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GREEN EVOLUTION: LANDSCAPE DESIGN AND CULTURE CHANGE IN ANCIENT MESOAMERICA

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Resumen: Los paisajes diseñados son parte integral de la vida sedentaria y son diagnósticos de la complejidad social y la evolución cultural en el mismo modo que lo son las unidades residenciales. Este ensayo propone una serie de tipos ideales de paisajes diseñados e investiga cómo funcionaron, y cómo sirven de indicadores de la complejidad social. Desde las milpas y calmiles de los agricultores del periodo Formativo hasta los elaborados parques de placer que mostraban la riqueza y poder de los reyes aztecas, los paisajes diseñados e producción cultural de las élites. Paralelo a la evolución cultural de Mesoamérica, los grupos de élite emergieron y controlaron una proporción creciente de recursos, lo cual se expresó en la transformación del paisaje hacia diseños decorativos con significación ideológica que maximizaba el prestigio y potencial económico de sus posesiones. Dada esta connotación evolucionista, los paisajes diseñados deberían estar entre los rasgos utilizados por arqueólogos y etnohistoriadores para analizar las sociedades que estudian.

Palabras clave: jardín, arqueología evolucionista, paisajes diseñados, parques de recreo, Mesoamérica.

Abstract: Designed landscapes are integral to settled life, and are diagnostics of societal complexity and cultural evolution in much the same way as are residences. This paper establishes a range of types of designed landscapes and investigates how they functioned, and how they serve as indicators of societal complexity. From the milpa and calmil gardens of Formative period farmers to the elaborate pleasure parks that displayed the wealth and power of aztec kings, designed landscapes expressed the necessity of plebeian horticultural production and the masterwork of elite cultural production. As Mesoamerican culture evolved, and elites emerged and controlled an increasing proportion of resources, they expressed this in transformation of the landscape toward ideologically meaningful decorative design that maximized the economic potential of their holdings. Given this evolutionary significance, designed landscapes should be among the features that archaeologists and ethnohistorians use in order to analyze the societies they study.

Keywords: garden, evolutionary archaeology, designed landscape, pleasure park, Mesoamerica.

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When the Lord God made earth and heaven, there was neither shrub nor plant growing wild upon the earth ... the Lord God formed a man from the dust of the ground ... Then the Lord God planted a garden in Eden away to the east, ... [He] made trees spring from the ground, all trees pleasant to look at and good for food; and in the middle of the garden he set the tree of life and the tree of the knowledge of good and evil.

Genesis (1971: 5-9).

In this ancient Southwest Asian account of the creation of the world as we now know it, God created a garden as a place to put the man that he had just formed, and the woman that he was about to form. Thus human social life began in paradise. In fact, the ancient Persian word for "garden" begat our modern word, "paradise," so our cognitive association of the designed landscape and transcendent happiness is deeply rooted. In this paper, the mythical account of creation serves as to introduce a contrasting topic: how designed landscapes emerged as part of the cultural evolution of food production and urbanization. Focusing on designed landscapes in Mesoamerica prior to European contact, the paper presents an idea for an evolutionary program in which farm plots, decorative horticulture, and monumental gardens serve as markers of societal complexity just as surely as do farming villages, ceremonial centers, and cities.

The Old Testament account of the Garden of Eden assumes several Western perspectives, ones that acculturated Westerners may reflexively hold, regardless of our individual religious beliefs or our recognition that, historically, the Biblical garden was a Sumerian-derived construct that did not exist until about 100,000 years after fully modern humans walked the earth. First: gardens are an a priori part of human life and thus are so essential to our existence that we as self-reflective beings have never lived without them. Second: the serenity of a park-like atmosphere creates harmony in the spirit, and we try to recreate this in public gardens such as Chapultepec Park in Mexico City and Central Park in New York City, and in private gardens, large and small. However, as heirs to the rational capitalist economy that emerged out of the Western tradition, we also understand that gardens and parks represent an investment of land, labor, materials, and organizational effort. They are linked to other sophisticated aspects of cultural life that are characteristic of highly complex societies, such features as the accumulation of wealth, the construction of elite residential architecture, and the development of occupational specialization.

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Thus the designed landscape provides a set of diagnostic traits of complex societies for archaeological investigation, and has considerable analytical potential. This potential is as intuitively familiar to us as are the differences among elite residences as markers of different stages in cultural evolution. We know that designed landscapes are integral to settled life, and that as society becomes more complex, the design of the landscape is farther abstracted from its unmodified state of naturalness, first undergoing modifications to make human life more secure (most obviously, food production systems) and then, when surpluses of food and other necessities are secure, being transformed to express an aesthetic and/or ideological perspective.

"GARDENS" AND "DESIGNED LANDSCAPES"

Before discussing the evolutionary history of the designed landscape, it is important to define terms. Archaeologists often use "garden archaeology" as a general term, covering every kind designed landscape short of agribusiness. This is, in part, due to the common use of "garden" to signify a horticultural plot – Mesoamericanists associate "garden" with "calmil" – the Nahuatl term, still in use, to denote a "house field" which is a mix of flowers, herbs, vegetables, and fruiting shrubs and trees.

However, in modern parlance "garden", when unmodified, usually means a decorative garden, whereas other kinds of cultivated land are identified by marked terms, such "vegetable garden". "Designed landscape" is a more neutral term, and it can be segregated into utilitarian and ornamental categories, though we assume that there can be considerable overlap between these. "Designed landscape" stands in contrast to the unaltered natural landscape.

Consider these three categories for landscapes: unaltered, designed for utilitarian purposes, and designed for ornamental purposes. This last category would include several functions, such as the pleasure to be gained from beauty, or by the display of conspicuous consumption, or from an expression of piety or reverence. Obviously, there may be other "ornamental" functions and considerable overlap among them. There would also be overlap between the utilitarian and ornamental designed landscapes, as in the beauty of a well-tended calmil.

The three basic categories work well as evolutionary stages, and are sufficiently culture-neutral that they provide a common parlance for scholars working in different regions of the world and different time periods. Traditionally, much of the research in the field of the history of designed landscapes has SUSAN TOBY EVANS

been devoted to European and American designed decorative landscapes from the 17th century to the present. This field has been expanding to include non-Western examples –modern, historic, and archaeological– and our ability as scholars to understand each other's work and apply general principles will be facilitated if we use a set of a mutually understandable common terms.

DESIGNED LANDSCAPES, MIMESIS, AND CULTURAL EVOLUTION

The three landscape categories –unaltered, designed utilitarian, and designed decorative– were delineated by John Dixon Hunt (2000) as the unaltered natural landscape, the basic agricultural landscape, and the designed pleasure landscape that mimics some of the features of both natural and agricultural. Hunt's work focused on the mimetic tradition in garden design, but did not cast the varieties of unaltered/designed landscapes into an explicitly evolutionary framework.

The mimetic tradition itself is very ancient in the Western world and Asia, as Hunt demonstrates as he traces how gardens in antiquity reproduced natural and cultural features, their simulation of the environment and established productive landscapes serving as an homage to nature, to agricultural fertility, and to the human ability to enhance our appreciation of nature and its abundance. It also has great antiquity in Mesoamerica, as many scholars have shown in pointing out how the plans of such sites as Monte Albán and Teotihuacan incorporated aspects of their surrounding environments. The monumental Aztec dynastic park at Texcotzingo mimicked the whole political domain of the Texcocan king Nezahualcoyotl (ruled c. 1433-1472), the greatest landscape designer of the ancient Mesoamerican world.

Thus it may be a universal attribute of decorative designed landscapes -"gardens" in the modern sense- that they function to honor their larger environmental setting by appropriating important but distant landmarks within view - to reproduce them, and others that are out of view, and also to reproduce cultural features, including other gardens, other parts of the built environment, and in the designed utilitarian landscapes -farm fields and orchards.

Texcotzingo's development involved hewing plazas and shrines and baths into the rock face of a hill, and animating the whole design with flowing water that was brought to the heights of the hill by an aqueduct 5 miles long and up to 200 feet high and carried to the farm fields below the monumental park by an elaborate system of channels and fountains, all also rock-hewn (Medina, 1997). Texcotzingo is but one example of the Aztec pleasure park tradition (Evans, 2000) that also included Chapultepec (another of Nezahualcoyotl's designs; Torre, 1988)) and Huaxtepec in Morelos (Maldonado Jiménez, 1990; 2000). These efforts, funded by the tributes from an evergrowing Aztec Empire, took years to develop. Labor crews worked countless hours, trained horticulturalists nurtured plants demanded in tribute, living and ceremonial areas were luxuriously appointed, and maintenance was a continuous job.

These efforts document how these designed landscapes serve a diagnostic of a high degree of societal complexity in much the same way as do palaces. Conveniently, they follow the same developmental format as do residences of all kinds. In Mesoamerica settled communities are ubiquitous from the farming villages of the Formative period on through the major capitals of the Aztec empire, and so are designed landscapes. Like residences, the elaboration of designed landscapes corresponds closely to that of the social hierarchy. Archaeologists can anticipate certain patterns of designed landscape, depending upon the degree of societal complexity of our research areas, and the nature of the sites we study.

The problem is, of course, that designed landscapes can be very ephemeral –leading to the question, is "garden archaeology" operationalizable? The papers of my other colleagues (in this volume) show that reconstructing the nature of the designed landscape is, in fact, a reasonable goal. My goal in casting this field of study within the interpretative framework of cultural evolution is to facilitate anticipating the kind of designed landscapes one would expect to find in different cultural settings. For the ancient Mesoamericans we study, the ordered landscape –the designed landscape– was a sign of the beneficence of the gods, and what stood beyond it put in peril the stability of the relationship between the earthly world and the upper world.

FORAGERS: MOVING WITHIN AN UNALTERED LANDSCAPE

Designed landscapes among foragers? Forager-hunter patterns of use depended to an overwhelming extent on the location of resources in their region. In fact, the designed landscape is only conceptually possible when humans began to control the location of resources, a trend that reaches its greatest elaboration in modern society, with settlement location untethered from resource location. The dependency of foragers upon proximity to their resources gives us something of a baseline for identifying manipulation of features of the landscape, and those that can be associated with foragers would represent efforts of this type.

There are several ways in which foragers would have experimented with simple landscape design. They, of course, situated their habitation and resource utilization sites in order to maximize their personal security and that of their access to food and materials. Foragers also modify some areas to increase productivity of wild resources. The identification of sightlines from habitation locations to horizon markers with calendrical significance would indicate a veneration that would later be translated into landscape manipulation.

EARLY FARMERS OF THE INITIAL FORMATIVE PERIOD: UTILITARIAN LANDSCAPE DESIGN

Food production and sedentism became widespread in the Initial Formative period (2000-1200 BC). They are revolutionary changes in terms of the consequences for societal complexity: surpluses are produced, and this is a basic necessity for the support of elites. With the development of status differences that entail wealth differentials, elites become able to harness the labor of other group members toward the completion of community-scale projects such as ball courts and elite residences, and, eventually, decorative designed landscapes.

However, before these developmental trends result in chiefs and kings, landscape design is being practiced. At a basic level, the "designed landscape" of the simple farming village would be the site layout, and the layout and location of farm fields. We know that there is a well-established pattern in Mesoamerica of the calmil garden around or adjacent to the house, and the milpa (the Nahuatl word, still in use, for farm field) at some distance. We do not know whether this pattern is as old as farming itself. The calmil garden has traditionally involved a mix of plants for culinary and decorative purposes, but we do not know if this is an ancient pattern, nor do we know how early there occurred the domestication of decorative plants such as the flowers for which Mexico became famous –marigolds, dahlias, cosmos.

The most precocious region in Mesoamerica in the Initial Formative period was the coast of Chiapas, the Mazatán region where the site of Paso de la Amada represents a farming village with more formal characteristics. There, Mesoamerica's earliest known formal ball court was located across a plaza-like area from Mesoamerica's earliest known elite residence (Blake, 1991; Hill, Blake, and Clarke 1998). This juxtaposition of elite residence and civic structure is a pattern that would be repeated, with many variations, in the designed patterns of urbanized communities across Mesoamerica. Thus we see emerging, as early as the Initial Formative, the elements of the designed landscape. Paso de la Amada itself impressed visitors and inhabitants alike with its unusual (for its time) conjunction of large buildings linked by an open area, and this would qualify as an ornamental landscape set within the surroundings of the foodproviding utilitarian landscape.

Complex Societies of the Early Formative Period: Ornamental Landscape Design

By the Early Formative period (*ca.* 1200 to 900 BC) it became apparent that the complex societies that were developing at that time venerated the power to transform the unaltered landscape into a productive agrarian one, and that they expended considerable effort in designing communities whose layout impressed all observers. The Olmec flourished in the Early and Middle Formative periods (*c.* 1200 to 600/500 BC) and their iconography emphasized the sanctity not only of maize, but of the technology that secured the maize crop. Polished and incised axes made of semi-precious green stone mimicked the polished stone tools that cleared the land for farming (for example, the Kunz Axe). Rulers are shown carrying sheaves of green stalks (for example, the stela figure from San Miguel Amuco, Guerrero), probably an early example of the sacred concept of the sheaf of corn plants or tules that would find later expression in the acknowledgment of "Tollán" as an important designed urban landscape where the population mimicked the thickly planted maize field.

Even more pertinent to this discussion is and initiated massive efforts to transform the residential landscape. San Lorenzo Tenochtitlan is Mesoamerica's earliest truly monumental site, now remaining as a huge fissured platform, sculpted at massive cost in labor (Coe, 1981; Diehl and Coe, 1996). Recently, some of the Early Formative architecture has been excavated, including pavements of different colors of clay and ochre (Cyphers, 1996), a design element used extensively in La Venta, the Olmec site whose apogee was the Middle Formative period (900 to 600/500 BC).

Olmec site planning is visible to archaeologists, but, unfortunately, we have little sense of how *planting* was used to enhance the new concerns with

orientation and layout. Wall paintings emphasize the power of rulers and their symbols of authority, and also, as in Chalcatzingo's Monument 1 ("El Rey") land-scape features such as caves, and aspects of the environment, such as stars and rain.

Archaeological evidence from this period attests to agricultural intensification in many regions, with irrigation and terracing systems to increase productivity. These are utilitarian concerns, but in Mesoamerica such transformations also engendered veneration, the age-old merging of the concepts of the food that gives life with the sacred life force. The green and ordered landscape would have been a mark of piety.

EARLY STATES OF THE TERMINAL FORMATIVE AND CLASSIC PERIODS

With the rise of state-level societies in the last centuries BC, there is more evidence of the kinds of plants that would have been cultivated for their beauty as well as their utility, and abundant examples of shaping the built –and cultivated – environment into an ornamental designed landscape. Teotihuacan, as mentioned above, was laid out to echo aspects of the landscape and emphasize the huge pyramids as mountain effigies (Evans n.d. [2004]). But Teotihuacan also provides us with a corpus of visual art in the murals that decorated the walls of its palaces and apartment compounds, and these provide important information about the designed landscape, both in terms of reshaping the land itself and about the plants that were grown. Many of those identified were food plants, but there were also many flowers (Angulo, 1996: 79-90).

The Teotihuacan mural traditionally known as "Tlaloc's Paradise" from the Tepantitla apartment compound shows frolicking figures engaged in games and singing (the decorated speech scrolls indicate this), but most interesting for our purposes is the mural's baseline, a crisscross pattern of irrigated fields with growing plants. Teotihuacan became a city of over 100,000 people who were supported on local agricultural production from a system of irrigated and drained fields south and west of the city, fed by the springs that emerged from under the basalt shelf of the mountain to the north of the city: Cerro Gordo.

MATURE STATES OF THE POSTCLASSIC PERIOD: ORNAMENTAL DESIGNED LANDSCAPES

Teotihuacan has become famous for the anonymity of its ruling class, an impression conveyed by stylized artistic representations of people, and by the lack of the individual and dynastic records that were produced by their contemporaries, the Maya. The history of the last century before European contact, however, has made the Aztecs well-known to us as individuals as well as in terms of 15th and early 16th century historical events. We have detailed knowledge of the tastes of the kings, and among their particular pleasures was the development of gardens and pleasure parks (Sahagún, 1979 [1569]).

This was landscape architecture in the most modern sense of the word, and, as mentioned above, we can even associate the best and most sophisticated work with particular rulers, such as Nezahualcoyotl. The Aztecs, like their predecessors, also laid out their capitals to echo and appropriate the surrounding landscape (for example, the Templo Mayor of Tenochtitlan mimicking the forms of the great mountains Iztaccihuatl and Popocatepetl), and by AD 1519 the Basin of Mexico's food production systems had transformed even such marginal areas as the swampy shallow lakes into chinampas, and the semi-arid slopes into agave-bordered terraced fields.

LOOKING AT MESOAMERICA'S ANCIENT DESIGNED LANDSCAPES

Two related ways of looking at designed landscapes are synchronic and diachronic. A synchronic perspective would study a given society's designed landscape in terms of its cultural context and function, understanding the challenges to meet basic needs in a particular environment (designing the landscape for utilitarian purposes), and to produce a surplus that would fund displays of piety, civic pride, or family wealth (landscape design for ornamental purposes). The diachronic view is an cultural evolutionary one, because through it we can perceive how surplus accumulation and the urge to demonstrate it developed in Mesoamerica in societies that in broad terms became increasing complex from the Initial Formative to the end of the Aztec empire. The use of this surplus by Aztec kings for the purpose of monumental gardens compares well to the lavish landscapes funded by French and English royals and nobles in the 17th and 18th centuries. We might appropriately ask: "Could the history of garden art be studied as part of the history of conspicuous consumption?" (Conan, 2002: 2).

Simplistic though this presentation of these synchronic and diachronic perspectives has been, organizing our approach to the designed landscape by understanding particular contexts and general evolutionary trends has a pragmatic value for archaeological research. It helps us to extrapolate the possible and/ or probable designed landscapes of archaeological situations for which there may be very little evidence. Designed landscapes were quite definitely an important part of Mesoamerican cultural life from the earliest inception of the culture area. We have a reality in the past for which evidence of the designed landscape may be ephemeral—but some of these efforts were, by modern standards, quite phenomenal— and none would have been regarded by their creators as epiphenomenal.

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