

Lessons to Be Learned from the Maya

By Richard W. Franke

This is the latest installment in our Signs of Sustainability series, organized by Sustainable Tompkins. Visit them online at www.sustainabletompkins.org.

On Jan. 18, 909 C.E. (Common Era, or A.D.), a master carver put the last known date on a stone monument in Central America, then a part of the large Mayan civilization. Thus ended the famous "Long Count" calendar of the Maya, a calendar recently revived by some mystics (and some commercial interests?) who have extrapolated its calculations to predict massive disasters on Earth in December 2012.

To see what will happen in December of this year, we shall have to wait a few months; but we do know that Maya civilization col-

lapsed in the ninth or 10th century, well ahead of both 2012 and the Spanish colonial conquest. One expert has estimated that during a 75-year period around that time, the total population of the Maya dropped from 3 million to 450,000.

For academics, the Maya collapse has stoked interest almost as keen as that for Rome—the subject of our previous Steps to Sustainability article. Maya civilization encompassed large urban areas such as Tikal which may have had 40,000 residents around 600 C.E. Maya temples have fascinated observers. They strongly influenced the architecture of Frank Lloyd Wright and played leading popular-culture roles in the final scenes of the first episode of "Star Wars."

During the classical or high period of Maya culture—250 to 900

C.E.—the Maya built massive pyramids and carved masterful stone sculptures. They developed a complex writing system, created and utilized an efficient mathematics based on the number 20 and including the zero concept.

Maya calculations of the times of the orbits of Earth, Venus, the moon and some eclipses are within one point of modern astronomical values. Many Mayan computations were carved in stone on "stelae," or ceremonial posts, at the entrances to temples, neighborhoods or other sites.

Maya civilization was ultimately based on access to water and on maintaining the delicate soil of the region. Most of the area has a limestone base and lacks large rivers, so the Maya accessed water by organizing their communities around "cenotes," or large open wells. They also dug impressive canals—some up to a mile long, 100 feet wide and 10 feet deep. Water tended to seep down through the limestone base and was always liable to slip away, especially because the region was vulnerable to droughts.

The demands of the spreading urban empires during the classical period—including the need to support rulers, soldiers, artists and perhaps a large priestly caste that carried out rituals, calculated solar orbits and managed the complex calendar system—put pressure on the resource base. Occasional droughts interacted with the vulnerable soil and water limiting factors.

Archaeological research confirms significant inequality in height between Maya buried in tombs (the higher classes) and those buried simply in the ground. Commoners had a lower life expectancy and higher childhood nutritional deficiencies—differences striking enough to show up in the bones from the burials. The corn, squash, avocado, root crops and cotton that they produced could not continue to support the large, unequal social structure.

Eventually, even the aristocrats began to suffer. Forests were turned to grasslands and mountain slopes were eroded when trees were

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chopped down. It is possible that the deforestation intensified the tendency of droughts. Whenever droughts did hit, various cities went to war with each other, desperate to control the little water left in a region.

The Maya built a remarkable civilization on one of earth's most vulnerable resource bases. Despite their noteworthy artistic and mathematical achievements, the Maya never solved the problem of managing their relationship with their life-support system, and they never abolished their highly hierarchical class system that contributed so much to their collapse.

This is one in a series of articles on the history of sustainability. Richard W. Franke is professor emeritus of anthropology at Montclair State University, a resident of Ecovillage at Ithaca and a board member of Sustainable Tompkins.