

The Eruption of 79 AD and its impact on Pompeii and Herculaneum

Gabby

Causes

- The eruption was caused by the subduction zone between the African plate and the Eurasian plate subducting
- As the African plate was subducted under the Eurasian plate, it turned to magma and resurfaced, causing Mount Vesuvius to erupt

Evidence for the Eruption

Evidence	Source
“The cloud was rising up from a mountain... it was Vesuvius... Some of the cloud was white, in other parts there were dark patches of dirt and ash”	<i>Pliny the Elder, Letter to Tacitus</i>
“For it rose to a great height... in places it looked white, elsewhere blotched and dirty, according to the amount of soil and ashes it carried with it”	<i>Pliny the Younger, Letters and Panegyricus</i>
“You could hear the shrieks of women, the wailing of infants, and the shouting of men... People bewailed their own... and there were some who prayed for death in their terror of dying.”	<i>Pliny the Elder’s second letter</i>
“Earthquakes are frequent to Campania” (a few days before the eruption)	<i>Gaius Plinius Caecilius Secundus</i>

Phases of Eruption

1. Prior to eruption:

- a. Local seismicity occurs within the Campania region at least several months before the earthquake. A few months before the eruption, the region sees common phenomena such as ground uplift and local earthquakes.
- b. Animals and nature began to leave/die; wells and natural springs dried up, the River Sarno's fish died, ripened grapes withered before harvest

2. Plinian Phase (Initial explosion)

- a. Great thrust of cloud, ash, pumice and gases from the volcano's crater formed the 33 kilometer eruption column ('pine-tree' as described by Pliny). This was then deposited over Pompeii.
- b. For Herculaneum, this ash was only light due to the winds blowing the ash towards Pompeii.
- c. At this point of the eruption only a few people may have been struck by the rock and ash however many people were safe for now and were preparing to take refuge.

3. Pyroclastic Phase (Destruction)

- a. Pyroclastic flow, which were hot avalanches of pumice, ash, and gases covers Pompeii and begin to destroy Pompeii
- b. Pyroclastic surges that were travelling up to speeds of 200 km/h begin to tear through Herculaneum, causing

Causes of Death

- Bodies buried under the pyroclastic flow
- Asphyxiation (from the ash and pumice)
- Falling debris (especially as a result of concaving roofs)
- Intense heat causing people's bodies to overheat and/or combust

Destruction at Pompeii and Herculaneum

- We cannot ever be sure of just how much destruction occurred
- Statistics we do have however include:
 - 1,150 remains of bodies have been recovered at Pompeii
 - 35 remains of bodies have been recovered at Herculaneum

Pompeii	Herculaneum
Destruction of the city was further away from the peak of the mountain	Destruction of the city was closer to the peak of the mountain and the town itself suffered more damage
More pumice fallout throughout the city but less surges	Less pumice fallout but more surges (Pompeii received surges after Herculaneum)
Buried under 4 metres of ash	Buried under 20 metres of ash

The Plaster Casts that Captured a Moment in Time

- Reminders of the horrible event are evident in the plaster casts of the volcano's victims whose bodies have left cavities among the hardened volcanic debris.
- The casts were created when volcanic ash mixed with rainwater and hardened the bodies over the time.
- The technique has been repeated by historians over time in order to preserve the skeletons

Sample Questions

1. What caused the volcano to erupt? (2 mark)
2. What were the two phases of the eruption known as? (2 marks)
3. What were the events that occurred prior to Mount Vesuvius that indicated a potential eruption? (4 marks)
4. How did the eruption of Mount Vesuvius affect the cities of Pompeii and Herculaneum? (5 marks)