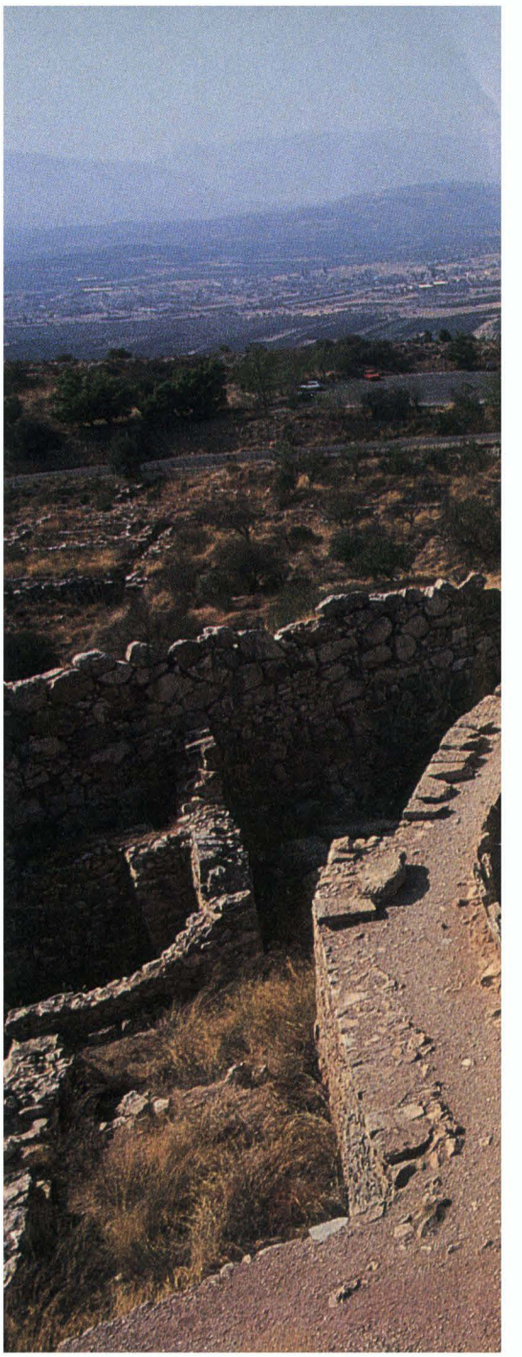
# In The Shadow of Mycenae

by Berit Wells, Curtis Runnels, and Eberhard Zangger



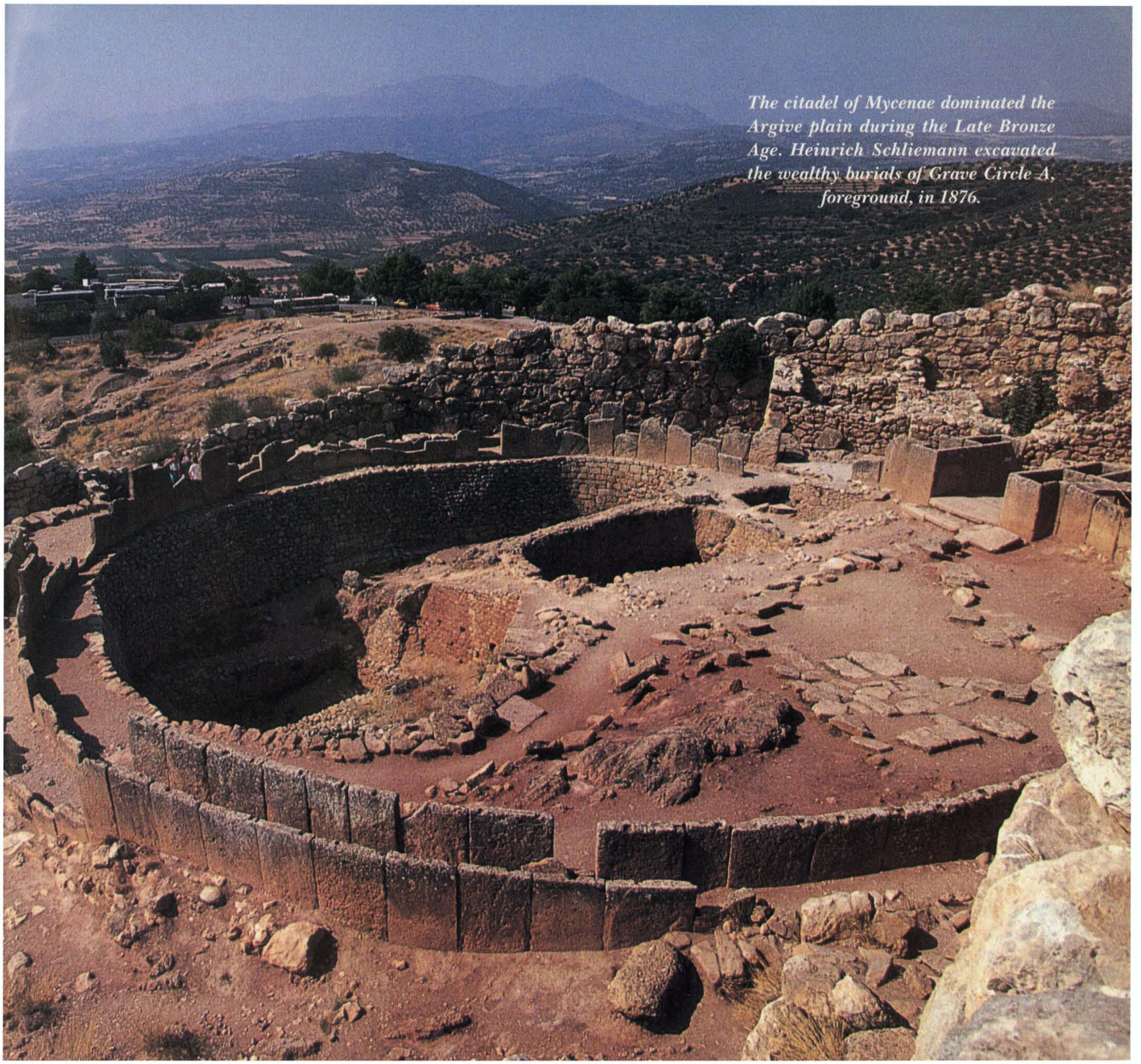
BUDDY MAYS

***Scouting the Argive plain, scholars seek evidence for the rise and fall of a once-mighty civilization.***

Visitors to Mycenae wonder at the ruin of the great citadel whose rulers dominated a large part of the Greek Peloponnese from 1500 to 1100 B.C. and were preeminent in the Aegean world. But what was the source of Mycenae's power and wealth? And what brought this flourishing civilization to ruin? Scholars have proposed wars of conquest, foreign trade, or even undiscovered sources of native wealth in gold or silver to explain the rise of Mycenae to greatness, and as many theories exist concerning its demise, ranging from the banal (economic decline triggered by drought), to the spectacular (earthquakes and volcanic eruptions), to war (all too familiar as an explanation of cultural collapse). Mycenae sits at the head of the broad Argive plain, named for the city of Argos. We believe that much of Mycenae's success derived from the great fertility of this region, and that its decline can also be traced in the land.

Despite the great popular interest in Mycenae stemming from Heinrich Schliemann's spectacular discoveries in the 1870s, archaeologists have undertaken surprisingly little exploration of the Argive plain or the mountainous hinterland. From 1988 to 1990 we carried out a regional survey, under the auspices of the Swedish Institute, focusing on the Berbati and Limnes valleys on the northern edge of the Argive plain. These valleys probably served as a sustaining area for Mycenae. The inhabitants of the valleys would have supplied labor, raw materials, agricultural products, and manufactured goods to Mycenae in exchange for supplies imported from abroad, for military protection, and for the many everyday goods such as pottery whose production was controlled from the citadel.

The objective of our survey was to study an entire region rather than a single site. Excavations of sites give an imperfect and incomplete picture of the relationship of settlements to their environment. What, for instance, was the envi-



*The citadel of Mycenae dominated the Argive plain during the Late Bronze Age. Heinrich Schliemann excavated the wealthy burials of Grave Circle A, foreground, in 1876.*

ronmental context of a particular site? What were people doing in the area? Was the site part of a larger settlement system? Was the site the center of a trading network or a market for a rich agricultural hinterland? Answers to such questions can only come from the analysis of hundreds of sites, large and small, that were once part of a dynamic settlement system.

In survey work of this type there are no trenches neatly arranged in a grid, no sieves, no archaeologists on their knees with brush and trowel gently cleaning a delicate burial or fragile mosaic. By contrast, we were to be seen exploring the hills and slopes of the Berbati and Limnes valleys in carefully organized teams, searching for clues to past human activity. Every day two or three teams, each consisting of five or six archaeologists, covered several small areas or tracts, typically orchards, fields, terraces, or other pieces of land with easily recognizable boundaries. The team members examined each area, counting and sampling artifacts and recording other evidence of human activity such as abandoned terrace walls, wells, quarries, and ancient roads. In this manner we found more than 100 sites, from entire villages to small scatters of discarded materials, and recorded more than 100,000 artifacts. We collected prehistoric flint tools from abandoned hunters' camps; stone sickles and axes from Neolithic farmers' fields; sherds of painted pottery; stone beads and spindle whorls; and, on rare occasions, bronze tools or other metal artifacts. From later historical periods we found bronze and silver coins, glass, fragments of mosaics, pieces of sculptured mar-

ble, architectural remains, and graves, sometimes plundered to feed the illicit international art market.

Human occupation in the valleys behind Mycenae came in waves, each leaving its mark on the landscape, much as the tide leaves behind its wrack. On the rocky slopes and valley bottoms we found evidence of the earliest inhabitants, mostly chipped stone tools of flint, the remnants of hunters' camps from more than 50,000 years ago. Early humans continued to visit the area throughout the last Ice Age, and two sites belong to the last of the hunters and gatherers, some 10,000 years ago, during the Mesolithic period. But the most important epoch in the history of these little valleys came with the introduction of village farming about 6000 B.C. This is the Neolithic period, when people began to practice agriculture and animal husbandry and to settle in permanent villages. The earliest Neolithic village in the Berbati Valley appears rather late in the period, perhaps about 5000 B.C. Nearly 7.5 acres in size, it occupies a commanding position on a bedrock spur by a spring in the center of the valley. We found quantities of well-made pottery at the site, and there were scores of stone tools including polished axes used for cutting vegetation and hoeing fields, flint sickle blades for harvesting wheat and barley, and saddle querns (grinding slabs, or metates) for sharpening axes and crushing grains.

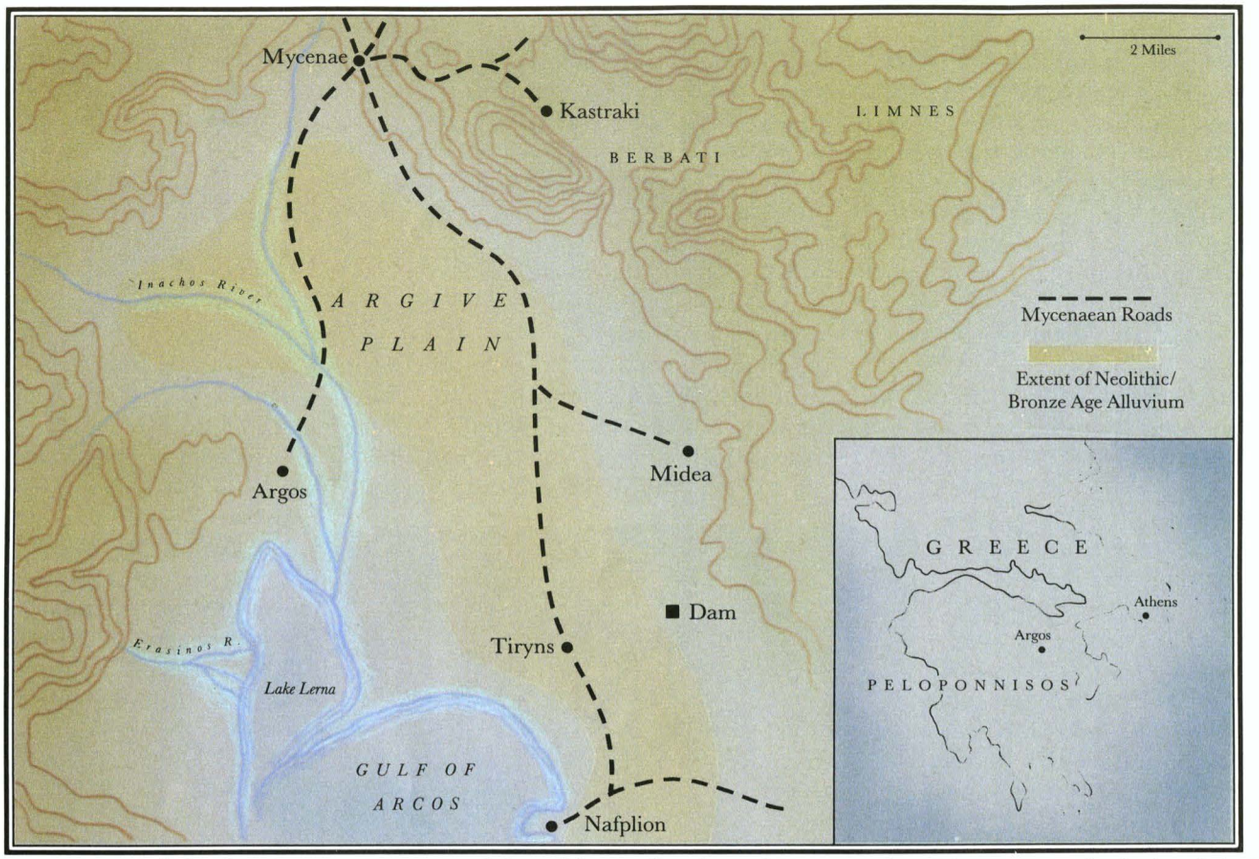
Our evidence suggests that for perhaps a millennium the Berbati Valley had but one or two Neolithic villages. Beginning about 4000 B.C. and continuing to 2500 B.C., however, there was a remarkable jump in the number of settlements to about 17. We believe this increase was accompanied by an intensification of land use and population growth. In addition to these sites, we also turned up numerous small scatters of artifacts in many tracts, usually consisting of potsherds, fragments of saddle querns, chipped-stone tools of flint and obsidian, an occasional polished-stone ax, and ceramic spindle whorls and loom weights. We interpret some of these scatters as the remains of herding sites because of their small size, limited range of artifact types, and location on high rocky slopes in the remote and forbiddingly barren mountains that ring the Limnes and Berbati valleys.

*A gold vessel in the shape of a lion's head, from Grave Circle A, recalls Homer's description of "Mycenae, rich in gold." Archaeologists now believe this wealth was based on the great fertility of the Argive plain and the surrounding hills and valleys.*

NIMATALLAH/ART RESOURCE

This expansion of human activity triggered an environmental catastrophe that altered the landscape forever and, paradoxically, made possible the growth of the Mycenaean civilization that followed. It appears that in a very short period massive erosion stripped the soil from the hills above Berbati and Limnes, leaving behind bare rock where the Neolithic farmers grazed their flocks and had their fields. The soil and debris flowed out into the Argive plain to the south, depositing as much as 20 feet of alluvium over a large area. We know that this occurred sometime after 4400 B.C. because, during a geological study of the Argive plain, a late Neolithic site of that date was discovered under about 15 feet of alluvium near the Mycenaean citadel of Tiryns. By 2800 B.C. sites belonging to the Early Bronze Age were built directly on top of the alluvium, indicating the erosion had ended by that time.

What caused this massive erosion? A short-term change in climate could have inhibited vegetation growth and left soils exposed to erosion, but there is no evidence for such climate changes in a pollen core that we took from Lake Lerna on the southern edge of the plain. The expansion of settlements during the Neolithic, however, suggests that the culprits may have been the Neolithic farmers and herders. Much as detectives would investigate a suspicious case of arson, we have assembled evidence that implicates these people in this prehistoric catastrophe. The grazing of sheep and goats in the mountains and on steep slopes would have reduced vegetation cover. Numerous axes found on the hill slopes, often in areas that are now eroded down to bedrock, may have been used to clear vegetation. Even more damning are the flint sickle blades, many of which we found in places where there is nothing left on the hillslopes today except bare rock. These blades probably mark the locations of vanished grain-fields carved out of the hills by the early farmers. Settlement expansion was no doubt encouraged by the introduction at this time of the ox-drawn plow, which permitted farming in the hills, and the growing demand for woolen textiles. A string of bad winters with torrential rains may




MAP BY BETTE DUKE

***Destructive Neolithic farming practices stripped the soil from valleys beyond Mycenae, depositing it across the Argive plain.***

have been enough to start the erosion, but once it began, the stripping away of the ancient soils could not be stopped, and the hills became unsuitable for agriculture and grazing.

The addition of the new sediments to the Argive plain, however, changed the economic and political map for all time. In the centuries that followed, Berbati and Limnes became mere backwaters, and all later settlement history was centered on the Argive plain with its rich new mantle of fertile soil. Many new settlements were established on the Argive plain in the Bronze Age (3000–1000 B.C.). Mycenae was the most important site during the last part of the Bronze Age, known as the Mycenaean period (ca. 1600–1000 B.C.). Other major sites included Argos, Tiryns, Midea, and Napflion. The orientation of these settlements, ranged around the margins of the Argive plain, with access to the sea on the south, is clear evidence of the importance of agriculture for the Mycenaeans. But the wealth of gold, imported copper and bronze, and imported artifacts found in excavations during the last century illustrate Mycenae's wide-ranging economy based on trade that was fueled, no doubt, by the export of grain, olive oil, and woolen textiles. Frescoes, sculptures, and engravings, supplemented with rare documents written in an early Greek script ("Linear B") on clay tablets, allow us to flesh out the picture of Mycenaean society. Powerful elites, with small groups of warriors, governed by kings, ruled large populations of peasants from their fortified strongholds. Their domination permitted centralized control of the economy, and the broad, open Argive plain was easy to dominate.

COURTESY CURTIS RUNNELS

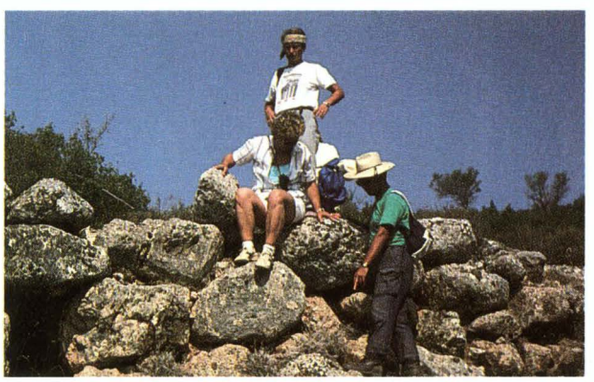
***Surveying the hinterland of Mycenae, archaeologists are finding a wealth of artifacts including Neolithic flint sickle blades, Bronze Age obsidian arrowheads, Byzantine coins, and Mycenaean terra-cotta figurines.***

In Berbati and Limnes renewed settlement growth and expansion came only late in the Bronze Age, in

the fifteenth and fourteenth centuries B.C., more than a century after the rise of Mycenae. As Mycenae grew, these valleys were used once more, enlarging the economy based on the agricultural wealth of the Argive plain itself. Mycenaean engineering skills may account for the stability of the sparse remaining soils during this period. We found little evidence for increased erosion with the intensified agriculture at this time, perhaps because the soil in this area was being held in place by terrace walls.

Kastraki, in the center of the Berbati Valley, is a major site, complete with substantial house remains and enormous quantities of artifacts. Clustered nearby are many impressive chamber tombs and at least one tholos tomb of a type well-known at Mycenae. Kastraki was excavated by the Swedish Institute in the 1930s and 1950s, but its relationship with Mycenae, 3.5 miles to the west, is still a matter of conjecture. It is probable, however, that by the end of the Mycenaean period the Berbati and Limnes valleys were under the control of Mycenae. Evidence for this is provided by an impressive well-built road with retaining walls and bridges made of the huge rough-hewn blocks known as Cyclopean masonry. This road, which connected Mycenae to Corinth in the north, linked Berbati and Limnes with Mycenae, facilitating the shipment of agricultural products to the citadel for storage. Some remains of ancient terracing of the hill-slopes above the road may also date to this period, and the amount of labor required to build the road, its bridges, and the terraces shows that the flow of grain, olive oil, wine, and animal products from Berbati and Limnes to Mycenae was of vital importance.

Further evidence for Mycenaean control is seen in the numerous small settlements that dot the floor of the Berbati Valley where soils had collected as a result of the Neolithic erosion, and in two Mycenaean farmsteads near small patches of uneroded soil on the hill-slopes in Limnes. Our identification of these sites as farmsteads is confirmed by the discovery at one of them of a complete bronze sickle, the descendant of Neolithic flint prototypes. Farming was not the only activity. The excavations at Kastraki revealed a pottery kiln, and pot-making was undoubtedly an important part of the valley economy, judging from the large number of pots of local manufacture discovered on Mycenaean-age sites around the Mediterranean.



COURTESY CURTIS RUNNELS

***Survey team members perch atop the remains of a Mycenaean bridge in the Berbati Valley.***

By 1100 B.C., however, the Mycenaeans' elaborate efforts to prevent further loss of soil by erosion were failing. Although we do not know the cause, renewed soil erosion on a large scale at the end of the Mycenaean period occurred at Tiryns on the southern edge of the Argive plain, prompting the construction of a massive dam upstream of the site. At about this time, perhaps because engineering works such as dams and terraces could not be maintained, the Berbati-Limnes area was abandoned. Although many smaller dams, bridges, and other engineering works in and around the Argive plain also date to the end of the Mycenaean period, they may have come too late (or were too costly to build and maintain) to prevent erosion. The Mycenaeans were also faced with military threats from unknown enemies, to judge by the massive fortifications that were built at Mycenae, Tiryns, and Argos at this time and the efforts made at Mycenae and Tiryns to protect the water supplies of the citadels. These measures may have taxed the highly organized Mycenaean economy to its limit.

After the Mycenaean age, the history of Berbati and Limnes is quickly told. The area did not recover until the eighth century B.C. when individual farmsteads in Berbati spread once more over the valley floor, concentrated around the last remaining pockets of soil. No evidence of a central village or town that would form a nucleus for a city-state, or *polis*, in the Greek period (ca. 750–100 B.C.) was found, and this fact suggests that the area was again controlled by one of its more powerful neighbors, probably Classical Mycenae or Argos.

In the Roman period (probably after A.D. 250–300), Berbati had a major villa and bath at its center, which, although it was possibly owned by an absentee landlord, served as a village in itself. Remains of living quarters and manufacturing areas with large olive oil presses, grain mills, iron slag, cut marble, and fragments of mosaics cluster around the bath, and carefully constructed graves are found in the surrounding fields. Limnes, however, remained uninhabited in this period, perhaps too poor and remote a place to interest the Romans, who stuck close to the Argive plain and its rich soils.

Increased prosperity and security followed the establishment of Byzantine authority in the ninth century A.D. as attested by the remains of modest villages and small churches (as early as the eleventh century), but conquest of Greece by the Franks in the thirteenth century brought change in a more starkly military form. A powerful castle was constructed on the northern boundary of our study area to control the few villages in the Berbati and Limnes valleys. It was in this period that an extraordinary amount of terracing in both

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from museums and private collections throughout Mexico, Central and South America, and Europe, are on view in the United States for the first time.

**The San Antonio Museum of Art,** San Antonio, TX: "The Sun Disk's Horizon: Life in the City of Akhenaten and Nefertiti" (through January 31) examines the cultural life of the ancient city of Amarna, capital of the Egyptian kingdom during the 18-year reign of Akhenaten (ca. 1358–1340 B.C.). Akhenaten and his queen, the beautiful Nefertiti, embarked on a vigorous campaign to build a great city for Aten, the solar deity, erecting elaborate temples and palaces and creating a luxurious court where the visual arts flourished. Included in the exhibition are a 3,000-year-old fiber basket, glass vessels, personal items, numerous painted wall fragments and household objects, and an alabaster statuette of the king on loan from Berlin's Egyptian Museum.

## WEST

**The J. Paul Getty Museum,** Malibu, CA: "In the Tomb of Nefertari: Conservation of the Wall Paintings" (through February 21) explores the six-year conservation process of the wall paintings of the 3,200-year-old Egyptian tomb of Nefertari. The exhibition features a full-scale replica of one of the tomb's six chambers and Egyptian antiquities on loan from collections in New York, Boston, Los Angeles, and Cleveland.

**Pacific Asia Museum,** Pasadena, CA: "Woven Jewels: Tibetan Rugs from Southern California Collections" (through March 28) presents more than 100 rare Tibetan textiles. In the harsh Tibetan climate, rugs made from the readily available sheep, goat, and yak wool have been an essential part of their culture. These textiles, which date from the late ninth to the nineteenth century, were found in homes, both rich and poor, and in temples and monasteries. ■

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valleys stabilized every accessible slope, no matter how steep or how thin the soil, to secure the precious soil on the hill-slopes. The grazing of sheep and goats on the hills, and the simple dry farming of the terraced slopes, was an economic pattern successful for centuries as the area passed successively from the hands of the Franks back to the Byzantines, then to the Turks and the Venetians, and, eventually, to independence as part of modern Greece in the nineteenth century.

Today, for the third time since the Neolithic period, Berbati and Limnes are undergoing change, this time in response to world markets. Again, agricultural production is being intensified, and vegetation and terraces of the eighteenth and nineteenth centuries are being removed by bulldozers to expand fields for cash crops such as tobacco and olives, and to open areas for animal grazing to supply markets with wool, cheese, and meat. The last remaining pockets of soil, thin strips behind the terraces, are fast losing their protective cover of vegetation, and old terraces are no longer being repaired. Only a few bad years of rain are needed to wash these slopes clean of soil. We are tempted to say the end is in sight. If Berbati and Limnes shared prosperity and, ultimately, disaster with Mycenae in the Bronze Age, could the same fate lie in the future? The ancient Greek historians thought that history would repeat itself, and our survey has certainly shown that the fall of Mycenae was not the first disaster to befall the region. But evidence also shows that they rebounded from ruin in the past and this gives us hope for the future. ■

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