550.34

SECTION V.—SEISMOLOGY.

SEISMOLOGICAL ABBREVIATIONS USED IN THE INSTRUMENTAL REPORTS.

CHARACTER OF THE EARTHQUAKE.

I = noticeable.
II = conspicuous.
III = strong.
d = (terræ motus domesticus) = local earthquake (sensible or felt).
v = (terræ motus vicinus) = near-by earthquake (within 1,000 km.).
r = (terræ motus remotus) = distant earthquake (1,000 to 5,000 km. distant).
u = (terræ motus ultimus) = very distant earthquake (beyond 5,000 km.).
Δ = distance to epicenter.

PHASES.

P = (undæ primæ) = first preliminary tremors.
PRn = P waves reflected n times at the earth's surface.
S = (undæ secundæ) = second preliminary tremors.
SRn = S waves reflected n times at the earth's surface.
PS = transformed waves; longitudinal (P) to transversal (S) or vice versa.
L = (undæ longæ) = long waves in the principal portion.
M = (undæ maximæ) = greatest motion in the principal portion.
C = (coda) = trailers.
O = time at epicenter.
L_{rep1} = Long waves reaching the station from the antiepicenter (40,000 km. $-\Delta$).
L_{rep2} = long waves again reaching the station from the antiepicenter (40,000 km. $+\Delta$).
F = (finis) = end of perceptible trace.

NATURE OF THE MOTION.

i = (impetus) = abrupt beginning.
e = (emersio) = gradual appearance.
T = period = twice the time of oscillation.
A = amplitude of the earth's movement, reckoned from the zero line.
E, N, or Z attached to a symbol signifies the E–W, the N–S, or the vertical component, respectively, thus:

A_E is the E–W component of A.
A_N is the N–S component of A.
A_Z is the vertical component of A.
} Measured in microns (μ), $\frac{1}{1000}$ mm.

INSTRUMENTAL CONSTANTS.

T = period of instrument.
V = magnification of instrument.
ϵ = damping ratio.

SEISMOLOGICAL REPORTS FOR JULY, 1917.

W. J. HUMPHREYS, Professor in Charge.

[Dated: Weather Bureau, Washington, D. C., Sept. 4, 1917.]

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

Day.	Approximate time, Greenwich Civil.	Station.	Approximate latitude.	Approximate longitude.	Intensity Rossi-Forel.	Number of shocks.	Duration.	Sounds.	Remarks.	Observer.
		CALIFORNIA.								
	H. m.		° ′	° ′			*M. s.*			
7	(Morning)	Owenyo	36 40	113 01	6–7	1			Broke aqueduct	Wm. Mulholland.
7	20 57	San Luis Obispo	35 18	120 39	3	2	7		Rattled windows	U. S. Weather Bureau.
8	3 20	Santa Maria	34 58	120 27	2–3	1	10			Henry Neil, jr.
9	5 15	Bishop	37 24	118 26	3	1		Rumbling		William Barth.
9	22 22	San Luis Obispo	35 18	120 39	4	1	2	Loud		U. S. Weather Bureau.
15	19 05	Mt. Wilson	34 13	118 16	4	2	2	Rumbling	House creaked	Wendell P. Hoge.
16	6 50	Calexico	32 41	115 30	2	1	½	Rumbling	Sounds before shock	H. M. Rouse.
21	16 50	Ferndale	40 35	124 16	3	3		None		M. Eriksen.
26	8 31	San Luis Obispo	35 18	120 39	2	1	2	None		U. S. Weather Bureau.
		Santa Maria	34 58	120 27	4–5	3	15		Moved furniture	R. E. Collom.
		PORTO RICO.								
13	6 20	Mayaguez	18 13	67 08	5	3	28	Faint		C. Alemar, jr.
27	2 01	Mayaguez	18 13	67 08	6		20	Faint		C. Alemar, jr.
		San Juan	18 29	66 07	6	2	6		Clock stopped	U. S. Weather Bureau.

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

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

[For significance of symbols see above, p. 373.]

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: E: V 10, T_0 16.6; N: V 10, T_0 15.4

Date.	Character.	Phase.	Time.	Period. T.	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1917.			*H. m. s.*	*Sec.*	*μ*	*μ*	*km.*	
July 25	.....	eL_N...	3 25 07	19	.....	.....	.....	
		eL_E...	3 26 24	19	.....	.....	.....	
		M_E....	3 27 44	18	10	.....	.....	
		M_N....	3 28 17	15	.....	20	.....	
		C_E....	3 30 —	.....	.....	.....	.....	
		C_N....	3 35 —	.....	.....	.....	.....	
		F.....	4 15 —	.....	.....	.....	.....	
27	.....	eP_N...	1 11 54	.....	.....	.....	.....	
		eS_N...	1 20 02	8	.....	.....	.....	
		eL_N...	1 32 40	26	.....	.....	.....	
		eL_E...	1 34 —	.....	.....	.....	.....	
		M_N....	1 37 35	13	.....	100	.....	
		M_E....	1 44 22	14	60	.....	.....	
		C.....	1 45 —	.....	.....	.....	.....	
		F.....	2 44 —	.....	.....	.....	.....	
27	.....	eP_N...	3 19 04	.....	.....	.....	.....	Barely discernible on E-W. No phases.
		eL_N...	3 46 46	25	.....	.....	.....	
		M_N....	3 49 50	18	.....	20	.....	
		C.....	3 55 —	.....	.....	.....	.....	
		F.....	4 28 —	.....	.....	.....	.....	
29	.....	eP_E...	22 05 24	7	.....	.....	.....	
		eS_E....	22 15 59	8	.....	.....	.....	
		eS_N...	22 15 08	9	.....	.....	.....	
		eL_N...	22 28 10	20	.....	.....	.....	
		eL_E...	22 33 00	.....	.....	.....	.....	
		M_E....	22 17 26	9	80	.....	.....	
		M_E....	22 38 45	20	20	.....	.....	
		M_N....	22 38 00	18	.....	20	.....	
		C.....	22 49 —	.....	.....	.....	.....	
30	.....	F.....	0 44 —	.....	.....	.....	.....	
31	.....	e_N.....	0 21 24	.....	.....	.....	.....	Mere tremor of E-W. No phases.
		e_E.....	0 38 34	.....	.....	.....	.....	
		I_N....	0 39 08	20	.....	.....	.....	
		M_N....	0 43 38	16	.....	30	.....	
		C.....	0 47 —	.....	.....	.....	.....	
		F_E....	0 57 —	.....	.....	.....	.....	
		F_N....	1 41 —	.....	.....	.....	.....	

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.

Instruments constants: E: V 10, T_0 13.9; N: V 10, T_0 18.9

Date.	Character.	Phase.	Time.	Period. T.	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1917.			*H. m. s.*	*Sec.*	*μ*	*μ*	*km.*	
July 27	.....	e_E.....	1 08 26	.....	.....	.....	.....	No well defined phases.
		e_N.....	1 09 28	.....	.....	.....	.....	
		M_N....	1 27 20	16	.....	100	.....	
		M_E....	1 34 24	16	60	.....	.....	
		F.....	4 03 —	.....	.....	.....	.....	
29	.....	e_E.....	22 11 15	.....	.....	.....	.....	Record very faint.
		M_E....	22 57 54	17	10	.....	.....	
		M_N....	23 05 28	20	.....	10	.....	
30	.....	F.....	0 22 —	.....	.....	.....	.....	

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 July, 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.)

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.*	
July 1	.....	.....	.....	.....	.....	.....	.....	Small quake, beginning about 13h 36m; L about 13h 41m; and F about 13h 50m. No time marks.
4	.....	P.....	0 57 14	.....	.....	.....	8,675	
		S.....	1 07 08	.....	.....	.....	.....	
		L.....	1 25 30	60	.....	.....	.....	
		L.....	1 31 00	40	.....	.....	.....	
		L.....	1 37 00	24	.....	.....	.....	
		F.....	2 35 00	.....	.....	.....	.....	
12	.....	L.....	12 41 33	.....	.....	.....	.....	
		L.....	12 43 30	20	.....	.....	.....	
		L.....	12 47 00	16	.....	.....	.....	F lost changing sheets.
13	.....	iP.....	5 19 07	.....	.....	.....	2,090	
		S.....	5 22 38	.....	.....	.....	.....	
		L.....	5 25 00	.....	.....	.....	.....	
		F.....	5 40 00	.....	.....	.....	.....	
25	.....	P.....	3 28 58	.....	.....	.....	6.125	
		S.....	3 36 41	.....	.....	.....	.....	
		L.....	3 45 15	.....	.....	.....	.....	
		L.....	3 49 30	20	.....	.....	.....	
		F.....	4 30 00	.....	.....	.....	.....	
25	.....	P.....	22 42 44	.....	.....	.....	6,140	
		S.....	22 50 28	.....	.....	.....	.....	
		L.....	23 03 00	.....	.....	.....	.....	
		F.....	23 30 00	.....	.....	.....	.....	
27	II_r....	iP.....	1 06 11	.....	.....	.....	2,340	
		S.....	1 10 03	.....	.....	.....	.....	
		L.....	1 13 55	16	.....	.....	.....	C merges with succeeding quake.
27	I_u.....	P.....	3 02 47	.....	.....	.....	7,725	
		S.....	3 11 53	.....	.....	.....	.....	
		L?....	3 20 15	.....	.....	.....	.....	
		L.....	3 24 45	20	.....	.....	.....	
		F.....	3 40 00	.....	.....	.....	.....	
27	.....	P.....	16 20 09	.....	.....	.....	2,150	
		S.....	16 23 45	.....	.....	.....	.....	
		L?....	16 25 50	.....	.....	.....	.....	
		L.....	16 29 15	12	.....	.....	.....	
		F.....	17 30 00	.....	.....	.....	.....	
28	.....	e.....	1 31 05	.....	.....	.....	.....	
		S?.....	1 39 20	.....	.....	.....	.....	
		L.....	1 49 00	.....	.....	.....	.....	
		F.....	2 00 00	.....	.....	.....	.....	
29	.....	P.....	14 55 54	.....	.....	.....	4,370?	
		S?.....	15 02 02	.....	.....	.....	.....	
		L.....	15 10 00	20	.....	.....	.....	
		L.....	15 22 00	20	.....	.....	.....	
		F.....	16 15 00	.....	.....	.....	.....	
29	.....	P?....	22 11 40	.....	.....	.....	.....	
		e.....	22 15 06	.....	.....	.....	.....	
		L.....	22 25 00	.....	.....	.....	.....	
		L.....	22 52 00	40	.....	.....	.....	
		L.....	23 02 00	18	.....	.....	.....	
30		F.....	1 00 00	.....	.....	.....	.....	
31	.....	eL....	0 50 00	.....	.....	.....	.....	
		L.....	0 55 00	24	.....	.....	.....	
		F.....	1 40 00	.....	.....	.....	.....	
31	.....	P?....	3 35 35	.....	.....	.....	8,430?	
		S.....	3 45 17	.....	.....	.....	.....	
		L.....	3 57 00	.....	.....	.....	.....	
		F.....	4 40 00	.....	.....	.....	.....	

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

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	T_0	e
E	165	5.4	0
N	143	5.2	0
Z	*80*	*3.0*	*0*

Date.	Character.	Phase.	Time.	Period. T.	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1917.			*H. m. s.*	*Sec.*	μ	μ	*km.*	
July 4		e_E	0 57 13					Microseisms present. No distinct maximum.
		e_N	0 57 21					
		eL	1 07 13					
		L	1 31 31					
		F	2 33 00					
13		eP	5 19 05					
		S_E	5 22 52					
		S_N	5 22 54					
		eL	5 23 06					
		F	6 10 00					
14		e_N	21 31 34					Microseisms present. All phases doubtful.
		e_E	21 31 36					
		S	21 43 04					
		eL_E	21 50 04					
		eL_N	21 50 09					
		F	22 15 00					
25		eP	3 38 18					Microseisms present.
		S_N	3 36 31					
		S_E	3 36 37					
		eL	3 49 00					
		F	4 45 00					
		VERTICAL.						
		e	*3 25 57*					S not discernible.
		eL	*3 48 52*					
		L	*3 51 52*	*30*				
		F	*4 11 00*					
25		e	22 42 43					Very difficult to interpret. All phases doubtful.
		eS	22 50 17					
		eL	23 03 17					
		F	23 40 00					
27		iP	1 06 11					
		iS	1 10 02					
		eL	1 11 48					
		M_N	1 16 52	10		*1950		
		M_E	1 17 00	9	*3720			F lost in succeeding quake.
		VERTICAL.						
		P	*1 06 15*					
		S	*1 10 16*					
		eL	*1 12 18*					
		F	*2 35* ..					
27		eP	3 02 46					No distinct maximum.
		iS	3 12 01					
		L	3 17 00	11				
		F	4 00 ..					
		VERTICAL.						
		eP	*3 02 51*					
		S	*3 12 09*					
		L	*3 33 30*	*24*				
		F	*4 00* ..					
27		eP_N	16 20 11					No distinct maximum.
		eP_E	16 20 13					
		S_N	16 24 09					
		S_E	16 24 13					
		eL_N	16 25 00	17				
		eL_E	16 25 12	17				
		F	17 14 ..					
29		e	14 44 49					
		L_N	15 23 30					
		L_E	15 24 48					
		F	16 01 ..					
29		e_N	22 11 42					e possibly sooner.
		e_E	22 12 00					Microseisms present.
		S_E	22 15 06					
		S_N	22 15 08					
		eL?	22 16 18					F lost in changing
		L	22 25 00					
30		F	1	13				
30		e	12 29 24					Microseisms present.
		L	{13 08 .. / 13 20 ..}					F?

* Trace amplitude.

District of Columbia. *Washington. Georgetown University*—Contd.

Date.	Character.	Phase.	Time.	Period. T.	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1917.			*H. m. s.*	*Sec.*	μ	μ	*km.*	
July 31		e_E	0 13 24					e_N and S_N not discernible.
		eS_E?	0 20 44					
		eL	0 50 42					
		L_E	0 56 08	24				
		L_N	1 01 ..	30				
		F	1 30 ..					
31		eP_E	3 36 04					
		eP_N	3 36 07					
		S_E	3 45 38					
		S_N	3 46 07					
		eL?	3 51 15					
		F	4 40 ..					

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.*	
July 27		P_N	1 14 00					Chilean quake. Good record but P and S do not appear on E-W component. E-W record much less satisfactory than N-S.
		S_N	1 18 00					
		L_N	1 23 00	15–20		*1,500		
		L_E	1 25 00	10–12	*1,000			
		M_N	1 27 00	22		*2,500		
		M_E	1 27 00	21	*1,200			
		C_E	1 28 00					
		C_N	1 29 00	8				
		F_E	1 32 00					
		F_N	1 37 00					

* Trace amplitude.

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

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 18.5

(Report for July, 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..

	V	T_0	e
E	177	3.4	4.1
N	205	3.4	4.1

(Report for July, 1917, not received.)

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..

	V	T_0
E	10	33
N	10	25

Date.	Character.	Phase.	Time.	Period. T.	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1917.			*H. m. s.*	*Sec.*	μ	μ	*km.*	
July 25		e_N	2 42 38					
		e_E	2 43 29					
		eL_E	2 49 22	16				
		eL_N	2 49 36	16				
		M_E	2 53 28	14	10			
		M_N	2 54 39	12		20		
		C	2 55 00					
		F	3 07 00					

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

Maryland. *Cheltenham. Magnetic Observatory*—Continued.

Date.	Character.	Phase.	Time.	Period. T.	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1917.			*H. m. s.*	*Sec.*	*μ*	*μ*	*km.*	
July 27	.....	P.....	1 06 12	.....	.....	.....	.....	
		S.....	1 10 00	3	.....	.....	.....	
		eL_E...	1 12 09	18	.....	.....	.....	
		M_E...	1 10 32	.....	980	.....	.....	
		M_N...	1 18 53	14	.....	260	.....	
		M_E...	1 19 10	25	300	.....	.....	
		C.....	1 47 00	.....	.....	.....	.....	
		F.....	2 20 00	.....	.....	.....	.....	
27	.....	eP_E...	3 02 38	.....	.....	.....	.....	No long waves on E-W.
		eP_N...	3 02 40	.....	.....	.....	.....	
		S_E...	3 11 52	.....	.....	.....	.....	
		S_N...	3 11 54	.....	.....	.....	.....	
		eL_N...	3 33 00	24	.....	.....	.....	
		M_N...	3 35 36	24	.....	20	.....	
		C.....	3 41 00	.....	.....	.....	.....	
		F.....	4 00 00	.....	.....	.....	.....	
29	.....	eP_N...	22 13 50	.....	.....	.....	.....	Phases indefinite.
		eP_E...	22 13 54	.....	.....	.....	.....	
		eS_N...	22 23 35	.....	.....	.....	.....	
		eS_E...	22 23 56	.....	.....	.....	.....	
		eL_N...	22 49 00	18	.....	.....	.....	
		eL_E...	22 55 00	18	.....	.....	.....	
		M_E...	23 03 22	.....	140	.....	.....	
		M_N...	23 05 36	.....	.....	20	.....	
		C.....	23 21 00	.....	.....	.....	.....	
30		F.....	0 14 00	.....	.....	.....	.....	
31	.....	e.....	0 54 00	.....	.....	.....	.....	Phases on N-S not defined, record barely discernible on E-W.
		M_N...	1 04 00	.....	.....	10	.....	
		F.....	1 15 00	.....	.....	.....	.....	

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.*	
July 1	.....	*O?*....	*13 28 50*	.....	.....	.....	3,000?	
		eP_N...	13 34 47	.....	.....	.....	.....	
		S_N...	13 39 30	.....	.....	.....	.....	
		S_E...	13 39 54	6	.....	.....	.....	
		eL_N...	13 42 24	6–10	.....	.....	.....	Followed by periods of 8 seconds.
		F.....	14 03 00	.....	.....	.....	.....	
4	.....	*O?*....	*0 49 01*	.....	.....	.....	4,850	
		eP_E...	0 57 11	.....	.....	.....	.....	
		S_E...	1 03 53	6	.....	.....	.....	
		e_E...	1 11 02	.....	.....	.....	.....	
		e_E...	1 13 11	.....	.....	.....	.....	
		L_E...	1 27 42	42–50	.....	.....	.....	
		L_E...	1 33 27	30	.....	.....	.....	
		L_E...	1 35 53	25	.....	.....	.....	
		L_E...	1 38 09	25	.....	.....	.....	
		F.....	2 54 00	.....	.....	.....	.....	
4	.....	e_E...	6 14 08	.....	.....	.....	.....	*O* at 5h plus. Amplitude very small.
		eL_E...	6 37 01	20	.....	.....	.....	
		L_E...	6 38 56	.....	.....	.....	.....	
		F.....	7 20 00	.....	.....	.....	.....	
10	.....	L_E...	{18 20 22, 18 31 38}	20	.....	.....	.....	
11	.....	*O?*....	*22 45 00*	.....	.....	.....	12,100	
		S_E...	23 09 45	7	.....	.....	.....	
		e.....	23 28 27	14	.....	.....	.....	
		e.....	23 33 09	14	.....	.....	.....	
		eL_E...	23 34 45	30	.....	.....	.....	
		L_E...	23 38 51	20	.....	.....	.....	
12		F.....	0 11 00	.....	.....	.....	.....	
12	.....	L_E...	12 43 02	24	.....	.....	.....	
		L_E...	12 47 13	20	.....	.....	.....	
		L_E...	12 58 51	16	.....	.....	.....	Record changed between 13h, 10m and 13h, 25m.
		F.....	14 14 00	.....	.....	.....	.....	
13	.....	*O*.....	*5 15 02*	.....	.....	.....	2,220	
		P_N...	5 19 39	.....	.....	.....	.....	
		S_E...	5 23 21	6	.....	.....		
		eL_E...	5 24 35	21–16	.....	.....	.....	
		F.....	5 45 00	.....	.....	.....	.....	

Massachusetts. *Cambridge. Harvard University*—Continued.

Date.	Character.	Phase.	Time.	Period. T.	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1917.			*H. m. s.*	*Sec.*	*μ*	*μ*	*km.*	
July 15	.....	.....	.....	.....	.....	.....	.....	E-W component ran down at 0h 50m; in commission at 15h 22m.
25	.....	*O*.....	*3 19 02*	.....	.....	.....	6,300	Some uncertainty as to times by E-W component.
		P_E...	3 28 38	3	.....	.....	.....	
		P_N...	3 28 50	.....	.....	.....	.....	
		S_E...	3 36 22	.....	.....	.....	.....	
		S_N...	3 36 48	6	.....	.....	.....	
		i_E...	3 40 12	10	.....	.....	.....	
		eL_N...	3 48 21	.....	.....	.....	.....	
		eL_E...	3 49 00	20	.....	.....	.....	
		M_E...	3 53 27	20	.....	.....	.....	
		F_E...	4 52 00	.....	.....	.....	.....	
25	.....	*O?*....	*22 32 09*	.....	.....	.....	6,470	
		P_N...	22 42 22	.....	.....	.....	.....	
		S_N...	22 50 37	6	.....	.....	.....	
		e_N...	23 01 14	10	.....	.....	.....	
		L_N...	23 04 37	23	.....	.....	.....	
		L_N...	23 07 50	18	.....	.....	.....	
26	.....	F.....	0 02 00	.....	.....	.....	.....	
27	.....	*O*.....	*1 00 50*	.....	.....	.....	2,690	
		P_E...	1 06 17	.....	.....	.....	.....	
		P_N...	1 06 30	10	.....	.....	.....	
		S_E...	1 10 27	.....	.....	.....	.....	
		S_N...	1 10 42	.....	.....	.....	.....	
		L_N...	1 14 24	.....	.....	.....	.....	F lost in succeeding quake.
27	.....	*O*.....	*2 51 23*	.....	.....	.....	7,870	
		P_N...	3 03 00	.....	.....	.....	.....	
		P_E...	3 03 07	.....	.....	.....	.....	
		S_N...	3 12 13	.....	.....	.....	.....	
		S_E...	3 12 25	.....	.....	.....	.....	
		eL_E...	3 26 01	.....	.....	.....	.....	
		L.....	3 37 27	.....	.....	.....	.....	
		L_{rep}...	*5 37 35*	20	.....	.....	.....	
		F.....	4 41 31	.....	.....	.....	.....	
27	.....	*O*.....	*16 14 46*	.....	.....	.....	2,640	
		P_N...	16 20 08	.....	.....	.....	.....	
		P_E...	16 20 47	.....	.....	.....	.....	
		S.....	16 24 24	.....	.....	.....	.....	
		eL_N...	16 26 06	.....	.....	.....	.....	
		eL_E...	16 27 34	15	.....	.....	.....	
		C_E...	16 34 28	.....	.....	.....	.....	
		F.....	16 50 ..	.....	.....	.....	.....	
28	.....	e_E...	0 41 11	.....	.....	.....	.....	
		L_E...	0 42 59	20	.....	.....	.....	
		L_E...	0 47 25	24	.....	.....	.....	
		F.....	1	.....	.....	.....	.....	
28	.....	e_E?...	1 26 55	.....	.....	.....	.....	
		S_E?...	1 30 04	6	.....	.....	.....	
		L_E?...	1 35 16	20	.....	.....	.....	
		e.....	1 43 31	6	.....	.....	.....	
		L_E...	1 46 33	16	.....	.....	.....	
		F.....	2 02 ..	.....	.....	.....	.....	
29	.....	L_N...	6 22 41	15	.....	.....	.....	
		F.....	6 52 ..	.....	.....	.....	.....	
29	.....	e_E...	14 56 07	.....	.....	.....	.....	*O* at 14h+, N-S run down at 13h 9m. Started at 15h 18m. Records changed at 15h 12m. L_N at 15h 18m 1s, period 32 sec.
		e_E...	15 05 35	.....	.....	.....	.....	
		L_E...	15 27 51	20	.....	.....	.....	
		F.....	15 40 ..	.....	.....	.....	.....	
29	.....	e_N...	22 14 02	.....	.....	.....	.....	May be artificial disturbance.
		S_N?...	22 14 06	9	.....	.....	.....	
		L_N?...	{22 24 10, 22 31 32}	10–12	.....	.....	.....	
30		F.....	1 45 ..	.....	.....	.....	.....	
30	.....	L_N...	5 33 17	20	.....	.....	.....	Artificial disturbance?
		L_N...	5 44 24	16	.....	.....	.....	
		F_N...	5 54 20	.....	.....	.....	.....	
30	.....	L_N...	9 22 16	.....	.....	.....	.....	Very faint record. Possibly artificial disturbance.
		F.....	9 32 06	.....	.....	.....	.....	
30	.....	L_N...	12 31 17	14	.....	.....	.....	Artificial disturbance? Changing records from 13h 24m to 13h 30m. Amplitude increases.
		L_N...	12 33 03	16	.....	.....	.....	
		L_N...	12 57 04	.....	.....	.....	.....	
		L_N...	13 06 58	14–16	.....	.....	.....	
		L_N...	13 07 34	.....	.....	.....	.....	
		L_N...	13 14 ..	.....	.....	.....	.....	
		L_N...	13 38 20	16	.....	.....	.....	
		F.....	17 10 ..	.....	.....	.....	.....	

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

Massachusetts. *Cambridge. Harvard University*—Continued.

Date.	Character.	Phase.	Time.	Period. T.	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1917.			*H. m. s.*	*Sec.*	μ	μ	*km.*	
July 31		S_N?	0 23 51	7				
		eL_N?	0 51 17	30				
		L	0 51 29	24				
		L	0 55 11	24				
		L	1 02 51	15				
		F	1 38 43					
31		*O*	*3 23 58*				8,710	Masked by microseisms.
		P_N	3 35 56					
		P_E	3 36 03	2				
		S_N	3 45 52	10				
		S_E	3 46 05	6				
		i_E	3 48 50	10				
		i_N	3 49 32					
		eL_N	3 52 34					
		eL_E	3 52 53	16				
		F	4 48 17					

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

Date.	Character.	Phase.	Time.	Period. T.	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1917.			*H. m. s.*	*Sec.*	μ	μ	*km.*	
July 25	I_u	iS?	21 35 00					
		F	22 00 ..					
27	III_r	eP	0 07 00				2,500	
		S	0 12 00					
		L	0 14 30					
		M_N	0 15 00	24		10		
		F	1 22 00					
27	III_r	iP_E	2 03 00				4,400	
		S_E?	2 11 30					
		F	2 27 00					
27	II_r	e	7 45 00					
		F	8 00 00					
29	I_u	e	22 19 00					
		F	22 25 00					
31	I_u	e	0 53 00					
		F	1 36 00					
31	I_u	e	1 44 00					
		F	2 04 00					

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 July, 1917, not received.)

New York. *Fordham. Fordham University.* Daniel H. Sullivan, 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 6.6, ϵ 1.5:1; N: V 72, T_0 7.1, ϵ 3.8:1

(Report for July, 1917, not received.)

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

Date.	Character.	Phase.	Time.	Period. T.	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1917.			*H. m. s.*	*Sec.*	μ	μ	*km.*	
July 1		e_N	13 37 03	3				
		e_E	13 37 06	4				
		L_E?	13 39 39	9				
		L_N?	13 40 18	10				
		F_E	13 43 30					
		F_N	13 44 00					

New York. *Ithaca. Cornell University*—Continued.

Date.	Character.	Phase.	Time.	Period. T.	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1917.			*H. m. s.*	*Sec.*	μ	μ	*km.*	
July 4		e_E	1 11 40	9				
		e_N	1 11 41	11				
		eL_E	1 27 18	36				
		eL_N	1 31 13	24				
		F_E	2 09 00					
		F_N	2 17 00					
13		e_N	5 19 20	4				
		e_E	5 22 11	4				
		e_E	5 23 12	4				
		e_N	5 23 22	3				
		F_N	5 30 00					
		F_E	5 30 30					
25		e_N	3 35 28	6				
		eL_N	3 44 32	36				
		F_N	4 28 00					
27		P_N	1 05 55	4				
		S_N	1 10 21	8				
		L_N	1 12 13	16				
		M_N	1 13 50	19		*2,200		
		L_N	1 16 37	14				
		M_N	1 20 03	12		*2,800		
		F_N	2 45 00					
27		eP_N	3 02 27	4				
		S_N	3 12 01	9				
		L_N	3 28 08	28				
		F_N	4 13 00					
27		e_N	16 24 29	7				
		L_N	16 26 20	24				
		F_N	16 56 00					
29		L_N	22 51 43	32				Seismograph not recording during early phases.
		F_N	24 19 00					

* Trace amplitude.

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 10, 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.*	
July 1		M_E	0 24 17					Distance and direction?
		M_N	0 25 18					
11		M_E	7 26 16		*100			Slight movement.
		M_N	7 26 16		*200			
27		P_N	1 04 48				1,815	Direction N?
		P_E	1 04 50					
		S	1 07 46					
		L_N	1 09 16					
		L_E	1 09 24					
		M_E	1 05 06		*9,000			
		M_N	1 07 56			*10,000		
		F_E	2 02 00					
		F_N	2 06 00					
27		P_N	2 59 36				1,945	Direction N?
		P_E	2 59 42					
		L_N	3 05 31					
		L_E	3 05 36					
		M_N	3 05 54			*1,500		
		M_E	3 09 42		*500			
		F_E	3 57 00					
		F_N	4 01 00					

* Trace amplitude.

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

Lat., 18° 08′ 48″ N.; long., 65° 76′ 54″ W. Elevation, 19.8 meters.

Instruments: Two Bosch-Omori.

Instrumental constants.. E: V 10, T_0 17.5; N: V 10, T_0 18

Date.	Character.	Phase.	Time.	Period. T.	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1917.			*H. m. s.*	*Sec.*	μ	μ	*km.*	
July 13		eP_E	5 14 25					
		eS_E	5 14 48					
		eS_N	5 14 55					
		eL	5 15 20	6				
		M_N	5 15 43	5		100		
		M_E	5 15 35		90			
		C	5 17 00					
		F	5 26 00					

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

Porto Rico. *Vieques. Magnetic Observatory*—Continued.

Date.	Character.	Phase.	Time.	Period. T.	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1917.			*H. m. s.*	*Sec.*	*μ*	*μ*	*km.*	
July 27	.....	P.....	1 02 02	.....	.....	.....	.....	Both needles went off the sheet at 1h 03m 10s. Neither instrument was recording during what was probably the maximum part of the disturbance.
		eL_E...	1 02 20	.....	.....	.....	.....	
		eL_N...	1 02 26	.....	7,000	6,800	.....	
		C.....	1 11 00	.....	.....	.....	.....	
		F.....	2 40 00	.....	.....	.....	.....	
27	.....	P.....	16 16 02	.....	.....	.....	.....	The end of the E-W record was confused by wind tremors.
		S.....	16 16 38	.....	.....	.....	.....	
		L.....	16 16 54	.....	.....	.....	.....	
		M_N...	16 17 08	18	.....	720	.....	
		M_E...	16 17 26	15	920	.....	.....	
		C.....	16 21 00	.....	.....	.....	.....	
		F.....	16 26 00	.....	.....	.....	.....	
29	.....	P_E...	6 10 50	.....	.....	.....	.....	Time of phases on E-W uncertain on account of time-marking device not working properly.
		P_N...	6 10 52	.....	.....	.....	.....	
		L_N...	6 11 02	.....	.....	.....	.....	
		L_E...	6 11 06	.....	.....	.....	.....	
		M_N...	6 11 10	.....	.....	50	.....	
		M_E...	6 11 25	.....	70	.....	.....	
		C.....	6 12 00	.....	.....	.....	.....	
		F.....	6 18 00	.....	.....	.....	.....	

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.*	
July 1	.....	S?.....	13 38 20	.....	.....	.....	.....	
		L.....	13 51 00	.....	.....	.....	.....	
		F.....	14 00 ..	.....	.....	.....	.....	
4	.....	L.....	1 38 00	.....	.....	.....	.....	
		F.....	2 15 ..	.....	.....	.....	.....	
25	.....	P.....	3 28 17	.....	.....	.....	6,400	
		S.....	3 36 15	.....	.....	.....	.....	
		L.....	3 45 40	.....	.....	.....	.....	
		L.....	3 50 00	20	.....	.....	.....	
		F.....	4 00 ..	.....	.....	.....	.....	
25	.....	e.....	22 45 12	.....	.....	.....	.....	No phases discernible.
		F.....	23 15 ..	.....	.....	.....	.....	
27	.....	P.....	1 06 38	.....	.....	.....	2,875	
		S.....	1 11 12	.....	.....	.....	.....	
		L.....	1 14 15	.....	.....	.....	.....	
		F.....	2 30 ..	.....	.....	.....	.....	
27	.....	P.....	3 02 21	.....	.....	.....	9,450	
		S.....	3 12 54	.....	.....	.....	.....	
		L.....	3 31 35	.....	.....	.....	.....	
		F.....	4 00 ..	.....	.....	.....	.....	
27	.....	e?.....	16 27 15	.....	.....	.....	.....	
		L.....	16 31 15	.....	.....	.....	.....	
		F.....	17 00 ..	.....	.....	.....	.....	
29	.....	eL.....	15 12 30	.....	.....	.....	.....	
		L.....	15 20 40	24	.....	.....	.....	
		F.....	15 40 ..	.....	.....	.....	.....	
29	.....	e.....	22 13 40	.....	.....	.....	.....	
		L.....	22 32 00	.....	.....	.....	.....	
		L.....	22 57 00	24	.....	.....	.....	
		L.....	23 02 00	20	.....	.....	.....	
30	.....	F.....	0 15 ..	.....	.....	.....	.....	
31	.....	eL.....	0 57 00	.....	.....	.....	.....	
		L.....	1 01 00	20	.....	.....	.....	
		F.....	1 15 00	.....	.....	.....	.....	
31	.....	e.....	3 38 50	.....	.....	.....	.....	
		S?.....	3 44 56	.....	.....	.....	.....	
		L.....	3 55 05	.....	.....	.....	.....	
		F.....	4 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 80kg. 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.*	
July 1	.....	i.....	13 36 59	2	.....	.....	.....	
		i.....	13 37 33	4	.....	.....	.....	
		L_E...	13 48 00	24	.....	.....	.....	
		F.....	14 00 00	.....	.....	.....	.....	
4	.....	*O?....*	*0 48 54*	.....	.....	.....	4,800?	
		eP_E?..	0 57 06	.....	.....	.....	.....	
		iP_N?..	0 57 11	2	.....	.....	.....	
		iS_E?...	1 03 38	.....	.....	.....	.....	
		iS_N?..	1 03 42	.....	.....	.....	.....	
		eL_N?..	1 11 ..	14	.....	.....	.....	
		eL_E?..	1 12 ..	14	.....	.....	.....	
		L.....	1 25 ..	40	.....	.....	.....	
		L.....	1 32 ..	30	.....	.....	.....	
		L.....	1 38 ..	20	.....	.....	.....	
		L.....	1 44 ..	19	.....	.....	.....	
		L.....	1 49 ..	15	.....	.....	.....	
		L.....	2 09 ..	16	.....	.....	.....	
		L.....	2 22 ..	16	.....	.....	.....	
		F.....	2 40 ..	.....	.....	.....	.....	
4	.....	*O?....*	*5 46 55*	.....	.....	.....	4,720?	
		iP?....	5 55 04	.....	.....	.....	.....	
		iS?....	6 01 31	.....	.....	.....	.....	
		eL?...	6 09 00	20	.....	.....	.....	
		L.....	6 32 ..	32	.....	.....	.....	
		L.....	6 37 ..	27	.....	.....	.....	
		L.....	6 42 ..	20	.....	.....	.....	
		L.....	6 45 .. / 7 01 ..	17–14	.....	.....	.....	
		F.....	7 10 ..	.....	.....	.....	.....	
12	.....	eL....	12 41 24	20–25	.....	.....	.....	
		L.....	12 48 ..	22	.....	.....	.....	
		L.....	13 00 ..	18	.....	.....	.....	
		F.....	14 00 ..	.....	.....	.....	.....	
13	.....	*O?....*	*5 16 47*	.....	.....	.....	4,400?	
		eP?...	5 24 34	.....	.....	.....	.....	
		$iPR1_E$	5 25 41	.....	.....	.....	.....	
		$iPR2_E$	5 26 13	.....	.....	.....	.....	
		eS_N?..	5 30 27	8	.....	.....	.....	
		eS_E?..	5 30 31	.....	.....	.....	.....	
		i.....	5 30 50	.....	.....	.....	.....	
		eL....	5 34 12	14	.....	.....	.....	
		L.....	5 40 ..	14	.....	.....	.....	
		F.....	6 00 ..	.....	.....	.....	.....	
15	.....	e_N.....	10 45 00	4	.....	.....	.....	
		e_N.....	10 47 24	4	.....	.....	.....	
		e_N.....	10 50 48	7	.....	.....	.....	
		e_N.....	10 54 32	6	.....	.....	.....	
		eL_N...	11 00 42	16	.....	.....	.....	
		L_N....	11 05 .. / 11 33 ..	20	.....	.....	.....	
		F.....	11 45 ..	.....	.....	.....	.....	
25	.....	*O.....*	*3 19 12*	.....	.....	.....	5,660	
		iP.....	3 28 22	.....	.....	.....	.....	
		iS.....	3 35 40	.....	.....	.....	.....	
		eL....	3 44 18	8	.....	.....	.....	
		L.....	3 50 ..	16	.....	.....	.....	
		L.....	4 10 ..	13	.....	.....	.....	
		F.....	5 00 ..	.....	.....	.....	.....	
25	.....	*O.....*	*22 33 54*	.....	.....	.....	5,710	
		iP.....	22 42 07	.....	.....	.....	.....	
		iS.....	22 49 28	6	.....	.....	.....	
		eL....	22 58 04	8	.....	.....	.....	
		L.....	23 04 ..	16	.....	.....	.....	
		L.....	23 14 ..	7	.....	.....	.....	
		L.....	23 28 ..	7	.....	.....	.....	
		F.....	24 00 ..	.....	.....	.....	.....	
27	.....	*O.....*	*1 01 16*	.....	.....	.....	2,900	
		eP_N...	1 07 02	.....	.....	.....	.....	
		iP_N...	1 07 04	.....	.....	.....	.....	
		iS.....	1 11 39	8	.....	.....	.....	
		eL_E...	1 13 30	20	.....	.....	.....	
		L_E....	1 16 00	14	.....	.....	.....	
		M_N....	1 22 42	12	.....	190	.....	
		L.....	1 30 ..	14	.....	.....	.....	
		L.....	1 55 ..	12	.....	.....	.....	
		L.....	2 07 ..	14	.....	.....	.....	
		L.....	2 38 ..	12	.....	.....	.....	Merges into succeeding quake.

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

Canada. *Ottawa. Dominion Astronomical Observatory*—Continued.

Date.	Character.	Phase.	Time.	Period. T.	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1917.			*H. m. s.*	*Sec.*	*μ*	*μ*	*km.*	
July 27		*O*	*2 51 33*				8,550	
		iP	3 03 23					
		iS	3 13 11					
		eL	3 30 00	24				
		L	3 40 00	20				
		L	3 55 00	17				
		L	4 19 00	15				
		LR1?	5 11 00	18				
		L	5 17 00	14				
		F	6 00 00					
27		*O?*	*16 13 40*				3,550?	
		P?	16 20 24					
		S?	16 25 44					
		eL	16 28 00	17–18				
		L	16 36 00	14				
		L	16 53 00	13				
		L	17 13 00	12				
28		e?	1 30 16					
		eL	1 44 48	18				
		L	1 53 00	12				
		F	2 30 00					
29		*O?*	*14 46 49*				5,300?	
		eP?	14 55 36					
		iP_E	14 55 47					
		S_N	15 02 33					
		eL?	15 11 12	12				
		L	15 15 00	20–24				
		L	15 24 00	24				
		L	15 30 00	19				
		F	16 10 00					
29		P	22 12 48					No record from seismograph. Clock stopped. Record from "Deformation instrument."
		i	22 16 12					
		i	22 25 12					
		i	22 30 36					
		M	22 57 48					
		M	23 52 12					
30		F	1 00 00					
31		e_N	0 20 00					Record masked by microseisms.
		e_E	0 20 28					
		eL?	0 46 00	36				
		L	0 53 00	24–20				
		L	1 00 00	20				
		L	1 05 00	14–18				
		L	1 13 00	14				
		F	1 40 00					
31		*O?*	*3 24 11*				8,000?	Record masked by microseisms.
		iP?	3 35 32	4				
		i	3 39 10	2				
		iS?	3 44 53	2				
		i	3 46 30	6				
		i	3 48 50	6				
		eL_E?	3 54 42	12				
		eL_N?	3 58 00	20				
		L	4 05 00	22				
		L	4 10 00	20				
		L	4 24 00	20				
		L	4 40 00	18				
		F	5 00 00					

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″.

(Report for July, 1917, not received.)

Canada. *Victoria, B. C. Dominion Meteorological Service.*

Lat., 48° 24′ N.; long., 123° 19′ W. Elevation, 67.7 meters. Subsoil: Rock.

Instruments: Wiechert, vertical. Milne horizontal pendulum, North; in the meridian.

Instrumental constant.. T_0 18. Pillar deviation: 1 mm. swing of boom = 0.54″.

(Report for July, 1917, not received.)

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

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..	*V*	T_0	ε
E	13	22	4:1
N	14	25	4:1

Date.	Character.	Phase.	Time.	Period. T.	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1917.			*H. m. s.*	*Sec.*	*μ*	*μ*	*km.*	
June 3		e_N	7 05 26	3				
		F	7 10 30					
3		E_E	19 48 01	5				
		eL_E	20 06 31	23				
		F_E	20 14 00					
4		eS_E	1 46 06	6				
		eS_N	1 46 12	6				
		eL_E	1 57 47	20				
		eL_N	1 58 32	20				
		F_N	2 22 00					
		F_E	2 32 00					
7		L_E	3 19 51	16				
		F_E	3 28 00					
8		e_N	0 57 45	3				
		e_E	1 02 31	4				
		M_E	1 08 46	14	*1,000			
		L_E	3 15 33	14				
		F_N	3 24 00					
		F_E	3 26 00					
9		eL_E	18 00 34	22				
		F_E	18 17 00					
10		e_E	4 39 26	4				
		e_N	4 39 55	5				
		eS_E	4 45 12	10				
		eL_E	4 52 18	15				
		eL_N	4 52 19	16				
		F_N	5 38 00					
		F_E	5 44 30					
12		e_N	2 04 45	2				
		e_E	2 04 46	2				
		L_N	2 05 29	4				
		F_E	2 06 00					
		F_N	2 07 00					
13		e_N	7 07 01	16				
		e_E	7 07 02	8				
		L_N	7 31 50	40				
		L_E	7 38 31	25				
		F_E	9 06 00					
		F_N	9 11 00					
16		eL_E	16 08 32	15				
		F	16 14 30					
24		e_E	20 08 00	5				
		S_E	20 14 07	6				
		i_N	20 14 54	6				
		F_E	20 33 00					
		F_N	21 03 00					
26		eP_E	6 02 59	4				Time clock not correct.
		eP_N	6 03 46	3				
		S_E	6 13 50	8	*1,100			
		i_E	6 16 59	10				
		eL_E	6 38 19	42				
		M_N	6 46 39	20		*3,500		
		M_E	6 50 28	18	*4,100			
		F_E	10 15 00					
27		e_E	12 38 31	10				
		L_E	12 42 28	32				
		F	12 58 00					
28		eL_E	14 50 42	18				
		F	15 01 00					
29		e_N	16 22 51	6				
		e_E	16 23 03	4				
		F_N	16 45 00					
		F_E	17 01 00					
30		eP_N	17 56 22	4				
		S_E	18 02 10	6				
		S_N	18 02 11	5				
		L_E	18 08 22	24				
		L_N	18 12 41	17				
		F_N	18 39 00					
		F_E	18 42 00					

*Trace amplitude.