Narrative of a tour through Hawaii, or, Owhyhee

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Chap. IX. Departure for the volcano - Volcanic sand - Superstitions of the natives respecting the Ohelo - Description of the great volcano - Pools of water - Banks of Sulphur - Appearance of the ...

CHAP. IX.

Departure for the Volcano—Volcanic Sand—Superstitions of the Natives respecting the Ohelo—Description of the great Volcano—Pools of Water—Banks of Sulphur—Appearance of the Volcano at Midnight—Traditions and Superstitions of the Natives connected with it—Names of the Gods by whom they suppose it inhabited—The little Kirauea—Ancient Heiau on the summit of a precipice—Mouna Roa—Probable Structure of the Island.

REFRESHED by a comfortable night's sleep, we arose before day-light on the morning of the first of August, and after stirring up the embers of our fire, rendered, with grateful hearts, our morning tribute of praise to our almighty Preserver.

As the day began to dawn, we tied on our sandals, ascended from the subterraneous dormitory, and pursued our journey, directing our course towards the column of smoke, which bore E. N. E. from the cavern.

The path for several miles lay through a most fertile tract of country, covered with bushes, or tall grass and fern, frequently from three to five feet high, and so heavily laden with dew, that before we had passed it, we were as completely wet as if we had walked through a river. The morning air was cool, the singing of birds enlivened the woods, and we travelled along in Indian file nearly four miles an hour, although most of the natives carried heavy burdens, which were tied

on their backs with small bands over their shoulders, in the same manner that a soldier fastens on his knapsack. Having also ourselves a small leather bag containing a bible, inkstand, note-book, compass, &c. suspended from one shoulder, a canteen of water from the other, and sometimes a light port-folio, or papers, with specimens of plants besides, our whole party appeared, in this respect at least, somewhat *en militaire.*

After travelling a short distance over the open country, we came to a small wood, into which we had not penetrated far, before all traces of a path entirely disappeared. We kept on some time, but were soon brought to a stand by a deep chasm, over which we saw no means of passing. Here the natives ran about in every direction searching for marks of footsteps, just as a dog runs to and fro when he has lost the track of his master.

After searching about half an hour, they discovered a path, which led some distance to the southward, in order to avoid the deep chasm in the lava. Near the place where we crossed over, there was an extensive cavern. The natives sat down on the top of the arch by which it was formed, and began eating their sugar-cane, a portable kind of provision usually carried on their journeys, while we explored the cavern in hopes of finding fresh water. In several places drops of water, beautifully clear, constantly filtered through the vaulted arch, and fell into calabashes placed underneath to receive it. Unfortunately for us, these were all nearly empty. Probably some thirsty traveller had been there but a short time before.

Leaving the wood, we entered a waste of dry sand,

about four miles across. The travelling over it was extremely fatiguing, as we sunk in to our ancles at every step. The sand was of a dark olive colour, fine and sparkling, parts of it adhering readily to the magnet, and being raised up in heaps in every direction, presented a surface resembling, colour excepted, that of drifted snow.

It was undoubtedly volcanic; but whether thrown out of any of the adjacent craters in its present form, or made up of small particles of decomposed lava, and the crystalline olivin we had observed so abundant in the lava of the southern shore, and drifted by the constant trade-wind from the vast tract of lava to the eastward, we could not determine.

When we had nearly passed through it, we sat down on a heap of lava to rest and refresh ourselves, having taken nothing since the preceding noon. About ten o'clock, Messrs. Bishop and Goodrich reached the place where we were sitting. They had heard by some travellers, that two or three days would elapse before Makoa would overtake them, and deeming it inexpedient to wait so long, had procured a guide, and early this morning set out from Kapapala to follow the rest of the party.

Having refreshed ourselves, we resumed our journey, taking a northerly direction towards the columns of smoke, which we could now distinctly perceive. Our way lay over a wide waste of ancient lava, of a black colour, compact and heavy, with a shining vitreous surface, sometimes entirely covered with obsidian, and frequently thrown up, by the expansive force of vapour or heated air, into conical mounds, from six to twelve feet high, which were, probably, by the same power

rent into a number of pieces, from the apex to the base. The hollows between the mounds and long ridges were filled with volcanic sand, and fine particles of olivin, or decomposed lava.

This vast tract of lava resembled in appearance an inland sea, bounded by distant mountains. Once it had certainly been in a fluid state, but appeared as if it had become suddenly petrified, or turned into a glassy stone, while its agitated billows were rolling to and fro. Not only were the large swells and hollows distinctly marked, but in many places the surface of these billows was covered by a smaller ripple, like that observed on the surface of the sea at the first springing up of a breeze, or the passing currents of air which produce what the sailors call a cat's-paw. The billows may have been raised by the force which elevated the mounds or hills, but they look as if the whole mass, extending several miles, had, when in a state of perfect fusion, been agitated with a violent undulating or heaving motion.

The sun had now risen in his strength, and his bright rays, reflected from the sparkling sand, and undulated surface of the vitreous lava, dazzled our sight and caused considerable pain, particularly as the trade-wind blew fresh in our faces, and continually drove into our eyes particles of sand. This part of our journey was unusually laborious, not only from the heat of the sun and the reflection from the lava, but also from the unevenness of its surface, which obliged us constantly to tread on an inclined plane, in some places as smooth and almost as slippery as glass, where the greatest caution was necessary to avoid a fall. Frequently we chose to walk along on the ridge of a billow

of lava, though considerably circuitous, rather than pass up and down its polished sides. Taking the trough, or hollow between the waves, was found safer, but much more fatiguing, as we sunk every step ancle-deep into the sand. The natives ran along the ridges, stepping like goats from one ridge to another. They, however, occasionally descended into the hollows, and made several marks with their feet in the sand at short distances, for the direction of two or three native boys with our provisions, and some of their companions, who had fallen behind early in the morning, not being able to keep up with the foremost party.

Between eleven and twelve we passed a number of conical hills on our right, which the natives informed us were craters. A quantity of sand was collected round their base, but whether thrown out by them, or drifted thither by the wind, they could not inform us. In their vicinity we also passed several deep chasms, from which, in a number of places, small columns of vapour arose, at frequent and irregular intervals. They appeared to proceed from Kirauea, the great volcano, and extended towards the sea in a south-east direction. Probably they are connected with Ponahohoa, and may mark the course of a vast subterraneous channel leading from the volcano to the shore. The surface of the lava on both sides was heated, and the vapour had a strong sulphureous smell.

We continued our way beneath the scorching rays of a vertical sun till about noon, when we reached a solitary tree growing in a bed of sand, spreading its roots among the crevices of the rocks, and casting its grateful shade on the barren lava. Here we threw ourselves down on the sand and fragments of lava, stretched out

our weary limbs, and drank the little water left in our canteens.

In every direction we observed a number of pieces of spumous lava, of an olive colour, extremely cellular, and as light as sponge. They appeared to have been drifted by the wind into the hollows which they occupied. The high bluff rocks on the north-west side of the volcano were distinctly seen; the smoke and vapours driven past us, and the scent of the fumes of sulphur, which, as we approached from the leeward, we had perceived ever since the wind sprung up becoming very strong, indicated our proximity to Kirauea.

Impatient to view it we arose, after resting about half an hour, and pursued our journey. In the way we saw a number of low bushes bearing beautiful red and yellow berries in clusters, each berry being about the size and shape of a large currant. The bushes on which they grew were generally low, seldom reaching two feet in height; the branches small and clear, leaves alternate, obtuse with a point, and serrated; the flower was monopetalous, and, on being examined, determined the plant to belong to the class decandria, and order monogynia. The native name of the plant is *ohelo.* The berries looked tempting to persons experiencing both hunger and thirst, and we eagerly plucked and ate all that came in our way. They are juicy, but rather insipid to the taste. As soon as the natives perceived us eating them, they called out aloud, and begged us to desist, saying we were now within the precincts of Pélé's dominions, to whom they belonged, and by whom they were *rahuiia,* (prohibited,) until some had been offered to her, and permission to eat

them asked. We told them we were sorry they should feel uneasy on this account,—that we acknowledged Jehovah as the only divine proprietor of the fruits of the earth, and felt thankful to him for them, especially in our present circumstances. Some of them then said, "We are afraid. We shall be overtaken by some calamity before we leave this place." We advised them to dismiss their fears, and eat with us, as we knew they were thirsty and faint. They shook their heads, and perceiving us determined to disregard their entreaties, walked along in silence.

We travelled on, regretting that the natives should indulge notions so superstitious, but clearing every ohelo bush that grew near our path, till about two P. M. when the CRATER OF KIRAUEA suddenly burst upon our view. We expected to have seen a mountain with a broad base and rough indented sides, composed of loose slags or hardened streams of lava, and whose summit would have presented a rugged wall of scoria, forming the rim of a mighty caldron. But instead of this, we found ourselves on the edge of a steep precipice, with a vast plain before us, fifteen or sixteen miles in circumference, and sunk from 200 to 400 feet below its original level. The surface of this plain was uneven, and strewed over with large stones and volcanic rocks, and in the centre of it was the great crater, at the distance of a mile and a half from the precipice on which we were standing. Our guides led us round towards the north end of the ridge, in order to find a place by which we might descend to the plain below. As we passed along, we observed the natives, who had hitherto refused to touch any of the ohelo berries, now gather several bunches, and, after offering

a part to Pélé, eat them very freely. They did not use much ceremony in their acknowledgment; but when they had plucked a branch, containing several clusters of berries, they turned their faces towards the place whence the greatest quantity of smoke and vapour issued, and, breaking the branch they held in their hand in two, they threw one part down the precipice, saying at the same time, "*E Pélé, eia ka ohelo 'au; e taumaha aku wau ia oe, e ai hoi au tetahi.*" "Pélé, here are your ohelos: I offer some to you, some I also eat." Several of them told us, as they turned round from the crater, that after such acknowledgments they might eat the fruit with security. We answered we were sorry to see them offering to an imaginary deity the gifts of the true God; but hoped they would soon know better, and acknowledge Jehovah alone in all the benefits they received.

We walked on to the north end of the ridge, where, the precipice being less steep, a descent to the plain below seemed practicable. It required, however, the greatest caution, as the stones and fragments of rock frequently gave way under our feet, and rolled down from above; but, with all our care, we did not reach the bottom without several falls and slight bruises.

The steep which we had descended was formed of volcanic matter, apparently a light red and gray kind of lava, vesicular, and lying in horizontal strata, varying in thickness from one to forty feet. In a small number of places the different strata of lava were also rent in perpendicular or oblique directions, from the top to the bottom, either by earthquakes, or other violent convulsions of the ground connected with the action of the adjacent volcano. After walking some distance over

the sunken plain, which in several places sounded hollow under our feet, we at length came to the edge of the great crater, where a spectacle, sublime and even appalling, presented itself before us—

"We stopped, and trembled."

Astonishment and awe for some moments rendered us mute, and, like statues, we stood fixed to the spot, with our eyes riveted on the abyss below. Immediately before us yawned an immense gulf, in the form of a crescent, about two miles in length, from north-east to south-west, nearly a mile in width, and apparently 800 feet deep. The bottom was covered with lava, and the south-west and northern parts of it were one vast flood of burning matter, in a state of terrific ebullition, rolling to and fro its "fiery surge" and flaming billows. Fifty-one conical islands, of varied form and size, containing so many craters, rose either round the edge or from the surface of the burning lake. Twenty-two constantly emitted columns of gray smoke, or pyramids of brilliant flame; and several of these at the same time vomited from their ignited mouths streams of lava, which rolled in blazing torrents down their black indented sides into the boiling mass below.

The existence of these conical craters led us to conclude, that the boiling caldron of lava before us did not form the focus of the volcano; that this mass of melted lava was comparatively shallow; and that the basin in which it was contained was separated, by a stratum of solid matter, from the great volcanic abyss, which constantly poured out its melted contents through these numerous craters into this upper reservoir. We were further inclined to this opinion, from the vast columns of vapour continually ascending from the

chasms in the vicinity of the sulphur banks and pools of water, for they must have been produced by other fire than that which caused the ebullition in the lava at the bottom of the great crater; and also by noticing a number of small craters, in vigorous action, situated high up the sides of the great gulf, and apparently quite detached from it. The streams of lava which they emitted rolled down into the lake, and mingled with the melted mass there, which, though thrown up by different apertures, had perhaps been originally fused in one vast furnace.

The sides of the gulf before us, although composed of different strata of ancient lava, were perpendicular for about 400 feet, and rose from a wide horizontal ledge of solid black lava of irregular breadth, but extending completely round. Beneath this ledge the sides sloped gradually towards the burning lake, which was, as nearly as we could judge, 300 or 400 feet lower. It was evident that the large crater had been recently filled with liquid lava up to this black ledge, and had, by some subterranean canal, emptied itself into the sea, or upon the low land on the shore; and in all probability this evacuation had caused the inundation of the Kapapala coast, which took place, as we afterwards learned, about three weeks prior to our visit. The gray, and in some places apparently calcined, sides of the great crater before us; the fissures which intersected the surface of the plain on which we were standing; the long banks of sulphur on the opposite side of the abyss; the vigorous action of the numerous small craters on its borders; the dense columns of vapour and smoke that rose at the north and south end of the plain; together with the ridge of steep rocks

by which it was surrounded, rising probably in some places 300 or 400 feet in perpendicular height, presented an immense volcanic panorama, the effect of which was greatly augmented by the constant roaring of the vast furnaces below.

After the first feelings of astonishment had subsided, we remained a considerable time contemplating a scene, which it is impossible to describe, and which filled us with wonder and admiration at the almost overwhelming manifestation it affords of the power of that dread Being who created the world, and who has declared that by fire he will one day destroy it. We then walked along the west side of the crater, and in half an hour reached the north end.

While walking over the plain, which was covered with a thin layer of what appeared like indurated sand, but which we afterwards found to be decomposed lava, the natives requested us not to *kaha, a heru ka one,* strike, scratch, or dig the sand, assuring us it would displease Pélé, and be followed by an irruption of lava,* or other expression of vengeance from this goddess of the volcano, of whose power and displeasure they had

* It appears singular that similar ideas respecting the consequences of disturbing the earth in the vicinity of volcanoes, should prevail here, as among the natives of the New Hebrides. Forster, in his account of a visit to a place somewhat resembling this, in the island of Tanna, speaking of their making a hole, and burying their thermometer, says, "The natives, who observed that we stirred in the solfatarra, (as he called the places where the smoke and vapour issued,) desired us to leave it, telling us it would take fire, and resemble the volcano, which they called Assoor. They seemed to be extremely apprehensive of some mischance, and were very uneasy as often as we made the least attempt to disturb the sulphureous earth."—*Forst. Voy.* vol. ii. page 308.

manifested the greatest apprehensions ever since our approach to Kirauea.

At the north end of the crater we left the few provisions and little baggage that we had, and went in search of water, which we had been informed was to be found in the neighbourhood of a number of columns of vapour, which we saw rising in a northerly direction. About half a mile distant, we found two or three small pools of perfectly sweet, fresh water; a luxury which, notwithstanding the reports of the natives, we did not expect to meet with in these regions of fire. It proved a most grateful refreshment to us after travelling not less than twenty miles over a barren thirsty desert.

These pools appeared great natural curiosities. The surface of the ground in the vicinity was perceptibly warm, and rent by several deep irregular chasms, from which steam and thick vapours continually arose. In some places these chasms were two feet wide, and from them a volume of steam ascended, which was immediately condensed by the cool mountain air, and driven, like drizzling rain, into hollows in the compact lava on the leeward side of the chasms. The pools, which were six or eight feet from the chasms, were surrounded and covered by flags, rushes, and tall grass. Nourished by the moisture of the vapours, these plants flourished luxuriantly, and, in their turn, sheltered the pools from the heat of the sun, and prevented evaporation. We expected to find the water warm, but in this we were also agreeably disappointed. When we had quenched our thirst with water thus distilled by nature, we directed the natives to build a hut in which we might pass the night, in such a situation as to command a view of the burning lava; and while they were

thus employed, we prepared to examine the many interesting objects around us. Mr. Bishop returned, with a canteen of water, to meet Mr. Harwood, who had not yet come up.

Mr. Thurston visited the eastern side of the great crater, and I went with Mr. Goodrich to examine some extensive beds of sulphur at the north-east end. After walking about three-quarters of a mile over a tract of decomposed lava, covered with ohelo bushes and ferns, we came to a bank about a hundred and fifty yards long, and in some places upwards of thirty feet high, formed of sulphur, with a small proportion of red clay or ochre. The ground was very hot; its surface rent by fissures; and we were sometimes completely enveloped in the thick vapours that continually ascended from these cracks. A number of apertures were visible along the whole extent of the bank of sulphur; smoke and vapours arose from these fissures also; and the heat of the sulphur around them was more intense than in any other part. Their edges were fringed with fine crystals, in various combinations, like what are called flowers of sulphur. We climbed about half way up the bank, and endeavoured to break off some parts of the crust, but soon found it too hot to be handled. However, by means of our walking sticks, we detached some curious specimens. Those procured near the surface were crystallized in beautiful acicular prisms, of a light yellow colour; while those found three or four inches deep in the bank, were of an orange yellow, generally in single or double tetrahedral pyramids, and full an inch in length. A singular hissing and cracking noise was heard among the crystals, whenever the outside crust of the sulphur was broken and the atmo-

spheric air admitted. The same noise was produced among the fragments broken off, until they were quite cold. The adjacent stones and pieces of clay were frequently incrusted, either with sulphate of ammonia, or volcanic sal ammoniac. Considerable quantities were also found in the crevices of some of the neighbouring rocks, which were much more pungent than that exposed to the air. Along the bottom of the sulphur bank we found a number of pieces of tufa, or clay-stone, which appeared to have been fused, extremely light and cellular. It seemed as if sulphur, or some other inflammable substance, had formerly occupied the cells in these stones. A thick fog now came over, which, being followed by a shower of rain, obliged us to leave this interesting laboratory of nature, and return to our companions. On the eastern side of the crater, we saw banks of sulphur less pure, but apparently more extensive, than those we had visited; but their distance from us, and the unfavourable state of the weather, prevented our examining them. On our way to the sulphur banks, we saw two flocks of wild geese, which came down from the mountains, and settled among the ohelo bushes, near the pools of water. They were smaller than the common goose, had brown necks, and their wings were tipped with the same colour. The natives informed us there were vast flocks in the interior, although they were never seen near the sea.

Just as the sun was setting we reached the place where we had left our baggage, and found Messrs. Bishop and Harwood sitting near the spot, where the natives, with a few green branches of trees, some fern leaves, and rushes, had erected a hut. We were none

of us pleased with the site which they had chosen. It was at the north-east end of the crater, on a pile of rocks overhanging the abyss below, and actually within four feet of the precipice. When we expressed our disapprobation, they said it was the only place where we might expect to pass the night undisturbed by Pélé, and secure from earthquake and other calamity, being the place in which alone Pélé allowed travellers to build a hut. We told them it was unnecessarily near, and, being also unsafe, we wished to remove. They answered, that as it was within the limits prescribed by Pélé for safe lodging, *they* should be unwilling to sleep any where else, and had not time to build another hut for *us*.

We then directed them to collect a quantity of firewood, as we expected the night would be cold, although the thermometer then stood at 69°. We were the more anxious to have the fuel collected before the shades of night should close upon us, as travelling in some places was extremely dangerous. The ground sounded hollow in every direction, frequently cracked, and, in two instances, actually gave way while we were passing over it. Mr. Bishop was approaching the hut, when the lava suddenly broke under him. He instantly threw himself forward, and fell flat on his face over a part that was more solid. A boy, who followed me with a basket to the sulphur banks, and walked about a yard behind Mr. Goodrich and myself, also fell in. There was no crack in the surface of the lava over which he was walking, neither did it bend under his weight, but broke suddenly, when he sunk in up to his middle. His legs and thighs were considerably bruised, but providentially he escaped with-

out any other injury. The lava in both places was about two inches in thickness, and broke short, leaving the aperture regular and defined, without even cracking the adjoining parts. On looking into the holes, we could see no bottom, but on both sides, at a short distance from the aperture, the lava was solid, and they appeared to have fallen into a narrow chasm covered over by a thin crust of lava, already in a state of decomposition.

When night came on, we kindled a good fire, and prepared our frugal supper. Mr. Thurston, however, had not yet returned, and, as the darkness of the night increased, we began to feel anxious for his safety. The wind came down from the mountains in violent gusts, dark clouds lowered over us, and a thick fog enveloped every object; even the fires of the volcano were but indistinctly seen. The darkness of the night advanced, but no tidings reached us of Mr. Thurston. About seven o'clock we sent out the natives with torches and firebrands, to search for him. They went as far as they durst, hallooing along the border of the crater, till their lights were extinguished, when they returned, without having seen or heard any thing of him. We now increased our fire, hoping it might serve as a beacon to direct him to our hut. Eight o'clock came, and he did not appear. We began seriously to fear that he had fallen into the crater itself, or some of the deep and rugged chasms by which it was surrounded.* In this state of painful suspense

* A native, who accompanied Mr. Goodrich on a subsequent visit to the volcano, fell into one of these chasms; he was severely bruised by the fall, and could only be extricated from his perilous situation by a rope lowered down from the surface.

we remained till nearly half-past eight, when we were happily relieved by his sudden appearance. He had descended, and walked along the dark ledge of lava on the east side of the crater, till a chasm obliged him to ascend. Having with difficulty reached the top, he travelled along the southern and western sides, till the light of our fire directed him to our encampment. The extent of the crater, the unevenness of the path, the numerous fissures and rugged surface of the lava, and the darkness of the night, had prevented his earlier arrival. We now partook with cheerfulness of our evening repast, and afterwards, amidst the whistling of the winds around, and the roaring of the furnace beneath, rendered our evening sacrifice of praise, and committed ourselves to the secure protection of our God. We then spread our mats on the ground, but as we were all wet through with the rain, against which our hut was but an indifferent shelter, we preferred to sit or stand round the fire, rather than lie down on the ground. Between nine and ten, the dark clouds and heavy fog, that since the setting of the sun had hung over the volcano, gradually cleared away, and the fires of Kirauea, darting their fierce light athwart the midnight gloom, unfolded a sight terrible and sublime beyond all we had yet seen.

The agitated mass of liquid lava, like a flood of melted metal, raged with tumultuous whirl. The lively flame that danced over its undulating surface, tinged with sulphureous blue, or glowing with mineral red, cast a broad glare of dazzling light on the indented sides of the insulated craters, whose roaring mouths, amidst rising flames, and eddying streams of fire, shot up, at frequent intervals, with very loud detona-

tions, spherical masses of fusing lava, or bright ignited stones.

The dark bold outline of the perpendicular and jutting rocks around, formed a striking contrast with the luminous lake below, whose vivid rays, thrown on the rugged promontories, and reflected by the overhanging clouds, combined to complete the awful grandeur of the imposing scene. We sat gazing at the magnificent phenomena for several hours, when we laid ourselves down on our mats, in order to observe more leisurely their varying aspect; for, although we had travelled upwards of twenty miles since the morning, and were both weary and cold, we felt but little disposition to sleep. This disinclination was probably increased by our proximity to the yawning gulf, and our conviction that the detachment of a fragment from beneath the overhanging pile on which we were reclining, or the slightest concussion of the earth, which every thing around indicated to be no unfrequent occurrence, would perhaps precipitate us, amidst the horrid crash of falling rocks, into the burning lake immediately before us.

The natives, who probably viewed the scene with thoughts and feelings somewhat different from ours, seemed, however, equally interested. They sat most of the night talking of the achievements of Pélé, and regarding with a superstitious fear, at which we were not surprised, the brilliant exhibition. They considered it the primeval abode of their volcanic deities. The conical craters, they said, were their houses, where they frequently amused themselves by playing at Konane;* the roaring of the furnaces and the crackling

* The game resembling drafts, described page 202.

of the flames were the *kani* of their *hura*, (*music* of their *dance*,) and the red flaming surge was the surf wherein they played, sportively swimming on the rolling wave.*

As eight of the natives with us belonged to the adjoining district, we asked them to tell us what they knew of the history of this volcano, and what their opinions were respecting it. From their account, and that of others with whom we conversed, we learned, that it had been burning from time immemorial, or, to use their own words, "*mai ka po mai*," from chaos till now,† and had overflowed some part of the country during the reign of every king that had governed Hawaii: that in earlier ages it used to boil up, overflow its banks, and inundate the adjacent country; but that, for many kings' reigns past, it had kept below the level of the surrounding plain, continually extending its surface and increasing its depth, and occasionally throwing up, with violent explosion, huge rocks or red-hot stones. These eruptions, they said, were always accompanied by dreadful earthquakes, loud claps of thunder, with vivid and quick-succeeding lightning. No great explosion, they added, had taken place since the days of Keoua; but many places near

* Swimming in the sea, when the weather is tempestuous and the surf high, is a favourite amusement throughout the Sandwich and other islands in the Pacific.

† The Hawaiian traditions, like those of the ancients, refer to night, or a chaotic state, the origin of the world, and almost all things therein, the greater part of their gods not excepted. The present state they call the *Ao marama*, Day, or state of light. They speak of creation as a transition from darkness to light; and when they wish to express the existence of any thing from the beginning, they say it has been so *mai ka po mai*, from the night, or state of darkness or confusion, till now.

the sea had since been overflowed, on which occasions they supposed Pélé went by a road under ground from her house in the crater to the shore.

These few facts were gathered from their accounts of its origin and operation; but they were so incorporated with their traditions of its supernatural inhabitants, and fabulous stories of their romantic adventures, that we found no small difficulty in distinguishing fiction from fact. Among other things, we were told, that though, according to the traditions preserved in their songs, Kirauea had been burning ever since the island emerged from night, it was not inhabited till after the *Tai-a-kahina'rii,* sea of Kahina'rii, or deluge of the Sandwich Islands. Shortly after that event, they say, the present volcanic family came from Tahiti, a foreign country, to Hawaii.

The names of the principal individuals were: *Kamo-ho-arii,* the king Moho; moho sometimes means a vapour, hence the name might be the king of steam or vapour—*Ta-poha-i-tahi-ora,* the explosion in the place of life—*Te-ua-a-te-po,* the rain of night—*Tane-hetiri,* husband of thunder, or thundering tane*—and *Te-o-ahi-tama-taua,* fire-thrusting child of war; these were all brothers, and two of them, Vulcan-like, were deformed, having hump backs—*Pélé,* principal goddess —*Makore-wawahi-waa,* fiery-eyed canoe-breaker—*Hiata-wawahi-lani,* heaven-rending cloud-holder—*Hiata-noholani,* heaven-dwelling cloud-holder —*Hiata-taarava-mata,* quick glancing eyed cloud-holder, or the cloud-holder whose eyes turn quickly and look

* Tane is the name of one of their gods, as well as the name of the principal god formerly worshipped by the Society islanders; in both languages the word also means a husband.

frequently over her shoulders — *Hiata-hoi-te-pori-a-Pélé,* the cloud-holder embracing or kissing the bosom of Pélé — *Hiata-ta-bu-enaena,* the red-hot mountain holding or lifting clouds—*Hiata-tareiia,* the wreath or garland-encircled cloud-holder—and *Hiata-opio,* young cloud-holder.

These were all sisters, and, with many others in their train, on landing at Hawaii, are said to have taken up their abode in Kirauea. Something of their characters may be inferred from the few names we have given. Whenever the natives speak of them, it is as dreadful beings. This volcano is represented as having been their principal residence ever since their arrival, though they are thought to have many other dwellings in different parts of the island, and not a few on the tops of the snow-covered mountains. To these some of them frequently remove. Sometimes their arrival in a district was foretold by the priests of the heiaus there, and always announced by the convulsive trembling of the earth, the illuminating fire in their houses, (craters,) the flashes of lightning, and the roar of awful thunder. They never journeyed on errands of mercy; to receive offerings, or execute vengeance, where the only objects for which they left their palace. "*Nui wale,*" said the people with whom we were talking, "*ka kanaka i make ia rakou,*"* Great indeed is the number of men slain by them; *ua rau, ua rau, ua rau, ka puaa i tioraia na rakou,*† four hundreds, four hundreds, four hundreds of hogs have been thrown to

* Alluding to those destroyed by the inundations.

† This is a figurative expression signifying a great number, as we are accustomed to hear of thousands, and thousands, and thousands.

them.* The whole island was considered as bound to pay them tribute, or support their heiaus, and *kahu*, (devotees;) and whenever the chiefs or people failed to send the proper offerings, or incurred their displeasure by insulting them or their priests, or breaking the tabu (sacred restrictions) of their domains in the vicinity of the craters, they filled Kirauea with lava, and spouted it out, or, taking a subterranean passage, marched to some one of their houses (craters) in the neighbourhood where the offending parties dwelt, and from thence came down upon the delinquents with all their dreadful scourges. If a sufficient number of fish were not taken to them by the inhabitants of the sea shore, they would go down, and with fire kill the fish, fill up with *pahoehoe* (lava) the shallow places, and destroy all the fishing grounds.

We were told that several attempts had been made to drive them off the islands, and that once they were nearly overpowered by Tamapuaa, the *Centaur* of Hawaii, a gigantic animal, half hog and half man. He travelled from Oahu to countries beyond the heavens, viz. beyond the visible horizon, the boundary where they supposed the heavens to be, in form of a hollow cone, joined to the sea. He also visited Kirauea, and made proposals to become the guest and suitor of Pélé, the elder sister. When she saw him standing on the edge of the crater, she rejected his proposals with contempt, calling him a hog, the son of a hog. On her ascending from the crater to drive him away,

* Vast numbers of hogs, some alive, others cooked, were thrown into the craters during the time they were in action, or when they threatened an eruption; and also, during an inundation, many were thrown into the rolling torrent of lava, to appease the gods, and stay its progress.

a fierce combat ensued. Pélé was forced to her volcano, and threatened with destruction from the waters of the sea, which Tamapuaa poured into the crater till it was almost full, and the fires were nearly extinct. Pélé and her companions drank up the waters, rose again from the craters, and finally succeeded in driving Tamapuaa into the sea, whither she followed him with thunder, lightning, and showers of large stones.

They 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.

Pélé, 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 his rival. We asked why Keoua was unpopular with Pélé. 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 eating the ohelos, marking and disturbing the sand, or pulling up a sacred kind of grass growing in the neighbourhood." Whatever was the cause, Pélé, 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 flashes 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 its 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 Pélé 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.

Frequently during the night the natives thought they saw some one or other of the deities, but immediately afterwards they doubted. At these times, if we asked them where they saw Pélé, they would sometimes point to the red lava, at others to the variegated flame; and on our saying we could not perceive any distinct form, they generally answered by assuring us, that during the night some one or other of them would certainly be seen. We jocosely requested them to inform us as soon as any appeared; and even to awake us, should we happen to be asleep. At the same time we told them, that when we considered their ignorance of the true God, and of the causes by which the action of volcanoes was sustained, we were not surprised at their supposing them to be the habitations of their deities, and their operations those of supernatural beings. As far as

their language and mental capability admitted, we endeavoured to explain some of the causes of volcanic fire; and illustrated them by the force of gunpowder, with the effects of which the natives are familiar; assuring them that the expansive force of steam is much greater than that of gunpowder. Our principal solicitude, however, was to lead their minds to God, who created the world, and whose almighty power controls the elements of nature in all their diversified operations; but of whom, though they beheld the wondrous works of his hand, they were lamentably ignorant.

After two or three hours' sleep, we arose before it was day, and, gathering round our fire, sang our morning hymn of praise, in which we were joined by the natives who were with us. The sun had now risen, and, as we had no provisions left, we felt it necessary to prepare for our departure. Mr. Goodrich walked along the north side of the crater, in order to enable us to form as accurate an opinion as possible of its actual dimensions; and, from the observations of Mr. Goodrich and Mr. Thurston, as well as those the rest of us made when we walked along the north and east sides, we think the crater is not less than five, or five-and-a-half, miles in circumference.* We regret that we had

*The following extract of a letter from Mr. Chamberlain is copied from a recent American publication:

"Mr. Goodrich and myself visited the volcano again, and, with a line, measured the upper edge of the crater, and found it to be *seven miles and a half* in circumference. We then descended, and measured the side of the ledge, and satisfied ourselves, that, at the depth of 500 or 600 feet, the circumference is at least five miles and a half. We did not get the exact depth of it, but judge it not less than *one thousand* feet. We had good oppor-

not means for ascertaining more accurately its depth. We lowered down a line one hundred feet from the edge of the plain on which our hut was erected, but it did not appear to reach near half-way to the black ledge of lava; and judging the proportion below to be equal to that above, it could not be less that 700 or 800 feet to the liquid lava. We also threw down some large stones, which after several seconds struck on the sides, and then bounded down to the bottom, where they were lost in the lava. When they reached the bottom they appeared like pebbles, and we were obliged to watch their course very steadily to perceive them at all.

In company with Dr. Blatchely, Messrs. Chamberlain and Ely, American missionaries, and a gentleman resident in Oahu, I have since visited Kirauea, when we again endeavoured to measure its circumference. Mr. Chamberlain walked round the northern end from east to west, as near the edge as it was prudent to go, and, numbering his paces, made that part of it $3\frac{1}{16}$ miles; from which, we think, the above estimate does not exceed the actual extent of the crater. We also lowered down a line 230 feet long, but it did not reach the horizontal ledge of lava. The fissures in the

tunities for forming a judgment."——In a letter to professor Silliman of New Haven, Mr. Goodrich corroborates the above, and states also, that he walked across the bottom, where the lava was hard, the surface of which, though apparently smooth as seen from the top, was raised in hills or sunk in valleys; that dense sulphureous fumes and gases, very suffocating, some of them resembling muriatic gas, ascended from almost all parts of the bottom, making in their escape a "tremendous roaring, like the discharge of steam from the boiler of a steam engine;" at one place the florid lava was boiling like a fountain, and spouting up lava forty or fifty feet into the air.—*Philosophical Magazine for September*, 1826.

vicinity of the sulphur banks, and pools of water, were more numerous, and the smoke and vapour that ascended from them greater in quantity, than during our first visit. The volcano was much more quiescent; but some violent convulsions had taken place in the interim, for several masses of rock had fallen from the high precipices in the neighbourhood. The fires in the south and west parts burned but feebly; and though there was but litte fire in the north and east sections of the volcano, it was evident that the whole of the lava in this part had been in a state of agitation since we had seen it. Some of the small craters, on the southern sides of the great abyss, were extinguished; but several new craters had been formed on the opposite side, and bore marks of having been in vigorous action but a very short period before.

Soon after leaving our encampment this morning, we come to the pools of water, where we filled our canteens. Here also our party separated; Messrs. Goodrich and Harwood proceeding across the interior through the villages of *Orá* to Waiakea, in the division of Hiro, while the rest of us passed along the east side of the crater, towards the sea-shore. The path was in many places dangerous, lying along narrow ridges, with fearful precipices on each side, or across deep chasms and hollows that required the utmost care to avoid falling into them, and where a fall would have been fatal, as several of the chasms seemed narrowest at the surface. In one place, we passed along for a considerable distance under a high precipice, where, though the country was perfectly level at the top, or sloped gradually towards the sea, the impending rocks towered some hundred feet above us on

our left, and the appalling flood of lava rolled almost immediately beneath us on our right. On this side we descended to some small craters on the declivity, and also to the black ledge; where we collected a number of beautiful specimens of highly scoriacious lava, the base approaching to volcanic glass. It was generally of a black or red colour, light, cellular, brittle, and shining. We also found a quantity of volcanic glass drawn out into filaments as fine as human hair, and called by the natives *rauoho o Pélé*, (hair of Pélé.) It was of a dark olive colour, semi-transparent, and brittle, though some of the filaments were several inches long. Probably it had been produced by the bursting of igneous masses of lava, thrown out from the craters, or separated in fine-spun threads from the boiling fluid, when in a state of perfect fusion, and, borne by the smoke or vapour above the edges of the crater, had been wafted by the winds over the adjacent plain; for we also found quantities of it at least seven miles distant from the large crater. We entered several small craters, that had been in vigorous action but a very short period before, marks of most recent fusion presenting themselves on every side. Their size and height were various, and many, which from the top had appeared insignificant as mole-hills, we now found twelve or twenty feet high. The outside was composed of bright shining scoriacious lava, heaped up in piles of most singular form. The lava on the inside was of a light or dark red colour, with a glazed surface, and in several places, where the heat had evidently been intense, we saw a deposit of small and beautifully white crystals. We also entered several covered channels, or tunnels, down which the lava had flowed into

the large abyss. They had been formed by the cooling of the lava on the sides and surface of the stream, while it had continued to flow on underneath. As the size of the current diminished, it had left a hard crust of lava of unequal thickness over the top, supported by walls of the same material on each side. Their interior was beautiful beyond description. In many places they were ten or twelve feet high, and as many wide at the bottom. The roofs formed a regular arch, hung with red and brown stalactitic lava, in every imaginable shape, while the floor appeared like one continued glassy stream. The winding of its current and the ripple of its surface were so entire, that it seemed as if, while in rapid motion, the stream of lava had suddenly stopped, and become indurated, even before the undulations of the surface had subsided.

We traced one of these volcanic chambers to the edge of the precipice that bounds the great crater, and looked over the fearful steep, down which the fiery cascade had rushed. In the place where it had fallen, the lava had formed a spacious basin, which, hardening as it cooled, had retained all those forms which a torrent of lava, falling several hundred feet, might be expected to produce on the viscid mass below. In the neighbourhood we saw several large masses of basaltic rock, of a dark gray colour, weighing probably from one to four or five tons, which although they did not bear any marks of recent fire, must have been ejected from the great crater during some violent eruption, as the surrounding rocks in every direction presented a very different appearance; or they might have been thrown out in a liquid state, combined with other matter that had formed a rock of a less durable

kind, which, decomposing more rapidly, had been washed away, and left them in detached masses scattered on the plain. They were hard, and, when fractured, appeared a lava of basalt, containing very fine grains of compact felspar and augite; some of them contained small particles of olivin. We also saw a number of other rocks in a state of decomposition, which proved to be a species of lava, containing globules of zeolite. The decomposition of these rocks appeared to have formed the present surface of much of the west, north, and east parts of the plain immediately surrounding the crater.

When we had broken off specimens of these, and of some red earthy-looking stones, which seemed to have the same base as the other, but to have lost their compact texture, and to have experienced a change of colour, from a further degree of decomposition,* we passed along to the east side, where I took a sketch of the south-west end of the crater.

As we travelled on from this spot, we unexpectedly came to another deep crater, nearly half as large as the former. The native name of it is *Kirauea-iti*, (little Kirauea.) It is separated from the large crater by an isthmus nearly a hundred yards wide. Its sides, which were much less perpendicular than those of the great crater, were covered with trees and shrubs, but the bottom was filled with black lava, either fluid or scarcely cold, and probably supplied by the great crater, as the trees, shrubs, and grass on its sides,

* Specimens of volcanic sulphur, of the several kinds of lava and rocks found in the immediate neighbourhood of the volcano, and other parts of the island, with descriptions of their localities, are deposited in the Museum of the London Missionary Society, Austin Friars.

shewed it had remained many years in a state of quiescence. Though this was the only small one we saw, our companions informed us there were many in the neighbourhood. They also pointed out to us the ruins of *Oararauo*, an old heiau, which crowned the summit of a lofty precipice on our left. It was formerly a temple of Pélé, of which *Kamakaakeakua*, (the eye of god,) a distinguished soothsayer, who died in the reign of Tamehameha, was many years priest. Large offerings were frequently made of hogs, dogs, fish, and fruits, but we could not learn that human victims were ever immolated on its altars. These offerings were always cooked in the steaming chasms, or the adjoining ground. Had they been dressed any where else, or prepared with other fire, they would have been considered polluted, and have been expected to draw down curses on those who presented them.

The ground throughout the whole plain is so hot, that those who come to the mountains to procure wood for building, or to cut down trees and hollow them out for canoes, always cook their own food, whether animal or vegetable, by simply wrapping it in fern leaves, and burying it in the earth. The east side of the plain was ornamented with some beautiful species of filices; also with several plants much resembling some of the varieties of cycas, and thickly covered with ohelo bushes, the berries of which we ate freely as we walked along, till, coming to a steep precipice, we ascended about 300 feet, and reached the high land on the side towards the sea, which commanded a fine view of Mouna-Roa, opposite to which we had been travelling ever since we left Punaruu. The mountain appeared of an oval shape, stretching along in a south-

west direction, nearly parallel with the south-east shore, from which its base was generally distant twenty or thirty miles. A ridge of high land appeared to extend from the eastern point to the south-west shore. Between it and the foot of Mouna-Roa was a valley, as near as we could judge, from seven to twelve miles wide. The summit of Mouna-Roa was never free from snow, the higher parts of the mountain's side were totally destitute of every kind of vegetation; and by the help of a telescope we could discover numerous extinguished craters, with brown and black streams of indurated lava over the whole extent of its surface. The foot of the mountain was enriched on this side by trees and shrubs, which extended from its base six or seven miles towards the summit.

The volcano of Kirauea, the largest of which we have any account, and which was, until visited by us, unknown to the civilized parts of the world, is situated in the district of Kapapala, nearly on the boundary line between the divisions of Kaü and Puna, twenty miles from the sea-shore. We could form no correct estimate of its elevation above the level of the sea; the only means we had of judging being the difference of temperature in the air, as shewn by our thermometer, which, on the shore, was usually at sunrise 71°, but which, in the neighbourhood of the volcano, was, at the same hour, no higher than 46°. From the isthmus between *Kirauea-nui*, or Great Kirauea, and Little Kirauea, the highest peak of Mouna-Kea bore by compass N. N. W. and the centre of Mouna-Roa W. S. W. The uneven summits of the steep rocks, that, like a wall, many miles in extent, surrounded the crater and all its appendages, shewed the original level of the country, or perhaps marked the

base, and formed as it were the natural buttresses of some lofty mountain, raised in the first instance by the accumulation of volcanic matter, whose bowels had been consumed by volcanic fire, and whose sides had afterwards fallen into the vast furnace, where, reduced a second time to a liquefied state, they had been again vomited out on the adjacent plain.

But the magnificent fires of Kirauea, which we had viewed with such admiration, appeared to dwindle into insignificance, when we thought of the probable subterranean fires immediately beneath us. The whole island of Hawaii, covering a space of four thousand square miles, from the summits of its lofty mountains, perhaps 15,000 or 16,000 feet above the level of the sea,* down to the beach, is, according to every observation we could make, one complete mass of lava, or other volcanic matter, in different stages of decomposition. Perforated with innumerable apertures in the shape of craters, the island forms a

* In Cook's Voyages, Captain King, speaking of Mouna-Kaah, (Kea,) remarks that it "may be clearly seen at fourteen leagues' distance." Describing Mouna-Roa, and estimating it according to the tropical line of snow, he observes, "This mountain must be at least 16,020 feet high, which exceeds the height of the Pico de Teyde, or Peak of Teneriffe, by 724 feet, according to Dr. Heberden's computation, or 3680 according to that of Chevalier de Borda. The peaks of Mouna Kaah appeared to be about half a mile high; and as they are entirely covered with snow, the altitude of their summits cannot be less than 18,400 feet. But it is probable that both these mountains may be considerably higher; for in insular situations, the effects of the warm sea air must necessarily remove the line of snow, in equal latitudes, to a greater height, than where the atmosphere is chilled on all sides by an immense tract of perpetual snow."

hollow cone over one vast furnace, situated in the heart of a stupendous submarine mountain, rising from the bottom of the sea; or possibly the fires may rage with augmented force beneath the bed of the ocean, rearing through the superincumbent weight of water the base of Hawaii, and, at the same time, forming a pyramidal funnel from the furnace to the atmosphere.