

Mount vesuvius essay



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On the 24th of August 79 A. D.

, Mount Vesuvius destroyed Pompeii, an ancient Italian city. The staggering display of eruptions lasted for approximately 19 hours, continuing into the morning of the 25th. Research has shown that all of the 20, 000 citizens of Pompeii had the chance to escape this catastrophe; however with the lack of education and technology, no one had recognized the inherent danger of the mountain's warnings. By the time Mount Vesuvius had finished its reign of terror, the affluent and flourishing city of Pompeii was silenced and completely buried by volcanic ash and debris. Sadly, Pompeii would never truly recover, and the " deafening silence" would last for 1700 years.

By definition, a volcano is a hole in the Earth's surface through which magma, hot gases, ash and rock fragments escape from deep inside the planet. They are found both on land and under the oceans, in which case they are called seamounts. Volcanoes were a very influential aspect of the creation of Earth's atmosphere, oceans and continents. After the formation of Earth, the superheated gases within it poured out through the many volcanoes, and eventually formed Earth's most important structures. Volcanoes' classifications and names are based on their periods of activity.

In the case of an eruption, a volcano is labeled active; if it has the potential to erupt in the future, it would be known as dormant. Finally, if the volcano has stopped erupting forever, it is called extinct. According to the theory of plate tectonics, Earth's crust consists of various plates which move in response to pressures produced within the Earth. Volcanoes are formed on land near coastal areas when a continental plate and an oceanic plate

converge. The oceanic plate submerges, due to its higher density, and is pushed deeper and deeper beneath the surface.

The high temperature and pressures below melt the rock which creates hot, buoyant magma. Ultimately this magma rises towards the surface and accumulates in a reservoir, known as the magma chamber. The eruption occurs when the pressure within in the chamber surpasses the pressure of the upper rock, magma forces its way through the cracks in Earth's crust. Magma that is low in gas and silicon dioxide produces thin quickly spreading lava which has a low viscosity, while a magma that is heavily composed of gas and silicon dioxide will yield a thick, viscose magma. The thicker magma builds up and because of this pressure, will cause a large explosion.

In the case of Mount Vesuvius, the volcano had two discrete phases. The first was a Plinian phase, in which material was ejected in a tall column, spread into the atmosphere and finally fell to the earth like rain. The name Plinian came from the name of Pliny the Younger, a young man whose recorded observations of the eruption became one of the most important pieces of history. The material being shot into the air is called tephra, and it creates a form similar to the mushroom cloud of a nuclear explosion. Pliny had described this effect as a “ pine tree” because of its vertical height; scientists now call it the Plinian column. It began at midday on the 24th of August 79 AD and was approximately 20 kilometers (66, 000 feet) high.

From this, a shower of ash and pumice rained over the city and lasted approximately eighteen hours. The full weight of the pumice and ash amounted to an estimated 2330 kg/m squared. The second phase was the

Pelean phase in which pyroclastic flow, avalanches of gas and dust, streamed down the sides of the volcano. This is an intensely damaging reality of a volcanic eruption. The high velocity of pyroclastic flows and surges hit the city unexpectedly on the morning of August 25th 79 AD.

Traveling at 100 km per hour, the first surge left a deposit of 10-20 cm, followed by a surge which left 70 cm of air fall ash along with 10-20 cm of limestone and volcanic rocks. Bodies were found buried under 75 feet of solidified ash. They had been there for nearly 1700 years before scientists excavated the city. Many of Pompeii's residents had died after the falling of the white and grey pumice, however some had survived.

This became evident when solidified bodies were found above the ash and pumice layers. People had come back to their homes thinking that horrific events of the day were over; little did they know, the worst was only yet to occur. Before the Pelean phase was about to begin, darkness took over the city, even though the sun shone brightly above the cloud of terror. Pliny was quoted, "...not like a moonless night, but the darkness of a sealed room. " The result of the Pelean stage was spellbinding; the entire town and the remaining people were buried.

The death toll, including all the effected cities, was not exactly known but was approximated at 16, 000, making the explosion of Mount Vesuvius one of the deadliest in history. Pliny the Younger was quoted, " Many besought the aid of the gods, but still more imagined there were no gods left, and that the universe was plunged into eternal darkness for evermore". This painful testimony really paints a picture of the terror that went on during those two

eternal days. Because volcanic ash does not dissolve in water, the people and animals who had survived the Plinian stage were found buried in hot ash.

When it hardened, over time, it molded itself into the shape of those who had died. Professor Giuseppe Fiorelli (1823-1896) was a famous archaeologist whose work with Pompeii allowed future scientists to understand the processes and preservations of cities and towns. He developed a method which allowed him to learn about the people who had been buried by Mt Vesuvius' explosions. He poured plaster of Paris into the open cavities of the hardened ash and created replicas which ultimately told the story of that devastating day. The people of Pompeii could have potentially survived the deathly reign of Vesuvius, but they did not possess the knowledge to do so.

Although they were affluent, wealthy, and admired city dwellers, the information regarding natural disasters was just not available. Many scientists predict that Mount Vesuvius is likely to erupt sometime within the next 25 years. Currently, two million people live in the vicinity of the volcano's possible wrath; however, their situation would be completely different. Unlike the residents of Pompeii in 79 AD, the present residents have all the information in the world readily available to them.