

Why the Greeks Liked Earthquakes

Why did the ancient Greeks build their cities in earthquake zones? For several—very good—reasons.

Greece and Turkey lie along massive fault zones. Faults, when they move, create earthquakes. Spring water tends to follow these fault systems, and the Greeks, following the water, did, too.

Fault lines also create cliffs, which provided natural defenses for the cities. And fault zones tend to form surface depressions where soils can accumulate, making them good for agriculture.

So the faults gave Greek cities water, protection, and fertile soil—but it gave them something else, too.

Many of the fresh-water springs were heated along fault zones.

The Greeks built baths and temples at these hot springs, some of which emitted gases that could induce human trances.

At the famous Temple of Apollo at Delphi, traces of ethylene, which produces a state of euphoria, have been found. These fumes were known as the “Breath of Apollo” and may have helped the priestess communicate with the gods.

Other cities and sanctuaries were built along faults that the Greeks believed were entrances to the underworld.

When an earthquake toppled their structures, they usually rebuilt in the same spot...unless the quake also cut off the water supply.

Earthquakes in the time of the ancient Greeks were considered mystical events. And before multistory buildings, the risks of living on fault lines were offset by the many benefits.



Priestess of Delphi by John Collier, 1891.

Credit: John Collier (public domain), via Wikimedia Commons



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Background: Why the Greeks Liked Earthquakes

Synopsis: The ancient Greeks intentionally built and rebuilt their sacred sites along earthquake faults in the Aegean region for a variety of reasons.

- Greece and Turkey lie along massive fault systems with long histories of earthquakes.
 - These fault systems were created during the closure of the Tethys Ocean and continued to move as the Arabian and Eurasian plates squeezed the Anatolian plate westward like a fan, causing north-south extension on the western side of the block.
 - The largest fault in the system, the North Anatolian Fault, is about the same length as the San Andreas Fault in California. Both have similar slip rates and ages and exhibit right-lateral fault movement.
 - The east-west North Anatolian Fault has many splays that peel southward off the fault into western Turkey, the Aegean Sea, and Greece.
 - In Greek civilization, the frequent earthquakes were thought of as mystical events, in which the ground opened up, then closed again.
- The ancient Greeks followed the water: they built where they found hot and cold springs. And water follows the faults.
 - Much of the terrain surrounding the Aegean Sea is made of limestone and has developed karst topography as weak soil acids dissolve the limestone, especially in areas where faults have weakened it. This activity creates caverns and springs.
 - Many ancient settlements were built along these faults for access to spring water.
 - Fault zones tend to be depressions where soils can accumulate; early agricultural settlements may have thrived there.
 - The active faults also created vertical cliffs that provided natural fortifications for cities.
 - The hot springs were heated by tectonic and volcanic systems.
 - In these areas, therapeutic baths were constructed, and often temples were built where the springs sprang from the earth.
- The Temple of Apollo at Delphi, located at the intersection of two faults where a natural spring occurs, was active for 1,800 years, from 1400 BC to 400 AD.
 - Traces of sweet-smelling, mildly narcotic ethylene, as well as carbon dioxide and methane, have been found in the temple.
 - These fumes, known as the “Breath of Apollo,” may have seeped into the temple from hydrothermal gas pockets for a limited time. The fumes are not found in these waters today.
 - Ethylene produces a state of euphoria or intoxication, which may have led the temple’s priestess to believe she was communicating with the gods.
 - Delphi rituals also included eating laurel leaves and bathing in the Castalian Spring before inhaling the fumes.
 - In 373 BC, an earthquake toppled the temple, but it was rebuilt a few tens of meters to the west, along the same fault trace.
- The ancient Greek city of Hierapolis was built atop a huge white stack of travertine pools at what is now Pamukkale, or “cotton castle,” in western Turkey.
 - Hot-spring pools discharge from the Hierapolis Fault, leaving deposits of white calcium-carbonate travertine cascading down a hill.
 - The underworld was mystical and important in Greek culture as the place that souls go. The Hierapolis Fault was thought to be an actual physical conduit to the underworld.
 - The sanctuary of underworld gods Hades and Kore was constructed directly on the fault.
 - Two additional “entrances to hell” occur to the west of this site, along the same fault zone.
 - At a temple of Apollo in Hierapolis, a chamber is filled with up to 91 percent suffocating carbon dioxide gas that comes from the spring water.

References: Why the Greeks Liked Earthquakes

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Seismic Faults and Sacred Sanctuaries in Aegean Antiquity | Science Direct
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The Pythia—Priestess of Ancient Delphi | Ancient History Encyclopedia



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- Temples and structures at other sites like Mycenae, Ephesus, and Cnidus were also built and rebuilt over earthquake faults and their associated springs.
 - At Perachora Heraion, a temple to Hera was abandoned after an earthquake damaged the structure. Today there is no active spring at the site, so it is possible that the earthquake cut off the spring and that, without its water, the settlement was abandoned.
- Greeks weren't the only ancient civilizations that built along earthquake zones; civilizations from the Middle East to Central Asia also settled where they could find water—which, in many cases, also meant earthquakes. Before the days of skyscrapers, however, earthquakes were less of a problem than they are with today's infrastructure.



Columns of the ancient Temple of Apollo at Delphi.

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