Ancient Quake Shakes Up the Past

Sometime around sixteen centuries ago, a tremendous earthquake originating in the Mediterranean Sea leveled coastal outposts and created a tidal wave that, according to written reports from the period, destroyed the Egyptian port of Alexandria. Ironically, the destructive power of the catastrophe preserved a slice of classic Roman civilization on Cyprus that is now helping scientists to estimate the epicenter, size and date of the earthquake. The site, on a bluff overlooking the ocean, also provides an intimate glimpse of what life was like in a fourth-century Roman city.

Digging for five weeks this summer at the ancient city of Curium in southern Cyprus, a 23-member team of archaeologists and other scientists excavated a 6-meter by 4-meter plot of land containing a house that had been demolished, trapping its human and animal occupants inside. The dwelling, along with several churches and a theater previously excavated nearby, appears to have been hit by an earthquake that shattered walls from a southwesterly direction, says project director David Soren, a classical archaeologist at the University of Arizona in Tucson. He estimates that the earthquake's epicenter was about 30 miles southwest of Curium.

"We've uncovered a situation analogous to Pompeii," says Soren. "People had little or no time to get away when the earthquake hit. The excavation is not large now, but there is up to one mile of ancient Roman civilization preserved in one moment of time at Curium." Pockets of artifacts from the fourth century have previously been recovered, he adds, but further work at Curium should provide the most extensive look to date at how life was organized at the time.

In the ancient dwelling, unearthed by the investigators during June and July, the skeleton of a 9- to 10-year-old girl with a bone hairpin at her skull was removed. The child had her hands to the side of her head and was facing southwest — toward the earthquake's epicenter, according to Soren — when she died. The skeleton is now being reconstructed at the University of Arizona.

The scientists also recovered the skeleton of a horse or mule tethered with an iron chain to a large eating trough. The 800-pound trough had been hurled northeast into a wall of the house, which then buckled. The trough cracked and the animal was crushed by falling debris, says Soren.

Numerous artifacts were found: ceramic pots, three bronze finger rings, a bronze lamp with fragments of used wicks preserved inside, a bronze lampstand, an imported marble tabletop, conch shells used for decoration and bronze and iron nails. But the most fortunate find, explains Soren, was a stash of 365 Roman coins. Most of the coins were issued during the reign of the Roman emperor Valens, who took power in March A.D. 364. Distinctive markings on the coins — the first five letters of the emperor's name are on the left side of his image, the sixth is on the right — were used until September A.D. 365, says Soren. This indicates that the earthquake destroyed Curium either in late A.D. 364 or in A.D. 365. As further evidence, Soren cites a late fourth-century Roman, Ammianus Marcellinus, who wrote of an immense earthquake occurring on July 21, A.D. 365; its convulsions, according to Ammianus, created a tidal wave that destroyed Alexandria, Egypt.

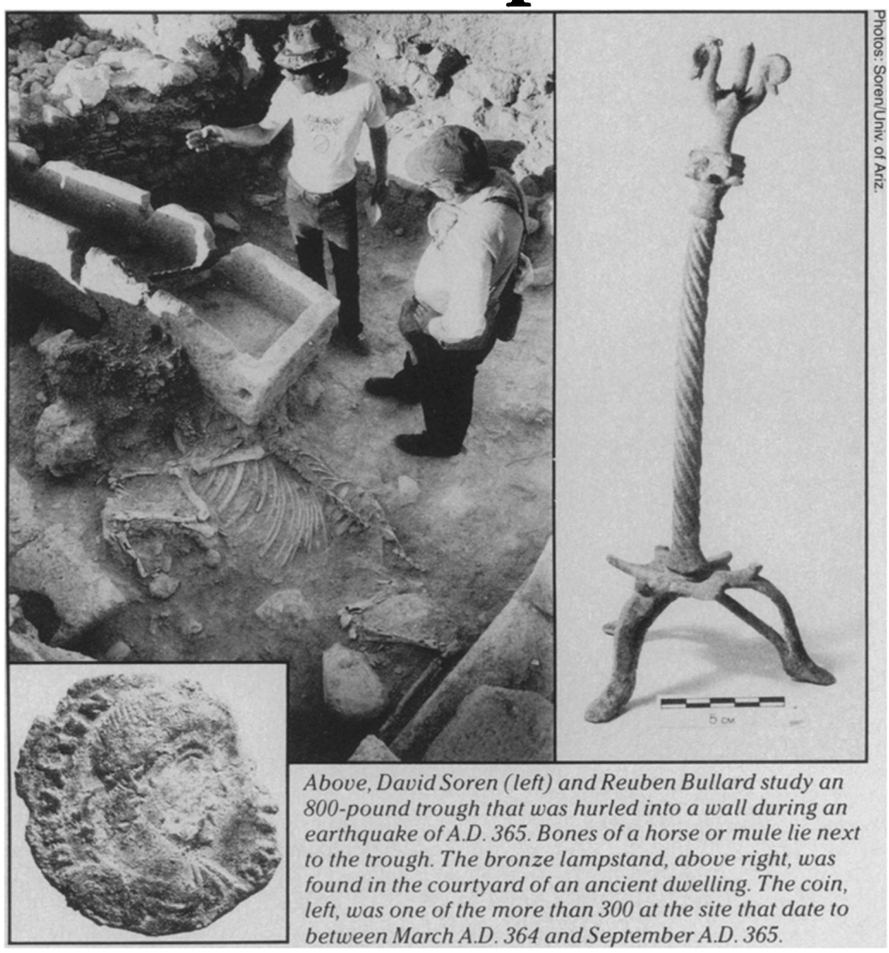
Thanks to the coins, Soren has been able to conclude that Alexandria and Curium may have been hit by the same earthquake. Thanks to a layer-by-layer analysis of the sediment by geologist Reuben Bullard of the University of Cincinnati, the scientists are able to estimate the intensity of the earthquake.

"The floor of the courtyard and the adjacent room literally exploded when the shock waves [from the earthquake] hit," Bullard says. "We found fragments of walls embedded in sediment."

A Richter scale value probably cannot be assigned to the event, notes Bullard. But an analysis of walls and objects that hit the ground indicates that the earthquake was of an extreme intensity that caused near-total destruction. On a 12-point scale used by geologists to estimate earthquake intensity, he says it rated from 10 to 12, the highest score.

Adds Soren: "We've uncovered similar types of destruction 30 miles away from Curium. The earthquake was enormous, and aftershocks probably continued for years. People didn't return to bury the dead and there's no evidence of rebuilding until the end of the fourth century."

Soren hopes to uncover more of ancient Curium next summer with the help of about 30 scientists. "When we're finished," says Bullard, "we'll have a good piece of information on the area's geologic and seismic history as well as its cultural history." —*B. Bower*



Photos: Soren/Univ. of Ariz.

Above, David Soren (left) and Reuben Bullard study an 800-pound trough that was hurled into a wall during an earthquake of A.D. 365. Bones of a horse or mule lie next to the trough. The bronze lampstand, above right, was found in the courtyard of an ancient dwelling. The coin, left, was one of the more than 300 at the site that date to between March A.D. 364 and September A.D. 365.