Carved monuments like this were commissioned by Tikal's rulers to commemorate important events in their regions. Portrayed on this one is a king who ruled about 1,220 years ago. Such skilled stone carving could only have been accomplished by a specialist. (For a translation of the inscription on the monument's left side, see Figure 11.7.)

and land reached a critical point, population growth stopped. At the same time, warfare with other cities became increasingly destructive. These events are marked archaeologically by the abandonment of houses on prime land in rural areas, by the advent of nutritional problems visible in skeletons recovered from burials, and by the construction of the previously mentioned defensive ditches and embankments. In other words, a period of readjustment set in, which must have been directed by an already strong central authority. Activities then continued as before, but without further population growth for another 250 years or so.

As this case study shows, excavations at Tikal demonstrated the splendor, the social organization, the belief system, and the agricultural practices of the ancient Maya civilization, among other things. This chapter's Original Study illustrates a very different Maya site, just a day's walk from Tikal.

Cities and Cultural Change

If a person who grew up in a rural North American village today moved to Chicago, Montreal, or Los Angeles, she or he would experience a very different way of life. The same would be true for a Neolithic village dweller who moved into one of the world's first cities in Mesopotamia 5,500 years ago. Four basic changes mark the transition from Neolithic village life to life in the first urban centers: agricultural innovation, diversification of labor, central government, and social stratification.

Original Study

Action Archaeology and the Community at El Pilar *by Anabel Ford*

Resource management and conservation are palpable themes of the 21st century. Nowhere is this more keenly felt than in the tropics, seemingly our last terrestrial frontier. The Maya forest, one of the world's most biodiverse areas, is experiencing change at a rapid rate. Over the next two decades this area's population will double, threatening the integrity of the tropical ecosystems with contemporary development strategies that are at odds with the rich biodiversity of the region.

Curiously, in the past the Maya forest was home to a major civilization with at least three to nine times the current population of the region. The prosperity of the Classic Maya civilization has been touted for the remarkable quality of their unique hieroglyphic writing; the beauty of their art expressed in stone, ceramics, and plaster; and the precision of their mathematics and astronomy. What was the secret of Maya conservation and prosperity? How can archaeology shed light on the conservation possibilities for the future? These are the questions I address in my research at El Pilar.

I began my work as an archaeologist in the Maya forest in 1972. Eschewing the monumental civic centers that draw tourist and scholar alike, I was interested in the everyday life of the Maya through the study of their cultural ecology—the multifaceted relationships

of humans and their environment. Certainly, the glamorous archaeological centers intrigued me; they were testaments to the wealth of the Maya civilization. Yet, it seemed to me that an understanding of the ancient Maya landscape would tell us more about the relationship of the Maya and their forest than yet another major temple. After all, the Maya were an agrarian civilization.

The ancient Maya agricultural system must be the key to their growth and accomplishments. With more than a century of exploration of the temple centers, we know that the civic centers were made for the ceremonial use of the ruling elite, that the temples would hold tombs of the royals and would include dedications of some of the most astounding artworks of the ancient world. Centers, too, would present stone stele erected in commemoration of regal accomplishments with hieroglyphic writing that is increasingly understood as codification of the Mayan language. These facts about the Maya point to successful development founded in their land use strategies that supported the increasing populations, underwrote the affluent elite glamour, and allowed for the construction of major civic centers over 2 millennia. The Maya farmers were at the bottom of this astounding expansion, and that is where I thought there could be a real discovery.

Since agriculture figures so importantly in preindustrial agrarian societies, such as the Maya, we would expect that the majority of the settlements would be farming ones. But how can we understand the farming techniques and strategies? Our appreciation of the traditional land use methods have been subverted with technology and a European ecological imperialism that inhibits a full understanding of other land use systems.

During the conquest of the Maya area, Spaniards felt there was nothing to eat in the forest; presented with a staggering cornucopia of fruits and vegetables that could fill pages, they asserted they were starving, as there was no grain or cattle. Today, we use European terms to describe agricultural lands around the world that are in many ways inappropriate to describe traditional systems. The words *arable* specifically means "plowable" and is derived from the Egyptian word *Ard*, or "plow." *Arable* is equated with *cultivable* by the United Nations Food and Agriculture Organization, and by doing so eliminates realms of land use and management that have a subtler impact on the environment. *Fallow* is loosely used to indicate abandoned fields, but really *fallow* means "unseeded plowed field." For European eyes, plowing was equivalent to cultivating, but in the New World cultivating embraced a much broader meaning that included fields of crops, selective succession, diverse orchards, and managed forests. In fact, it meant the entire landscape mosaic.

It is important to remember that the Maya, like all Native Americans prior to the tumultuous conquest 500 years ago, lived in the Stone Age without metal tools and without domesticated animals. This was not a hindrance, as it would seem today, but a fact that focused land use and intensification in other realms. Farmers were called upon to use their local skill and knowledge to provide for daily needs. And, as with all Native Americans, this skill would involve the landscape and most particularly the plants.

Reports of yields of grain from the Mesoamerican maize fields, or *milpas*, suggest that they were more than two to three times as productive as the fertile fields of the Seine River near Paris of the 16th century, the time of the conquest. The Maya farmed in cooperation with the natural environment. Like the Japanese rice farmer Masanubu Fukuoka describes in his book *One Straw Revolution*, Maya farmers today use their knowledge of the insects to insure pollination, their understanding of animals to promote propagation, their appreciation of water to determine planting, and their observations of change and nuance to increase their yields. This is not at all like the current agricultural development models that rely on increasingly complex techniques to raise production, disregarding nature in the process.

My focus on the patterns of the ancient Maya settlements has guided me along a path that I believe can provide important answers to questions of how the Maya achieved their success. The answers lie in finding where the everyday Maya lived, when they lived there, and what they did there. While popular notions would have you think that the Maya were a seething sea of humanity displacing the forest for their cities, I have discovered patterns on the landscape indicating that at their height in the Late Classic from 600–900 CE, the Maya occupied less that two thirds of the landscape. More than 80 percent of the settlements were concentrated into less than 40 percent of the area, while another 40 percent of the region was largely unoccupied.

This diversity of land use intensity created a patchwork of stages of what traditional farmers see as a cycle from forest to field and from field to orchard and back to forest again. The result in the Maya forest garden was an economic landscape that supported the ancient Maya, fueled wealth in the colonial and independence eras with lumber, and underwrote capitalism with the natural gum chicle. Today more than 90 percent of the dominant trees of the forest are of economic value. The Maya constructed this valuable forest over the millennia.

Despite my interest in daily life in the forest, monumental buildings became a part of my work. While conducting a settlement survey in the forest, I discovered and mapped El Pilar, a major ancient Maya urban center with enormous temples towering more than 22 meters high and plaza expanses greater than soccer fields. The whole center of civic buildings covers more than 50 hectares. El Pilar is the largest center in the Belize River area and is located only 50 km from Tikal. This center was bound to become a tourist destination, presenting an opportunity to explore new ways to tell the Maya story. My observation that the ancient Maya evolved a sustainable economy in the tropics of Mesoamerica led my approach to developing El Pilar.

Astride the contemporary border separating Belize from Guatemala, El Pilar has been the focus of a bold conservation design for an international peace park on a long-troubled border. The vision for El Pilar is founded on the preservation of cultural heritage in the context of the natural environment. With a collaborative and interdisciplinary team of local villagers, government administrators, and scientists, we have established the El Pilar Archaeological Reserve for Maya Flora and Fauna. Since 1993, the innovations of the El Pilar program have forged new ground in testing novel strategies for community participation in the conservation development of the El Pilar Archaeological Reserve.

This program touches major administrative themes of global importance: tourism, natural resources, foreign

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affairs, agriculture, rural development, and education. Yet the program's impact goes further. Working with traditional forest gardeners affects agriculture, rural enterprise, and capacity building. There are few areas untouched by the program's inclusive sweep, and more arenas can contribute to its evolution.

At El Pilar, I practice what I call "action archaeology," a pioneering conservation model that draws on lessons learned from the recent and distant past to benefit contemporary populations. For example, the co-evolution of Maya society and the environment provide clues about sustainability in this region today. At El Pilar we have advanced programs that will simulate Maya forest gardens as an alternative to resource-diminishing plow-and-pasture farming methods. Working with the traditional farmers, school models are being established. These models will help to transfer knowledge to the younger generation and carry on important conservation strategies. The forest survives and demonstrates resilience to impacts brought on by human expansion. The ancient Maya lived with this forest for millennia, and the El Pilar program argues there are lessons to be learned from that past.

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The El Pilar program recognizes the privilege it has enjoyed in forging an innovative community participatory process, in creating a unique management planning design, and in developing a new tourism destination. The success of local outreach at El Pilar can best be seen in the growth of the community organizations such as the El Pilar Forest Garden Network and Amigos de El Pilar (Friends of El Pilar). With groups based in both Belize and Guatemala working together, the El Pilar program can help build an inclusive relationship between the community and the reserve that is mutually beneficial. The development of this dynamic relationship lies at the heart of the El Pilar philosophy—resilient and with the potential to educate communities, reform local-level resource management, and inform conservation designs for the Maya forest.

Agricultural Innovation

Changes in farming methods distinguish early civilizations from Neolithic villages. The ancient Sumerians, for example, built an extensive system of dikes, canals, and reservoirs to irrigate their farmlands. With such a system, they could control water resources at will; water could be held and then run off into the fields as necessary.

Irrigation was important for crop yield, because not having to depend on the seasonal rain cycles allowed farmers to harvest more crops in one year. Increased crop yield, resulting from agricultural innovations, contributed to the high population densities of ancient civilizations.

Diversification of Labor

Diversified labor activity was also characteristic of early civilizations. In a Neolithic village without irrigation or plow farming, every family member participated in the raising of crops. But the high crop yields made possible by new farming methods and the increased population of cities permitted a sizable number of people to pursue nonagricultural activities on a full-time basis.

Ancient public records document a variety of specialized workers. For example, an early Mesopotamian document from the old Babylonian city of Lagash (modern Tell Al-Hiba, Iraq) lists the artisans, craftspeople, and others paid from crop surpluses stored in the temple granaries. These lists included coppersmiths, silversmiths, sculptors, merchants, potters, tanners, engravers, butchers, carpenters, spinners, barbers, cabinetmakers, bakers, clerks, and brewers.

With specialization came the expertise that led to the invention of new ways of making and doing things. In Eurasia and Africa, civilization ushered in what archaeologists often refer to as the **Bronze Age,** a period

Bronze Age In the Old World, the period marked by the production of tools and ornaments of bronze; began about 5,000 years ago in China and Southwest Asia and about 500 years earlier in Southeast Asia.