550.34

SECTION V.—SEISMOLOGY.

SEISMOLOGICAL REPORTS FOR OCTOBER, 1917.

W. J. HUMPHREYS, Professor in Charge.

[Dated: Weather Bureau, Washington, D. C., Dec. 1, 1917.]

TABLE 1.—*Noninstrumental earthquake reports, October, 1917.*

Day.	Approximate time, Greenwich Civil.	Station.	Approximate latitude.	Approximate longitude.	Intensity Rossi-Forel.	Number of shocks.	Duration.	Sounds.	Remarks.	Observer.
		CALIFORNIA.								
1917.	*H. m.*		° ′	° ′			*M. s.*			
Sept. 3	7 40	San Francisco	37 48	122 26	4	3		None		George Miller.
11	21 26	Salinas	36 36	121 40	4	1	2	None		Dr. E. D. Eddy.
		Spreckels	36 35	121 38	3	1	1	Rumbling		Dr. M. A. Klein.
14	0 50	San Francisco	37 48	122 26	2	1		None		O. E. Faubion.
16	23 50	Calexico	32 41	115 30	3	2	6	None		I. R. Ralston.
		Calexico	32 41	115 30	3	1	5	None		C. N. Perry.
26	9 18	Berkeley	37 52	122 16	3	2		None	Good record on instrument	E. F. Davis.
		Los Gatos	37 12	121 58	4	1	8	None		I. H. Snyder.
		San Francisco	37 48	122 26	3	1	2	None		G. H. Willson.
		San Jose	37 20	121 54	5	2	9	None		Maurice Connell.
		San Jose	37 20	121 54	3			None	Slight instrumental record	L. H. Kroeck.
		Stanford University	37 27	122 09	3	1	5			S. D. Townley.
27	3 49	Eureka	40 48	124 11	2	1	1	None	House creaked	James Jones.
		NEW JERSEY.*								
19	17 00	Northfield	39 22	74 32	3-4	1	Few	None	Doors and windows rattled. Other shocks at intervals.	Edna Ryan.
		Ocean City	39 18	74 34	3-4	1		None		B. F. Smith.
		Pleasantville	39 23	74 32	3	1		None		Eugene Swilkey.
		Somers Point	39 18	74 35	4		Few	None		Lucelda Looy.
		Ventnor	39 21	74 26	4	1	Few	None		Wm. A. Dunn.
		NEW YORK.								
2	2 14	Glens Falls	43 21	73 36	2-3	1	3	Rattling		C. L. Williams.

* Possibly due to gun firing.

TABLE 2.—*Instrumental reports, October, 1917.*

[Time used: Mean Greenwich, midnight to midnight. Nomenclature: International.]

[For significance of symbols see REVIEW for July, 1917, p. 373.]

Date.	Character.	Phase.	Time.	Period T.	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.

Alaska. *Sitka. Magnetic Observatory.* U. S. Coast and Geodetic Survey. J. W. Green.

Lat., 57° 03′ 00″ N.; long., 135° 30′ 06″ W. Elevation, 15.2 meters.

Instruments: Two Bosch-Omori, 10 and 12 kg.

Instrumental constants...		V	T_0
	E	10	16.7
	N	10	15.4

No earthquake recorded during October, 1917.

Arizona. *Tucson. Magnetic Observatory.* U. S. Coast and Geodetic Survey. F. P. Ulrich.

Lat. 32° 14′ 48″ N.; long., 110° 50′ 06″ W. Elevation, 769.6 meters.

Instruments: Two Bosch-Omori, 10 and 12 kg.

Instrumental constants...		V	T_0
	E	10	13.9
	N	10	19.1

Date.	Character.	Phase.	Time.	Period T.	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1917.			*H. m. s.*	*Sec.*	μ	μ	*km.*	
Oct. 13		eP	4 24 40	4				
		eL	4 29 20	7				
		M_E	4 29 57	8	20			
		M_N	4 30 23	4		10		
		F	4 42 ..					
19		e_E	16 46 34	4				
		e_N	16 37 36	15				
		M_E	16 52 42	4	10			
		M_N	16 54 37	20		20		
		F_E	17 10 ..					

California. *Berkeley. University of California.*

Lat., 37° 52′ 16″ N.; long., 122° 15′ 37″ W. Elevation, 85.4 meters.

(See Bulletin of the Seismographic Stations, University of California.)

California. *Mount Hamilton. Lick Observatory.*

Lat., 37° 20′ 24″ N.; long., 121° 38′ 34″ W. Elevation, 1,281.7 meters.

(See Bulletin of the Seismographic Stations, University of California.)

California. *Point Loma. Raja Yoga Academy.* F. J. Dick.

Lat., 32° 43′ 03″ N.; long., 117° 15′ 10″ W. Elevation, 91.4 meters.

Instrument: Two-component, C. D. West seismoscope.

(Report for October, 1917, not received.)

California. *Santa Clara. University of Santa Clara.* J. S. Ricard, S. J.

Lat., 37° 26′ 36″ N.; long., 121° 57′ 03″ W. Elevation, 27.43 meters.

(See record of the Seismographic Station, University of Santa Clara.)

TABLE 2.—*Instrumental reports, October, 1917*—Continued.

Colorado. *Denver. Sacred Heart College.* Earthquake Station.
A. W. Forstall, S. J.

Lat., 39° 40′ 36″ N.; long., 104° 56′ 54″ W. Elevation, 1,655 meters.

Instrument: Wiechert 80 kg.; astatic, horizontal pendulum.

Date.	Character.	Phase.	Time.	Period T.	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1917.			*H. m. s.*	*Sec.*	μ	μ	*km.*	
Oct. 7		L_N	21 31 ..					Time rather doubtful.
		M_N	21 35 ..					Very irregular waves.
		C_N	21 36 ..					
		F_N	21 37 ..					
13		L_N	21 49 ..					Sinusoidal waves constantly occurring on N-S.
		F_N	21 55 ..					
13		L_N	22 20 ..					
		F_N	24 00 ..					
14		L_N	1 30 ..					Visible activity at intervals from 1h 30m on.
15		L_N	2 30 ..					Activity.
		F_N	4 15 ..					
16–17								Strong activity on N-S all day.
17–18								Small but very distinct sinusoidal waves all day on N-S.
30		L_N	2 20 ..					Sinusoidals at frequent intervals on N-S all day.

District of Columbia. *Washington. U. S. Weather Bureau.*

Lat., 38° 54′ 12″ N.; long., 77° 03′ 03″ W. Elevation, 21 meters.

Instrument: Marvin vertical pendulum, undamped. Mechanical registration.

Instrumental constants.. V 110, T_0 6.4

Date.	Character.	Phase.	Time.	Period T.	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1917.			*H. m. s.*	*Sec.*	μ	μ	*km.*	
Oct. 7		P	15 00 58				3,100?	
		S_N?	15 05 48					
		eL_E	15 10 10					
		F	15 20 00					
19		P	16 43 04				2,240	
		S	16 47 48					
		L	16 52 00					
		L	16 53 24	20				
		F	17 30 ..					
22		P	7 26 30				3,925	
		S	7 32 13					
		L	7 37 00					
		L	7 41 00	20				
		F	8 20 00					
23		eL	8 03 30					
		F	8 10 00					

District of Columbia. *Washington. Georgetown University.*
F. A. Tondorf, S. J.

Lat., 38° 54′ 25″ N.; long., 77° 04′ 24″ W. Elevation, 42.4 meters. Subsoil: decayed diorite.

Instruments: Wiechert 200 kg. astatic horizontal pendulums, 80 kg. vertical.

Instrumental constants... V 165, T_0 5.4, ϵ 0; N 143, 5.2, 0; *Z 80, 5.0, 0*

Date.	Character.	Phase.	Time.	Period T.	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1917.			*H. m. s.*	*Sec.*	μ	μ	*km.*	
Oct. 19		e_E	16 42 07					Heavy microseisms. Heavy traffic markings because of heavy drayage near observatory.
		e_N	16 42 12					
		S_N?	16 47 49					
		S_E?	16 48 07					
		eL	16 52 18					
		L_E	16 54 47	24				
		L_N	16 54 48	24				
		F	17 58 ..					
22		e_E?	7 25 47					Heavy microseisms. No distinct maximum; interpretation difficult.
		e_N?	7 26 21					
		eL_E	7 36 24					
		eL_N	7 37 00					
		L_E	7 38 15					
		L_N	7 42 33					
		F	8 37 00					

Hawaii. *Honolulu. Magnetic Observatory.* U. S. Coast and Geodetic Survey. Frank Neumann.

Lat., 21° 19′ 12″ N.; long., 158° 03′ 48″ W. Elevation, 15.2 meters.

Instrument: Milne seismograph of the Seismological Committee of the British Association.

Instrumental constant... T_0 18.6

(Report for October, 1917, not received.)

Kansas. *Lawrence. University of Kansas.* Department of Physics and Astronomy. F. E. Kester.

Lat., 38° 57′ 30″ N.; long., 95° 14′ 58″ W. Elevation, 301.1 meters.

Instrument: Wiechert.

Instrumental constants... E: V 177, T_0 3.4, ϵ 4:1; N: V 205, T_0 3.4, ϵ 4:1

(Report for October, 1917, received too late.)

Maryland. *Cheltenham. Magnetic Observatory.* U. S. Coast and Geodetic Survey. George Hartnell.

Lat., 38° 44′ 00″ N.; long., 76° 50′ 30″ W. Elevation, 71.6 meters.

Instruments: Two Bosch-Omori, 10 and 12 kg.

Instrumental constants... E: V 10, T_0 15; N: V 10, T_0 15

Date.	Character.	Phase.	Time.	Period T.	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1917.			*H. m. s.*	*Sec.*	μ	μ	*km.*	
Oct. 19		eP_N	16 43 03					Phases not well defined.
		eP_E	16 44 00	4				
		eL_E	16 52 54	16				
		M_N	16 53 13	4		10		
		M_E	16 56 30	13	70			
		C_E	16 58 ..	12				
		F_E	17 07 ..					

Massachusetts. *Cambridge. Harvard University Seismographic Station,* J. B. Woodworth.

Lat., 42° 22′ 36″ N.; long., 71° 06′ 59″ W. Elevation, 5.4 meters. Foundation: Glacial sand over clay.

Instruments: Two Bosch-Omori 100 kg. horizontal pendulums (mechanical registration).

Instrumental constants.. E: V 80, T_0 23, ϵ 0; N: V 50, T_0 25, ϵ 4:1

Date.	Character.	Phase.	Time.	Period T.	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1917.			*H. m. s.*	*Sec.*	μ	μ	*km.*	
Oct. 7		*O*	*14 50 00*				5,015	Distance from L-S.
		S_E	15 00 11	6				
		eL_E	15 06 55	20				
		F	15 44 17					
13		L_E	4 40 47	8				Compare with Ottawa record.
19		*O*	*16 37 53*				3,330	
		P_E	16 44 47					
		S_E	16 49 11	6				
		eL_E?	16 53 48	30				
		M_N	16 58 —					
		F?	17 25 —					F in microseisms.
22		*O*?	*7 21 23*				3,375?	Distance from L-S.
		e_E	7 33 00	6?				e may be S?
		eL_E	7 36 08	20				
		i_E	7 37 04	4				i intrusive?
		L	7 37 12	16				
		L	7 40 20	16				
		L	7 44 07	20				
		L	7 50 36	15				
		L	7 54 30	15				
		F?	8					
30								Doubtful long waves from 10h, 18m to 10h 24m.

Missouri. *Saint Louis. St. Louis University.* Geophysical Observatory. J. B. Goesse, S. J.

Lat., 38° 38′ 15″ N.; long., 90° 13′ 58″ W. Elevation, 160.4 meters. Foundation: 12 feet of tough clay over limestone of Mississippi system, about 300 feet thick.

Instrument: Wiechert 80 kg. astatic, horizontal pendulum.

Instrumental constants.. V 80, T_0 7, ϵ 5:1

(Report for October, 1917, not received.)

TABLE 2.—*Instrumental reports, October, 1917*—Continued.

New York. *Buffalo. Canisius College.* John A. Curtin, S. J.

Lat., 42° 53′ 02″ N.; long., 78° 52′ 40″ W. Elevation, 190.5 meters.

Instrument: Wiechert, 80 kg., horizontal.

Instrumental constants.. V 80, T_0 7, ε 5:1

(Report for October, 1917, not received.)

New York. *Fordham. Fordham University.* W. C. Repetti. S. J.

Lat., 40° 51′ 47″ N.; long., 73° 53′ 08″ W. Elevation, 23.9 meters.

Instrument: Wiechert, 80 kg.

Instrumental constants.. E: V 72, T_0 5, ε 1.5:1; N: V 72, T_0 5, ε 3.8:1

Date.	Character.	Phase.	Time.	Period T.	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1917.			*H. m. s.*	*Sec.*	*μ*	*μ*	*km.*	
Oct. 19	.....	L.....	17 11 00	.....	.....	.....	.....	Possible error of a few seconds in the time.

New York. *Ithaca. Cornell University.* Heinrich Ries.

Lat., 42° 26′ 58″ N.; long., 76° 29′ 09″ W. Elevation, 242.6 meters.

Instruments: Two Bosch-Omori, 25 kg., horizontal pendulums (mechanical registration).

Instrumental constants.. E: V 13, T_0 22, ε 4:1; N: V 14, T_0 25, ε 4:1

(Report for October, 1917, not received.)

Panama Canal Zone. *Balboa Heights.* Isthmian Canal Commission.

Lat., 8° 57′ 39″ N.; long., 79° 33′ 29″ W. Elevation, 27.6 meters.

Instruments: Two Bosch-Omori, 100 kg.

Instrumental constants.. V 35, T_0 20

Date.	Character.	Phase.	Time.	Period T.	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1917.			*H. m. s.*	*Sec.*	*μ*	*μ*	*km.*	
Oct. 22	.....	P_E.....	7 20 44	.....	.....	.....	740	Direction?
		P_N.....	7 21 10	.....	.....	.....	.....	
		L_E.....	7 22 20	.....	.....	.....	.....	
		L_N.....	7 22 46	.....	.....	.....	.....	
		M_N.....	7 23 06	.....	.....	*57	.....	
		M_E.....	7 23 10	.....	*86	.....	.....	
		F_E.....	7 45 00	.....	.....	.....	.....	
		F_N.....	7 48 00	.....	.....	.....	.....	
28	.....	P.....	13 24 48	.....	.....	.....	630	
		L_N.....	13 26 10	.....	.....	.....	.....	
		M_N.....	13 26 14	.....	.....	*200	.....	
		L_E.....	13 26 18	.....	.....	.....	.....	
		M_E.....	13 26 34	.....	*200	.....	.....	
		F_E.....	13 53 12	.....	.....	.....	.....	
		F_N.....	13 55 08	.....	.....	.....	.....	

* Trace amplitude.

Porto Rico. *Vieques. Magnetic Observatory.* U. S. Coast and Geodetic Survey. F. L. Adams.

Lat., 18° 09′ N.; long., 65° 27′ W. Elevation, 19.8 meters.

Instruments: Two Bosch-Omori.

Instrumental constants.. E: V 10, T_0 17.5; N: V 10, T_0 18.2

Date.	Character.	Phase.	Time.	Period T.	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1917.			*H. m. s.*	*Sec.*	*μ*	*μ*	*km.*	
Oct. 19	.....	eP_E.....	16 47 50	.....	.....	.....	.....	
		eP_N.....	16 48 36	4	.....	.....	.....	
		eL_E.....	16 52 43	16	.....	.....	.....	
		eL_N.....	16 53 00	16	.....	.....	.....	
		M_E.....	16 55 32	14	20	.....	.....	
		M_N.....	16 56 32	12	.....	10	.....	
		F.....	17 12 ..	.....	.....	.....	.....	
22	.....	eP_N.....	7 24 12	4	.....	.....	.....	
		eP_E.....	7 24 20	.....	.....	.....	.....	
		eL_E.....	7 27 52	14	.....	.....	.....	
		eL_N.....	7 27 56	10	.....	.....	.....	
		M_E.....	7 28 16	10	30	.....	.....	
		M_N.....	7 28 30	10	.....	10	.....	
		F_E.....	7 50 ..	.....	.....	.....	.....	

Vermont. *Northfield. U. S. Weather Bureau.* Wm. A. Shaw.

Lat., 44° 10′ N.; long., 72° 41′ W. Elevation, 256 meters.

Instruments: Two Bosch-Omori, mechanical registration.

Instrumental constants.. E: V 10, T_0 15; N: V 10, T_0 16

Date.	Character.	Phase.	Time.	Period T.	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1917.			*H. m. s.*	*Sec.*	*μ*	*μ*	*km.*	
Oct. 19	.....	eL_E.....	16 52 00	.....	.....	.....	.....	
		F.....	17 15 00	.....	.....	.....	.....	

Canada. *Ottawa. Dominion Astronomical Observatory.* Earthquake Station. Otto Klotz.

Lat., 45° 23′ 38″ N.; long., 75° 42′ 57″ W. Elevation, 83 meters.

Instruments: Two Bosch photographic horizontal pendulums, one Spindler & Hoyer 80 kg. vertical seismograph.

Instrumental constants.. V 120, T_0 26

Date.	Character.	Phase.	Time.	Period T.	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1917.			*H. m. s.*	*Sec.*	*μ*	*μ*	*km.*	
Oct. 7	.....	*O*.....	*14 55 49*	.....	.....	.....	2,750	Readings from deformation instrument.
		P.....	15 01 21	.....	.....	.....	.....	
		S_E.....	15 05 45	.....	.....	.....	.....	
		L.....	15 08 24	.....	.....	.....	.....	
13	.....	eL.....	4 40 ..	20	.....	.....	.....	
19	.....	*O*.....	*16 37 11*	.....	.....	.....	3,600	A further outcrop of short-period waves resembling P on both instruments at 16h 54m.
		P_N.....	16 43 59	.....	.....	.....	.....	
		S_N.....	16 49 23	.....	.....	.....	.....	
		eL?...	16 53 30	.....	.....	.....	.....	
		L.....	16 56 ..	30	.....	.....	.....	
		L.....	17 00 ..	14	.....	.....	.....	
		F...e	17 20 ..	.....	.....	.....	.....	
22	.....	e.....	7 53 50	2	.....	.....	.....	
		L.....	7 40 .. / 7 50 ..	17	.....	.....	.....	

Canada. *Toronto. Dominion Meteorological Service.*

Lat. 43° 40′ 01″ N.: long., 79° 23′ 54″ W. Elevation, 113.7 meters. Subsoil: Sand and clay.

Instrument: Milne horizontal pendulum, North. In the meridian.

Instrumental constant.. T_0 18. Pillar deviation: 1 mm. swing of boom=0.50″.

Date.	Character.	Phase.	Time.	Period T.	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1917.			*H. m. s.*	*Sec.*	*μ*	*μ*	*km.*	
Oct. 7	.....	L?....	15 26 42	.....	.....	.....	.....	
		L.....	15 45 12	.....	.....	.....	.....	
		M.....	.....	.....	*300	.....	.....	M and F in air currents.
13	.....	L.....	5 00 18	.....	*50	.....	.....	
		F.....	5 06 36	.....	.....	.....	.....	
19	.....	P.....	16 39 48	.....	.....	.....	.....	Air currents going on. P and S very doubtful.
		P.....	16 42 47	.....	.....	.....	.....	
		S.....	16 46 42	.....	.....	.....	.....	
		S.....	16 49 18	.....	.....	.....	.....	
		L.....	16 51 36	.....	.....	.....	.....	
		iL.....	16 55 48	.....	.....	.....	.....	
		M.....	16 57 00	.....	*1,300	.....	.....	F in air currents.
20	.....	L?....	18 35 36	.....	.....	.....	.....	
		L?....	18 44 18	.....	*200	.....	.....	
22	.....	S_E?....	7 33 12	.....	.....	.....	.....	
		iL.....	7 36 24	.....	.....	.....	.....	
		M.....	7 37 36	.....	*800	.....	.....	
		L.....	7 46 18	.....	.....	.....	.....	
		L.....	8 06 24	.....	.....	.....	.....	
		F.....	8 24 24	.....	.....	.....	.....	
23	.....	L?....	8 04 18	.....	*50	.....	.....	Air currents going on.
28	.....	L_E....	13 40 36	.....	.....	.....	.....	
		L.....	13 43 42	.....	.....	.....	.....	
		M.....	13 46 36	.....	*800	.....	.....	
		F.....	14 10 30	.....	.....	.....	.....	
28	.....	L.....	17 52 12	.....	.....	.....	.....	Other phases lost, attending instruments.
29	.....	L?....	21 41 30	.....	.....	.....	.....	
		L.....	21 47 18	.....	.....	.....	.....	
		M.....	21 51 42	.....	*300	.....	.....	
		F.....	22 58 18	.....	.....	.....	.....	

*Trace amplitude.

TABLE 2.—*Instrumental reports, October, 1917*—Continued.

Date.	Character.	Phase.	Time.	Period T.	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
Canada. *Victoria, B. C. Dominion Meteorological Service.*								
Lat., 48° 24′ N.; long., 123° 19′ W. Elevation, 67.7 meters. Subsoil: Rock.								
Instrument: Weichert, vertical; Milne horizontal pendulum, North. In the meridian								
Instrumental constant.. T_0 18. Pillar deviation, 1 mm., swing of boom=0.54″.								
1917.			*H. m. s.*	*Sec.*	μ	μ	*km.*	
Oct. 7	.....	P.....	15 21 34	.....	.....	.....	2,490?	
		S?.....	15 25 38	.....	.....	.....	.....	
		L.....	15 30 35	.....	.....	.....	.....	
		M.....	15 35 33	.....	*500	.....	.....	
		F?....	15 49 55	.....	.....	.....	.....	
13	.....	L.....	4 40 00	.....	.....	.....	.....	Minute and sharp vibrations.
		L.....	4 43 24	.....	*100	.....	.....	
		F.....	4 50 06	.....	.....	.....	.....	
19	.....	P.....	16 44 24	.....	.....	.....	5,250	
		S.....	16 51 20	.....	.....	.....	.....	
		L.....	17 00 46	.....	.....	.....	.....	
		M.....	17 07 42	.....	*500	.....	.....	
		F.....	17 36 28	.....	.....	.....	.....	
			VERTICAL.		A_z			
		M....	*17 07 00*	*14–16*	*1*	.....	.....	
20	.....	L.....	18 15 09	.....	.....	.....	.....	
		M.....	18 21 42	.....	*200	.....	.....	
		F.....	18 29 39	.....	.....	.....	.....	
22	.....	P or S?	7 42 06	.....	.....	.....	.....	
		L.....	7 51 01	.....	.....	.....	.....	
		M.....	7 56 28	.....	*400	.....	.....	
		F.....	8 21 46	.....	.....	.....	.....	
23	.....	P.....	8 05 58	.....	.....	.....	.....	
		L.....	8 11 25	.....	.....	.....	.....	
		M.....	8 14 53	.....	*200	.....	.....	
		F.....	8 19 51	.....	.....	.....	.....	
28	.....	L.....	13 57 20	.....	*50	.....	.....	
		F.....	14 09 20	.....	.....	.....	.....	
28	.....	L.....	17 50 44	.....	*100	.....	.....	
		F.....	18 14 14	.....	.....	.....	.....	
29	.....	P.....	20 59 20	.....	.....	.....	.....	S?
		L.....	21 17 42	.....	.....	.....	.....	
		M.....	21 30 35	.....	*300	.....	.....	
		F.....	21 46 57	.....	.....	.....	.....	

* Trace amplitude.

SEISMOLOGICAL DISPATCHES.[1]

There were no press reports of seismological or vulcanological disturbances during October, 1917.

[1] Reported by the organizations indicated and collected by the seismological station at Georgetown University, Washington, D. C.

TABLE 3.—*Late seismological reports.* (*Instrumental.*)

Date.	Character.	Phase.	Time.	Period T.	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
Massachusetts. *Cambridge. Harvard University Seismographic Station,* J. B. Woodworth.								
Lat., 42° 22′ 36″ N.; long., 71° 06′ 59″ W. Elevation, 5.4 meters. Foundation: Glacial sand over clay.								
Instruments: Two Bosch-Omori 100 kg. horizontal pendulums (mechanical registration).								
Instrumental constants..			V	T_0	ϵ			
E			80	23	0			
N			50	25	4:1			
1917.			*H. m. s.*	*Sec.*	μ	μ	*km.*	
Sep. 18	.....	e?.....	18 53 49	.....	.....	.....	.....	e in microseisms.
		L.....	18 54 42	24	.....	.....	.....	F?, after 19h 05m.
18	.....	*O*?....	*22 04 07*	.....	.....	.....	5,280?	P in microseisms; *O* from eL–S.
		eP?....	22 13 20	.....	.....	.....	.....	
		S_E....	22 19 50	6	.....	.....	.....	
		eL_E...	22 25 53	24	.....	.....	.....	
		L.....	22 38 54	16	.....	.....	.....	
		F.....	22 51 ..	.....	.....	.....	.....	
20	.....	L_E....	3 41 16	.....	.....	.....	.....	L possibly earlier.
		L.....	4 03 20	15	.....	.....	.....	
		L.....	4 16 14	14	.....	.....	.....	L from southward.
		F.....	4 30 25	.....	.....	.....	.....	
21	.....	*O*?....	*8 45 04*	.....	.....	.....	3,425?	*O* and distance from L–S.
		eP?....	8 54 11	.....	.....	.....	.....	
		L.....	8 54 46	.....	.....	.....	.....	
		S_E....	8 56 50	6	.....	.....	.....	
		S_N?...	8 57 56	6	.....	.....	.....	
		eL_E...	9 00 16	12	.....	.....	.....	
		eL_N...	9 00 54	9	.....	.....	.....	
		L_E....	9 02 43	6	.....	.....	.....	
		F_E....	9 04 54	.....	.....	.....	.....	
24	.....	e_E....	21 02 24	20	.....	.....	.....	Forepart irregular.
		L_E....	21 14 36	24	.....	.....	.....	
		L.....	{21 17 16 21 25 24}	20–18	.....	.....	.....	
31	.....	*O*?....	*21 36 05*	.....	.....	.....	920?	Doubtful record, subject to confirmation.
		P?....	21 38 07	.....	.....	.....	.....	
		S?.....	21 39 47	6	.....	.....	.....	
		eL_N...	21 40 07	.....	.....	.....	.....	
		eL_E...	21 40 11	12	.....	.....	.....	
		L_N....	21 40 38	13	.....	.....	.....	F in microseisms.

EARTH TREMOR DUE TO THUNDER NOTES.[2]

Mr. Douglas F. Manning, Alexandria Bay, N. Y., sends the following report under date of October 28, 1917:

A peculiar effect of thunder was felt here last night (Oct. 27, 1917), between the hours of 10 and 11 p. m. The day had been ideal with a light south wind, mild temperature, and a few alto-cumuli moving lazily from the west; in fact, it was an "Indian Summer" type of day.

Toward evening my aneroid began to fall rapidly and the clouds increased, and by 8 o'clock a rain was falling. At about 10 [p. m.] I noticed a flash of lightning, and this was followed in a short interval by a deep, prolonged rumble, causing windows and doors to rattle, chinaware to jar, and a distinct earth tremor was felt; in fact, many thought it was one. The lightning increased in intensity and frequency and the same marked earth tremors followed each flash at short intervals, and it seemed as if a series of earthquakes were taking place, so strong was the concussion produced. The storm gradually passed over accompanied by a tremendous but brief downpour of rain mixed with small hail, and by 11 o'clock all was still again.

To-day one hears many stories of the storm and its peculiar behavior, all making note of the trembling effect produced.

This instructive letter is published for the benefit of others interested in these problems.

Since "musical" notes of very low pitch and great volume are occasionally produced by a series of sequent or pulsating lightning discharges, it seems probable that the shaking described by Mr. Manning was owing in great measure to the resonance response of rooms to thunder notes of this character.—*W. J. Humphreys.*

[2] In this connection compare *W. Schmidt* "On Thunder," MONTHLY WEATHER REVIEW, December, 1914, 42 : 665 fig.