EARTHQUAKES IN NORTHERN CALIFORNIA

AND

THE REGISTRATION OF EARTHQUAKES

AT

BERKELEY—MOUNT HAMILTON—PALO ALTO

FROM

October 1, 1931, to March 31, 1932

BY

PERRY BYERLY

AND

NEIL R. SPARKS

BULLETIN OF THE SEISMOGRAPHIC STATIONS

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Beginning in January, 1912, the records of the seismographic stations at Berkeley and at Mount Hamilton have been published for two six-month periods of a year, namely, April 1 to September 30, and October 1 to March 31. Beginning in 1933, the records of the seismographic station at Palo Alto (covering as the first period, October 1, 1931, to March 31, 1932) have been included. A list is here printed as a guide to the *Bulletin* covering each respective period since the records have been kept.

VOLUME 1. 1912–1924

Records from October, 1910, to September, 1920 inclusive

THE REGISTRATION OF EARTHQUAKES—

AT BERKELEY:

No. 1. From October 30, 1910, to March 31, 1911.
No. 2. From April 1 to September 30, 1911.

AT BERKELEY AND MOUNT HAMILTON:

No. 3. From May 23 to September 30, 1911.
No. 4. From October 1, 1911, to March 31, 1912.
No. 5. From April 1 to September 30, 1912.
No. 6. From October 1, 1912, to March 31, 1913.
No. 7. From April 1 to September 30, 1913.
No. 8. From October 1, 1913, to March 31, 1914.

EARTHQUAKES IN NORTHERN CALIFORNIA

AND

THE REGISTRATION OF EARTHQUAKES

AT

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FROM

OCTOBER 1, 1931, TO MARCH 31, 1932

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CONTENTS

EARTHQUAKES IN NORTHERN CALIFORNIA

The Earthquake of October 18, 1931

At about 11h 57m A.M., P.S.T., on October 18, 1931, an earthquake was felt in the coastal region of central California. The intensity as reported was about Rossi-Forel V at Hollister; IV at Aptos, Jamesburg, Linora Pump Station, Monterey, Moss Landing, Paraiso Springs, Spreckles, Salinas, Santa Cruz Light Station. It was also reported as felt slightly in Carmel and in the Marina district of San Francisco.

The seismographs at Berkeley began to record at 11h 57m 39s. The S-P interval was about 19 seconds. Unfortunately the Lick Observatory records were being changed at the time, and at the Palo Alto Station the seismograph lights were out. Therefore no epicenter could be located. The Berkeley interval is consistent with a source near Hollister.

The Earthquakes of October 20, 1931

On October 20, 1931, at about 10h 23m A.M., P.S.T., and about 10h 56m, A.M., earthquakes were recorded at the Berkeley, Lick Observatory, and Palo Alto stations. The records for the two shocks were closely the same as to intervals. Since the epicenter was in almost the same direction from all three stations, an accurate location of epicenter was not possible. The records indicate an epicenter within 20 miles of Chualar. These earthquakes were not reported felt.

The Earthquake of October 27, 1931

On October 27, 1931, at about 8h 36m A.M., P.S.T., an earthquake was felt in Sargent, Rossi-Forel IV. This earthquake was recorded at Berkeley, Lick Observatory, and Palo Alto. The records were consistent with an epicenter within 15 miles of Sargent.

The Earthquake of November 15, 1931

At about 10h 32m P.M., P.S.T., on November 15, 1931, an earthquake was reported felt in Suisun with Rossi-Forel intensity IV and in Bolinas with intensity II. However, the records at Berkeley, Lick Observatory, and Palo Alto indicate an epicenter not far from Tomales Bay.

The Earthquake of November 21, 1931

At about 2h 34m 30s P.M., P.S.T., on November 21, 1931, a small earthquake occurred in Santa Cruz Bay. It was not reported felt but the records at Berkeley and Lick Observatory indicate this epicenter.

The Earthquake of November 22, 1931

At about 2h 52m A.M., P.S.T., an earthquake of intensity IV, Rossi-Forel, was reported from Calpella, Comptche, Fort Bragg, Redwood Valley, Ukiah, and Upper Lake. This earthquake was recorded slightly at the San Francisco Bay stations.

The Earthquake of November 25, 1931

At about 4h 18m A.M., P.S.T., an earthquake of Rossi-Forel intensity IV was reported from Big Creek. This earthquake was sufficiently intense to record slightly at Berkeley and Lick Observatory, even though reported from only one point.

The Earthquake of November 28, 1931

At about 6h 13m A.M., P.S.T., on November 28, 1931, an earthquake was felt in the Humboldt County region. The Rossi-Forel intensity as reported follows: V, Samoa; IV, Alton, Bayside, Beatrice, Eureka, Fernbridge, Ferndale, Fortuna, Humboldt Bay Fog Signal, Shively, Table Bluff Light Station, Waddington; II, Crescent City. This earthquake was recorded slightly at the San Francisco Bay stations. The epicenter was probably at sea.

The Earthquake of December 2, 1931

At about 8h 50m 30s P.M., P.S.T., an earthquake occurred which centered about 5 miles southwest of Watsonville. This earthquake was not reported felt, but was well located by good records from Berkeley, Lick Observatory, and Palo Alto.

The Earthquake of December 3, 1931

At about 4h 53m P.M., P.S.T., on December 3, 1931, an earthquake of Rossi-Forel intensity IV was felt in Hollister, Metz, Spreckles, and Pigeon Point Light Station. It was about intensity

II at Santa Cruz Light Station. This shock was recorded at Berkeley, Lick Observatory, and Palo Alto

From seismograms written at Berkeley, Lick Observatory, and Palo Alto it appears probable that the epicenter lay some ten miles south of Spreckles.

The Explosion of December 3, 1931

In the late afternoon of December 3, 1931, a residence at 2600 Cedar Street, Berkeley, was blown up by a gas explosion in the basement. The first wave from this shock was recorded at the Haviland Hall station on the University campus at $5^h\ 18^m\ 48^s$, P.M., P.S.T., by the Wood-Anderson seismographs. The distance to the source was about 2200 feet. The S-P interval was 0.6 second. The first motion was toward the source, i.e., a rarefaction. The seismograph pier rests on the Franciscan formation which is the bedrock of the region. For most rocks the speed of P is roughly about 1.7 that of S. It is concluded therefore that the time of occurrence of the blast was about $5^h\ 18^m\ 47^s$.

The Earthquakes of December 15, 1931

At about $8^h\ 20^m$ A.M., P.S.T., on December 15, 1931, an earthquake of Rossi-Forel intensity V was reported from Portola, and of IV from Susanville. It was felt also at Honey Lake, Quincy Junction, and Spring Garden. A second shock was felt at about 8 P.M. The first of these was recorded at Berkeley, Lick Observatory, Palo Alto, and San Francisco.

The Earthquake of December 17, 1931

At about $12^h\ 06^m$ A.M., P.S.T., on December 17, 1931, an earthquake of intensity IV, Rossi-Forel, was reported from Aptos and San Jose. Agnew and Campbell report intensity about III. This earthquake was recorded at all four of the San Francisco Bay stations. The epicenter lay between Los Gatos and New Almaden.

The Earthquake of January 3, 1932

At about $1^h\ 07^m$ P.M., P.S.T., a slight earthquake was reported felt in San Francisco. This earthquake was recorded at Berkeley, Lick Observatory, San Francisco, and poorly at Palo Alto. From the records it appears that the epicenter lay on the San Andreas Fault near the Crystal Springs lakes.

The Earthquake of January 5, 1932

At about 6 A.M., P.S.T., on January 5, 1932, an earthquake was felt in the region near Cape Mendocino. The Rossi-Forel intensity as reported was: V, Cape Mendocino Light Station; IV, Alderpoint, Arcata, Blocksburg, Eureka, Forest Glen, Samoa, Shively, Waddington, Westport; II-III, Table Bluff Light Station; I, Willow. This shock was recorded slightly at Berkeley and Lick Observatory. The epicenter was probably at sea off Cape Mendocino.

The Earthquake of January 8, 1932

At about $10^h\ 17^m$ A.M., P.S.T., an earthquake of intensity about IV, Rossi-Forel, was felt in Salinas. It was reported from Hollister, intensity III. This earthquake was recorded at Berkeley, Lick Observatory, Palo Alto, and San Francisco. The records seem somewhat inconsistent. The best interpretation found indicated an epicenter near Pacific Grove, but this is not consistent with the field data, such as we have.

The Earthquake of January 14, 1932

At about $6^h\ 10^m$, P.M., P.S.T., on January 14, 1932, an earthquake of intensity IV, Rossi-Forel, was felt in Comptche and in Potter Valley. This shock was not recorded at the San Francisco Bay stations.

The Earthquake of January 28, 1932

At about $8^h\ 14^m$, P.M., P.S.T., on January 28, 1932, an earthquake of intensity IV, Rossi-Forel, was reported felt in Hollister and Salinas. This earthquake was recorded at Berkeley and Lick Observatory, and poorly at Palo Alto.

The Earthquake of February 19, 1932

At about $10^h\ 50^m$, P.M., P.S.T., on February 19, 1932, occurred an earthquake which was recorded at Berkeley, Lick Observatory, Palo Alto, and San Francisco. This shock was not reported felt. From the records the epicenter was located near Gilroy.

The Earthquake of February 24, 1932

At about 11h 35m, P.M., P.S.T., on February 24, 1932, an earthquake of Rossi-Forel intensity IV was felt in Alameda, Berkeley, Hayward, Oakland, and San Francisco. The intensity at Burlingame was about III. This earthquake was recorded at Berkeley, Lick Observatory, Palo Alto, and San Francisco. The epicenter was located on the east shore of San Francisco Bay some 8 km. northwest of Hayward. It seems definitely not to have been on the Hayward Fault.

The Earthquake of February 26, 1932

At about 8h 59m, A.M., P.S.T., on February 26, 1932, an earthquake was felt around Monterey Bay. The Rossi-Forel intensity was as follows: V, Santa Cruz; IV, Aptos, Asilomar, Gonzales, Metz, Monterey, Pacific Grove, Paraiso Hot Springs, Point Pinos Light Station, Point Sur Light Station, Salinas, Spreckles. The intensity was III at Watsonville. This shock was recorded at Berkeley, Lick Observatory, Palo Alto, and Stanford, and also at the southern California stations. A detailed study is being made by Dr. Richter *et al.* at the Pasadena station. A preliminary study indicated some discrepancy between the records of the southern California stations and the field data.

THE REGISTRATION OF EARTHQUAKES

Symbols and Notations

1. *Character of the Earthquake—*

I. Perceptible. II. Moderately strong. III. Strong.

d (terrae motus domesticus)	Local shock (origin less than 100 kilometers distant).
v (terrae motus vicinus)	Near shock (origin from 100 to 1,000 kilometers distant).
r (terrae motus remotus)	Distant shock (origin from 1,000 to 5,000 kilometers distant).
u (terrae motus ultimus)	Very distant shock or teleseism (origin more than 5,000 kilometers distant).

2. *Phases of the Seismogram—*

P (undae primae)	Normal first phase, or first preliminary tremors (longitudinal).
P′	First preliminary tremors which have penetrated the core of the earth.
PR_n	Waves n times reflected at the earth's surface.
S (undae secundae)	Second phase, or second preliminary tremors (transverse).
SR_n	Waves n times reflected at the earth's surface.
PS	Waves changed from longitudinal to transverse oscillation or vice versa through reflection at the earth's surface.
PPS	Waves twice reflected at the earth's surface, having been longitudinal on two branches of the path and transverse on one branch.

In general a bar over two letters denoting types of waves indicates refraction. The subscript $_c$ denotes the boundary at about 2900 km. depth between the metallic core and the middle shell which surrounds it. Thus:

$\overline{S_cP_cS}$	Waves which have penetrated the core, having been transverse before entering and after leaving the core, and longitudinal within the core.
$\overline{P_cP_c}$ $\overline{P_cP}$	Waves refracted at the core boundary into the core, reflected once at this boundary while within the core and again refracted out of the core, having remained longitudinal on all branches of the path.
L (undae longae)	Long waves of surface phase preceding M.
M (undae maximae)	Shorter and more regular waves of large amplitude in the surface phase.
M_n	Greatest motion in the surface phase.
C (coda)	Tail or end portion.
F (finis)	End of discernible movement.

For local earthquakes a special notation is used:

$\bar{P}$	The longitudinal wave which has traveled its whole path in the surface layer or crust of the earth.
$\bar{S}$	The transverse wave which has traveled its whole path in the surface layer of the earth.
P*	The longitudinal wave which has traveled the horizontal portion of its path in the intermediate layer.
S*	The corresponding transverse wave.

3. *Nature of the Motion—*

i (impetus)	Sudden beginning of the motion.
e (emersio)	Gradual beginning of the motion.
T (period)	Time of one complete oscillation.
A	Trace amplitude measured from the media line, + earth motion toward east, north, or zenith, − toward west, south, or nadir.
A_E	E–W component of A.
A_N	N–S component of A.
A_Z	Vertical component of A.

4. *Time—*

O (origin)	Time of shock at point of origin.

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The Berkeley Station, University of California
Berkeley, California

CONSTANTS

Latitude and longitude of the center of the seismographic room:

$\varphi = 37° 52' 15''$ N Lat.
$\lambda = 122° 15' 36''$ W from Greenwich.

Time.—All determinations are reduced to Greenwich mean time (Universal Time).

Altitude.—85 meters (280 feet) above mean sea level.

Constants of the Seismographs

Instrument	Component	V	T_0	e	$\frac{r}{T_0^2}$
Bosch-Omori 100 kg.	E	48	14	7	0.0008
Wiechert 80 kg.	Z	44	4	5	0.005
Wood-Anderson	E	3000	0.9	15	
	N	3000	0.9	15	
		K	T	T_1	μ_2
Galitzin	E	126	12	12	0
	N	125	12	12.1	0
	Z	121	12	11.8	0

The letter G before a reading designates that the seismogram was from a Galitzin instrument; W, Wiechert; B, Bosch-Omori; A, Wood-Anderson.

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No.	Date	Character	Phase	Time U. T.	Period	Amplitude			Remarks
						A_E	A_N	A_Z	
	1931			h. m. s.	s.	mm.	mm.	mm.	
1	Oct. 1	IIr	iP_N	A 11 48 06.5	1		− 0.5		U. S. C. & G. S. Epicenter: 29°4N, 114°6 W
			eP_E	A 11 48 07	1	−0.1			
			eP_E	G 11 48 11					H. O. Bull. 2199 quotes T. W. Hall, of American steamer, "Admiral Farragut," reporting seismic disturbances from 11h 10m to 11h 50m near 43° N, 125° W
			e_N	G 11 48 57					
			e_Z	G 11 49 21					
			e_E	B 11 49 57					
			eS_E	B 11 50 29					
			i_E	G 11 50 30					
			i_N	G 11 50 35					
			e_N	A 11 50 36	5		−0.6		
			i_Z	G 11 50 55					
			eL_E	A 11 50 59	19	−0.2			
			e_E	B 11 51 01					
			e_E	B 11 51 26					
			F	12 55±					
2	Oct. 3–4	IIIu	iP_Z	G 19 25 56	7			−1.5	U. S. C. & G. S. Epicenter: 14°S, 160°E
			eP_E	A 19 25 57	2	+0.1			
			eP_N	A 19 25 58	1.5		−0.1		
			eP_E	B 19 26 00					
			i_E	G 19 26 03	8	+2			
			iS_E	B 19 36 41					
			eS_N	A 19 36 41	12		−0.5		
			eS_E	G 19 36 41					
			eS_E	A 19 36 44	15	+0.5			
			eL_E	B 19 52 21					
			eL_E	A 19 52 35	37	+0.5			
			F	1 55±					
3	Oct. 3	I	eP_E	A 22 08 02	1.5	−0.1			
			eP_N	A 22 08 02	2		−0.1		
			F	22 11					
4	Oct. 3–4	Iu	eP_N	A 23 00 20					
			eP_E	A 23 00 22	1.5	−0.1			
			eS_E	A 23 10 59	20	+0.2			
			L_E	A 23 26.8	27				
			F	0 21					
5	Oct. 5–6	I	e_{ENZ}	G 22 56.7					Probably trace of distant earthquake
			F	0 05±					
6	Oct. 6	I	e_E	G 12 45.2					Probably surface waves of distant earthquake
			e_Z	G 12 47.7					
			F	12 55±					
7	Oct. 6	I	e_E	G 14 29.7					
			F	15 05±					
8	Oct. 6	I	e_{ENZ}	G 17 42.7					
			F	19 45±					
9	Oct. 7	Id	eP_N	A 7 49 08	0.4		−0.4		
			eS_E	A 7 49 14	0.5	−0.5			
			iS_N	A 7 49 14.5	0.5		+0.8		
			F	7 49 51					
10	Oct. 9	I	e_{EN}	A 23 29.7					
			F	23 37±					
11	Oct. 10	IIIu	iP_{ENZ}	G 0 32 35	10	+4		+7.5	U. S. C. & G. S. Epicenter: 8° S, 160° E
			e_{EN}	A 0 32 36					
			eP_E	B 0 32 39					
			e_E	B 0 42 41					
			e_{EN}	A 0 43 01					
			iS_N	G 0 43 03					On the Wood-Anderson seismograms this appears to be several earthquakes
			iS_E	G 0 43 05					
			e_{EN}	A 0 56 59					
			eL_E	B 1 00 21					
			eL_{EN}	A 1 01.7	20				
			eM_E	B 1 02 41					
			e_{EN}	A 1 20 58					
			e_{EN}	A 1 36.7					
			e_{EN}	A 1 43 27					
			e_{EN}	A 2 24.7					
			F	5 35±					
12	Oct. 10	I	e_{ENZ}	G 16 54.7					Trace of distant earthquake
			F	18 35±					
13	Oct. 12	I	e_{ENZ}	G 1 05±					Time marks poor
			F	2±					
14	Oct. 12	I	e_{ENZ}	G 3 12±					
			F	5 25±					

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No.	Date	Character	Phase	Time U. T.	Period	Amplitude A_E	Amplitude A_N	Amplitude A_Z	Remarks
	1931			h. m. s.	s.	mm.	mm.	mm.	
15	Oct. 12	I	e_{ENZ}	G 13 46.7					
16	Oct. 12-13	I	e_{ENZ}	G 23 54±					Time marks poor
			F	0 10±					
17	Oct. 13	I	e_E	B 5 14.7					Trace only
			e_{ENZ}	G 5 15±					
			F	6 05±					
18	Oct. 13	Id	e_{ENZ}	G 12 10±					An earthquake of intensity IV Rossi-Forel reported from Jamesburg between 12h and 13h U. T.
			e_N	A 12 24 53	1		<−0.1		
			e_{EN}	A 12 25 00	0.3	<0.1	+0.1		
			i_N	A 12 25 18	0.7		−0.5		
			i_E	A 12 25 27	0.7	−0.8			
			F	12 26 30					
19	Oct. 18	I	e_E	B 1 00					Trace only
			e_E	G 1 02 06					
			e_N	G 1 14 28					
			e_Z	G 1 18.1					
			F	2 25±					
20	Oct. 18	I	e_N	A 4 42 12					
			i_Z	G 4 42 18					
			i_Z	G 4 44 16					
			i_N	G 4 51 50					
			i_E	G 4 51 54					
			e_Z	G 4 52 08					
			e_E	B 4 55					
			F	5 45					
21	Oct. 18	IId	eP_N	A 19 57 39	1.0		+0.1		See discussion, p. 54
			i_N	A 19 57 42	1.2		+1.1		
			iP_{NZ}	G 19 57 42	4		+2.5	+2.5	
			eP_E	B 19 57 42					
			e_E	A 19 57 43					
			iP_E	G 19 57 43	4	+2.5			
			i_N	A 19 57 45.5	0.3		−2.0		
			i_N	A 19 57 51	0.7		−1.2		
			i_N	A 19 57 57.5	0.7		−3.0		
			iS_E	B 19 57 58					
			iS_E	G 19 57 58	4	−8			

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No.	Date	Character	Phase	Time U. T.	Period	Amplitude A_E	Amplitude A_N	Amplitude A_Z	Remarks
	1931			h. m. s.	s.	mm.	mm.	mm.	
21	Oct. 18	IId	eS_E	A 19 57 59					
	(contd.)		i_E	A 19 58 05.5					
			iL_E	B 19 58 12	16	−1			
			iL_E	G 19 58 12	10	−19			
			i_N	A 19 58 14	1.0		+10		
			F	20 07±					
22	Oct. 20	Iv	eP_N	A 18 23 20	1		−0.1		See discussion, p. 54
			F	18 25 09					
23	Oct. 20	Iv	eP_N	A 18 56 21	1		+0.3		Record similar to previous quake
			e_N	A 18 56 37	1		−0.6		
			e_N	A 18 56 47	0.6		−1.2		
			F	18 59±					
24	Oct. 23	I	e_{EZ}	G 20 45±					
			F	21 30±					
25	Oct. 26	Ir	e_N	A 4 29 27					U. S. C. & G. S. Epicenter: 20° N, 107° W
			iP_{NZ}	G 4 29 28					
			e_E	A 4 29.6					
			e_E	B 4 33					
			eS_E	G 4 33 07					
			iS_N	G 4 33 12					
			eL_N	G 4 34 03					
			F	4 55±					
26	Oct. 27	Id	eP_{EN}	A 16 35 58.5					See discussion, p. 54
			eS_N	A 16 36 14.5					
			e_E	A 16 36 16					
			i_N	A 16 36 20.5					
			F	16 37.8					
27	Nov. 2	Ir	e_{EN}	A 0 38 25					U. S. C. & G. S. Epicenter: 16° N, 96° W
			iP_E	G 0 38 25					
			iP_Z	G 0 38 26					
			e_E	B 0 38.6					
			i_N	G 0 43 18					
			iS_E	G 0 43 35					
			i_N	G 0 43 38					
			iL_E	G 0 47 05	33				
			F	2 10±					

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No.	Date	Character	Phase	Time U. T.	Period	Amplitude			Remarks
						A_E	A_N	A_Z	
	1931			h. m. s.	s.	mm.	mm.	mm.	
28	Nov. 2	Iu	iP_{EZ}	G 10 15 21					
			eP_N	G 10 15 25					
			e_E	B 10 15.6					
			iS_{ENZ}	G 10 25 35					
			F	13 05±					
29	Nov. 2	I	e_E	G 17 27 11	16	−2			
			e_E	G 17 29 23	22	−6			
			F	18 25±					
30	Nov. 6	I	e_N	A 23 44 28					
			e_N	A 23 44 56					
			F	23 45.8					
31	Nov. 10	I	e_N	A 9 56 54			<0.1		
			e_N	A 9 57 19.5	0.5		+0.9		
			e_N	A 9 57 21.5	1.2		−0.8		
			F	9 59±					
32	Nov. 14	I	e_{EN}	A 18 23 08					
			F	18 24.5					
33	Nov. 16	IId	iP_{EN}	A 6 32 12.0	0.5	−0.8	+0.7		See discussion, p. 54
			eP_Z	W 6 32 12					
			eP_{NZ}	G 6 32 12	2		−1	−0.5	
			eP_E	B 6 32 13					
			eP_E	G 6 32 14	1	+ 0.2			
			i_E	A 6 32 14.5	0.3	−3.4			
			iS_E	B 6 32 20					
			iS_N	G 6 32 20	1		−3		
			iS_E	G 6 32 20	4	+3			
			iS_{EN}	A 6 32 21.0	0.3	−2.8	+6.2		
			i_N	A 6 32 24.0	0.5		+5.0		
			i_N	A 6 32 26.5	0.7		+2		
			F	6 35.5					
34	Nov. 18	I	e_{ENZ}	G 4 13.1					Trace only
			e_E	B 4 15±					Microseisms strong
			F	4 45±					

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No.	Date	Character	Phase	Time U. T.	Period	Amplitude			Remarks
						A_E	A_N	A_Z	
	1931			h. m. s.	s.	mm.	mm.	mm.	
35	Nov. 20	Iu	e_N	A 14 29 07					U. S. C. & G. S. Epicenter: "Probably region of Solomon Islands"
			iP_Z	G 14 29 09	6			+2.5	
			e_E	B 14 29 10	1.5	<0.1			
			iP_N	G 14 29 11	2		+1		
			iS_N	G 14 39 45	12		+6		
			e_Z	G 14 40 33	12			−2	
			eL_E	B 14 55 49	25	−0.2			
			F	15 55±					
36	Nov. 21	Id	eP_N	A 22 34 37.5	0.5		+0.3		See discussion, p. 55
			eP_E	A 22 34 38.0	0.5	−0.1			
			iS_N	A 22 34 53.5	0.8		+0.5		
			i_N	A 22 34 55.5	1.0		+0.7		
			e_E	A 22 34 56.5	1.0	−0.5			
			F	22 36 07					
37	Nov. 22	Iv	eP_Z	W 10 52 35					See discussion, p. 55
			eP_{EN}	A 10 52 36	0.4	−0.3	−0.2		
			eP_E	G 10 52 37					
			eP_{NZ}	G 10 52 38					
			e_E	A 10 52 52	1.5	−0.6			
			e_E	B 10 52 54	1.6 & 8				
			eS_N	A 10 52 58	0.7		−1.0		
			eS_E	A 10 52 58	0.9	−0.9			
			iS_{EN}	G 10 53 04					
			e_Z	G 10 53 08					
			e_E	B 10 53 23	6				
			F	10 57±					
38	Nov. 25	Iv	eP_E	A 12 19 29	0.6	<0.1			See discussion, p. 55
			eP_N	A 12 19 30					
			e_E	A 12 20 07	1.0	−0.2			
			e_E	A 12 20 19	0.7	+0.8			
			F	12 21 54					
39	Nov. 25	Iv	eP_N	A 19 45 56.5					
			eP_E	A 19 45 57					
			eS_N	A 19 46 25					
			eS_E	A 19 46 27					
			F	19 48.4					

BERKELEY

No.	Date	Character	Phase	Time U. T.	Period	Amplitude A_E	Amplitude A_N	Amplitude A_Z	Remarks
	1931			h. m. s.	s.	mm.	mm.	mm.	
40	Nov. 25	Iv	eP_{EN}	A 19 51 49					
			eS_N	A 19 52 19					
			i_E	A 19 52 22					
			F	19 54±					
41	Nov. 28	Iv	eP_{EN}	A 14 13 37		<0.1	<0.1		See discussion, p. 55
			eS_{EN}	A 14 14 13	0.7	−0.5	−0.5		
			F	14 18±					
42	Nov. 30	Iv	eP_{EN}	A 4 58 29					Probably centered some 20 miles north of King City. Not reported felt
			i_E	A 4 58 52					
			F	5 00 02					
43	Dec. 3	Id	eP_{EN}	A 4 50 54					See discussion, p. 56
			eS_N	A 4 51 10					
			i_E	A 4 51 17					
			F	4 52 00					
44	Dec. 4	IId	eP_Z	W 0 53 22					See discussion, p. 55
			iP_{ENZ}	G 0 53 22	1	−1	+1	−1	
			iP_{EN}	A 0 53 23.0	0.8	+0.7	−0.5		
			i_{EN}	A 0 53 26	0.7	−1.0	+1.5		
			i_N	G 0 53 26	5		−3		
			e_Z	W 0 53 28					
			i_E	A 0 53 30	0.9	−1.2			
			e_Z	W 0 53 36					
			i_E	A 0 53 38	0.9	+3.0			
			i_N	A 0 53 38.5	0.9		−4.0		
			iS_{ENZ}	G 0 53 43	4	−5	+4	−6	
			eS_{EN}	A 0 53 43.5					
			i_E	A 0 53 48	0.7	+8			
			i_N	A 0 53 56.5	0.6		+3.0		
			i_E	G 0 53 57	10	−18			
			e_Z	W 0 54 03					
			e_Z	W 0 54 10					
			F	0 58±					
45	Dec. 4	Id	iP_{EN}	A 1 18 48	0.2	+0.3	+0.3		See discussion, p. 56 Local explosion. S-P =0.6 sec
			F	1 18 57					
46	Dec. 4	Id	eP_{EN}	A 4 57 07	0.5	<0.1	+0.1		
			eS_E	A 4 57 27	0.7	−0.3			
			F	4 59±					

BERKELEY

No.	Date	Character	Phase	Time U. T.	Period	Amplitude A_E	Amplitude A_N	Amplitude A_Z	Remarks
	1931			h. m. s.	s.	mm.	mm.	mm.	
47	Dec. 10	I	e_{ENZ}	G 2 12.0					
			F	2 21±					
48	Dec. 15	Iv	eP_{EN}	A 16 20 13.5		<0.1	<0.1		See discussion, p. 56 Galitzin N-S record being changed
			eP_Z	G 16 20 16					
			e_E	G 16 20 26					
			e_E	A 16 20 28.0	0.7	+0.8			
			i_N	A 16 20 28.0	0.5		+0.6		
			e_N	A 16 20 31	0.8		−0.8		
			e_E	A 16 20 45	1	−0.7			
			i_E	A 16 20 47.5	0.5	+0.5			
			iS_N	A 16 20 48.5	0.5		−2.0		
			iS_E	A 16 20 49.0	0.7	−2.0			
			i_E	B 16 20 49	1	−0.1			
			i_E	B 16 20 50	1	−0.2			
			e_E	B 16 21 13	4	−0.2			
			eL_E	G 16 21 25	12				
			F	16 25±					
49	Dec. 17	Id	eP_N*	A 8 06 19.5	0.5		−0.1		See discussion, p. 56
			eP_E*	A 8 06 20.0	0.5	−0.1			
			i_{EN}	A 8 06 21.0	0.4	−0.5	+0.5		
			i_E	A 8 06 28.0	0.7	−0.9			
			i_N	A 8 06 29.0	0.7		−1.2		
			iS_E*	A 8 06 30.0	0.3	−2.0			
			F	8 08±					
50	Dec. 19	I	e_{EN}	A 7 07 59					Very small
			F	7 09±					
	1932								
51	Jan. 3	Id	iP_N	A 21 06 55.5	0.4		+0.7		See discussion, p. 56
			iP_E	A 21 06 56.0	0.3	+1.0			
			iS_{EN}	A 21 07 00.0	0.4	+1.3	−1.2		
			i_E	A 21 07 02.0	0.6	+1.0			
			F	21 07 40					
52	Jan. 5	Iu	e_{EN}	A 2 03.7					J. S. A. Epicenter: 25° S, 115° W
			e_Z	G 2 04.7					
			e_E	B 2 12.2					
			e_E	G 2 13.4					
			e_N	G 2 21.8					
			F	3 24±					

BERKELEY

No.	Date	Character	Phase	Time U. T.	Period	Amplitude			Remarks
						A_E	A_N	A_Z	
	1932			h. m. s.	s.	mm.	mm.	mm.	
53	Jan. 5	I	e_E	A 14 00 03					See discussion, p. 57
			e_N	A 14 00 05					
			e_Z	G 14 00 25					
			e_{EN}	G 14 00 32					
			i_Z	G 14 00 38					
			i_N	G 14 01 16					
			F	14 05±					
54	Jan. 8	Id	e_N	A 17 58 11					
			e_E	A 17 58 13					
			F	18 00±					
55	Jan. 8	Id	eP_N	A 18 17 31.0	0.3		+0.6		See discussion, p. 57
			e_E	A 18 17 32.5	0.5	−0.5			
			i_N	A 18 17 33.5	0.7		−1.0		
			eP_{ENZ}	G 18 17 34					
			e_E	A 18 17 39.0	0.6	+0.7			
			e_N	A 18 17 47.5	1.0		+0.9		
			eS_N	A 18 17 49.5	0.3		+0.5		
			iS_E	A 18 17 50.0	0.6	+1.5			
			F	18 20 18					
56	Jan. 9	IIu	iP_{ENZ}	G 10 33 57	6	−2	−3	−8	J. S. A. Epicenter: "Region of New Hebrides Islands"
			eP_E	A 10 33 57	1.2	−0.2			
			eP_E	B 10 33 57					
			eP_Z	W 10 33 58					
			e_N	A 10 34 00					
			i_E	G 10 35 23	10	+4			
			i_Z	G 10 35 25	7			+4.5	
			iS_N	G 10 43 49	4		−3		
			iS_E	G 10 43 49	11	+8			
			eS_N	A 10 43 49	3		−1		
			e_E	A 10 44 11	5	−0.9			
			e_E	B 10 44.2					
			e_N	A 10 44 13	5		−1.2		
			i_N	G 10 44 14	8		−23		
			i_E	G 10 45 16	19	+20			
			i_Z	G 10 45 17	8			+20	
			F	13 10±					

BERKELEY

No.	Date	Character	Phase	Time U. T.	Period	Amplitude			Remarks
						A_E	A_N	A_Z	
	1932			h. m. s.	s.	mm.	mm.	mm.	
57	Jan. 11	Id	iP_{EN}	A 2 54 05.5	0.6	+0.5	−0.2		
			i_E	A 2 54 19.0	0.5	+0.5			Rossi-Forel IV in Watsonville
			iS_{EN}	A 2 54 20.5	0.8	+0.7	+1.0		
			i_N	A 2 54 25.0	0.6		−1.2		
			F	2 55 25					
58	Jan. 12	I	e_{EN}	A 2 49					
			F	2 50±					
59	Jan. 13	I	e_{EN}	A 16 25 13	0.8	−0.6			
			F	16 27±					
60	Jan. 17	Id	eP_{EN}	A 2 29 18.0	0.7	−0.2	−0.4		
			iS_N	A 2 29 29.0	0.9		−1.0		
			iS_E	A 2 29 29.0	0.8	−0.5			
			i_N	A 2 29 30.5	0.6		−0.6		
			F	2 30 12					
61	Jan. 17	I	e_E	B 8 13.4					
			e_{EZ}	G 8 24.4					
			F	9 03±					
62	Jan. 20	I	e_E	A 20 28 20	0.4	−0.2			
			i_N	A 20 28 21	0.3		−0.5		
			F	20 28 29					
63	Jan. 22	I	e_N	A 2 38 30					
			e_E	A 2 38 32					
			F	2 39 19					
64	Jan. 22	I	e_{EN}	A 2 57.2					
			F	2 58±					
65	Jan. 24	I	eP_Z	G 3 56 57	10			+2	
			eP_N	A 3 57.0					
			iP_E	G 3 57 05	4	−1			
			eP_E	A 3 57.1					
			eP_E	B 3 57.1					
			eS_E	G 4 08 45	16	+2.5			
			eS_N	G 4 08 53	16		+2.5		
			eL_E	G 4 23.3	28				
			eL_N	G 4 24.3	22				
			F	5 18±					

BERKELEY

No.	Date	Character	Phase	Time U. T.	Period	Amplitude A_E	Amplitude A_N	Amplitude Az	Remarks
	1932			h. m. s.	s.	mm.	mm.	mm.	
66	Jan. 26	Id	eP_N	A 15 41 15	0.8		−0.5		E–W record being changed
			e_N	A 15 41 24	0.5		+0.4		
			iS_N	A 15 41 26	0.9		−0.7		
			i_N	A 15 41 27.5	0.2		−0.4		
			F	15 42 31					
67	Jan. 29	Iv	eP_{EN}	A 4 14 30					See discussion, p. 57
			i_N	A 4 14 46					
			i_E	A 4 14 53					
			F	4 16					
68	Jan. 29	IIu	iP_Z	G 13 54 01	6			−1	U. S. C. & G. S. Epicenter: 7° S, 155° E
			eP_E	G 13 54 04					
			eP_E	B 13 54 10					
			e_E	A 13 54 10	0.7	+0.4			
			e_N	A 13 54 11	0.6		+0.3		
			eS_E	B 14 04 56					
			eL_N	A 14 19 16	25		−0.5		
			eL_E	G 14 20.9	40 (ca)				
			eL_E	A 14 21.3	30	−0.5			
			eL_E	B 14 21.9					
			F	18 35±					
69	Jan. 30	I	e_E	G 3 23.9					
			e_Z	G 3 32.4					
			e_E	B 3 39.4					
			e_E	G 3 39.8					
			F	5 06±					
70	Jan. 30	I	e_{EZ}	G 7 54					
			F	8 50±					
71	Jan. 31	I	e_{EZ}	G 5 21					
			F	5 53±					
72	Jan. 31	I	eP_E	B 9 23.9					
			eP_{EN}	A 9 24.9					
			eP_Z	G 9 25 10	6			−2	
			eP_E	G 9 25 16	6	−1.5			
			e_Z	G 9 26 34	7			+2	
			e_E	G 9 26 34	17	−5			
			e_Z	G 9 27 41	7			+6	
			F	10 08±					

BERKELEY

No.	Date	Character	Phase	Time U. T.	Period	Amplitude A_E	Amplitude A_N	Amplitude Az	Remarks
	1932			h. m. s.	s.	mm.	mm.	mm.	
73	Jan. 31	I	e_{ENZ}	G 16 25					
			F	17 23±					
74	Feb. 2	I	e_N	A 20 52 05					Rossi-Forel IV at Metz
			e_E	A 20 52 09					
			e_N	A 20 52 22					
			e_E	A 20 52 25					
			e_E	A 20 52 28					
			e_E	A 20 52 38					
			F	20 54±					
75	Feb. 3	IIr	eP_E	A 6 24 10					U. S. C. & G. S. Epicenter: 19°3 N, 76°0 W
			eP_Z	W 6 24 11					
			eP_E	B 6 24 14					
			eP_E	G 6 24 15	3	−3.5			
			iP_Z	G 6 24 16	3			+8	
			e_N	A 6 24 16					
			i_Z	G 6 26 01	4			+11	
			e_Z	G 6 30 33					
			e_E	G 6 30 39	3	−2.5			
			iS_E	B 6 30 45					
			iSR_{1E}	B 6 34 17					
			iSR_{1EZ}	G 6 34 19	5	+10			
			eL_E	B 6 40.7					
			i_E	G 6 40 59	3	+11			
			e_Z	W 6 41 01					
			e_N	A 6 41 37					
			e_Z	W 6 44 55					
			e_E	A 6 45 20					
			M_{EZ}	G 6 46.7	6	92		84	
			F	8 23±					
76	Feb. 5	I	eP_{EN}	A 4 15 32					
			F	4 16 34					
77	Feb. 5	I	eP_N	A 6 47 40					
			F	6 48 47					
78	Feb. 9	Id	eP_{EN}	A 13 57 37	0.5	<0.1	+0.2		Microseisms strong
			eS_N	A 13 57 51	0.6		+0.3		
			F	13 58 36					

BERKELEY

No.	Date	Character	Phase	Time U. T.	Period	Amplitude A_E	Amplitude A_N	Amplitude A_Z	Remarks
	1932			h. m. s.	s.	mm.	mm.	mm.	
79	Feb. 16	I	e_{EZ}	BW 14 10.4					
			e_{NZ}	G 14 23.9					
			F	15 36±					
80	Feb. 17	I	e_N	A 1 02 31	0.8		−0.3		
			F	1 14±					
81	Feb. 18	I	eP_N	A 19 06 12					Very small
			F	19 08±					
82	Feb. 20	Id	eP_N	A 6 50 21	0.7		−0.3		See discussion, p. 57
			e_N	A 6 50 35	0.4		+0.5		
			i_N	A 6 50 36	0.3		−1.1		
			iS_N	A 6 50 37	1.0		+0.6		
			F	6 51 41					
83	Feb. 21	I	e_N	A 4 41 40					
			F	4 43±					
84	Feb. 23	I	e_{EZ}	G 0 53					
			F	2 12±					
85	Feb. 23	I	e_N	A 20 23 56					
			F	20 25.3					
86	Feb. 23	I	e_{EZ}	G 20 51					
			e_E	B 20 51.8					
			F	21 32±					
87	Feb. 25	IIId	iP_E	A 7 34 51.5	0.5	−1.0			See discussion, p. 58
			iP_N	A 7 34 51.5	0.3		−2.0		
			iP_{EZ}	BW 7 34 52					
			iS_E	A 7 34 54.0	0.3	−6.5			
			iS_N	A 7 34 54.0	0.5		−5.2		
			iS_E	B 7 34 54					
			iS_Z	W 7 34 55					
			F	7 36 12					
88	Feb. 26	IIIv	iP_{EN}	A 16 59 21	0.5	−0.5	−0.6		See discussion, p. 58
			eP_Z	W 16 59 21					
			eP_E	B 16 59 24					
			e_Z	W 16 59 25					

BERKELEY

No.	Date	Character	Phase	Time U. T.	Period	Amplitude A_E	Amplitude A_N	Amplitude A_Z	Remarks
	1932			h. m. s.	s.	mm.	mm.	mm.	
88	Feb. 26	IIIv	i_N	A 16 59 25	0.6		−2.0		
	(contd.)		i_E	A 16 59 25	0.3	−1.3			
			iP_Z	G 16 59 27					
			eP_E	G 16 59 28					
			i_{EZ}	G 16 59 45	3	+2		+3	
			e_E	B 16 59 47					
			iS_{EN}	A 16 59 47	0.5	−5.3	−3.0		
			eS_{EZ}	BW 16 59 49					
			i_N	A 16 59 50	0.6		−17.5		
			i_E	G 16 59 50	3	−7			
			i_Z	G 16 59 52	3			+10	
			e_Z	W 17 00 08					
			F	17 05±					
89	Mar. 2	I	e_{EN}	A 3 59 33	0.7	<0.1	<0.1		
			F	4 02±					
90	Mar. 2	I	e_{EZ}	BW 17 42.4					
			eP_{EN}	A 17 42 36	0.5	+0.1	<0.1		
			eP_E	G 17 42 38					
			i_E	A 17 42 42.5	0.6	+0.5			
			e_E	A 17 42 50	1.1	−0.5			
			e_N	A 17 43 22	2		−0.5		
			i_E	G 17 43 52	13	−9.5			
			e_E	A 17 44.6					
			i_E	G 17 45 59	8	+10			
			F	18 19±					
91	Mar. 8	I	e_{EN}	A 4 37 18					Very small
			e_Z	G 4 37 23					
			e_E	B 4 42					
			i_E	G 4 43 29					
			e_N	G 4 46.6					
			F	5 41±					
92	Mar. 8	I	e_{ENZ}	G 18 24.3					
			F	19 46±					
93	Mar. 9	I	e_{EN}	A 3 34 45					
			F	3 36 35					

BERKELEY

No.	Date	Character	Phase	Time U. T.	Period	Amplitude			Remarks
						A_E	A_N	A_Z	
	1932			h. m. s.	s.	mm.	mm.	mm.	
94	Mar. 10	I	e_E	G 5 42 15					Probably a trace of distant earthquake
			e_N	G 5 58.4					
			e_{EN}	A 5 59					
			e_{EZ}	BW 5 59					
			e_Z	G 6 00.5					
			F	7 59±					
95	Mar. 14	Ir	eP_Z	W 4 10 35	2			−0.1	
			iP_E	G 4 10 35	2	−1			
			eP_Z	G 4 10 36					
			eP_{EN}	A 4 10 36	1.5	−0.5	+0.5		
			eP_E	B 4 10 36					
			eS_E	B 4 14 19					
			eS_E	G 4 14 23	10	−6			
			eS_Z	G 4 14.5					
			eL_E	G 4 15 47	26	+11			
			eL_E	B 4 16.1					
			e_Z	W 4 17.5					
			e_N	A 4 18.6					
			F	5 09±					
96	Mar. 14	I	e_{EN}	A 21 48.6					
			F	21 50±					
97	Mar. 14–15	Ir	eP_{EN}	A 22 52 15					U. S. C. & G. S. Epicenter: 7° N, 73° W
			eP_E	G 22 52 16					
			iP_Z	G 22 52 19					
			e_{EZ}	BW 22 53.3					
			eS_E	G 22 59 54					
			F	0 04±					
98	Mar. 19	Iu	eP_E	A 11 11 52	2	−0.2			
			iP_Z	G 11 11 53	6			−5	
			eP_Z	W 11 11 53					
			eP_E	B 11 11 54					
			eP_N	A 11 11 54					
			iP_E	G 11 11 54					
			eS_E	G 11 21 04	14	−2			
			e_E	B 11 21 55					
			F	12 49±					

BERKELEY

No.	Date	Character	Phase	Time U. T.	Period	Amplitude			Remarks
						A_E	A_N	A_Z	
	1932			h. m. s.	s.	mm.	mm.	mm.	
99	Mar. 19–20	I	e_Z	G 23 22.8					
			e_E	G 23 33.8					
			e_E	B 23 50					
			F	0 24±					
100	Mar. 23	I	e_{EN}	A 0 21.8					
			F	0 25±					
101	Mar. 23	Iv	eP_{EN}	A 5 48 12	0.5	<0.1	+0.2		
			eS_N	A 5 48 38	0.6		−0.3		
			eS_E	A 5 48 39	0.6	−0.4			
			F	5 15±					
102	Mar. 26	I	e_N	A 0 01 12	2		−0.5		
			e_E	A 0 01 13	1.5	−0.4			
			i_N	A 0 04 52	1		+0.4		
			i_{EZ}	G 0 04 53	5	−2.5		+3	
			e_{EZ}	BW 0 04 56					
			e_E	A 0 04 57	0.8	+0.5			
			i_Z	G 0 10 05	6			−5	
			i_E	G 0 10 07	9	−23			
			e_E	B 0 10 07					
			e_E	B 0 10 36					
			e_E	A 0 11.9	15				
			e_N	A 0 12.8	20				
			F	2 29±					
103	Mar. 26	I	e_{EZ}	G 10 18.5					Trace of distant earthquake
			e_{EZ}	BW 10 39					
			F	12 24±					
104	Mar. 29	I	e_{EN}	A 0 25.8					
			e_Z	G 0 27 16					
			e_{EZ}	BW 0 27.8					
			e_E	G 0 27 53					
			e_N	G 0 27 58					
			F	0 52±					
105	Mar. 30	I	e_{EN}	A 5 43.8					
			F	5 45±					

MOUNT HAMILTON

The Lick Observatory Station, University of California
Mount Hamilton, California

CONSTANTS

Latitude and longitude of the center of the seismographic room:

$\varphi = 37° 20' 24''.5$ N Lat.
$\lambda = 121° 38' 34''$ W from Greenwich.

Time.—All determinations are reduced to Greenwich mean time (Universal Time).

Altitude.—1281.7 meters (4202.25 feet) above mean sea level.

Constants of the Seismographs

Instrument	Component	V	T_0	ϵ
Wood-Anderson	E	3000	1	15
	N	3000	1	15

MOUNT HAMILTON

No.	Date	Character	Phase	Time U. T.	Period	Amplitude A_E	Amplitude A_N	Amplitude A_Z	Remarks
	1931			h. m. s.	s.	mm.	mm.	mm.	
1	Oct. 1	IId	iP_{EN}	2 17 30					S-P=2 sec
			F	2 18.4					
2	Oct. 1	IIr	eP_E	11 47 57	1	+0.4			U. S. C. & G. S. Epicenter: 29°.4 N, 114°.6 W
			eP_N	11 47 57	1.5		−0.4		
			e_E	11 49 55	3	+0.5			
			e_N	11 50 30	1.5		−1.5		See Berkeley Bulletin
			eL_N	11 51.3	14		−3		
			F	12 35					
3	Oct. 3	IIu	eP_E	19 26 00	1	+0.1			U. S. C. & G. S. Epicenter: 14°S, 160°E
			eS_E	19 36 52	12	−0.5			
			eL_E	19 52.8	35				
			F	20 33					
4	Oct. 3	I	e_N	22 08 03.5	0.5				Very faint trace of quake
			e_E	22 08 06.5	1				
			F	22 13					
5	Oct. 3–4	IIu	eP_{EN}	23 00 27	1	−0.1	−0.1		Beginning gradual
			iS_N	23 11 03	15				
			eS_E	23 11 04	18				
			eL_E	23 27.2	30				
			F	0 15±					
6	Oct. 6	Id	iP_{EN}	6 49 04.0	0.6	+0.4	−0.6		
			iS_E	6 49 08.5	0.5	+1.0			
			iS_N	6 49 09.0	0.4		−0.9		
			i_N	6 49 10.5	0.5		+1.0		
			F	6 49 50					
7	Oct. 6	I	e_{EN}	14 29.8					
			F	14 31±					
8	Oct. 7	Id	eP_N	7 18 27	0.3		−0.3		
			eP_E	7 18 27	0.5	<0.1			
			i_N	7 18 28	0.5		+0.5		
			iS_{EN}	7 18 36	0.6	+0.7	+0.7		
			F	7 19 35					
9	Oct. 8	Id	iP_{EN}	11 32 52.5	0.5	+0.2	−0.4		
			eS_N	11 32 03.5	0.6		+0.6		
			iS_E	11 32 04.0	0.8	+0.6			
			F	11 34.4					

MOUNT HAMILTON

No.	Date	Character	Phase	Time U. T.	Period	Amplitude A_E	Amplitude A_N	Amplitude A_Z	Remarks
	1931			h. m. s.	s.	mm.	mm.	mm.	
10	Oct. 9	I	e_{EN}	23 29.8					Very small
			i_N	23 31 42	1		−0.5		
			F	23 40					
11	Oct. 10	IIu	e_{EN}	0 32 38					U. S. C. & G. S. Epicenter: 8° S, 160° E This appears to be several earthquakes
			e_{EN}	0 56 59					
			e_{EN}	1 21.0					
			e_{EN}	1 37.3					
			e_{EN}	1 43.5					
			e_{EN}	2 24.9					
			e_{EN}	2 29.5					
			F	3 00±					
12	Oct. 11	Id	eP_{EN}	8 00 10					S-P=1.5 sec
			F	8 00.3					
13	Oct. 11	Id	iP_N	10 25 59					S-P=1.5 sec
			iP_E	10 26 00					
			F	10 26 38					
14	Oct. 12	I	e_{EN}	4 05 55	0.9	−0.3	+0.4		
			F	4 08					
15	Oct. 13	IId	iP_{EN}	12 24 45	0.5	<0.1	−0.3		
			iS_{EN}	12 24 57	0.5	+2.0	+1.4		
			i_{EN}	12 24 58	0.6	−5.0	−3.5		
			F	12 27					
16	Oct. 13	I	e_{EN}	16 44 09					
			F	16 44 24					
17	Oct. 15	Id	eP_{EN}	3 19 50					S-P=2 sec.
			F	3 20 09					
18	Oct. 17	I	e_{EN}	15 45 42					
			F	15 49±					
19	Oct. 18	I	e_{EN}	4 42 15					
			F	4 49±					
20	Oct. 18	IId	e_{EN}	19 58					Records were being changed at beginning of quake. See discussion, p. 54
			F	20 04±					

MOUNT HAMILTON

No.	Date	Character	Phase	Time U. T.	Period	Amplitude A_E	Amplitude A_N	Amplitude A_Z	Remarks
	1931			h. m. s.	s.	mm.	mm.	mm.	
21	Oct. 19	Id	eP_{EN}	0 39 36					
			eS_{EN}	0 39 47					
			F	0 40 37					
22	Oct. 20	Id	iP_{EN}	18 23 08	0.6	−0.5	+0.5		
			iS_N	18 23 19	0.5		−1.5		
			iS_E	18 23 19	0.4	+1.0			
			F	18 25					
23	Oct. 20	IId	iP_E	18 56 09	0.7	−0.6			
			iP_N	18 56 09	0.5		+1.2		
			iS_E	18 56 20	0.5	+2.0			
			iS_N	18 56 20	0.7		−3.0		
			F	19 00±					
24	Oct. 26	Ir	e_{EN}	4 29.3					U. S. C. & G. S. Epicenter: 20° N, 107° W
			F	5 05±					
25	Oct. 27	IId	iP_{EN}	16 35 47	0.5	+0.5	−1.0		See discussion, p. 54
			i_N	16 35 52	0.8		+1.1		
			iS_E	16 35 54.5	0.5	−3.0			
			iS_N	16 35 55	0.5		+1.5		
			F	16 38±					
26	Oct. 29	I	e_{EN}	8 50 46					
			F	8 53					
27	Nov. 2	Ir	e_{EN}	0 38 18					U. S. C. & G. S. Epicenter: 16° N, 96° W
			F	1 05±					
28	Nov. 6-7	Id	iP_{EN}	23 44 28.0					S-P=8 sec
			F	0 00±					
29	Nov. 10	IId	iP_E	9 56 47.0	0.7	+0.4			
			iP_N	9 56 47.5	0.6		−0.6		
			i_N	9 56 55.0	0.3		+0.4		
			iS_E	9 56 56.5	0.5	+2.0			
			iS_N	9 56 57.0	0.6		−2.3		
			i_N	9 57 01.5	0.5		+2.0		
			F	9 59					

MOUNT HAMILTON

No.	Date	Character	Phase	Time U. T.	Period	Amplitude A_E	Amplitude A_N	Amplitude A_Z	Remarks
	1931			h. m. s.	s.	mm.	mm.	mm.	
30	Nov. 14	Id	iP_E	18 22 59.5	0.6	−0.2			
			iP_N	18 23 00	0.6		+0.2		
			i_E	18 23 09	0.4	+0.4			
			iS_{EN}	18 23 13	0.5	+1.0	+0.4		
			i_N	18 23 15	0.5		−1.0		
			F	18 24 47					
31	Nov. 16	Iv	ePE_N	6 32 21.5					Very small beginning
			i_N	6 32 26.5	0.5		−0.5		
			e_E	6 32 29.5	0.5	−0.9			See discussion, p. 54
			i_N	6 32 29.5	0.6		−0.7		
			iS_{EN}	6 32 37.0	0.5	+1.6	+0.4		
			e_E	6 32 42.5	0.5	−2.0			
			F	6 35.8					
32	Nov. 18	Id	e_E	11 08.3					Very small quake
			F	11 08.4					
33	Nov. 20	Iu	e_{EN}	14 29.3					U. S. C. & G. S. Epicenter: "probably region of Solomon Islands"
			F	14 50±					
34	Nov. 21	Id	iP_{EN}	22 34 26	0.5		−1.2		See discussion, p. 55
			iS_{EN}	22 34 34	0.5		+3.0		
			F	22 35.9					
35	Nov. 22	Iv	e_{EN}	10 52 44					See discussion, p. 55
			F	10 56					
36	Nov. 23	Id	iP_N	16 35.5					S-P=1 sec
			F	16 35.7					
37	Nov. 23	Id	iP_{EN}	22 46 39					S-P=1.3 sec
			F	22 46 57					
38	Nov. 25	Iv	eP_E	12 19 23	0.8	+0.2			See discussion, p. 55
			eP_N	12 19 24	0.6		+0.3		
			i_N	12 19 26	0.6		+0.5		
			i_{EN}	12 19 54	0.4	+0.7	+0.7		
			iS_N	12 19 58	0.7		+0.9		
			iS_E	12 19 58.5	0.7	−1.0			
			F	12 21 58					

MOUNT HAMILTON

No.	Date	Character	Phase	Time U. T.	Period	Amplitude A_E	Amplitude A_N	Amplitude A_Z	Remarks
	1931			h. m. s.	s.	mm.	mm.	mm.	
39	Nov. 25	Iv	iP_N	19 45 55.5					
			eP_E	19 45 56					
			iS_{EN}	19 46 28					
			i_E	19 46 30.5					
			F	19 47.9					
40	Nov. 25	Iv	ePE_N	19 51 50					Looks like previous quake
			eS_N	19 52 22					
			iS_E	19 52 24					
			i_E	19 52 29					
			F	19 53.5					
41	Nov. 27	Id	iP_{EN}	3 10.5					S-P=2.0 sec.
			F	3 10.7					
42	Nov. 27	Iv	e_{EN}	8 17 10					Rossi-Forel IV at Big Creek
			F	8 18 50					
43	Nov. 27	Id	iP_{EN}	12 32 03	0.5	<0.1	+0.5		
			e_N	12 32 12	0.5		+0.6		
			iS_E	12 32 13	0.4	−1.0			
			iS_N	12 32 13.5	0.3		+1.6		
			i_E	12 32 15.5	0.5	+2.1			
			F	12 33 11					
44	Nov. 28	Iv	e_{EN}	14 13 49					See discussion, p. 55
			F	14 17.0					
45	Nov. 30	Id	iP_E	4 58 16.5	0.7	−0.2			Probably centered some 20 miles north of King City. Not reported felt
			iP_N	4 58 17.0	0.5		+0.4		
			i_N	4 58 28.5	0.5		+0.8		
			iS_E	4 58 29.0	0.5	+0.6			
			iS_N	4 58 29.5	0.6		−1.7		
			F	4 59 55					
46	Dec. 1	I	e_{EN}	13 53 02					
			F	13 54.6					
47	Dec. 1	I	e_{EN}	13 56.6					
			F	13 58.6					
48	Dec. 1	Id	iP_{EN}	16 55 20.5	0.5		−1.1		
			iS_N	16 55 23.0	0.3		−1.0		
			F	16 55 58					

MOUNT HAMILTON

No.	Date	Character	Phase	Time U. T.	Period	Amplitude AE	Amplitude AN	Amplitude AZ	Remarks
	1931			h. m. s.	s.	mm.	mm.	mm.	
49	Dec. 2	Id	e_{EN}	22 23.5					Small local quake
			F	22 23.7					
50	Dec. 3	Id	iP_{EN}	4 50 42.5	0.4	<0.1	−0.4		See discussion, p. 55
			iS_{EN}	4 50 50.0	0.5	+2.0	+1.1		
			F	4 52 10					
51	Dec. 4	IIId	iP_{EN}	0 53 13	0.8	+2.0	−3.0		See discussion, p. 55
			iS_N	0 53 25					
			F	1 00±					
52	Dec. 4	Id	iP_{EN}	4 56 54.5	0.8	+0.3	−0.4		
			i_N	4 57 01.0	0.6		+1.0		
			iS_{EN}	4 57 06.5	0.5	−2.0	+1.2		
			i_N	4 57 07.5	0.5		−2.0		
			F	5 00±					
53	Dec. 5	I	e_{EN}	5 43.7					
			F	5 46±					
54	Dec. 5	I	e_{EN}	11 17.2					
			F	11 18.1					
55	Dec. 14	Id	iP_E	22 39 49					S-P=1.7 sec
			F	22 40 10					
56	Dec. 14	Id	iP_E	22 41 32					S-P=1.5 sec
			F	22 41 55					
57	Dec. 14	Id	iP_E	23 16 30					S-P=1.6 sec
			F	23 16 55					
58	Dec. 15	Iv	eP_E	16 20 13.0	0.5	+0.2			See discussion, p. 56
			e_E	16 20 42.5	0.8	+0.7			
			iS_E	16 20 58.0	0.5	−1.4			
			i_E	16 21 04.5	0.5	−2.1			
			F	16 24±					
59	Dec. 17	IId	iP_N	8 06 10.1					See discussion, p. 56
			F	8 08±					
60	Dec. 18	I	e_N	5 18 09					
			F	5 19±					

MOUNT HAMILTON

No.	Date	Character	Phase	Time U. T.	Period	Amplitude AE	Amplitude AN	Amplitude AZ	Remarks
	1931			h. m. s.	s.	mm.	mm.	mm.	
61	Dec. 19	Id	eP_{EN}	7 07 38					Very small
			iS_{EN}	7 07 50	0.8	+0.8	−1.0		
			F	7 09.5					
62	Dec. 22	Id	eP_{EN}	14 37 30.5					
			eS_{EN}	14 37 43.0					
			F	14 39.1					
63	Dec. 29	I	e_{EN}	7 20(approx.)					No time marks
			F	7 22±					
	1932								
64	Jan. 3	Id	e_E	21 07.1					See discussion, p. 56
			F	21 07.8					
65	Jan. 5	Iu	e_E	2 04.6					J. S. A. Epicenter: 25° S, 115° W
			F	2 50±					
66	Jan. 5	I	eP_E	14 00 14					See discussion, p. 57
			F	14 08±					
67	Jan. 6	Id	iP_E	7 19 18					S-P=1.7 sec.
			F	7 19 46					
68	Jan. 8	IId	eP_E	18 17 19.0	0.5	+0.3			See discussion, p. 57
			i_E	18 17 21.0	0.5	−2.0			
			i_E	18 17 24.5	0.6	+2.4			
			iS_E	18 17 30.5	0.8	−3.5			
			F	18 19 54					
69	Jan. 9	I	eP_E	10 33 59					J. S. A. Epicenter: "Region of the New Hebrides Islands"
			F	11 00.2					
70	Jan. 11	Id	iP_{EN}	2 53 55.0	0.5	+0.3		−0.8	Rossi-Forel IV in Watsonville
			i_N	2 53 58.5	0.5			−1.4	
			iS_E	2 54 00.5	0.4	−4.0			
			iS_N	2 54 01.0	0.3			−2.0	
			i_E	2 54 02.5					
			i_N	2 54 08.5	0.4			−1.5	
			F	2 55					

MOUNT HAMILTON

No.	Date	Character	Phase	Time U. T.	Period	Amplitude			Remarks
						A_E	A_N	Az	
	1932			h. m. s.	s.	mm.	mm.	mm.	
71	Jan. 12	Id	eP_{EN}	2 48 19.5	0.4	<0.1	−0.3		
			eS_{EN}	2 48 27.0	0.5	−0.5	−0.4		
			F	2 49 32					
72	Jan. 13	Id	e_{EN}	4 37 29					
			F	4 38 09					
73	Jan. 13	I	eP_{EN}	16 25 19					
			F	16 30±					
74	Jan. 14	I	e_{EN}	11 00 05					
			F	11 01 00					
75	Jan. 17	IId	iP_{EN}	2 29 04.0	0.5		−3.0		
			iS_N	2 29 06.0	0.5		−10.0		
			F	2 30 25					
76	Jan. 19	I	e_{EN}	18 27.0					
			F	18 27.9					
77	Jan. 20	Id	iP_{EN}	20 22 38.0					S-P=1.4 sec
			F	20 23 07					
78	Jan. 20	Id	iP_E	20 27 56					S-P=1.5 sec
			F	20 28 42					
79	Jan. 22	Id	eP_{EN}	2 38 15					S-P=7.5 sec
			F	2 39 04					
80	Jan. 22	Id	iP_{EN}	2 56 52					S-P=7.5 sec
			F	2 57 44					
81	Jan. 24	I	e_E	3 57.1					
			F	4 50±					
82	Jan. 26	IId	iP_N	15 41 01.5					S-P=2.0 sec
			iP_E	15 41 02.0					Motion very rapid
			F	15 42 12					
83	Jan. 29	Id	eP_E	4 14 18					S-P=7.5 sec
			F	4 16					See discussion, p. 57

MOUNT HAMILTON

No.	Date	Character	Phase	Time U. T.	Period	Amplitude			Remarks
						A_E	A_N	Az	
	1932			h. m. s.	s.	mm.	mm.	mm.	
84	Jan. 29	Iu	e_E	13 54 05					J. S. A. Epicenter: 7° S, 156° E
			eL_E	14 22.4	29				
			F	15 16±					
85	Jan. 31	I	e_E	9 25.4					Trace of distant quake
			F	9 42±					
86	Feb. 2	Id	eP_N	20 51 54.0					Rossi-Forel IV at Metz
			e_N	20 52 03.0					
			iS_N	20 52 07.0					
			i_N	20 52 09.5					
			F	20 53 36					
87	Feb. 3	Ir	e_N	6 24 08					Weak beginning
			eL_N	6 41 22	15				J. S. A. Epicenter: 19°2 N, 76° W
			F	6 58±					
88	Feb. 5	Iv	eP_N	4 15 14					
			eP_E	4 15 15					
			eS_N	4 15 35.5					
			F	4 16 51					
89	Feb. 5	Iv	eP_N	6 47 22.0					
			eP_E	6 47 22.5					
			eS_N	6 47 42.5					
			eS_E	6 47 43.0					
			F	6 49.0					
90	Feb. 9	Id	eP_{EN}	13 57 27					
			eS_{EN}	13 57 35					
			F	13 58.4					
91	Feb. 11	I	e_{EN}	23 12 54					
			F	23 15.7					
92	Feb. 13	I	e_{EN}	16 20.6					
			e_N	16 20 57					
			F	16 21.9					
93	Feb. 17	I	e_{EN}	1 02 38					
			F	1 04±					
94	Feb. 18	I	eP_E	19 01 37					
			F	19 02.5					

MOUNT HAMILTON

No.	Date	Character	Phase	Time U. T.	Period	Amplitude			Remarks
						A_E	A_N	A_Z	
	1932			h. m. s.	s.	mm.	mm.	mm.	
95	Feb. 18	Id	iP_N	19 06 02.0	0.5		−0.4		
			eP_E	19 06 02.0	0.7	+0.2			
			iS_N	19 06 13.5	0.8		−0.6		
			iS_E	19 06 13.5	0.4	+0.7			
			i_E	19 06 15.5	0.5	+0.8			
			F	19 08±					
96	Feb. 19	Id	eP_{EN}	16 24 08					
			iS_N	16 24 28					
			F	16 25 22					
97	Feb. 20	Id	iP_N	6 50 06.5					See discussion, p. 57
			iP_E	6 50 07.0					
			iS_{EN}	6 50 12.0					Motion rapid
			F	6 51.6					
98	Feb. 21	IId	iP_E	2 56 21.0					S-P=1.7 sec
			F	2 58±					
99	Feb. 21	Id	iP_E	3 04 41.5					S-P=1.7 sec
			F	3 05 03					
100	Feb. 21	Id	iP_E	4 41 27.5					
			iS_E	4 41 39.5					
			F	4 43.6					
101	Feb. 22	I	eP_{EN}	18 22 20					
			F	18 22 59					
102	Feb. 23	I	e_{EN}	23 42.1					
			F	23 42.7					
103	Feb. 25	Id	iP_N	7 34 59.0					See discussion, p. 58
			iS_N	7 35 07.0					
			i_N	7 35 09.0					
			F	7 36.2					
104	Feb. 26	IIId	eP_E	16 59 13.5	0.6	−0.4			See discussion, p. 58
			i_E	16 59 14.5		−3.0			Motion too fast to measure period. S. lost due to fast motion
			F	17 04.8					

MOUNT HAMILTON

No.	Date	Character	Phase	Time U. T.	Period	Amplitude			Remarks
						A_E	A_N	A_Z	
	1932			h. m. s.	s.	mm.	mm.	mm.	
105	Feb. 27	I	e_{EN}	1 54.8					Very weak
			F	1 55.8					
106	Mar. 2	I	eP_{EN}	3 59 25					
			F	4 01.9					
107	Mar. 2	Iv	eP_{EN}	17 42 46	0.5	−0.2	−0.4		
			eS_{EN}	17 43 41	0.7	−0.5	−0.6		
			eL_N	17 44.4	9				
			F	17 55					
108	Mar. 2	I	e_{EN}	20 16.5					
			F	20 17.5					
109	Mar. 6	I	e_{EN}	11 31 24					
			F	11 33±					
110	Mar. 8	I	e_{EN}	4 37 23					
			F	4 41±					
111	Mar. 9	Id	eP_{EN}	3 34 32.0	0.5	<0.1	+0.3		
			iS_{EN}	3 34 43.5	0.6	−0.9	+1.0		
			F	3 36.0					
112	Mar. 9	Id	eP_E	22 34 24					S-P=2.5 sec
			F	22 35.1					
113	Mar. 10	I	e_E	5 56					Trace of distant quake
			F	6 17±					
114	Mar. 13	Id	eP_{EN}	23 50 15					S-P=3.0 sec
			F	23 50 49					
115	Mar. 14	I	eP_{EN}	4 10 26					Trace of distant quake
			F	4 32					
116	Mar. 14	Id	eP_{EN}	9 26 52					S-P=1.7 sec
			F	9 27.2					
117	Mar. 14	Id	iP_N	21 48 14.5	0.6		+0.3		
			eP_E	21 48 15.0	0.6	−0.2			
			eS_E	21 48 24.0	0.5	+0.5			
			eS_N	21 48 25.0	0.7		−0.7		
			i_E	21 48 27.5	0.5	+1.4			
			F	21 50±					

MOUNT HAMILTON

No.	Date	Character	Phase	Time U. T.	Period	Amplitude A_E	Amplitude A_N	Amplitude Az	Remarks
	1932			h. m. s.	s.	mm.	mm.	mm.	
118	Mar. 14	Ir	e_{EN}	22 52.2					U. S. C. & G. S. Epicenter: 7° N, 73° W
			F	22 59					
119	Mar. 17	Id	eP_{EN}	16 03 11					S-P=5 sec
			F	16 03 55					
120	Mar. 18	Id	eP_E	16 29 20					S-P=5 sec
			F	16 30 07					
121	Mar. 18	Id	eP_E	19 07 08					S-P=5 sec
			F	19 07 47					
122	Mar. 19	I	eP_{EN}	11 11.9					
			F	11 27±					
123	Mar. 23	I	e_{EN}	0 21.4					
			F	0 25±					
124	Mar. 23	Iv	eP_{EN}	5 48 09.5	0.5	<0.1	+0.2		
			iS_{EN}	5 48 38.5	0.6	−0.7	−0.5		
			F	5 50 15					
125	Mar. 24	I	e_E	8 09.8					
			F	8 10.3					
126	Mar. 25	Id	iP_{EN}	7 47 01.0					
			iS_{EN}	7 47 03.5					
			F	7 47 38					
127	Mar. 26	I	e_{EN}	0 01 18					
			e_{EN}	0 04 59					
			eL_N	0 12.5	10 (*ca*)				
			e_E	0 14.5	17 (*ca*)				
			F	1 02±					
128	Mar. 27	Id	eP_{EN}	3 22 12					S-P=1.4 sec
			F	3 22 41					
129	Mar. 29	I	e_{EN}	0 26.2					
			F	0 43±					
130	Mar. 30	Iv	eP_{EN}	5 45 17					S-P=19.5 sec
			F	5 47±					

PALO ALTO

The Branner Station, Stanford University
Palo Alto, California

CONSTANTS

Latitude and longitude:

$\varphi = 37° 25'$ N.
$\lambda = 122° 11'$ W. from Greenwich

Time.—All determinations are reduced to Greenwich mean time (Universal Time).

Altitude.—83 meters above mean sea level.

Constants of the Seismographs

Instrument	Component	V	T_0	ϵ
Wood-Anderson	E	3000	1	15
	N	3000	1	15

During the period covered by this bulletin the time correction at the Palo Alto station was not always known. Only those earthquakes are reported here for which the times could be accurately determined.

PALO ALTO

No.	Date	Character	Phase	Time U. T.	Period	Amplitude			Remarks
						A_E	A_N	A_Z	
	1931			h. m. s.	s.	mm.	mm.	mm.	
1	Oct. 6	Id	eP_N	6 48 41					S-P=5 sec
			F	6 49±					
2	Oct. 7	Id	eP_N	7 17 57					
			eS_N	7 18 12					
			F	7 18 57					
3	Oct. 8	I	eP_N	11 32 08					
			F	11 33 43					
4	Oct. 9	Id	eP_N	0 07 43					S-P=2 sec
			F	0 08 03					
5	Oct. 9	Id	eP_N	0 12 43					S-P=2 sec
			F	0 13 08					
6	Oct. 9	I	e_{EN}	23 31.8					
			F	23 36±					
7	Oct. 10	Iu	e_{EN}	0 32 37					U. S. C. & G. S. Epicenter: 8° S, 160° E
			e_N	0 43 19					
			e_{EN}	0 57.1					
			e_N	1 00 05	21				Appears to be several earthquakes
			e_{EN}	1 22.0					
			e_{EN}	1 37.4					
			e_{EN}	1 43.6					
			F	3 ±					
8	Oct. 10	Id	eP_{EN}	15 50 57					S-P=10 sec
			F	15 52±					
9	Oct. 20	Id	eP_N	18 23 12					Begins during time mark. See discussion, p. 54
			eP_E	18 23 13					
			eS_E	18 23 27					
			eS_N	18 23 29					
			F	18 25±					
10	Oct. 20	IId	iP_{EN}	18 56 13					
			e_E	18 56 28					
			iS_E	18 56 29.5					
			iS_N	18 56 30					
			F	18 58.2					

PALO ALTO

No.	Date	Character	Phase	Time U. T.	Period	Amplitude			Remarks
						A_E	A_N	A_Z	
	1931			h. m. s.	s.	mm.	mm.	mm.	
11	Oct. 21	Id	iP_{EN}	23 02 57					S-P=2 sec
			F	23 03 31					
12	Oct. 26	I	e_{EN}	4 32±					U. S. C. & G. S. Epicenter: 20° N, 107° W
			F	4 49±					
13	Oct. 27	Id	eP_{EN}	16 35 50					See discussion, p. 54
			iS_{EN}	16 36 03					
			F	16 37 40					
14	Nov. 1	Id	iP_{EN}	0 19 39					S-P=2.5 sec
			F	0 20 10					
15	Nov. 2	I	e_{EN}	0 38.5					U. S. C. & G. S. Epicenter: 16° N, 96° W
			F	1 02±					
16	Nov. 2	I	e_N	10 15.1					
			F	10 33±					
17	Nov. 3	I	e_E	2 48 02					
			F	3 13±					
18	Nov. 6	Id	eP_{EN}	22 20 42.0					S-P=2.5 sec
			F	22 20 57					
19	Nov. 6	Id	eP_{EN}	23 44 32.5					S-P=12 sec
			F	23 45 37					
20	Nov. 10	IId	iP_N	9 56 51.5					
			iP_E	9 56 52.0					
			i_{EN}	9 56 54					
			i_{EN}	9 56 55.5					
			iS_{EN}	9 57 05					
			i_N	9 57 08.5					
			F	9 58 45					
21	Nov. 16	IId	iP_{EN}	6 32 20					See discussion, p. 54
			i_E	6 32 23					
			i_N	6 32 24					
			i_{EN}	6 32 27					
			iS_{EN}	6 32 34					
			i_N	6 32 38					

PALO ALTO

No.	Date	Character	Phase	Time U. T.	Period	Amplitude A_E	Amplitude A_N	Amplitude A_Z	Remarks
	1931			h. m. s.	s.	mm.	mm.	mm.	
21	Nov. 16 (contd.)	IId	i_E	6 32 39					
			i_N	6 32 40					
			i_E	6 32 43					
			F	6 34 28					
22	Nov. 20	I	e_N	14 29 10					U. S. C. & G. S. Epicenter: "probably region of Solomon Islands"
			F	14 30.5					
23	Nov. 22	IIv	eP_{EN}	10 52					S-P=32 sec
			F	10 55±					See discussion, p. 55
24	Nov. 28	I	e_E	14 13 39					Doubtful beginning.
			e_N	14 13 45					See discussion, p. 55
			F	14 18±					
25	Nov. 30	Id	iP_N	4 58 22					Probably centered some 20 miles north of King City. Not reported felt.
			i_N	4 58 38					
			iS_N	4 58 39					
			F	5 00.0					
26	Dec. 3	Id	iP_E	4 50 46					S-P=10 sec
			F	4 53±					See discussion, p. 55
27	Dec. 4	IIId	iP_{EN}	0 53 16.5	0.5	−1.5	−3.0		Amplitudes too large to measure other phases. See discussion, p. 55
			F	1 00±					
28	Dec. 4	Id	eP_N	4 57 02.0					
			eS_N	4 57 18.0					
			F	4 58 37					
29	Dec. 12	Id	eP_{EN}	3 42 49					S-P=10 sec
			F	3 44±					
	1932								
30	Jan. 8	Id	eP_N	17 58 49					S-P=4 sec
			F	17 59.4					
31	Jan. 26	Id	eP_{EN}	15 40 36					S-P=10 sec
			F	15 42±					

PALO ALTO

No.	Date	Character	Phase	Time U. T.	Period	Amplitude A_E	Amplitude A_N	Amplitude A_Z	Remarks
	1932			h. m. s.	s.	mm.	mm.	mm.	
32	Feb. 3	Ir	eP_{EN}	6 24 12					J. S. A. Epicenter: 19°2 N, 76° W
			F	7 28±					
33	Feb. 5	Iv	eP_{EN}	4 15 19					
			eS_N	4 15 44					
			F	4 17±					
34	Feb. 5	Iv	eP_E	6 47 28					
			eP_N	6 47 29					
			eS_N	6 47 53					
			F	6 49.3					
35	Feb. 18	Id	eP_E	19 06 07					
			i_E	19 06 21					
			iS_E	19 06 22					
			F	19 08±					
36	Feb. 20	Id	iP_{EN}	6 50 11.5					See discussion, p. 57
			i_{EN}	6 50 15					
			i_N	6 50 19.5					
			iS_E	6 50 20					
			iS_N	6 50 20.5					
			i_E	6 50 22					
			i_N	6 50 23.5					
			i_N	6 50 28					
			F	6 52.0					
37	Feb. 21	I	e_{EN}	2 56 21					Probably local
			F	2 58±					
38	Feb. 21	Id	eP_E	4 41 32					
			eS_E	4 41 38					
			F	4 44.0					
39	Feb. 25	Id	iP_{EN}	7 34 53.0					See discussion, p. 58
			iS_N	7 34 57.5					
			iS_E	7 34 58.0					
			F	7 36.4					
40	Feb. 26	IIId	iP_{EN}	16 59 15.5					See discussion, p. 58
			i_E	16 59 17.0					
			i_N	16 59 17.5					

PALO ALTO

No.	Date	Character	Phase	Time U. T.	Period	Amplitude			Remarks
						A_E	A_N	A_Z	
	1932			h. m. s.	s.	mm.	mm.	mm.	
40	Feb. 26	IIId	i_E	16 59 31.0					
	(contd.)		iS_N	16 59 33.5					
			iS_E	16 59 35.5					
			F	17 04±					
41	Feb. 26	Id	iP_{EN}	23 18 22.5					S-P=2 sec
			F	23 18 53					
42	Mar. 2	Iv	eP_N	3 59 29					
			eP_E	3 59 31					
			eS_E	3 59 56					
			F	4 00.8					
43	Mar. 2	Iv	iP_E	17 42 41.0					
			iP_N	17 42 41.5					
			eS_N	17 43 31.5					
			eS_E	17 43 32.5					
			F	17 50±					
44	Mar. 14	Id	eP_{EN}	21 48 20.0					
			eS_E	21 48 33.0					
			eS_N	21 48 33.5					
			F	21 49.3					
45	Mar. 14	I	e_N	22 52 16					U. S. C. & G. S. Epicenter: 7° N, 73° W
			e_E	22 52 17					
			F	22 54±					
46	Mar. 23	I	eP_{EN}	0 21.5					
			F	0 25±					
47	Mar. 26	I	e_{EN}	0 05.0					Probably a distant quake
			F	0 45±					
48	Mar. 29	Id	eP_{EN}	22 39 41					S-P=3 sec
			F	22 40±					
49	Mar. 29	Id	eP_{EN}	22 56 35					S-P=3 sec
			F	22 57±					

At Berkeley and Mount Hamilton (continued):

No. 9. From April 1, 1914, to September 30, 1914.
No. 10. From October 1, 1914, to March 31, 1915.
No. 11. From April 1, 1915, to September 30, 1915.
No. 12. From October 1, 1915, to March 31, 1916.
No. 13. From April 1, 1916, to September 30, 1916.
No. 14. From October 1, 1916, to March 31, 1917.
No. 15. From April 1, 1917, to September 30, 1917.
No. 16. From October 1, 1917, to March 31, 1918.
No. 17. From April 1, 1918, to September 30, 1918.
No. 18. From October 1, 1918, to March 31, 1919.
No. 19. From April 1, 1919, to September 30, 1919.
No. 20. From October 1, 1919, to March 31, 1920.
No. 21. From April 1, 1920, to September 30, 1920.

VOLUME 2. 1924–1931

Records from October 1920 to March 1931 inclusive

The Registration of Earthquakes—

At Berkeley and Mount Hamilton:

No. 1. From October 1, 1920, to March 31, 1921.
No. 2. From April 1, 1921, to September 30, 1921.
No. 3. From October 1, 1921, to March 31, 1922.
No. 4. From April 1, 1922, to September 30, 1922.
No. 5. From October 1, 1922, to March 31, 1923.
No. 6. From April 1, 1923, to September 30, 1923.
No. 7. From October 1, 1923, to March 31, 1924.
No. 8. From April 1, 1924, to September 30, 1924.
No. 9. From October 1, 1924, to March 31, 1925.
No. 10. From April 1, 1925, to September 30, 1925.
No. 11. From October 1, 1925, to March 31, 1926.
No. 12. From April 1, 1926, to September 30, 1926.
No. 13. From October 1, 1926, to March 31, 1927.
No. 14. From April 1, 1927, to September 30, 1927.
No. 15. From October 1, 1927, to March 31, 1928.
No. 16. From April 1, 1928, to September 30, 1928.
No. 17. From October 1, 1928, to March 31, 1929.
No. 18. From April 1, 1929, to September 30, 1929.
No. 19. From October 1, 1929, to March 31, 1930.
No. 20. From April 1, 1930, to September 30, 1930.
No. 21. From October 1, 1930, to March 31, 1931.

VOLUME 3. 1932–

Records from April, 1931—

THE REGISTRATION OF EARTHQUAKES—

AT BERKELEY AND MOUNT HAMILTON:

No. 1. From April 1, 1931, to September 30, 1931

Issued September 24, 1932

EARTHQUAKES IN NORTHERN CALIFORNIA

AND

THE REGISTRATION OF EARTHQUAKES—

AT BERKELEY—MOUNT HAMILTON—PALO ALTO:

No. 2. From October 1, 1931, to March 31, 1932

Issued June, 1933