

**DR2014328**

*The following material presents the complete accounts of the 1790 eruption as originally published by the indicated authors. We compared these renditions with the stratigraphic evidence to develop the interpretations in the paper. K is now used for T, P for B, and L for R, in modern Hawaiian.*

**Ruggles (1913):**

On Owyhee [Hawai‘i], on a mountain in the interior [Kīlauea] there is perpetual smoke and sometimes it emits a blaze. No eruption of consequence has occurred since about thirty years, when great injury was done and hundreds of lives lost.

**Ellis (1917, p. 186–187):**

*(It is important to realize that Ellis, who visited Kīlauea summit on August 1, 1823, and published his book in 1825, understood Hawaiian and was not dependent on translators when he spoke with his guides. In fact, Ellis was the first missionary to preach to Hawaiians in their native language.)*

They [Ellis’ guides] also related the account of the destruction of part of Keoua’s camp by a violent eruption of the volcano, which, from their description, must have been sudden and awful.

Pele, they said, was propitious to Tamehameha, and availed herself of the opportunity afforded by the contiguous encampment of Keoua to diminish his forces and aid the cause of this rival.

We asked why Keoua was unpopular with Pele. They said, “We do not exactly know. Some say, he had not sent sufficient offerings to the heiaus; others, that he had no right to make war against Tamehameha, as he had before concluded a treaty of peace with him; and others, that he had broken the tabu of the place by easting the ohelos, marking and disturbing the sand, or pulling up a sacred kind of grass growing in the neighbourhood.”

Whatever was the cause, Pele, they said, was “huhu roa,” exceedingly angry, and, soon after sun-set, repeatedly shook the earth with the most violent heaving motion, sent up a column of dense black smoke, followed by the most brilliant flames.

A violent percussion was afterwards felt, streams of bright red lava were spouted up, and immense rocks in a state of ignition thrown to a great height in the air. A volley of smaller stones, thrown with much greater velocity and force, instantly followed the larger ones, and struck some of them, when the latter frequently burst with a report like thunder, accompanied by the most vivid flashed of lightning.

Many of Keoua’s people were killed by the falling fragments of rocks, and many were actually buried beneath the overwhelming mass of ashes and lava. Some of the natives say, the warriors of two districts, about eighty men, perished on this occasion.

Not intimidated by this event, which many considered as a premonition of his fate, Keoua continued his march, and the volcano continued ints action, confining, however, its operation within the boundaries of Kirauea.

We had heard the account several times before, with some little variation as to the numbers killed, and the appearance of Pele to Keoua, in the column of smoke as it rose from the crater, and, with the exception of this last circumstance, believe it to be true.

**Douglas (1834, p. 335–336):**

The volcano of Kiraueah...has not, within the memory of man, been known to overflow, excepting in the year 1787, three years previous to Vancouver's first visit to these islands, when a very dreadful eruption took place, and lasted seven days and nights. I have this information from the last of the Priests of Peli (the Goddess of the Volcano), who witnessed the scene, and saw, as he says, 5405 of his countrymen, the war party of Keoua, the cousin and great rival of Tamehameha, all perish in consequence of their imprudently endeavouring to pass on the south-west side, while the red-hot material was carried in that direction by a strong trade-wind. This person afterwards assisted, also, in removing the remains of the dead to the fire into which they were thrown.

**Anonymous newspaper article, signed "B," (1841):**

*This account contains several sentences that are exactly the same as those in Dibble (1843) but also some information not included in Dibble's account. Specifically, the statement is made that the trade wind was not blowing, in direct opposition to what Douglas wrote. We suspect that the article is, in essence, a rough draft of what Dibble finally published, and that material for which he lacked confidence was excluded from the final version. Note the author's concluding suggestion that sulphurous gas was the lethal agent; this is the earliest mention of this possibility and one that made it into Dibble's published account. We wonder if the pen name B derives from the two "b's" in Dibble's name.*

The Polynesian, April 17, 1841, p. 1

PUBLISHED WEEKLY, AT HONOLULU, OAHU, SANDWICH ISLANDS.

J. JARVES, Editor.

SATURDAY, APRIL 17, 1841.

Vol. 1, No. 45

COMMUNICATED.

For the Polynesian.

Fragment of Hawaiian History.

The events of the following brief narrative occurred about fifty years since, during the early days of the reign of Kamehameha I, and before he had subjugated to himself the eastern part of Hawaii. The account is narrated by an intelligent native, and an eye-witness of the events described. It is penned with a view to elicit if possible, an investigation of the causes which produced so singular a catastrophe. Keoua, a son of the late king Kalaiopu (Terraoboo of Cook,) was then in possession of Hilo and Puna, and was contending with Kiana, one of Kamehameha's chiefs for the supremacy of the southern parts of the island. It appears by the narrative, that the latter had recently taken possession of Kau for his king, and had driven out the inhabitants who had fled to the interior, in the immediate vicinity of the volcano of Kilauea, where they subsisted upon the fern-root, (hapuu) baked in the steam issuing from the crevices about the crater. Here they were joined by a war party under Keoua, from the district of Hilo, who took them under his auspices,

and immediately marched with them into Kau, in order to drive out the enemy and reinstate them in their lands. His army was separated into three divisions, which we will denominate the van, the centre and the rear, and they descended from the volcano towards the habitable parts of Kau, in the three paths which diverge at the volcano, running perhaps a fourth or half a mile apart, until they again unite about twenty miles below, at a place called Kalanihale, in the upper part of Kau. They had not proceeded far in their march, before a tremendous earthquake and eruption of the volcano took place. The ground shook and rocked beneath their feet, so that it became quite impossible to stand or run without falling to the ground. At the same time an awful roar, far above the noise of thunder was heard, and although it was mid-day, under a clear and serene sky, the air became suddenly darkened for some minutes, and was followed by a tremendous shower of sand and cinders, which were thrown high in mid heaven, and came down again for many miles around, but which, so far as our narrator was acquainted with the effects, did not produce any destruction of life. The shower of sand and cinders ascending into the atmosphere had cooled during their aerial excursion, and being light did not fall like hailstones, but produced a suffocating sensation upon the lungs, attended with a sulphurous smell. The vanguard passed on without witnessing any other deleterious effects of the catastrophe than those above mentioned, and what was common to all, a thorough fright. They hastened on with all possible speed, and arrived in safety during the day at Kalanihale, where they encamped. The rear body which was nearest the volcano at the time of the eruption, after the earthquake and shower of sand had passed over, also hastened forward to escape the dangers which threatened them, and rejoicing in mutual congratulations that they had been preserved in the midst of such imminent peril. But what was their surprise and consternation, when on coming up with their comrades of the centre party, they discovered them all to have become corpses. Some were lying down, and others were sitting upright clasping with dying grasp, their wives and children, and joining noses as in the act of taking a final leave. So much like life they looked, that they at first supposed them merely at rest, and it was not until they had come up to them and handled them, that they could detect their mistake. The party consisted of about 400 persons, including women and children, not one of whom survived to relate the catastrophe that had befallen their comrades. The only living being they found, was a solitary hog, in company with one of the families which had been so suddenly bereft of life. In those perilous circumstances, the surviving party did not even stay to bewail their fate, but leaving their deceased companions as they found them, hurried on, and overtook the van at the place of their encampment.

In a few days from this time, the army of Keoua met their enemies at Waiohinu, and joining battle were defeated. He and his followers, of whom the narrator, then a boy, was one, retreated in the direction they had come. On their return, they found their deceased friends as they had left them, entire, and exhibiting no other marks of decay, than a sunken hollowness in their eyes ; the rest of their bodies were in a state of entire preservation. They were never buried, and their bones lay bleaching in the sun and rain for many years. The writer of this sketch well remembers the spot : when travelling over the same ground, several years ago, he discovered an unburied scull lying partly covered in black volcanic sand, but did not at that time understand whether it was supposed to have belonged to that party or not. In describing the place to my narrator, he confirms my suspicions, that it is at least not far from the spot where the scene of this narrative occurred. The desperate state of Keoua's affairs from that moment, and his melancholy death soon after, at Kawaihae, where he was assassinated by one of Kamehameha's chiefs, when in the act of surrendering himself a prisoner of war, are sufficient reasons why these corpses were never buried.

But what was the cause of their mysterious death ? It appears that the two parties both in van and rear escaped entire, although they were equally exposed to the shower of cinders. We are therefore to look for some other cause than any which has come into the statements of this narrative, as adequate to produce the sudden death of so many people at once. With the Hawaiians it has ever remained a perfect mystery, and they have of course connected it with the tales of their fabulous mythology.

Their only solution of the problem is, that the goddess Pele being angry at Keoua's army for trespassing upon her territories, and partaking of the sacred ohelo, without rendering the required homage, took this method of revenge. My narrator acknowledges that he never heard any other solution attempted, and frankly confesses his ignorance of the true cause of their death. When I suggested to him the possibility that it was occasioned by a blast of sulphurous gas, from some fissure in the earth produced by the earthquake, he seemed to think it probable.

From his description of the whole scene, this is the only solution of the phenomenon upon which I could fix, at all satisfactory to my own mind. It will be recollected by those who have travelled from the volcano down to the southern shore of the island, that a fissure extends for many miles in the earth to the south of the path that leads to Kapapala, from which smoke and vapor are continually ascending. As by the narrator's account the trades were not blowing at the time, we may suppose that at the moment of the eruption, a volume of sulphurous gas was emitted from one of the openings in this fissure, and carried by the sea breeze, in a northerly direction across the tracks then occupied by these unfortunate travellers, it enveloped them in its deadly fumes. B.

**Dibble (1843, p. 65–67):**

*This is the complete account in Dibble. Extracts from it are quoted in the paper*

Whilst this heiau was being built, Kaiana, Namakeha and some other chiefs in the train of Kamehameha, went with soldiers to Ka□u, to exterminate Keoua. But Keoua was at Hilo. He heard of the invasion of the enemy and hastened to the scene of action. His path led by the great volcano of Kilauea. There they encamped. In the night a terrific eruption took place, throwing out flame, cinders and even heavy stones to a great distance, and accompanied from above with intense lightning and heavy thunder. In the morning Keoua and his company were afraid to proceed and spent the day in trying to appease the goddess of the volcano [Pele], whom they supposed they had offended the day before by rolling stones into the crater. But, on the second night and on the third night also there were similar eruptions. On the third day they ventured to proceed on their way but had not advanced far, before a more terrible and destructive eruption than any before, took place; an account of which taken from the lips of those who were part of the company and present in the scene, may not be an unwelcome digression.

The army of Keoua set out on their way, in three different companies. The company in advance had not proceeded far, before the ground began to shake and rock beneath their feet, and it became quite impossible to stand. Soon a dense cloud of darkness was seen to rise out of the crater, and almost at the same instant the electrical effect upon the air was so great, that the thunder began to roar in the heavens and the lightning to flash. It continued to ascend and spread abroad till the whole region was enveloped, and the light of day was entirely excluded. ... Soon followed an immense volume of sand and cinders which were thrown in high heaven and came

down in a destructive shower for many miles around. Some few persons of the forward company were burned to death by the sand and cinders and others were seriously injured. All experienced a suffocating sensation upon the lungs and hastened on with all possible speed.

The rear body, which was the nearest the volcano at the time of the eruption, seemed to suffer the least injury, and after the earthquake and shower of sand had passed over, hastened forward to escape the dangers which threatened them and rejoicing in mutual congratulations that they had been preserved in the midst of such imminent peril. But what was their surprise and consternation, when on coming up with their comrades of the centre party, they discovered them all to have become corpses. Some were lying down, and others were sitting upright clasping with dying grasp, their wives and children, and joining noses (their form of expressing affection) as in the act of taking a final leave. So much like life they looked, that they at first supposed them merely at rest, and it was not until they had come up to them and handled them, that they could detect their mistake. The whole party, including women and children, not one of them survived to relate the catastrophe that had befallen their comrades. The only living being they found, was a solitary hog, in company with one of the families which had been so suddenly bereft of life. In these perilous circumstances, the surviving party did not even stay to bewail their fate, but leaving their deceased companions as they found them, hurried on, and overtook the company in advance at the place of their encampment.

In a few days from this time the army of Keoua met their enemies and joined in several battles. At length Kameeiamoku, went to Keoua in the disguise of a friend and with much smooth speech and fair promises, prevailed upon him to go of Kawaihae and have an interview with Kamehameha. Keoua and his followers, of whom the narrators of this scene were a part, retreated in the direction they had come. On their return, they found their deceased friends as they had left them, entire, and exhibiting no other marks of decay, than a sunken hollowness in their eyes; the rest of their bodies were in a state of entire preservation. They were never buried, and their bones lay bleaching in the sun and rain for many years. The missionary who collected a part of these facts well remembers the spot: when traveling over the same ground, several years ago, he discovered an unburied skull lying partly covered in black volcanic sand, but did not at that time understand whether it was supposed to have belonged to that party or not.

A blast of sulphurous gas, a shower of heated embers or a volume of heated steam, either would sufficiently account for this sudden death. Some of the narrators who saw the corpses affirm, that though in no place deeply burnt, yet they were thoroughly scorched.

**Kamakau (1992, p. 152):**

*This book is compiled from newspaper articles written in Hawaiian by Kamakau in the 1860s and 1870s. The quotes in the paper are from an earlier translation by Thurmon Jaggard (1921) and differ slightly from the 1992 translation but carry the same meaning.*

[Keoua] then set out to return to Ka-'u by way of Ola'a past the crater of the volcano and on to Kalanihale at Kapapala, when the division of his army which came up at the rear was completely annihilated by the volcano. This is how it happened: A pillar of sand and rock rose straight up in the air to a height above the summits of Mauna Loa and Mauna Kea, and a flame of fire appeared at its top. It looked as if a little hill were being pushed straight up by a larger one until it burst into masses of sand and rock. Some of these

rocks are to be seen today at the edge of the crater and [others] at some distance away. Eruptions continued for some days and many were killed, the bodies of men, women, and children lying unmutilated just as they were when marching. Mona an eyewitness, said that the reason their group escaped was that one of the women was menstruating and so they carried tabu flags, one in front and one behind the marchers. If there had been several hundred in that group none of them would have been hurt. They did not think of Jehovah and give credit to him for their escape! Several cinder cones were heaped up near Kilauea at this time. One cone moved straight down toward the sea at Apua and in less than two weeks reached the sand at Punalu'u, where Keoua Kuahu-'ula was staying at the time under tabu. This cinder heap moved along the sand from Apua to the beach at Puanlu'u and Ninole, and there it remains at Punalu'u to this day... This strange and marvelous act of God occurred in November, 1790.

**Desha (2000, p. 279–280):**

*This is translated from an article written in Hawaiian in 1920. It must have been based on secondary sources and is internally inconsistent in terms of the numbers of fatalities.*

After some time he [Keōua] roused up his warriors to prepare to return to Ka'ū. He went by way of 'Ōla'a and the Lua o Pele ([Crater at Kīlauea] and arrived at a place called Kalanihale in the upland at Kapāpala.

When his first army arrived at this place, they waited for the second army which was following them. The remarkable thing, however, was that this following army met death on the *ma kai* [downhill] side of the Lua of Pele. This is the story of the remarkable death of that army of the *ali'i* Keōuakū'ahu'ula.

Columns of rock and volcanic sand [ash and cinder] rose up at places close to the volcanic pit on the seaward side, accompanied by the flashing of fire above them. The air became filled with fine volcanic sand (*one 'ah 'ae*), and those of Keōua's army at that place who were lying down were covered over with that sand. Also the air was filled with sulphur (*kūkaepele*). Perhaps that death-dealing air was what weakened some people who were sleeping at that place. Very few people of that army escaped.

In the minds of some of the people of that era, the goddess Pele had favored Kamehameha's side. She was displaying her anger at Keōua because of his barbarous treatment of women which had taken place before his people were covered with fiery volcanic ash (*lehu ahi*). Perhaps this idea, which was only speculation by some people of those times, increased their fear of Kamehameha and they supposed that the goddess of the pit was fighting in support of him.

A certain man named Mona, who had escaped from that army of Keōua and lived thereafter until the very time that the light of the work of God came to this archipelago, reported to S.M. Kamakau, the writer of the history of Hawai'i, as follows:

The reason for our escape from that death, which killed most of that army of Ali'i Keōua, is that there were some women with us who were having their menstrual periods and our people were surrounded with flags showing that *kapu* condition of the women. Those flags stood before and behind our army, and we escaped being covered by that lethal ash from the volcano.

There was great mourning by the friends of the people who lost their lives, and one of the prophets told the *ali'i* Keōua that the harm which had befallen his warriors was because of the anger of

Hi'iakaikapoliopole since Keōua had neglected to offer some of the fat mullet of Waiākea to please her. One thing well known was that the number of people who died from being covered by volcanic ash approached a *lau* [four hundred].

Another amazing thing was the issuing of black sand which spread as far as the sea, from 'Āpua in Puna as far as Punalu'u at Ka'ū. It went along the shores of Wailau and Nīnole, and the inlet at Punalu'u was stopped up and transformed into a fishpond until this very day.

Here, however, is the report of the historians concerning this sudden terrible accident to Keōua's warriors:

When the returning warriors descended to a certain place called Kukamahuakea, a very strong earthquake began to shake the earth which cracked and split. Fine volcanic ash spurted upward so that the people close to some of those cracks had no time to seek safety. Also, when those large, deep cracks opened up, some people were unable to avoid them. On the small cracks, they laid down their fighting clubs joining them like ladders, and got precariously to the other side of the crack. Some of these warriors escaped. When the second division of Keōua's warriors arrived close to Uwēkahuna, the sky darkened with lethal smoke and ash, and that division of almost eight hundred warriors was also covered over.

Those who escaped this misfortune from the ash fall talked loudly about, saying that the main reason for it was their barbaric actions toward blameless women which, however, had been at the command of their *ali'i 'ai kalana*.

**Macdonald et al. (1970, p. 70–71):**

*Note: Several important aspects of Macdonald's rendition are mentioned in no other account—the 2-hour intervals separating the groups, the distance of 6 miles from the caldera, and the unburned nature of the bodies. Because this information appears only in Macdonald's version, published 180 years after the tragedy, we consider it questionable until confirmatory evidence is discovered.*

The 1790(?) explosions were witnessed by members of the army of Keoua, chief of Puna, southern Hawaii, who was then on his way toward Ka'u after battles with Kamehameha. Stopping near Keanakakoi crater, on the edge of Kilauea caldera, to make appropriate offerings to Pele, they were thrown into consternation by the beginning of 3 explosions (a very rare phenomenon at Kilauea). Some accounts say that some of the soldiers were killed by falling blocks. Further offerings failed to stop the explosions; indeed their violence increased. Apparently deciding that further propitiation was useless, and that the neighborhood had become decidedly inhospitable, Keoua ordered his army to proceed as three separate groups. As was usual in those days, the army consisted not only of warriors, but also of women and children and domestic animals. The first division proceeded down the Ka'u trail, apparently without mishap, followed at 2-hour intervals by the other two divisions. The third division, traveling southwestward about 6 miles from the caldera, looked ahead and saw the second division, apparently resting. On reaching them they found that every single person was dead, though some pigs were unharmed. Footprints that can still be seen in the ash along the route of the trail are said to have been left by this stricken army. There is no real confirmation of this, of course, and since footprints can be found in several different layers in the ash they certainly cannot all have been made at that one time. The route was a common one, followed frequently by travelers between Ka'u and Puna.

Just what happened to the second army division we do not know. The trail lay directly along the southwest rift zone of Kilauea volcano, and there appears to be no question they were killed by volcanic action. But the bodies were not burned, or apparently otherwise injured. They must have been caught in a cloud of poisonous gas liberated from vents along the rift zone. Perhaps the pigs had greater resistance to the poison, or perhaps they simply breathed air that was closer to the ground. Caught in a fume cloud, one can find pockets of fresh air in hollows in the ground surface, and make one's way out of the cloud by moving from hollow to hollow.