rate that rather than catching up with the change, the lag between the creation of environmental problems and the stewardship that would address them gets larger with time. More broadly, in an age when there are more people in the world than ever in history, with technology to make more profound incursions into the natural ecosystem than ever before, and with more wealth concentrated in relatively fewer hands than at practically any other time in history, the natural world is changing rapidly. Yet culture, albeit adapting in response, does so on a slower trajectory. The outcome then may well be a significant and increasing gap between ecological conditions and the culture that stems from them.

It also is tempting to assume that environmental problems will also be “solved” at some point by technological fixes (J. Simon 1983). Yet throughout history, when there has been an increase in efficiency of some technology, the culture tends to adapt in a number of ways, including wider use of the resource. While this tendency goes by various names, perhaps the best know is the “Jevons paradox”, named after one of its observers (for a recent in-depth discussion, see Polmieni et al. 2008). Generally speaking, the more profound a technological advance, the more likely it is to threaten the balance of the ecosystems of which it is part if there is not a concomitant adaptation in cultural complexity.

There are numerous examples of this. The introduction of greater fuel efficiency in internal combustion automobiles, while laudable in many ways, did redound in some negative environmental outcomes. More automobiles were produced and bought, and more miles were driven. This led to more infrastructure building to keep pace with the automobiles, including more intense need for gasoline, more roadbuilding and the rise of suburbs and ex-urbs which in turn often stimulated other aspects of ecological imbalance and degradation.

There is now an unprecedented juggernaut of global markets organized around mass production and consumption, economies of scale and the concentration of capital (Foster 1999). This is supported by increasingly extensive and intensive technologies which deplete the world’s resources and disturb the natural balance ever more profoundly. These processes are juxtaposed with the absence of a global normative system to provide a
check, or even to make sustained meaningful ethical judgements about them.

Concerns we have been discussing pose huge ethical questions that redound in the political sphere, and so society is left with a number of key questions about culture and the environment that relate directly and indirectly to political considerations. From a praxiological perspective, what leads polities to promulgate ecologically healthy and sustainable policies, and what increases the likelihood that, even when those policies are adopted, they will be carried out in good faith? How do polities then evaluate how well policies are working, and assess and reevaluate, given the relative certainty that, even with the best motives, there will be unintended consequences with each change?

Sustainable solutions necessarily involve institutions. Yet they must go well beyond an institutional framework. Ultimately, they must be undergirded by a culture with norms of sustainability, central to its core ethos, and internalized and practised by a critical mass of individuals of good will.

Conclusions

Culture can be seen as a large and interrelated system of ways of thinking, communicating and organizing. Culture forms a large part of what people take for granted, and orients how societies perceive and act upon the world in which we live. A major aspect of the culture of “developed” societies is a scientistic orientation in which there is an implicit belief that nature is something that can be controlled. This is largely an artifact of a congeries of interrelated events including the Newtonian and industrial revolutions and the rise of hyper rational analytical ways of thinking. While these brought a number of advances, they also have in many cases worked against cultures perceiving and acting toward the world in ecological terms.

Because science and technology tend to work through isolating some processes, and to do so on one level of analysis, there is a tendency to disregard other important processes and levels of analysis such that there are likely to be enantiadromic outcomes. This tendency is not just in the natural sciences but the social sciences as well. Consider the widespread tendency in economics to treat environmental effects as “externalities” barely worth even measuring. Add to this the largely unquestioned truisms of classical and neo-classical economics, such as the “law of comparative advantage” and the principle of economies of scale (McCloskey 1985), and the potential impacts to the environment are staggering.
It bears noting, of course, that each of the perspectives we are considering is distinct only in an analytical sense. In a natural system, all of them operate, serving at times to constrain and at others to facilitate one another. The purpose of pointing out problems is not to undercut any particular discipline, but rather to issue a call for humility in making an honest assessment of how thinking in general (with academic thinking as no exception) is embedded in the cultures from which it issues (Nelson and McCloskey 1987).

While societies have always faced ecological constraints, many of the problems such as the rise in greenhouse gases coupled with the depletion of carbon sinks through deforestation, now are already of proportions unprecedented in human history. Given the pace of technological change, cultural adaptations appear to be falling dangerously far behind. The arrogance of the scientistic world view leads to ever greater incursions into the natural environment, coupled with a denial that serious problems (such as global warming) even exist (Taylor 1997), or a sophomoric faith that any technology will serve as a *Deus ex machina* sort of fix.

For there to be truly sustainable practises, the human cultures that undergird them necessarily would have schemas that reflect the earth’s ecological complexity embedded in their ways of perceiving, and thus would have increased chances of acting in harmony with the natural world. The best hope is for the culture to develop sustainable ways of seeing and acting upon the world through the long process of education and developing consciousness and ecological ways of perceiving (Freudenburg and Frickel 1995; Eisenberg 1998).

There is some hope on the horizon as well as traditional institutions slowly adapt to changing conditions and the crises caused by inadequacies of the past. Nobel Prize winner Muhammad Yunus (1999, 2007), for example, articulates a vision for socially and environmentally conscious business. Yunus advocates the adoption of the “triple bottom line” in business, in which the quest for profits is balanced with environmental stewardship and human dignity. Such a change from the current tendency to have the single bottom line of profits as the *raison d’etre* of business would necessarily require new ways of thinking—new cultural schemas.

Put another way, any changes, institutional or otherwise, necessarily will be embedded in broader cultural practises. Integrating ecological consciousness in culture will be crucial here, as will developing a sense of humility and respect for the larger process of natural ecosystems.

Endnote:
1 A variety of other vocabularies has been used as well. Theorists with a communication studies background typically use terms such as “motif” (Ibarra and
Kitsuse 1993), “ideograph” (McGee 1975, 1980), or “terministic screen” (Burke 1966, 1969a, 1969b) to refer to these strategies people use to organize information and to communicate within a cultural milieu. For one final example, as a way of living, making sense of, and acting within one’s life world, Bourdieu (1977, 1984) uses the terms “habitus” and “field”. So a number of different ways of conceptualizing and studying these crucial processes have been used, with some overlap, and yet with each emphasizing its own salient properties (for reviews, see Burns 1999; Burns and LeMoyne 2003).


