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THE REGISTRATION OF EARTHQUAKES

AND

PRESS DISPATCHES ON EARTHQUAKES

FROM

JANUARY 1, 1918, TO JANUARY 1, 1919

BY

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at the

GEORGETOWN UNIVERSITY STATION

and

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F. A. TONDORF, S. J.

Chief Seismologist

PAGE

INSTALLATION AND EQUIPMENT OF THE SEISMOLOGICAL OBSERVATORY OF GEORGETOWN UNIVERSITY.

On the basis of a gift from Patrick H. O'Donnell, A.B., '92, A.M., '93, LL.B., '94, the foundation of the Georgetown University Seismological Observatory became possible. The original installation consisted of an horizontal and vertical seismograph after Wiechert, each carrying a stationary mass of 80 kilos. These instruments were tentatively placed, January, 1911, at the base of the South Tower of the Healy building. It was soon ascertained that this choice of position was unfortunate because of the rocking of the tower, 212 feet in height, under heavy wind conditions. A cave was promptly excavated beneath the quadrangle, measuring 12 ft. 4 in. in width, 30 ft. 10 in. in length and 11 ft. high. This station is designated as Station A. Care was taken to make this new home of the seismographs heat and damp proof. A new Wiechert horizontal seismograph, with a stationary mass of 200 kilos, was purchased to replace the one of 80 kg. mass. This smaller instrument has been shipped to Guatemala City, Guatemala, where it will be installed for co-operative work by Senor Claudio Urrutia, consulting engineer to the Guatemalan government. The cave also houses a vertical seismograph after Wiechert, two Bosch-Omori pendulums of 25 kilos each, and two conical pendulums after Mainka, of 135 kgs. mass. A concrete building, situated on observatory hill, at an altitude of 159 feet above sea level, designated as Station B, shelters a Bosch photographic instrument with pendulums of 200 grams each. The time is automatically registered on these instruments by four contact clocks noting minutes and hours. The clocks are corrected daily by signals, received through the courtesy of the Western Union Telegraph Company.

CONSTANTS

CONSTANTS OF THE STATION.

Latitude and longitude of the seismograph rooms:

ϕ=38° 54′ 25″ N. Lat.

λ=77° 04′ 24″ W. from Greenwich.

TIME. All determinations are reduced to Greenwich mean civil time.

ALTITUDE, Station A, 42.4 meters above mean sea level.
Station B, 48.2 meters above mean sea level.

GEOLOGY, subsoil of piers: decayed diorite.

CONSTANTS OF THE SEISMOGRAPHS.

BOSCH-OMORI TROMOMETERS (25 Kilos).

	Period.	*Magnification.*	*Damping.*
N-S Component.....	8.6	13.5	0
E-W Component.....	8.8	13.7	0

WIECHERT HORIZONTAL SEISMOGRAPH (200 Kilos).

	Period.	*Magnification.*	*Damping.*
N-S Component.....	5.2	143	0
E-W Component.....	5.4	165	0

MAINKA CONICAL PENDULUM (135 Kilos).

	Period.	*Magnification.*	*Damping.*
N-S Component.....	5.4	70	0
E-W Component.....	4.0	93	0

WIECHERT VERTICAL SEISMOGRAPH (80 Kilos).

Period.	*Magnification.*	*Damping.*
3.0	80	0

BOSCH PHOTOGRAPHIC SEISMOGRAPH (200 gms).

	Period.	*Magnification.*	*Damping.*
N-S Component.....	5.0	133	0
E-W Component.....	5.0	133	0

SYMBOLS AND NOTATIONS.

1. *Character of the Earthquake.*

ROSSI-FOREL SCALE OF EARTHQUAKE INTENSITIES:

I. *Microseismic shock:* recorded by a single seismograph or by seismographs of the same model, but not by several seismographs of different kinds; the shock felt by an experienced observer.

II. *Extremely feeble shock:* recorded by several seismographs of different kinds; felt by a small number of persons at rest.

III. *Very feeble shock:* felt by several persons at rest; strong enough for the direction or duration to be appreciable.

IV. *Feeble shock:* felt by persons in motion; disturbances of movable objects, doors, windows; creaking of ceilings.

V. *Shock of moderate intensity:* felt generally by everyone; disturbance of furniture, beds, etc., ringing of swinging bells.

VI. *Fairly strong shock:* general awakening of those asleep; general ringing of house bells; oscillation of chandeliers; stopping of pendulum clocks; visible agitation of trees and shrubs; some startled persons leave their dwellings.

VII. *Strong shock:* overthrow of movable objects; fall of plaster; ringing of church bells; general panic, without damage to buildings.

VIII. *Very strong shock:* fall of chimneys, cracks in walls of buildings.

IX. *Extremely strong shock:* partial or total destruction of some buildings.

X. *Shock of extreme intensity:* great disaster, buildings ruined, disturbance of the strata, fissures in the ground, rock-falls from mountains.

d (terrae motus domesticus)	Local shock (origin nearby, perceptible at the station).
v (terrae motus vicinus)	Near shock (origin less than 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 (origin more than 5,000 kilometers).

2. *Phases of the Seismogram.*

P (undae primae)	First phase, or first preliminary tremors.
PRn	Waves n-times reflected at the earth's surface.
S (undae secundae)	Second phase, or second preliminary tremors.
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.
L (undae longae)	Long waves, chief phase, or principal part.
M (undae maximae)	Greatest motion in the chief phase.
C (cauda)	Tail or end portion.
F (finis)	End of discernible movement.

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 amplitude of the motion, measured from the median line in millimeters. Instrumental trace.

A_E E-W component of A.

A_N N-S component of A.

A_Z Vert. component of A.

REGISTRATION OF EARTHQUAKES AT THIS STATION
From January 1, 191 8 to January 1, 1919.

Date.	Character.	Phase.	Time.	Periods.	Amplitude.*			Remarks.
					A_N	A_E	A_Z	
			H. M. S.					
‡Jan. 4		eP_E	4 37 02					Gram rather difficult. Heavy microseisms. No distinct Main.
		eP_N	4 37 02					
		S_N	4 42 31					
		eL_E	4 46.4	29				
		F	5 13 00					
Jan. 13		e?	23 59 27					e is very uncertain. Possibly earlier on Vertical machine. Very heavy microseisms.
to		S_E	00 03 00					
Jan. 14		S_N	00 03 00					
		eL_E	00 03.9	7				
		eL_N	00 03.9	7				
		F	00 25 00					
Jan. 25		e_E	1 26 38					Heavy microseisms. S doubtful.
		e_N	1 26 38					
		S_E	1 33 31					
		S_N	1 33 35					
		eL	1 37.2	16				
		L_E	1 41 01	12				
		L_N	1 41 01	12				
		F	2 20 00					
Jan. 30		eP_E	21 31 03					Heavy microseisms. No distinct M. F lost in microseisms.
		iP_N	21 31 01					
		iS_E	21 41 00					
		iS_N	21 41 00					
		L_E	22 01 14	24				
		L_N	22 08 22	17				
Jan. 30		iP_Z	21 31 05					
		iS_Z	21 41 00					
		L_Z	22 07 35	16				
		F_Z	22 17 00					

* Instrumental Trace.

‡ All records, unless otherwise noted, are from grams on Wiechert Horizontal (200) and Vertical (80).

Date.	Character.	Phase.	Time.	Periods.	Amplitude. A_N	Amplitude. A_E	Amplitude. A_Z	Remarks.
			H. M. S.					
Feb. 3								Long waves show interruptedly from 14h, 48m to 15h, 14m. Periods variable. Heavy microseisms.
Feb. 4		eL	20 54.0					Very heavy microseisms.
		F	21 10 00					
Feb. 12		e?	1 30 43					Heavy microseisms. All phases except eL_N difficult.
		eL_N	1 41.4					
		F	2 02 00					
Feb. 12		•E	19 33 37					
		e_N	19 33 37					
		eL_N	19 34.5	13				
		F?						
Feb. 12		ePE?	20 15 10					Microseisms.
		ePN?	20 15 12					
		iS_E	20 19 57					
		iS_N	20 19 52					
		eL_E	20 21.4					
		eL_N	20 21.7					
		F	20 50 00					
Feb. 13		L_E	4 02.2 to 4 08.0					Heavy microseisms.
Feb. 13		e	6 27 (ca)					Series of long waves from 7h, 4m, to 7h, 35m. Heavy microseisms.
		L	7 04 15					
		F	8 00 00					
Feb. 18								Series of long waves from 16h, 53m, to 17h, 8m. Periods variable. Heavy microseisms.

Date.	Character.	Phase.	Time.	Periods.	Amplitude. A_N	Amplitude. A_E	Amplitude. A_Z	Remarks.
			H. M. S.					
Feb. 25		e_E	23 06 40					Heavy micro-seisms.
		e_N	23 06 41					
		L_E	23 12 33	8				
		L_N	23 12 29	8				
		F	23 25 (ca)					
Mar. 16								Quake lost between 13hrs. to 14hrs. in changing sheets.
Mar. 19		L_E	6 hr. 57m. to 7 hr. 18m.					Periods variable. No trace on N—S. All seismographs show alike.
Mar. 21		e	3 53 59					Heavy micro-seisms.
		eL_N	4 3.9					
Mar. 21		e_E	17 05 21					Heavy micro-seisms. Gram difficult. L shows on Vertical. No other phases apparent.
		e_N	17 05 19					
		S_N?	17 10 51					
		eL_E?	17 14.2					
		eL_N?	17 14.1					
		L_N	17 19 04	13				
		F	17 36 00					
Apr. 10		i	1 09 12					F in heavy wind markings. Quake felt locally. Heavy wind markings.
		M_E	1 09 32	¼		2.0mm		
		M_N	1 09 29	¼	1.8mm			
		F	1 13 28					
Apr. 10		i_Z	1 09 13					
		M_Z	1 09 34	2			1.6mm	
		F_Z	1 13 39					

REGISTRATION OF EARTHQUAKES—Continued.

Date.	Character.	Phase.	Time.			Periods.	Amplitude.			Remarks.
			H.	M.	S.		A_N	A_E	A_Z	
Apr. 10		S_E?	2	25	31					Earlier part of quake lost in changing of sheets.
		S_N?	2	25	50					
		F	3	10	00					Heavy microseisms.
										Microseisms.
Apr. 15		iP_E	8	36	49					
		iP_N	8	36	49					
		S_E	8	44	00					
		S_N	8	44	00					
		eL_E?	8	50.4		11				
		eL_N?	8	50.1		11				
		M_E	8	53	45			0.3mm		
		M_N	8	53	42		0.2mm			
		F	9	11	00					
Apr. 17		e	6	57	40					Heavy microseisms.
		L	7	03	24	15				
		F	7	15	00					
Apr. 19		e_Z	15	55	58					Disturbance felt locally. Doubtful as to seismic origin.
		F	16	04	00					
Apr. 21		iP_E	22	39	04					Mainka shows: P_E 22h, 39m, 02s. P_N 22h, 39m, 09s. S_E 22h, 44m, 19s. S_N 22h, 44m, 36s.
		P_N	22	38	57					
		S_E	22	44	31					
		S_N	22	44	25					
		eL_E	22	47.8						
		eL_N	22	47.8						
		M_{E_1}	22	49	50	5.5		16mm		
		M_{N_1}	22	49	42	4	42.5mm			
		M_{E_2}	22	53	43	5		20mm		
		M_{N_2}	22	52	13	8	10.5mm			
Apr. 22		F	0	40	00					

REGISTRATION OF EARTHQUAKES—Continued.

Date.	Character.	Phase.	Time.			Periods.	Amplitude.			Remarks.
							A_N	A_E	A_Z	
			H.	M.	S.					
Apr. 21		P_Z	22	39	02					
		S_Z	22	44	38					
		eL_Z	22	47.7						
		M_Z	22	49	31	5			13mm	
		F_Z	22	50	00					
Apr. 27		S_E?	14	57	25					P difficult. Lost in very heavy microseisms.
		S_N?	14	57	25					
		eL_E	15	1.2		16				
		eL_N	15	1.5		16				
		F	15	25	00					
May 1		e_E	4	48	33					
		e_N	4	48	31					
		L_E	4	52	12	11				
		L_N	4	52	18	7				
		F	4	56	00					
May 2		L_E	2	42	46	6				e possibly at 2h, 33m, 28s. Heavy microseisms.
		L_N	2	41	57	6				
		F	2	47	00					
May 6		e_E	5	12	26					Microseisms.
		e_N	5	12	27					
		L_E	5	14	43	11				
		L_N	5	13	12	11				
		F	5	27	00					
May 16		eP_N	21	38	23					Microseism. P_E does not show. No distinct M.
		S_E?	21	43	21					
		S_N?	21	43	21					
		eL_N	21	45.6		10				
		L_E	21	46.3		11				
		F	22	09	00					
May 20		iP_E	14	44	53					
		iP_N	14	44	54					

Date.	Character.	Phase.	Time.			Periods.	Amplitude.			Remarks.
			H.	M.	S.		A_N	A_E	A_Z	
May 20		iS_E	14	51	59					
		iS_N	14	51	59					
		L_E	14	58	35	19				
		L_N	14	58	35	19				
		M_E	14	59	40			1.5mm		
		M_N	14	59	51		0.8mm			
		F	16	20	00					
May 20		ePE	18	06	04					No distinct M.
		iP_N	18	06	02					
		iS_E	18	15	02					
		eS_N	18	15	02					
		eL_E	18	26.3						
		eL_N	18	26.3						
		F	19	30	00					
May 22		e_E	6	55	08					
		e_N	6	56	47					
		i_E	6	56	00					
		L_E	7	04	27	11				
		L_N	7	04	29	9				
		F	7	22	00					
May 23		ePN	12	03	57					From Bosch photographic seismograph. E-W light off. Lost on other seismographs while changing sheets.
		eS_N	12	09	40					
		eL_N	12	13.3	7.5					
		M_{N_1}	12	14	16		2.0mm			
		M_{N_2}	12	17	40		4.7mm			
		M_{N_3}	12	19	07		2.5mm			
		M_{N_4}	12	19	40		3.2mm			
		F	14	ca						
May 24										What appears to be a series of long waves shows on N-S comp. from 16hrs. 1 m. to 16hrs. 8 m.

REGISTRATION OF EARTHQUAKES—Continued.

Date.	Character.	Phase.	Time.			Periods.	Amplitude.			Remarks.
			H.	M.	S.		A_N	A_E	A_Z	
May 25		P_E	19	40	35					
		P_N	19	40	35					
		S_E	19	45	24					
		S_N	19	45	20					
		L_E	19	49	55	6				
		L_N	19	49	55	6				
		F	20	30	00					
June 3		e_E	0	14	05					Microseisms. E possibly 50″ sooner. No distinct M.
		e_N	0	14	05					
		S_E	0	22	51					
		S_N	0	22	51					
		eL_E	0	30.3		16				
		eL_N	0	30.3		22				
		F	1	00	00					
June 4		e_E	17	40	07					Microseisms.
		e_N	17	40	24					
		L_E	18	06	14	24.5				
		L_N	18	06	14	22				
		F	18	30	00					
June 7		eP_E	21	34	07					S very doubtful.
		eP_N	21	34	11					
		S_E?	21	38	50					
		S_N?	21	38	31					
		eL_E	21	44.1		5.5				
		eL_N	21	44.0		4				
		M_{E_1}	21	45	15				2.5mm	
		M_N	21	48	18		0.9mm			
		M_{E_2}	21	47	22				1.5mm	
		F	22	50	00					
June 11		eP_E	12	41	44					
		eP_N	12	41	42					
		S_E	12	45	58					
		S_N	12	45	58					

Date.	Character.	Phase.	Time.	Periods.	Amplitude. A_N	Amplitude. A_E	Amplitude. A_Z	Remarks.
			H. M. S.					
		eL$_E$	12 48.1	13				
		eL$_N$	12 48.1	13				
		F	13 16 00					
June 12		e$_N$	4 35 24					Microseisms.
		eL$_N$	4 44.5					
		L$_E$	4 48 02	10				
		L$_N$	4 47 04	10				
		F	4 59 00					
June 13		iP$_E$	9 04 20					
		iP$_N$	9 04 20					
		S$_E$	9 09 57					
		S$_N$	9 09 57					
		eL	9 13.3					
		F	9 26 00					
June 16								Quake lost in changing sheets. Bosch photographic shows: P-S 4m. 32s., S-eL 1 m. 30s.
June 17		e$_E$	16 43 15					Microseisms. Time of phases uncertain becaus of loss of clock correction.
		e$_N$	16 43 15					
		S$_E$?	16 45 50					
		S$_N$?	16 45 54					
		F	16 57					
June 22		e$_E$	22 12 00					Heavy microseisms. e possib 24″ sooner. S very doubtful.
		e$_N$	22 12 00					
		S$_N$?	22 16 23					
		eL$_N$?	22 18.2					
		L$_E$	22 21 23	23				
		L$_N$	22 22 07	16				
		F	22 40 00					

REGISTRATION OF EARTHQUAKES—Continued.

Date.	Character.	Phase.	Time.			Periods.	Amplitude.			Remarks.
							A_N	A_E	A_Z	
			H.	M.	S.					
July 1		e	6	29	37					Microseisms.
		L	7	25	00	26				F not discernible.
July 3		e_E	7	11	13					Microseisms.
		e_N	7	11	10					No distinct M.
		PR_1E	7	13	38					
		PR_1N	7	13	24					
		e_E	7	14	35					
		e_N	7	14	42					
		S_E	7	23	28					
		S_N	7	23	30					
		eL_E	7	43.1		17				
		eL_N	7	43.1		17				
		F	9	20	00					
July 8		e_E	10	41	55					Microseisms.
		e_N	10	41	55					
		S_E	10	47	41					
		S_N	10	47	41					
		eL_E	11	9.4		21				
		eL_N	11	9.4		21				
		F	12	35	00					
July 12		e	21	20	10					Heavy Micro-seisms.
		F	21	58	00					
July 14		e_N	18	35	52					Heavy Micro-seisms. Quake does not show on E-W component.
		F	18	46	00					
July 15		iP_E	0	30	11					E-W component readings the more reliable.
		eP_N	0	30	14					
		eS_E	0	36	03					
		eS_N	0	36	10					
		eL_E	0	39.7						
		eL_N	0	39.7						
		M_E	0	44	03	8		1.24mm		
		M_N	0	44	03	10	1.95mm			
		F	1	50	00					

Date.	Character.	Phase.	Time.	Periods.	Amplitude. A_N	Amplitude. A_E	Amplitude. A_Z	Remarks.
			H. M. S.					
July 16		e_E	20 21 27					Microseisms.
		e_N	20 21 27					
		eL_E?	20 25.3					
		eL_N?	20 25.3					
		F	20 50 00					
July 21		e_E	6 30 15					
		e_N	6 30 15					
		S_E?	6 40 15					
		S_N?	6 40 13					
		L	7 05 00	20				
		F	8 13 00					
July 24		e	11 35 21					Microseisms. Record changed at 12h. 31m.
		eL	11 46.4					
July 29		L_N	17 52 to 18 08	20 ca.				Quake still on.
July 31		eP_E	14 43 01					Heavy microseisms.
		eP_N	14 43 01					
		S_E	14 48 19					
		S_N	14 48 19					
		eL_E	14 52.4	15				
		eL_N	14 53.1	15				
		F?						
Aug. 4		e_N	16 28 09					Microseisms. E-W component does not show.
		i_N	16 29 27					
		F	16 37					
Aug. 8		eP_E	10 09 08					Heavy microseisms.
		eP_N	10 08 19					
		eS_E	10 18 29					
		eS_N	10 18 29					
		L_E	10 49 34	30				
		L_N	10 49 34	28				
		F	11 47 00					

Date.	Character.	Phase.	Time.	Periods.	Amplitude.			Remarks.
					A_N	A_E	A_Z	
			H. M. S.					
Aug. 15		eP_E	12 37 39					Record from Bosch photographic machine.
		eP_N	12 37 39					
		S_E	12 44 31					
		S_N	12 44 31					
		eL_E	12 50.4	9				
		eL_N	12 50.4	9				
		M_E	13 34 08	22		1.2mm		
		M_N	13 50 10	23	1.1mm			
		F	15 10 00					
Aug. 15		e_E	17 51 00.					Record taken from the Bosch photographic machine.
		e_N	17 51 00					
		S_E	17 53 16					
		S_N	17 53 11					
		eL_E?	18 9.3					
		eL_N?	18 9.2					
		F	19 20 00					
Aug. 17		eP_N	7 03 29					E-W component does not show.
		S_N	7 11 34					
		eL_N	7 25.5					
		L	7 28 17	22				
		F	7 58 00					
Aug. 23		i_E	6 56 48					Heavy microseisms. E-W component faint.
		e_N	6 56 48					
		e_E	7 06 37					
		e_N	7 06 21					
		eL_E	7 33.5	21				
		eL_N	7 33.3	19				
		L	7 40	19				
		F	9 (ca)					
Sept. 4		e_N	20 10 11					Heavy microseisms.
		e_E	20 10 06					

Date.	Character.	Phase.	Time.			Periods.	Amplitude.			Remarks.
							A_N	A_E	A_Z	
			H.	M.	S.					
Sept. 7		eP_E	17	28	53					Heavy micro-seisms.
		eP_N	17	28	53					
		iS_E	17	39	29					
		eS_N	17	39	26					
		eL_E?	17	49.8		14				
		eL_N?	17	49.8		14				
		M_{E_1}	18	07	57	20		3.4mm		
		M_{N_1}	18	13	05	17	2.8mm			
		M_{E_2}	18	18	37	17		2.6mm		
		M_{N_2}	18	19	10	15	2.0mm			
		F	22	30	00					
Sept. 11		e_E	4	04	07					Heavy micro-seisms.
		e_N	4	03	40					
		F	4	50						
Sept. 14		eP_E	17	17	40					
		eP_N	17	17	40					
		S_E	17	28	09					
		S_N	17	28	09					
		L_E	17	52		19				
		.. L_E	17	55	25	19				
		F	19	15	00					
Sept. 29		eP_E	12	18	59					Heavy micro-seisms. P pos-sibly sooner. Sheet off at 12h. 36m.
		eP_N	12	18	59					
		S_E	12	29	59					
		S_N	12	30	03					
Sept. 30		e_E?	14	07	43					Needles put dov at 14hrs. 4m. Very heavy micr seisms.
		e_N?	14	07	43					
		L_E	14	11	37	17				
		L_N	14	11	48	17				
		F'?	14	50	00					
Sept. 30		L_E	18	56	40	21				Very heavy microseisms. N-S component does not show.
		F	20	12	00					

REGISTRATION OF EARTHQUAKES—Continued.

Date.	Character.	Phase.	Time.	Periods.	Amplitude. A_N	Amplitude. A_E	Amplitude. A_Z	Remarks.
			H. M. S.					
Oct. 4		e_E	9 27 03					Heavy micro-seisms.
		e_N	9 27 03					
		eL?	9 29.4					
		F	9 50					
Oct. 11		iP_E	14 19 19					Gram from Mainka seismo-graph. F lost in second quake. Vertical lost in changing of sheets.
		iP_N	14 19 19					
		S_E	14 23 28					
		iS_N	14 23 34					
		eL	14 24 38					
		M_{E_1}	14 30 27	9		38mm		
		M_N	14 30 19	14	10.5mm			
		M_{E_2}	14 35 50	12		19mm		
		M_{E_3}	14 48 49	12		6.5mm		
		M_{E_4}	14 51 25	12		7.0mm		
		M_{E_5}	15 00 03			13.0mm		
Oct. 11		P_E	17 08 41					No distinct M.
		P_N	17 08 39					
		iS_E	17 12 43					
		S_N	17 12 51					
		eL	17 14.0					
		L_E	17 18 31	15				
		L_N	17 17 03	16				
		F	18 10 00					
Oct. 11		P_Z	17 08 43					No distinct M.
		S_Z	17 12 34					
		eL_Z	17 13.8					
		L_Z	17 16 14	15				
		F_Z	18 20 00					
Oct. 12		eP_E	0 20 42					
		eP_N	0 20 48					
		S_E?	0 25 27					
		S_N?	0 25 27					
		L	0 35 47	9				
		F	0 50 00					

Date.	Character.	Phase.	Time.	Periods.	Amplitude. A_N	Amplitude. A_E	Amplitude. A_Z	Remarks.
			H. M. S.					
Oct. 12		L	1 45 17 to 1 50	7				
Oct. 12		P_E	8 24 44					Microseisms. No distinct M.
		P_N	8 24 39					
		S_E	8 28 52					
		S_N	8 28 41					
		L_E	8 34 22	12				
		L_N	8 34 22	12				
		F	9 09 00					
Oct. 13		eP_E	4 56 34					Time for S may be a few seconds in error because of time-marking device. No distinct M.
		eP_N	4 56 34					
		S_E?	5 00 37					
		S_N?	5 00 37					
		eL?	5 02 37					
		L_E	5 06 28	17				
		L_N	5 06 35	11				
		F	5 16 00					
Oct. 13		L	22 24 to 22 30	7				Heavy microseisms.
Oct. 14		iP_N	0 29 33					No distinct M.
		iP_E	0 29 35					
		iS_E	0 33 40					
		eS_N	0 33 42					
		eL	0 34 47					
		L_E	0 39 01	13				
		L_N	0 39 22	17				
		F	1 03 00					
Oct. 14		L_N	2 30 27 to 2 35	11				Does not show on E-W comp. F. difficult.

REGISTRATION OF EARTHQUAKES—Continued.

Date.	Character.	Phase.	Time.	Periods.	Amplitude.			Remarks.
					A_N	A_E	A_Z	
			H. M. S.					
Oct. 18		eP_E	21 38 44					
		eP_N	21 38 35					
		S_E	21 42 58					
		S_N	21 42 49					
		eL?	21 44.1					
		L_E	21 48 38	16				
		L_N	21 48 08	15				
		F	22 00 00					
Oct. 19		L	2 18 to					Scarcely shows on E-W component. Microseisms.
			2 24	18				
Oct. 19		eP_E	3 28 48					Microseisms.
		eP_N	3 28 48					
		S_E	3 33 34					
		S_N	3 33 34					
		eL_E?	3 35 34					
		M_E	3 38 35	19		0.8mm		
		M_N	3 41 13	11	0.4mm			
		F	4 22 00					
Oct. 25		P_E	3 47 58					No distinct M. Microseisms.
		iP_N	3 47 58					
		S_E	3 52 16					
		S_N	3 52 09					
		eL_E	3 53.7					
		eL_N	3 53.8					
		L_E	3 55 27	10				
		L_N	3 57 16	16				
		F'	5 20 00					
Oct. 27		e_E	16 01 20					
		e_N	16 01 20					
		L_E	16 26 20	30				
		L_N	16 28 20	30				
		F	17 00 00					

Date.	Character.	Phase.	Time.	Periods.	Amplitude.			Remarks.
					A_N	A_E	A_Z	
			H. M. S.					
Oct. 27		e_E	17 27 36					Very difficult. Heavy microseisms.
		e_N	17 27 36					
		S_E?	17 32 22					
		S_N?	17 32 22					
		F	19 25 00					
Oct. 29								Quake registered. Data omitted because of uncertainty of time. Clock out of order.
Oct. 30		e	12 43					Sheet off at 13-08. Time doubtful. Clock out of order.
		F?						
Nov. 2		L_N	10 34 00	10				Microseisms.
		L_E	10 38 00	10				
		F	11,					
Nov. 3		L_E	12 28 00					Microseisms.
		F	13 (ca)					
Nov. 8		P_E	4 50 47					Microseisms.
		P_N	4 50 47					
		S_N	5 01 25					
		S_E	5 01 34					
		eL_E	5 17.0	24				
		eL_N	5 17.3	27				
		M_N	5 29 12	11	1.7mm			
		M_E	5 29 32	22		1.5mm		
		F	8					

Date.	Character.	Phase.	Time.	Periods.	Amplitude. A_N	Amplitude. A_E	Amplitude. A_Z	Remarks.
			H. M. S.					
Nov. 8		PZ	4 50 41					S doubtful. No distinct M.
		iZ	4 51 03					
		eLZ	5 17.4	19				
		F	7 54					
Nov. 12		iP_E	21 49 47					Heavy micro-seisms. No distinct M. F surely after 23 hours.
		iP_N	21 49 47					
		iS_E	21 54 00					
		iS_N	21 53 52					
		eL	21 55.8					
		F?						
Nov. 18		P_E	19 01 08					Possibly over-lapping quakes. F difficult be-cause of micro-seisms. No distinct M.
		P_N	19 01 08					
		i_N	19 04 44					
		i_E	19 04 48					
		S_E?	19 13 55					
		S_N?	19 14 10					
		i_E	19 22 28					
		L_E	19 42 49	21				
		L_N	19 44	26				
		F	21					
Nov. 22		e_E	16 30					
		e_N	16 30					
		eL_E?	16 38	9				
		eL_N?	16 38.4	7				
		F	16 53					
Nov. 30		L_E	7 26	22				Heavy micro-seisms.
		L_N	7 31	16				
		F	7 50					

Date.	Character.	Phase.	Time.	Periods.	Amplitude. A_N	Amplitude. A_E	Amplitude. A_Z	Remarks.
			H. M. S.					
Dec. 1		e	2 59 30					Heavy micro-seisms. No distinct M.
		eL_E?	3 30.1					
		eL_N?	3 30.1					
		L_E	3 33 12	16				
		L_N	3 33 37	16				
		F	3 55 00					
Dec. 2		P_E	9 55 21					Heavy micro-seisms. No distinct M.
		P_N	9 55 21					
		S_E	10 01 39					
		S_N	10 01 38					
		eL	10 7.0	32				
		F	10 56 00					
Dec. 2		eP_Z	9 55 29					S doubtful.
		eL_Z	10 6.8	24				
		F	10 40 00					
Dec. 4		P_E	11 58 22					Heavy micro-seisms. F' difficult.
		P_N	11 58 27					
		S_E	12 07 07					
		S_N	12 07 07					
		eL	12 17.7	20				
		M_E	12 19.9	23			1.0mm	
		M_N	12 30.0	20	1.3mm			
		F	15(ca)					
Dec. 6		e_N	7 41 10					Microseisms. Difficult.
		F	8 et postea.					

Date.	Character.	Phase.	Time.			Periods	Amplitude.			Remarks.
							A_N	A_E	A_Z	
			H.	M.	S.					
Dec. 6		iP_E	8	48	11					E-W needle off.
		iP_N	8	48	11					
		S_E	8	53	57					
		S_N	8	53	57					
		eL_E	8	57.4		7				
		eL_N	8	57.5		7				
		M_E	9	00	44	8		42mm+-		
		M_N	9	00	51	8	30.5mm			
		F	10(ca)							
Dec. 6		P_Z	8	47	54					
		eS_Z	8	53	29					
		eL_Z	8	56.5		11				
		M_Z	9	00	48	7			11.3mm	
		F	10	20	00					
Dec. 6		e_E	12	13	45					Gram difficult. Very heavy microseisms. F surely after 12h. 30m.
		e_N	12	14	29					
		S_E?	12	21	34					
		S_N?	12	21	34					
		i_E?	12	22	21					
		i_N?	12	22	21					
		F?								
Dec. 9		e	18	41	26					Very heavy microseisms.
		eL_E?	18	43.7		16				
		eL_N?	18	44.4		13				
		L_E	18	46		16				
		F?	In second quake							

Date.	Character.	Phase.	Time.	Periods	Amplitude. A_N	Amplitude. A_E	Amplitude. A_Z	Remarks.
			H. M. S.					
Dec. 9		eL$_E$	19 26					Very heavy microseisms. F difficult.
		eL$_N$	19 26					
		L$_E$	19 30.5	14				
		L$_N$	19 30.7	16				
		L$_E$	19 35	19				
		L$_N$	19 34	19				
		F	20 20 00					
Dec. 21		P$_E$	9 32 24					
		P$_N$	9 32 21					
		i$_N$	9 32 56					
		S$_E$	9 38 23					
		eL	9 42.1	11				
		L	9 47	14				
		F	10 02 00					
Dec. 23		e$_E$	19 57 04					S very doubtful. Heavy micro-seisms.
		e$_N$	19 57 04					
		S$_E$?	19 58 40					
		S$_N$?	19 58 38					
		F	20 10 00					

DISPATCHES OF EARTHQUAKES RECEIVED AT THIS STATION
From January 1, 1918 to January 1, 1919.

Place.	Date.	Time.*	Character.	Source of Information.†	Remarks.
Guatemala City, Guatemala.	Jan. 4.	10h. 45m. P. M.	Destructive.	A.P.	
Guatemala City, Guatemala.	Jan. 5.	10h. 35m. P. M.	Severe.	A.P.	
Eureka, Cal., U. S. A.	Jan. 14.	Not Indicated.	Not Indicated.	L.O.	
Calais, Maine, U. S. A.	Jan. 14.	7h. 20m.(G.M.T.)	Very Feeble.	L.O.	
Brawley, Cal., U. S. A.	Jan. 16.	12h. (G.M.T.)	Very Slight.	L.O.	
Knoxville, Tenn., U. S. A.	Jan. 17.	16h. 45m.(G.M.T.)	Moderate Intensity.	L.O.	
Guatemala City, Guatemala.	Jan. 26.	Not Indicated.	Severe.	S.D.	
Revelstoke, B. C.	Feb. 5.	Not Indicated.	Severe.	A.P.	No damage.
Bishop, Cal., U. S. A.	Feb. 11.	22h. 45m.(G.M.T.)	Moderate Intensity.	L.O.	
Amoy, China.	Feb. 16.	Not Indicated.	Severe.	A.P.	10,000 deaths reported. Extensive damage.
Amoy, China.	Feb. 17.	Not Indicated.	Severe.	A.P.	
Cairo, Ill., U. S. A.	Feb. 17.	8h. 10m.(G.M.T.)	Very Feeble.	L.O.	
Eureka, Cal., U. S. A.	Feb. 24.	0h. 12m.(G.M.T.)	Feeble.	L.O.	
Bishop, Cal., U. S. A.	March 1.	2h. 35m.(G.M.T.)	Very Feeble.	L.O.	
Walla Walla, Wash., U.S.A.	March 2.	0h. 8m.(G.M.T.)	Very Feeble.	L.O.	
Eureka, Cal., U. S. A.	March 3.	4h. 30m.(G.M.T.)	Very Feeble.	L.O.	
Cahuilla, Cal., U. S. A.	March 5.	11h. (G.M.T.)	Feeble.	L.O.	
Cahuilla, Cal., U. S. A.		16h. 30m.(G.M.T.)	Feeble.	L.O.	
Cahuilla, Cal., U. S. A.	March 6.	16h. 15m.(G.M.T.)	Feeble.	L.O.	
Los Angeles, Cal., U. S. A.	March 6.	18h. 25m.(G.M.T.)	Moderate Intensity.	L.O.	
Ocean Park, Cal., U. S. A.	March 8.	12h. 30m.(G.M.T.)	Feeble.	L.O.	
Trout Creek, Mont., U.S.A.	March 11.	8h. 26m. P. M.	Distinct.	L.O.	
Downieville, Cal., U. S. A.	March 12.	10h. 30m.(G.M.T.)	Very Strong.	L.O.	
Downieville, Cal., U. S. A.		12h. 30m.(G.M.T.)	Very Strong.	L.O.	
Barrett, Cal., U. S. A.	March 21.	23h. 25m.(G.M.T.)	Moderate Intensity.	L.O.	
Cahuilla, Cal., U. S. A.	March 30.	16h. 5m.(G.M.T.)	Fairly Strong.	L.O.	
Washington, D. C., U. S. A.	April 9.	9h. 9m. P. M.	Sensible.	G.U.S.	Felt in Maryland, Virginia and Pennsylvania.
Fort De France, Martinique.	April 14.	Soon after noon.	Slight.	A.P.	Continued interruptedly until April 19.
Luray, Va., U. S. A.	April 16.	8h. 40m. A. M.	Not Indicated.	A.P.	Fifth shock within a week.
Eureka, Cal., U. S. A.	April 17.	6h. 45m.(G.M.T.)	Moderate Intensity.	L.O.	Most severe in a decade. No damage.

* Time, unless otherwise indicated, is local time.
† A. P.—Associated Press.
L. O.—Local Observer.
S. D.—State Department.
G. U. S.—Georgetown University Station.
I.N. S.—International News Service.

DISPATCHES OF EARTHQUAKES RECEIVED AT THIS STATION—*Continued.*

Place.	Date.	Time.*	Character.	Source of Information.†	Remarks.
White Bluff Prairie, Wash., U. S. A.	April 18.	20h. 13m.(G.M.T.)	Feeble.	L.O.	
Norfolk, Va., U. S. A.	April 19.	Shortly bef. Noon.	Distinct.	A.P.	Two shocks.
Flagstaff, Ariz., U. S. A.	April 20.	8h. 45m.(G.M.T.)	Extremely Feeble.	L.O.	
		10h. 20m.(G.M.T.)	Extremely Feeble.	L.O.	
Los Angeles, Cal., U. S. A.	April 21.	3h. 32m. P. M.	Damaging(in part)	A.P.	Felt in Southern California, Western Arizona, and Utah.
Norfolk, Va., U. S. A.	April 21.	10 A. M.	Slight	A P.	
Calexico, Cal., U. S. A.	April 23.	5h. 3m.(G.M.T.)	Feeble.	L.O.	
Hemet, Cal., U. S. A.	April 23.	7h.(G.M.T.)	Feeble.	L.O.	
Hemet, Cal., U. S. A.	April 23.	9h. (G.M.T.)	Feeble.	L.O.	
Hemet, Cal., U. S. A.	April 23.	14h. 15m.(G.M.T.)	Feeble.	L.O.	
San Jacinto, Cal., U. S. A.	April 25.	12h. P. M.	Feeble.	A.P.	No damage. Last of three more severe.
San Jacinto, Cal., U. S. A.	April 25.	2h. A. M.	Feeble.	A.P.	
San Jacinto, Cal., U. S. A.	April 25.	7h. 15m. A. M.	Feeble.	A.P.	
Milan, Italy.	April 25.	Not Indicated.	Feeble.	A.P.	No damage. Felt in Northern Italy.
San Jacinto, Cal., U. S. A.	April 26.	10h. 30m. P. M.	Pronounced.	A.P.	
Cahuilla, Cal., U. S. A.	April 27.	5h. 30m.(G.M.T.)	Very Feeble.	L.O.	
Cahuilla, Cal., U. S. A.	April 27.	10h. (G.M.T.)	Very Feeble.	L.O.	
Cahuilla, Cal., U. S. A.	April 27.	15h. (G.M.T.)	Very Feeble.	L.O.	
Cahuilla, Cal., U. S. A.	April 27.	22h. 30m.(G.M.T.)	Very Feeble.	L.O.	
El Cento, Cal., U. S. A.	April 30.	9h. 35m. P. M.	Sensible.	A.P.	Damage slight.
Calexico, Cal., U. S. A.	April 30.	9h.(shortly after) P. M.	Fairly Strong.	A.P.	Time given at Yuma, Arizona, 9h. 33m. P. M.
Calexico, Cal., U. S. A.	May 1.	4h. 32m.(G.M.T.)	Fairly Strong.	L.O.	
Calexico, Cal., U. S. A.	May 2.	12h. 51m.(G.M.T.)	Very Feeble.	L.O.	
Calexico, Cal., U. S. A.		17h. 12m.(G.M.T.)	Moderate Intensity	L.O.	
Lone Pine, Cal., U. S. A.	May 13.	8h. 30m.(G.M.T.)	Feeble.	L.O.	
Hemet, Cal., U. S. A.	May 16.	16h. 40m.(G.M.T.)	Very Feeble.	L.O.	
La Serena, Chile.	May 20.	Not Indicated.	Severe.	A.P.	Buildings damaged. Loss of life.
Calexico, Cal., U. S. A.	May 22.	14h. 8m.(G.M.T.)	Very Feeble.	L.O.	
Lone Pine, Cal., U. S. A.	May 24.	9h. 35m.(G.M.T.)	Not Indicated.	L.O.	
Calexico, Cal., U. S. A.	May 25.	17h. 37m.(G.M.T.)	Extremely Feeble.	L.O.	
Hemet, Cal., U. S. A.	May 28.	12h. 30m.(G.M.T.)	Feeble.	L.O.	
Santa Fe, N. M., U. S. A.	May 28.	5h. 38m. A. M.	Strong.	A.P.	
Bishop Creek, Cal., U. S. A.	June 3.	16h. 5m.(G.M.T.)	Feeble.	L.O.	
Calexico, Cal., U. S. A.	June 5.	4h. 33m.(G.M.T.)	Very Feeble.	L.O.	
San Diego, Cal., U. S. A.	June 6.	22h. 32m.(G.M.T.)	Extremely Feeble.	L.O.	Felt generally in Southern part of State.
Calexico, Cal., U. S. A.	June 12.	8h. 47m.(G.M.T.)	Feeble.	L.O.	
Calexico, Cal., U. S. A.	June 12.	14h. 19m.(G.M.T.)	Feeble.	L.O.	

DISPATCHES OF EARTHQUAKES RECEIVED AT THIS STATION—*Continued.*

Place.	Date.	Time.*	Character.	Source of Information.†	Remarks.
Hemet, Cal., U. S. A.	June 14.	10h. 24m.(G.M.T.)	Moderate Intensity.	L.O.	
St. Vincent, B. W. I.	June 15.	Morning.	Severe.	A.P.	
Salerno, Italy.	June 15.	Not Indicated.	Violent.	I.N.S.	This report is discredited by Officials of the Servizio Geodinamico, Rome, Italy.
Hemet, Cal., U. S. A.	June 16.	22h. 10m.(G.M.T.)	Very Feeble.	A.P.	
Managur, Nicaragua.	June 16.	Early Morning.	Strong.	A.P.	No serious damage.
Hemet, Cal., U. S. A.	June 20.	12h. 10m.(G.M.T.)	Very Feeble.	L.O.	
Hemet, Cal., U. S. A.	June 21.	19h. 37m.(G.M.T.)	Very Feeble.	L.O.	
Knoxville, Tenn., U. S. A.	June 22.	Afternoon.	Pronounced.	A.P.	
Salinas, Cal., U. S. A.	June 29.	16h. 17m.(G.M.T.)	Feeble.	L.O.	
Salinas, Cal., U. S. A.	July 1.	5h. 15m.(G.M.T.)	Extremely Feeble.	L.O.	
Hannibal, Mo., U. S. A.	July 1.	19h. 2m.(G.M.T.)	Extremely Feeble.	L.O.	
Cahuilla, Cal., U. S. A.	July 8.	0h. 30m.(G.M.T)	Very Feeble.	L.O.	
Julian, Cal., U. S. A.	July 10.	5h. 24m.(G.M.T.)	Extremely Feeble.	L.O.	
Salinas, Cal., U. S. A.	July 12.	17h. 20m.(G.M.T.)	Very Feeble.	L.O.	
Eureka, Cal., U. S. A.	July 15.	0h. 26m.(G.M.T.)	Fairly Strong.	L.O.	
Panama, Panama.	July 20.	Not Indicated.	Pronounced.	A.P.	Felt 80 miles west of city. No damage.
Johannesburg, S. Africa.	July 20.	Not Indicated.	Severe.	A.P.	Ten shocks felt. Collapse of mine works.
Eureka, Cal., U. S. A.	July 22.	0h. 55m.(G.M.T.)	Very Feeble.	L.O.	
Calexico, Cal., U. S. A.	July 24.	23h. 38m.(G.M.T.)	Very Feeble.	L.O.	
Mt. Wilson, Cal., U. S. A.	July 26.	2h. 54m.(G.M.T.)	Very Feeble.	L.O.	
Keeler, Cal., U. S. A.	July 27.	21h. 40m.(G.M.T.)	Feeble.	L.O.	
Calexico, Cal., U. S. A.	Aug. 1.	19h. 46m.(G.M.T.)	Very Feeble.	L.O.	
Stanford Univ., Cal., U.S.A.	Aug. 3.	18h. 30m.(G.M.T.)	Very Feeble.	L.O.	
Coulterville, Cal., U. S. A.	Aug. 12.	16h. 30m.(G.M.T.)	Very Feeble.	L.O.	
Calexico, Cal., U. S. A.	Aug. 17.	8h. 45m(G.M.T.)	Feeble.	L.O.	Followed by second shock.
Winnemucca, Nev., U.S.A.	Aug. 19.	10h. 58m.(G.M.T.)	Feeble.	L.O.	
Lewiston, Maine, U. S. A.	Aug. 21.	4h. 12m.(G.M.T.)	Moderate Intensity.	L.O.	
Calexico, Cal., U. S. A.	Aug. 24.	16h. 29m.(G.M.T.)	Feeble.	L.O.	
Calexico, Cal., U. S. A.	Sept. 7.	9h. 56m.(G.M.T.)	Feeble.	L.O.	
Calexico, Cal., U. S. A.	Sept. 7.	10h. 02m.(G.M.T.)	Feeble.	L.O.	
Calexico, Cal., U. S. A.	Sept. 7.	10h. 24m.(G.M.T.)	Very Feeble.	L.O.	
El Reno, Okla., U. S. A.	Sept. 10.	15h. 45m.(G.M.T.)	Not Indicated.	L.O.	
El Reno, Okla., U. S. A.	Sept. 11.	5h. 40m.(G.M.T.)	Strong.	L.O.	Buildings damaged.
El Reno, Okla., U. S. A.	Sept. 11.	8h. 00m. (ca.)	Slight.	L.O.	
Calumet, Mich., U. S. A.	Oct. 1.	6h. 38m.(G.M.T.)	Very Feeble.	L.O.	
Little Rock, Ark., U. S. A.	Oct. 4.	9h. 21m.(G.M.T.)	Very Feeble.	L.O.	
San Juan, Porto Rico.	Oct. 11.	10h. 19m. A. M.	Destructive.	A.P.	Second quake 3 minutes later. Loss of life.
St. Thomas, Virgin Islands.	Oct. 11.	10h. 15m. A. M.	Heavy& Prolonged.	A.P.	No damage.

DISPATCHES OF EARTHQUAKES RECEIVED AT THIS STATION—*Continued.*

Place.	Date.	Time.*	Character.	Source of Information.†	Remarks.
Calexico, Cal., U. S. A.	Oct. 11.	4h. ? (G.M.T.)	Feeble.	L.O.	
Lakeport, Cal., U. S. A.	Oct. 12.	12h. 30m.(G.M.T.)	Feeble.	L.O.	
Black Rock, Ark., U. S. A.	Oct. 13.	10h. 00m.?	Feeble	L.O.	
Mayaguez, Porto Rico.	Oct. 14.	During Night.	Sensible.	A.P.	Dozen shocks during Night.
Cairo, Ill., U. S. A.	Oct. 16.	2h. 15m.?(G.M.T.)	Feeble.	L.O.	Felt in Tennessee.
Calexico, Cal., U. S. A.	Nov. 8.	18h. 14m.(G.M.T.)	Feeble.	L.O.	
Provinces of Florence, Italy.	Nov. 10.	Not Indicated.	Very Severe.	A.P.	Santa Sofia, Bagno Diramaga, Mordane suffered mostly. Loss of life.
San Juan, Porto Rico.	Nov. 10.	20h. 17m.(G.M.T.)	Very Feeble.	L.O.	
San Juan, Porto Rico.	Nov. 12.	12h. 01m.(G.M.T.)	Feeble.	L.O.	
San Juan, Porto Rico.	Nov. 12.	21h. 43m.(G.M.T.)	Fairly Strong.	L.O.	
San Juan, Porto Rico.	Nov. 13.	8h. A. M.	Strong.	A.P.	Damage.
Lone Pine, Cal., U. S. A.	Nov. 15.	7h. 47m.(G.M.T.)	Feeble.	L.O.	
Clarkson, Utah, U. S. A.	Nov. 16.	12h. 45m.?(G.M.T.)	Moderate Intensity.	L.O.	
Guatemala City, Guatemala.	Nov. 16.	Between 8h. and 10h. P. M.	Moderate Intensity.	L.O.	Four shocks.
Tremonton, Utah, U. S. A.	Nov. 17.	12h. 43m.(G.M.T.)	Not Indicated.	L.O.	
Guatemala City, Guatemala.	Nov. 18.	11h. 20m. A. M.	Moderate Intensity.	L.O.	
Port Los Angeles, Cal., U. S. A.	Nov. 19.	20h. 15m. A. M.	Moderate Intensity	L.O. & A.P.	
Mount Wilson, Cal., U.S.A.	Nov. 20.	22h. 41m.(G.M.T.)	Extremely Feeble.	L.O.	
Eureka, Cal., U. S. A.	Nov. 29.	23h. 24m.(G.M.T.)	Not Indicated.	L.O.	Indicated as of moderate intensity at Table Bluff.
Copiapo, Chile.	Dec. 4.	Morning.	Very Severe.	A.P.	Also felt severely at Taltal and generally in Northern Chile. Tidal Waves at Chanaral destructive. Tidal Wave also destroyed harbor works at Caldero. Loss of life.
Paso Robles, Cal., U. S. A.	Dec. 5.	2h. 38m.(G.M.T.)	Feeble.	L.O.	
Vancouver, B. C.	Dec. 6.	12h. 45m. A. M.	Violent.	A.P.	Felt in Seattle, Wash. No damage.
San Miguel Islands, Cal., U. S. A.	Dec. 14.	10h. 00m.(G.M.T.)	Violent.	L.O.	
Calexico, Cal., U. S. A.	Dec. 29.	6h. 50m.(G.M.T.)	Extremely Feeble.	L.O.	Second shock five minutes later.