

SCIENCE FILE

An exploration of issues and trends affecting science, medicine and the environment



One side of the throne in Temple XIX depicts three human figures. The central one may be Akul Ahnab III, the Palenque ruler who built the temple.

Clues to Maya Mysteries

Centuries ago, Palenque in southeastern Mexico was a center of the long-vanished empire. A recently discovered Maya leader's throne and other relics may shed light on a little-known era.

By THOMAS H. MAUGH II
and JANET SCHWARTZ
SPECIAL TO THE TIMES

PALLENQUE, Mexico—On a muggy morning in March, researchers at this archeological park in southeastern Mexico were startled when a vertical layer of dirt, freed by the slash of a knife, fell away from damp stone. As it fell, it revealed the intricate inscriptions and sculptures of a massive throne that is expected to yield a trove of information about a period of Maya history that has remained surprisingly mysterious.

"It was an accident," said Alfonso Morales of the University of Texas at Austin, who along with Arnaldo Gonzales Cruz of the National Institute of Anthropology and History in Mexico City is co-leader of the expedition.

But it was an accident with such historic implications that Mexican President Ernesto Zedillo showed up at Palenque two weeks ago to announce the discovery of the throne and a vaulted funeral chamber that researchers have not yet been able to enter. "Apart from their enormous historical value... we can also see that these pieces have extraordinary artistic value," Zedillo said to the assembled media.

The new discoveries date from the middle of the 8th century, a period when Palenque was one of the most powerful cities in a Maya empire that stretched from what is now Chiapas to southern Honduras and spanned the 4th to the 9th centuries.

Paradoxically, despite Palenque's power and the Maya empire's creation of



Elaborate hieroglyphics on the stairway entrance, left, place the dedication date for the building in AD 736. Below, a fragment of sculpture shows a hand reaching down to touch that of the primary figure. It was found in rubble at the base of a stone that may have been part of a ceremony destroying artifacts from an old ruler as a new one assumed power.

Photos by
JANET SCHWARTZ



recent excavations at Palenque are a "pilot project," Morales said, to determine how well foreign archeologists can work with their Mexican counterparts to preserve the finds locally.

"We're working as a group," he added. "No one can say, 'This is my throne, that is my temple.'"

And despite the millions of tourists who have visited it, Palenque has many secrets still concealed. Part of the ongoing project, for example, is simply to put together the first accurate map of the city's stone buildings and artifacts. The group has also, for the first time, brought in the modern technology of ground-penetrating radar to seek out still-buried remains.

It was the use of radar that led archeologists to the newly discovered funeral vault. But the throne—the crown jewel of this season's discoveries—was simply stumbled across when workers were excavating one side of a large room in a building known as Temple XIX. Constructed of slabs of vermillion-painted limestone, the throne is more than 9 feet wide, nearly 5 feet deep and 2 feet tall.

One side shows three human figures connected by a twisted cord of some kind, said Julia C. Miller of the University of Pennsylvania. The inscription has been dated to AD 736 and mentions several rulers of Palenque dating back to AD 561. The central figure may be Akul Ahnab III, the Palenque ruler who built the temple

and several others nearby.

Another side is also decorated with at least six figures, and perhaps a seventh that has not yet been uncovered. The intricate text, indicating cycles of the moon and Mars and several eclipses, suggests that Akul Ahnab III began his rule on the same day (March 10) on which the first Maya god, called G-1, came into being in 3309 BC.

"In Palenque, when a leader had a problem in legitimacy, he either established a link with the gods or with former rulers," Morales said. In this case, he forged a link all the way back to the first god.

On the floor of Temple XIX is another limestone slab about 12 feet long, revealing the head of an apparently important person. It has not been completely uncovered.

The funeral vault is in a nearby building known as Temple XX. Alerted by the radar images, the team removed a block from its northern wall, leaving a 5-inch-square opening through which they could insert a digital camera.

Photographs showed that the stuccoed walls are covered with murals in several shades of red paint. Some of the stucco has fallen off, so the images are incomplete, but there are at least three figures on both the east and west walls, and something on the north wall as well, Miller said. Eleven ceramic vessels and a number of jade beads are visible on the floor, but no traces of bones.

The team is attempting to excavate the still-buried door to the vault.

As other hieroglyphics emerge, the scientists hope to learn more about a turbulent period in Maya history. Although power in Palenque normally passed from father to son, one of Ahnab's immediate predecessors was captured and killed in a war with a nearby community.

Ahnab, the son of a scribe who served in the court of Pakal, was the vainglorious leader who ruled Palenque at its zenith. Ascending to the throne in AD 721 when he was already 43, he clearly invoked the linkage to G-1 to establish his legitimacy.

The extensive building program of his reign may have coincided with the beginning of Palenque's downhill slide. Only a few decades later, the city was abandoned.

Researchers have many theories to account for the city's fall, ranging from sharp shifts in climate. They hope the new discoveries will provide crucial hints about events leading to that abandonment.

But on that hot, sticky March morning, with sweat and dirt clinging to his arms, Morales was concerned with more practical problems. "What troubles we'll now have" protecting the discoveries, which will go to local museums or remain on site, he said. "We have to advise, see to security problems, and see that its conservation is adequate."

For more information, consult the team's Web site at www.mesoweb.com/palenque/dig/update.html.

Maugh reported from Los Angeles, Schwartz from Palenque.



Star Tours

Venus stands high in the west as the sky grows dark, where it is the brilliant "evening star." It does not set until 11 p.m. Venus is in a part of the sky with an abundance of bright stars. It is above Taurus, to the upper right of Orion, below Gemini, and to the left of Auriga.

Source: John Mosley, Griffith Observatory

Science in Brief

Earliest Birds May Have Run and Flapped Wings to Learn How to Fly

The earliest known birds learned to fly by running quickly and flapping their wings, not leaping from tall trees, according to California researchers. Exactly how birds began to fly has been hotly debated since the 1800s. Most agree that birds evolved from dinosaurs, but how they took to the skies has been a mystery. Critics of the running theory argued that early birds could not run fast enough to launch themselves.



But paleontologist Luis Chiappe of the Natural History Museum of Los Angeles County and Phillip Burgers of the San Diego Natural History Museum used aerodynamic calculations and fossil records to show that the oldest known bird, the 150-million-year-old archaopteryx, could triple its running speed by flapping its wings, they report in today's Nature.

Reye's Syndrome Now a Rarity Thanks to Education, Changes in Treatment

Reye's syndrome, a rare but deadly disorder usually caused by giving aspirin to children with flu or chickenpox, has almost disappeared, thanks to a public education campaign and changes in treatment, researchers report in today's New England Journal of Medicine. From a high of 555 cases among American children in 1980, doctors have reported no more than 36 cases per year since 1987, according to the Centers for Disease Control and Prevention.



Reye's syndrome has become so rare that children with typical symptoms—vomiting, confusion, delirium and other mental symptoms—should be tested for various rare, inherited enzyme deficiencies that can mimic it, the researchers said.

Researchers Amazed to Find Tools More Than 2 Million Years Old

A 2.3-million-year-old "tool factory" discovered in Kenya is proof that our pre-human ancestors had more sophisticated technical skills than previously thought, French researchers report in today's Nature. Archeologist Helene Roche and colleagues unearthed more than 2,000 pieces of early tools and refitted them to the stones they were made from.



The motor skills and expertise it would have taken to make the instruments were thought to have been beyond the capabilities of the hominids who lived then. The crude stone tools would have been capable of cutting vegetation and carving up animals for food.

—Compiled by Times medical writer
Thomas H. Maugh II

I Didn't Know That...

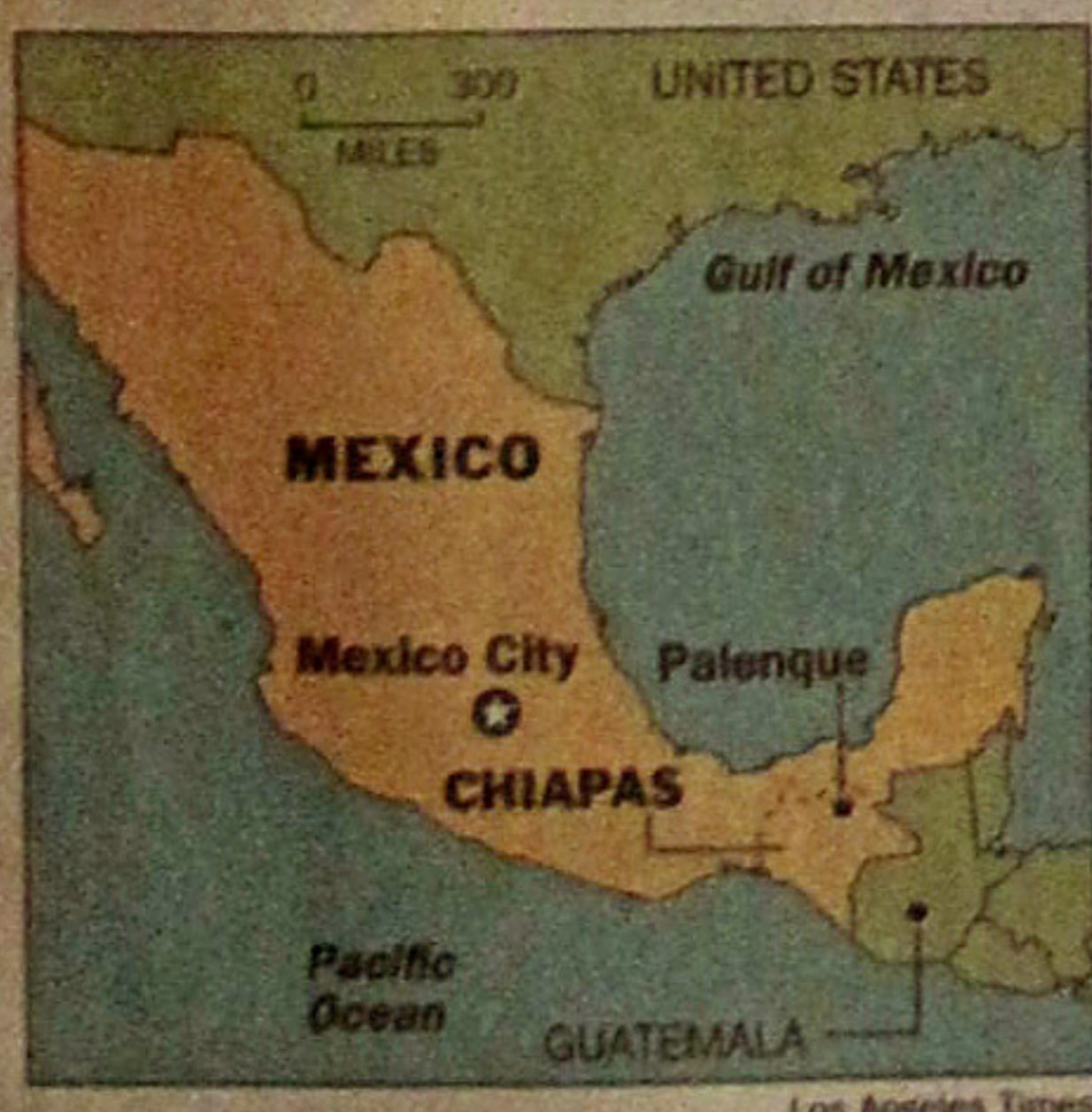
Q: Does aspartame really cause multiple sclerosis, diabetes, Parkinson's disease, Gulf War syndrome and a host of other diseases, as claimed in an Internet alert?

A: Most emphatically no, according to the Food and Drug Administration, the American Medical Assn., the World Health Organization and other authorities. "Like other Internet-based health 'alerts,' this one is designed to scare the pants off of you—Internet terrorism," according to the UC Berkeley Wellness Letter. The document, circulated via e-mail, "is packed with gobbledygook, strange anecdotes, misused jargon, mysterious doctors selling quack theories, and impressive-sounding organizations that may or may not exist," the letter states. Aspartame's only real danger is for people with a rare genetic disorder called phenylketonuria—a danger that the e-mail fails to mention. Phenylketonuria can produce mental retardation, epilepsy and other neurological problems in susceptible people who consume the amino acid phenylalanine.

Making Contact

Suggestions and questions for Science File are welcome. Send to:

Mail: Science File, Los Angeles Times,
Times Mirror Square, Los Angeles 90053
Fax: (213) 237-4712, Attention: Science File
Email: Science@latimes.com



the only written language in the Americas before Columbus, the powerful city left few written accounts.

The estimated 200 hieroglyphics and nine sculptured portraits on the newly discovered throne "provide the only record we have" of the time, said Gonzales Cruz.

Palenque is one of the most popular tourist destinations in southern Mexico. Despite a continuing tug of war between insurgents and the government, 350,000 visitors from around the world visit the national park here each year. The massive pyramids of Palenque are set against a backdrop of the Lacandon rain forest, and from the tops of the pyramids, visitors have a majestic view over the plains of Tabasco to the Gulf of Mexico.

Although tourists are welcome, foreign archeologists have not been warmly greeted for several decades—at least in part because many of their best finds were carted off to foreign museums. The cur-