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LIMITS TO ANTHROPOCENTRISM: TOWARD AN ECOCENTRIC ORGANIZATION PARADIGM?

RONALD E. PURSER
Loyola University
CHANGKIL PARK
Case Western Reserve University
ALFONSO MONTUORI
Saybrook Institute

This article examines the historically constituted dimensions of anthropocentrism, tracing the emergence of linear perspective, a camera theory of knowledge, and the human-nature dualism. These epistemological conventions are socially reproduced in organization science and management practice in their more contemporary anthropocentric forms: a disembodied form of technological knowing conjoined with an egocentric organizational orientation. Following this critique, the paradigmatic differences between anthropocentric and ecocentric approaches for dealing with issues related to the natural environment are discussed in what is referred to respectively as the environmental management and ecocentric responsibility paradigms. Our analysis suggests that corporate environmentalism and so-called "greening-business" approaches are grounded in the environmental management paradigm. It is argued that environmental management approaches are incommensurable with the ecocentric responsibility paradigm. The tensions between these competing paradigms are examined as a useful stimulus for theory development toward an ecocentric organizational paradigm.

Over the course of three decades, modern organizations have been the target of escalating criticism from environmentalists (Carson, 1962; Commoner, 1990; Devall & Sessions, 1985; McKibben, 1989; Orr, 1992; Rozak, 1979). Industry continues to face a media backlash that has heightened public concern over toxic wastes, exposures to environmental disasters and pollution, loss of biodiversity, ozone depletion, and greenhouse warming. Despite the increasing public concern over environmental degradation, the field of business and management studies "betrays little evidence of the influence of environmentalism on business" (Shrivastava, 1994b: 236). Within the universe of management and organization discourse, Shrivastava (1994b) estimated that only a mere

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10% of the studies have been concerned with social issues in management or relations between business and the natural environment. Similarly, in the field of American sociology, research on the sociological causes of environmental degradation has been ignored. As Dunlap and Catton (1993) pointed out, between 1970 and 1990 not one article on environmental problems was published in either the *American Sociological Review* or the *American Journal of Sociology*—the two mainstream sociological journals.

Our statements should not be interpreted as a grand indictment of organization sciences. On the contrary, we are encouraged by the growing number of scholars whose efforts are now focused on ecologically sustainable organization research as evidenced by the recent formation of the "Organization and Natural Environment" interest group in the Academy of Management and the appearance of this Special Topic Forum. Despite these encouraging developments, it is important to understand why there has been a paucity of research in this area. One of the major reasons for this lack of articles can be attributed to an anthropocentric bias in the field of organization science. For example, based on their review of the major theories of strategic management, Pauchant and Fortier (1992) concluded that such theories were all based on the underpinnings of an anthropocentric ethic. In a similar vein, Shrivastava and Hart (1992) claimed that the central limitation of organizational studies has to do with its narrow, ideological, "de-natured" view of organizational environments. Understandably, Shrivastava (1994a) decries the fact that organizational theorists continue to spin off theories as if nature were an infinitely renewable resource or external commodity.

Anthropocentrism is based on the perception of a fundamental dualism between organizations and the natural environment (Buchholz, 1993; Pauchant & Fortier, 1990; Shrivastava, 1995). According to ecophilosophers, anthropocentrism is an ontological position that influences the code of ethics toward nature. Eckersley (1992: 51) defined anthropocentrism as "the belief that there is a clear and morally relevant dividing line between humankind and the rest of nature, that humankind is the only principal source of value or meaning in the world." However, the problematic issue is not so much one of human centeredness, for it seems perfectly natural for human beings to place themselves at the center of their concerns. Even the Rio Declaration at the Earth Summit asserted the claim: "Human beings are at the centre of concerns" (United Nations Conference on Environment and Development [UNCED], 1992). What is problematic is humankind's structure of values as they are deeply rooted in a human-nature dualism. Anthropocentrism must be recognized and eradicated before fundamental changes can take place in people's attitudes and actions toward the nonhuman world (Oelschlaeger, 1991). This fundamental perceptual and attitudinal change is difficult but necessary, for a "revolution in ethics" cannot occur until there is a "revolution in perception" (Rodman, 1980).

We begin this paper by exploring the cultural conventions that are the foundations of modern anthropocentric thought. Tracing the emergence of the linear vision of the world, along with its companion, a spectator epistemology, we discuss how, in unison, these perspectival visions cemented the foundations for a human-nature dualism that undergirds contemporary manifestations of anthropocentrism. In the process of reflecting on how anthropocentrism is historically constituted, researchers can see clearly how an alienated form of knowledge production became dominant and legitimized, coproducing egocentric enactments of organizational environments (Morgan, 1986).

Our response to the call for the "greening of organization studies" is to offer more than simple moralistic exhortations or guilt-inducing rhetoric. Moreover, if researchers and managers are to move toward an "ecocentric" paradigm, they need more than a popular understanding of ecology. Indeed, there is a need to clearly differentiate anthropocentric from ecocentric approaches to environmental issues. Thus, in this article, we offer a comparative review of two competing ecological paradigms, one that obscures and disguises its anthropocentric underpinnings, and another that flaunts its preservationist zeal. We do not attempt to devise a compromising, middle-of-the-road, "sustainable-development" position as a means for reconciling the incommensurability between these two competing paradigms. Instead, we attempt to amplify the differences between these competing paradigms as such inconsistencies provide a useful theoretical stimulus for highlighting the gross anomalies that modern, functionalist organization theory ignores. Finally, we discuss a number of future implications, challenges, and possible directions for an ecocentric organization theory and practice.

HISTORICAL ROOTS OF MODERN ANTHROPOCENTRIC THOUGHT

Before making exhortations that organizations should adopt an ecocentric paradigm, researchers need a better appreciation for the historically situated dimensions of anthropocentrism in modern thought. The conscientization of our historical embeddedness (Freire, 1970) in anthropocentrism is necessary for organizational theorists to clearly differentiate between anthropocentric and ecocentric theories. Three specific areas that can be attributed to the consolidation and perpetuation of anthropocentric thought in the modern world: linear perspective vision, a camera theory of knowledge, and the social construction of a "human-nature" dualism are discussed next.

The Emergence of Linear Perspective

Anthropocentrism blossomed with the mechanistic and materialistic worldview of the Enlightenment period (Eckersley, 1992), but an important precursor to the formation of the anthropocentric perspective was developed by artists during the Renaissance. This change occurred through the

creation of linear perspective as an artistic technique by Filippo Brunelleschi in 1425, a paradigmatic example of the changing ways humans were beginning to conceive of their surroundings (Edgerton, 1975; Romanyshyn, 1989). It was in 15th-century Italy that landscapes and cities were first painted in such a fashion that the spatial distance between objects was transformed into a geometry of ordered coordinates, with the viewer appearing as though located at a fixed vantage point, looking out on to a distant landscape (Evernden, 1992; Romanyshyn, 1989).

Linear perspective became a crucial artistic and scientific tool, part of a way of knowing the world through distanced seeing, where the observer views the landscape as if he or she were gazing through a window or lens of a camera. Based on this new "geometry of the eyes," linear perspective was instrumental in the creation of scale drawings, maps, charts, graphs, and diagrams—all of which were tools for representing the world in terms of spatial homogeneity and the Cartesian coordinates (Edgerton, 1975; Maruyama, 1980, 1992; Romanyshyn, 1989).

The development of perspective was therefore a precursor to scientific conceptualizations of the environment, with the world seen as a distant spectacle and the viewer as an immobile spectator, a precursor of the view that humans could locate themselves at the apex and center of the natural world through the detached inquiry Descartes would later make the crux of his method. Peat (1991: 17) even went so far as to say that "it is not too far fetched, perhaps, to see the dominance of science over nature as foretold in the dominance of perspective." But with the gain of perspective came a concomitant loss. In what amounts to a "hegemony of the eye" (Romanyshyn, 1989), the other sense faculties and bodily-felt presence in the world increasingly became attenuated (Berman, 1989). Emphasis centered on what was visible to the eye, that is, sense data that lent themselves easily to observation, measurement, quantification, and, as Peat (1991) stated, *domination* of nature. At this juncture the long ascendancy favoring visual modes of representation began, what Levin (1989) characterized as an alienated ratio of sensation. This "disembodied" way of knowing has, for some critics (Berman, 1989; Levin, 1989; Peat, 1991), become dominant and privileged in our society, and much emphasis was placed on charts and graphs but little was placed on the actual experiences of those participating in the systems being described.

The Camera Theory of Knowledge

The rise of linear perspective art during the Renaissance created a cultural context for the Age of Reason and the Enlightenment's turn toward scientific abstraction. The external world was now considered to be under the domain of natural laws, only to be discovered by accurately observing systemic regularities in nature. The visual world was not simply the scene as depicted in Medieval landscapes, but one that could be accurately recorded using the techniques of proportion and perspective (Evernden, 1992). Certain knowledge of nature could be discerned

through accurate representation of objects with minimum interference from the observer. This amounts to a spectator epistemology, which purportedly involves unmediated seeing (Evernden, 1992), or a passive mirroring of reality (Rorty, 1979). Obtaining "true" knowledge of "natural laws" depends upon adequate methods that can accurately measure the primary characteristics of nature.

A camera theory of knowledge shapes how people look at the world so that, indeed, it requires their eyes to become fixed and focused as spectators "observing a world which has become a spectacle, an object of vision" (Romanyshyn, 1989: 58). Behind the lens of the camera, a certain habit of mind was also formed—a detached, disembodied, and neutral observer—a recorder of events. This recording of events was based upon the acceptance that there was a literal truth of correspondence between language and the objective, natural order of things.

Human-Nature Dualism

We contend that the moral dividing line between "humanity" and "nature" is a social construction.¹ Human beings have socially constructed a moral hierarchy that assumes they are "above" or apart from other, more "lowly" creatures. It is as if humans have captured nature in a "word cage," representing the whole of everything into an objectified conceptual category (Evernden, 1992: 89). The conceptual differentiation of "humanity" from that of "nature" allowed people to also construe that nature was quite alien and unlike them. Indeed, maintenance of the categorical separation was ultimately necessary in order to support the claim that humans were morally superior to nonhumans, thus providing a justification for the domination of nature. This anthropocentric attitude essentially denies that nature has any inherent worth.

The attitude among early modern scientists was bent on penetrating the secrets of nature. Descartes considered that animals and plants, because they existed in the *res extensa*, were nothing more than machines. Francis Bacon portrayed nature in feminine terms as something that should be subdued, used, and dominated. The social construction of the human-nature dualism also provided the foundation for a cultural context that legitimized domination. This metaphysical dualism is at the root of other modern "imaginary oppositions" (Wilden, 1987), such as the split between reason-emotion, mind-body, and masculine-feminine (Des Jardins, 1993).

The human-nature dualism contains a problematic inconsistency and contradiction. If humans take Darwin seriously, then they must admit that the human species is organically related to what is conceptually referred

¹ We recognize that the original dualism between humans and nature probably occurred at the dawn of the neolithic age when humans began to domesticate nature. Shepard (1982) characterized this original dualism as the tame/wild dichotomy.

to as Nature. In some real biological sense, humans must be part of Nature, and if that is so, the dualism that has been created must be seen as just that—a social creation—a grand narrative abstraction, a convenient fiction. Rather than acknowledging their own role as observing systems, humans have instead opted to maintain the fiction by taking refuge in opposing sides of the dualism.

On one side is a view of "nature-as-object," and on the other side of the polarity is a view of "nature-as-self." The nature-as-object position underlies the natural sciences. According to this position, nature is governed by natural laws of reason and order that can only be discerned or discovered through empirical scientific methods. As a materialist philosophy, undergirded by anthropocentric humanism, the nature-as-object position is characterized by a faith that control and domination of the natural world will lead to ever-greater progress. In contrast, the nature-as-self position emphasizes the subjective side of the human-nature dualism. This position emphasizes a romantic view and imaginary idealization of nature. The "Bambi syndrome" is an example of how the nature-as-self view represents a distorted humanizing of nature, projecting onto nature humanlike qualities. Nature is idealized as a separate, beatific entity that must be preserved at all costs.

Both of the above views of nature reflect a common conception that the dualism between humans and nature is objectively real, rather than being one of many possible descriptions of the same interactive unity. Our observations should not be interpreted to mean that the environment or Nature is merely the artifact of a collective social construction. That would amount to a form of ecological solipsism. Nature is not simply a product of the social world; it has properties that exist independent of humans (photosynthesis in plants has survival value and occurs regardless of our view of nature). Rather, we are only trying to draw importance to the fact that social-construction processes are involved in shaping concepts of and relationships to nature—that such processes are intertwined with epistemological, ontological, and ethical issues.

CONTEMPORARY MANIFESTATIONS OF ANTHROPOCENTRISM IN ORGANIZATION SCIENCE

The consolidation of an anthropocentric worldview provided the foundation for knowing and managing nature vis-à-vis the scientific method. These three pillars of anthropocentrism—linear perspective, spectator epistemology, and metaphysical dualism—are at their zenith in positivistic science. According to this view, nature is an assemblage of things that obey immutable mathematical laws, and science helps to uncover and use these laws to human advantage. The dominance of the scientific concept of nature has been blamed as a major cause of human estrangement from nature (Devall & Sessions, 1985; Merchant, 1992; Roszak, 1992; Swimme & Berry, 1992). In this section, we examine two major contempo-

rary manifestations of anthropocentrism that have evolved from positivistic science and that have been socially reproduced in modern organizational science and management practice: technological knowledge and an egocentric orientation. These twin cornerstones of contemporary anthropocentrism are linked in the notion that nature and human beings are similarly lawbound: nature to immutable laws of materialist science and human beings by their character as economic individuals. This functionalist orientation assumes that both nature and human beings can be managed by those with the appropriate knowledge.

Technological Knowledge

The dualistic mode of thinking employed in positivistic science dichotomizes facts and values. Within this schema, separate and incommunicable ontological categories are assigned to the observer and observed systems. The mind—which is considered subjective—recedes to a vanishing point, carrying with it the realm of values. The observed system (in this case, nature) is reduced to a mere valueless configuration of matter-in-motion. This way of knowing could be characterized as “technological knowledge” (Tarthang Tulku, 1987). As Tarthang Tulku (1987: 39) explained:

The technological model thus affirms the existence of two separate realms: the “objective” world of results and the subjective world of personal conviction and concern. Knowledge is understood to apply only in the objective realm; in the subjective realm of desires and feelings, knowledge has no role to play. Since issues of value and meaning fit into the subjective realm, they recede from view as possible subjects of knowledge or topics of public discourse. Since this approach leaves the technological model intact, the result is to undermine the validity of deeper knowing that private knowledge professes.

Technological knowing and anthropocentrism are linked to the camera, spectator epistemology that assumes that by withdrawing from participation in the world, objects can be described and represented as if there were no subjective observer (with values, feelings, etc.) making a description. According to Folse (1993: 348), this “cinema could be interpreted realistically as true descriptions of the structure of reality because they pictured a mechanically and dynamically isolated ensemble of entities: the universe as undisturbed by interaction with an observer who records such a picture.” To embody such a stance, the researcher minimizes participation and empathy with objects of study by maintaining distance, giving the semblance of standing outside of the world he or she is attempting to know. This stance, with its lack of participation and empathy, has been the subject of extremely powerful criticism from feminist scholars (Code, 1991). Keller (1987) has drawn on the work of Nobel-prize-winning biologist Barbara McClintock and others as examples of alternative conceptualizations of the process of scientific inquiry. Furthermore, the claim that through this distanced way of seeing,

"objective," "value-free" knowledge is acquired by the "observer-bystander" is extremely problematic, and it has indeed been largely discredited in the philosophy of science (Ceruti, 1994; Code, 1991; Keller, 1981).

It should be made clear that we are obviously not dismissing a disciplined form of inquiry designed to minimize the role of covert assumptions, eliminate observational error, verify results, and limit conclusions to what can be supported by empirical data, but rather the peculiar form of methodolatry of positivist science that has masked very strong value orientations while being unable to examine or critique them. Technological knowing, which removes the knower from the process of knowing, cannot be the only nor the privileged form of human knowledge, and indeed numerous developments point to alternative approaches for both science and social science (Alvesson, 1987; Ceruti, 1994; Habermas, 1972).

Extremely troublesome is the fact that the instrumental reason of technological knowledge has developed as if it were an autonomous force (Mander, 1991; Winner, 1977), exempt from having to make public the underlying value assumptions that guide its aims and choice of projects. Technological knowledge as a privileged discourse leads to the mentality of expertism, masking questions of value, power, funding, special interests, and so forth, which this form of knowledge is itself unable (and unwilling) to investigate. The formerly popular expression "you can't stand in the way of progress" captures the problem here: Whose progress? Is there only one "good" future? What is the status of claims that challenge this conception of "progress"? Technological knowing functions as a convenient veil for expertism, which marginalizes public judgment and avoids confronting axiological questions regarding the aims of scientific projects (Emery, 1993; Habermas, 1971; Yankelovich, 1993).

Knowledge derived from a reflective inquiry into values does not command the same legitimacy as objectivist knowledge (Burrell & Morgan, 1979). The dominant social paradigm, informed by the assumptions of utilitarian functionalism and neoclassical economism (Aktouf, 1992; Etzioni, 1989), also subscribes to a liberal, individualist theory of human behavior. Much of organization science is bent upon constructing theories based on cause-and-effect reasoning "in a context that views human beings and organizations as rational, self-interested economic entities out to achieve specific ends" (Tenkasi, 1993: 138). In another epistemological critique of organizational research, Knights (1992) echoes our problematization of technological knowing. Knights (1992: 515) argued that the social reproduction of the dualism between subject and object triggers the search for representations of "true" reality, which, in actuality, have the effect of obscuring "the process through which an academic discourse constitutes the object of its discourse in its own image."

An instrumental framework contributes to this type of self-referential discourse, which is apparent in social dilemmas research (Dawes, 1980;

Dawes & Thaler, 1988; Liebrand, 1992). In the case of a commons dilemma, an individual is asked to make rational calculations of the trade-offs between the costs of preservation versus the benefits of development. The lack of pro-environmental conservation behavior is explained by the fact that individuals understand that their actions are not likely to make a difference unless a majority of individuals behave in a similar fashion (Messick, 1986). This stream of research provides a reductionistic explanation for the lack of concern for the environment as simply being the outcome of an individual's rational choice. Simulations tend to be framed in terms of instrumental valuation criteria. According to this mode of anthropocentric theorizing, the individual is viewed as a self-contained, autonomous actor who must rationally negotiate his or her relationship with the (natural and social) environment (Finger, 1994). Rationality is seen as the most salient aspect of individual development (Finger, 1994). Despite these shortcomings, research by Tyler and Dawes (1993) suggested that cooperation to resolve social dilemmas is not based on egoistic self-interest criteria but on social identity, that is, when an individual feels solidarity and identification with a group. However, framing environmental problems in terms of social dilemmas is itself the product of an anthropocentric view because the scope of justice in a commons dilemma is limited to considerations of fairness to human groups (altruistic behavior).

Experimental games that simulate social dilemmas, besides viewing human activity in terms of utilities, calculations as to advantage and disadvantage, social payoffs, and economic exchange relationships (Varela, Thompson, & Rosch, 1991), are "lousy simulations of the social dilemmas with which most of us are concerned" (Dawes, 1980: 188). In the field, hard and reliable ecological data that would make calculations of utility possible are usually lacking. Even if such data were available, the underlying anthropocentric framework would continually reproduce irreconcilable conflicts between the need for long-term preservation of ecosystems and short-term economic development.

Technological knowing in organization theorizing places a knowledge of values secondary to knowledge that can be used primarily as a tool for instrumental purposes. Thus, appeals to consider nature for its intrinsic value are likely to be attributed as merely "subjective" sentiments that have no role to play in the "real" world dominated by instrumental rationality. In a world dominated by instrumental rationality and technological knowing, a questioning of the values that drive these forms of knowing is viewed as in and of itself "irrational" or "unrealistic," because there is almost no way of addressing those values without seeming to challenge "reality" itself. As Des Jardins (1993: 146) warned, "when a measurable instrumental value (such as profit) conflicts with intangible and elusive intrinsic value (such as the beauty of a wilderness), the instrumental value too often wins by default."

Egocentric Orientation

The anthropocentric agenda has provided the legitimacy for a focus that is egocentrically oriented toward finding the means whereby rational, self-interested agents can optimize and exploit the social and natural environment for their "competitive advantage." Recognizing the limitations of the egocentric orientation, Trist (1981: 43) insightfully observed: "Traditional organizations serve only their own ends. They are, and indeed are supposed to be, selfish." Adherents to an egoistic value orientation are likely to consider that enlightened self-interest will guide society to a sustainable future. The moral source of this position is "ethical egoism" (Olsen, 1965; Rand, 1967). With ethical egoism and self-interest as dominant value orientations, egocentric actors—whether they be individuals or organizations—are more likely to pursue an economically advantageous course of action when confronted with a choice between environmental preservation or economic development (Axlerod, 1994: 101; Merchant, 1992). The most cost-effective solution to dump toxic waste chemicals into a watershed may benefit the individual firm, but places the surrounding ecosystem at risk, as toxic chemicals find their way into the biological food chain (Carson, 1962).

Different theoretical models of organization-environment relationships share a common egocentric orientation. This is ironic, given the fact that organization theorists turned to the life sciences and imported organismic metaphors to help explain organization-environment transactions (Katz & Kahn, 1966; Morgan, 1986; von Bertalanffy, 1950). However, the application of these organismic theories in modern corporations has managed to ignore the existence of the natural environment. This occurred as a result of a reductionistic interpretation of organismic theories through the world hypothesis of mechanism (Pepper, 1942; Purser, 1993). Emery (1995) noted that the mechanization of open systems theory occurred as sociotechnical systems practitioners in the United States narrowly defined the concept of directive correlation as a limited problem of adaptation to the *task* environment. Similarly, contingency theory offered a means of identifying patterns of "good fit" (Lawrence & Lorsch, 1967) between organizational structure and the complexity of the *business* environment. The resource-dependence model viewed organizations as actively seeking resources from the environment (Pfeffer & Salancik, 1978), focusing on how organizations can optimize their capacities for resource acquisition, in order "to manipulate the environment to their own advantage" (Hall, 1987: 303). Taking a population ecology view (Hannan & Freeman, 1977), other organizational theorists placed more emphasis on the economic and *institutional* environment as a force in organizational survival.

Implicit in these egocentric organization theories is a Lockean view of the environment; the land, or nature, is seen as potential "real estate," an idle resource that is without value until it is used by humans. The issue

here has to do with the locus of value, or "value ownership" (Rolston, 1994). Although it may be true that only humans are capable of bestowing value upon things in nature, this truism has been distorted to mean that value is exclusively located in humans. This misconception also implies that value in the environment does not exist objectively, unless value is ascribed by humans (Martell, 1994). This is a fallacy of misplaced location (Rolston, 1994), a fundamental cognitive distortion of the anthropocentric view.

Organizations with an egocentric orientation, if they pursued environmental reforms at all, would do so only if it was in their self-interest. The pursuit of environmental protection by egocentric organizations is perceived in terms of how organizational constituents would benefit or be affected. Egocentric organizations are concerned with problems related to depletion of resources that are required for production processes, compliance with environmental legislation and alleviation of health hazards to avoid litigation, and image enhancement of the corporation to retain shareholder value (Post & Altman, 1994). These reforms fall under the rubric of corporate environmentalism. Corporate environmentalism addresses these issues quite effectively, but for anthropocentric reasons. Which types of environmental problems, the scope of care, and range of ethical extension to different parts of the environment will be limited to a narrow domain that incurs immediate benefits to egocentric organizational concerns? Even the current practice of sociotechnical systems design (Pasmore, 1988; Taylor & Felten, 1993) defines the unit of survival in the environment as a single focal organization. Discourse involving environmental decision making is confined to issues and positions that maintain the egocentric identity of the firm (Boje & Dennehy, 1993). Describing the problematic character of organizations that exhibit an egocentric orientation, Morgan (1986: 243) stated:

Egocentric organizations draw boundaries around a narrow definition of themselves, and attempt to advance the self-interest of this narrow domain. In the process, they truncate and distort their understanding of the wider context in which they operate, and surrender their future to the way the context evolves.

We are concerned here with environmental degradation, and Hardin's (1968) often cited "tragedy of the commons" parable is used to illustrate what happens when rational, self-interested maximizers, each seeking private gain, inevitably bring ruin to the commons. Hardin's depiction of the selfish herdsmen portrays human beings as intrinsically selfish creatures who are bent on maximizing their own gain, lacking in communal common sense. Hardin's parable is by no means a cultural universal, but reflects the Western indigenous psychology of a self-contained individual (Sampson, 1989), a sovereign agent, whose personal sense of identity is constructed and felt to be contained within the "private" boundary of his or her skin-encased

body. Although unquestionably of some heuristic value, Hardin's tale is context specific, and it should be seen as such.

Egocentric organizations conceive of their identity as existing in opposition to the larger socioecological environment. From an anthropocentric view, the system-environment dichotomy is, as we outlined previously, based on a camera theory of knowledge, which suggests a fixed boundary and a "God's eye view from Nowhere." Similarly, for the egocentric organization, the natural environment is seen as something "outside" and completely unrelated to the observer, except in a very narrow utilitarian sense. The statement, "What is good for General Motors is good for America" emulates the system-environment relationship from the point of view of an egocentric observer. This egoistic view clearly subordinates the environment to the needs of the system, which is posited as standing outside (and above) nature.

An egocentric orientation generates disjunctive cognition or "simple thought" (Morin, 1992), which is enacted in terms of a contracted focal setting or "scope" (Montuori, 1989, 1993). The disjunctive aspect is seen in the imaginary oppositions that are created between human-nature, organization-environment, but also in terms of the oppositions created between management-workers, fact-value, men-women, and so on. These are not simply either-or dichotomies (either we preserve the environment or save jobs); they are power relationships, with one term superior to the other: humans over nature, management over workers, men over women, and so on.

Restricted by simple thought, egocentric organizations have difficulty understanding and perceiving that they are nested within biological ecosystems and interconnected with biogeochemical cycles (Bateson, 1972; Odum, 1959). Bateson (1972: 484) expressed the problematic of the egocentric orientation: "When you narrow down your epistemology and act on the premise 'what interests me is me, or my organization, or my species,' you chop off consideration of other loops of the loop structure."

The loop structure that Bateson refers to are the circular flows and exchange of materials within ecosystems. Egocentric organizations do not give adequate consideration to how their activities will have an impact on, alter, or interfere with these complex loop structures within ecosystems. Egocentric organizations subscribe to the cornucopian paradigm that growth is always possible, that new technology will ensure a perpetual and inexhaustible source of natural resources (Dunlap & Catton, 1993). Environmental sociologists (Catton & Dunlap, 1980) have referred to this orientation as characteristic of the human exemptionalism paradigm.

Without an understanding of the ecosystem concept and a realization that organizations are part of these complex biogeochemical cycles, it is difficult to imagine how an ecocentric organization paradigm can emerge. Clearly, the development of an ecocentric organization paradigm will require a better understanding of scientific ecological concepts, environmental philosophies, and the sociopolitical implications of ex-

panding moral obligations to ecosystems. And only by enlarging the focal setting to a more contextual and ecocentric view of organizations will organizational theorists and management practitioners begin to seriously consider questions regarding an organization's larger impact on the natural environment.

COMPETING DIMENSIONS OF ECOLOGY

Given that anthropocentrism is entrenched within organization science and management practice, the prospects for reform, "greening business," or efforts to develop greater ethical sensitivity to issues that encompass ecological problems are unlikely to produce significant results. In the rush to create an "ecocentric" organization paradigm, organization theorists are beginning to turn to the field of ecology. However, we suggest that organization theorists should be cautious and discriminating when deriving theoretical analogues from the science of ecology. Although ecology is now viewed as the "institutional shaman" on matters pertaining to the environment (Evernden, 1992), it too is a divisive field with theoretical battles waging between those in the instrumental and preservationists camps (Worster, 1977, 1990). Calling upon and appealing to the science of ecology in defense of organizational theories should be done in a manner that makes explicit how particular ecological models are used to support certain social ideals or political philosophies.

We contend that the theoretical import of ecological ideas into organization science will not necessarily or automatically lead to an ecocentric organization paradigm. Rather, the ecological contextualization of organization science can lead to diverse, even incommensurable paradigms. This is due to the fact that organizational theorists are drawing upon different streams of environmentalism, competing and rival scientific theories of ecology, and diverse environmental philosophies. The diversity of these ecological perspectives warrants a better understanding of their implications to organization science and management practice. Consequently, in this section we offer a comparative analysis of two major competing ecological paradigms: the environmental management and ecocentric responsibility paradigms. Following this comparison, we then discuss the implications of these competing ecological ideas for organizational science.

Environmental Management Paradigm

For historical reasons, the most widely accepted approach to environmental problems in ecology is based upon reductionistic methods and an instrumental value orientation. Critics of this approach have referred to it as "reformist environmentalism" (Naess, 1973; Naess & Rothenberg, 1989), because its proponents tend to view nature in instrumental and economic terms. We classify this as the "environmental management paradigm." One of the major assumptions characterizing the environmental

management paradigm is that humans are above nature and that nature is an object—an assemblage of things—which obeys immutable laws, and that those laws can be discovered and subsequently used for human advantage.

Imperial tradition of ecology. An imperial view of nature was marshaled by a Baconian drive to enlarge the boundaries of the Human Empire, in which humankind would use the power of science to attain absolute power over nature and the nonhuman world. More specifically, the imperial tradition of ecology signaled a shift away from the study of natural history to a mechanistic treatment of ecosystems (Worster, 1977). Tansley (1935) originally developed the ecosystem concept as a response to the conceptual problems associated with the functioning of ecological interactions. Since then, the ecosystem has been both a guiding and contested concept in the science of ecology (Golley, 1993; Worster, 1977, 1990).

A competing theory in Tansley's time was Clements' (1916) theory of plant succession. According to Clements, vegetative landscapes followed a developmental path through stages of succession, eventually stabilizing into a "climax community." For Clements, a prairie was a "superorganism" that functioned as if it were a closely integrated community of plants and not a random assemblage of individual species. Tansley, however, was highly critical of these interpretations of ecological interactions that resorted to metaphors of human community. For Tansley, such a reliance upon metaphors of community in ecology amounted to an idyllic form of German romantic idealism (Golley, 1993). Furthermore, Clements' concept of a "superorganism" was not researchable using ecological methods of analysis. Thus, the development of the ecosystem concept was used to refute Clements' idealist notion that a vegetative landscape develops into a complex organism.

Tansley's main contribution was to fuse the concept of a system with the thermodynamic laws of physical equilibrium in order to account for the energy flow through species populations. In fact, most of the ecosystem studies from 1940–1960s focused on energy accounting, or the "trophic-dynamic" productivity of a group of species connected by a network of food chains within ecological habitats. However, ecosystem scientists could not avoid the use of metaphors; analogues to physics and economics were apparent in their reference to the currency of energy exchange relationships between "producers" and "consumers" within a food chain (Golley, 1993). Ecosystem studies became more reductionistic as energy-accounting methods improved. Golley, a prominent ecosystem researcher, has criticized the field for its excessive methodological reductionism, stating, "the reductionists have less and less in common with the ecologist, who is concerned with the broader issues of organization and may even begin to question the value of ecological work in general" (Golley, 1993: 28).

Environmental management ecologists employ a mechanistic understanding of the ecosystem concept for predicting and controlling ecological phenomena. One of the first large-scale ecosystem research projects was funded by the Atomic Energy Commission, which studied the effects of the nuclear radiation fallout in the surrounding environment of nuclear test sites in New Mexico (Golley, 1993). The utilitarian orientation of these "biotechnologists" (Peterson, 1984: 129) is evident in the type of problems that has been the focus of their research, for example, managing salt marshes to process sewage and improving the productivity yields of forests. Biotechnologists are often funded by policy makers to suggest how ecosystems can be used instrumentally for human ends.

Economic liberalism and sustainable development. A philosophy of economic liberalism prevails within this paradigm as suggested by the win-win rhetoric that business can be green and still make a profit (Walley & Whitehead, 1994). The recent media popularity of such companies as The Body Shop, Ben & Jerry's Ice Cream, and Patagonia reflect this procapitalist orientation, now popularly known as a "compassionate capitalism" (Mirvis, 1994). The rhetoric of sustainable development is now deceptively used as a cover for conducting business as usual (Kothari, 1990). Consider the concluding paragraph from Walley and Whitehead's (1994: 52) article in the *Harvard Business Review*, "It's Not Easy Being Green":

For all environmental issues, shareholder value, rather than compliance, emissions, or costs, is the critical unifying metric. That approach is environmentally sound, but it's also hardheaded, informed by business experience, and, as a result, much more likely to be truly sustainable over the long term.

Walley and Whitehead are right on one count: It isn't easy being green; however, we doubt that Walley and Whitehead are concerned with the sustainability of the health and integrity of ecosystems. Conservation of nature in their scheme is only provisionally important in the equation for sustainable development. Sustainable development of this genre is a classic case of "doublespeak," because economic growth is given a central role in preventing environmental degradation. Their notion of sustainable development is also ethically vacuous, amounting more to a sustainability of a narrow economic ideal and of privileges that are tied to the status quo (Kothari, 1990). If nature is conserved, it is primarily for anthropocentric reasons: to sustain the gross national product, shareholder value, crop production, or to distribute the fair share of economic resources.

On a larger front, the universal slogan of sustainable development has capitalized on the notion that economic growth can be accomplished as long as it is sustainable. As defined by the United Nations Commission on Environment and Development, "Sustainable development is the

development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Economic Development [WCED], 1987: 43). This definition clearly reflects an anthropocentric bias in that the unit of sustainability is the human being—future generations of humanity—with an emphasis on ensuring the equitable distribution of economic development opportunities.

The rhetoric of sustainable development also has similarities to that of the early conservation movement that began in North America under the leadership of Gifford Pinchot. The conservation movement led to the professionalization of "resource management" in the U.S. Forest Service. As part of a larger progressive movement, resource conservationists were concerned with the *laissez-faire*, monopolistic control of resources by the wealthy few, who, at the time, were purchasing vast amounts of land for their private use. Pinchot identified "development" as the first principle of conservation, which was achieved by minimizing waste and inefficiency in the use of natural resources. Sustainable development and resource conservation both operate within a utilitarian framework bent on seeking the greatest good for the greatest numbers (including future generations); by reducing waste and inefficiency in the exploitation and consumption of nonrenewable natural resources, with the hopes of ensuring a maximum sustainable yield of renewable resources (Eckersley, 1992).

Anthropocentric ethic. Environmental management approaches rely upon a traditional ethical framework that is also rooted in anthropocentrism. Traditional ethical analysis is based on a progressive extension model of ethics, better known as ethical extensionism (Regan, 1983; Singer, 1976). Des Jardin (1993: 142) identified three major shortcomings of ethical extensionism: (a) it leads to a hierarchical ordering of species (with humans on top); (b) it is inherently individualistic in focus, paying consideration to individual biological organisms but disregards whole ecological entities such as habitats and ecosystem processes; and (c) it lacks comprehensiveness, focusing instead on case-by-case problems that usually do not provide guidance on what should be done when confronted by more pervasive environmental problems, such as global warming.

Ethical extensionism uses comparable human attributes as the sole moral criteria for determining the intrinsic value of nonhuman species (obviously, plant, *biota*, and inanimate objects are omitted from such analyses automatically). Further, ethical extensionism is atomistic as it focuses upon individual biological organisms. According to Rodman (1983: 87), this atomistic tendency is "so deeply imbedded in modern culture, locating intrinsic value only or primarily in individual persons, animals, plants, etc., rather than in communities or ecosystems, since individuals are our paradigmatic entities for thinking, being conscious, and feeling pain." Thus, with ethical extensionism, objects of valuation are

individual entities (Page, 1992), whereas human interests are the sole measure of right and wrong.

The anthropocentric ethic in environmental management is mainly concerned with issues of "justice," "rights," and other attempts of extending legal rights to the nonhuman world. Rodman (1983) criticized this "rights-of-nature" approach as a weak alternative because it assumes that other species and biota can participate (as humans would) in an ethical system. What is important here is not whether one agrees that nature or animals have "rights," but that the argument is still based upon the centrality of the human being as the reference for conferring value or disvalue upon Nature. This is the problematic of the ethical extensionism approach: extension of intrinsic value to the nonhuman world occurs only if entities measure up to the criteria that are defined by humans, criteria that must mimic or resemble humanlike attributes. With this framework, one could arrive at an ethical decision to save an endangered species without the necessity for also having to save or preserve the endangered species' ecosystem habitat. Ethical extensionism subjects the nonhuman world to "inappropriate models, without rethinking very thoroughly either the assumptions of conventional ethics or the ways in which we perceive and interpret the natural world" (Rodman, 1977: 88).

Ecocentric Responsibility Paradigm

The ecocentric responsibility paradigm represents a radical departure from anthropocentric environmental management approaches. Ecocentric philosophers view the anthropocentric assumptions in our culture as the deeper cause of environmental problems. Traditional philosophies do not consider the inherent worth of nature but simply ascribe instrumental value. Similarly, human beings regard nature only as a "resource" to exploit, without considering nature as our "source."

Ecocentrists are explicitly concerned with emancipating ecosystems from the effects of human mismanagement, overuse, and exploitation. As a means of fostering a deeper appreciation and intrinsic valuation of nature, ecocentrists seek to effect change at the level of human values, ethics, attitudes, and lifestyles. Ecocentric values are aligned with movements to preserve wilderness areas, protect the integrity of biotic communities, and restore ecosystems to a healthy state of equilibrium. The body of theory that characterizes ecocentric thought challenges the dominant social paradigm (Catton & Dunlap, 1980) and reductionistic approach to environmental problems, in that ecosystems in themselves are viewed as having inherent worth independent from our human value judgments (Leopold, 1970; Naess, 1973; Schweitzer, 1987; Taylor, 1986).

Arcadian tradition of ecology. The ecocentric paradigm is informed by the Arcadian tradition of ecology (Worster, 1977). In contrast to mainstream science, instrumental reason within the Arcadian tradition of ecology is tempered by normative considerations as researchers exhibit a

nonintrusive stance toward their subject of study. This stance allows Arcadian ecologists to be a "partner in communication" with ecosystem populations (Worster, 1977).

Odum (1953: 9) described the concept of an ecosystem as "any entity or natural unit that includes living and nonliving parts interacting to produce a stable system in which the exchange of materials between the living and nonliving parts follows circular paths." Odum's (1959) textbook on ecology (*Fundamentals of Ecology*) popularized the ecosystem concept. His treatment of the ecosystem concept expanded upon Tansley's formulation of ecosystems as energy-flow systems and Lindeman's energy-accounting methods of trophic-dynamics. However, unlike his predecessors, Odum did not totally discard Clements' teleological view of ecosystems (Worster, 1977). For Odum, ecosystems evolve toward maturity and homeostasis as they develop structures of interrelatedness, symbiosis, and cooperation. Further, Odum explained ecosystems as existing at various levels and sizes. The largest ecosystem was conceived as being the entire earth, where, at the level of the biosphere, other ecosystems operate. Within an ecosystem, organisms (biotic communities) and abiotic communities influence the properties of each other. For example, animals are dependent upon plants that produce protein, carbohydrates, and fats through their photosynthesis, and, in turn, plant populations are controlled by animals, while both are influenced by bacteria.

Odum's ecosystem concept amounted to a type of methodological holism. Organisms cannot be studied in isolation from the role and function they play within ecosystems. Another important facet of Odum's formulation of the ecosystem concept was his recognition that human beings were key components of ecosystems as well. Odum also stated in his chapter on ecosystems that humankind was destroying the environment. Far from an objective, value-neutral stance, Odum influenced a new generation of ecologists to conduct ecosystems field studies that would later provide the foundation for the disciplines of restoration ecology and conservation biology.

Ecosystem health. The ecocentric responsibility paradigm is based on efforts to maintain, preserve, or restore the health of ecosystems. Legislation pertaining to the loss of wetlands, old-growth forests, and the Wilderness Acts are just some examples of where a responsibility for preserving the health of the land has been of major concern (Des Jardins, 1993; Leopold, 1970; Rolston, 1994). As Leopold (1970: 274) pointed out, "A science of land health needs, first of all, a base-datum of normality, a picture of how healthy land maintains itself as an organism." This picture is usually derived from ecosystem studies of pristine natural systems with their biological integrity intact; that is, ecosystems that have not been culturally modified. The health and integrity of a culturally modified ecosystem can be gauged by comparing its functioning with that of a pristine counterpart, usually located in wilderness areas. "Wilderness," as

Leopold (1970: 274) pointed out, "assumes unexpected importance as a laboratory for the study of land health."

An ecosystem's biological integrity is intact to the extent that it has the ability to maintain "a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to the natural habitat of the region" (Karr & Dudley, 1981; cited in Rolston, 1994: 70). To measure the relative integrity of an ecosystem, conservation biologists might compare the species constitution of an affected area to that of similar ecosystems that have not been invaded by humans. Similarly, indicators of ecosystem health have to do with systemic capacities for self-repair and resilience to stress. A well-functioning, healthy ecosystem is stable and sustainable as member organisms can flourish in their respective niches, free of "distress syndrome" (Constanza, Norton, & Haskell, 1992). This is ecosystem health as Leopold defined it: "the capacity of the land for self-renewal" (1970: 258).

Healthy ecosystems then do not require constant repair, upkeep, and management. In contrast, unhealthy ecosystems require "environmental management," constant doctoring, and engineering. The focus on ecosystem health in this paradigm is not simply to preserve wilderness by attempting to outlaw culture from the perimeters of nature. Modern culture is also a part of nature. Rather, the issue is one of conserving natural values (Rolston, 1994)—that is, values that do not place the health of ecosystems at risk—values that allow cultural systems to flourish within safe operating limits and that are fitted to support the biological integrity of ecosystems. Rolston (1994: 71) maintained that healthy ecosystems "produce natural values, as well as support cultural values, and such productivity and support is the bottom-line." This shift in perspective places primary emphasis upon the valuing of ecosystem integrity. Cultural development is acceptable so long as ecological integrity or ecosystem health are sustainable. In this case, the focus is on ecological sustainability, rather than sustainable development.

Ecocentric environmental ethics. Proponents within the ecocentric paradigm claim that we have an ethical responsibility to sustain the integrity and health of ecosystems. Leopold's land ethic (1970), the deep ecology platform (Devall & Sessions, 1985; Naess, 1973), and "ecofeminist" critique (Diamond & Orenstein, 1990; Eisler, 1994; Merchant, 1980; Sprenak, 1988) are the main voices within the burgeoning field of ecocentric environmental ethics. For our purposes here, we limit our discussion to the writings of Aldo Leopold, which have had a major influence in the development of ecocentric environmental ethics. Leopold envisaged that human beings would evolve as they shifted from an anthropocentric to an ecocentric ethic. According to Leopold, Mosaic Decalogue and the Golden Rule characterized the current state of ethical development of the human species. The next sequence of ethical development involved human relations with the land.

Leopold's work transformed the mechanistic approaches of the resource conservation movement. Drawing from the science of ecology, Leopold defined a holistic approach to game management and conservation. Rather than viewing nature as an object that could be manipulated for utilitarian purposes, Leopold made a case for granting moral standing to the land community at large. As Leopold (1970: 239) noted, this "simply enlarges the boundaries of the community to include soils, waters, plants, and animals, or collectively, the land." For Leopold, land was not simply inert dirt—a dead object; it was a living organism, the source of life in a biotic community.

Furthermore, Leopold's ecological understanding led to the development of a more systemic appreciation of the complexity and interconnectedness of ecosystem processes. The recognition of such complexity meant that one could never know with complete certainty what effects the manipulation of individual components within an ecosystem would have on the ecosystem as a whole. Leopold is attributed to having ushered in an "ecological conscience" (Des Jardin, 1993), as noted in his statement that human beings were not "conquerors" of the land, but "plain members" of it, "biotic citizens," without any type of privileged status (Leopold, 1970: 240).

Leopold's concept of the land community also represented a shift from anthropocentric ethics, which extends moral consideration only to individual biological organisms, to an ecocentric ethics, emphasizing the intrinsic value of biotic wholes. Ecocentric ethics enlarges the boundary of community to include natural ecosystems. More importantly, ecocentric ethics transcends concerns dealing with a progressive extension of rights, justice, and moral obligations to individual biological organisms. Instead, ecocentric ethics is more radical, emphasizing the need for an ecological sensibility and a correct conception of our relations and sense of place in the land community. Apart from human interests, ecosystems have intrinsic value and are morally considerable in their own right. Leopold's seminal work brought ethics into the discourse of the science of ecology. His legacy in this area is captured in his often quoted statement known as the *land ethic*: "A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise" (Leopold, 1970: 262).

There are morally significant reasons for preserving undisturbed ecosystems besides their usefulness as a "control group" for assessing ecosystem health. Ecosystems support and sustain the life of various species and biological organisms. In one sense, ecosystems are valuable for the life-support function they afford. Ecosystems exist at a level that supersedes the level of individual biological organisms. It is a category mistake to use criteria for ascribing value that is appropriate at the level of species to ecosystems. For example, an animal species may have sentience, but an ecosystem does not. An animal may have the capacity for subjective experience, but an ecosystem as a whole does not. Therefore,

it is a categorical mistake to assume that ecosystems are not valuable simply because they do not exhibit the criteria of sentience or subjectivity. As Rolston (1994: 176) pointed out,

We do not look for a valuer, but rather for the ability to form value. We look for a matrix, for interconnections between centers of value (individual plants and animals, dynamic lines of speciation), for creative stimulus and open-ended potential. We look for a system able to produce and support value, and ask whether that ability is a value in itself, and also a value for those it produces and supports.

According to Rolston, ecosystems have the ability to produce value; that is, they produce and support life, regardless of whether humans are on the scene to ascribe and project value judgments. Ecosystems therefore have *systemic value* (Rolston, 1994: 177). Wilderness has its own intrinsic natural value, which is not centered within or projected by humans. This is an ecocentric perspective, that ecosystems and wilderness should be preserved not because of the value they afford to humans, but because they are valuable in and for themselves (Rolston, 1994).

An ecocentric perspective also gives moral consideration to ecological "wholes," such as forests, wetlands, lakes, grasslands, deserts—that are both biotic and abiotic communities. Such ecological communities are composed of many interdependent relationships. Rather than focusing upon the study of species isolated from their habitat, an ecocentric perspective is holistic: the focus is upon understanding and explaining how a species or biological organism functions within the overall context of ecosystem processes and relationships. Every species and biological organism is viewed as a member of a larger biotic community. Ethical holism is derived from this ecocentric perspective: Each species and biological organism depends upon a web of relationships within its ecosystem; conversely, the stability and integrity of an ecosystem is dependent upon the function, role, and operation of various species interacting in mutually beneficial ways.

The ecocentric perspective decenters the privileged position of humans as the sole locus of value, requiring humans to transform their anthropocentric attitude toward ecosystems. However, the ecocentric perspective is not misanthropic. Rather, this perspective amounts to a fundamental ethical shift, with a concomitant recognition of constraints placed on individual systems (human beings, organizations) by virtue of the fact that such systems are members of a land community. As "plain members" and "citizens" of the land community (rather than being "conquerors," above and apart from the environment), individual systems can no longer maintain an egocentric view of themselves. Ecocentric ethics is the base of moral awakening, analogous to the form of social change that corrected the evils of child labor and human slavery. In this connection, an ecocentric ethic is not based simply on a set of rules for determining "What should I do?"; rather, it is based on an attitude of reverence for life,

a respect for nature, which is concerned more with the question of "What type of person should I be?" (Des Jardins, 1993: 151).

A focus on the formation of ethical character rather than a reliance upon abstract rules is necessary when people are faced with decisions about human intervention into complex ecosystems. According to ecology, one can never know with complete certainty what the consequences or effects one's actions will be when one makes alterations to, or interferes with, complex ecosystem processes. Because this is the case, a person will never be able to determine precisely what the ethically "correct" action is when confronted with ambiguous ecological situations. A system of universal, abstract ethical rules for guiding the human management of ecosystems is impractical given the myriad interdependent and unknown variables. Instead, an ethics-of-virtue base helps people to strive to develop the moral dispositions, attitudes, and character of persons so as to ensure that they act in the best interests of a biotic community. In this case, Leopold's (1970: 261) injunction to "love, admire, and respect" the land serves as an ethical benchmark that actions taken by a person will be informed by good judgment.

IMPLICATIONS FOR FUTURE THEORY DEVELOPMENT

Given the morass of competing ideas and cacophony of voices within the fields of ecology and environmental ethics, perhaps the ecocentric organization paradigm should no longer be based upon the rhetoric of popular ecology. Further, our analysis suggests that the basic assumptions underlying organization science are fundamentally divergent from those that characterize an ecocentric paradigm. The current fad of corporate environmentalism has been an attempt to address the ecological crisis within the "environmental management" or "normal organization science" paradigm.

The movement toward an ecocentric conception of organizations and management will require a revolutionary shift in paradigm. However, as Kuhn (1970) suggested, theory development and revolutionary paradigm shifts do not occur all at once. Instead, there is a long struggle involved in justifying the plausibility of alternative theorizing (Kuhn, 1970). Accordingly, theory development proceeds as the deconstruction of anomalies associated with the dominant paradigm highlights the incommensurability, as well as the continuity, between competing approaches (Kuhn, 1970; Willmott, 1993).

Clearly, the foundational concepts and underlying philosophies of the environmental management and ecocentric responsibility paradigms are incommensurable. The environmental management paradigm is anthropocentric; its proponents continue to elevate human beings to a dominant position over nature. Indeed, anthropocentrism is foundational to the dominant social paradigm (Dunlap & Catton, 1980; Milbrath, 1984, 1989). Rather than viewing the environmental crisis as a challenge to, and

consequential anomaly of, the dominant social paradigm, concepts and practices within environmental management are retrofitted to perpetuate this reigning paradigm.

In contrast, the bottom-line within the ecocentric paradigm is that human beings have moral obligations to ecosystems. However, ethical considerations regarding the conservation of ecosystems are muted when subjected to the instrumental technical rationality of anthropocentric discourse. Surely, those who are more concerned with calculating the productivity of old-growth forests, bioengineering designer species, or making Chesapeake Bay a more efficient sewer, are not likely to give much consideration to conserving ecosystem health and integrity (Sagoff, 1992). This problem suggests that members of ecocentric organizations will need to assign much more importance to ethical considerations than typically has been the case, because environmental managers have been primarily concerned with technical efficiency.

Environmental managers also continue to support the fundamental tenets of modernism and functionalism—an unquestioned ethos of linear progress, imperatives for continuous economic growth, an unbridled faith in control, and technological optimism. Further, both functionalist streams of organizational science and environmental management paradigms tolerate the gross ecological anomalies that are a consequence of instrumental rationality and unrestrained economic growth. In this case, care for the natural environment is conceived solely in terms of the exchange value that such concern will yield to human desires. Taken to its extreme, this paradigm narrows its focus to finding technological solutions to environmental problems within existing economic and organizational frameworks, usually as a means to sustain, or even increase, levels of productivity and growth.

Evidently, the “subversive science” side of ecology has not penetrated the bastions of environmental management schools or the majority of MBA programs. Therefore, it is unrealistic to expect that ecological sustainability can be achieved with environmental management schemes. Such efforts, at best, lead to reforms within the prevailing paradigm of liberal democracy and industrial materialism, but they fail to dispel anthropocentric attitudes. In short, environmental management is essentially a policy of reform that avoids the necessity of having to examine the deeper philosophical causes of the ecological crisis and that sidesteps issues regarding fundamental changes in lifestyles, which are virtually unthinkable. Although green consumerism may help to some degree in shifting consumption patterns toward more “environmentally friendly” products (Hayes, 1990; Simon, 1990), it still sends the message that material acquisition can continue unimpeded. So long as ecologically correct products are purchased, consumers are exempt from having to examine their materialistic lifestyles. Even though this may be a relief to some, it reinforces the idea of *homo economicus*, a one-dimensional image of self-interested human beings whose mission in life is centered upon

consumption and acquisition of material comforts (Benton, 1985; Daly & Cobb, 1989). As Irvine (1989: 8) stated, a "genuinely green consumerism. . . would focus on reducing rather than simply changing personal levels of consumption."

Ecocentrists, or radical environmentalists, claim that environmental problems are symptomatic of more deeply rooted forms of alienation, distorted anthropocentric perceptions, a lack of empathy and caring for nonhumans and natural objects, and a materialistic lifestyle. For this group, the locus of change centers on a radical transformation in world-view, moral outlook, ethical character, lifestyle, and way of being-in-the world. A "radical ecohumanism" is a derivative of this paradigm, because the same social forces that serve instrumental rationality, technological knowing, and industrialism, which alienate humans, also operate to destroy nature. The emerging field of ecopsychology (Roszak, 1992), multiple strands of ecofeminism (Christ, 1990; Diamond & Orenstein, 1990; Eisler, 1994; Griffin, 1990; Merchant, 1980), and the philosophy of "social ecology" (Bookchin, 1971, 1982, 1990) evolved out of the radical humanist paradigm (Burrell & Morgan, 1979).

In the organizational sciences, Burrell and Morgan (1979) insisted that in order to gain independent legitimacy and freedom from the functionalist paradigm, alternative theory development must occur in isolation. Willmott (1993), however, challenged the mutual exclusivity orientation of Burrell and Morgan's *paradigms*, arguing that it sets up a dualistic mentality that leads to premature forms of hegemonic closure. Further, Willmott claimed that the mutual exclusivity assumption of Burrell and Morgan's framework places paradigms in fundamental opposition to each other, which may actually impede theoretical innovation by sealing off interparadigm discourse.

We agree with both arguments; ecocentric theory development must occur in isolation until it achieves a sufficient level of legitimacy, coherence, and maturity. Taking the advice of Burrell and Morgan, organizational theorists should ground themselves in first principles, in this case, the theoretical perspectives of Arcadian ecology and ecocentric philosophies. The urgent task at hand consists of assuring that the ecocentric responsibility paradigm enters into the formulation of organizational theory development and management practice. Ecocentric concepts that are embedded in various scientific, philosophical, and cultural domains must be translated into a currency that is heuristically useful in organizational milieus. Undoubtedly, the theoretical import of ecocentric concepts into organization science will be a major reconstructive task.

Although the root assumptions of the environmental management and ecocentric responsibility paradigms are incommensurable, these positions have become unduly polarized in the public consciousness (Cotgrove, 1982; Milbrath, 1984). This paradigm clash is illustrated in the win-lose debate between the economics or the environment, between sav-

ing logging jobs or saving the spotted owl. When pushed to their extremist positions, neither technocentric environmentalism nor romantic naturalism offers much hope for ushering in a practical ecocentric organization paradigm. However, the "anticulture, antigrowth" message of radical environmentalists (Devall, 1993; Naess, 1973), and to a lesser extent the message of the Arcadian ecologists, initiated a formidable social protest movement against the escalating trends toward unbounded economic growth, rampant consumerism, and hyperindividualism—the driving forces of environmental degradation in the West. On the other side of the debate, critics of the ecocentric paradigm have distorted the policy implications of this view, claiming that it would lead to a type of "environmental fascism" and a coercive submission of the parts to a larger, impersonal whole. Additionally, Draconian measures would be deployed, where the EPA would become a massive bureaucratic federal environmental auditing agency with powers equal to that of the IRS. These fears and criticisms are unfounded: The ecocentric paradigm does not entail downgrading the dignity of humans or undermining the viability of economic organizations.

The continuities that could potentially provide the basis for finding common ground between these competing paradigms have been masked by the types of polarized stereotypes we have outlined previously. One of the basic commonalities that exist between these paradigms is the continued valuation of human freedoms and public virtues. According to the ecocentric responsibility paradigm, human beings and organizations are also members of ecosystems. However, as members, or better, as citizens of ecosystems, human freedom and rights to self-determination remain intact so long as the actions deriving from these freedoms and rights do not destroy the life-support systems upon which such human autonomy depends. Organizations within an ecocentric paradigm would follow the same ethical imperative. From an ecocentric perspective, there are both biophysical and ethical constraints that require a more "ensembled" understanding of autonomy (Sampson, 1988)—one that recognizes that human, organizational, and ecosystem destinies are intertwined (Rolston, 1994). Proponents of a more ecological orientation toward human and organizational autonomy are predisposed to value environmental protection, recognizing that conservation of natural values places constraints on organizational and cultural values. Therefore, autonomy and dependence should be viewed as co-varying, mutual causal relationships; the more autonomous an organism becomes, the greater its ecological dependence.

More theoretical development is needed for understanding and designing ecologically sustainable organizations, which is critical of how organization-environment relationships are conceptualized and creative in how such relationships can be changed to foster ecological sustainability.

Ecological Choice

We view the tension between these competing paradigms as representing the range of "ecological choice" in organization theory development. The concept of organizational choice (Trist, Higgin, Murray, & Pollock, 1963) highlighted the fact that different sociotechnical system arrangements had widely varying human, social, and organizational consequences. At a higher logical level, ecological choice refers to the possibility for major design alternatives that represent a discontinuity from the prevailing egocentric orientation at the enterprise level. Ecological choice is an explanatory concept for understanding how variations in sociotechnical system arrangements and interorganizational linkages leads to different types of organization-environment relationships that have widely varying impacts on the natural environment.

Members of organizations that fall on the environmental management end of the continuum would be more concerned with searching for better means to engineer and control nature for instrumental purposes. Accepting technocratic ends as givens, this mode of anthropocentric theorizing may yield acceptable policy options that meet human and economic needs but at the expense of putting the health and integrity of ecosystems at risk. Faithful to the growth ethic, cultural values and economic development are maximized, and in the absence of an ecocentric ethic, environmental management is reduced to searching for technological fixes while solutions are believed to be in the hands of experts and technocrats. In this case, environmental management is mainly driven by a logic of efficient resource use.

At the other end of the continuum, proponents of the ecocentric responsibility paradigm are more concerned with the sustainability of both natural and cultural values. The policy options generated by their alternative mode of theorizing are based on finding the best sustainable match between the requirements of sociotechnical organizations and natural environments. Conceptually, the ecocentric responsibility paradigm is based on "a logic of the home" (Rolston, 1987: 71).

The broader focus and wider scope of the ecocentric paradigm is necessary if managers and theorists are to learn how to design organizational ecologies that are truly economical and sustainable (Trist, 1979). Whereas the social architectural task of sociotechnical systems was explicitly concerned with changing authority relations and improving the quality of working life within a focal organization (Pasmore, 1988; Taylor & Felten, 1993; Trist, 1981), ecocentric organization development encompasses the emancipatory project of democratization but within a wider context: It is explicitly concerned with changing the relationships of sociotechnical organizations to ecosystems so as to improve total life quality on a sustainable basis (Purser, 1994).

In the future, theoretical developers of the ecological choice concept would then use a new variant of sociotechnical, open-systems design that

extends beyond the proximate task environment to include ecological wholes. Emery and Trist (1973) initiated this variant by focusing on the interdependencies between social institutions and the broader contextual environment. For Trist (1979), "new directions of hope" lie somewhere in between the microsocial and macrosocial scales, which required working at the level of "interorganizational domains" and creating new types of "innovating organizations" that would bridge and link organizational community and personal development. A further extension and conceptual reframing of their action-research program would amount to a practical socioecological approach that is used to jointly optimize organizations with their natural environments. This socioecological perspective represents a liberation from the single social-system referential design (Baburoglu, 1992). This perspective also would reorient researchers to develop methods for the analytical study of the relations between technologies, social-system arrangements, organizational forms, and interorganizational networks in conjunction with their cumulative impacts on ecosystem health. In addition, future empirical research should be used to evaluate the human, organizational, and ecological consequences of different ecological choices through comparative and longitudinal studies.

Ecological Learning

Organizational theorists should begin to explore the processes involved in ecological learning, because it is not likely that there will be one right way to organize for ecological sustainability. This means that learning processes must be extended to the ecological system level. Organizational members must begin to engage in learning processes and begin to think together about environmental problems in order to create viable organizational design.

Furthermore, the development of ecological learning processes will become essential if organizations are to transcend their egocentric-focal orientations. Because the ecological crisis is not a *thing* but a set of mutually causal relationships that are interconnected, problems can no longer be isolated from their context. The character of the ecological crisis and its reverberating effects in the turbulent social field will have both direct and indirect effects on what goes on in task environments and, hence, in organizations. To meet the challenges of sustainability, changes taking place both in the ecologies of nature and society will require communal learning responses on the part of organizations, which will lead to interactions and negotiated-order strategies of mutual benefit (Trist, 1985).

Ecological learning should help managers and organizations at the local and global level to develop an appreciation (Vickers, 1965) of the shared context of the problems within their ecological niche. Such appreciation should help to illuminate the systemic dimensions of environmental degradation as well as facilitate the discovery of the common ground

among multiparty interests within a given ecological niche. From an eco-centric perspective, there has been a proliferation of natural and organizational ecologies, each with its own heterogenistic qualities. Diversity is crucial to ecosystem health, because it provides generative wealth that brings about sustainability and resiliency in the face of adverse conditions and distress. Each niche may contain different sets of environmental problems, or different forms of crisis, for which there is no one overriding solution. These metaproblems arise out of human-organizational-nature interactions, and the way such interactions have been organized. Therefore, organizations within different types of niches and regions must develop endogenous strategies and contextual knowledge that address the specifics of their situations: these will be trade-offs, compromises, constraints and also the creative possibilities, which include the potential for transformation and change. Along with a plurality of crises there also is, potentially, a plurality of creative responses.

In order for such new appreciations to emerge, both theorists and practitioners must confront the issue that their current thinking about organization-environment relationships may be dysfunctional. In other words, the kinds of solutions developed through the present anthropocentric worldview have, in fact, become part of the problem, vis-à-vis the human-nature dualism, the emphasis on control, domination, and, indeed, exploitation of the natural environment, the tendency toward short-term horizons in decision making, and the reductionistic perspective of Western scientific thinking.

Ecological Democracy

In an ecological democracy, employees and nonhuman lifeforms would not be subjected to being managed, exploited, controlled, or dominated by an elite group (i.e., supervisors or planetary managers) that presumes to occupy a superior position above the systems to which it belongs. This is the mechanistic view of power, or the Cartesian notion that one substance can exert its dominion over another substance. In contrast, power in an ecological democracy derives from systems maintaining open energy exchanges with other systems and, in fact, is based on the systems theory concept of synergy. In this schema, power is not something one substance does to another substance, but rather, it is something that is gained through the emergence of collaborative assemblies, interdependent domains, and cooperative networks. This action is in concurrence with the negotiated order strategy, based on a mutual acceptance that resources must be shared and objectives must be linked if any of the parts are to survive (Emery & Trist, 1973). This new ecological sensibility emphasizes democratic coexistence, what Gitlin (1989: 57) referred to as "a new moral ecology—that in the preservation of the other is a condition for the preservation of the self."

This ecological approach to democratic organizations is oriented toward reversing the patterns of exploitation and increasing the attentive-

ness of employees and managers to concerns that are significant to the long-term survival of the biosphere—which includes the emancipation of humans. Thus, the target of ecological critique is not management *per se*, but managerial egotism and human arrogance. It is a move away from the philosophical immaturity that concedes that exploitation of the natural environment is simply a managerial prerogative.

Advances in theory and practice should focus on the design and development of ecologically democratic organizational forms. Ecologically democratic organizations should (a) be designed in accordance with the highest ideals of their members; (b) disperse the power to participate to employees, involving them in policy decisions that normally have been the purview of management; (c) democratize planning processes that affect strategic decisions regarding choices of product design, resource use, production methods, and marketing plans; (d) be able to shift from an orientation of control to the exploration of the potentials for collaboration, whether among employees, employees and management, or organizations and environment.

As Trist (1981) pointed out, this democratic future will largely depend upon organizations aligning their purposes with the purposes of the wider society and also with the purposes of their members. By doing so, organizations become both “environmentalized” and “humanized” (and, thus, more truly purposeful), rather than remaining impersonal and mindless forces that increase environmental turbulence and degradation. This is a crucial point because of the emergence of public support and pressure for collective responses to environmental problems. The majority of Americans consider protection of the environment and fighting pollution as urgent and serious concerns. This is true for the majority of Europeans (Eurobarometer, 1992), and the concern is just as high among people in developing countries in the South as it is for the North American public (Dunlap, Gallup, & Gallup, 1993). In addition, recent surveys show that for the younger generation, environmental problems are the number-one topic of concern (Stern & Dietz, 1994).

One probable future that these trends point to is that new and unexpected coalitions may form in and across sectors of society mobilized around ecological agendas. For example, up to this point, organized labor has been subsumed under the dominant social paradigm, viewing the agenda of fundamentalist environmentalists as contradictory to their economic interests. However, Beck (1992) has suggested that as conflicts between environmental “risk-winning” and “risk-losing” sectors increase, workers may become mobilized by a greened labor movement.

Ecological democracy will require forms of social change that are alternatives to social engineering and authoritarian technocratic solutions. Elden (1986) has demonstrated that a top-down, “empowerment-as-structure” approach to sociotechnical systems design usually results in massive employee resistance and passivity. Likewise, a “sustainability-as-structure” approach to solving global environmental problems—

where, in this case, the state or governmental technocrats introduce a grand design for global planetary management—is also likely to lead to compliance rather than a fundamental change in the consciousness within organizational ecologies and local communities. Ecological democracy will require new forms of self-management, where the responsibility for the control and coordination of environmental strategies is located at the domain level, where organizations belonging to that domain can maximize collaboration, lower resistance to change, and undertake innovative approaches toward ecocentric organization development.

CONCLUSION

Theory developers of an ecocentric organization paradigm must pay greater attention to understanding how concepts are modulated by different concepts of space, time, and knowledge. The more extreme, Arcadian-ecocentric natural history perspective harks back to a time before industrialization, before automobiles, highways, and toxic wastes and, in some cases, before the appearance of humans. That image of the past—of an untrammelled wilderness world, in some ways—has also been projected as a desirable prospect for the planet. Clearly, in this case, the “long” view of time is taken, drawing far back into Nature’s unspoiled history, coupled with a spatially “large” view of the planet. Along with this broad sweep of time and space, a major change in human knowledge is also called for—a veritable paradigm shift. The environmental management perspective, on the other hand, is limited to a short time perspective, focused on developing some form of immediate but temporary solutions to environmental problems within the limited radius of egocentric organizations. Although this perspective calls attention to the significance and importance of environmental problems, triggering a reassessment of technological knowledge as it relates to the efficient management of them, the shift is not truly dramatic.

Both of these perspectives, and indeed, any discussions of environmental problems must confront the issue of the future. That the famous Club of Rome *Limits to Growth* (Meadows, Meadows, & Behrens, 1983) study was a piece of futurism should remind us of the close connection between ecology and future studies. Future studies typically have involved extrapolation of emerging present technological breakthroughs into the future, without researchers seriously questioning the direction of the future. More of the same meant progress. Despite its flawed methodological assumptions, if there is anything *Limits to Growth* has taught—along with the ensuing onslaught from environmentalists and postmodernists alike—it is that the future is not what it used to be. Humankind’s notion of progress—if by progress one means more technology, more industry, more urbanization, more agribusiness, more control over Nature, and so forth—will also change.

Competing ecological paradigms add to the confusion already exist-

ing in organizational studies (Pfeffer, 1993) coupled with the erosion of a secure sense of the future and clear notion of progress. We believe that there is no single paradigm or theory that can promise to offer unfailing solutions or clear guidance to organizations for resolving current and future ecological dilemmas. Further, we could argue that the Arcadian-ecocentric paradigm is a nostalgic dream, which, although perhaps philosophically tenable and aesthetically attractive, is simply "unrealistic" in the context of socioeconomic realities. There seems to be little consensus as to what constitutes "ecosystem sustainability" or "beauty," "integrity," "health," and so forth. However, we argue that the environmental management approach simply doesn't go far enough, that it really amounts to an incremental strategy, and that it does not highlight how deep-seated the ecological crisis really is. Thus, there are limits to anthropocentrism.

However, movement toward an ecocentric organization paradigm is not inevitable; it will require a serious debate regarding how different organization-environment relationships should be organized. This debate will involve difficult choices, new types of learning, and a diffusion of democratization processes both within and across organizations at both local and global levels of society. Now is a crucial juncture in human and natural history, and as some researchers suggest, the planetary ecosystem may be heading toward a point of irreversible destruction (McKibben, 1989). It is apparent that new approaches and new organizational-environment configurations must be invented. Indeed, if the future is a human creation, driven by human choices, the process of learning how to learn about the future and the ecology will require a great deal of social creativity.

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Ronald Purser is an assistant professor of organization development at Loyola University of Chicago. He received his Ph.D. from Case Western Reserve University. His research interests focus on organizations and the natural environment, sociotechnical systems theory, participative democracy, and social creativity.

Changkil Park is a doctoral candidate in the Department of Organizational Behavior at Case Western Reserve University. His research interests focus on ecopsychology, ecofeminism, and indigenous ways of knowing.

Alfonso Montuori is an adjunct professor of systems science at Saybrook Institute and College of Notre Dame in San Francisco. He received his Ph.D. from Saybrook Institute. His research interests focus on systems philosophy, social creativity, post-modernism, and partnership models of organizing.