Ancient city found on Mexican farmland

David Hiser/National Geographic Society

Rain-god mask decorates a vessel found at a satellite site of El Pital.

Draped by citrus orchards and banana plantations near Mexico's Gulf Coast, archaeological remains long considered the vestiges of several small human settlements have been found to derive instead from a massive city that served as a center of regional trade and culture beginning around 1,600 years ago, according to an archaeologist who directed a survey of the area last year.

Excavation of the site, known as El Pital, has yet to begin. But surface explorations indicate that the metropolis grew rapidly from A.D. 100 to A.D. 600, at which point overwhelming floods or warfare may have led to its abandonment, asserts S. Jeffrey K. Wilkerson, director of the Institute for Cultural Ecology of the Tropics in Gutiérrez Zamora, Mexico.

Wilkerson discussed the find at a Mexico City press conference last week and in a subsequent telephone interview with SCIENCE NEWS.

El Pital hit its stride as ancient civilizations in Mexico and Central America entered their Classic Period, which extended from about A.D. 300 to A.D. 900, Wilkerson contends. But the once majestic city hit the skids midway through the Classic era.

"El Pital appears to have been an early city of astounding proportions that achieved great complexity by the start of the Classic Period," Wilkerson argues. "We don't know what sparked the rise of Classic civilizations, but we're on the trail of some answers at El Pital."

The city core, located on the Nautla River in the eastern Mexican state of Veracruz, contains more than 100 earth-and-stone structures. These include small buildings, elongated platforms, ball courts, and massive temples, some of which reach heights of 130 feet. Banana, citrus, and sugar-cane plantations, as well as thick flood sediments, obscure much of the site.

Satellite communities and an elaborate system of irrigation canals threading through raised fields for farming cover 40 square miles around the site.

Ceramics and other artifacts at El Pital indicate that it lay at the hub of a regional trade network and maintained cultural ties to cities of central Mexico, including Teotihuacan, Wilkerson maintains. Teotihuacan exerted considerable influence throughout the region for much of the first millennium A.D.

El Pital's links to Classic Maya cities, which arose at the same time some 500 miles to the southeast, remain unknown, the archaeologist notes.

The lack of defensive structures at El Pital suggests that a powerful royal dynasty governed a broad region organized around commerce, he says. The city may have served as a major seaport, given its proximity to two easily navigable rivers that run nine miles to the ocean, Wilkerson says.

El Pital somewhat resembles El Tajín, a nearby Classic-era city. But the latter site was smaller and reached its peak between A.D. 600 and A.D. 1100.

Wilkerson hopes to test whether severe weather fluctuations — thought by some researchers to occur in the Americas about every 500 years — caused excessive rainfall and coastal flooding, thus influencing El Pital's demise and hastening El Tajín's rise. *— B. Bower*

Non-smoking-related cancers on rise

Despite an all-out war on cancer over the past 20 years, people are developing malignancies at a higher rate than ever before — even after accounting for smoking and the fact that people are living longer, a new study finds. These increased rates appear highest in the youngest group analyzed — "baby boomers" born between 1948 and 1957.

"The good news is that improved therapies have reduced cancer mortality in persons younger than 45 . . . [and] lowered cardiovascular mortality in persons of all ages," conclude Devra Lee Davis of the Department of Health and Human Services and her co-workers in the Feb. 9 JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. "The bad news," they add, "is that in all age groups, cancer incidence is increasing in Sweden and the United States and that few new, effective treatments have been devised for the most common cancers."

Davis' team broke down, by age, data on cancer incidence and mortality among U.S. whites between 1973 and 1987. They then compared cancer rates among age groups, beginning with the group born between 1888 and 1897. To offset the effects of smoking, the researchers analyzed separately data on all cancers, female breast cancers, smoking-related cancers (defined as those of the mouth, larynx, lung, pharynx, and esophagus), and all non-smoking-related cancers.

During the 15 years ending in 1987, cancer deaths fell 17 percent among persons under age 55, while rising 12 percent in those 55 and over. However, the analyses also suggest that, compared to men born before 1898, male baby boomers faced twice the overall cancer risk (136 per 100,000 in 1987, for instance) and more than twice the rate of non-smoking-related cancers (124 per 100,000). Female baby boomers developed 50 percent more cancers overall than women born in the late 19th century — 216.5 per 100,000 in 1987 — and 30 percent more non-smoking-related cancers.

Female breast cancer rates have continued to climb steadily in all age groups, Davis and her co-workers note, with baby boomers developing 2.7 times more such malignancies than their grandmothers born in the 1890s.

These analyses argue that U.S. residents face a growing cancer risk from some as-yet-unidentified environmental factors, Davis says. "I think there is an interesting parallel with farmers," Davis told SCIENCE NEWS. Compared to the general population, farmers die more often of certain types of tumors — such as prostate and brain cancers and non-Hodgkin's lymphoma. The incidence of these cancers is beginning to rise in the general population, she notes, which suggests that some common exposure, "such as solvents, pesticides, engine exhausts, fuels, sunlight, or animal viruses," may play a role.

However, Anthony B. Miller of the University of Toronto cautions in an editorial in the same journal that because most cancers analyzed here "would have had their origin many years ago," their causes may already be recognized and controlled, as asbestos now is. *— J. Raloff*