



Terrific Templor

Fire Starter

San Francisco's 1906 quake started a fire that swept across the city, made worse in part when the quake broke the city's major water main. Many people living outside of San Francisco at the time knew of the quake as the "1906 Fire" because local officials didn't want potential visitors or homeowners to be afraid of visiting the quake-prone city.

Quick Quake Quiz

Can you guess which...

- 1 two states have the most earthquakes?
- 2 state has the most damaging earthquakes?
- 3 two states have the smallest number of earthquakes?
- 4 continent has the least quakes?

Answers on page 32.



Kodiak Island, Alaska, 1964

Bears coming out of hibernation seemed to know a quake was coming. Usually they woke up and began searching for food, but this year they emerged two weeks earlier than usual and began leaving the area, which was soon the epicenter of a magnitude 8.4 quake.

Here are some other phenomena people claim to have seen before a big quake struck.

- On the southern coast of the Japanese island of Hokkaido, fish jumped into the air, landing on beaches and dying.
- In one Asian village, cats ran out of homes.

Shaky Stories Long before scientists could explain what caused earthquakes, people created stories to explain them. The Japanese believed quakes were caused by a giant catfish called the *namazu*. This wiggly creature supposedly lived under the earth. In 350 BC, Greek philosopher Aristotle claimed quakes were caused by the wind blowing through underground caves. The Roman poet Ovid said quakes happened because Earth got too close to the Sun, causing it to tremble from the big star's amazing radiance.

Even in the 1800s, people were getting it wrong! A British scientist claimed waves were caused by underground water, which dripped on Earth's hot core, creating enough steam to shake the earth like a lid on a boiling pot.



Aristotle

Tidbits

MIXED-UP MYTHS

Q: Can the ground open up during an earthquake and swallow people?

A: No. Only shallow cracks form during quakes. Faults do not open up during a quake.

Q: Will California ever break off and fall into the ocean?

A: No. However, Los Angeles is slowly creeping northward, so much so that it may someday end up next to San Francisco!

San Francisco, California, 1989

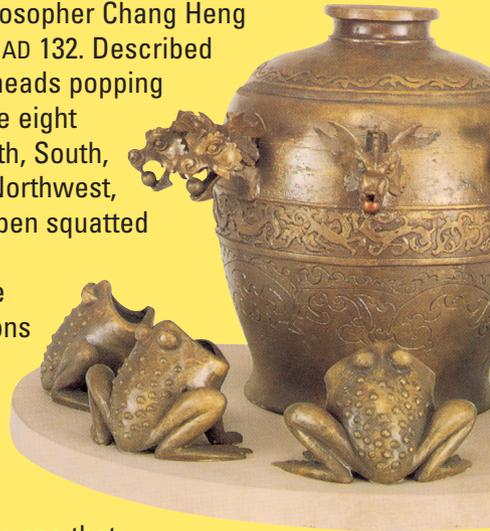
Baseball fans across the U.S. got quite a shock as they waited for Game 3 of the 1989 World Series to begin: A 15-second-long, 7.1 magnitude earthquake hit. The epicenter was located 65 miles (105 km) south of San Francisco's, Candlestick Park, where the Oakland A's and the San Francisco Giants were set to play. Spectators at the stadium shook in their seats while television viewers across the country saw their screens go fuzzy as announcers described events. The game was called off.



Time to Rock Most quakes only last a few seconds, but the biggest can last up to seven minutes. Aftershocks may continue for years.

Keep Your Eye on the Ball

Historians believe that Chinese philosopher Chang Heng invented the first "seismograph" in AD 132. Described as a large urn, it had eight dragon heads popping out of it. Each head faced one of the eight principal compass directions—North, South, East, West, Northeast, Southeast, Northwest, Southwest. A toad with its mouth open squatted below each dragon head. When an earthquake hit, a ball would release from one or more of the eight dragons and fall into the toad's mouth. Heng could tell the direction of the shaking by which ball was released. Some reports indicate that Heng's device detected an earthquake 400 miles (644 km) away, one that Heng and others near the ancient seismograph couldn't feel.



WATER WEARY

An earthquake can shift large amounts of ocean water to create a huge tidal wave, called a tsunami. Tsunamis can be up to 50 feet high, traveling up to 600 miles (966 km) an hour. One wave can build up enough speed to move more than 1,000 miles (1,600 km) across the sea to the shore. The California coast has been struck by tsunamis that began in Alaska and Japan.

So why can't we predict tsunamis and get out of their way? They travel so fast and hit without warning. To reduce the problem of tsunamis, the United States and Japan have set up tsunami warning stations, which sit 2.5 miles (4 km) out from the coastline and broadcast warning sirens if they detect one approaching.