

from international trade, 19 years after the *girin*'s arrival an imperial decree was issued limiting foreign trade and travel. As a Confucian official wrote, Zheng's expeditions "wasted tens of myriads of money and grain, and moreover the people who met their deaths on these expeditions may be counted by the myriads. Although he returned with wonderful precious things, what benefit was it to the state?" Five centuries would pass before

China began to emerge from its insularity.

The giraffe can be seen as a tall version of the canary in a coal mine: It was an early signal of change whose arrival provided an acute reading of the nation's outlook. The Chinese operated by allegory—the giraffe was a unicorn, which was a sign of heavenly favor, which could be sustained by uninterrupted allegiance to insular Confucian virtues. The Florentines used

analogy: A prince who could produce awe-inspiring exotica would himself inspire awe, thus propelling the city into an ever-widening search for the novel and alluring. The French made sense of the world by scientific rationality and classification. French scientific superiority allowed them to classify every known creature and thing, which was beyond the power of the inferior societies they were born to rule.

## SCIENCE & TECHNOLOGY

# Athens on the Amazon

**THE SOURCE:** "Virginity Lost" by Fred Pearce, in *Conservation*, Jan.–March 2007.

FEW ENVIRONMENTAL CAUSES have attracted more passionate support than efforts to save the vast Amazon rainforest from development and deforestation. New research, however, suggests that the image of a primeval virgin Amazon is a modern myth. "Rather than wilderness," writes Fred Pearce, a British freelance writer and the author of *Deep Jungle* (2005), the Amazon's tropical rainforests are partly natural and partly "abandoned gardens."

In all probability, Pearce writes, "the Amazon was dotted with urban centers and crisscrossed with networks of causeways and irrigation canals at the same time [that] the Greek empire flourished in Europe."

The evidence for an urban and suburban Amazon basin began to pile up in the 1980s, when an

American oil prospector exploring the grassy lowlands of the Bolivian Amazon in a truck wondered why he was bouncing over corrugated terrain. Clark Erickson of the University of Pennsylvania subsequently found tens of thousands of kilometers of raised banks across the Bolivian Amazon that he believes were dug by humans. A horizontal equivalent of the vertical terraces of the ancient Near East, the corrugated ridges nourished plants and the depressions held water for irrigation. Erickson also discovered a 500-kilometer-square area of ponds and weirs used for fish farming. Archaeologist Anna Roosevelt of the Field Museum of Natural History in Chicago uncovered evidence in Ilha do Marajó, at the mouth of the Amazon, of thousand-year-old roads, drainage networks, and small cities of as many as 100,000 people. Further inland,

Michael Heckenberger of the University of Florida, Gainesville, discovered that the floor of one of the deepest, darkest areas of continuous tropical rainforest has not always been forest floor. Most of the supposedly virgin forest was cleared at least once, and perhaps several times, by the Xinguano people for farming—a millennium ago.

The early conquistadors found urban societies when they first floated down the Amazon, but the local civilizations seem to have collapsed shortly after the first contact with Europeans, perhaps destroyed by disease. Francisco de Orellana described a town at the entrance to the Rio Negro in 1542 "that stretched for 15 miles without any space from house to house." But knowledge of these cultures seems to have faded as survivors fled into the forests, and farmers, metalworkers, priests, and scholars became hunters and gatherers.

"The strange truth is that, by inadvertently wiping out the Indian populations, it was the Europeans who created the modern Amazon rainforest," Pearce writes.