

The growing emphasis in "human impacts" research on aspects of past land use transferable to modern conservation serves as an example. Sliwyer recently pointed out (2002) that the belief in "traditional ecological knowledge" (TEK) as a means to create sustainability has almost become orthodox. Arguments for sustainability are best made from records that span centuries (see van der Leeuw et al. 2000), and problematically, much TEK research lacks time-depth. The Pátzcuaro sequence provides one example of how archaeology can address issues of sustainability and better help define the concept of degradation (van der Leeuw et al. 1998; Latorre et al. 2001).

This landscape investigation demonstrates that the indigenous inhabitants of the Lake Pátzcuaro Basin were able to maintain environmental stability for centuries. At the same time, however, this built environment was increasingly susceptible to risk, specifically population collapse. In this sense, it was the unintended consequences of Conquest that have had the greatest impact on the modern Pátzcuaro Lake Basin. Given the long-term stability of the indigenous Tarascan landscape technology, aspects of past land practice are applicable to modern conservation if past failings, centering on long-term solutions, can be solved (Toledo 1991; Toledo et al. 1992; Denevian 1995).

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Tarascan Land Degradation and Alternative Traditions in Americanist Landscape Archaeology

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CHRISTOPHER FISHER'S CHAPTER, *Landscape and the Tarascan State: Labor, Intensification, and Land Degradation*, uses a human eco-dynamics approach to examine the history of human interaction with the ancient landscapes of the Lake Pátzcuaro Basin, Mexico. In this commentary, I will discuss Fisher's study from the perspective of general developments in Americanist landscape archaeology, as well as the implications of his research for the historical ecology of Mesoamerica.

Over the past 20 years, landscape archaeology has emerged as a major theoretical focus in Americanist archaeology (Binford 1982; Earle and Preucel 1987; Ashmore and Knapp 1999; Redman 1999; Anschuetz et al. 2001). Broadly speaking, two theoretical traditions can be defined: One is ecological and has usually focused on the material dimensions of human landscapes, while the other is more symbolic and political and has focused on the cultural construction of landscape and its political implications. Admittedly, this is a broad characterization, and each approach includes a wide diversity of perspectives that have sometimes engendered major debates (e.g., Blanton 1980, 1990; Sanders and Nichols 1988). There also have been areas of common interest between ecological and symbolic approaches to landscapes (Crumley 1994; Ashmore 2002, 2003). While there has been an increasing exchange of ideas on landscape studies (Sabloff and Ashmore 2001:23–26; Ashmore 2003), there continues to be a significant divide in the research interests, cross-disciplinary interactions, and theoretical orientations of scholars pursuing landscape archaeology. Fisher's approach to ancient landscapes, while rooted in the ecological tradition, represents the trend toward the blending of aspects of the two approaches. Before discussing Fisher's article, I will describe in greater

detail the differences, as I see them, between ecological and symbolic traditions in landscape archaeology.

The ecological approach to landscape archaeology developed out of early settlement pattern research pioneered by Gordon Willey (1953, 1956) and the ecological interests of the "new archaeology." The ecological approach has focused on the complex ways in which human populations interact with their biophysical environments (e.g., Adams and Nissen 1972; Sanders et al. 1979; Binford 1982; Billman and Feinman 1999; Redman 1999; Bawden and Reyecraft 2000; Whitmore and Turner 2001). Important research themes within this perspective have included how environmental variables across landscapes affect subsistence, settlement, economy, and social organization and, in turn, how human populations have impacted the environment. The main cross-disciplinary links of the ecological approach in landscape archaeology have been with ecology, geology, and geography. The ecological approach has been closely tied to cultural evolutionary perspectives such that human ecological relations are often seen as being a component of the evolution of cultures toward greater complexity (e.g., Sanders et al. 1979; Algabe 2001). Most researchers take a holistic, adaptationist perspective with an emphasis on how populations adapt to the environment, often as components of ecosystems (Butzer 1982, 1996; Redman 1999:36-43).

Like the ecological approach, the symbolic tradition in Americanist landscape archaeology has its roots in settlement research and the early new archaeology. The symbolic tradition, however, emerged as a result of perceived limitations of the ecological approach and was influenced by European, and especially British, postprocessual archaeologists (Deetz 1990; Ashmore and Knapp 1999; Anschuetz et al. 2001; Ashmore 2002:1174-77). Americanist archaeologists have most strongly embraced the social and symbolic emphasis of British postprocessual archaeology, while often expressing skepticism toward the latter's hermeneutic methodologies (Ashmore 2003:8). The symbolic approach has focused on the social, political, and symbolic dimensions of landscapes, including aspects of both the "built" and "natural" environment. Central research questions include the cultural construction of ritual landscapes (Stein and Lekson 1992; Brady and Ashmore 1999; Snead and Preucel 1999; Koontz et al. 2001), the sacred geography of built ceremonial places (Ashmore 1991; Sugiyama 1993; Joyce 2000), the relationship between

landscape and identity (Helms 1988; Gillespie 1991; Snead 1995; Stark et al. 1995), and historical transformations of landscapes often related to changing political relations examined as a life history of place (Crumley and Marguardt 1987; Yentsch 1996; Ashmore 2002:1177-79). The main cross-disciplinary inspirations of the symbolic approach are with cultural anthropology and history.

Many proponents of a symbolic approach draw on the theoretical influences of British postprocessual archaeology, including the post-structuralist theories of Giddens, Bourdieu, Foucault, and de Certeau as well as phenomenology and social memory studies (e.g., Knapp and Ashmore 1999; Joyce 2000; Robin 2002; Robin and Rothschild 2002; Paukerat and Alt 2003; van Dyke 2003). Given these theoretical inspirations, it is not surprising that scholars within the symbolic tradition tend to be skeptical of the grand theories of cultural evolution, while emphasizing historical contingency in sequences of social change. In addition, most researchers have moved away from the holistic and functionalist aspects of ecosystems ecology that view human groups as unified components of ecosystems. Instead, negotiation, struggle, and conflict as well as cooperation among people based on social differences such as class, gender, ethnicity, and occupation are considered in understanding people's symbolic and material relations to landscapes (Tilley 1994; Brady and Ashmore 1999; Joyce et al. 2001; Robin 2002).

Fisher clearly comes from the ecological tradition in landscape archaeology, yet the human ecodynamics perspective that he adopts incorporates a number of themes that can be linked with the symbolic approach. Fisher identifies three key elements in the ecodynamics approach: recursivity, landscapes as historically contingent entities, and landscapes as dynamic entities (also see van der Leeuw et al. 2000; van der Leeuw and Redman 2002; Fisher et al. 2003).

Recursivity for Fisher refers to the ongoing, interactive relationship between culture and the environment such that the ways in which people impact the environment in turn act back on social, political, and economic relations. For example, as shown by Fisher, Tarascan land managers responded to the problem of living in an erosive landscape by investing in terrace systems that stabilized the landscape, repaired earlier damage, and reduced erosion. While the terraces were highly stable and productive, they were examples of landscape capital systems that required large-scale

and ongoing labor investments. Thus, human responses to the problem of erosion acted back on Tarascan labor relations. Early Colonial period depopulation destroyed the labor force, which in turn caused terraces to fail and triggered catastrophic erosion.

The focus on recursivity is consistent with a trend over the past 25 years in human ecological theory toward more dynamic views of human-environment interrelationships (Orlove 1980; Vayda 1983, 1986; Zimmerer 1994). The use of the term *recursivity* also reflects the influence of Anthony Giddens' (1979, 1984) structuration theory and related theories of practice (Bourdieu 1977; de Certeau 1984; Sewell 1992), which have been important in symbolic landscape research (Tilley 1994; Knapp and Ashmore 1999; Joyce 2000). For Giddens and other post-structuralists (Ortner 1984), *recursivity* refers to the dialectical and mutually constitutive relationship of social practice and structure. While Fisher adopts the concept to highlight the ongoing interrelationship of environment and culture, his use of *recursivity* maintains a dichotomy between environment and culture. For Fisher, the focus continues to be on adaptive exchanges of materials and energy between people and the environment involving systems of production, labor, land use, and social organization. Fisher might consider more fully the post-structuralist view of recursivity adopted by many archaeologists in the symbolic tradition, which would be consistent with his definition of landscape archaeology as focused on the "connections between our physical and cognitive environments" (Fisher, chap. 6).

From a post-structuralist perspective, human-environment interaction is mediated by culture (see Ashmore and Knapp 1999; Thomas 2001). That is, landscapes are products of how people conceptualize the environment and their place in it, as well as the physical properties of climate, physiography, ecology, and so forth. The symbolic tradition has tended to focus on the ways in which beliefs involving ritual, ideology, and identity construct landscapes, while more traditional ecological concerns have rarely been addressed from this perspective. Few researchers in Mesoamerica have considered the ways in which mythic and religious views of landscape features, such as caves, mountains, water, and land, affected material relations involving production, landscape degradation, labor, settlement, and demography (McAnany 1995; Brady and Ashmore 1999; Dunning et al. 1999; Freidel and Shaw 2000). There are substantial

data from archaeological, ethnohistoric, and ethnographic sources that can be drawn on for inferences concerning Mesoamerican conceptions of landscape. For example, Byland and Pohl (Pohl and Byland 1990; Byland and Pohl 1994) synthesize archaeological survey data and studies of the Mixtec codices (i.e., indigenous screen-fold manuscripts) to examine pre-Hispanic conceptions of landscape and how they influenced changing settlement patterns in Late Postclassic Oaxaca, Mexico.

The second theme of the ecodynamics perspective discussed by Fisher, landscapes as historically contingent, is also consistent with interests of symbolic researchers in landscape archaeology. For Fisher, the landscapes of the Pátzcuaro Basin were transformed through time such that present-day environments represent a palimpsest of past impacts, including Classic period erosion, Tarascan terrace systems, and Colonial period degradation due to catastrophic depopulation. Environmental decision making is therefore always conditioned by previous landscape choices, often with unintended consequences. A concern with historical contingency and unintended consequences of human action has been an important theme within the symbolic tradition in landscape archaeology, as well as more generally within postprocessual archaeology (Bradley 1998; Knapp and Ashmore 1999; Joyce 2000:85; Ashmore 2002; van Dyke 2003). For example, studies of the history of landscapes have focused on the social and political significance of physical and symbolic transformations of built spaces and monuments examined as a life history of place or the inhabitation of landscape (Bradley 1987; Barrett 1999; Ashmore 2002; Joyce 2006). Ecological research such as Fisher's complements and extends work on historical transformations beyond monuments and shows how landscapes are constructed incrementally through more-mundane practices involving the intended and unintended consequences of land use (also see Kirch 1997; Knapp 1999; Erickson 2000a). Once again, however, Fisher focuses on material transformations. A consideration of the ways in which pre-Hispanic people conceptualized their worlds would provide a broader perspective on the historical transformation of Tarascan landscapes (see above).

The third theme developed by Fisher involves the rejection of earlier views of ecosystems as self-regulating and in equilibrium. Since the mid-1970s, human ecologists have recognized the problem of the teleological and equilibrium assumptions of systems ecology (Vayda and

McCay 1975; Orlove 1980). Fisher follows recent approaches in human ecology that instead stress flux, instability, and nonequilibrium conditions. Fisher's research provides an excellent case study of the dynamism of pre-Hispanic human ecological relations with Postclassic landscape sustainability dependent on large-scale terracing and human labor, which collapsed following the Spanish Conquest.

Another source of flux that Fisher might consider would be how social differences affect ecological relations. Human and political ecologists have increasingly considered how factors such as class, locality (e.g., rural/urban), gender, ethnicity, and other social distinctions affect how people view and interact with the environment (Cronon 1983; McGovern 1994; Erickson 1999; Oliver-Smith and Hoffman 1999; Chapdelaine 2000; Morrison 2000; van Buren 2001). For example, it is now recognized that "natural" disasters often have a greater impact on the poor, who live in places with higher environmental risks (e.g., flood-prone zones) and who have access to fewer resources with which to respond to disasters such as floods, drought, or earthquakes (Blaikie et al. 1994; Bolin and Stanford 1999; Morrison 2000). A consideration of how social negotiation, conflict, competition, and cooperation within the Tarascan polity affected ecological relations would move Fisher's work further from the holism of systems ecology and would be an extension of the theme of recursivity. For example, through household archaeology, Fisher might consider whether the labor demands of terrace systems differentially affected the lives of commoners and nobles, perhaps creating tensions and conflict within the Tarascan state.

The human ecodynamics perspective adopted by Fisher therefore represents an important trend within the ecological landscape approach toward the adoption of some elements of social theory from the symbolic tradition (also see Bender 1999; McIntosh et al. 2000; Ashmore 2002:1179-80; Ashmore 2003). In addition to the theoretical developments reflected in Fisher's chapter, his research is an important contribution to the historical ecology of pre-Hispanic Mesoamerica. He utilizes a sophisticated multidisciplinary methodology that integrates paleoenvironmental and settlement data collected from the same temporal and spatial scales. Fisher's research in the Pátzcuaro Basin is part of a growing body of research that shows that pre-Hispanic environments were hardly pristine and that heavily anthropogenic landscapes covered much of Mesoamerica (Rice et al.

1985; Abrams and Rue 1988; Denevan 1992; Butzer 1993, 1996; Joyce and Mueller 1997; Whitmore and Turner 2001; Dunning et al. 2002).

Fisher's research (chap. 6; also see Fisher et al. 1999, 2003) challenges previous paleoenvironmental work in the Pátzcuaro Basin, which assumed that demographic expansion associated with the rise of the Tarascan empire caused catastrophic soil erosion (O'Hara et al. 1993). Instead, Fisher shows that Postclassic population growth allowed Tarascan land managers to mobilize sufficient labor to construct and maintain large-scale terrace systems that successfully controlled erosion and stabilized the landscape. This type of landesque capital system was dependent on labor for its stability and productivity. In the Pátzcuaro Basin Postclassic landscape, stability was maintained during a period of "population growth, urbanism, and massive environmental modification" (Fisher, chap. 6). An unintended consequence of the Spanish Conquest was the catastrophic erosion that resulted from population loss that severely reduced the available labor needed to maintain the terrace systems. Furthermore, Fisher argues that the most severe pre-Hispanic erosion occurred during a period of low population density. The modern degraded landscape of the Pátzcuaro Basin is therefore the result of a long history of human impact.

The human ecodynamics approach stressed by Fisher provides a more dynamic and historical perspective than traditional ecological studies in landscape archaeology. Further integration of the ecological and social traditions would provide an even more dynamic view of the social processes that contribute to human-environment interrelationships. As argued recently by van der Leeuw and Redman (2002) and reiterated by Fisher, the historical perspective on human-environment relations that multidisciplinary archaeological research can provide is crucial for understanding contemporary environmental problems and for formulating conservation policy (also see Kirch 1997). Chris Fisher's research in the Pátzcuaro Basin represents a major advance in the archaeology and historical ecology of west Mexico as well as a potentially important contribution to contemporary environmental policy in the region.



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Polities and Power

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