

Precious Beauty: The Aesthetic and Economic Value of Aztec Gardens

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The subject of the monumental parks of the Aztec empire may seem unfamiliar to most historians of landscape design—and to most archaeologists specializing in ancient Mexico—yet many people will have heard of Mexico City's Chapultepec Park, a great modern urban green space that was first established as an Aztec¹ dynastic pleasure park. Chapultepec's evolution as a monumental park was part of Mexican cultural history—it has been a valued, even revered piece of real estate since before the time of the Aztecs, and this importance continues into the present.² It was probably not the first elaborate garden in ancient Mesoamerica, but it initiated a tradition of monumental park building on a scale that almost certainly had no precedent there. We have good documentation of this tradition³ and it provides landscape history scholarship with a unique view of how monumental gardens evolved along with the trajectory of general cultural development in one of the great empires of the ancient world, that of the Aztecs.

In this chapter, I interpret the coevolution of the Aztec empire and its monumental parks from the theoretical perspectives of cultural evolution and cultural ecology. These explanatory frameworks help us to understand how the design and elaboration of great gardens are themselves a major diagnostic of civilization; garden design takes its place along with such well-known other features of mature state-level societies as cities, palaces, and monumental civic and ceremonial architecture.

This study begins with a brief review of the concepts of cultural evolution and cultural ecology and the engine that drives the evolutionary process, demographic growth. Then we will examine conditions leading to the rise of the world's six great earliest civilizations, with emphasis on Mesoamerica. With this background, we can consider, in detail, the rise of the Aztec empire and the history of Aztec monumental parks. This will demonstrate that as the population of the Aztec core area rose dramatically in the centuries before the Spanish conquest in A.D. 1521, the ensuing competition among ruling dynasties for resources spurred the expansion of the Aztec empire. Furthermore, a series of environmental crises precipitated episodes of empire expansion and thus led to the development of new parks, and the wealth generated by this process permitted the growth of the system of monumental parks designed to glorify the empire's rulers.

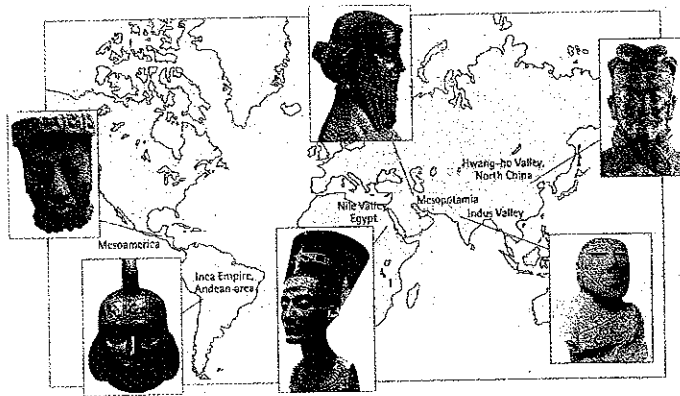


Figure 1. Locations of the world's earliest civilizations and examples of their respective Great Traditions of art (illustration, Evans 2004: 22)

biological evolution⁴ are so generally familiar that, of late, the "Darwinian" vogue has even hit such remote academic byways as literary criticism. However, a crucial point distinguishes humans from other organisms as to our evolutionary role: when faced with changing conditions and selective pressures, we respond with cultural solutions, innovations, rather than having to wait for a random genetic mutation to give rise to a better-adapted organism. Cultural evolution is the dynamic outcome of the operation of these principles with *cultural ecology*, which is the commonsense notion that any culture and its environmental setting are interactive—a change in one may provoke a change in the other, which may cause a responsive reaction, and so on.⁵

When anthropologists look at how cultures adapt to their environments over many centuries, we see clearly that there are some broad patterns that are played out repeatedly in human history, revealing general societal similarities. Twelve thousand years ago, at the end of the Pleistocene Ice Ages, all of our ancestors were mobile hunter-foragers. Over the succeeding millennia, in various regions of the world, food production was developed and sedentary farming villages were established. In time, population growth led to settlements of larger size and density, and to competition over resources. As populations grew in size and density, wealth differentials—differences in access to key resources—increased steadily.

For example, consider those six key regions of the world where great civilizations first arose: Mesopotamia (southwest Asia), the Nile Valley (northeast Africa), the Indus Valley (Indian subcontinent), the river valleys of northern China (northeast Asia), northwestern South America, and Middle America (Fig. 1). In the larger regions of these cradles of civilization, occupation always began with mobile hunter-foragers living on wild resources. Some bands of hunter-foragers would begin to occupy certain campsites all year long, and to produce their own food. Centuries later, some permanently occupied farming villages would have grown larger than others, and would have become central places for their regions. This was a characteristic pattern of chiefdoms like those known from accounts of travelers and ethnographers in the contact era, for example, of the ancient Hawaiians or Native Americans of the Northwest coast.

There is an enormous difference, in cultural evolution terms, between the chiefdom, which is essentially a big family (even

Cultural Evolution and Cultural Ecology

The changes in Aztec society took place over the few centuries before the European intrusion into the New World, which culminated, in Mexico, with the Spanish conquest of the Aztec empire in 1521. The historical processes aptly demonstrate the interplay of several important principles: cultural evolution and cultural ecology.

The concept of cultural evolution conjoins *culture*, the human adaptive strategy, with *evolution*, meaning descent with modification, powered by selective pressures on a population that is consistently pressing—or exceeding—the limits of its resource base. The principles of

if some of the kin are very distant poor relatives), and the socially stratified state. A chief can call for labor for a community granary or community ritual building, but no chief can command the labor to build and maintain a palace (which would represent personal aggrandizement), much less a private monumental park. In contrast, the head of a stratified state—a king, for example—can demand labor and materials, and severely punish those who won't cooperate. As a rule, in more complex cultures access to important resources is concentrated in the hands of fewer people, and those people maintain their power over resources through coercive force.

States are familiar to all us, because we all live under their authority, and we know the features of states—big populations, complex economy, taxation, writing, organized religion, social stratification, large cities with monumental architecture, including palaces for the rulers—and elaborate designed landscapes for the enjoyment of elites. From the six cradles of civilization in which the first states arose, the cultural format of the stratified state spread, over the centuries, to encompass the whole globe. Today there is no place that is not claimed by some nation-state, and few people who are not taxed by a state-level government.

Cultural Evolution and Monumental Gardens

These trends tell a cultural evolutionary story, and monumental gardens are a part of this story, because they only emerge in the most complex cultures. In fact, they serve as a diagnostic of complex culture. Archaeologists regard the palace as a true sign of highly complex societies,⁶ but elaborate designed landscapes certainly provide the same kind of evidence. The great monumental gardens of the world—Chapultepec, Versailles, Babylon, for example—are all also diagnostics of the state, for several reasons.⁷ In the first place, they represent the ruler's ability to devote the state's resources to his own private pleasure, and on a grand scale.

A second reason why a great garden expresses a high degree of societal complexity is that monumental gardens are one aspect of the development of a distinctive and mature artistic tradition—what some anthropologists have termed a “Great Tradition” of masterful works of intellectual achievement.⁸ This is another diagnostic of this hypertrophied cultural evolutionary situation. Chiefdoms produce some vigorous expressions of representation—think of carved totem poles from the Pacific Northwest coast, or Maori carvings from New Zealand. However, it is state-level societies that achieve such artistic mastery and style that when you see an example of that style, you not only can readily identify the culture from which it came, but you also intuitively understand it—not as “folk art”—but as a highly refined object or painting, or piece of music, or culinary achievement. Or, a great garden.

And, in fact, monumental garden style is a distinct expression of a particular Great Tradition, and it can also embody an idealization of the particular culture-ecological relationship that characterizes the society's adaptation to its environment.⁹ Mimesis in garden design is an extremely common means of honoring the important resources of a landscape in a representational form,¹⁰ and one could perceive such mimetic effects as encapsulating essential components of cultural ecology.

Mesoamerican Culture History and Cultural Ecology

Mesoamerica, one of the world's major areas of ancient civilization, is geographically defined by the limits of growth, within a contiguous area, of its most important crop, maize (corn). The first people established themselves in this region over ten

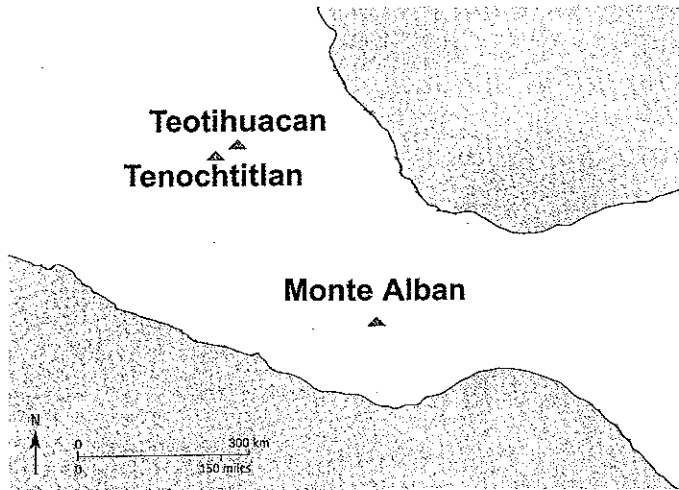


Figure 2. Map of Middle America, showing the locations of the Early Classic period (A.D. 250–600) cities of Teotihuacan and Monte Albán and the Late Postclassic city of Tenochtitlan (founded ca. A.D. 1325).

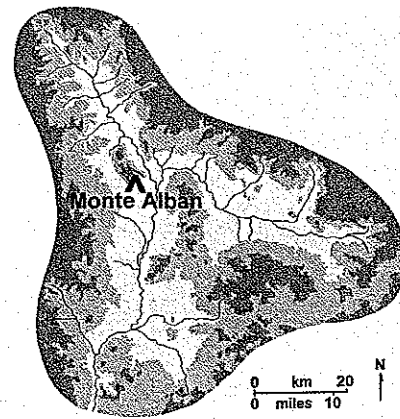


Figure 3. Map of the Valley of Oaxaca, showing the location of Monte Albán.

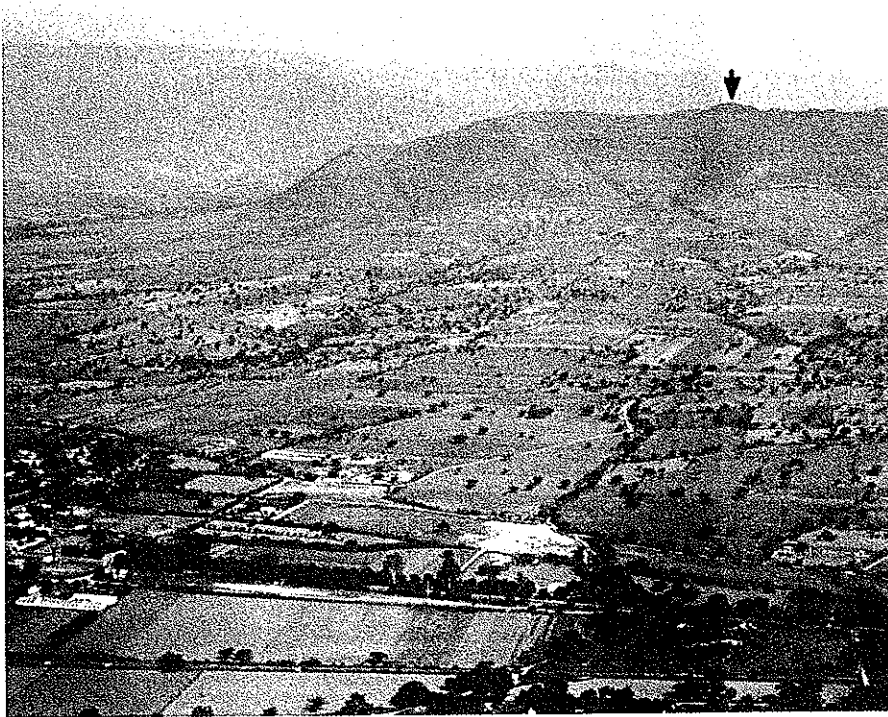


Figure 4. Air view of Monte Albán, from the east, showing the civic-ceremonial complex, with arrow pointing to the South Pyramid (photo, courtesy of Dean Snow).

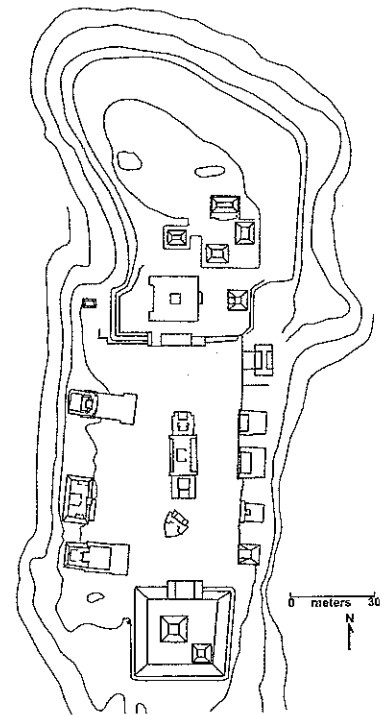


Figure 5. Plan of Monte Albán, showing distribution of monumental architecture.

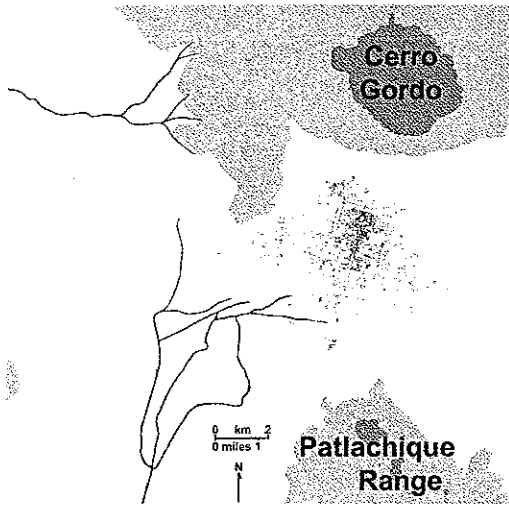


Figure 6. The Teotihuacan Valley, showing the location of the city of Teotihuacan and major geographical features.



Figure 7. Teotihuacan, looking north up the Street of the Dead (photo by S. Evans).



Figure 8. Teotihuacan, looking south down the Street of the Dead.

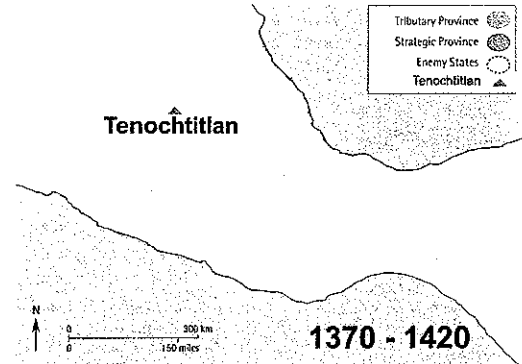


Figure 9. Map of Mesoamerica showing the location of Tenochtitlan.

thousand years ago, but the culture historical story really doesn't begin, for those of us interested in the designed landscape, until about four thousand years ago, when the first traditions of maize-based village agriculture became widespread.

Mesoamericans had a perspective on the relationship of humans to their environment that both contrasts radically with that of modern Westerners and also shares some modern Western attitudes. Like us, they saw the landscape as something to exploit for their own needs, but rather than having the capitalistic attitude that the earth is essentially a passive repository of potential wealth, ancient Mesoamericans saw the biophysical world around them as vibrantly alive. This animistic perspective encompassed not only flora and fauna but also mountains and caves, rivers and springs, thunder and lightning. This view is understandable, given the volatile nature of the Mesoamerican environment, with its earthquakes, active volcanoes, hurricanes and torrential storms, and its closely juxtaposed contrasts of snow-covered mountains and tropical jungles.

Mesoamericans revered these geographical features as forces and embodiments of supernatural power, and saw in their designed landscapes a means of bringing order into the world and revering its animism. The farm field—*milpa* to the Aztecs—was their sustenance and it played a central role in honoring the gods, because they assumed that the earth was the *milpa* of the gods. Their settlements were designed to pay homage to the living environment around them, and we see this in Mesoamerica's first great cities, which arose around two thousand years ago (Fig. 2). Two of these cities, Teotihuacan and Monte Albán, clearly display the principles of appropriating landscape features—honoring the living landscape—in their design. In a sense, this is monumental landscape design on a much larger scale than the imperial gardens of the Aztecs—which also incorporated elements of the surrounding countryside into their design—but these cases are instructive in terms of conditioning our perceptions about Mesoamerican spiritual and aesthetic attitudes.

Monte Albán

This ancient site sits atop a geographical prominence—an island—in the center of the Valley of Oaxaca (Fig. 3). It is surrounded by mountains, and was founded by an ethnic group who called themselves the “Zapotecs,” the “cloud people,” which is appropriate because their capital is positioned at the level of the clouds resting on the heights of the valley's perimeter of mountains.

The whole promontory of Monte Albán indeed appears to be a mountain, and it is crowned by a miniature mountain, a tall pyramid on the south end of the site (Fig. 4). The site's plan (Fig. 5) is a plaza ringed by a set of platformed ceremonial buildings and in the center of the plaza is a central “ridge” of more ceremonial buildings. Thus, Monte Alban's layout echoes the promontory's position in the valley—the ring of platforms represents the surrounding mountains, the plaza is the valley, and the site's central structures are the promontory itself.

Teotihuacan

Another ancient site, Teotihuacan, is located about thirty miles (ca. fifty km) northeast of modern México City. Here, the setting is quite different (Fig. 6). Teotihuacan is situated on a broad plain, and, although, in a technical sense, mountains surround it, many of them are very distant. Two, however, are quite close, and frame the site; they are Cerro Gordo on the north, and the Patlachique Range to the south.

Cerro Gordo looms over the city's two great pyramids; Figure 7 shows the pyramid of the Moon, in the distance in front

of Cerro Gordo, and the Sun pyramid, at right. The two pyramids are nearly identical in proportion, and when modern visitors to the site learn that the Moon Pyramid is substantially smaller than the Sun Pyramid (although the summits of the two are at the same level) they are perplexed, because this seems counterintuitive: shouldn't the larger pyramid be at the end of the ceremonial causeway, as its correct cognitive conclusion? It would seem that this positioning of the two pyramids is quite deliberate, a specific effect designed by Teotihuacan's planners. The placement of the smaller but identically proportioned Moon Pyramid at the end of the causeway is a little like the effect evoked by garden designers who grant depth to a garden by placing at a distance those plants with foliage that are smaller but similarly shaped to plants in the foreground—it increases the sense of distance. But here the effect also causes a perceptual disjuncture, because rather than fooling the eye with a background of infinite space, the background is a substantial mountain, similar in form to the two effigy mountains, the pyramids. The relative smallness of the Pyramid of the Moon pulls the mountain forward, making it look even larger, impressing the viewer with its importance to Teotihuacan.¹¹

Another optical effect that links the city's architecture to its surroundings is seen in the opposite direction, the view south down the causeway, from the top of the Moon Pyramid (Fig. 8). The Sun Pyramid is on the left, and in the distance is the Patlachique Range, its shape replicated in the slopes and terraces of the pyramid. Once again, the ancient city has mimicked the attributes of the surrounding environment, the Moon and Sun Pyramids serving as smaller versions of the mountains in the background.

From these examples, it is clear that ancient Mesoamericans would have understood cultural ecology, although their spiritually based principles of environmental motivation¹² would not have permitted our modern, scientifically based view of causality. For example, the volcano Popocatepetl, now actively smoking, forms the southeastern part of the rim of mountains that circumscribe the Basin of Mexico.¹³ In the past several millennia, Popocatepetl has erupted and these environmental crises have precipitated important cultural changes. Teotihuacan's huge size—about 125,000 people by A.D. 300—was thought to have resulted, in large part, from influxes of refugees from an early eruption of Popocatepetl and other volcanoes in the southern part of the Basin.

At other times, humans themselves cause the culture–environmental dynamic to begin. The Teotihuacan Valley was effectively deforested by building Teotihuacan and supplying it with lumber and firewood. This led to erosion that stripped the valley's slopes down to hardpan, and clogged the essential drained field cultivation system southwest of the city, requiring major investments in labor to keep this system functioning. Food production declined even more in the sixth century, with the eruption of proto-Krakatoa in Indonesia, which brought on a kind of “nuclear winter” even in parts of the Americas.¹⁴

Fall and Rise

Mesoamerican history, like that of other parts of the world, is thick with rise and fall stories. Teotihuacan and Monte Albán fell, and other cities and regions rose in importance. After Teotihuacan, the power vacuum in the Basin of Mexico was gradually filled by a set of much smaller city-states which slowly grew, both from intrinsic growth and migrations. Among the most important of the migrants were the Aztecs, a diverse set of ethnic groups who settled in the Central Highlands around A.D. 1200.¹⁵ The Aztecs were Nahuatl speakers who claimed origins in the semimythical homeland, “Aztlán” (meaning “place of the white heron” or “place of whiteness”), an island home that they had abandoned decades before. And among the least

impressive of these migrating Aztecs were the Mexica,¹⁶ who would build Tenochtitlan, a capital as large as Teotihuacan, and become the leaders of the Aztec empire and of the monumental park building trend. Tracing their trajectory as an example of how cultural evolution reflects the interplay of human populations and their environments, we will see that as the disasters struck the Aztecs, their empire expanded, as outlined in Table 1.

Antecedents and Beginnings

Before the Mexica Aztecs had their gardens, their empire, and their great capital, Tenochtitlan, they were an uncouth and aggressive ethnic group who migrated to the Basin of Mexico in the late twelfth or early thirteenth century. At the time they arrived in the Basin of Mexico, it was well settled, its population, totaling fewer than two hundred thousand people, living in a set of city-states distributed over the alluvial plain that forms a ring around the central lake system. Each city-state was governed from an urbanized town serving as the capital for a noble dynasty, which drew tributes from the population of farmer-artisans living in villages in the surrounding countryside.

The sophisticated city-dwelling rulers of the Basin's city-states viewed the rough and quarrelsome Mexica Aztecs with trepidation.¹⁷ The Mexica thought they had found a refuge on the summit of Chapultepec, but their position was betrayed by an estranged member of their group. They were evicted; they sacrificed the traitor and threw his heart into the boggy swamplands of Lake Texcoco, just northeast of Chapultepec. On this spot they would later come upon a vision of an all-white world in the mist.¹⁸ Somewhat later they returned to this site and found the sign that they could establish their city: a cactus plant growing from a rock, and resting upon it was an eagle with a snake in its mouth.¹⁹ This they took to be confirmation that they had reached their destination, their new Aztlán. The rulers of the Tepanec domain in the Basin of Mexico, who controlled that area, permitted them to settle on these boggy islands in return for their service as mercenary soldiers, to help the Tepanecs expand their modest city-state into a confederation of tribute payers. The traditionally accepted date of the establishment of Tenochtitlan is 1325, and the population of the Basin of Mexico had grown to about 365,000.

By 1375, the Mexica had become respected as diligent and belligerent soldiers, and were rewarded by being permitted to establish their own ruling dynasty. Thus, this marks the beginning of their history as a legitimate political entity in Mesoamerica, and this history would end about 150 years later, when Tenochtitlan was destroyed by the joint forces of the Spaniards and tens of thousands of their native Mesoamerican allies, many of them former tributaries of the Mexica-run Aztec empire who were seeking liberation and retribution.

Beginning with dynastic inception, Mexica history can be divided into four important phases, each with critical ecological events, political strategies, and attendant development of monumental gardens, set against a background of population growth. From 1375 to 1430, the Mexica were part of the Tepanec confederation and established a pleasure park at Chapultepec. In about 1430, the Mexica and their allies took over the Tepanec confederation and consolidated it within the Basin of Mexico, a process that lasted until about 1450 and was accompanied by the development of other pleasure parks, including botanical gardens.²⁰ From about 1450 to the 1470s, the Aztec tribute empire expanded beyond the Basin of Mexico, including the establishment of the important Mexica park at Huaxtépéc, in a tropical climate outside the Basin. The last phase began in the 1470s. The period to 1500 saw the further development of the empire and the establishment of urban pleasure parks in Tenochtitlan and its allied capital, Texcoco. From 1500 to 1519 (the beginning of the Spanish intrusion) the empire expanded further and the system of monumental gardens and pleasure parks was fully mature.

1375–1430: The Mexica Dynasty and the Chapultepec Pleasure Palace

From A.D. 1375 to 1430, the population of the Basin of Mexico increased from about 450,000 to nearly 600,000, and all of the city-states known from Colonial era documentary sources had been established. Tenochtitlan had grown from a fishing village into a substantial town, and its need for fresh water quickly outstripped its few local springs. In 1420, the Mexica built a pleasure palace at Chapultepec, their one-time refuge. Mexica use of it depended on the generosity of their overlords, the Tepanecs.

Chapultepec's springs had become essential for Tenochtitlan's survival—an ecological crisis calling for a cultural evolutionary solution. The general cultural context was clearly that of state-level political organization with a high degree of social stratification and wealth differentials. Tenochtitlan was a small cog in this system, with no empire (Fig. 9). However, such confederations operate dendritically, and tribute-paying towns would themselves have been able to mobilize labor and materials from their own tributary populations for their own projects such as monumental buildings and landscape development, a factor that encouraged such city-states to try to remain independent, or to subjugate others.

Identifying Key Features of the Aztec Monumental Garden: Chapultepec

The development of a pleasure palace at Chapultepec in about 1420 was one such project, perhaps as a way of further securing Tenochtitlan's use rights to Chapultepec and its resources. The palace's designer was Nezahualcoyotl, a cousin of the rulers, the son of the ruler of Texcoco, the most important capital in the eastern Basin of Mexico.²¹ Designing and overseeing construction of the first documented pleasure palace in Mesoamerica, he also oversaw the building of the first aqueduct that brought water from Chapultepec's springs to Tenochtitlan.²²

Nearly a century later, in 1519, when the Spaniards first saw it, Chapultepec was the dynastic pleasure park of the most powerful rulers in an empire of five to six million people, and as such it was the focus of lavish development.²³ The promontory's heights offered wonderful views, which not only pleased the eye but also were important for communication in the pre-modern era. However, Chapultepec's most important asset was its set of freshwater springs. Around them were built bathing pools, palaces, and shrines. And from them came Tenochtitlan's water supply. Long before 1519, when the city's population was over one hundred thousand, the city required Chapultepec's springs in order to survive, and access to this environmental resource played a major role in Aztec history. In ancient Mesoamerica, water is revered, and the most precious substance was not gold but jade, in part because of its resemblance to water. The drop of water itself was a symbol of

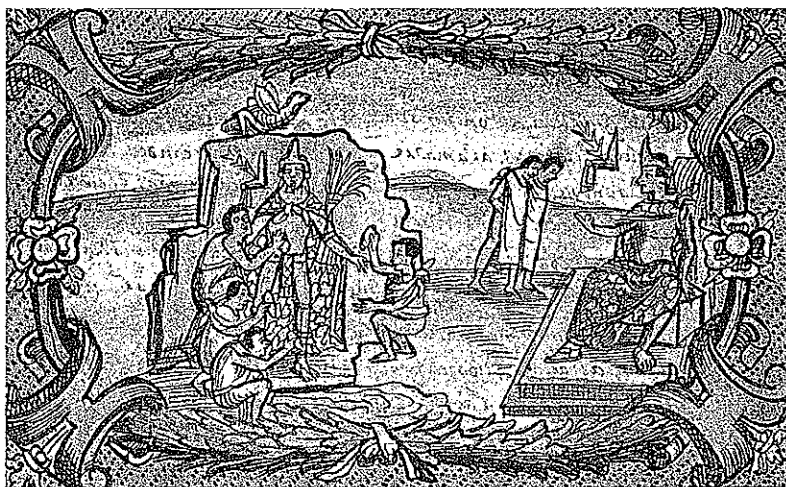


Figure 10. Motecuzoma II sits for his sculpted portrait at Chapultepec (Durán *Atlas*).

preciousness. This ideological expression of value highlights our appreciation of Tenochtitlan's appropriation of this necessary resource, and the rulers' prescience in claiming the magnificent setting of the springs for their own pleasure park.

Chapultepec shows another typical feature of Aztec monumental gardens: the lavish use of sculpture, particularly bas reliefs. Many reliefs were portraits of the rulers; Figure 10, a sixteenth-century drawing, shows a ruler's portrait being carved into the cliff face at Chapultepec, and this custom, maintained by successive rulers, established a visual message of the dynastic family that controlled the Aztec empire.²⁴ Other depictions showed plants that grew in the empire, but could not be cultivated in this chilly high-altitude environment. Professional gardeners and landscapers worked hard to grow as wide a range of plants as possible at an altitude of about seventy-five hundred feet (ca. twenty-three hundred meters) in a region with a frosty winter, and then the sculptors added representations of those that were too fragile to survive the climate. Thus, the garden mimicked the empire's wealth of resources with its combination of actual examples and artistic depictions, all governed by living rulers and portraits of dead ones. In its representation of political domain, this garden format constituted a kind of green encyclopedia—a botanical garden in the modern sense of the word.

Processional paths were marked by lines of trees of a particular kind, the Montezuma cypress,²⁵ a fast-growing *Taxodium* species that could achieve sixty meters in height—thus on a par with coast redwoods. So thoroughly does the ecological ideal merge with political power in this one tree that the tree's Aztec name, *ahuehuatl*, was a metonym for king.²⁶

In spite of there only remaining a few shreds of the Aztec landscape designer's concept, we can perceive some essential features of the Aztec garden, and get a sense that the Aztec designer, working with his wealthy patron, would have had some common concerns with André Le Nôtre or Lancelot "Capability" Brown: idealize the domain and express it in the monumental garden, use plants that suggest nobility, and include luxurious features that puff up the patron's ego and coddle the patron's desire for comfort.

Now let us return to Aztec history and examine how Chapultepec and other great Aztec parks functioned as lavish expressions of the cultural evolutionary position of the mature Aztec empire, and the culture-ecological relationship of the Aztecs to their physical world. Finally, we look at how features of the Aztec monumental garden tradition were adopted by Europeans, and spread into global gardening practices, often without any sense of their exotic origins.

1430–1450s: The Birth of Empire and Development of Dynastic Parks

Control over the springs at Chapultepec was an important precipitant of conflict between the Tepanec overlords and their tributaries. In the 1430s, the Tepanec Wars were fought, resulting in the takeover of the Tepanec confederation by the Mexica and their allies. From 1430 to the early 1450s, the population of the Basin of Mexico continued to increase, and most people paid tribute to the Mexica and their allies. In addition, the Aztec alliance expanded to the west and to the south, where they brought into their nascent empire regions at much lower altitude than the Basin, regions with a tropical climate (Fig. 11).

The most important allied city-state was Texcoco, now under control of Nezahualcoyotl, who reestablished his family's dynasty in this, their ancient capital. He also began work on his second dynastic park design project, this time for himself, at Texcotzingo.

Texcotzingo

Nezahualcoyotl's family had long used—and revered—a hill called Texcotzingo ("Little Texcoco"), about three miles (five kilometers) northeast of Texcoco. In fact, Texcotzingo would become another redesigned mountain mimicking a political domain. Nezahualcoyotl must have planned Texcotzingo while he was working on Chapultepec.

From the heights of Chapultepec, he could look in a direct line and see Tenochtitlan, five kilometers away, and across the lake, his dynastic capital, Texcoco, and, five kilometers behind it, his family's retreat, Texcotzingo (Fig. 12; Fig. 13). This geographical symmetry would have tremendous appeal for Mesoamericans, who held sacred the principle of duality. Texcotzingo was even more ambitious than Chapultepec.²⁷ Its design incorporated a total system of rock-cut platforms and shrines, rooms and baths, sculpture and fountains (Fig. 14), which were fed by an aqueduct five miles long and in places two hundred feet high that brought water from higher mountains and then sent it splashing down in channels and waterfalls, eventually feeding the fields of the farming villages below. Imagine the labor involved in carving those baths into the solid rock—with stone tools—and consider also the constant need for maintenance, provided by rotating crews of tribute-paying villagers.

Chapultepec and Texcotzingo were dynastic parks for these two related Aztec families—over the subsequent ninety years of empire building, ending with the Spanish conquest, these dynasties intermarried repeatedly—and their shared passion for garden development amounted to a status rivalry contest on a massively expensive scale. In terms of cultural evolution and monumental gardens as a marker of complex society, the establishment of these dynastic parks was the cornerstone of a much larger program of park development that included, at this time, two other types: horticultural nurseries and game reserves, dotted around the Basin of Mexico.

Horticultural nurseries

Gardens established for the purpose of growing plants actually served several functions. First, they supplied the landscaping needs of the dynastic parks, and of the palaces and public spaces of the new capital cities, Tenochtitlan and Texcoco. Second, these nurseries were, themselves, pleasure parks. For example, Acatetelco, north of Texcoco, featured allées of ahuehuetl trees surrounding a huge square pond filled with water from two rivers whose channels had been radically rerouted for this purpose. The pleasure palace built there was called Ahuehuetitlan, "in the place of the ahuehuetl trees." In layout, Acatetelco may have resembled the Menara gardens of Marrakesh, Morocco, a pleasure park that was also an orchard around water features such as a square pond and canals.²⁸

In such nurseries, tree saplings and flowering perennials would achieve sufficient size for planting out, and permanent cutting gardens provided flowers and greenery for palaces and temples. As the major cities expanded, so did the palace and temple complexes, and having plants ready for landscaping would have been essential to royal plans for impressive displays of status. Kings vied with each other to acquire rare plants, nurturing them under optimum conditions.

Game reserves

The third kind of park was the game reserve. Aztec kings, like their contemporaneous counterparts in Europe, enjoyed the hunt, and early on established areas where they could go with their teams of beaters and bearers and bring down a few deer or

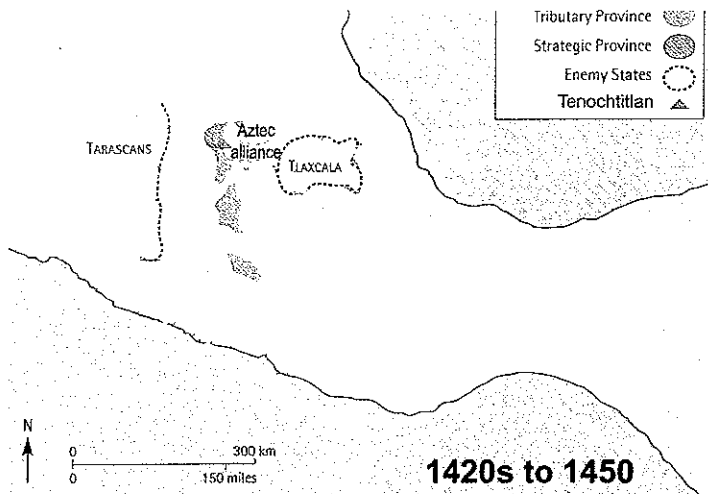


Figure 11. Map of Mesoamerica showing the Aztec empire, 1430–1450.

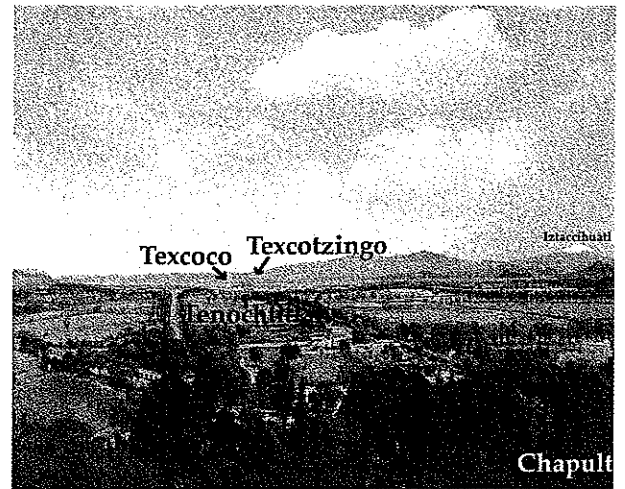


Figure 12. View from Chapultepec toward the northeast, adapted from a late-nineteenth-century painting by José María Velasco.

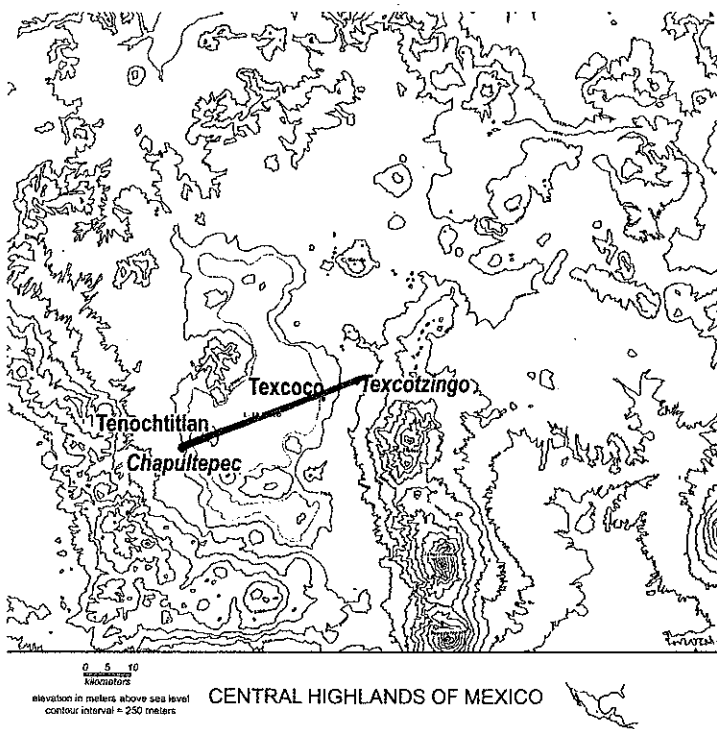


Figure 13. Map of the Basin of Mexico, showing the direct sightline between Chapultepec and Texcotzingo, framing the cities of Tenochtitlan and Texcoco.

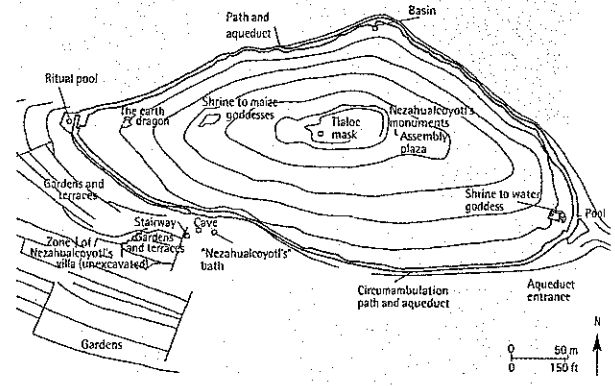


Figure 14. Plan of Texcotzingo (Evans 2004: 476).

Figure 15. Map of Mesoamerica showing the Aztec empire, 1450s to circa 1470.

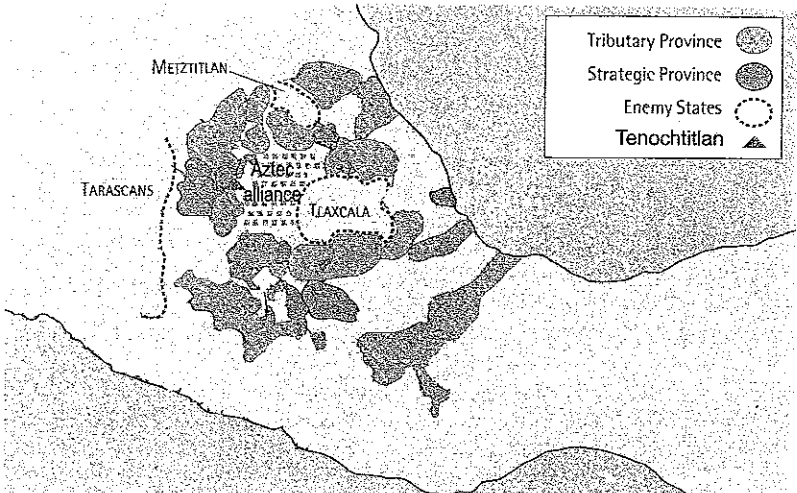


Figure 16. Map of Mesoamerica showing the Aztec empire, 1470s to 1500.

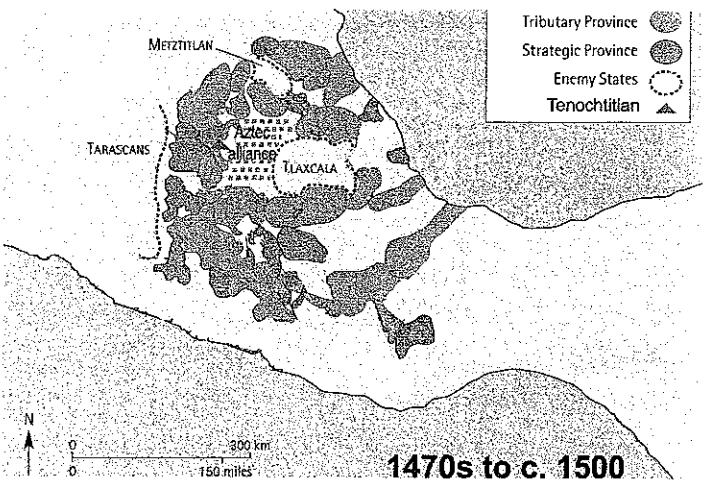
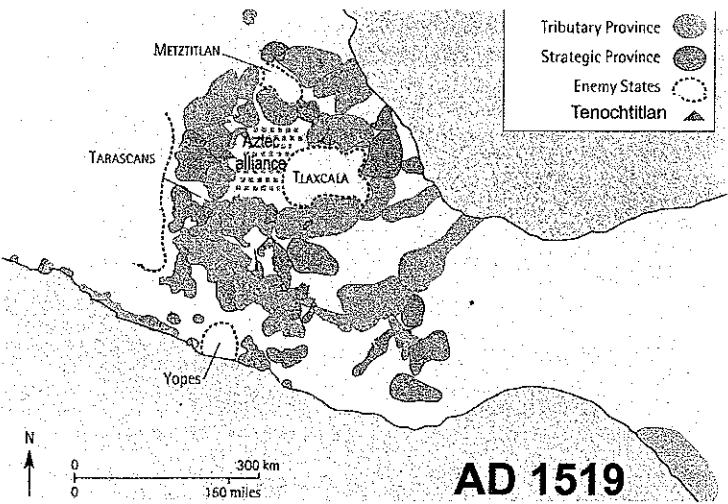


Figure 17. Map of Mesoamerica showing the Aztec empire, 1519.



other game. Two of the favorite hunting reserves for Aztec kings at the time of the Spanish Conquest were islands in Lake Texcoco, and both islands featured palaces for the comfort of their visitors. These spots also came to be coveted by the Spaniards—Cortés, for example, claimed Tenochtitlan's island game reserve for himself and imported llamas from Peru to raise there. Like the horticultural nurseries, game reserves also were pleasure parks in the sense that luxurious accommodations were provided. Little is known about landscaping at the game reserves, but some excavations have revealed evidence of palace architecture, indicating a concern to insure a setting worthy of the kings.

Empire and Garden Expansion from about 1450 to the 1470s

Twenty years after Tenochtitlan's kings began building their own empire, a set of crises befell them. The 1450s were a period of trials: amid constant population growth (the Basin's population would have been about 660,000 in 1450) were crop failures that caused famines so severe that commoners sold themselves into slavery down on the Gulf coast to avoid starvation. For the kings, achieving security for their families required a more drastic solution. As soon as the crises abated, the Aztec kings expanded their empire into the hot lands to secure access for themselves to regions they called "The Land of Food" (Fig. 15). Given the lack of beasts of burden in ancient Mesoamerica, it was not practical to import food into the Basin of Mexico from more than about 150 kilometers (about ninety miles) away, because the porters bearing it would need to eat as much as they could carry in order to survive the trip. Thus, empire expansion was not motivated by the need for a food supply for the Basin's population.

But there were other reasons to expand the empire besides providing food, or a safe haven for royal families should hunger return. The distant hot lands supplied valuable things that kings needed: jade, gold, cacao (chocolate was the beverage of choice for royalty), vanilla, quetzal feathers for their royal headdresses, jaguar skins for royal costumes and accoutrements, woven cotton fabric (only the nobles could wear cotton), and raw cotton to sell to the commoners for them to weave into fabric and give to the nobles as tribute.

Thus it was after 1450 that the system of tributaries expanded out of the regions around Basin of Mexico and began extending over much of modern Mexico. These tributes—luxury goods from afar, and more utilitarian goods and services from the core region—provided an immense income for the Aztec emperors, and their capital cities were expanded, with new palaces and new gardens. This urban renewal project in Tenochtitlan came on the heels of a devastating flood, and provided public works projects for the commoners in need of food. Some of the population therefore received needed sustenance while the city was expanded and beautified, and the aqueduct from Chapultepec was rebuilt.

It was also during this period that Tenochtitlan's kings established a dynastic pleasure park and horticultural garden at Huaxtépéc, in the tropical Valley of Morelos, about one hundred kilometers southeast of Tenochtitlan.²⁹ According to the Spaniards, it was the most beautiful garden they had ever seen. The tropical locale of this extensive park permitted a much wider range of plantings than was possible in the Basin of Mexico. Huaxtépéc combined the facilities of the pleasure park—lakes and baths, palaces and shrines—with the practical value of the horticultural nursery. Tenochtitlan began demanding rare tropical plants in tribute from their new vassal states in the Gulf lowlands. The plants were first delivered to Tenochtitlan "in great quantities, with the earth still about the roots, wrapped in fine cloth" and from there they were "taken to Huaxtépéc and planted around the springs."³⁰ Professional gardeners accompanied the delivery of these plants, to insure that they were properly tended, including carrying out the blood sacrifices at the time of planting.

The Basin of Mexico continued to grow, and so did the empire. By 1470, the Basin's population would have reached about 730,000. Tenochtitlan was beset by a new crisis, a severe earthquake that leveled many of Tenochtitlan's buildings, and prompted a new round of public works projects and urban beautification. Expansion of the empire continued toward the east and south, with more regions in the tropical Gulf lowlands and in Guerrero and Oaxaca coming under Aztec control (Fig. 16).

At this time, a new type of monumental garden came into being, the urban amusement park. These were found in the two imperial capital cities, and, like the other pleasure gardens, were developed by and for the ruling families. In both capitals, zoological gardens were established. These extended the horticultural themes of gathering together examples of the plants grown in the empire, and gathered animals as well.

In fact, in Tenochtitlan there developed particularly meaningful zoological parks. There were several different facilities, in at least two locations. One was located east of the Great Temple, where there were "kept separate cages of lions and tigers [jaguars], ounces [lynx], wolves, and foxes. In other courtyards, in a different type of cage, he kept many kinds of falcon and hawks and all manner of birds of prey. . . . Also in large earthenware vessels there were many snakes and vipers, and all of this was merely a form of grandeur. In this house of beasts he kept men and women monsters, some crippled and others dwarfed or hunchbacked."³¹

To the European sensibilities of Andrés de Tapia, phenotypically non-normative humans were "monsters."³² However, to the Aztecs such individuals enjoyed a special spiritual status, reflected in the belief that the patron god of dwarves, Xolotl, was the twin brother of the great god Quetzalcoatl. This duality established a privileged relationship, and the distinctive otherness of dwarves provided a psychological refuge for lords, in that they could not aspire to any normal role in life. In fact, some parents would deliberately deform their children in order that they might have a future at court.³³ In addition to being sought after as exhibits in the royal zoo of wild beasts, hunchbacks could be advantaged, becoming the special attendants of the emperor and other lords³⁴ and in this capacity were in the lords' confidence; they were their valets, messengers, jesters, curers, and seers. They would have been visible members of royal and noble entourages, and may have accompanied their lords to visit less fortunate dwarves, caged in the zoo of the wild beasts. However, the two groups of dwarves would have shared one of the same roles in the pleasure parks, serving as a psychological pathway to otherness, at the same time that they represented the economic power of the empire to collect and display such individuals.

When their empire began to encompass a huge area and millions of tribute-payers, the Tenochca could command in payment (and suggest as appropriate gifts to themselves) all manner of living oddity, and in addition to hunchbacks, albinos were sent to the capital from throughout the empire. These individuals were gathered into another special park in Tenochtitlan, a facility that was several city blocks west of the royal palace. They shared this facility with an array of waterfowl, and also with storehouses for precious goods collected in tribute.³⁵ The zoo of wild beasts also included tribute storehouses, but these were for more common items like woven lengths of cloth. At the waterfowl-albino facility, conquistador Andrés de Tapia saw "a hall and two other chambers full of gold and silver, and green stones."³⁶ Thus, these urban pleasure parks juxtaposed portable, negotiable wealth and the far more subtle displays of affluence provided by landscaped expanses of expensive city land, filled with living rarities, costly to acquire and maintain.

Of the two facilities, the wild beast-hunchback display was probably the more ominously unsettling because of the obvious presence of life-threatening animals and the proximity of the Great Temple, where human life was regularly sacrificed. Aztec nobles were thought to have had a closer relationship to the gods than did the commoners, and took seriously their role of setting an example in autosacrifice. The atmosphere of the wild beast zoo would have combined the charnel house ("and it was a sight to see the amount of meat fed to all these birds and beasts" wrote de Tapia³⁷) and the madhouse, with caged humans alert for opportunities to call attention to themselves and thus upgrade their position from zoo to palace.

The waterfowl-albino park, on the other hand, would have been more soothing and refreshing to the spirit. Cortés himself, who found that the residences there were "only a little less magnificent" than Motecuzoma's royal palace, is worth quoting at some length, from his description of:

. . . a very beautiful garden with balconies over it; and the facings and flagstones were all of jasper and very well made. In this house there were rooms enough for two great princes with all their household. There were also ten pools in which were kept all the many and varied kinds of water bird found in these parts, all of them domesticated. For the sea-birds there were pools of salt water, and for river fowl of fresh water, which was emptied from time to time for cleaning and filled again from the aqueducts. . . . Above the pools were corridors and balconies, all very finely made, where Mutezuma came to amuse himself by watching them.³⁸

The waterfowl were exhibited in displays that mimicked their natural habitats, much like the best modern zoos, and had specially trained keepers and veterinarians who worked fulltime to care for them: "Without fail, more than six hundred men were kept occupied in the care of these fowl. There was, besides, a place where the sick birds could be cured."³⁹ In such details, recounted by a member of Cortés's company who was noted for his lack of exaggeration, we have a strong insight into the substantial resources of the Aztec empire that could be devoted to a royal folly.⁴⁰

Recall that when the Mexica founded Tenochtitlan, they claimed that it was because of a vision of whiteness they saw emanating from their future island home, an echo of their ancestral island home, whose name implied whiteness.⁴¹ The vision may have been the effect of swamp gas, but this zoo with its special albino exhibit, a focus of comment by the conquistadores, was no doubt meant to honor their ancient beginnings. This is a highly refined example of the combined forces of economics and ideology being used by the rulers to display the essence of their heritage, at the same time that they were producing a cultural genre, a living display that educated onlookers about the range of Aztec wealth and power. The onlookers were, of course, nobles themselves, but the Tenochca often entertained as guests the rulers of enemy states, as well as allied kings. In both cases, the imperial message would be conveyed.

1500–1520: Final Years of the Aztec Empire

The final period before the arrival of the Spaniards in 1519 saw the Aztec empire at its most extensive. New territories were conquered in the tropical coastal lands, and historical records indicate that the Aztecs were reaching further east into the Maya domain (Fig. 17). By 1500, the Basin of Mexico's population had reached nearly 850,000. Again, an ecological crisis prompted urban redevelopment, with another devastating flood.⁴² The Great Temple was rebuilt for the sixth time, assuming the size (height, 30.7 meters or 101 feet) that the Spaniards saw. The new emperor, Motecuzoma II, built himself a new palace, now underlying modern Mexico's Palacio Nacional. All of the city's denizens, rich and poor, were charged with the tasks of rebuilding their houses and planting trees and gardens.

By 1519, the empire had expanded down to the Pacific coast, with outposts hundreds of kilometers from the Basin of Mexico. Millions of people were sending goods and labor service up to Tenochtitlan and its imperial partners, a huge funneling of wealth into the coffers of a very few families. And by 1519, the system of royal pleasure parks and gardens in the region right around the capitals included about twenty different sites, representing the four basic imperial garden types: the great imperial dynastic retreats (Chapultepec and its counterpart, Texcotzingo), horticultural nurseries, urban amusement parks, and game reserves.⁴³

Thus, in the short century between the establishment of Chapultepec in 1420 and the arrival of the Spaniards in 1519, the Aztec rulers had used monumental gardens as one of the most prestigious means of displaying royal wealth. This trend would have ramified throughout the culture. Of course, the highest royals would have had the largest and most elaborate gardens and the greatest variety of plants and decorative motifs on display, but, all down the social ladder, there would have been a keen awareness of the value of gardens. The sumptuary laws that reserved certain rights of residential decoration for those who had earned them in service to the king also established such displays as markers of status and, inevitably, engendered a sensitivity to these trends in artistic taste.

Even the commoners were not immune from this passion for gardening. The native informants of the sixteenth-century chronicler Sahagún told him that garden design was among the chief pleasures of kings,⁴⁴ and other sources indicate that certain kings encouraged all residents of Tenochtitlan to cultivate beautiful surroundings. And people from all over the Basin of Mexico would have seen royal monumental gardens, in spite of their exclusivity, because of the labor service for the kings, and typical assignments for villagers in the region around the capitals were in the palaces and gardens. From each village in tribute-paying areas, dozens of farmer-artisans would have spent a few weeks as a part of the “palace people” as they were known in the Aztec language. They would have been cleaners and porters, basically assigned to manual labor. But still, their tasks would have made them aware of the most expensive and fashionable styles in interior design, cuisine, clothing, and, of course, gardens. Their ability to imitate such patterns was of course limited by both the circumstance of poverty and the laws that forbade even the nobles from living beyond their station. This situation of peasant access to royal and noble lifestyles was not uncommon in archaic agrarian societies, and would have created a more uniform aesthetic than we might imagine, considering the wealth differences between the peasants and the palace.

Furthermore, the Spaniards seem to have shared this appreciation of the style of Aztec gardens, at least those that bore a categorical resemblance to the gardens of Europe. They lavished praise on Huaxtepec⁴⁵ and many other gardens, and claimed for themselves those that fit into European standards of pleasure parks. By contrast, they had little interest in Texcotzingo, Texcoco’s great dynastic pleasure park, because it too boldly expressed the culture-specific mimetic principle, and also was too far from Mexico City, the dazzling Colonial capital. The Spaniards didn’t want Texcotzingo—the only Spaniard who cared about it was the evangelical archbishop Zumárraga, who was determined to destroy every devil-worshipping image on it.

Of the other parks, transformation from Aztec aesthetic values to those of Spaniards was a relatively straightforward process. Tenochtitlan was largely destroyed in the siege that conquered the Aztec empire, and thus few of the urban amusement parks were left. The grounds of the albino “Place of Whiteness” zoo were, appropriately, assigned to the Franciscan order for the establishment of their convent. Chapultepec, we have seen, continued in service as a royal pleasure park, and Cortés claimed Huaxtepec for himself. New gardens established in and around mansions and convents used many plants and artistic prototypes of the Aztec culture.⁴⁶

Aftermath of the Aztec Empire

Mexico in the sixteenth and seventeenth centuries was almost as unknown by the outside world as it had been in the pre-contact fifteenth century, so protective were the Spaniards of their New World colonies. Few non-Spanish visitors penetrated New Spain, and the aim of the Spanish government was to transfer as much wealth as possible as rapidly as possible from the New World to the Old. Gold was the only real cure for the Spanish disease, Cortés told one of the native rulers along the Gulf coast, but there were other treasures that came to have real value. Culinary, medicinal and decorative plants all were disseminated from Mexico and Central America to Europe, and eventually to the rest of the world. When we enjoy flowers like marigolds, cosmos, and dahlias, we should imagine their ancestral forms gracing Aztec royal gardens. Mexican trees and shrubs were similarly spread.⁴⁷

The legacy of Aztec monumental parks may be perceived as well in one of the great garden developments of Europe in the Age of Discovery: the botanical garden.⁴⁸ Although Europe had a long tradition of horticultural gardens of various kinds,⁴⁹ the “green encyclopedia”—the living compendium of known plants—emerged in Italy in the 1540s (at Pisa in 1543, at Padua in 1545).⁵⁰ In fairness to the creative and systematizing intellectual climate surging through Renaissance Europe, I would not argue that the idea of the botanical garden was simply a copy of the Aztec prototype. But European botanists and garden designers—and their royal patrons—were as eager as Aztec kings for new plant material and new ideas about gardens,⁵¹ in part to express, mimetically, their own scope of knowledge about and economic interest in the wider world. The Spaniards had described the gardens they had seen, both in print and in exhaustive debriefings, and of course the plants themselves were exported from the Americas. Given the timing of these events, and the prevailing European spirit of cataloguing the world’s curiosities and valuables, it is not unlikely that Aztec gardens provided a source of inspiration for what has become an essential component of the world’s corpus of monumental gardens.

Aztec monumental gardens will never be as well known to us as the great gardens in the European or Asian or Islamic traditions, but important aspects can be identified, and still perceived. Like their Old World counterparts, Aztec gardens represent a cultural evolutionary development in terms of artistic mastery and expression of societal complexity. They reveal the refined aesthetic sensibilities of one of the world’s most memorable civilizations as well as refined skill in horticulture, and the gardens are still somewhat visible, if we know where to look and what to look for, in some of modern Mexico’s great parks. Furthermore, their legacy lives on in the range of plants we use, all over the world,⁵² and in all botanical gardens. For these contributions, we should be grateful to the Aztec rulers and the empires that made their gardens possible.

NOTES

- ¹ "Aztec" refers to the Nahuatl-speaking ethnic groups dominant in the Central Highlands of Mexico during the Late Postclassic period (ca. A.D. 1430–1521). The "Aztec Empire" was the most extensive political domain in the culture history of pre-Columbian Middle America (a geographical region extending from the modern U.S.–Mexican border down to the juncture of South America with Panama). Within Middle America lies the culture area, Mesoamerica, consisting of much of Mexico, plus Guatemala, Belize, and the western portions of Honduras and El Salvador. For a recent overview of pre-Columbian Mesoamerican culture history and archaeology, with extensive discussion of the Aztecs and their political and economic history, see Susan Toby Evans, *Ancient Mexico and Central America: Archaeology and Culture History* (London and New York: Thames and Hudson, 2004).
- ² Luciano Cedillo Álvarez, "Chapultepec: Recurso Para el Siglo XXI," *Arqueología Mexicana* 10, no. 57 (2002): 62–65; Miguel Ángel Fernández, "El Jardín de Limantour," *Arqueología Mexicana* 10, no. 57 (2002): 54–55; Amparo Gómez Tepexicuapan, "Los Jardines de Chapultepec en el Siglo XIX," *Arqueología Mexicana* 10, no. 57 (2002): 48–53; Víctor Manuel Ruiz Naufal, "Los Jardines de Chapultepec y Sus Reflejos Novohispanos," *Arqueología Mexicana* 10, no. 57 (2002): 42–47; Mario de la Torre, *Chapultepec, Historia y Presencia*, (Mexico City: Smurfit Cartón y Papel de México, SA de CV, 1988); Lorenza Tovar de Teresa and Saúl Alcántara Onofre, "Los Jardines en el Siglo XX: El Viejo Bosque de Chapultepec," *Arqueología Mexicana* 10, no. 57 (2002): 56–61.
- ³ Susan Toby Evans, "Aztec Royal Pleasure Parks: Conspicuous Consumption and Elite Status Rivalry," *Studies in the History of Gardens and Designed Landscapes* 20 (2000): 206–228; Alain Musset, "Les Jardins Préhispaniques," *Trace* no. 10 (1986): 59–73; Zelia Nuttall, "The Gardens of Ancient Mexico," *Annual Report of the Board of Regents of the Smithsonian Institution* (Washington, D.C.: Government Printing Office, 1923), 453–464.
- ⁴ The essential principles of biological evolution are: (1) all species have the potential to produce more offspring than the environment can support (the Law of Biotic Potential); (2) offspring may vary, such that those bearing traits rendering them better-adapted to a particular environment will survive, and others will not (survival of the fittest); (3) insofar as such traits are the result of genetic mutations, they may be passed to the succeeding generation, and over time the species may change in the direction of greater adaptation: evolution will have occurred. These principles are readily adaptable to the situation of cultural evolution by substituting "innovation" for "genetic mutation." Humans have not *physically* evolved for the last 100,000 years; since the emergence of fully modern humans at that time, we have used culture as our means of adaptation. We innovate and then share what we know with others. The information we share can extend our adaptive patterns as quickly as we express them.
- ⁵ Robert McC. Netting, *Cultural Ecology* (Menlo Park: Benjamin/Cummings Publishing Co., 1977); Julian H. Steward, *Theory of Culture Change* (Urbana: University of Illinois Press, 1955).
- ⁶ William T. Sanders, "Chiefdom to State: Political Evolution at Kaminaljuyu, Guatemala," in *Reconstructing Complex Societies, An Archaeological Colloquium*, ed. Charlotte B. Moore, Supplement to the Bulletin of the American Schools of Oriental Research no. 20 (1974): 97–113; Kent V. Flannery, "The Ground Plans of Archaic States," *Archaic States* (Santa Fe: School of American Research, 1998), 15–57.
- ⁷ Unfortunately for archaeologists dealing with very ancient societies, such monumental gardens are far more ephemeral than the elite buildings they once surrounded.
- ⁸ David L. Webster, Susan Toby Evans and William T. Sanders, *Out of the Past: An Introduction to Archaeology* (Mountain View: Mayfield Publishing Co., 1993), 167–169.
- ⁹ Scholars have documented this abundantly for the Old World; two examples (of many) are Stephen Daniels and Denis Cosgrove, "Introduction: Iconography and Landscape," in *The Iconography of Landscape: Essays on the Symbolic Representation, Design and Use of Past Environments*, ed. D. Cosgrove and S. Daniels (Cambridge: Cambridge University Press, 1988): 1–10; and Vincent Scully, *The Earth, The Temple, and the Gods: Greek Sacred Architecture* (New Haven, Conn.: Yale University Press, 1979).
- ¹⁰ John Dixon Hunt, *Greater Perfections* (Philadelphia: University of Pennsylvania Press, 2000): 98.
- ¹¹ Susan T. Evans and Janet Catherine Berlo, "Teotihuacan: an introduction," in *Art, Ideology, and the City of Teotihuacan*, ed. J.C. Berlo (Washington, D.C.: Dumbarton Oaks, 1992): 1–26. As the map of the Teotihuacan Valley (see Fig. 9) shows, the site was built on the lower edges of the southern slope of Cerro Gordo, an ancient volcanic cone. This slope is a basalt shelf, and from under it seep the springs that permitted a large and densely settled city to be established in this semi-arid area (William T. Sanders, "Ecological Adaptation in the Basin of Mexico: 23,000 b.c. to the Present," in *Supplement to the Handbook of Middle American Indians*, 1, *Archaeology*, ed. J.A. Sabloff [Austin: University of Texas Press, 1981], 147–197. Teotihuacanos seem to have recognized the vital importance of Cerro Gordo to their very existence; their name for the mountain may have been "Mother of Stone" (Stephen Tobriner, "The Fertile Mountain: an Investigation of Cerro Gordo's Importance to the Town and Iconography of Teotihuacan," *Teotihuacan: Onceava Mesa Redonda*, II [Mexico City: Sociedad Mexicana de Antropología, 1972], 103–114).
- ¹² For a discussion of the Aztec deities governing the natural world, see Ana María L. Velasco Lozano, "Dioses y naturaleza," *Arqueología Mexicana* 10, no. 57 (2002): 34–35.
- ¹³ An enclosed hydrological basin until the early 1600s, when Spanish engineers drained it by building an extensive canal system, the pre-Columbian "Basin of Mexico" is called the "Valley of Mexico" when referring to the period after A.D. 1600.
- ¹⁴ Richardson Benedict Gill, *The Great Maya Droughts: Water, Life, and Death* (Albuquerque: University of New Mexico Press, 2000), 293. An even more dramatic and widespread culture-ecological disaster in ancient Mesoamerica involved the fall of Maya civilization. By the eighth and ninth centuries A.D., the Maya population had grown so large that agricultural intensification led to environmental degradation, resulting in a demographic collapse so severe that the heartland of this vital civilization remained virtually uninhabited for hundreds of years (David L. Webster, *The Fall of the Ancient Maya* [London and New York: Thames and Hudson, 2002]).
- ¹⁵ Michael E. Smith, "The Aztlan Migrations of the Nahuatl Chronicles: Myth or History?" *Ethnohistory* 31 (1984): 153–186.

¹⁶ The Mexica [pron. *maySHEEKah*] were further immortalized when their name was applied to the name of the modern nation, Mexico, and its capital, Mexico City, built on the ruins of the Mexica Aztec capital, Tenochtitlan.

¹⁷ One ruler gave them his daughter as the bride of their leader; the Mexica sacrificed her to their gods and when her father arrived for the wedding they proudly displayed her flayed skin.

¹⁸ Fray Diego Durán, *The History of the Indies of New Spain* (Norman: University of Oklahoma Press, 1994 [1581]), 40.

¹⁹ This was adopted as the central motif of the modern Mexican flag.

²⁰ Edelmira Linares, "Los Jardines Botánicos de México, Su Historia, Situación Actual y Retos Futuros," *Revista Chapingo, Serie Horticultura* 2 (1994): 29–42; Doris Heyden, "Jardines Botánicos Prehispánicos," *Arqueología Mexicana* 10, no. 57 (2002): 18–23.

²¹ In 1418 the Tepanecs had had the Texcoco king killed, and Nezahualcoyotl (pron. *netsahwahICOYoh*, meaning "Fasting Coyote") went into exile, eventually finding asylum in Tenochtitlan. Nezahualcoyotl would live to retake his throne, make his Texcoco kingdom, the Acolhua domain, an important partner to Tenochtitlan in the Aztec empire, become famed as a poet and a civil engineer, and a political survivor of great skill.

²² Mexico City's great modern boulevard, Paseo de la Reforma, traces the ancient course of the aqueduct.

²³ Beatriz Braniff Torres and María Antonieta Cervantes, "Excavaciones en el Antiguo Acueducto de Chapultepec," *Tlalocan* V. 5 (1966): 161–168, 265–266; Susan Toby Evans, "Chapultepec Park," in *Chicago Botanic Garden Encyclopedia of Gardens, History and Design*, ed. C.A. Shoemaker, 1 (Chicago and London: Fitzroy Dearborn Publishers, 2001), 261–263; Miguel León-Portilla, "Chapultepec en la Literatura Nahuatl," *Revista de la Universidad de México* 24 no. 11 (1970): 1–10; María de la Luz Moreno and Manuel Alberto Torres, "El Origen del Jardín Mexica de Chapultepec," *Arqueología Mexicana* 10, no. 57 (2002): 41; Felipe Roberto Solís Olguín, "Chapultepec, Espacio Ritual y Secular de los Tlatoani Aztecas," *Arqueología Mexicana* 10, no. 57 (2002): 36–40; Torre, *Chapultepec, Historia y Presencia*.

²⁴ Henry B. Nicholson, "The Chapultepec Cliff Sculpture of Motecuhzoma Xocoyotzin," *El México Antiguo* 9 (1961): 379–443.

²⁵ Now the national tree of Mexico, see Aurora Montúfar López, "Ahuehuete: Símbolo Nacional," *Arqueología Mexicana* 10, no. 57 (2002): 66–69.

²⁶ Fray Bernardino de Sahagún, *Rhetoric and Moral Philosophy*. Book 6 of the Florentine Codex. (Santa Fe: The School of American Research and The University of Utah, 1969 [1569]), 252.

²⁷ Miguel Medina, *Arte y Estética de el Tetzcotzincó: Arquitectura de Paisaje en la Época de Netzahualcoyotl* (Mexico City: Universidad Nacional Autónoma de México, 1997); Miguel Othon de Mendizábal, "El Jardín de Netzahualcoyotl en el Cerro de Tetzcotzincó," *Obras Completas*, 2 (Mexico City: Imprenta del Museo Nacional de Arqueología, Historia y Ethnografía, 1946), 443–451; Richard Fraser Townsend, "The Hill of Texcotzingo Mapping Project," *National Geographic Society Research Reports* 20 (1979): 755–760.

²⁸ A third function of horticultural nurseries is documented by several other gardens of this type, which supplied medicinal herbs. The medical knowledge of the Aztecs with regard to plants was truly impressive: Xavier Lozoya, "Arqueología de la Tradición Herbolaria," *Arqueología Mexicana* 3, no. 14 (1995): 3–9; Xavier Lozoya and Mariana Loyola, *Flora Medicinal de México* (Mexico City: Instituto Mexicano de Seguro Social, 1982); Bernard Ortiz de Montellano, "Aztec Medicinal Herbs: Evaluation of Therapeutic Effectiveness," in *Plants in Indigenous Medicine and Diet*, ed. N. Etkin (Bedford Hills, New York: Redgrave Publishing Co., 1986), 113–127; Bernard Ortiz de Montellano, *Aztec Medicine, Health, and Nutrition* (New Brunswick, N.J.: Rutgers University Press, 1990). Modern tests of the value of Mesoamerican herbal remedies have determined that a high percentage were effective in treating the conditions for which they were prescribed. In 1570 the Spanish government sent the great natural historian Francisco Hernández to New Spain, to visit the Aztec gardens and catalogue the medicinal herbs (Francisco Hernández, *Cuatro Libros de la Naturaleza y Virtudes Medicinales de las Plantas y Animales de la Nueva España*, [Morelia: Escuela de Artes, 1888 {1571}]).

²⁹ Enrique Juan Palacios, *Huastec y sus Reliquias Arqueológicas* (Mexico City: Publicaciones de la Secretaría de Educación Pública, 1930); Druzo Maldonado Jiménez, *Cuaauhnhuac y Huastec* (Cuernavaca: Universidad Autónoma de México Centro Regional de Investigaciones Multidisciplinarias, 1990); Octavio Rocha Herrera and Susan Toby Evans, "Huastec," in *The Archaeology of Ancient Mexico and Central America: An Encyclopedia*, ed. S. T. Evans and D. L. Webster (New York: Garland Publishing Co., 2001), 349–350; Susan Toby Evans, "Huastec," in *Chicago Botanic Garden Encyclopedia of Gardens, History and Design*, ed. C. A. Shoemaker, 2 (Chicago and London: Fitzroy Dearborn Publishers, 2001), 609–611.

³⁰ Durán, *The History of the Indies of New Spain*, 244–245.

³¹ Andrés de Tapia, "The chronicle of Andrés de Tapia," in *The Conquistadores*, ed. P. de Fuentes (New York: The Orion Press, 1963 [ca. 1534]), 40.

³² Of course, dwarves were also a part of European court life, as shown in Diego Velázquez's painting "Las Meninas" (1656).

³³ Motolinía (Fray Toribio de Benavente), *History of the Indians of New Spain* (Washington D.C.: Publications of the Academy of American Franciscan History, 1951 [1541]), 269.

³⁴ Sahagún, *Kings and Lords*, Book 8 of the Florentine Codex (Santa Fe: The School of American Research and The University of Utah, 1979 [1569]), 30.

³⁵ Tapia, "The chronicle of Andrés de Tapia," 40–41.

³⁶ Tapia, "The chronicle of Andrés de Tapia," 40.

³⁷ Tapia, "The chronicle of Andrés de Tapia," 40.

³⁸ Herman Cortés, *Letters from Mexico* (New Haven, Conn.: Yale University Press, 1986 [1519–1526]), 109–110.

³⁹ Tapia, "The chronicle of Andrés de Tapia," 40.

⁴⁰ In the English landscaper's sense of the word, pertaining to a pleasure-garden feature.

⁴¹ Durán, *The History of the Indies of New Spain*, 40.

⁴² The sixteenth-century chronicler, Durán, cites the beautification program for Tenochtitlan that followed a disastrous flood in about 1499 (Durán, *The History of the Indies of New Spain*, 373).

- ⁴³ Evans, "Aztec Royal Pleasure Parks," 210.
- ⁴⁴ Sahagún, *Kings and Lords*, 30, also Ana María L. Velasco Lozano, "El jardín de Itztapalapa," *Arqueología Mexicana* 10, no. 57 (2002): 26–33.
- ⁴⁵ Huaxtépec "where is the garden which I have said is the best that I have ever seen in all my life, and so said . . . our Cortés" (Bernal Díaz del Castillo, *The Discovery and Conquest of Mexico* [New York: Farrar, Straus, and Cudahy, 1956 {1560s}], 375). Cortés mentioned it in his letters to the king of Spain (Cortés, *Letters from Mexico*, 196).
- ⁴⁶ Jeanette Favrot Peterson, *The Paradise Garden Murals of Malinalco: Utopia and Empire in Sixteenth-Century Mexico* (Austin: University of Texas Press, 1993).
- ⁴⁷ Maguey, the century plant (*Agave* spp.), is so widely grown that it hardly seems exotic when found all around the Mediterranean.
- ⁴⁸ "It is impossible to say positively whether, as Conde Carli first suggested in 1777, the first botanic gardens established in Italy in the Sixteenth Century were in fact based on much earlier Aztec models." (Frank J. Lipp, "A Heritage Destroyed: The Lost Gardens of Ancient Mexico," *Garden Journal* 26, no. 6 [1976]: 188). Gian Rinaldo Carli published "Lettere Americane" (1777) covering a wide variety of topics (Ivan Markovic, "Gian Rinaldo Carli, Istriani Illustri" [<http://www.istriani.com/istria/illustri/carli/bio.htm>] {2000}). See also Lucile Brockway, *Science and Colonial Expansion: The Role of the British Royal Botanic Gardens* (New York: Academic Press, 1979), 72.
- ⁴⁹ Elizabeth Barlow Rogers, *Landscape Design: A Cultural and Architectural History* (New York: Harry N. Abrams, Publishers, 2001), 118–124.
- ⁵⁰ F. Nigel Hepper, "Botanic Garden," in *The Oxford Companion to Gardens*, ed. G. Jellicoe, S. Jellicoe, P. Goode, and M. Lancaster (Oxford and New York: Oxford University Press, 1991), 67–68.
- ⁵¹ Phillip II, King of Spain, who had sent the great naturalist Francisco Hernández to New Spain to document the flora, himself had a strong interest in natural history and gardens (Aurora Rabanal Yus, "Felipe II y los Jardines," *Felipe II y el Arte de Su Tiempo* [Madrid: Fundación Argentaria, UAM Ediciones, and Visor, 1998], 401–424).
- ⁵² Xavier Lozoya, "El Oro Verde de América," *Arqueología Mexicana* 1, no. 6 (1994): 6–11.

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