

# The deccan trap volcanism



They have collected evidence from fossils and earth's geography, to propose some theories Scientists believe that the dinosaur extinction was due to either the illusion of a massive asteroid, the eruptions of the Decca Trap volcanoes, or the epidemic of diseases.

The collision Of a massive asteroid is believed to be have instigated the dinosaur elimination. First of all an asteroid is a “ minor planet, small body orbiting the sun” (“ asteroid”) . There are many asteroids in space. Scientists believe that earth was hit by an asteroid that was over six miles wide, or that earth was hit by a comet traveling 18 miles per second. They contemplate that when the asteroid hit earth's surface, a great amount of debris and sulfur rose into the air. They believe that this blocked the suns light from hitting the earth.

In result, all the dinosaurs and 70 percent of all animals and plants died (“ What Killed the Dinosaurs”). Scientists have backed up their theory that earth was hit by an asteroid, with a great amount of evidence. In 1 980, Walter Olivarez of the University of California at Berkeley discovered deposits of iridium in sediments that dated back from the Cretaceous period, which was when the mass extinction occurred. “ Iridium is rare on earth, but is concentrated in meteors and comets” (“ mass extinction”).

This led to proposal of the asteroid theory since the discovery of the iridium sediments proves that an asteroid had hit earth. Then in 1991 , the Clubbing crater was found on the Yucatan peninsula in Mexico. This crater was 112 miles wide and was large enough to be created by an asteroid with a diameter of 6 miles, which would have caused a mass extinction (“ mass

extinction”). They also discovered a great amount of sulfur in the craters soil which has brought up the idea that sulfuric acid rose to the atmosphere after the asteroid hit earth.

This many have created a thick haze which would have made earth temperature decrease by 20-30°F (“ mass extinction”). Therefore, many plants would die which would lead to the extinction of herbivores. Then the carnivores would die. The eruption of the Decca Trap volcanoes may have also triggered the mass extinction.

(“ Volcanoes, Not Meteorite, Killed Dinosaurs, Scientist Argues”). Some scientists believe that about 70 million years ago, huge volcanic eruptions in the Decca Traps in India, which at the time, was located off of East Africa coast in the southern hemisphere, led to the mass extinction (Ward 170). The Decca Trap Volcanoes cover up 6000 miles on India and if they had erupted, it would have definitely caused a mass extinction (“ mass extinction”). Scientists have proof that they erupted for 800, 000 years (“ mass extinction”). They believe when the asteroid hit the earth, its impact shook earth’s crust and generated volcanic eruptions.

They also believe that volcanic ash made of carbon and sulfur dioxide rose into the air. This would have blocked the sunlight from hitting the earth and would have led to the dying out of many plants and animals. When the sunlight was blocked from hitting the earth, this caused the sea water to get trapped in the polar caps, due to global cooling.

In result, inland bodies of waters lowered, which changed the environment (“ mass extinction”). The dinosaurs and other animals would not have been

able to adapt to this sudden change. Furthermore, gases that were released into the air because of these eruptions created acid rain and exhausted the ozone layer (“mass extinction”). This would have also caused the mass extinction. Scientists have gathered a lot of evidence to support the theory that the eruptions of the Decca Trap volcanoes led to the mass extinction. In the late 1970s, geologists measured how much magma was released in the late Mesozoic Period, which allowed them to also estimate how much gas was released (Ward 1970). They discovered that a greenhouse effect must have occurred, which is when a “Visible, shortwave light comes from the sun to the earth, passing unimpeded through a blanket of thermal, or greenhouse, gases composed largely of water vapor, carbon dioxide, methane, nitrous oxide, and ozone. Infrared radiation reflects off the planet’s surface toward space but does not easily pass through the thermal blanket” (“global warming”).

In other words, it is the process that makes increases earth’s temperature. In result, the world temperature will increase, and the geologists discovered that the greenhouse effect in the Late Mesozoic Period had risen the world temperature by -2 degrees to -5 degrees Celsius (“mass extinction”).

Scientists also found changes in the Malthusian extinctions, and in the Hell Creek Plant Communities, which are located in Montana, in marine sedimentary rock which occurred right after the Decca Traps erupted.

This shows that Decca Traps had erupted and their eruptions had also impacted animals and plants. An epidemic of diseases is also believed to have activated the dinosaur extinction. Scientists proposed the theory that in the Late Cretaceous Period, in warm-temperate to tropical areas, that the

blood-sucking insects' population began to increase. These blood-sucking insects carried diseases such as leishmaniasis, malaria, intestinal parasites, arboviruses, and other pathogens. When an insect bit a dinosaur it would infect it with the disease (“ Insect Attack May Have Finished Off Dinosaurs”).

One after another, the insects would infect the whole population. Along with these disease carrying insects, there were also lice, ticks, and mites that would weaken the dinosaurs. Insects were also plant pollinators and would spread plant diseases. Archeologists have gathered research to support their theory that disease led to the elimination of dinosaurs. Archeologists found a bug from the late Cretaceous Period that was crystallized in sap. They discovered a pathogen which causes leishmaniasis, in the gut of this biting bug. This proves that biting bugs did spread diseases such as leishmaniasis (“ Insect Attack May Have Finished Off Dinosaurs”).

In another bug, archeologists found organisms that lead to malaria. Because scientists have discovered biting bugs with diseases, that means that these bugs could spread fatal diseases and could kill a whole population by just biting the animals. This would have definitely led to a mass extinction. Because evidence shows that the dinosaur extinction was due to either the collision of a massive asteroid, the eruptions of the Deccan Trap Volcanoes, or the epidemic of diseases, people today are able to learn more about earth's history. In history, many events happen over and over again, that's why it's important to study history.

An example is the epidemic of disease. There have been these epidemics of diseases since the creation of mankind. If scientists study them, they will

figure out how to find prevent the spread of diseases. Another example is the greenhouse effect which occurred in the late Cretaceous Period, and is occurring today. By studying earth's history, people are able to figure out how to prevent and slow down global warming.

By looking at past events, people can learn what to expect and how to prevent situations from happening. ' What Killed the Dinosaurs. " PBS.

PBS, n. D. Web. 20 May 2013. " Insect Attack May Have Finished Off Dinosaurs.

" Scenically. Scenically, 04 Jan. 2008. Web. 20 May 2013. " To 75% of all marine genera were lost" (" mass extinction"). For example, studies of the geologic record released in 2007 found that such conditions as an increase in carbon dioxide (and a decrease in oxygen) in the air and a warming of the water in tropical seas are generally associated with mass extinctions" (" mass extinction"). Siberia.

These eruptions, which continued for up to 800, 000 years (a relatively short period of time by geological standards), spewed out dust and droplets that blocked he sun, causing global cooling that trapped sea water in the polar ice caps. The levels of inland seas and oceans lowered significantly, eliminating or changing marine habitats. Alternatively, it has been suggested that carbon dioxide and other gases released as a result of the volcanic eruptions may have raised temperatures by 20-0FF (1 0-ICC) in an extreme greenhouse effect and disrupted ocean circulation patterns, that the gases produced acid rain and depleted the ozone layer, creating conditions

inhospitable to many species, or that a combination of the hypothesized effects of the Siberian eruptions was responsible.

(“ mass extinction”) In 1980 Walter Alvarez of the Univ. Of California at Berkeley found a layer of iridium in sediments that dated from the time of the final Cretaceous extinction. Iridium is rare on earth, but is concentrated in meteors and comets. In 1991 the Chicxulub crater was discovered on the Yucatan peninsula in Mexico. Some 180 km (112 mi) wide, it is wide enough to have been created by the 10-km (6-mi) diameter asteroid thought necessary to cause the environmental upheaval required to precipitate a mass extinction. Large amounts of sulfur found in the Chicxulub soil lend credence to the hypothesis that sulfuric acid dispersed into the atmosphere after the collision creating a dense haze that could have cooled the earth by 20 to 30°C (68-100°F). Some (“ mass extinction”) “ 15-mi-wide (24-km) crater at Bolshoi, central Ukraine, may have contributed to the mass extinction at the end of the Cretaceous” (“ mass extinction”). Another theory concerning the cause of the final Cretaceous extinction is that it resulted from the environmental effects of the huge volcanic eruptions that created the lava flows of the Deccan Traps in what is now India.

It is possible that both the impact and the eruptions may be responsible for the Cretaceous extinctions. One model suggests the eruptions devastated much marine life some 200,000 years before the impact extinguished the dinosaurs. Another theory suggests (both for the Permian and Cretaceous extinctions) that shock waves from the impact of a large asteroid moved through the earth, shaking the earth’s crust and triggering or intensifying the volcanic events. (“ mass extinction”) detached from deep beneath the

earth's surface and began to rise. It reached the earth's surface beneath the Indian subcontinent, which at that time was located off the East African coast in the southern hemisphere. The hot magma spilled out of the earth in one of the greatest and longest volcanic eruptions known in earth history.

These great flows are known as the Deccan traps; they cover 6000 square miles of land in India and in some areas are more than a mile and a half thick. The enormous volumes of magma did not build giant volcanoes; instead they spilled forth in waves over the land surface, emanating (Ward 170) Great volumes of volcanic gases, composed mainly of carbon and sulfur dioxide, filled the air. The volcanic vents were like pipelines from hell, spewing fiery brimstone and belching forth the foul, sulfurous breath of the underworld. By the late 1960s geologists had measured the volumes of magma released, which allowed atmospheric scientists to estimate the volumes of gas released into the late Mesozoic atmosphere; the results of these studies showed that a pronounced greenhouse effect must have occurred.

According to various estimates, this volcanically induced greenhouse effect produced a 10°C to 15°C rise in global temperatures. The changes discovered in Hell Creek plant communities as well as the mollusk's extinctions observed in marine sedimentary rocks all began soon after the Deccan eruptions started.