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Tracking the myth of Atlantis

Menlo Park couple studies debris from immense Bronze Age volcano on Greek islands of Santorini, and in Akrotiri, "Pompeii of the ancient Aegean." Was Santorini Plato's Atlantis? Very likely.

By MARION SOFTKY

On Santorini there's a local wine called "Atlantis."

Maybe it's hype, but the name still evokes the myth.

Now, Dr. Floyd McCoy's research on the Santorini eruption, combined with Dr. Christos Doumas' excavations of the city of Akrotiri, is beginning to give Atlantis the historical respectability already accorded to the Trojan War.

Recently 11 volunteers for Earthwatch helped further the research. For two weeks we plunged into a field that has been called geo-mythology – where ancient myth encounters modern history, archeology and geology.

As we studied deposits of ash, pumice and lava which buried the islands of Santorini in layers up to 100 feet deep, we also contemplated the civilization that was wiped out within days during that cataclysm 3600 years ago.

We worked in the streets of a Bronze Age city which was largely preserved by the pumice fall that launched the great eruption. In the two and three-story houses that line the streets and squares of Akrotiri, archaeologists have found magnificent frescoes; great jars, some still with carbonized grain; and a sophisticated plumbing system.

From information on the volcanic debris that buried Santorini, our lead scientist, Dr. McCoy of Woods Hole and the University of Hawaii, is trying to analyze what happened that eerie day in 1628 B. C. when the volcanos on Santorini started one of the largest eruptions in recorded history.

"But afterwards there appeared violent earthquakes and floods; and in a single day and night of misfortune all your warlike men in a body sank into the earth, and the island of Atlantis in like manner disappeared into the depths of the sea."

– Plato, "Timaeus"

Dr. McCoy is completing a map of what Santorini looked like before the eruption, when the whole center of the island disappeared into the Aegean. "I've got most of it, but there are some holes and gaps in my knowledge," he said.

The excavations at Akrotiri and the remains of pottery and obsidian found all over today's island also suggest that this central plain very likely included the main city of the island with one of the key ports of the Bronze Age Aegean.

Like Crater Lake

Santorini looks like Crater Lake because it is like Crater Lake – the rim of a giant volcano that collapsed in the center. Only Santorini is bigger in area than Crater Lake and located in a sea rather than inland.

Approaching by ferry inside the caldera, the visitor sees foreboding cliffs striped with black and red and white from eons of eruptions. Zigzag donkey trails still carry tourists to picturesque towns of blinding white stucco clinging to the tops of the cliffs like a blanket of snow.

Part of the Cyclades islands, Santorini is located southeast of Greece and north of Crete in one of the most seismically active areas of the world. Actually Santorini is made up of three islands remaining from the rim of the ancient volcano. Thira is the largest; Thirasia and Aspronisi make up the circle.

We also took the popular boat tour to the living volcanoes, Nea Kameni and Palea Kameni, which have been building up in the center of the caldera since Roman times.

The term "net-working" took on new meaning for us. The bulk of our research was done with meter-square swatches of badminton net. We placed the nets against a wall of volcanic debris from the Bronze Age eruption and observed what was at the intersections of the strings. We learned to recognized ash, pumice, black and gray lava, scoria and a soft rock called "gray juvenile."

To help Dr. McCoy analyze the course of the eruption, we netted all over the island – at beaches, quarries and dumps, all with spectacular views – as well as inside the excavation.

Thira and Thirasia have numerous quarries where pumice was dumped into ships to help build the Suez Canal. Remaining are towering cliffs of pumice where you can actually see the Bronze Age layer topped with layers from the four phases of the eruption.

Scouting the open dirt below the pumice, we found pieces of pottery, some painted and worked, and flakes of obsidian left by people who lived on the island before the eruption. These remains of human lives appeared all over the island, not just near the excavation.

In the quarries – one was a city dump where the smell of burning garbage alternated with the fragrance of sun-warmed oregano – we learned to read the volcanic layers and what they told about an eruption that started as a rain of pumice and ended with catastrophic explosions

Anatomy of an eruption

Unlike Pompeii, the eruption at Akrotiri apparently killed nobody.

"They had enough warning to

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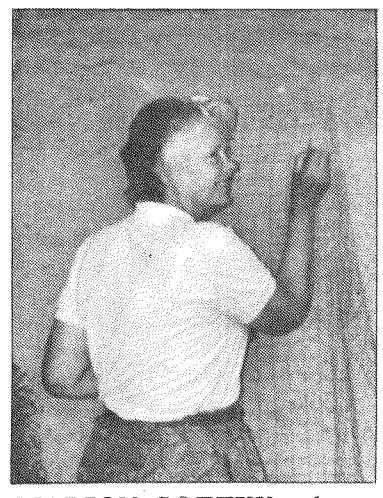
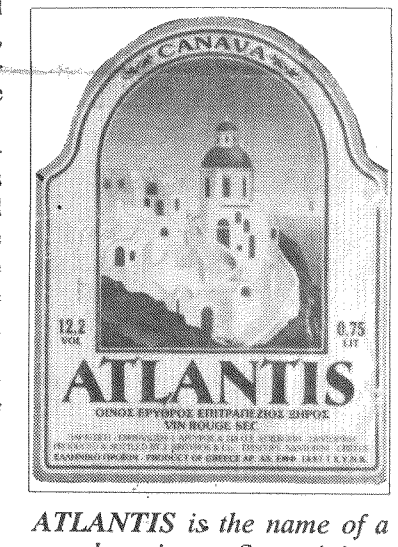
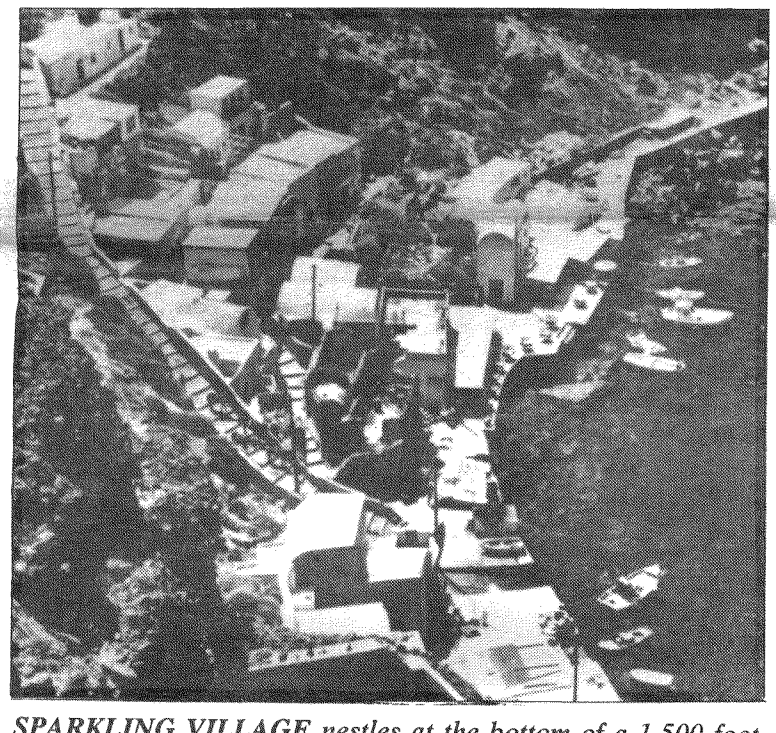


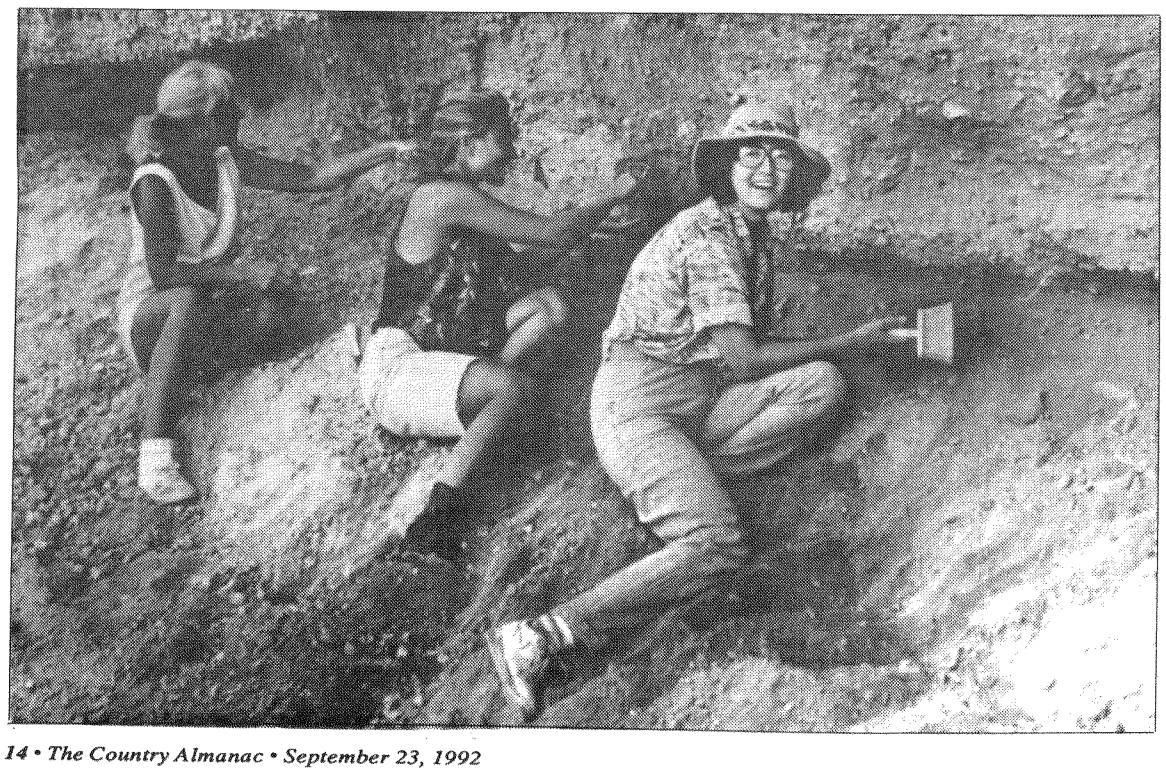
MARION SOFTKY, above, studies volcanic layers.

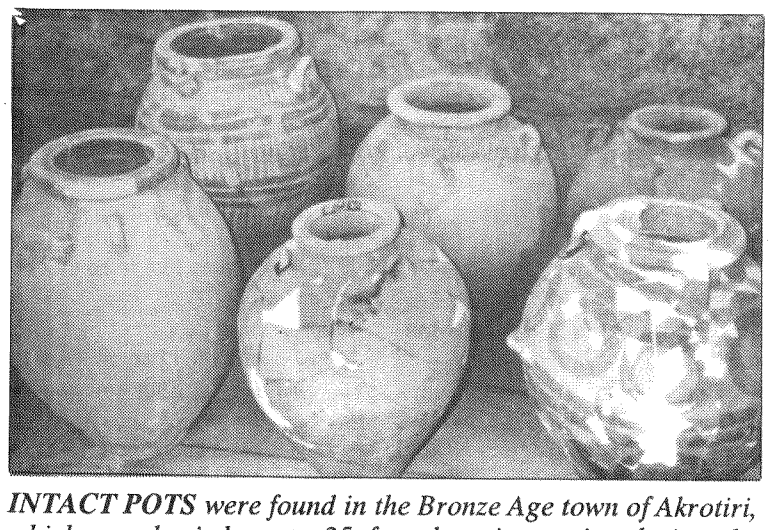


ATLANTIS is the name of a popular wine on Santorini.



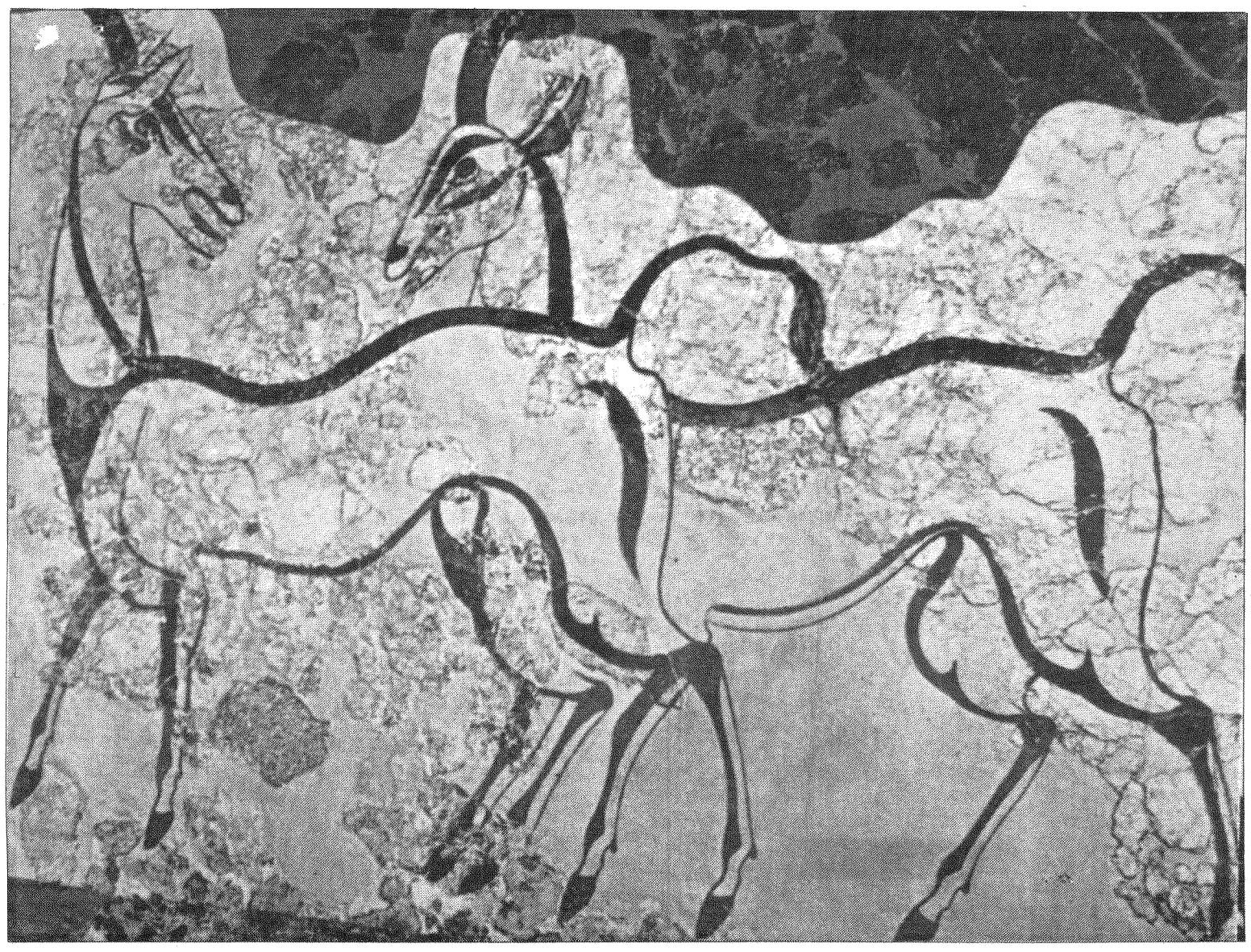
***SPARKLING VILLAGE** nestles at the bottom of a 1,500 foot crater wall built up from eons of volcanic eruptions of Santorini.*

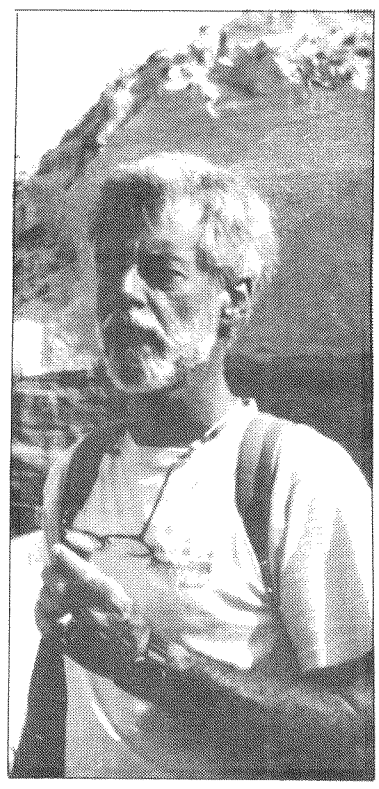




***INTACT POTS** were found in the Bronze Age town of Akrotiri, which was buried up to 25 feet deep in pumice during the eruption of Santorini in 1628 B.C.*

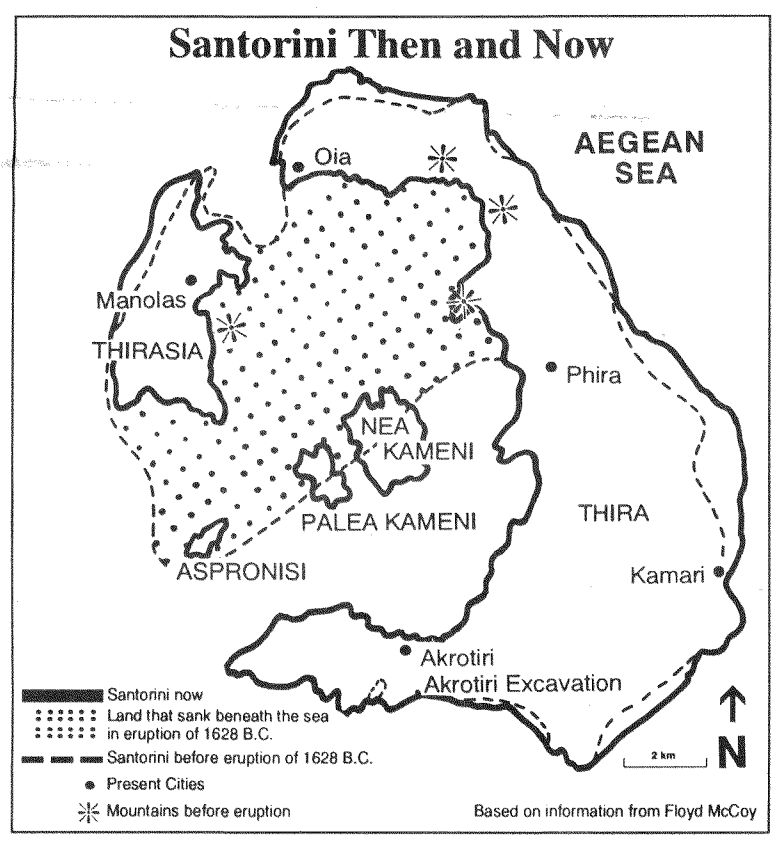
***EARTHWATCH VOLUNTEERS** scout for archaeological remains of a Bronze Age civilization buried under massive deposits from one of the largest volcanic eruptions in recorded history.*





VULCANOLOGIST *Floyd McCoy, above, led Earthwatch expedition to study the volcano that buried a civilization – possibly Plato's Atlantis – in 1628 B.C.* ***At left:*** *Graceful antelope, reconstructed here in Athens museum, is one of numerous magnificent frescoes buried in homes on the Greek island of Thira by the eruption 3620 years ago.*

Photos by Marion Softky
(not including antelope)



THE MAP'S *dotted area shows land that sank beneath the sea in the volcanic eruption of 1628, according to Dr. Floyd McCoy, a specialist in volcanoes. This area may well have been Plato's Atlantis, he says.*

Volunteers labor for science

There's a lot to be said for a vacation that combines work and play – especially if the work is interesting and the location is exotic.

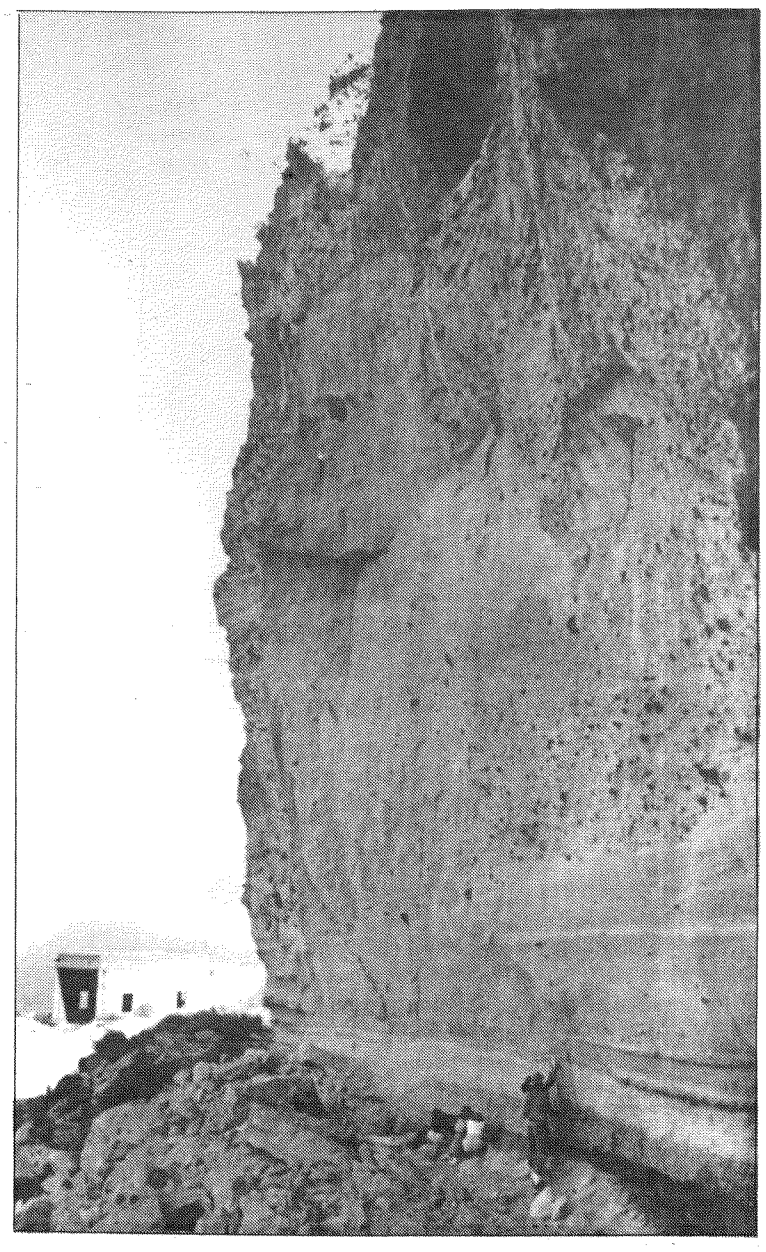
My husband Sheldon and I left Menlo Park in June for two weeks on the islands of Santorini in the Aegean to help study one of the greatest volcanic explosions in recorded history.

We and nine other volunteers had signed up for a scientific expedition called "The Buried Aegean," sponsored by Earthwatch, a non-profit organization that sponsors scientific expeditions all over the world.

For two intense weeks we mixed work and play. Tours of the islands provided spectacular scenery mixed with charming towns and countryside dotted with churches and shrines. We enjoyed swimming on black and red sand beaches in the incomparable Aegean, great Greek meals in a local restaurant (never go to Greece to lose weight) and spirited Greek dancing for those who thrived on early morning hours.

Earthwatch, a non-profit organization based in Watertown, Massachusetts, matches volunteers with leaders of scientific expeditions. In 1991 Earthwatch sponsored 134 projects in 44 countries. Projects ranged from maternal health in Zimbabwe to working with orangutans in Borneo and studying why the statue culture of Easter Island crashed.

Earthwatch can be reached at 680 Mt. Auburn St., P. O. Box 403, Watertown, MA 02272-9924; or call 1-800-776-0188.



RESEARCHERS *shrink to insignificance under towering wall of volcanic pumice.*

Tracking the Atlantis myth

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get the valuables out. The only living thing left was a pig," said Dr. McCoy, standing in a courtyard between two beautifully preserved buildings about 15-feet high.

Gesturing at the homes where people had lived and the streets where they had walked 3,620 years ago, Dr. McCoy explained what happened during the eruption.

First, earthquakes and a fine dusting of soggy pumice drove residents away from the island with their belongings.

We know they returned, however, because archaeologists have found piles of pumice where workers were sweeping the streets. "Then something else told them, 'Leave and leave fast,' " Dr. McCoy said. "It must have been the strong, persistent earthquakes that characterize a volcano that's going to erupt. Everything keeps shaking and does not stop."

During the first phase of the eruption, the volcano vent opened under dry land. It shot a plume of dry ash and pumice 20 kilometers in the air and rained pumice on the town and everywhere else on the island.

That first fall of pumice filled ancient Akrotiri between five and 25 feet deep in pumice. It piled up in the streets and pushed through doors and windows, filling the insides of buildings. "It caused collapse of roofs, but it probably buttressed buildings and kept them from falling down," Dr. McCoy said.

When the fissure expanded and magma encountered sea water, the eruption turned explosive. Supersonic shock waves and flows of ash swept the island, knocking off the tops of any buildings that still rose above the pumice.

Next, the center of the island collapsed into the caldera. The explosion hurled debris mixed with giant boulders which dug into lower layers like missiles. In the final phase – accompanied by earthquakes and violent thunderstorms – the earth vomited out what was left.

Tracing the roots of myth

Was Santorini Atlantis? "Absolutely yes. I think it sat right there on that big coastal plain," said Dr. McCoy, pointing at the northern part of the caldera, once land, now water, according to his calculations.

Dr. McCoy pointed out that one of the frescoes, recovered from Akrotiri and restored in Athens, shows a naval expedition leaving one port and arriving at another. "We have a snapshot of it," he said, "The fresco shows a major city there with farmers out in the field and animals in the mountains. And that's what we're finding."

Archaeological evidence so far indicates Akrotiri was an outlying city, he argued. It couldn't have supported itself without a larger center. "There's no other way to explain the wealth of Akrotiri. It doesn't come from subsistence farming on a small island," he said.

The eruption of Santorini and the fall of its civilization raises questions about its relation with other events and myths of the same period. Scholars and wishful thinkers have tried to connect the effects of the huge volcanic explosion with the fate of the Minoan civilization, as well as Exodus and the Biblical plagues in Egypt.

Most substantial may be the relation between Santorini and Minoan Crete, another myth overtaken by archeology and history. King Minos' great palace at Knossos, where the Greek hero Theseus escaped the labyrinth with a string and killed the monster Minotaur, lies bare and excavated. With labyrinthine passages, great stone bull horns and bull frescoes, it is huge – the size of several football fields.

The eruption of Santorini, once estimated to have occurred about 1500 BC at the height of Minoan power, has been moved back to 1628 BC on the basis of tree ring and ice core studies. These show the year when the eruption darkened the skies, cooled the weather, and stunted growth around the world.

Dr. McCoy explained why the civilization centered at Santorini may have been the Atlantis referred to by Plato, whose information came originally from the Egyptians. Santorini may have preceded the ascendancy of the Minoan civilization, a trading power which ruled the eastern Mediterranean until taken over by the Mycenean Greeks, who laid siege to Troy several hundred years later.

Dr. McCoy summed up a theory of Dr. Doumas: "The Cycladeans were greatly influential, and their power was suddenly gone with the eruption. And that's when the Minoans became strong."

Imagination can blame many other things that happened in ancient times on an eruption as cataclysmic as Santorini.

"Remember the Egyptians also changed from worshipping darkness to light during the Middle kingdom," Dr. McCoy said. "And this happened just about when the eruption occurred."