

The Lyman Hawaiian Earthquake Diary,  
1833-1917

U.S. GEOLOGICAL SURVEY BULLETIN 2027



An amazing accomplishment of record-keeping covering the significant years before, during, and after the strongest earthquake in the history of Hawaii. The 84-year collection of earthquake information credits the perseverance and foresight of Sarah, Isabella, and Frederick Lyman.

*Recurrent volcanic activity and earthquakes in Hawaii instill among residents respect of the impact of these catastrophic events. The ancient Hawaiians' legend of the journey of the volcano goddess Pele across the Hawaiian Islands, as artistically portrayed by Lisa Koyanagi\* of Hilo, attests to the persistence of volcanism and earthquakes on the island of Hawaii many centuries ago and concurs with the present scientific understanding of the southeasterly growth of the island chain.*

*\*Born and raised on the island of Hawaii, and presently a student of fine arts at the University of Hawaii in Hilo.*

# The Lyman Hawaiian Earthquake Diary, 1833–1917

By MAX WYSS, ROBERT Y. KOYANAGI, and DOAK C. COX

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U.S. DEPARTMENT OF THE INTERIOR  
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By MAX WYSS,<sup>1</sup> ROBERT Y. KOYANAGI,<sup>2</sup> and DOAK C. COX<sup>3</sup>



Figure 1. Portrait of Mrs. Sarah Joiner Lyman.

## INTRODUCTION

Mrs. Sarah Joiner Lyman (fig. 1) arrived on the Island of Hawaii in July 1832 accompanying her missionary husband. In her diary she noted earthquakes when she felt them and found that visiting sea captains and naturalists were very interested in her observations (Martin and others, 1979, p. 6–174). This encouraged her to start a separate diary where she primarily described earthquakes that she felt and volcanic eruptions reported in Hawaii. She kept up this special

diary for five decades, essentially until her death in December of 1885. Following her death, her son Frederick and particularly Frederick's wife Isabella (fig. 2) continued the diary faithfully for another three decades until 1917. This succession of efforts produced a list of earthquakes felt in Hilo spanning a period of eight decades.

The original earthquake diary was initiated by Mrs. S.J. Lyman several years after her arrival in Hilo. She copied into it a note concerning each of the earthquakes that she had noted in her regular diary between the beginning of her residence in Hilo and the start of her purposeful earthquake record. The principal document preserved at the Lyman



Figure 2. Portrait of Mrs. Isabella Chamberlain Lyman.

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House Memorial Museum is entitled "A COPY, MRS. SARAH JOINER LYMAN'S EARTHQUAKE RECORDS, 1833-1887." Below this title the following addition appears "Bella C. Lyman 1885-1912." The number "1912" is written in a different handwriting than the rest of this addition, which suggests that "Bella C. Lyman 1885-", was entered by Mrs. Isabella C. Lyman, and someone else, possibly her husband Frederick, completed the entry adding "1912" after her death. From the uniform handwriting in this book for the years from 1833 to 1887, it appears that much of the first part is a copy, as the cover label says. On page 48 of this book the entry "Mother died Dec. 7th 1885 (continued by B.C.L)" appears between earthquake records of December 1885. The reference to "mother," and the fact that the handwriting did not change at this time, suggests that Sarah's daughter-in-law Isabella "Bella" C. Lyman was the likely person who copied the original. Handwriting and records kept after Isabella's death in 1901 are more erratically varied and imply entries made by several persons. Starting in 1914 the handwriting becomes difficult to interpret.

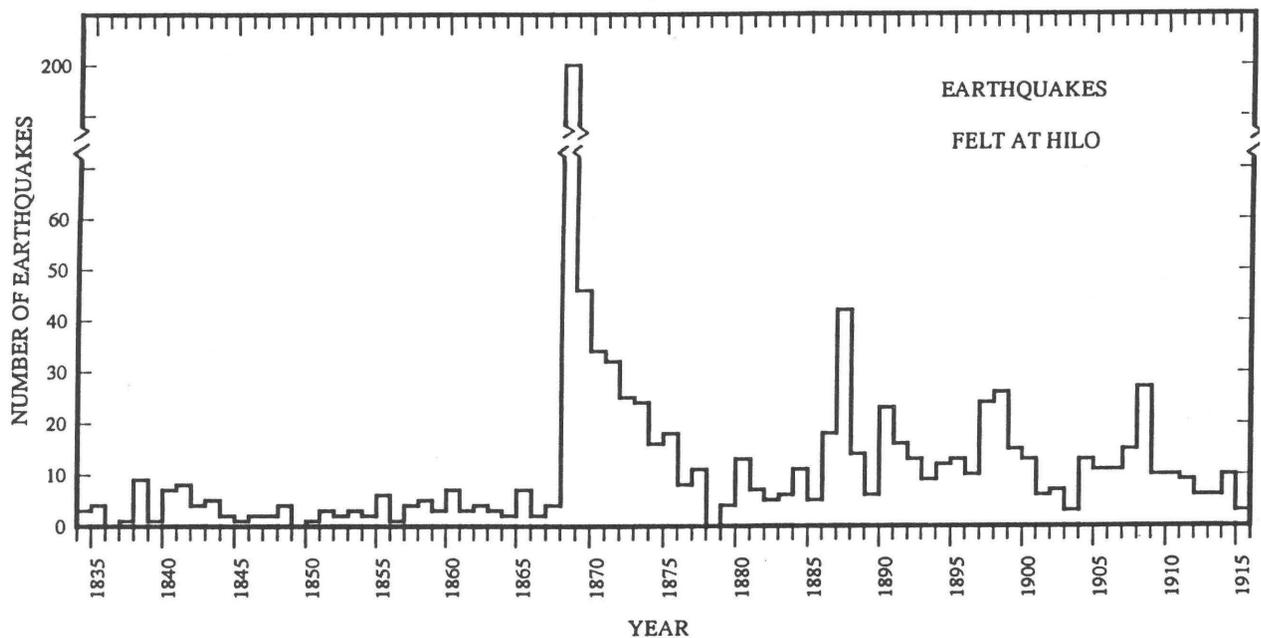
When we became aware of the rich source of information on historic seismicity contained in this diary, we thought it should be made available to the seismological community. The Lyman diary presented below was copied faithfully in an effort to retain the original writing, including spelling and punctuation, with one exception. For convenience in referencing, the dates were placed in front of each entry. To aid in understanding, a few corrections were added in brackets.

Mrs. S.J. Lyman reported three to four earthquakes a year consistently until the great Kau earthquake in 1868, after which the count increased to double-digit numbers for about a decade (fig. 3). Isabella and Frederick Lyman appeared to be more sensitive to ground shaking; they noted about 13 events per year, approximately three times more than their predecessor. For the stronger events, indicated to be of intensity V (or high IV) by the description in the diary, Isabella and Frederick seemed to have reported about twice the number of events per year after 1885 than the annual number reported by Sarah for the period before the 1868 mainshock. Surprisingly constant rates were reported by Sarah and Isabella over the decades of note-keeping.

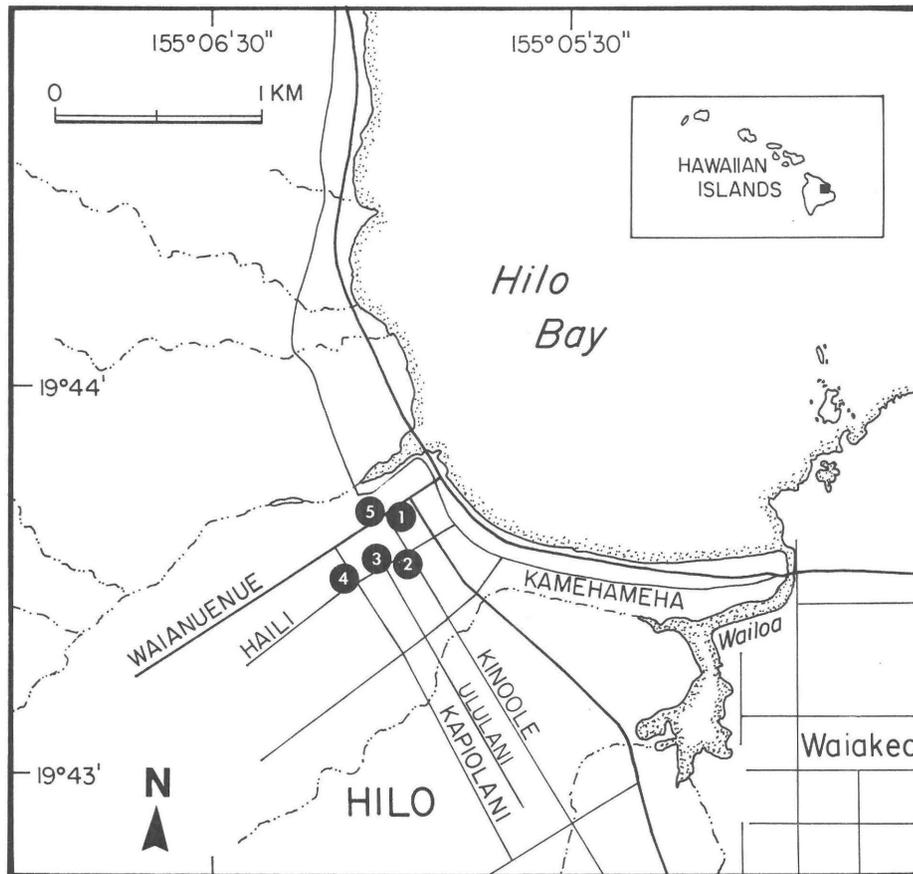
Both Lyman families lived at several residences in Hilo during their years of record-keeping (fig. 4). Recent compilations of intensity information indicate earthquakes are felt at varying intensities in different parts of Hilo (Koyanagi and others, 1966; Wyss and Koyanagi, in press). Thus, when the families changed residences, the physical difference in locality and building type may have caused some variance in the number and strength of the earthquakes they reported.

## GENEALOGY

Reverend David Belden Lyman was born on July 29, 1803, at New Hartford, Connecticut. He died on October 4, 1884, at Hilo, Hawaii.



**Figure 3.** Annual number of felt earthquakes reported by Mrs. S.J. Lyman, Mrs. I.C. Lyman, and Mr. F.S. Lyman for the years 1834 through 1915. The large number of reports in 1868 and the following years was associated with the largest historic earthquake in Hawaii estimated as  $M=7.9$  (Wyss and Koyanagi, in press). The reporting rate increase in 1885-86 coincided with the death of Mrs. S.J. Lyman.



**Figure 4.** Map of downtown Hilo with the locations of Lyman residences. (1) through (4) indicate Mrs. S.J. Lyman's residences between 1832–1885. (5) shows the location of Mrs. I.C. Lyman's residence.

Sarah Joiner Lyman, wife of David Belden Lyman, was born on November 29, 1805, at Royalton, Vermont. She died on December 7, 1885, at Hilo, Hawaii.

Frederick Swartz Lyman, son of David and Sarah Lyman, was born on July 25, 1837, at Hilo, Hawaii. He died on April 14, 1918, at Hilo, Hawaii.

Isabella “Bella” Chamberlain Lyman, wife of Frederick Swartz Lyman, was born on November 3, 1838, at Honolulu, Hawaii. She died on May 16, 1901, at Hilo, Hawaii.

## RESIDENCES

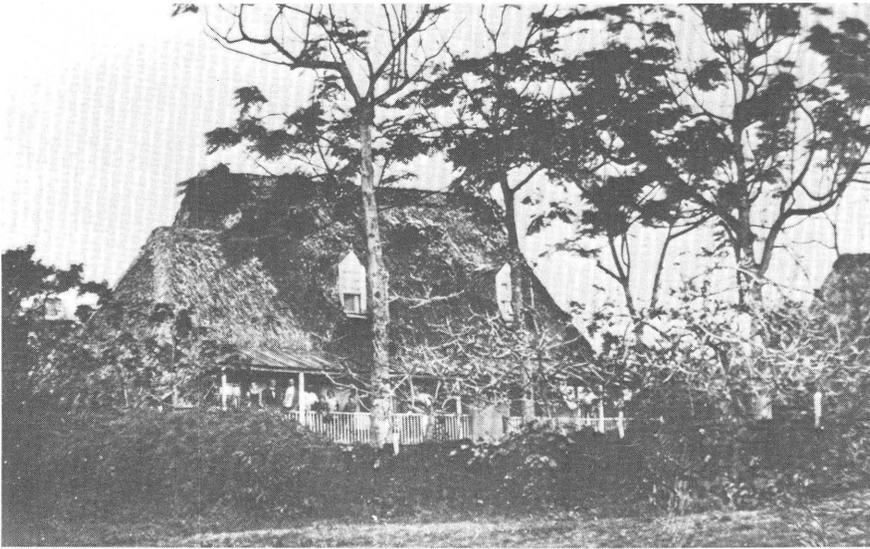
On July 16, 1832, Rev. David Belden Lyman and his wife Sarah Joiner Lyman arrived in Hilo, Hawaii, and moved into a stone-walled house with a thatched roof (Martin and others, 1979). This house, referred to in the early mission records as “the little stone house,” was then occupied by the Rev. and Mrs. Jonathan Green who left a month later for a new mission at Wailuku, Maui. This small building con-

structed by Rev. Green in 1830 consisted of two rooms with plastered stone walls and a thatched roof. The little stone house is believed to have been located in the Kalakaua Park area on the southeast corner of Kinole and Waiānuenuē Streets, at coordinates 19° 43.67' N. latitude and 155°05.49' W. longitude, and at an elevation from sea level of 12 m (site 1, fig. 4).

On October 24, 1832, Rev. and Mrs. Lyman moved into the new thatched house that was built for them. The house had an earth floor, hanging mats were used for room partitions, and there were some glass windows. It was located near the southwest corner of Kinole and Haili Streets at coordinates 19°43.56' N. latitude and 155°05.45' W. longitude, and at an elevation 12 m (site 2, fig. 4).

On March 11, 1835, the Lymans left the thatched house and moved back to the stone house (site 1, fig. 4).

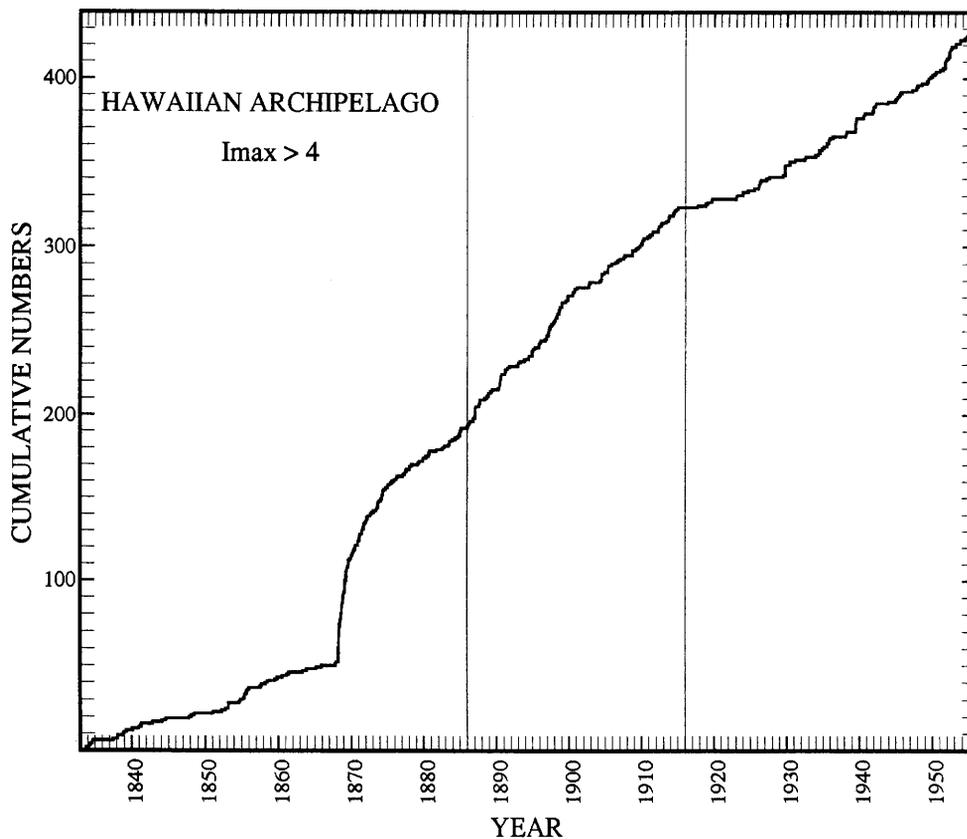
On January 15, 1836, the Lymans moved into a newly constructed one-and-a-half story wood frame house with a thatched roof (fig. 5). The frame house was located near the northwest corner of Ululani and Haili Streets, at coordinates 19°43.57' N. latitude and 155°05.54' W. longitude, and at an elevation of 18 m (site 3, fig. 4).



**Figure 5.** The Lyman home in 1856, near the northwest corner of Ululani and Haili Streets, Hilo.



**Figure 6.** The Lyman home as it is preserved as part of the Lyman Museum originally near the northwest corner of Waianuenu and Kinoole Streets, Hilo.



**Figure 7.** Cumulative number of earthquakes with maximum intensities probably larger or equal to V located in or near Hawaii. Vertical lines mark the time of the death of S.J. Lyman and the beginning of modern records, respectively. Note that the slope (rate) during modern recording (after 1915) is intermediate between that during the two diary reporting periods. The aftershock sequence following the great 1868 earthquake is prominent for several years.

On April 22, 1839, the Lymans moved into a new wooden building with stone foundation and cellar. The house was topped with a thatched half-story and thatched roof. Upstairs in the thatched roof were two attic bedrooms with windows from which Hilo Bay and the northeastern horizon were visible. The location was near the present location of the Lyman House Memorial Museum at 276 Haili Street near the northwest corner of Haili and Kapiolani Streets. Coordinates are  $19^{\circ}43.50'$  N. latitude and  $155^{\circ}05.61'$  W. longitude, and elevation is 27 m (site 4, fig. 4). This place of residence, where Sarah Lyman continued her earthquake diary for the rest of her life, has remained unchanged.

On September 15, 1856, modifications to the Lyman house were completed. A second story was added and the thatched roof was replaced with corrugated iron (fig. 6).

On April 3, 1868, Frederick and Isabella Lyman moved their family from Kau to Hilo, following the catastrophic earthquake of 1868. They lived in a two-story wooden house on Waianuenue Avenue near the northwest corner of Waian-

uenue and Kinoole Streets, across Kinoole Street from the Federal Building of Hilo. Coordinates for the place of residence are  $19^{\circ}43.68'$  N. latitude and  $155^{\circ}05.52'$  W. longitude, and elevation is 15 m (site 5, fig. 4).

## COMMENTS

The expressions used to describe the sensations caused by earthquakes were applied fairly consistently. An approximate translation to the Modified Mercalli Intensity Scale (Int) was proposed by Wyss and Koyanagi (in press) in their table 8 and is referred to as the "Lyman scale." The division into words used for describing  $Int \geq V$  (severe, heavy, hard, smart, decided) and words describing earthquakes with lesser shaking of  $Int < V$  (moderate, distinct, slight), was possible mainly because of the association of the first group with events that woke people. In the catalogue of Hawaiian earthquakes with maximum intensity larger or equal to V (Wyss and Koyanagi, in press) the record for the early years (1833

through about 1915) heavily relied on the Lyman diary of earthquakes listed here. The rates of earthquakes with likely intensities of  $\text{Int} \geq V$  reported by S.J. Lyman (1832–1867), and F.S. and I.C. Lyman (1885–1915) were somewhat less and larger, respectively, than the rate between 1915 and 1955 (fig. 7). During the later period more recently established intensity criteria were used and the record for events with  $\text{Int} \geq V$  is complete. Because the reporting rates for  $\text{Int} \geq V$  in the three observation periods do not vary strongly and because the recent reporting rate is intermediate, we suggest that the record back to 1833 for earthquakes with  $\text{Int} \geq V$  is approximately complete for the Island of Hawaii.

A felt earthquake catalogue is normally not expected to be complete and homogeneous over eight decades. At times the authors must have been traveling, sick, or otherwise unable to make entries. Also, the process of copying introduces errors. An indication that the early record may not be complete was found by comparing the earthquake list preserved in this document with that given by Wilkes (1845).

Although Wilkes cites the Rev. D.B. Lyman as the source of his earthquake list, there are some differences. The event of 19 January 1838 in the present list appears to be that of 4 January 1838 in the Wilkes list. While the present list contains only a general reference to several earthquakes in the first week of December 1839, Wilkes lists four specific events (see “Appendix A”). Also, in February and in March of 1841 one event each is listed by Wilkes that does not appear in the Lyman catalogue. It is not known whether these differences in reporting were due to differences in location of the reporters or were due to errors and omissions.

The inconsistencies are minor in view of the many years of record-keeping. It is truly fortunate that the remarkable document initiated by Sarah Lyman was continued and preserved, giving us a record of the seismic activity for 84 years during the early history of Hawaii. This outstanding accomplishment reflects the exceptional interest and perseverance of Sarah, Frederick, and Isabella Lyman. The awesome shaking experienced by Frederick and Isabella in the epicentral area of the 1868 Kau earthquake, the strongest historic earthquake in Hawaii, undoubtedly left a profound impres-

sion in their lives and, very likely, enhanced their concern and determination in maintaining the earthquake record.

## ACKNOWLEDGMENTS

The contents of this report were developed with partial support from grant number 14–08–0001–G1325 from the U.S. Geological Survey, Department of the Interior, and partial support from the National Science Foundation grant number EAR–8916252. We thank the director, Dr. Leon H. Bruno, and the staff of the Lyman House Memorial Museum for making this record of Hawaii earthquakes available. We are especially thankful for support provided by Paul Dahlquist and Jay Ishimoto in preparing photographic reproductions of some of our figures and Gloria Kobayashi in researching times and places of the Lyman residences in Hilo. Carl Stover of the U. S. Geological Survey’s National Earthquake Information Center assisted considerably in organizing this publication. We thank N.J. Regnier, B.J. Sloan, Marie Yamashita, and Sandra Zane for their assistance with typing and deciphering the copies of the original manuscript.

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THE LYMAN DIARY

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A LIST OF EARTHQUAKES  
KEPT BY MRS. S. J. LYMAN AT HILO, HAWAII  
COMMENCING JUNE 1833.

- 1833 June.  
Two slight shocks during the month.
- 1833 Oct. 3d.  
Two shocks in the night. One of them quite heavy.
- 1833 Oct. 13th.  
One at 3 oclock P.M. rather heavy. Motion up and down.
- 1834 Feb. 19th.  
A shock so heavy, at 6 P.M. as to throw down stone walls, throw cream off the milk, and upset small jars etc. About 9 in the evening there was another slight shock.
- 1834 May 14th.  
A heavy shock between two and three oclock P.M.
- 1834 Aug. 31st.  
One at near four A.M. so heavy as to awaken nearly every one.
- 1835 Mar. 23d.  
A slight shock at nine A.M.
- 1835 Mar. 26.  
Three successive shocks at six and a quarter P.M.
- 1835 July 21.  
Three shocks during the day.
- 1835 Sept. 6th.  
A shock at 2 or 3 A.M.
- 1837 June 20th.  
A smart shock at 2 minutes before 7 P.M.
- 1838 Jan. 19th.  
A smart shock after 12 oclock midnight.
- 1838 Jan. 29th.  
Three shocks in quick succession near 10 P.M. The two first heavy, the last slight.
- 1838 July 9th.  
A slight shock between 8 & 9 A.M.
- 1838 Oct. 16th.  
A slight jar accompanied with a noise resembling the discharge of a distant cannon.
- 1838 Nov. 5th.  
Three shocks during the day. One in the A.M. two in the P.M.
- 1838 Nov. 6th.  
A shock a few minutes before ten A.M.
- 1838 Nov. 7th.  
A smart shock at 1/4 before 12 M. another at 3 and another about 4 A.M.
- 1838 Nov.-Dec.  
From the 8th to the 13th there were several shocks each day and frequently during the whole month, and also during the first week of Dec. none of them so heavy as to cause much alarm.
- 1838 Dec. 12th.  
A tremendous shock at one oclock P.M. The doors and windows rattled and was difficult to walk (around) across the room. The little plants shook and trembled and a person walking near the house has to brace himself to keep his position. Stone walls were thrown down and the plastering in the house cracked.
- 1839 April 7th.  
A pretty smart shock at noon.
- 1840 Feb. 1st.  
A severe shock at 1 1/2 P.M.
- 1840 May 5th.  
A slight shock at 4 P.M.
- 1840 Sept.  
A slight shock at 10 P.M.
- 1840 Oct. 14th.  
A slight shock between eight and nine oclock P.M.
- 1840  
In June of 1840 there was an eruption from Kilauea.
- 1840 Dec. 18th.  
Two smart shocks about five A.M. waking us from sound sleep.
- 1841 Mar. 11th.  
Two shocks one at 1/4 before one oclock, and the other at 20 minutes before two P.M. Motion up and down. - gently and easy.
- 1841 April 5th.  
A smart shock at 1 1/2 P.M. undulations North and South.
- 1841 April 7th.  
The most severe shock we ever felt at 11 3/4

- P.M. Seams were opened in the plastering in every room in the house, and the whitewash scattered a foot or two from the walls. Every soul in the house was awaked and it seemed as if the house was really coming down on us. Milk was thrown out of pans and water out of a pail only half full. A little before one A.M. and again at two there were slight jars.
- 1841 May 28th.  
A slight shock at 7 1/2 P.M.
- 1841 June 26th.  
A shock in the night.
- 1841 July 3d.  
A shock between 5 & 6 A.M.
- 1841 Sept.  
One shock-time forgotten.
- 1841 Nov. 28th.  
A shock in the night.
- 1842 Feb. 14.  
A shock at five A.M.
- 1842 Aug. 15.  
A shock in the night.
- 1842 Aug. 31.  
A shock at half past nine evening.
- 1842 Nov. 9th.  
A shock in the night so heavy as to awaken us.
- 1843 Mar. 8.  
A shock at seven P.M.
- 1843 April 27.  
A shock in the night.
- 1843 July.  
Two during the month - one in the night, and the other in daytime.
- 1843 Dec. 15.  
A shock at 10 A.M.
- 1844 Feb. 18.  
A severe shock at 6 1/2 P.M.
- 1844 Sept. 1.  
A heavy shock a little before 8 A.M.
- 1845 Dec. 21.  
A moderate shock in the night.
- 1846 Feb. 14.  
A slight shock at 7 A.M.
- 1846 June 15, 24.  
Moderate shocks in the night.
- 1847 March 29.  
A shock between 9 & 10 A.M.
- 1847 Oct. 14.  
A heavy heavy shock about 3 P.M.
- 1848 Feb.  
A heavy shock at 5 P.M.
- 1848 April 19.  
Two slight shocks at 8 P.M.
- 1848 July 9.  
A severe protracted shock at a quarter past four morning.
- 1848 Dec. 5th.  
A slight shock at 8 1/4 P.M.
- 1850  
Only two shocks during the year. time not remembered.
- 1851 Jan. 12.  
A smart shock about 7 P.M. Premonitory shock very distinct.
- 1851 Mar. 4.  
A moderate shock a little past midnight.
- 1851 May 11.  
Slight shock at 2 in the morning.
- 1852 Mar.  
An eruption commenced in March
- 1852 Mar. 31.  
A very severe shock 4 1/4 P.M.
- 1852 Oct. 19.  
A smart shock at 4 3/4 A.M.
- 1853 Mar. 2.  
A smart shock at 5 A.M.
- 1853 Mar. 8.  
A smart shock - time forgotten.
- 1853 Mar. 11.  
A smart shock at 4 1/2 A.M.
- 1854 Aug. 26.  
A smart shock at 4 P.M.
- 1854 Oct. 29.  
A smart shock at 8 evening.
- 1855 Mar. 18.  
A smart shock at 8 1/2 P.M. the vibrations continueing several seconds.
- 1855 May 24.  
A protracted & tolerably smart shock at 9 oclock A.M.
- 1855 June.  
A smart shock at 4 1/2 P.M.
- 1855 Aug. 3d.  
9 Tolerably smart shock at 8 1/2 P.M. motion up and down. The volcano is unusually active at this time.

- 1855 Sept. 17.  
A smart shock at 8 A.M.
- 1855 Nov. 2.  
A smart shock at 7 A.M.
- 1856 Jan. 8.  
A smart shock at 4 A.M.
- 1857 July 8.  
A slight shock at 5 1/2 A.M.
- 1857 July 30.  
A severe shock at one in the morning motion undulating.
- 1857 Aug 30.  
A slight shock at 1 1/2 P.M.
- 1857 Sept. 9.  
A smart shock at 9 A.M.
- 1858 March.  
One slight shock time forgotten.
- 1858 April.  
A protracted and rather heavy shock.
- 1858 June 8.  
A slight shock at 3 A.M.
- 1858 July 5.  
A smart jar before morning.
- 1858 Sept. 11.  
Coppied to here for Dr. Winslow.
- 1859 July 6.  
A slight shock in P.M.
- 1859 July 16.  
A smart shock at 11 P.M.
- 1859 Nov. 21.  
A smart shock at 3 A.M. The trembling continued unusually long after the shock.
- 1860 Feb. 14.  
A moderate shock at half past three P.M.
- 1860 June 8.  
A moderate shock at 3 A.M.
- 1860 July 18.  
A severe shock at 4 P.M.
- 1860 July 20.  
A slight shock at 9 P.M.
- 1860 July 26.  
A slight shock at 6 P.M.
- 1860 Sept. 26.  
A slight shock about 11 A.M.
- 1860 Nov. 17.  
A moderate shock at 10 1/2 A.M.
- 1861 Mar. 12.  
A smart shock at 10 A.M.
- 1861 June 1st.  
Quite a severe shock at 8 1/2 P.M.
- 1861 Aug. 9.  
A slight shock at 7 1/2 P.M.
- 1862 Feb. 7.  
A slight shock at 4 P.M.
- 1862 April 27.  
A slight shock at a quarter to 12 midnight.
- 1862 Oct. 9.  
A slight shock at 3 P.M.
- 1862 Oct. 9.  
A slight shock at 6 P.M.
- 1863 April 13.  
A slight shock at 10 1/4 A.M.
- 1863 May 6.  
Two heavy shocks at 3 1/2 P.M.
- 1863 Nov. 26.  
A heavy shock at 3 1/2 A.M.
- 1864 Feb 15.  
One shock at 12 1/2 noon.
- 1864 May 14.  
A shock at 4 P.M.
- 1865 March 3.  
A heavy shock at 7 A.M.
- 1865 July 17.  
Two shocks at 4 A.M.
- 1865 Aug. 26.  
A shock at 9 1/4 P.M.
- 1865 Sept. 14.  
A shock at 9 1/4 P.M.
- 1865 Dec. 11.  
A smart shake at 1 1/2 A.M.
- 1865 Dec. 25.  
A slight shock at 8 P.M.
- 1865 Dec. 29.  
An eruption discovered on Mauna Loa.
- 1865 Coppied to here for French Consul by Mr. Lyman. Mar. 27, 65'
- 1866 Aug. 4.  
Two slight shocks at 11 oclock A.M.
- 1866 Oct. 1.  
A protracted but not heavy shock at 8 oclock P.M.
- 1867 May 31.  
Coppied to here for Dr. Winslow
- 1867 Oct. 19.  
A slight shock at 20 min to 12

1867 Oct. 30.  
A heavy shock at 5 1/2 P.M.

1867 Nov. 7.  
A smart shock at 2 A.M.

1867 Dec. 29.  
At 11 3/4 P.M. a slight shock which was felt in Kau.

1868 Feb. 2.  
A shock in the night.

1868 March 28.  
Felt a shock of earthquake quite severe at 1 4/5 P.M. Another hard one at 3 oclock, another at 6 & another at 7 and at 10 P.M.

1868 Mar. 29.  
A hard shock in the night which waked us all from sleep. This was at one oclock A.M. Then a slight shock at six, a jar at eight, another at a short time after, another at ten, another a smart shock at at twelve M. motion undulatory - At one P.M. an easy shake.

1868 April 1st.  
There were six shocks between the hours of eleven last night and six this morning. Have felt two during the day and a jar this evening.

1868 April 2nd.  
There were twelve shocks counted during the night. -most of them easy, one however rocked the bed considerably At four oclock that afternoon there was such an awful rocking and heaving of the earth as we never felt before. Indeed there was a series of shocks following each other in quick succession the third of which drove us from the house. after a cessation of only one or two minutes the fourth came. in which violent undulations, rotary, and all most all other motions were combined or followed each other in quick succession. (At one moment the surface of the earth seemed to move like the surface of the ocean and the large trees to sway hither and thither like ships masts in a storm. The few stone buildings in the place were ruined. The chimneys of cook and dwelling houses were thrown down. Clocks, mirrors and crockery, not firmly secured, were generally thrown down and broken. Cellar walls and underpinning were much damaged. Stone walls were generally prostrated, even the foundation stones being generally removed from their ordinal position. and it was not easy to tell in which direction from the wall the larger portion of the stones had fallen.

The best chimney stacks of the Hilo Sugar Mills were thrown down while some of the old cracked chimneys supposed all most ready to fall were little affected. The shocks were considerably more severe here than they were at the crater of Kilauea thirty miles from here, but less severe than they were in Kau from Kapapala to Kahuku. Then slight jars were felt almost constantly for a few minutes after which the earth commenced rocking again fearfully. This continued but a short time and was followed by a tidal wave.

After the fearful shaking subsided slight jars were felt almost constantly for about five minutes when the earth commenced rocking again fearfully, but it was of short duration. The wonder was that any building was left standing.

1868 April 3.  
There are frequent jars by day and by night some of them so hard as to drive us from the house.

1868 April 5.  
The shocks are so frequent we have ceased to count them.

1868 April 7.  
Saw smoke from the Southern slope of Mouna Loa, and we hear of lava flow in Kau.

1868 April 8.  
Two smart shocks at eleven A.M. and several slight ones during the day.

1868 April 9.  
All slept well last night for the first time since the 2nd instant, only one shake felt during the night - occasional shakes felt during the day.

1868 April 10.  
A quiet night but was waked by a shock this morning.

1868 April 11.  
A shaking at 11 oclock in the night.

1868 April 13.  
A moderate shock at day light, and another at nine A.M.

1868 April 15.  
One shake at 5 A.M. and another in the evening.

1868 April 18.  
A dense smoke came in from the North.

1868 April 19.  
Still dark and smokey. a smart shake about 8 in the evening.

- 1868 April 20.  
Still smokey.
- 1868 April 29.  
A smart shock about midnight that drove us from our beds.
- 1868 April 30.  
A shake at five in the morning, and two during the day.
- 1868 May 5.  
The earth is again unquiet. slight shocks occurring frequently.
- 1868 May 6.  
A shock in the night and two today.
- 1868 May 10.  
Two smart shocks last evening at nine oclock.
- 1868 May 11.  
A shake at dawn of day and another very distinct at nine A.M.
- 1868 May 15.  
Three smart shakes in quick succession at a quarter to six A.M.
- 1868 May 16.  
Two slight shocks about midnight and another at eight this forenoon.
- 1868 May 17.  
A smart shock at twenty minutes past eight P.M.
- 1868 May 18.  
A shock in the night.
- 1868 May 19.  
A shake about one P.M.
- 1868 May 21.  
A shake at nine A.M.
- 1868 May 22.  
A shake at seven A.M.
- 1868 May 23.  
A moderate shake at 11 last night.
- 1868 May 24.  
A severe shake about midnight last night. Kilauea very bright.
- 1868 May 25.  
Two easy shakes in the night.
- 1868 May 26.  
A moderate shake at six A.M. another quite hard at twenty minutes to eight, and another at seven P.M.
- 1868 May 27.  
A shake at five A.M. another at eleven A.M.
- 1868 May 28.  
A protracted trembling of the earth at midnight and another before morning.
- 1868 May 29.  
One shake in the night.
- 1868 June 3.  
A shake at four P.M.
- 1868 June 4.  
One shock during the day.
- 1868 June 5.  
One shock in the night.
- 1868 June 6.  
A shake at nine A.M. which was soon followed by another.
- 1868 June 7.  
One shake last night.
- 1868 June 9.  
A shake at 11 last night and another at 4 this morning.
- 1868 June 10.  
A smart shock preceded by a decided premonitory shock at a quarter past seven A.M. (P.M.?)
- 1868 June 16.  
A shake at 2 P.M.
- 1868 July 7.  
There have been several slight shocks of late which I have not recorded.
- 1868 July 8.  
A shake in the night.
- 1868 July 11.  
A shake at 11 P.M.
- 1868 July 12.  
A smart shock at 8 A.M. which caused all at the table to give a sudden spring forward.
- 1868 July 20.  
A shake at 5 A.M.
- 1868 July 22.  
A shake at 2 P.M.
- 1868 July 23.  
A shake at 8 P.M.
- 1868 July 24.  
A decided shake at twenty minutes to eleven last night, which drove us from our beds.
- 1868 July 29.  
Two shakes last night.
- 1868 July 31.  
Two shakes last night.

- 1868 Aug 5.  
One shake in the night.
- 1868 Aug 8.  
A smart shake at ten last night.
- 1868 Aug 10.  
A smart [s]hake twenty minutes to eleven A.M. another at two P.M.
- 1868 Aug 11.  
A shake at 5 P.M.
- 1868 Aug 12.  
A shake at 8 P.M.
- 1868 Aug 15.  
It is reported that there were three shocks yesterday, and two during the night during the kai mimiki, but I did not feel them.
- 1868 Aug 17.  
One slight shake last night.
- 1868 Aug 20.  
A smart shake at 8 A.M. followed by another in about ten minutes and another at 1 P.M.
- 1868 Aug 21.  
Two shocks during the day.
- 1868 Aug 23.  
Three shakes during last night.
- 1868 Aug 25.  
A decided shake at 20 min to 4 P.M.
- 1868 Aug 26.  
A shake at nine A.M.
- 1868 Aug 29.  
A shake at five A.M. another at eight A.M. and another at three P.M.
- 1868 Sept. 5.  
A shake about one P.M.
- 1868 Sept 6.  
A shake about half past ten last night.
- 1868 Sept. 7.  
A hard shak at half three P.M.
- 1868 Sept. 8.  
A shake near morning.
- 1868 Sept. 11.  
A decided shake (proceeded by a distinct premonitory shock.) at 10 A.M.
- 1868 Sept. 13.  
a decided shake at eight last evening, another at two this afternoon.
- 1868 Sep. 18.  
A slight shake at half past 8 A.M.
- 1868 Sep. 21.  
Two slight shakes in the night.
- 1868 Sep. 22.  
One sudden decided jar at 6 A.M. another at two P.M.
- 1868 Sep. 23.  
Smokey again.
- 1868 Sep. 24.  
A light seen at Kilauea. last night - very smokey.
- 1868 Sept. 25.  
A moderate shock in the night.  
(Absent for two weeks from home)
- 1868 Oct. 20.  
A smart shake at 5 A.M. proceeded by a premonitory shock.
- 1868 Oct. 26.  
A shake a little before midnight.
- 1868 Oct. 30.  
A shake at 8 P.M.
- 1868 Nov. 2.  
Slight shake at 8 A.M. another hard shake proceeded by a slight one at 1 P.M.
- 1868 Nov. 6.  
Smokey again.
- 1868 Nov. 7.  
Smoke rising from the summit of Mauna Loa.
- 1868 Nov. 8.  
A shake in the night.
- 1868 Nov. 10.  
Quite a shake at 10 P.M.
- 1868 Nov. 15.  
A shake in the night.
- 1868 Nov. 16.  
A severe and protracted shake which drove us from our beds, to the verandah at 10 P.M.
- 1868 Nov. 17.  
A shake at 2 1/4 P.M.
- 1868 Nov. 18.  
A slight shake in the night and another today.
- 1868 Nov. 22.  
Two smart shakes at 5 A.M.
- 1868 Nov. 23.  
A shake at fifteen minutes to 11 A.M.
- 1868 Nov. 28.  
A hard shake at half past 8 A.M.
- 1868 Nov. 29.  
A shake at 5 A.M. another at half past 12 P.M.

- 1868 Dec. 11.  
A smart shake about 2 A.M.
- 1868 Dec. 25.  
A smart shake at 5 A.M.
- 1868 Dec. 28.  
A slight shake at 5 1/2 P.M.
- 1869 Jan. 8.  
A shake at 1 P.M.
- 1869 Jan. 18.  
A slight shock a quarter to 10 A.M.
- 1869 Jan. 23.  
A Moderate shake at 2 P.M.
- 1869 Jan. 30.  
A protracted undulatory motion at 10 A.M.  
and a sudden shake at 8 1/2 P.M.  
Coppied to here by Mr Coan.
- 1869 Jan. 31.  
A smart shake at 5 A.M. another at 2 P.M.
- 1869 Feb. 2.  
Moderate up and down shaking of some  
seconds about 6 1/2 A.M. another in the after-  
noon about 2 oclock.
- 1869 Feb. 4.  
A short decided up and down shake after mid-  
night.
- 1869 Feb. 11.  
A smart shake in the night which waked all  
the sleepers.
- 1869 Feb. 18.  
A protracted trembling at 12 M. succeeded by  
a violent shakeing which caused some of us to  
fly out of the house. At fifteen minutes past  
twelve, there was a sudden smart bump fol-  
lowed by quite a smart shaking. The first was  
the hardest we have had since Aug.
- 1869 Feb. 19.  
A moderate shake sometime after midnight.
- 1869 Feb. 20.  
A moderate shock at 8 1/4 A.M.  
Hear that the Volcano is very active, several  
lakes opened.
- 1869 Feb. 22.  
At twenty minutes to two oclock yesterday  
morning we were roused from our slumbers  
by a violent shaking which continued for  
some seconds then there was a cessation of a  
few seconds, but short shake which alarmed  
us a good deal. This morning at a quarter to  
five there was a repetition of the same but not  
quite so hard as the night before.
- 1869 March 9.  
A slight shake at 8 A.M.
- 1869 March 16.  
A slight shake at 3 A.M.
- 1869 March 18.  
Two slight shakes in the night.
- 1869 March 24.  
A moderate shock at 8 A.M.
- 1869 April 14.  
A slight trembling of a few seconds was suc-  
ceeded by a sudden hard jerk which made the  
whole house creak. This was at 11 A.M.
- 1869 April 19.  
A smart short shake at midnight last night
- 1869 April 12 (21?).  
Two hard shocks at twenty minutes to 8 P.M.  
which drove us out.
- 1869 April 24.  
A smart shake at 10 minutes to 1 oclock A.M.  
In five minutes after there was another similar  
shake, which drove us from our beds.
- 1869 May 10.  
a slight shock between 10 and 11. A.M.
- 1869 May 11.  
A slight shake at 8 oclock A.M.
- 1869 May 20.  
At a quarter to 7 A.M. There was one of those  
sudden sharp bumps which startles everyone.  
and this was followed by a smart shake which  
caused the house to tremble for several  
seconds. At half past one P.M. there were  
two slight shocks
- 1869 May 24.  
A sudden but not hard shake in the night.
- 1869 May 29.  
A moderate shake at a quarter past four P.M.
- 1869 May 30.  
A smart shock towards morning
- 1869 June 6.  
A moderate shock at about 11. oclock last  
night.
- 1869 June 9.  
A shake in the night at 12
- 1869 June 22.  
A smart shock at 3 P.M.
- 1869 June 23.  
A shake in the night.
- 1869 July 8.  
A moderate shock in the night.

- 1869 Aug 1.  
Last night (about midnight) there was a smart shock of earthquake preceded by a premonitory shock which waked us all.
- 1869 Aug. 13.  
A moderate shock at 9 1/2 last night.
- 1869 Aug 14.  
A shock in the night.
- 1869 Aug 15.  
A shock at 4 this morning which resembled very strikingly the beginning of the one of the 2nd of April. '68.
- 1869 Aug. 17.  
A smart shock at 11 A.M.
- 1869 Aug. 19  
A smart shock at 5 P.M.
- 1869 Sept. 2.  
A moderate shock at 3 1/2 A.M.
- 1869 Oct. 7.  
A distinct shock at 2 P.M. It is said there have been severe slight shocks during the month but I have not felt them.
- 1869 Oct. 22nd.  
A smart shock at 11 P.M. last night. Undulations sharp and distinct N. & S.
- 1869 Dec. 6th.  
a moderate shock at 2 P.M. It is said there was a shock in the night.
- 1869 Dec. 7th.  
A distinct shock at 5 1/2 A.M.
- 1869 Dec. 28th.  
A decided shock at 8 P.M.
- 1870 Jan. 3rd.  
There was smoke seen on the summit of Mouna Loa at noon today & this evening there is a column of smoke rising half way down the mountain, the North Kona side. We see no light.
- 1870 Jan 4th.  
Two distinct shocks at 20 minutes to 12 last night.
- 1870 Jan 7th.  
A decided shock at 7 1/2 P.M. preceded by a trembling
- 1870 Jan 13th.  
A slight shake at 7 A.M.
- 1870 Feb. 26th.  
A sudden smart shake at 20 minutes to 8 P.M.
- 1870 Mar. 14th.  
A moderate shake at 20 minutes to 3 P.M.
- 1870 Mar. 21st.  
A protracted & quite severe shock at 8 1/2 P.M.
- 1870 Mar. 26.  
A moderate shock at a quarter to 4 A.M. & another hours later.
- 1870 April 7th.  
Three shocks within 40 minutes between 2 & 3 P.M.
- 1870 April 13th.  
A moderate shake at 4 A.M.
- 1870 May 2nd.  
A smart shock at 4 1/4 this morning
- 1870 May 6th.  
A slight shock at 5 A.M.
- 1870 May 31st.  
A shock at 20 minutes to 4 P.M.
- 1870 June 12th.  
A slight shock at 10 minutes past 9 A.M. It is said there was one about 4 P.M. on the 10th. inst.
- 1870 June 13th.  
A protracted shaking (not severe) at 3 A.M.
- 1870 June 22.  
A moderate shake at 9 P.M.
- 1870 July 9th.  
A slight shock at 15 m. to 11 A.M.
- 1870 July 13th.  
A slight shock at 20 m. to 7 P.M.
- 1870 July 21st.  
A protracted trembling between 2 & 3 A.M.
- 1870 July 25th.  
A shake at 4 A.M.
- 1870 Aug 1st.  
A jar at 9 A.M.
- 1870 Aug 7th.  
The most protracted shaking at 4 A.M. that we ever felt with the exception of the great earthquake. It was not severe however.
- 1870 Sept. 1st.  
A slight shock in the night
- 1870 Oct. 30th.  
A slight shock at a quarter to 6 A.M. Another between 7 & 8 P.M.
- 1870 Nov. 5th.  
Two slight shocks at 20 m. to 8 A.M.

- 1870 Nov. 20th.  
At 4 o'clock A.M. there was a smart shock, which was succeeded in a few seconds by a heavy shaking which reminded one of the shaking of a horse.
- 1870 Nov. 24th.  
A sudden heavy jar at 9 P.M.
- 1870 Nov. 28th.  
A moderate shock at 4 P.M.
- 1870 Dec. 2nd.  
A shock at 11 A.M.
- 1870 Dec. 9th.  
A shock at 4 P.M.
- 1870 Dec. 11th.  
A hard shake at a quarter to 1 A.M. Another slight one in Dec. - not recorded.
- 1871 Feb. 8th.  
A smart shaking at half past 10 P.M. preceded by a slight jar.
- 1871 Feb. 12th.  
A shake about 12 M.
- 1871 Feb. 15th.  
A protracted shake at 20 min. to 8 P.M.
- 1871 Feb. 19th.  
A shake which lasted 2 min. at 10:5 P.M. A part of the time it was quite hard & yet nothing was displaced in the house. The length of it was what alarmed us.
- 1871 Feb. 23rd.  
A sudden jar at 4 P.M.
- 1871 Mar. 4th.  
A sudden jar between 4 & 5 A.M.
- 1871 Mar. 6th.  
2 shakes in the night.
- 1871 Mar. 8th.  
A shock at 11 A.M.
- 1871 April 9th.  
A sudden jar at 20 min. to 8 A.M.
- 1871 April 14th.  
A sudden bump at 12 M.
- 1871 May 14th.  
A slight shock
- 1871 May 17th.  
A light shock 9 P.M.
- 1871 June 12th.  
A moderate shaking of a few seconds at 10 min. to 8 A.M.
- 1871 June 19th.  
A smart shake at a quarter to 6 A.M.
- 1871 June 20th.  
A shake at 1 o'clock A.M.
- 1871 June 22nd.  
A smart decided shake that waked us all from sleep.
- 1871 July 11th.  
A protracted trembling at 4 A.M. but not hard. There have been several slight earthquakes of late.
- 1871 Aug. 12th.  
A shock at 2 P.M.
- 1871 Sept. 2nd.  
A shock at 7 1/4 A.M.
- 1871 Sept. 11th.  
A hard shock at 11 A.M.
- 1871 Sept. 13th.  
Severe shock at 12 1/4 M. from S. - N. walls thrown down
- 1871 Sept. 25th.  
Two smart shakes, only 2 or 3 seconds apart a few minutes after 3 A.M.
- 1871 Sept. 27th.  
A distinct jar at about 7 P.M.
- 1871 Oct. 2d.  
A distinct jar at about 5 A.M.
- 1871 Oct. 12th.  
A distinct jar at about 7 1/4 P.M.
- 1871  
One or two slight shocks in the last half of Oct.
- 1871 Nov. 2nd.  
A slight but protracted shake at about 7:20 P.M.
- 1872 Jan. 6th.  
A slight shock at about 8 A.M. & a slight premonitory followed by a smart but not hard shake at 3:30 P.M.
- 1872 Feb. 5th.  
A smart shake at 5.45 P.M.
- 1872 Feb. 24th.  
A moderate shake at 11 A.M.
- 1872 Mar. 1st.  
A moderate shake at 9.20 A.M.
- 1872 Mar. 4th.  
A moderate shake at 6 1/2 A.M.
- 1872 Mar. 6th.  
A smart shock at 4 A.M.
- 1872 April 13th.  
A slight shock at 3 P.M.

- 1872 April 22nd.  
Three distinct shocks, which shook the house fearfully at 6 P.M. The motion of the earth was very perceptible to those standing out of doors.
- 1872 April 23rd.  
A shock at 2 1/2 A.M.
- 1872 April 29th.  
A slight shock in the night.
- 1872 May 2nd.  
Two gentle shakes at a quarter to 1 A.M. A sudden shake not hard at 7 1/2 P.M.
- 1872 July 8th.  
A moderate shake in the night.
- 1872 July 11th.  
A shock last night, time not known.
- 1872 July 15th.  
Two distinct shocks a[t] 7 1/2 P.M.
- 1872 Aug. 17th.  
One shock at 5 A.M.
- 1872 Aug. 18th.  
A smart shock preceded by a decided premonitory shock at 1 oclock A.M.
- 1872 Aug. 19th.  
A slight shock at 10 P.M.
- 1872 Aug. 27th.  
It is about two weeks since an eruption commenced on Mouna Loa (supposed to be at Mokuaweoweo) & it is still very brilliant at night.
- 1872 Oct. 13th.  
A decided jerking shake at 6 P.M.
- 1872 Nov. 30th.  
A light shake about 2 P.M.
- 1873 Jan. 7th.  
Had a fine view this eve. of a grand eruption in Mokuaweoweo, No flow
- 1873 Jan. 22nd.  
A sudden, slight shock at about 8 o'clock. P.M.
- 1873 Jan. 23rd.  
A smark shock at 9 3/4 A.M. Two shocks at 20 min. to 5 P.M.
- 1873 Feb. 8th.  
A slight shock at 11 1/4 P.M.
- 1873 Feb. 11th.  
A slight shock at 5 A.M.
- 1873 Feb. 14th.  
A slight shock at 2 A.M.
- 1873 Mar. 29th.  
A slight shock at 6 A.M.
- 1873 April 24th.  
Two distinct, but not hard shocks about 9 P.M.
- 1873 June 5th.  
A smart shock at 7 1/2 A.M. & another between 8 & 9 A.M.
- 1873 July 10th.  
A smart shock at 11 A.M. & another at 8 P.M. the latter slight.
- 1873 July 29th.  
A slight shock at 6 A.M.
- 1873 Aug. 28th.  
A shock at 5 P.M. It is said there have been several slight shocks during the month.
- 1873 Aug. 30th.  
A decided shock at 3 1/2 P.M.
- 1873 Sept. 3rd.  
A smart shock at 3 A.M.
- 1873 Sept. 5th.  
Two smart shocks at 4 1/2 P.M.
- 1873 Sept. 30th.  
A moderate shock at 8 A.M.
- 1873 Oct. 4th.  
A slight shock in the night.
- 1873 Nov. 13th.  
A decided shake at 6 A.M.
- 1873 Dec. 13th.  
A long tremulous motion at 9 A.M.
- 1874 Jan 1st.  
A slight shock at 4 P.M.
- 1874 Jan 15th.  
A slight shock at 5 A.M.
- 1874 Feb. 6th.  
A shock in the night.
- 1874 Feb. 12th.  
A smart shock at 8 1/4 P.M.
- 1874 Mar. 4th.  
It is said there were two shakes in the night.
- 1874 Mar. 28th.  
A real smart shake at 9 P.M.
- 1874 April 10th.  
A real smart shake at 4 1/2 A.M.
- 1874 April 27th.  
A protracted shake at 7:20 P.M.
- 1874 April 30th.  
Two smart shakes at 5 1/4

- 1874 May 15th.  
A severe shake at 11 3/4 A.M.
- 1874 June.  
Two quite smart shakes
- 1874 June 29th.  
A hard shake at 4 P.M.
- 1874 Oct. 2nd.  
A smart shake at 11 P.M.
- 1874 Oct. 10th.  
A gentle undulating motion at a quarter to 11 A.M.
- 1874 Nov. 9th.  
A shake at 4 P.M. not severe
- 1874 Dec. 5th.  
A slight shock at about 4 P.M.
- 1874 Dec. 29th.  
A protracted and some what severe shock at 6 o'clock A.M. There were really three distinct shocks, but the trembling between them did not cease and continued some seconds after the last shock. This shock was felt on Oahu.
- 1875 Jan. 11th.  
A Eruption on Mouna Loa discovered yesterday morning quite early.
- 1875 Jan. 12th.  
The eruption is evidently in Mokuaweoweo & is extensive.
- 1875 Jan. 26th.  
The mountain has been clear for several days in succession. The light is brilliant at night & the smoke is marked during the day. The snow is extensive on both mountains.
- 1875 Jan. 29th.  
A smart shake at 12:15 M. preceeded some 12 seconds by a sudden bump & followed by several seconds of trembling. No noise save what was made by the shaking of the house.
- 1875 Jan. 30th.  
The eruption or light on the mountain was exceedingly brilliant last night & at sun rise this morning there was a perpendicular column of smoke, over a thousand feet high resting over the summit crater. It resembled smoke rising from a chimney on a cold winter morning, & spreading out at the top like an expanded flower. The appearance was very beautiful & lasted an hour.  
Coppied to here for Mr. Martin of Paris.
- 1875 Feb. 5th.  
Two moderate shocks, with 6 or 8 sec inter-vening, at 20 min. to 9 P.M. No noise accompanying it.
- 1875 Feb. 11th.  
A sudden jar, not hard, at 9 P.M.
- 1875 Mar. 1st.  
A slight shock a little before 9. A.M. Motion undulating. N. & S.
- 1875 April 20th.  
A slight undulatory motion lasting a few seconds, at a quarter to 12 M.
- 1875 May 20th.  
Two slight shocks at 1 1/2 P.M.
- 1875 May 21st.  
Two slight shocks at 5 1/4 P.M.
- 1875 May 25th.  
A slight shake in the night.
- 1875 June 6th.  
A smart shake at 20 min. to 2 A.M. preceeded by a premonitory shock that waked us from a sound sleep.
- 1875 Aug. 11th.  
A great cloud of smoke visible during the day on Mouna Loa, & a brilliant display of light in the evening.
- 1875 Aug. 12th.  
A gentle shake at 9 1/2 P.M.
- 1875 Aug. 13th.  
A protracted, but gentle shaking at about 8 o'clock P.M.
- 1875 Nov. 18th.  
A gentle shake at 8 1/2 P.M.
- 1875 Nov. 23rd.  
A protracted and hard shaking at 11 1/2 A.M. The children of the foreign school ran out. At 12 1/2 there was a slite shake & at about 7 P.M. another.
- 1876 Feb. 13th.  
An eruption was discovered on Mouna Loa Sab. eve & the Eruption ceased in about 2 weeks.
- 1876 Mar. 29th.  
A slight shake at 3 1/2 P.M.
- 1876 Mar. 30th.  
A protracted & quite hard shake at about 4 A.M.
- 1876 April 11th.  
Light seen on Mauna Loa.
- 1876 May 3rd.  
A smart shake at 9.P.M.

- 1876 June 27th.  
A moderate shake at 4 A.M.
- 1876 July 17th.  
A slight shake at 6 A.M.
- 1876 Sept. 5th.  
A slight shake at 9:40 A.M.
- 1876 Oct. 23rd.  
A sudden jar at about 5 A.M.
- 1876 Nov. 1st.  
A moderately smart shock between 4 & 5 A.M.
- 1877 Feb. 23d.  
A decided shock at 6 P.M.
- 1876\* Feb. 14th.  
An eruption seen on the mountain at 9 P.M. In two days it was extinct, but it broke out lower down the mountain & reached the sea in a few days, about 3 miles from Kaawaloa.
- 1877 Apr. 28th.  
A distinct but not hard shake at 5 1/2 A.M.
- 1877 May 5th.  
Two shocks within an hour between 1 & 2 o'clock A.M..
- 1877 May 6th.  
A protracted but moderate shock at 5 1/2 A.M.
- 1877 May 10th.  
A heavy tidal wave swept the beach at 5 A.M. destroying 34 homes at Waiakea with the bridge, & 12 houses between Waialama and Asko's old store. One hundred and sixty three people are made houseless & homeless. Some are bruised and some have broken bones. Five are dead. The wave was (by accurate measurement at Waiakea) 13 1/2 feet above high water mark and swept inland 40 rods.
- 1877 May 31st.  
A severe and protracted shaking at 4:20 A.M. Some things thrown down and displaced in the house and walls damaged. At a quarter to five there was a slight shake & another a little past five.
- 1877 Aug 2d.  
A moderate shake at 7:30 A.M. & another quite protracted and decided at a little past 8 P.M.
- 1877 Aug 18th.  
A gentle shake at ten min. past 1.P.M.
- 1877 Aug. 30th.  
Two slight shocks between 11 & 12M
- 1877 Sept. 28th.  
A shake at 8 1/4. P.M.
- 1877 Nov. 30th.  
Two slight shocks at 11 A.M.
- 1877 Dec. 10th.  
Two slight shocks at 11 P.M.
- 1878 Jan 28th.  
A protracted but moderate shake at 10 min to 7 A.M.
- 1878 April 21st.  
A slight shake at 1 P.M.
- 1878 April 30th.  
A decided jar at 3 1/2 P.M.
- 1878 July 6th.  
A moderate shock at 7:5 A.M. Motion undulatory from N to South
- 1879 Mar. 4th.  
A moderate shock at 11 A.M. The first in many months.
- 1879 Mar. 11th.  
A smart shake at 2 A.M.
- 1879 Mar. 24th.  
Two slight shakes about 3 A.M.
- 1879 May 15th.  
A smart shock at 9:30 P.M. A respite of several seconds, then a shake that made the house tremble ( a crack ) violently. Before midnight there was another moderate shake.
- 1879 May 21st.  
A moderate shake at ten min to 9 A.M.
- 1879 June 29th.  
A slight shock at 12 1/2 P.M.
- 1879 Nov. 4th.  
Had the hardest shake at 5 min to 9 A.M. that we have had in a long time. The premonitory shock came suddenly, was quite hard & protracted after which we had a real upshaking. No damage done however.
- 1879 Nov. 9th.  
Two moderate shakes with a few seconds intervening between each.
- 1879 Nov 9th.  
A slight shake at about 5 A.M. Another about 8 A.M.

\* From the position in the diary it is most likely that the year here was 1877.

- 1879 Nov. 27th.  
A smart shake at 20 min to 9 A.M.
- 1880 Feb. 8th.  
A shake about 12 P.M.
- 1880 Apr. 21st.  
Were waked about 1 A.M. by a smart shake which was succeeded by one still harder.
- 1880 May 1st.  
A splendid illumination on the summit of Mouna Loa. commenced at 8 P.M. and looked as tho the whole sumit of the mountain was on fire.
- 1880 July 20.  
A shock in the afternoon
- 1880 July 27th.  
A moderate shake at 8 A.M.
- 1880 Aug. 8th.  
A sudden jerking shake but not protracted at 8 P.M.
- 1880 Aug. 18th.  
A smart protracted shake at 3 3/4 A.M. which drove some from their beds & waked every body.
- 1880 Sep. 8th.  
A moderate shock at 1 3/4 P.M.
- 1880 Sep. 23d.  
Two severe shocks at a quarter past three P.M. the first nearly equal to the second & only a few seconds intervening between them.
- 1880 Sep. 25th.  
We were startled by a severe shaking at 4 o'clock this morning which was followed by a still harder one after a few seconds, & followed by a trembling motion which continued several seconds. In the course of half an hour there were three light but distinct shocks.
- 1880 Nov. 6th.  
A brilliant eruption on Mouna Loa. lava flowing toward Mouna Kea.
- 1880 Dec. 10th.  
We have seen rivers of fire flowing in different directions & new craters have been formed, but the light is gradually fading out, tho' there are indications that there is vigerous action still near the summit.
- 1881 Jan. 5th.  
A little more than a moderate shake at 20 min past 4 P.M. The light is still bright at the summit at night and also at the lower end of the stream nearest to us, which is said to be in the woods about 18 miles from us, but still progressing.
- 1881 Apr. 21st.  
A not very heavy shake preceded by a premonitory shock at 2.25 P.M.
- 1881 May 23d.  
A distinct but slight shock at 6 1/2 A.M.
- 1881 June 17.  
A slight shock at 5 A.M.
- 1881 June 19.  
A distinct shock (not hard) at 10 1/2 A.M.
- 1881 Aug. 13.  
The lava which commenced on Mouna Loa Nov. 6th. 1880. flowed steadily on till within a mile of the sea, when about the 11th of Aug. it began to cool off at the lower end and now on the 13th there is neither fire or smoke to be seen except at the summit. Last night there was perfect darkness for the first time.
- 1881 Sept. 30.  
At early dawn [dawn] the earth commenced trembling and for nearly a minute there was a violent shaking causing the house to creak & groan making it seem as tho' it must come down. It was the most violent one we ever felt & yet strange to say very few things were displaced in the house. The motion was principally up & down, apparently everything moved with the house. In about five minutes there was another slight shock.
- 1882 May 15th.  
One slight shock at 7 P.M.
- 1882 May 21st.  
A slight jar, followed by a decided but not hard shake.
- 1882 July 17th.  
A moderate shake at 7 1/4 A.M.
- 1882 July 26th.  
A decided shake at 2 A.M.
- 1882 Oct. 18th.  
A decided shake at 12 M. not protracted however.
- 1883 May 7th.  
It is said there was a shake in Apr. did not feel it.
- 1883 May 15th.  
A decided shake, but not hard at about 6 o'clock A.M.
- 1883 July 12th.  
A decided, but not hard shake at 7 P.M.

- 1883 July 26th.  
A protracted but not heavy shock at 1 A.M.
- 1883 Oct. 23d.  
A moderate shake at 9. in the evening.
- 1883 Dec. 20.  
A sudden, decided, smart shake at 9. P.M.
- 1884 Apr. 19th.  
Quite a protracted but not a severe shake at 12 M. Have felt no other this year, tho' I have heard of others feeling some slight shocks.
- 1884 Aug. 21st.  
A respectable shake at 3 A.M.
- 1884 Aug. 28th.  
Two moderate shakes in the night.
- 1884 Oct. 30th.  
There were several slight shocks during Sept. & one quite smart one about the 11th Sept.
- 1884 Nov. 5th.  
A moderate shake at 1 P.M.
- 1884 Nov. 18th.  
A decided shake at 1. P.M.
- 1884 Nov. 21st.  
One decided shake at 1. A.M.
- 1884 Dec. 10th.  
A smart shock at 9. o'clock A.M.
- 1885 Jan. 13th.  
A hard protracted shake at early dawn. It was of the kind which may be called intermitent and which makes one nervous not knowing what the end may be, as it gains strength by each successive renewal. This was more protracted than usual.
- 1885 Feb. 5th.  
A moderate shake.
- 1885 Feb. 23d.  
A pretty smart shake (preceded by a slight one) at 9 P.M. ending with a protracted trembling.
- 1885 Dec. 7th.  
Mother died. (continued by B.C.L.)
- 1885 Dec. 12th.  
1/4 of 1: o'clock A.M. one smart shake.
- 1885 Dec. 19th.  
1/4 of 5. A.M. slight shake.
- 1886 Jan. 19th.  
1 slight shock at 20 mts. to one. P.M.
- 1886 Jan. 20th.  
At half past 5 A.M. one decided shock followed by another in five minutes, then another 8 or 10 mts. after & still another 1 hour after.
- 1886 Feb. 13th.  
1 slight shock 8 1/2. P.M. Sat. Eve.
- 1886 Feb. 26th.  
5.P.M. slight shock.
- 1886 Mar. 6th.  
One earthquake during the night at Hilo and over 43 felt during the night & till 9 A.M. at the Volcano of Kilauea and about the 5th shock all the fire left the Lake of Kilauea.
- 1886 Mar. 19th.  
1 slight shock felt in Hilo at 9:15. A.M.
- 1886 Mar. 20th.  
Slight shock 10. A.M.
- 1886 Apr. 29th.  
At half pst. 3. A.M. 1 shock from the direction of the Volcano to the sea. One sharp shock felt at Waimea at 1 o'clock. P.M. also one other earlier in the month not felt here. Fire still gone from the crater of Kilauea. Near the first of June the fire returned to Kilauea. For some time before there was any amount of fire an appearance like electric lights was seen near the old lake.
- 1886 July 28th.  
A slight earthquake about 3. A.M. 2 shocks.
- 1886 Aug. 1st.  
20 mts. after 12 M. a slight shock.
- 1886 Oct. 18th.  
20 mts. of 7. P.M. two shocks first a slight tremble second quite hard.
- 1886 Oct. 19th.  
4:30. A.M. one slight shock. Near midnight one quite long shock.
- 1886 Nov. 19th.  
2:30. P.M. two shocks: first up and down, second waving.
- 1887 Jan. 11th.  
1:20. A.M. one sharp shock.
- 1887 Jan. 16th.  
4:15. P.M. one slight shock.
- 1887 Jan. 17th.  
At 2:30 P.M. one decided shock preceded by two slight shocks. Another shake at 4 P.M. Still another at 4:20 a long but slight shake. Another at 4:45.
- 1887 Jan. 18th.  
2 long but not heavy shocks at 5 min. of 12 last night.

- 1887 Jan. 18th.  
Near 12 M: a slight shock.
- 1887 Jan. 18th.  
A 1:30 P.M. a long shock.
- 1887 Jan. 19th.  
A bright reflection was seen last night on the clouds over Mouna Loa on the Kau side. The report is that has been seen since Sat night.
- 1887 Jan 23d.  
11:27 at night a hard shake. At 20 min of 12 a hard shake. At 9 min of 12 a slight shake. At 6 min Of 12 a slight shake. At 3 min of 12 a slight shake. One at 12. long but slight. At 8 min past 12 another very slight. Some felt a slight shake between 6 & 7 in the evening. The first light was seen on Sunday the 16th., and was not seen again till Tuesday. Then a lava flow broke out near Kahuku and reached the sea in a day or so. It continued to flow for a week or so.
- 1887 Jan. 25.  
A slight shock at 12:30 last night and another at 3:30.
- 1887 Jan. 28.  
One shake near 12 last night.
- 1887 Feb. 12.  
A shock about noon. It is said there was one last night.
- 1887 Feb. 16th.  
One slight but rather long shock at 20 min past 1.
- 1887 Mar. 8th.  
There were 3 slight shocks between 9 and 12 last night.
- 1887 Mar. 9th.  
Two very slight shakes between 11 & 12 last night.
- 1887 Apr. 23d.  
A slight shock at 7. A.M. and it is said there was another near 10 A.M.
- 1887 May 10.  
A slight shake at 7. A.M.
- 1887 July 23.  
About noon, one decided shock.
- 1887 Aug. 5th.  
Slight shock about noon.
- 1887 Aug. 7th.  
1.30 A.M. one quick sharp shock waked us all up.
- 1887 Aug. 22.  
Qr - before 5. A.M. one slight shock.
- 1887 Sep. 13th.  
10 m. after 1. A.M. one long continued shock. not severe enough to displace anything, but we all were awakened by it.
- 1887 Oct. 1st.  
5 mts. ps 11 P.M.- A long peculiar shake nothing was put out of place, but the bell of the hanging lamp struck from side to side so that we heard it several strokes.
- 1887 Oct 2d.  
Slight shock after 6. A.M.
- 1887 Oct. 27th.  
A slight shock 9. P.M.
- 1887 Nov 9th.  
Ten minutes after 5. A.M. two shocks first very slight. second slight, but long continued.
- 1887 Dec. 9th.  
About 8. A.M. - To shocks - not very hard -
- 1888 Feb 24th.  
- Twenty minutes after 7. A.M. four slight shocks-
- 1888 March.  
- Slight shock abt 7. A.M. -
- 1888 May 8th.  
About half pst 12 A.M. one hard shock waked us all up out of sound sleep - and another slight shock about an hour after.
- 1888 Aug. 14th.  
Slight shock in the night abt 2. AM.
- 1888 Aug. 20th.  
At 7.35 A.M. - quite a severe shock. began with a long trembling then a shock then a second which was severe enough to throw out water from vases full of flowers & milk from the pans & many things fell down that were not secured with fastenings following this were two slight shocks - abt. half an hour & an hour apart.
- 1888 Aug. 26th.  
Slight shock. at 5 A.M. -
- 1888 Nov. 8th.  
6 P.M. - a long continued shock commenced with a rumble & trembling which increased more & more in one hard shock & went off as it began, trembling.
- 1888 Nov. 9.  
3:30 A.M. one shock quite long but slight.

- 1888 Nov. 20.  
4:25 P.M. one slight shock - North & South.
- 1889 Jan. 3d.  
7.30 P.M. - one slight shock - .
- 1889 Feb. 17.  
1/4 before 9 slight shock.
- 1889 Feb. 21.  
About 5 o'clock A.M. one decided shake - followed in about five minutes by another very slight one. a very bright light was seen to appear after the shakes in the direction of Kilauea.
- 1889 May 7th.  
15 mts to 11 A.M. 1 shock - a protracted tremble.  
1 slight shake in November.
- 1890 Feb. 6.  
Quarter to 3 P.M. two shocks distinctly felt.
- 1890 Feb. 15.  
3:10 P.M. one shocks distinctly felt.
- 1890 March 24.  
8.25 P.M. one shock very long trembling - with a good deal of noise.
- 1890 March 31.  
- 9 30 P.M. - one shock -
- 1890 May 11th.  
at Waimea 10 A.M. there was quite a prolonged earthquake. did not notice it here.
- 1890 May 17.  
We felt a slight shock abt 5 a.m.
- 1890 June 5.  
At 10 m. after 3.P.M. one shock with considerable noise
- 1890 June 15.  
About 6 a.m. one shock with protracted trembling but slight.
- 1890 July 1st.  
About 2 P.M. one shock - slight.
- 1890 July 1st.  
4:30 P.M. one sharp decided shake -
- 1890 July 10.  
2:20 P.M. one sharp decided shake -
- 1890 July 28.  
Shortly after 4.P.M. an earthquake with two shocks & long trembling with a good deal of noise. I felt it standing in the street.
- 1890 Aug 6.  
Ten minutes after 11. P.M. - we were all awakened by a prolonged shake - 5 shocks -
- with long continued trembling - followed by three slight shocks during the next half hour.
- 1890 Aug 7.  
at 12.30 a decided earthquake with two shocks. small things were thrown down in nearly every room in the house during the first earthquake & in some houses tables & pianoes were moved half a foot from the wall. Stone walls also fell down. a slight shock was felt near 4. a.m. same day.
- 1890 Aug 8.  
A slight shock was felt near 3. A.M. and several very slight shocks were noticed during the days of Aug. 9th & 10th -
- 1890 Aug. 21.  
one shock was felt in the A.M. ten minutes before 4. wakening us all up - but nothing was overturned.
- 1890 Nov 10.  
About 2 A.M. one slight shock -
- 1891 Jan. 15.  
Two shocks at 3:20 P.M. The second heavier than first, but nothing disturbed.
- 1891 Feb. 25.  
A slight shock at 9.30 in the evening.
- 1891 Mar. 6.  
A long tremble at 9 in the evening.
- 1891 March 8.  
2 A.M. another long trembling which shook the windows & waked us all up.
- 1891 March 10.  
We heard from the Volcano today that at the time of the earthquake of the 6th the Lake sank 300 ft. & at the 2 oclock earthquake on the night of the 8th all fire went out of Kilauea - Earthquakes are very frequent at Kapapala & they fear some out break over there or on Mauna Loa.
- 1891 March 10 -  
about 10 in the evening slight shock.
- 1891 March 12.  
about 2 a.m. & 6 a.m. slight shocks.
- 1891 March 13.  
at 4.30 one decided shock.
- 1891 March 14.  
between one & two P.M. one shock. There are many slight shocks, but we do not feel them all.
- 1891 March 24.  
We hear that the fire is coming back into the

- crater & the reflection has been seen from Hilo. & there has been no surface flow in Kau. This statement was contradicted - & the fire did not come back till the middle of April. The return was very gradual.
- 1891 July 5.  
Shortly after 2 P.M. a long continued trembling but slight.
- 1891 In September  
one slight earth quake was felt -
- 1891 Oct. 6.  
1/4 4 P.M. one slight shock -
- 1891 Oct. 15.  
1/2 6 P.M. - We felt a hard shock. It began with a long tremble & sound like thunder. then a decided shock -
- 1891 Oct. 16.  
- At 5 am. & about 9 a.m. slight shocks -
- 1891 Dec. 29.  
one shock 8.30. P.M. -
- 1892 Jan 7.  
Quarter after 2 P.M. two slight shocks.
- 1892 During the month of Jan.  
several slight shocks were felt.
- 1892 March 11.  
Quarter after 12. A.M. one shock, with very slight premonitory shock.
- 1892 May 30.  
Between 2 & 5 one slight shock.
- 1892 Oct. 18.  
About half pst. 4 o clock a.m. - slight shock -
- 1892 Dec 3.  
- About 9 P.M. - one shock of earthquake. During the last week of Nov. light was seen in the Crater on Mauna Loa which seems to be active again and there is also a great deal of fire in Kilauea
- 1892 Dec. 23.  
At half past 12 A.M. - a sharp earthquake - waked every body in town. and another at qr. of 2-a.m. - which was a long continued tremble. - another slight one before morning and one the next day. - all slight -
- 1892 Dec. 27.  
Just about 12 - noon - one shock.
- 1893 Jan. 3.  
At ten minutes to two P.M. - one shock -
- 1893 April 8.  
About Eleven P.M. a long continued tremble. fully half a minute.
- 1893 April 9.  
- 5. A.M. - one shock. Several very slight shocks between April & Oct.
- 1893 Oct. 9.  
Ten minutes before 9 P.M. three seperate earthquakes - none of them very hard, ending with a very slight tremble.
- 1893 Nov. 4.  
5.30 P.M. - While we were at the dinner table, one smart shock with long trembling afterwards.
- 1894 Feb. 2.  
At 5 o'clock Feb. 2. a slight shock.
- 1894 Feb. 8.  
A very gentle shake at 5 minutes to seven Feb. 8. evening.
- 1894 March 18.  
About 9. A.M. - slight shock. only one slight shock during April -
- 1894 May 28.  
- Quarter after 12-A.M. - one shock that made the windows shake & awoke us all. course from the mountain to the sea.
- 1894 June 16.  
- About twenty mts. after 2. A.M. one shock quite long continued -
- 1894 July 13.  
20 mts. of one P.M. an earthquake with 2 shocks. Fire dropped way down in the Lake but did not disappear.
- 1894 Dec. 3.  
In the morning at half past 3 - one long shock that finished with a trembling & every one waked up - heard afterwards that it was felt at Waimea or in Honolulu.
- 1894 Dec 3.  
another shake at 10 mts after 11 a.m. 2 shocks long swaying mothion - In the evening of same day at 10 mts. after 10 P.M. one long shake -
- 1894 Dec. 4.  
at 5 A.M. one slight shock.
- 1894 Dec. 9.  
20 mts after 4.P.M. - two shocks. Fire disappeared from the Lake at Kilaea but was seen early in Jan. but has disappeared again.
- 1895 Jan. 11.  
10 mits after 4 a.m. - one shock slight but waked us up. No Fire in the lake -

- 1895 Jan. 22.  
- Quarter after 10 P.M. - two shocks, long continued, but slight - from south to north -
- 1895 March 31.  
25 mts. after 2. P.M. two shocks first long trembling then decided shock.
- 1895 July 16.  
near 7 A.M. a slight shock. Early in October several slight shocks of earthquake were felt in Kau & Hilo - The fire is still out of the Lake at Kilauea. seemed to leave early in 1895 - During July of 1894 the Lake dropped down but fire did not disappear - In Dec - the fire left for a time then came back about New Years & left again - There is a great deal of smoke and in the cracks it is so hot that paper will burn that is put in and the guide dropped his handkerchief -& before he could get it - it burned up. this was during first week in October.
- 1895 Oct. 25.  
At one P.M. - slight shock-
- 1895 Oct. 25.  
1/2 past 2 P.M. one decided shock which started us all to our feet.
- 1895 Nov. 5.  
Quarter of 12 noon. one shock not severe. - We hear from the volcano that the lake pit has fallen still more, about 500 ft now, & stones are falling & there is a great deal of smoke - but no fire.
- 1895 Dec - 8.  
- Half pst. eleven P.M - one long shake and a trembling that kept up a whole minute. motion from the volcano to the sea.
- 1895 Dec. 9.  
20 mts after 3 a.m. - one slight shock and 6 A.M. - another. It was reported that fire has come back into the crater at Kilauea & that there is a change with the look of the smoke.
- 1895 Dec. 13.  
- Slight shock felt in the night aft 2 a.m. The earthquake shocks of Nov 5 were felt in Honolulu more heavily than on Hawaii
- 1896 Jan 3.  
- fire returned in the lake at a great depth 450 ft below its rim. It continued in action only 3 or 4 weeks going out entirely on the night of Jan 28 -
- 1896 Jan 29.  
1/4 after 5 A.M. earthquake felt 2 shocks quick & sharp.
- 1896 Feb. 11.  
P.M. very slight shock-
- 1896 April 20.  
- earthquake felt at the volcano we did not feel it in Hilo - several felt in Kau that week.
- 1896 April 21.  
There was an eruption in the crater of Mokuaweoweo. seen first in Hilo in the morning of April 22 very thick black smoke seen rising early in the morning. very bright light seen every night when the mountain was clear of clouds. This eruption continued during April but went out before May. no reflection being seen after April. Several slight earthquakes have been reported to us during May & June. but one did not feel them.
- 1896 July 11.  
Fire came back to Kilauea in the Lake; remained through August, sometimes more & sometimes less, and seemed to be entirely gone by the first part of September 10th or so
- 1896 Sep 13.  
At 4.30 A.M. slight shock -
- 1896 Sep 13.  
5 a.m. felt a heavy shake most a half a minute. began all at once very hard shook things down stopped clocks - splashed milk out of pans, & water from the Fish globe - waked every body in town - It was from N.W. to S.E.  
There was a slight jar in the afternoon. no more fire reported at the crater
- 1896 Oct 10.  
It was telephoned this morning that there is much activity in the crater - "full of fire" & reflection seen from Hilo - active only a little while.
- 1896 Nov. 17.  
A little after half past one P.M. 2 shocks of earthquake felt. great noise - seemed to come in direction of the volcano.
- 1896 Nov. 18.  
Quarter before 7 A.M. slight shock
- 1896 Nov. 25.  
Twenty minutes after 4 a.m. one long tremble - and a slight one later -
- 1896 December 31.  
- one slight shock after 9 P.M.
- 1897 February 4.  
5 30 a.m. slight shock. felt in Waimea with

- more force.
- 1897 Feb. 15.  
Slight shock at 6. P.M. no fire in Kilauea
- 1897 March 10.  
- Quarter after 5-A.M. one decided shock N.W. to S.E. We heard that there was a heavy one felt in Paina on the 8th of March -
- 1897 March 13.  
Saturday evening near eleven o'clock - slight shock
- 1897 March 14.  
About 3. a.m. slight earthquak 2 slight shocks.
- 1897 March 22.  
About 3 P.M. slight earthquak 2 slight shocks.
- 1897 April 1.  
About 4 P.M. one shock quite decided -
- 1897 Apr. 23.  
Friday morning 20 mts to 10, one shock  
There is said to be a great deal of smoke at the Volcano - towards Puna -
- 1897 May 6.  
- At nine in the evening one shock with rumbling sound & long trembling
- 1897 June 11.  
Early in the morning a long gentle shake -
- 1897 June 20.  
much smoke from the pit.
- 1897 June 24.  
- It was telephoned from the volcano that fire had come back into the crater.
- 1897 July 7.  
10 o clock A.M. - slight shock - Word comes from the crater that the fire has gone again, & only smoke, & very little reflection.
- 1897 Aug. 6.  
Slight shock about 4 a.m. direction from the volcano toward the shore.
- 1897 Aug 16.  
- An earthquake felt in Honolulu short but "very strong."
- 1897 Aug.-Sep.  
Several slight shakes during latter part of Aug. In September about the 16. When the three Representatives from the U.S. were there with W.O. South & Prof Alexander & Mr Wight - there was fire in the Lake and more fire the 18. of Sep. continued on for a couple of weeks or so this went down again.
- 1897 October 24.  
- 18 mts after 5 P.M. - one quick hard shock-
- 1897 November.  
several very slight shakes.
- 1897 December-18.  
20 minutes after 6. P.M. - one long shake continued trembling from the mountain to the shore -
- 1897 December 19.  
- 20 mts of six A.M. - one shake not so long as last night. but from the same quarter.
- 1897 December.  
the latter part were several slight shakes in Hilo, and more felt at Oloa. at the Volcano heavy smoke but no fire.
- 1898 Jan.  
Several very slight shocks felt 1st & 2 week
- 1898 Jan. 25.  
- 7-30 P.M. a slight shock felt.
- 1898 Feb. 4.  
- 3-A.M. one shock like long trembling - and the windows rattled -
- 1898 March.  
One shock felt the latt week in the month, at 11. -o clock A.M. quite decidedly marked in some parts of town, not noted in other parts.
- 1898 April.  
Several slight shocks noted during the month - one at 11-o clock at night felt by many members of the household -
- 1898 May 1 Sab P.M.  
A very decided earthquake at a little before 5 - o clock P.M. direction mauka to makai - a decided rumbling first,-then two decided shocks which shook doors & windows perceptibly. 10.30 P.M. Another slight shock took place felt by all the household -
- 1898 May 17.  
Tuesday Five minutes of five P.M. a decided shock. a long tremble & strong up & down shake. Aunt M & E both sitting on front verandah.
- 1898 July 3.  
one shock. several other slight shocks felt during the month.-
- 1898 Aug. 5-  
At 6. A.M. one shock decidedly felt - windows & doors rattled
- 1898 Aug 6.  
About 6. A.M. - one slight shock. others felt in Kau much heavier

- 1898 Aug. 30.  
At 2:30 P.M. an earth quake
- 1898 Sep. 11.  
- A sharp quick shock 5.35 a.m.
- 1898 Sep. 15.  
Quarter to 12 - noon an earthquake. 2 shocks hard, with long continued trembling. direction about North & South - with noise before it came-
- 1898 Sep. 18.  
Another shock - not so severe - at 7.25 P.M. -
- 1898 Dec. 4.  
- At 3.30 one shock, & three minutes after it another shock -
- 1898 Dec. 14.  
About 9. P.M. one shock felt more upstairs than down.
- 1898 Dec. 29.  
- About 9. P.M. one shake like long tremble -
- 1898 Dec. 30  
2 - a m - one shake - long trembling, but slight.
- 1899 Jan. 4.  
10 mts after 2 A.M. one long shock from S. East to North West.  
waked us all up -
- 1899 Jan. 23.  
- About 2 a.m. one slight shock -
- 1899 March 6.  
- About 10.30. AM one shock. (north & south)
- 1899 May.  
In Waimea an earthquake was felt in May - but not noticed in Hilo.
- 1899 June 20.  
- About 15 mit of 8. P.M. - two shocks - North & South.
- 1899 July 4.  
There was an eruption from Mauna Loa early in the morning of 4 of July. It broke out near the same place as the flow of 1880 a grand sight to those who were able to see it. Many parties have gone to the volcano to see it. on the sixth of July it was clear & was seen by many from Hilo Bridge.
- 1899 July 7.  
- There were several slight shakes about 12 o'clock (midnight) & 3-a.m. slight shock
- 1899 July 11.  
There was a decided shake at 20 mts of eleven o'clock a.m - coming on & going off with long trembling. on the 12 of July It was very clear, & hundreds of people went to the Waiakea bridge to see the wonderful sight of the mountain all lighted up with the reflection on the clouds. There was a pillar of cloud at the source that was very bright & reflection as if a big flow was going towards Mauna Kea - & in some places it was so bright we almost thought we could see the lava. The flow continued for about three weeks, then stopped. There were several slight shocks of earthquake during August - no action at Kilauea but a great deal of smoke -
- 1899 October 29.  
- Ten mts after 10 P.M. - an earthquake with two decided shocks though not very hard passing off with long trembling -
- 1899 October 31.  
- Ten mts. after 7. a.m. one long tremble. windows & doors shook & the ferns in their places shook. - other slight shakes reported which we did not feel
- 1899 Nov. 6.  
quite severe earthquake in Kau reported, at 1 ac. (not felt in Hilo)
- 1899 Nov. 11.  
- 20 mts after 8. P.M. 2 shocks went off with long trembling.
- 1899 Nov. 26.  
- 3. P.M. - one shock - north & south -
- 1900 Jan.-Jun.  
In Jan. Feb. March and April there were no earthquakes to speak of. In May there was one that all noticed & several slight trembles. On June 7 there was one at 5 mts to 10 and June 27 about 5-30 a m. there was a very long tremble, then a slight shock which went off with a trembling from North to South -
- 1900 July 10.  
Twenty mts of 9 P.M. one shock quite hard coming and going off with long S.W. to N.E. trembling. No earthquakes to note in Aug. or Sep - unless so slight they were not noticed
- 1900 October 11.  
- Just after midnight a long continued gentle trembling in two shocks windows rattled.
- 1900 Oct. 12.  
- Just before 4-A.M. an earthquake with three shocks, none of them very severe but enough to throw things down that were on the piano - from South to North -

- 1900 Oct 25.  
1/4 of 3-P.M. 2 - shocks
- 1900 Nov. 22.  
There were two earthquakes in the night. one slight, the other two shocks.
- 1900 Nov. 25.  
Earthquake in the night 2 shocks.
- 1901 Jan 14.  
- 10 in the evening one shock
- 1901 Jan 16.  
- 2 A.M. (Jan. 16) Two shocks
- 1901 Jan. 24.  
about 3 P.M. an earthquake with two shocks and long trembling first & trembling between and went off the same way.
- 1901 Apr. 16.  
One shock at 3 A.M.
- 1901 June 6.  
- One shock at about 6 P.M.
- 1901 Nov-15.  
- One shock about 10 P.M.
- 1902 Apr. 7.  
One slight shock at 10 P.M.
- 1902 June 17.  
Slight shock at 5:15 this A.M. Fire returned in Kilauea abt. Aug. 25. & lasted a week & a half.
- 1902 Sept. 25.  
slight, but long continued.
- 1902 Sept. 28.  
- Sunday, 6:25 A.M. a smart short earthq. 2 shocks -
- 1902 Oct. 16.  
Slight shock at 4:30 A.M.
- 1902 Oct. 25.  
Slight shock at midnight.
- 1902 Nov. 11.  
Long trembling motion.
- 1903 Feb. 22.  
One shock a little after five A.M.
- 1903 Feb. 27.  
Two slight shocks at 9:20 P.M.
- 1903 Apr. 18.  
One shock at 2 A.M.
- 1904 Feb.  
a long continued trembling, 3 or 4 seconds?  
several slight shocks at different times
- 1904 Mch. 19.  
- One smart shock at 9 P.M. from S.W.
- 1904 June 4.  
- a long gentle shake, at 12:25 noon
- 1904 June 28.  
a long shake, two shocks abt 10 P.M.
- 1904 July 11.  
a slight shock about 11.40 A.M.
- 1904 July 12.  
a smart shock about 10.10 A.M.
- 1904 July 17.  
a 2 shock quake, the 2d quite hard -
- 1904 July 17.  
a slight shock in the night -
- 1904 July 24.  
a slight shock in the night -
- 1904 Oct. 14.  
- a slight shock at 3:50 A.M.
- 1904 Nov. 13.  
- a shock about 8:15 P.M. shook windows in Haili Church
- 1904 Nov. 20.  
a slight shock about 9 A.M.
- 1904 Nov. 26.  
a slight shock about 5 A.M.
- 1905 Ap. 21.  
quite a shake and tremble at 1 P.M.
- 1905 May 3.  
- a long tremble, hard at the end, throwing down some things, 3:30 P.M.
- 1905 May 3.  
a long tremble and a twister, at 4.15 P.M.
- 1905 May 3.  
a long tremble slight, at 6.40 P.M.
- 1905 May 3.  
a slight 2 shock quake at 10.15 P.M.
- 1905 May 3.  
a medium smart shake at 10.50 P.M.
- 1905 May 28.  
- at 9.22 one smart shock, and tremble
- 1905 Aug. 17.  
- at 9:50 P.M. a slight shake
- 1905 Aug 18.  
- about 2:30 A.M. a slight tremble
- 1905 Oct. 19.  
- at nearly 11.25 P.M. a slight earthquake. North & South
- 1905 Nov. 14.  
at 8:30 A.M. a slight tremble, rattling windows.

- 1906 Jan. 5.  
- a slight shock & tremble at 11 P.M.
- 1906 Ap. 1.  
- a slight shake at 5:20 A.M.
- 1906 Ap. 24.  
- a slight shake about 10 P.M.
- 1906 Ap. 24.  
- a slight shake about 12 P.M.
- 1906 Ap. 25.  
a smart shake at 2 A.M.
- 1906 Ap. 25.  
a slight shake at 2:30 A.M. and another about 4:30 A.M.
- 1906 Ap. 18th.  
heard by Telegraph of San Francisco destroyed by an Earthquake at 5:10 A.M. this morning! (heard abt. 10:30 A.M.) it started fires which destroyed 3/4 of city in 4 days! [Entry out of order].
- 1906 Ap. 30.  
a slight shake abt. 10 P.M.
- 1906 June 2.  
- a slight sharp jerk of quake at 9:35 Valpariso destroyed by Earthquake -
- 1906 Aug. 19.  
- at 9 P.M. a somewhat smart shock, over Hawaii.
- 1906 Sep. 3.  
- at 3:15 A.M. a smart shake, 2 shocks, S.E. & N.W.
- 1906 Sep. 25.  
- about 5 A.M. a slight tremble
- 1906 Sep. 29.  
- at 6 A.M. a slight shake
- 1906 Aug. 25.  
- returning home from Hale Ohu, we noticed bad smell along the beach -
- 1906 Aug. 28th.  
Natives at Waiakea reported many dead fish, and saw boiling water outside of Mokuola Sunday
- 1906 Aug. 26th.  
morning - many more dead fish & squid all the week.
- 1907 Jan. 7.  
- a slight shock + tremor about 2 A.M.
- 1907 Jan. 10.  
- a slight long tremble at 1:30 P.M.
- 1907 Jan. 10.  
- a smart shock at 9 P.M.
- 1907 Jan. 10.  
- a bright light seen on Southend of Mauna Loa, 2 A.M.
- 1907 Jan. 11.  
a slight tremor about 5 A.M.
- 1907 Jan. 11.  
a slight tremor during the day
- 1907 Mch. 2.  
- 2 shocks + tremble, about 5:45 P.M.
- 1907 June 11.  
- a 2 shock mild shake at 3:40 A.M.
- 1907 June 11.  
- a 1 shock mild shake at 4 A.M.
- 1907 July 5.  
- a long continued shake near 12 P.M. last night.
- 1907 July 25.  
- a slight shake at 8:20 A.M.
- 1907 July 27.  
- a slight shake sometime last night.
- 1907 Sept. 5.  
- a smart 2 shock earthquake, lasting several seconds, at 8 minutes before 7 P.M.
- 1907 Sep. 5.  
- at 17 minutes before 8 P.M. a slight shock
- 1907 Sep. 6.  
- at about 12:30 A.M. a slight shock
- 1907 Sep. 16.  
- at 8:45 P.M. a slight shake
- 1908 Ap. 5.  
- at 6:45 A.M. a moderate shake Kilauea continues active - pit filling up slowly.
- 1908 Sept. 20.  
- at 8:07 P.M. a 3 shock Earthquake - stopped clocks - threw down some vases, crockery, and pictures - followed by slight one, a minute later, and another a few minutes later - some damage reported in stores, crockery xc: and in Cannery warehouse - several slight tremors during night - Kilauea active.
- 1908 Sept. 22.  
from about 11.30 to 3:30 last night - a dozen or more tremors. 3 of them hard enough to rattle windows a little.
- 1908 Sept. 22.  
- at 11:20 A.M. slight shake -

- 1908 Sept. 22.  
at 7.15 P.M. a slight shake The shock of 8:07  
of the 20th, was severe all around the Island  
of Hawaii - and felt slightly in Honolulu.
- 1908 Sept. 25th.  
at 5:30 A.M. a slight 2 shock shake
- 1908 Sept. 25th.  
between 1 and 2 P.M. a slight shake
- 1908 Sept. 26.  
- at 8.05 P.M. quite a smart shake
- 1908 Sept. 26.  
- at 8:30, and 8:55, slight tremors
- 1908 Sept. 25.  
- Some Fishermen found a dead Whale off  
Puna coast and towed it to Hilo, yesterday or  
last night.
- 1908 Sept. 30.  
- at 5:20 A.M. a slight shock and a 2d harder  
shock. Kilauea still very active. (The Whale  
found appeared to be a month dead.) Japs cut  
it up and tried out Sperm Oil, beyond Keau-  
kaha.
- 1908 Oct. 20.  
- At 10 A.M. a moderate shake, and one at  
9:20 A.M.
- 1908 Oct. 29.  
- At about 1:30 A.M. a slight shock
- 1908 Nov. 25.  
- At 9:35 A.M. a moderately smart shock
- 1908 Dec. 6.  
- At 7:50 A.M. a long tremble with 2 or 3  
slight shocks.
- 1908 Dec. 14.  
- At 4:35 P.M. a slight 2 shock quake
- 1909 Jan. 4.  
- At about 12:35 noon, a slight shake
- 1909 March 12.  
- at 3:30 A.M. a smart earthquake, being a  
tremble, then a smart shock, then a harder  
shock, ending with a long tremble - shook  
water out of vases, but no damage done.
- 1909 March 14th.  
- at 2:15 P.M. a slight shock.
- 1909 June 30.  
- A smart single shock about 3: P.M.
- 1909 July 20.  
- a slight shock in night last night
- 1909 July 21.  
- a slight shock at 4:30 A.M.
- 1909 Oct. 8.  
- a smart shock preceded by a tremble, near  
10 P.M.
- 1909 Oct. 9.  
- a slight shock in the night.
- 1909 Dec. 23.  
- a slight tremble, near 10 P.M.
- 1909 Dec. 24.  
- a decided shock at 7:47 A.M.
- 1910 Feb. 13.  
- about 1:30 last night a sharp short shock N  
+ S. windows rattle
- 1910 Feb. 21.  
- at 6:30 A.M. a moderate 2 shock jar, rattling  
windows, N. + S.
- 1910 Ap. 19.  
- at 3:45 A.M. a smart 2 shock shake, North +  
South,
- 1910 Ap. 26.  
- 9.40 P.M. a moderate 2 shock shake, North  
+ South
- 1910 Oct. 11.  
- 11.35 A.M. 1 moderate shock - E. + W.
- 1910 Oct. 14.  
at 5 A.M. a slight shock and 2 or 3 during the  
day
- 1910 Oct. 21.  
at 1:50 P.M. quite a shock, swaying motion E.  
+ W.
- 1910 Nov. 6.  
at about 3:30 P.M. a slight shock
- 1911 Feb. 6.  
- at 8.56 P.M. a moderate shake.
- 1911 Feb. 9.  
- at 10.40 A.M. a moderate shake long contin-  
ued
- 1911 May 2d.  
- week - several slight tremors
- 1911 May 16.  
about 3:20 A.M. a slight shake, North + South
- 1911 June.  
a slight shake
- 1911 July 1.  
- at 3.25 P.M. a smart shock
- 1911 July 14.  
- at 11.30 long continued slight tremble, and  
at 11.40 A.M. several moderate shocks, con-  
secutive -

1912 Ap. 10.  
 - at 10 A.M. a slight shake, rattling things some

1912 Ap. 17.  
 - at 5:10 P.M. a shake that rattled windows + iron roof.

1912 May 15.  
 at quite a shake [no time given].

1912 June 5.  
 at 11.30 P.M. two shocks

1912 Sep. 2.  
 - a slight shake awakened us in the night last night

1912 Oct. 13.  
 - about 5:30 A.M. a long continued shake, not hard.

1913 May 18.  
 - about 7.40 P.M. 2 slight tremors followed by 2 short sharp shocks

1913 May 19.  
 about 6 A.M. 1 slight tremor

1913 Sept. 8.  
 about 11:40 A.M. a long slight tremble, then a short sharp shake

1913 Sept. 20.  
 about 8:15 A.M. a long slight tremble, rattled the windows.

1913 Oct. 25.  
 - about 12:53 A.M. a long smart shaking North + South East.

1913 Oct. 28.  
 about 8:44 A.M. a slight tremble N. + S.E.

1914 Mch. 1.  
 About 6 A.M. a slight shock

1914 Mch 1.  
 About 9 A.M. a slight tremble

1914 Mch 4.  
 About 2:45 P.M. a slight tremble N.E. + S.W.

1914 Apr 15.  
 About 2 A.M. a slight shock, like a bump from the mountain N & S. A slight tremor the day before. (time ?)

1914 Apr 29.  
 2:50 P.M. a long shake. E & W. Then N & S.

1914 June.  
 quite a smart 4 shock earthquake.

1914 June 20.  
 at 1:48 P.M. a moderate 2 shock shake from

Mauna Loa

1914 July 20.  
 at 4:15 A.M. a sharp shock.

1914 Sept 27.  
 at 10:15 A M. 2 slight shocks & long tremble at the end.

1915 Jan 13.  
 7:45 P.M. Slight shock, long duration Both craters Kilauea & Mokuaweoweo active.

1915 July 10.  
 At 2:30 in morning slight shake

1915 Oct. 25.  
 At about 11 last night shock

1917 Sept 15.  
 At 3:45 in the morning 2 shocks the first north & s. (Sharp the 2d slight)

1916. June 12.  
 6:45 2 shocks

The numbers of times I have been to Kau sleeping at the volcanoe going & returning. The first time with Mr Rains & daughters, after his wife's death. The second time to visit the Kinneys. The 3 time to visit the Shipman at Ollie's birth. The 4th time to visit Fred Rufus. The 5th time to visit Fred & Bella when Ellen was an infant. The 6th time before the twins were a year old. The 7th time when twins were about 2 years old. went with Carrie Aistin & Dr Gulick. The 8th time went with Miss Bixby & dear Ellen. At two different times I extended my visit to Waiohinu making five visits to Waiohinu & five to Fred.

The number of times I have been to the volcanoe. First with Messrs. Ruggles & Goodrich. in the summer of 1832. In 1843 went up with Mr L & scholars of the boarding school The 3 time with Mr. & Mrs. Bingham The 4th time with Mr & Mrs. Marshal & Mrs Gates. 5th time with Mrs. S. Guster (?). The 5th time with Mattie C. 6. Ellen Armstrong. Lizzie Lyons. my Ellen & Wm Gulick.



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## APPENDIX A

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**Appendix A.** Earthquakes not listed by Mrs. S.J. Lyman but reported by Wilkes (1850) who gave Mr. D.B. Lyman as his source.

1839 Dec. 4

A slight shock, but decided and distinct

1839 Dec. 9

A slight shock

1839 Dec. 10

A slight shock at 4 a.m.

1839 Dec. 12

A slight shock

1839 Feb. 18

A slight shock

1839 Mar. 18

Severe, felt at Maui







