Boundaries and Conflict Between Social and Ecological Emergent Orders: A Left-Hayekian Perspective

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To those unacquainted with his work, and to many who are, F. A. Hayek might appear an odd choice for a paper on systems theory and sustainability, particularly one emphasizing ethics. In the popular mind, and even in the scholarly one, Hayek's work is associated with the rise of conservative and classical liberal social thought to challenge leftist and progressive visions of a desirable world. Further, Hayek identified himself with the cornucopian thinking of Julian Simon, hardly a perspective much concerned with environmental well-being.

But Hayek had a long time interest in systems issues. As early as the mid-1950s he had come to identify the main methodological dividing line within the sciences as between those who studied relatively simple phenomena where detailed predictions were possible and those studying complex adaptive phenomena where only "pattern predictions" were possible. Significantly, rather than economics, he chose evolutionary theory as the ideal illustration of a theory of complex phenomena (on Hayek and systems theory see Caldwell, 2004, pp. 299-306).

Unlike general systems theorists, however, Hayek focused on mid-level systems theory, focusing on particular emergent phenomena embedded within the mind numbing complexity of the social and natural world. What makes it possible analytically to tease particular emergent process out from the others, is that each arises from participants acting within a particular framework of common procedural rules, a framework that generates systemic specific kinds of feedback. Markets and science, for example, are both emergent processes, but the rules generating the market are distinct from those generating science, even if they interpenetrate one another when we examine the life of any particular scientist.

The core concepts in Hayek's social thought constitute a further development of perspectives first developed within the Scottish Enlightenment associated with the work of David Hume, Adam Ferguson, and Adam Smith, among others. The Scottish Enlightenment shared with the French and British a distrust of revealed authority and a reliance on reason to ground statements about the world. What sets the Scottish perspective apart from that associated with the British and French is its distrust of the power of abstract reason to reorder human life. This position challenged Scottish thinkers to find a rational explanation for how order arose within human society in the absence of deliberate direction. Smith's "invisible hand" is the most famous metaphor describing this alternative perspective, but even earlier Smith had applied similar reasoning to the rise of language and the character of morality. On language see

Adelstein, (1998, p. 229) on ethics, (Smith, 1969). In doing so he developed insights first enunciated by Hume on custom and Ferguson on civil society. The Scottish Enlightenment's core thinkers began developing what we today call theories of emergent order: how order arises unplanned from the independently chosen actions of participants within particular kinds of frameworks (Hume, 1985, esp. Bk. II; Smith, 1983, 1976; Ferguson, 1980; Hayek, 1967, pp. 106-21).

Hayek core insight distinguishing "spontaneous orders" from constructed orders arose from within this Scottish tradition. Spontaneous social orders arise when participants seek whatever goals they choose, so long as they do so within a framework of abstract procedural rules that help different parties to cooperate, and in the process generate feedback signals spreading throughout an entire sphere of social action. "Constructed orders" by contrast were created by human design to facilitate particular concrete goals. Constructed orders, or instrumental organizations, are as effective as they were because they make use of information generated through emergent order feedback mechanisms incorporating far more knowledge than could ever be deliberately handled by the human mind. This is the key insight underlying Hayek and Ludwig von Mises argument against the possibility of central economic planning (Mises, 1951; Hayek, 1948, Lavoie, 1985). But the implications go beyond this issue, as important as it is.

Hayek was well aware that markets were not the only social emergent order. For him, language, custom, science, and common law shared with markets the same abstract characteristics. In addition, he emphasized that the biological sciences discovered evolution and ecologies to also share these characteristics, and argued that evolutionary theory had its roots in the Scottish thinkers, being perhaps the only important scientific theory that arose first in the nascent social sciences.

Dynamic Tensions Within Emergent Orders

These insights were only slightly explored by Hayek himself. This is no criticism. His body of work is large and yet to be fully assimilated by most who have read him, let alone those unacquainted with his ideas, and the issues on which he focused lay elsewhere.

But in this paper I want to take his basic insights about emergent order for granted, and explore their implications for a dynamic analysis of social emergent processes, particularly between the human world and that of nature. Hayek's "middle level" approach to systems theory offers an ideal level of abstraction for such a task, allowing us to differentiate between different social and natural emergent processes that interact with one another in a way enabling us to see how differing feedback mechanisms influence one another, and also how instrumental organizations within one or more of these systems can create severe problems in sustaining viable emergent orders.

This paper will develop the following six theses:

I. Different emergent social processes operate through different feedback processes. For example, prices provide feedback for markets, cases and opinions do so for common law, and scientific standing does so for science.

II. These systems interact with and influence one another. Science does not exist in isolation from the rest of society, and neither do any other social emergent orders. To some degree the systemic resources provided within any of these systems can be converted into resources within another social emergent order.

III. There is a potential for conflict between the values inherent within these different feedback systems, for different systems' feedback signal different and sometimes contradictory responses to actual events that are influenced by more than one such system.

IV. Instrumental organizations embedded within these orders are empowered by the greater information they make usefully available. However, this uncontrolled information also threatens these organizations, inclining them to try and control emergent processes if they can.

V. All feedback within social emergent systems is rooted in discovering changing knowledge and information, whereas feedback in biological systems manifests through success or failure in genetic reproduction. Many biological processes occur far more slowly than do social ones, whereas in the short run social orders generate more power because they adapt with the speed of thought. The result is a basic lack of fit between social and natural emergent processes

VI. Finally, the values underlying feedback in social emergent orders is greatly simplified compared to the values motivating most human beings. Because social emergent processes take on an independence from human action, there is the potential for subordinating important human values to the requirements of emergent processes constituting a kind of Foucauldian power.

If I succeed in this argument, Hayekian social theory does not lead to the one-sided marketolatry associated with many of those claiming his mantle. To the contrary, Hayek's approach provides a foundation for a critical systems theory, one I believe in harmony with much discursive democratic and ecological theory.

Varieties of Emergent Social Order

Language and custom indicate emergent social order has existed as long as there have been human beings, and probably a good deal longer. However, it is the rise of liberal modernity that provides the foundation for their flowering beyond anyone's expectations. As more and more people came to relate to one another on common standards of equality of status, the potential grew for cooperation between human beings along self-chosen grounds governed by procedural rules common to all. By weakening the power of formal

hierarchies to impede human action, liberal modernity opened the possibility for a vast increase in the differentiation and development of social emergent orders.

In a way analogous to the recent rise of knowledge differentiation within the internet, a multitude of different cooperative projects gradually developed into spheres of cooperation ordered around procedural rules participating parties found useful for achieving their projects. For example, what is sometimes called the scientific method was not the result of philosophers developing standards of truth, but rather the outgrowth of scientists seeking persuasive strategies for evaluating the claims they and others made about the material world. This is why this basket of methods is applied somewhat differently in different sciences. The rules of the market, such as alienable property rights and contract, proved valuable for exchange relations covering an enormous range of activities. In politics, these same principles led to liberal democracy, where citizens equal under the law sought to pursue many different political goals within a framework of rules ideally considered fair by all (diZerega, 2000).

Of course these broad statements are idealizations. The reality is messier. But as liberal principles grew in their acceptance and range of application, these institutions also grew despite distortions of their ideal principles by existing inequalities in power.

To get more deeply into these issues, I want to begin with the central concept of the entrepreneur. Entrepreneurs operating within appropriate systems of rules generate social emergence.

Entrepreneurship and Change

In the social world someone will see an opportunity for consensual interaction that, in its pursuit, changes opportunities for others. Because these perceptions depend on individual judgments, often shaped decisively by local and intuitive knowledge, they cannot be predicted in advance. The term most appropriately applied to such judgments is "entrepreneurship": the perception of an otherwise unrecognized opportunity to establish new relationships. Entrepreneurship in its broadest sense occurs within both emergent systems and instrumental organizations, but this paper focuses on it only within emergent processes. Whether entrepreneurship occurs within the framework of democracy, the market, science, language, or another such order depends on the framework of procedural rules within which the entrepreneur operates while seeking to achieve his or her goals.

As I use the term, entrepreneurship can be contrasted with leadership. Leadership applies to directing an instrumental organization, such as a corporation, political party, or research team. An entrepreneur can be a leader and vice versa, but analytically the two are distinct. For example, an entrepreneur can be self-employed and lead no one, while a leader can implement another's ideas.

Entrepreneurship is most familiar in market contexts, where it is the source for both the market's equilibrating and disequilibrating tendencies. Theories of entrepreneurship emphasizing its equilibrating function are associated with the "Austrian" school of

economics. In much Austrian School writing entrepreneurship is considered the driving force that brings greater coordination to individual actions. Entrepreneurs act to better adjust resources to meeting people's plans (Kirzner, 1973).

This view contrasts sharply with Joseph Schumpeter's model of entrepreneurship as the source of the market's "creative destruction." For Schumpeter, entrepreneurs shock the market out of its equilibrium, disrupting it. The creative actions of entrepreneurs prevent the market from ever settling down in equilibrium (Schumpeter, 1961, p. 64),

These two positions are not really contradictory, and each by itself is inadequate. Actual entrepreneurial action can fall along a continuum from its "Austrian" to its "Schumpeterian" pole (Hayek, 1978, p. 4; Lachmann, 1986, p. 124; High, 1986, pp. 113-9). At the Austrian end, entrepreneurial action consists of noticing unmet opportunities for making exchanges, without, however, requiring buyers to see the product or the opportunities open to them in a new light, except for finding a better price. At the Schumpeterian end, a completely new product is marketed. Pure Schumpeterian entrepreneurs market new products and pure Austrian entrepreneurs notice this, and market the products elsewhere or sell them more cheaply. On their own, Schumpeterian entrepreneurs gain entrepreneurial profits until their product is displaced by creative destruction wrought by another entrepreneur. Before this happens, Austrian entrepreneurs usually whittle those profits away, and in so doing make the product more widely and inexpensively available (Fehl, 1986, pp. 75-83). Patents illustrate these two kinds of entrepreneurial action; they protect Schumpeterian entrepreneurs from Austrian entrepreneurs.

Using this familiar economic application of the term, let us see how it applies within science, democracy, and nature.

Science is an emergent process exhibiting analogous kinds of "scientific entrepreneurship." Thomas Kuhn distinguished between "normal" and "revolutionary" science. Normal science worked on unsolved puzzles within an existing paradigm. Revolutionary science challenged such paradigms with new ones. Science, Kuhn argued, depends on both, for only through the process of normal science do we discover the puzzles that, by not being solved, set the stage for a later revolution (Kuhn, 1996).

Much of the subsequent discussion over defining scientific paradigms reflected the kind of dispute separating Austrian from Schumpeterian models of entrepreneurship (Lakatos and Musgrave, 1970). In reality, a continuum rather than a gulf separates revolutionary from normal science. Still, Kuhn's key distinction between revolutionary and normal science remains: most research takes place within taken for granted frameworks, but sometimes shifts occur in the very framework of how a realm of study is conceived scientifically, as with the rise of quantum mechanics, as well as smaller shifts within more narrowly focused frameworks, as when the theory of continental drift displaced reliance on land bridges to account for apparent oddities in the fossil record. Sometimes what is "revolutionary" from one perspective can be "normal" or "reformist" from another. Science has its Austrian and Schumpeterian scientists, and those who work within some paradigms while shattering others.

Democratic governments present similar patterns of incremental changes and occasional periods of major innovation. In the US most times legislation along the transformational scale of the Progressive Movement, New Deal, or Great Society does not happen. But occasionally it does. In between we see continual adjustments and occasional larger changes that nevertheless fall far short of these times of major political innovation, as with the passage of pioneering environmental legislation during the Nixon presidency. So far as I know, Robert Dahl coined the term "political entrepreneurship" to apply to political innovation. He was referring to the mayor of New Haven's success in obtaining federal money for his city. Mayor Lee was Schumpeterian in terms of his local impact, and Austrian from a national perspective (Dahl, 1961).

The same kind of variation in innovation exists in nature. Darwinian evolution describes a kind of Schumpeterian process, where new species and new or altered traits in existing species lead to new forms of life and the creation of brand new niches within the environment. It also leads to the imitation of one species by another, as with viceroy butterflies imitating monarchs because, from a bird's perspective, monarchs taste bad while viceroys taste good, like a butterfly should. Perhaps the market equivalents are faux Rollex watches and pirated DVDs or alternatively, an organization seeking to be identified with a successful organization, but that conceals the fact that it does not meet similar standards.

However, through climatic change, wandering or being transported by air and water, existing species can arrive in environments offering new opportunities for them to flourish. Or perhaps they take advantage of shifting conditions within their existing range to expand when possible, and hold on when not. This kind of variation is more along the line of Kirzner's entrepreneurs, featuring a process of continual adjustments among existing players as circumstances change, but with no qualitatively new players appearing. Ecology in general emphasizes these latter kinds of changes, evolutionary theory addresses the former, but in nature both happen simultaneously, inevitably influencing one another. As Aldo Leopold put it, "Ecology is a science that attempts this feat of thinking in a plane perpendicular to Darwin" focusing instead on how variation arises in species as well as the development of new ones (Leopold, 1986, p. 189).

In addition, ecology generally focuses on ecosystems over relatively short periods of time, whereas evolutionary analysis generally employs a much longer time frame. However, divisions between ecology and evolution are ultimately conventional. Evolution and ecology are analytic constructs lifted from the dance of life since, in practice, as with social emergent orders, they continually interact. Evolutionary and ecological orders are co-emergent (Macy, 1991).

Of course, in nature just as in the market, we can locate organisms along a continuum in terms of the kind of variation they exhibit and the kind of impact they have upon their environment. In discussing ecological ethics, Holmes Rolston notes this point (Rolston, 1987, pp. 256-7):

The organismic kind of creativity (regenerating a species, pushing to increase to a world-encompassing maximum) is used to produce, and is checked by, another kind of

creativity (speciating that produces new kinds, interlocking kinds with adaptive fit plus individuality and looseness).

Rolston's "organismic" creativity is essentially the kind that produces a *tendency* towards systemic equilibrium. It is Kirznerian. On the other hand, "speciating" and variation enhancing creativity tends to upset these trends, opening up new hitherto unrealizable possibilities. It is Schumpeterian.

Rules and Procedures in Social Emergent Orders

The rules that evolve and coordinate interaction within that order limit possible actions in procedural ways, but in so doing expand the realm of action *practically* open to participants. Because they are procedural, these rules limit some actions, but in so doing vastly expand the realm of possible actions. Meaning resides in the patterns arising when people follow these rules. A world without horizons is a world where we are disoriented, even though every horizon is a limit. Within the context of patterned values they make possible, such rules empower individuals.

These formative rules can be analyzed at three levels: from the very abstract to the progressively more concrete. In any particular set of actual rules these levels are inseparable. However, distinguishing between them enables us to recognize both the roles played by equality and cooperation and that by power, systemic and human alike.

The most abstract level of rules

At the most abstract level, rules able to generate an emergent social order are purely procedural, free from any substantive content, and apply to all participants equally. Being procedural and free from substantive content, they necessarily rely on some principle of formal agreement. That is, these rules do not enable me to compel you to do my bidding. If they did, they would import a purpose or hierarchy into the structure of rules, for my concrete ends would become privileged over yours. We would then have an instrumental organization existing to pursue my goals and yours only insofar as they are compatible with mine.

Instead these rules establish opportunities for cooperation among formal equals. They enable me to communicate with you regarding some project, purpose or view of mine. You are free to agree with me that the project, purpose, or view is worth pursuing, join me in that pursuit, ignore it, or oppose it. Being free from content and purely procedural, these rules necessarily apply equally for all to whom they at all apply. Cooperation and formal equality, then, are values inherent within all emergent social orders as such. There is no such thing as a "value free" emergent social order. Unlike emergent orders in the biological world, emergent orders adapt through changes in ideas rather than genes (Rothschild, 1990, p. 235). Ideas die, but those who held the ideas can adopt new ones they decide are more suitable**.** New actions and new relationships rather than new organisms are the result.

These rules must promote cooperation because it is only when participants can expect reliable relationships with one another that they will be willing to pursue their goals in complex cooperative relationships with strangers. The more reliably cooperation can be expected, the more intricate the projects people will attempt. As Hayek put this point:"we should provide the maximum opportunity for unknown individuals to learn of facts that we ourselves are yet unaware of and to make use of their knowledge in their actions" (Hayek, 1972, p. 30).

Hayek emphasized that "the importance of our being free to do a particular thing has nothing to do with the question of whether we or the majority are ever likely to make use of that particular possibility. . . . The freedom that will be used by only one man in a million may be more important to society and more beneficial to the majority than any freedom we all use" (Hayek, 1972, 31). Hayek's insight loses its possibly antidemocratic flavor (which he did not intend) when we recognize that the freedoms he describes are very concrete, and that we *cannot know* who those unusually valuable people will be in advance. Jonas Salk's discovery of the first polio vaccine compared to our freedom to buy ice cream from a list of sixty flavors would probably be a unchallenged example. So was the impact of Bob Woodward and Carl Bernstein's freedom to make use of deep throat's information about the Watergate break-in compared to more widely read reports on JLo's love life.

Rules generating emergent social orders must facilitate cooperation at two levels. First, they need to make it easy for face-to-face cooperation to take place, so that local and tacit knowledge can be employed effectively in pursuing new plans and goals. Second, their use needs to generate feedback processes within the system of cooperation as a whole in order to make more widely useful the dispersed and often explicitly unknown knowledge on which people are operating.

Competition in emergent orders, even in markets, is derivative from cooperation. Explicit differences in plans only come about after enough cooperation exists so that people can begin acting to achieve their ends. Only then are some goals discovered to be in conflict with those of others. Competition is both a result of ignorance and the means by which the disruptive effects of this ignorance can be minimized. Emergent orders are inherently cooperative and competition only arises when people perceive and pursue opportunities in mutually exclusive ways.

The first level of increased concreteness

At the first level of concreteness away from this general abstraction, procedural rules specify some procedures and not others. There is no such thing as "a procedure" without concrete content. Grammar is a clear example, but so are principles of common law, contractual transactions in the market, constitutional procedures in a democratic polity, and principles of valid investigation in science. One does not wisely use market procedures to undertake scientific research, nor should one use market contractual methods in determining a democratic decision. Despite their obvious biases these more narrowly defined procedures remain formally silent as to what specific ends they can be employed in attaining. They are far from neutral in encouraging some goals within their framework rather than others. In other words, these rules establish a *systemic bias*, but do

not specify which among a large number of mutually exclusive possibilities the system will at any time manifest.

I think Jürgen Habermas has made the deepest study of the cooperative logic inherent in language (Habermas, 1979, pp. 1-68). All other emergent social orders are rooted in language, but promote cooperation across a narrower range of values. In each case they offer procedural frameworks enabling us to enter into self-chosen relationships with others without having to know anything about them except that we anticipate their honoring these rules that apply in principle equally to us all. As with lying in speech, failure to honor these rules is a kind of parasitism. This is why fraud is treated so severely in science as well as in market transactions. It is also why the recent descent of public political debate in the U.S. into shameless lying, particularly by the radical right, is extraordinarily harmful to a democratic polity. Lying is a growing and potentially lethal tapeworm on the body politic, akin to fraud in the market and dishonest research in science. To survive, social emergent orders require a minimal adherence to principles of honesty.

However we can specify values beyond these. The rules of the market are particularly effective in facilitating the exchange of instrumental values, that is, of goods and services valued as means to serve ends separate from them. The rules of science are particularly effective in coordinating the search for interpersonally reliable knowledge among strangers, for that is what "objectivity" really refers to, and why science so excels at studying the physical world. The rules of democracy facilitate coordination efforts by citizens to advocate and implement public values: values advocates believe to be inadequately supplied, or even threatened, in the absence of political action.

Two observations are fundamental to the analysis that follows. First, none of these values, or any other associated with social emergent processes, reflect the full depth of human values. They do not express the complexity of the human heart. Second, these values centrality within emergent systems may not be equally important for the people acting within them.

Once we recognize that different rules generate different orders and that they simplify the social expression of human values, a split can arise between the values held by the actor and the values rewarded by the system within which he or she acts. No emergent order is *simply* a means for facilitating voluntary cooperation. Systemic biases operate independently of human intentions, yet influence the context within which people act. They are therefore forms of depersonalized power. This power is located within the very capillaries of an emergent social order: the abstract procedural rules by which people "freely" choose what projects to pursue (Rouse, 1994, pp. 92-114). When these different systems of power undermine one another or inhibit the full expression of human values we are brought back to questions of ethics. This power operates independently from and can work at cross purposes to the values of those acting within the system.

The second level of increased concreteness

At a still deeper level of concreteness, these rules take on specific forms that vary among different historical instances of language, common law, the market, democracy, or

scientific investigation. English is not Chinese, English common law today is different from its customary law three hundred years ago or of contemporary Navajo customs. The rules of the market today differ in important details from the rules of exchange prevailing when Adam Smith wrote the *Wealth of Nations*. At this level parliamentary democracy is different from a constitutional democracy; so also is a unitary democracy different from a federal one, though all are emergent democratic orders. Scientific procedures are applied differently within the field of particle physics than among those studying evolutionary biology. Wwith increasing concreteness the biases within a set of rules become more specific, but still remain open as to which projects they will be employed to pursue, and unpredictable as to how they will concretely manifest.

Within any actual emergent order, particular concrete rules also reflect the influence of extra systemic power relations and other values regarding gender, status, and the like. For example, skewed voting power existing between citizens of California and Wyoming when choosing Senators reflects issues of power and consent that would certainly be decided differently were they addressed today. Rules for electing members of the House of Representatives reflect the power interests of parties and incumbents seeking to safeguard themselves against the uncertainties existing within an emergent process. In the market, the rules structure formally equal and impersonal procedures for contractual agreement and exchange, but any given system of contractual property reflects historical relationships of power, religion, and the like. Buying and selling slaves and the details of Western water rights are examples of property rights reflecting power relations not rooted in consent. They are scarcely unique. Stephen Toulmin has explored how the aftermath of the Thirty Year War similarly influenced the development of science in ways still important today (Toulmin, 1990).

With these observations we have mapped out a way from conceiving what emergent orders have in common as a class of phenomena, and also where they differ in actual life.

Contradictions Within Emergent Orders I.

It is at this level of concreteness that perhaps the greatest human threat to emergent processes arises. People often create organizations to pursue the entrepreneurial possibilities they perceive within emergent systems. But once created, these organizations develop interests at cross purposes with the conditions required to maintain emergent processes. They will often try and use their resources to manipulate or undermine these orders, subordinating them to instrumental goals. It is an empirical question as to how successful they are, but the fundamental contradiction between successful businesses and the market, successful political parties or interest groups and democracy, or successful schools of thought and science cannot be exaggerated.

But so long as an order is emergent rather than an organized hierarchy, the formally abstract and procedural character of its rules are ultimately more determinative of its patterns of coordination than are efforts by organizations to manipulate the rules in their favor and institutionalize their domination. Organizations seeking to manipulate such orders take two forms. First, they exercise their power within such an order. Second, they can seek to replace the order, placing themselves at the apex of a power hierarchy.

Due to efforts of political parties to gerrymander their districts, the first kind of problem, today the Senate is probably more representative of the American people than is the House of Representatives, despite Senators not being elected on the basis of population. If the dominant party in the House is able to exercise discipline over its own members, as is to some extent the case today, and able to manipulate electoral rules to gain disciplined control of the Senate and Presidency, the second outcome will have happened. But as of this writing the US is still not an organized hierarchy.

Power also manifests in other emergent orders. Slavery and specific forms of water rights could exist without markets, and markets can exist without slavery or those types of rights. Clearly, then, that slavery and certain kinds of water rights have existed in markets is a reflection of power. Nothing in markets determines the boundaries of property rights, only the relations possible between their owners. Thus, power relations powerfully influence the details within the abstract form cooperation among equals takes in any concrete instance.

Contradiction and Conflict Between Emergent Orders

To this point I have treated emergent social and natural orders as largely autonomous adaptive frameworks fostering complex adaptive patterns under complex conditions. I have described social emergent orders as ideal types existing from the most abstract level, to more concrete ideal types of language, the market, science, and democracy oriented towards particular kinds of values, and then to additional differentiation reflecting actual historical sets of generative rules. This approach provides a corrective to many treatments of emergent processes, particularly markets, that describe them as simply facilitators of voluntary cooperation (Buchanan and Vanberg, 1992, p. 181; Kirzner 1990, p. 34). But we can probe more deeply still.

As soon as we recognize multiple emergent social orders, we are led to inquire how they interact. In living their lives, modern individuals navigate within most or all of them. While we can analytically separate each of these emergent orders in order to examine how particular procedural rules generate certain abstract patterns, in practice those patterns' concrete details are influenced by many things, including other coexisting orders. In addition, the human world exists within and is dependent on the natural more-than-human world. But feedback within social emergent processes is very different in its details from that in the natural world. In social orders unsuccessful ideas and practices die away, and successful ones replicate. In nature unsuccessful organisms die out and successful ones replicate. Can we say anything reliable about these complex interactions between orders? I believe we can.

Contradictions Within Emergent Orders II.

Emergent social systems interact in complex ways. Particularly outside of language as such, each person independently weighs what values can be pursued effectively within the frameworks of emergent orders, as well as considering values that may not be particularly suited for pursuit within these orders, such as love and friendship. At the

level of the individual actor each person orders the values important to them in whatever way seems to them most fitting, given their understanding of their circumstances at a particular time.

Neither markets nor science nor liberal democracy are closely coupled with the complexities of individual psychology, though obviously some psychological orientations are better at acting within one of these systems than within another. The constitutive rules generating these orders reflect very simple values compared to the working of human minds and operate independently from them so long as the rules are followed. Individuals experience these orders as having a reality independent of their own (Berger and Luckmann, 1967, pp. 89-90).

What counts as a resource within an emergent order is defined by its generating rules, and so systemic resources vary from one order to another. In the market, feedback occurs through profit and loss, and the market's systemic resource is therefore money. In science, feedback is by peer opinion of the value of one's work (or lack of it). Science's systemic resource is professional recognition. In liberal democracy feedback occurs through votes. Democracy's systemic resource is political influence with voters, and ultimately manifests as votes (diZerega, 1997). Each resource is generated by another's voluntary act who, in principle, could have chosen differently. But taken together, they exist as impersonal aids and constraints as we pursue our individual purposes.

Unlike systemic resources, individual resources are whatever means a person finds useful in the pursuit of whatever goals he or she seeks to accomplish. They are as varied as the human mind and imagination. Systemic resources are therefore based on different principles than are individual resources.

Controlling a systemic resource enables its possessor to have more impact on internally generated systemic feedback than would be possible if that person did not possess it. To the degree that resource is also valued by the person possessing it, an identity exists between the means people seek in pursuing their goals, and the means offered by the system of coordination in which they act. But this need not be so.

In modern society people live their lives while participating in several emergent social orders. Our personal values are rarely if ever in perfect alignment with the values promoted by any particular such order or even all of them together. At the same time, by participating within an emergent order, people generally increase its complexity, that is, the amount of information it coordinates independently of human intent. In doing so they strengthen the order's relative independence from specific human intentions. It stands in relationship to them as an objective reality with which they must cope, usually by adapting. This objective reality is not always an empowering one.

The Convertability of Systemic Resources

Because people are normally motivated by more values than are well served by any particular emergent order, they often seek to convert resources obtained within one system into those effective elsewhere, the better to pursue their personal goals. At the

level of the individual actor convertibility of systemic resources is entirely desirable. Systemic values' incompleteness compared to the values most people seek makes this convertibility a benefit because no single action system encompasses the full complexity of individual values.

Michael Walzer's argument in *Spheres of Justice* gets at these issues, but he goes too far in attempting to seal different spheres of human activity off from one another. Walzer writes that *"people conceive and create goods, which they then distribute among themselves"*(Walzer, 1986, p. 6). He emphasizes there "is no single set of primary or basic goods conceivable across all moral and material worlds . . ." (Walzer, 1986, p. 8). Distributions are just or unjust according to the "social meanings" involved and "when meanings are distinct, distributions must be autonomous. Every social good or set of goods constitutes, as it were, a distributive sphere within which only certain criteria and arrangements are appropriate" (Walzer, 1986, p. 10). His analysis at first appears harmonious with mine, particularly if social good can mean "systemic resource."

Walzer refers to simony as an example of an unjust mixing of spheres. Simony is the purchasing of ecclesiastical office. It is wrong, he holds, because money has become dominant in a sphere beyond what reflects its intrinsic meaning, and perhaps even redefines that sphere's meaning "in its own image" (Walzer, 1986, p. 11). The solution, Walzer argues, is " a society in which " no particular good is generally convertible" into a sphere oriented towards different social goods (Walzer, 1986, p. 17). This is because "To convert one good into another, when there is no intrinsic connection between the two, is to invade the sphere where another company of men and women properly rules" (Walzer, 1986, p. 19). Therefore, *"No social good x should be distributed to men and women who possess some other good y merely because they possess y and without regard to the meaning of x."* (Walzer, 1986, p. 20). Walzer's ideal is that "different goods [go] to different companies of men and women for different reasons and in accordance with different procedures. And to get all this right, or to get it roughly right, is to map out the entire social world" (Walzer, 1986, p. 26).

Walzer identifies a valid problem, but he misdiagnosis its character. I think his error is rooted in not adequately distinguishing between systemic and individual resources and between the deliberate control over distribution exercised in instrumental organizations and the lack of such control prevailing in emergent processes. First, Walzer writes as if distribution of systemic resources is a matter of choice, when it is not. Second, he writes as if these spheres are ruled by individuals, when in fact no one rules. Walzer also apparently assumes that individual lives can, or should be, as compartmentalized as the spheres of justice he describes, for only in that way could the goods associated with a particular sphere be confined in their influence to that sphere. But most of us do not live such lives. No systemic resource, nor even all of them together, can fully serve the values most human beings seek. They *must* to some degree be convertible.

It is central to what it is to be a human that we straddle these orders, seeking to integrate our involvement with them into our lives. People often use systemic resources as stand-ins for other values more directly connected with their personal goals. People often rely on or benefit from their wealth, fame, or power in attracting the friendship, love, and support of others. There certainly can be ethical problems here, but there need not be.

For example, along with love, it is reasonable for a woman wanting a family to value a possible partner's earning capacity. How she makes these evaluations will often be complex, and differ from woman to woman. But they are not illegitimate. Walzer's compartmentalization of virtues and rewards breaks down before the complexity of human life.

"Justice" is really the wrong term to apply to the outcomes of emergent orders because they are fundamentally out of control and unforeseeable (Hayek, 1976). These spheres have procedural rules that can be just or unjust, but the outcomes arising from following these rules, what Walzer terms the distribution of goods, is neither just nor unjust. Hayek emphasizes that market success often includes a substantial element of luck, and not just skill (Hayek, 1976, p. 117). One may safely assume that market failures can sometimes also be due to bad luck. The same is true in politics, and science. Machiavelli's Fortuna is always with us. But if the rules are fair, outcomes can be fortunate or unfortunate, even deserved or undeserved, without being just or unjust.

Hayek's argument means only that the language of justice does not take us very far in examining this problem (diZerega, 2003). The problem remains. To go further, I will borrow the term "civil magnanimity" from Thomas Spragens as offering an alternative ethical perspective for how liberal democracies can better serve humane values (Spragens, 1999). Civil magnanimity is not the same as justice, which deals with desert, but instead a demonstration of generosity by citizens seeking the best for all. A liberal society should be praised for the magnanimity it does show, and encouraged to show more, rather than criticized for "unfair" distribution or falling short of some substantive goal it is systematically incapable of attaining. Spragens writes, correctly I believe, that "A society complacent about deep and persistent inequalities in its midst is also a society that fails to acknowledge and to compensate for the profound contingency of human life and fortune" (Spragens, 1999. p. 161). Such a society is not unjust. It can be stonily just. But it is a society without magnanimity, comprised of citizens without heart (diZerega, 2003, pp. 163-4).

Systemic Expansion and Colonization of the Lifeworld

Emergent orders release enormous power. On this point the modern world speaks most eloquently. The market has transformed human economic circumstances. Science has so changed our ability to act in and understand the world that, were the differences between scientific and pre-scientific cultures genetic, we would be different species. Democracies have transformed human political life. In each case, these orders' impact on their surroundings has been profound.

This transformative power enables emergent orders to expand into other areas of social life. More and more dimensions of human existence are subject to market, scientific, and democratic political influence. Insofar as these new areas are compatible with systemic values we have simply expanded the realm of cooperation, discovery, and productivity. This, of course, is the typical free-market liberal position with respect to the market order, and the point is equally applicable to the expansion of scientific knowledge and the democratization of society. But as these orders expand, more complex value mixes

become subsumed to simpler systemic biases oriented towards the core values of the order in question. This process can be called commodification in the case of the market, democratization for democracies, and the spread of scientific reason for the life of the mind and understanding.

As systems expand beyond their initial boundaries the question of what is lost as they simplify participation in new spheres of action take on renewed importance. Debate over the appropriate reach and extent of political policies is incessant. Science repeatedly encounters this issue, most recently in the debate over the appropriate use of stem cells obtained from very early human embryos for medical research. On balance, the market has gradually extended its reach geographically as well as the depth of its penetration into areas of life once free of its direct impact, not always to popular acclaim.

When expansion occurs through informed persuasion, it probably produces more benefits than losses because tradeoffs are mostly made by deliberate choice. However, expansion can also happen largely independently of persuasion, through transforming the context of choice within a way of life *without any deliberate decision to do so.* This can occur because of the very impersonality of self-organizing processes. The value of the trade off of reducing the importance of some values in order to facilitate action within an emergent order becomes more problematic as that order encompasses areas of life traditionally characterized by values not primarily in keeping with its system of rules.

At the systemic rather than individual level, resources generated from outside a system but converted to resources for acting within it play an ambiguous role. They enrich the system, but also inject extra systemic values into it. For example, the greater prosperity markets made available to all enabled the poor to become a minority group in market societies, and freed most citizens from the yoke of necessity, making political freedom possible in Hannah Arendt's sense (Arendt, 1991). On the other hand, these institutions also enabled corporations to wield increasing political influence in modern polities, subordinating freedom to the demands of wealth. What is accurately termed "crony capitalism" is one reflection of this subversion of public values by private organizations.

In such cases we see emergent orders tending to subvert or subordinate one another or ways of life that have heretofore not been incorporated into those particular self-organizing processes. Values many of us prefer pursuing instead of single mindedly acquiring systemic resources are assaulted, weakened, and diminished without any deliberate choice or decision to do so on anyone's part. What is formally at its most abstract level a realm of freedom of choice and persuasion may, at another level, be experienced quite differently.

Emergent Orders and Bridging Organizations

The boundaries between emergent orders and the boundaries of instrumental organizations need have no correlation. Drug companies rooted in the market do scientific research. So does the FDA, rooted in politics. Agriculture, forestry, and fisheries serve market values while being dependent on ecological ones. And so on.

Before turning to ecological issues, it is instructive to see that these problems are not confined to systemic conflict between the social and natural worlds.

One interesting example in a liberal democracy is the media, which serves consumers and also serves citizens. The type of information relevant to consumers is often different from the type of information relevant to citizens. In the US, media are increasingly controlled by public corporations whose orientations are purely within the market order, rather than by individuals and families able to make ethically complex choices. There is now serious conflict between the political tasks a well functioning media is called upon to perform and the forms of ownership through which decision making within the media is exercised. Replacement of news with infotainment reflects the decision to serve consumers rather than citizens (diZerega, 2004, pp. 465-8).

Fortunately, established emergent orders appear to be quite robust, and can apparently absorb considerable "spill-over" of this kind. However, if the influx of extra-systemic resources is great enough, it can seriously distort feedback processes. A system's capacity to pursue its own values is undermined. One system essentially colonizes another by distorting and even overwhelming its feedback processes. These tensions cannot be "healed" within the systems themselves because they are the necessary outcome of powerful discovery processes based on simplified information interacting with beings whose values are more complex than any such order can encompass. The hope of some that human responsibility could be replaced by invisible hands is a vain one.

It is within this set of dynamic and sometimes contradictory relationships among social emergent orders that we can turn to examining their relationship to nature. The tensions are even greater.

Contradiction Between Social and Ecological Emergent Orders

Economists Terry Anderson and Donald Leal's discussion of forestry practices in the Great Lakes region unintentionally focuses on the basic contradiction between the emergent order of the market and those within nature. Anderson and Leal describe the Kingston Plains as a place near the Great Lakes where the soil is so poor that after the forest was clear-cut, there was no recovery. Nor is the land currently useful for agriculture or recreation. However, according to them, the best thing to have done is what was actually done: cutting the forest and leaving the land a waste (Anderson and Leal, 1991, p. 47).

When the trees were cut, good timber stands in the Great Lakes area were selling for around $20 per acre. In order to determine whether it would have made more sense to invest in trees by forgoing the harvest, we must consider the return on other investments. Had the income from selling these trees been invested in bonds or some other form of savings at the time, it would now be worth approximately $110,000 per acre, or $2.8 billion for the forty square miles. . . . Because the land in this area is not worth anything close to this, we must infer that harvesting the trees was the correct choice.

Anderson and Leal's reasoning can be reversed, and Garret Hardin did so, writing "*At high rates of interest the present value of the distant future effectively vanishes*" (Hardin, 1986, p. 74). An old growth redwood forest takes a minimum of 500 years to mature. If we were assured of this $1,000,000/acre rate of return, at an average annual interest rate of 10% per year, we are "rationally" justified in investing less than a penny per acre in the project in order to break even on the project in 500 years. And even this conclusion does not take into account the uncertainties that would be important over such a great span of time, and would increase the risk of such an investment. The large scale of natural old growth guards against these uncertainties. A small park does not. Even a local wind storm can wipe it out. From a purely economic perspective, sustained yield of old growth trees makes no sense. It is better to cut them all down and invest in fast growing soft woods that can be harvested for pulp and biomass within a few decades.

Hardin concludes his analysis by observing that "He who finds ecstasy in the wonder of today's mature redwood forest benefits from a preservation a pre-Christian economist could not have justified" (Hardin, 1986, p. 75). The old growth redwoods we most treasure today are not 500 years old, the minimum standard for old growth trees of that species. They are 1500 or more years old.

This is not a fanciful deduction. Financier Charles Hurwitz acquired California's Pacific Lumber Company in an unfriendly takeover (Harris, 1996). Earlier, the family owned company had logged at a slow rate, maintaining healthy forests and logging communities, and simultaneously enjoying the support of the environmental community. To finance expansion, Pacific Lumber went public, a fatal mistake insofar as it wished to remain a company engaged in sustainable harvesting of timber. In purely economic terms the company was "undervalued," making it vulnerable to a takeover financed by high interest bonds. To pay interest on the bonds, logging was accelerated to twice its former pace. All other considerations were set aside. On purely economic terms, Hurwitz acted not only appropriately, he might even be said to have benefitted the economy as a whole (McCoy, 1993, p. 1).

Sadly, Hurwitz's case is not unique. Brett KenCairn describes an encounter with the chief forester of a timber company who explained "that one of the dilemmas he faced was trying to make forest systems with an intrinsic rate of return of around 6 percent compatible with financial systems that expected a minimum of 10 to 12 percent return. . . . he had no choice but to over harvest the forests . . . ." (KenCairn, 1996, p. 276). Interestingly, this conclusion follows even if on balance the new technologies may lose money, so long as by destroying the resource they lose it more slowly.

The same pattern repeats itself in whaling. In *Beyond the Limits* Donella Meadows, Dennis Meadows, and Jørgen Randers give the following account (Meadows, et. al., pp. 187-8):

Ecologist Paul Ehrlich once expressed surprise to a Japanese journalist that the Japanese whaling industry would exterminate the very source of its wealth. The journalist replied, "You are thinking of the whaling industry as an organization that is interested in maintaining whales; actually it is better viewed as a huge quantity of [financial] capital attempting to earn the highest possible return. If it can exterminate whales in 10 years

and make a 15% profit, but it could only make 10% with a sustainable harvest, then it will exterminate them in ten years. After that, the money will be moved to exterminating some other resource."

Nor is fishing exempt. Today the world is caught in an over fishing crisis, one vividly reflected in the rising price of many fish in supermarkets. Only a few decades ago squid and shark were inexpensive, despite fishermen relying on less advanced technologies than they presently do. Now, even though fishing is more efficient in an economic sense, they have become expensive. In many of the world's oceans overall catches have begun to decline. In some cases the decline has been catastrophic. After 350 years the oldest Canadian and American fishing areas off Newfoundland and New England are largely bereft of the great numbers of cod, haddock, and flounder that sustained many communities of fishermen for hundreds of years. As a result, large parts of the Georges Bank have been closed to fishing. Worldwide 13 of 17 fishing zones are depleted or in severe decline, because of over fishing and pollution (Egan, 1994). The most recent information suggests that the condition of the ocean's fisheries are even worse than imagined because for years faked data as to total catches made it seem as if world wide catches were still growing when they were in fact shrinking (Eckholm, 2001, p. A5). This decline has happened in a matter of decades, as world fish stocks were healthy after WWII.

To justify their expense, modern capital intensive fishing trawlers are virtually forced to take every fish they can locate. Many times they do not even use the fish they catch, because they are the wrong size or species. In 1994 a record 751 million pounds of dying edible fish were dumped back into Alaska waters alone, up from 740 million pounds in 1993 and 500 million pounds in 1992.

Similar problems can be identified in agriculture (Scott, 1998, pp. 262-306) and the use of water (Reisner, 1993, 1990). Indeed, they exist anywhere that bridging organizations are dependent on social emergent orders in the short run but upon natural ones in the long run. They inevitably begin to destroy their national capital to maximize their social capital, be it economic, as in the examples discussed in this paper, or political.

Many sustainable natural processes involve far greater amounts of time for their reproduction than are meaningful to most individuals. Ecosystemic processes are rooted in the reproduction of life forms and their supporting environment. Some life forms reproduce and adapt quickly, and appear able to keep up with human generated rates of change. Ironically, these beings are often little prized by human beings. Bacteria, fungi, insects, rats and mice, annual weeds, and other plants and animals that reproduce rapidly and in great numbers do rather well co-existing with the human world. Indeed, some, such as many plants now identified as weeds, have become largely dependent on human beings for much of their abundance (Pollan, 1991, pp. 109-10).

Other life-forms reproduce more slowly, and the biological conversion of rock to soil takes even longer. Many of these processes operate on a time horizon longer than a human life, let alone that provided by the rate of interest – especially once we factor in

the discounting of the future that necessarily accompanies investment decisions.[1] The restraint required for sustainable use of eco-systems cannot rely only on the interest rate to justify deferred consumption of wood or soil or fish. It also requires a powerful ethical component.

The individual time horizons that determine interest rates have only an accidental and temporary correlation with the delays in consumption often needed to sustain healthy forestry, fishing, and farmland. Individuals and ecologies are linked to different rhythms. Markets and ecosystems are linked to feedback principles so different that they cannot be subsumed within one another. Instead, one must be subordinated to the other. In practice so far ecosystems have been subordinated to market and political emergent orders, with short term gains and the risk of long term catastrophic failure.

Commodities and Communities

When part of an ecosystem is labeled a "resource" it is removed from one context and placed within another, where it becomes a component in a production process, linked to human values, time preferences, and knowledge. Its value is determined by the role it plays in that process, and consists first, of its technical capabilities and second, how the part it can play through those capacities is evaluated by the price system. Its role in the ecosystem is ignored.

When a salmon, for example, is conceived only as a commodity, its place in contributing to stream, forest, and oceanic productivity and health is ignored, or considered merely an "externality." Once labeled an externality, something no longer enters into purely economic calculations. Similarly, when a Douglas fir or a redwood is considered solely in terms of board feet, its role in cooling salmon streams, flood prevention, air purification, as a dwelling place for other life forms (both while alive and dead), a food source, and as a facilitator for other kinds of plant growth, is rendered analytically invisible and economically irrelevant. However, these are all important ways in which the tree participates within and sustains an ecosystem. The trees' value to their ecosystem is disconnected from their perceived utility to human beings as a resource. They exist within two different and incommensurable contexts. At the level of individual time horizons these contexts are largely independent of one another, but they are not independent from a longer run ecological perspective.

In natural systems salmon and trees along salmon bearing streams are linked in mutually supportive ways. In the market economy salmon and trees are generally considered independently of one another and solely in terms of their value to consumers. These consumers are usually ignorant of these essential ecological links and value salmon and wood products solely in terms of available substitutes and their marginal costs. There is nothing in the price of salmon that would teach consumers these ecological links. It is

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[1] Garret Hardin, *Filters Against Folly*, (NY: Penguin, 1986), p. 75.

also costly to educate consumers about them. A producer survives only by selling to these consumers, and in this example he or she destroys a complex ecosystem to do so.

Many ecosystemic processes, probably all of them, provide valuable services to people using natural resources; but because they are widespread and not deliberately created by human effort, they are treated as free services. Soil fertility and water retention by forests to minimize flooding are examples. Only when these "services" become scarce do they cease being regarded as free, thereby providing entrepreneurial opportunities to sell substitutes. So long as they are not scarce, they are taken for granted, and treated as free goods. If their decline is slow on a human scale, as is probably happening to the soil in Pacific Northwest forests, it will scarcely be noticed. After it has been noticed reversing the decline is usually considered "too costly," which means that we cannot afford to replace a valuable free service with a market supplied one, even though market signals led to its demise.

Sometimes substitutes for the decline of flow resources exacerbates their decline. We have seen this to be the case with coho and sockeye being caught after Chinook were decimated, and later hatcheries and salmon farms were used to substitute for wild salmon. These are not isolated examples. Chemical fertilizers destroy the structure of soil, rendering plants even more dependent on fertilizers and pesticides than they were initially. This is very good for manufacturers and very bad for the environment. Creating substitutes is one-sidedly beneficial when we examine production entirely within the market order, but may be ultimately very destructive, perhaps even catastrophically so, when they operate to further degrade processes located outside the market order.

Civil Society and Ecological Protection

After over five years of George W. Bush, I think it is not vital at this point to point out that government is also a poor protector of ecological values. Most Americans say they care about the environment and want natural areas protected from despoliation. The American public has made its desire to preserve natural value clear. In a 1999 survey for the EPA and the President's Council on Sustainable Development between 60 and 70 percent of Americans indicated agreement with strongly pro-environmental values and beliefs. Over 80 percent believed that we should treat our environment with an eye on the well being of the seventh generation (Ray and Anderson, 2000, 139-67). It hardly need be said that our institutions do not come close to reflecting our beliefs. They have proven consistently incapable of representing the ecological public values we generally want our society to respect.

The reason is relatively straightforward, and deeper than the mendacity of George Bush. Despite their support for environmental issues, most Americans also consistently indicate they consider other political issues are more important than environmental concerns. Americans' relative neglect of environmental issues enables politicians unsympathetic to environmental issues to wage and win campaigns on other grounds, opening environmental policy to manipulation by the private interests who finance their campaigns and the bureaucracies charged with implementing the law. Trying to offset

this problem by increasing the public's perception of crisis, environmental organizations often exaggerate negative information in publicity campaigns in order to raise funds and increase political pressure (Knudson, 2001). In doing so they have sometimes squandered public trust, making their goals more open to attack by industrial and political hacks as well as by legitimate critics.

These shortcomings are largely due to the institutional environment within which environmental groups operate. The public already supports their goals, but not with enough focus to overcome the efforts of private interests to undermine public purposes. And so, much energy and time is devoted towards getting those already in agreement to act. While I think both government and the market can contribute to the success of sustainable practices, left to themselves they seem destined to fail.

The alternative institutional framework is civil society. Like the market, science, and democracy, civil society is an emergent order, but one much harder to encompass analytically, even if it is also easier to grasp experientially. By "emergent order" I refer to complex systems of patterned interactions arising independently of their participants' intentions. On balance, these patterns enable people within these orders to pursue independently chosen goals. They facilitate successful action. This characteristic distinguishes emergent orders from chaotic systems that are also unplanned, but where any patterns that exist are so hard to discern that they offer actors no reliable guidance in pursuing their goals.

The standardized feedback generating markets, science, and democracy facilitate cooperation across long distances and across cultures by reducing the depth of agreement needed for people to work together. This is why I term them ethically shallow, again a term of description rather than evaluation. Most social emergent orders are relatively impersonal due to the simplicity of their feedback signals. It is this impersonality that enables us to develop abstract theories about them. Thin values lead to thick theories.

In civil society values are thick and theories are thin. Within civil society market, scientific, and political information combines with cultural and psychological feedback to generate the complex field of social information people use when pursuing their various projects. Many different feedback signals are weighed differently by those immersed within their fields. Because no general standard exists to coordinate individual actions within a complex culture, civil society is both more difficult to describe abstractly and more able to respond to the full breadth and depth of human motivation than are the simplified coordination processes that have spun off from it.

Civil society is the most complex communication field whereby people can discover information to assist them in accomplishing their plans. If money serves to enable price information to be transmitted within the market, social capital enables cooperation to be more easily entered into within civil society, particularly what Robert Putnam terms "horizontal" or "bridging" social capital (Putnam, 2000, pp. 22-4, 1993, pp. 173-6). While not nearly as effective at maximizing the relatively narrow set of values characterizing action in the market order, science, or democracy, this same complexity in feedback enables a larger and more complete set of values to be pursued effectively. This is why James C. Scott exempts civil society from the "high modernism" that describes

science, governmental programs, and the market order (Scott, 1998). Charles Taylor recently described how even fashion plays a role in this field (Taylor, 2002, p. 85).

The space of fashion is one in which we sustain a language together of signs and meanings, which is constantly changing but which at any moment is the background needed to give our gestures the sense they have. If my hat can express my particular kind of cocky yet understated self-display, this is because how the common language of style has evolved between us up to this point. My gesture can change it, and then your responding stylistic move will take its meaning from the new contour the language takes on.

To fashion we add all the other forms custom expresses, from elements of body language, the cultural meaning of historically or generationally weighted words, society-specific habits, and even music (Desai). Often tacit, and noticed more when they are not followed than when they are, these complexes of meaning facilitate cooperation among strangers by immersing them within a common context of orientation and expectation that is itself sustained and modified by the networks of cooperation it makes possible.

In the sense used in this analysis, civil society refers to networks of voluntary cooperation across a richer set of values than can be encompassed within standardized society-wide feedback signals, and involving people cooperating with others who are status equals but are neither kin nor friends. With this observation we can return to ecological sustainability.

Sustainability and Civil Society

Among the most successful ecological organizations are those arising from caring people wanting to preserve or enhance the ecological health of their own environment. They take an enormous variety of forms, from land trusts to local environmental political pressure organizations, to watershed restoration groups. They are distinguished from larger environmental groups by the absence of much in the way of professional staffs, their local ecological orientation, and their strong networking within their communities.

This problem reflects a larger issue. Fragmented and dispersed publics that are not adequately encompassed into existing institutions often receive little attention. Nor can these publics be adequately represented by geographically elected representatives, who will instead be concerned with the interests of their districts. They are ill suited to being adequately served by traditional democratic institutions,

Two somewhat conflicting requirements confront us in developing sustainable institutions open to deep human values of care for nature and serving to channel the thinner values promoted by the market and democracy in ways that do not undermine the natural world. On the one hand, they need to be on a scale where local knowledge, concern, and responsibility can become empowering forces in harmonizing the human with the natural world. This local knowledge is more than an awareness of the unique qualities of particular natural places, though that is certainly a part of it. Local knowledge also includes the unique characteristics of the concrete human communities in

those places, the social networks and personalities that vary from place to place and time to time. This local knowledge is irreducibly concrete in both its ecological and social contexts.

On the other hand, these institutions also need to operate on scales suitable for preserving the natural processes requiring protection. Some ecosystems are quite small, such as a pond, and local knowledge, appropriately institutionalized, may be all we need to preserve them. Others are large, such as the watershed of the Sacramento river. Still others are truly vast, such as the Mississippi, Colorado, or Columbia watersheds, let alone the oceans themselves. Here the detailed knowledge available to any particular human offers a tiny insight into the whole. One requirement turns our gaze to the local and the small. The other turns it to the sometimes almost inconceivably large. Somehow we must attend to both.

These requirements suggest no single strategy, no single approach, will suffice to harmonize human societies with the world that sustains them. A wide variety of institutions of care will be needed, and the most that public policy can wisely do is to facilitate their creation. The crucial role of local knowledge means they cannot be constructed by assembly line or blueprint. They must be discovered as opportunities, often by people no one would have anticipated as playing that role, and then painstakingly shaped and tailored to the specific needs of a particular time and place. Still, we can make some broad observations.

The first observation is critical. In the absence of effective institutions of care, the laws and principles established to protect ecological sustainability will prove inadequate to the task. These laws have been repeatedly tried and repeatedly failed. Without communities of people who are personally committed to protecting salmon, or any other natural value, and possessing the institutional resources to challenge corporate greed, bureaucratic inertia, corruption, myopic self-interest, and short sighted localism, efforts will fail as they so often have in the past.

Second, the task's complexity requires these institutions to be associated through networks rather than organizational hierarchies. Only in this way can a wide variety of institutions seeking to harmonize human society with nature be able effectively to bring effective pressure on economic and political organizations without themselves falling victim to the organizational pathologies discussed in this volume. These institutional networks must themselves constitute a kind of social ecology knitting together humanity and nature. It is my argument that *here* is the key to how modern social and natural worlds can be harmonized together.

This rather abstract discussion helps shed light on the problem of fostering sustainable ecological practices. I want now to provide some concrete examples of how these principles can be applied to policy change and improvement.

The Menominee Indian tribe successfully cuts wood from forest land on their Wisconsin reservation, and while taking out more board feet per acre than is the case with nearby national forests, they have so managed their forest land that it resembles old growth, the largest such stand of big trees in the state. While there are many causes for the tribe's

success, one appears to be that control of the forest is separated from tribal government, although its managing officials are democratically elected. In short, forest management is closer to civil society than to traditional politics, and so is better able to allow deeper ethical, cultural, and spiritual; values held by tribal members to be expressed (Davis, 2000).

If we look for rough approximations of this kind of relationship among modern EuroAmerican communities, they appear in the cases of watershed restoration groups and land trusts. The classic description of a watershed restoration group is Freeman House's wonderful book, *Totem Salmon* (House, 1999). House describes the complex local environment of the Mattole River watershed in far northwestern California, where counter culture immigrants and old ranching families came together, not always easily, to creat the Mattole Watershed Alliance, that succeeded in stopping the slow extinction of fish in that ecologically ravaged area, and began their slow recovery. The Alliance is now over 20 years old and entering into its third generation of leaders, as local towns have integrated respect and care for salmon areas into their culture. While the oldest and one that has inspired many other efforts, the Mattole has since been joined by over 400 other watershed restoration groups in California, Oregon, and Washington, not to mention other regions in the US and Canada (Zuckerman, 2004, p. 72).

American land trusts are relatively new, but have also spread rapidly in different parts of North America (Brewer, 2003; Forbes, 2001; Banighan, 1997, 1991). While they are also relatively new, the performance of the National Trust of England, Wales, and Northern Ireland suggests they will be successful. The National Trust is now well over 100 years old, after the Crown the second largest landowner in the British Isles, has millions of members, a strong democratic component, and is regarded as perhaps the most popular institution in the country. Again we see a common general pattern of ethically complex memberships where many values hard to put into monetary or traditional political terms have found institutional frameworks enabling them to be protected and enhanced. A second paper prepared for this conference, "Watershed Restoration Groups and democratic Forest Trusts as Evolutionary Learning Communities" explores them in greater detail.

More theoretically, but rooted in the same distinctions between democratic and market emergent orders as realm of ethically thin activity compared to civil society as a context favoring ethically deeper action, national forests now the focus of such conflict and mismanagement, could be adapted to the same kinds of principles as land trusts, but within a explicitly democratic context (diZerega, 2002).

Conclusion

Left only to logic of its dominant institutions that subordinate natural processes to the impersonal power of social emergent processes, modernity is not sustainable. The danger from this flaw can threaten the lives of millions, perhaps billions. But civil society is also a basic institution of liberal modernity, and it is here that we can find hope.

Modernity must be leavened by the human heart because limited only to itself, it is heartless, its ethics too thin to override our short term desires. Abstracted away from the concrete and local, modernity is collectivist in its core because only power and process count, with individuals valued only to the degree they serve either or both.

The abstract principles empowering modern emergent processes do not negate the importance of the concrete and the local, but in most instances they make their effective expression difficult. In any given instance these abstractions manifest within a particular time and place and through particular people. It is in the balancing and harmonizing of the abstract principles underlying modernity's achievements with the concrete experiences of living upon this earth that modernity's accomplishments will be preserved, enabling our civilization to endure, rather than flaring brightly, only to die away like an ember that has consumed all its fuel.

Liberalism achieved its social transformation in part because that people believed individuals were the fundamental ethical unit in a society was more important than how that judgment was arrived at. People only needed to agree on procedures to reflect this judgment, and not on the reasoning to arrive at it. We now need a similar agreement that the natural community merits our care, respect, and restraint. However we arrive at this judgment is not so important.

Perhaps we verbalize this care through the insights of "deep ecology" or see the material world as reflecting God's creation, of which we are the "keepers." Perhaps we do so through the feelings of peace and well-being we find when we immerse ourselves in nature, or are enraptured by a sunset or the sight of intrepid fish braving the risks of hundreds of mile migrations to reproduce and die. How each of us gets to this place of insight is deeply personal. But in the absence of such insights we will inevitably undermine the conditions for our long term well-being.

As Aldo Leopold observed in *A Sand County Almanac*, what most fundamentally distinguishes us from the natural world is our capacity to care for forms of life of no utility to ourselves. Ironically perhaps, it is this capacity that may be crucial to the future human flourishing. For without this fundamental difference, we are extraordinarily ill equipped to survive at the level of technical impact we currently wield. We are too powerful given the short range of our narrowly self-interested vision. We need a check, and the check must be to some extent internal.

Only human care can provide such a check, and despite their many strengths, modernity's dominant institutions all work to render individual care a minor factor in the world. Yet for us to do well over the long run, it must become a major factor. And to do that, we need to develop institutions linked to the human heart, and not to the market or politics or even to science.

It is perhaps an irony that what appears most to separate us from the rest of nature is also what can most connect us. For we ourselves are paradoxical beings. We are individuals and we are parts of wholes larger than ourselves. We would not be as we are were we

only one or the other. Like photons of light in physics, depending on the questions we ask about ourselves we exhibit either quality. Given that we are both, we are more than either or the two together, for we embody a kind of unity that brings together effortlessly what human logic and reason cannot bridge. And what makes that unity possible is the capacity of the human heart to attend to the needs and demands and excesses of both.

That is why we desperately need institutions of care to offset institutions of wealth and power. Only such institutions can turn our recognition of these truths into the capacity to defend what we value against forces that are not so much malevolent as they are blind. They give us the power to defend, the power to preserve, and the power to rehabilitate and restore.

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