SECTION V.—SEISMOLOGY.

SEISMOLOGICAL REPORTS FOR MAY, 1915.

W. J. HUMPHREYS, Professor in Charge of Seismological Investigations.

[Dated: Washington, D. C., June 29, 1915.]

TABLE 1.—*Noninstrumental earthquake reports, May, 1915.*

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.*			
1	21 48	Brawley	32 59	115 40	2	1		Faint	Period of unrest continued from April.	M. D. Witter.
3	7 30	Branscomb	39 40	123 40	3	1				A. J. Haun.
3	19 52	Susanville	40 27	120 40	3	2		Rattling	Windows rattled	Geo. H. Taylor.
6	12 10	Branscomb	39 40	123 40	5	1	0 5			A. J. Haun.
	12 10	Eureka	40 48	124 11	2	2	5			U. S. Weather Bureau.
	12 10	Fort Bragg	39 23	123 48	5	1	15			W. F. Fuller.
	12 10	Shively	40 25	123 56	3	2	4			Frank Essig.
11	11 45	Cahuilla	33 32	116 43	4	1		Rumbling		Dr. Wm. L. Shawk.
	11 45	Campo	32 38	116 28	4	1		Rattling		Seth Swenson.
	11 45	Julian	33 05	116 37	5	1	8	Rumbling	Very light shock, 11h	J. H. L. Vogt.
	11 45	Nellie	33 22	116 52	3	1	5	do		W. H. Hargrave.
13	12 00	Aguanga	33 26	116 51	3	1	10	Faint		Mrs. N. C. Matzen.
28	18 30	Glennville	35 40	118 45	2	1			Shook houses	C. H. Likely.
28	18 55	Bakersfield	35 22	119 01	5	2	3		Rocking motion	P. W. Doane.
29	6 45	Fresno	36 43	119 49	2	1			Felt from Merced to Bakersfield	U. S. Weather Bureau.
	6 45	Hot Springs	35 56	118 34	3	3	4			T. E. Evans.
	6 45	Lone Pine	36 37	118 01	5	2	8	Rumbling		G. F. Marsh.
		WYOMING.								
		Yellowstone Park:								
8	16 10	Canyon Station	44 58	110 42	5	3	15		Shook buildings	J. A. Schady.
	16 10	Lake Station	44 56	110 40	5	2	10		Furniture moved	E. E. Brown.
	16 10	Tower Falls	44 50	110 36	5		20			B. Ashcroft.

TABLE 2.—*Instrumental reports, May, 1915.*

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

[For significance of symbols see this REVIEW, December, 1914, p. 689.]

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 kilograms.

Instrumental constants: E: V 10, T_0 17.4; N: V 10, T_0 15.6

Date.	Character.	Phase.	Time.	Period. T	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1915.			*H. m. s.*	*Sec.*	*μ*	*μ*	*Km.*	
May 1		Pe	5 07 54	2				
		S	5 14 08	13				
		L_E	5 19 46	26				
		L_N	5 22 00	23				
		M_E	5 23 04	20	710			
		M_N	5 18 00			650		
		M_N	5 27 26	11		280		
		C_E	5 32 00	18				
		F_E	7 26 00					
6		L_E	12 16 35	16				Preliminary phases uncertain.
		L_N	12 15 20	16				
		M_E	12 17 23	16	90			
		M_N	12 18 50	12		20		
		C_E	12 22 00	10				
		C_N	12 26 00	13				
		F	12 40 00					

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: E: V 10, T_0 16; N: V 10, T_0 19.6

Date.	Character.	Phase.	Time.	Period. T	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1915.			*H. m. s.*	*Sec.*	*μ*	*μ*	*Km.*	
May 1		P	5 11 19	4				
		S	5 20 26	7				
		L	5 29 16	28				
		M_E	5 35 23	22	100			
		M_N	5 36 40	20		40		
		C_E	5 44 00	18				
		F_E	7 36 00	14				
6		P	12 12 42	4				
		eI_E	12 18 41	11				
		eL_N	12 17 42	14				
		M_E	12 19 38	11	100			
		M_N	12 18 54	11		110		
		C_E	12 27 00	8				
		F_E	13 08 00	6				
27		eE	14 22 06	4				Paper being changed on N.
		M_E	14 23 10	4	10			
		C_E	14 25 00					

Arizona. Tuson. Magnetic Observatory—Continued.

Date.	Character.	Phase.	Time.	Period. T	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1915.			H. m. s.	Sec.	μ	μ	Km.	
May 27		e	14 39 20					
		M_E	14 40 24	5	10			
		M_N	14 40 14	4		10		
		C_E	14 46 28	4				
		C_N	14 42 28	4				
27		e	16 38 57	4				
		M_E	16 40 05	5	10			
		M_N	16 39 30	5		10		
		C	16 42 00					
27		e	19 27 03	4				
		M_E	19 28 16	4	10			
		M_N	19 27 40	4		10		
		C	19 30 00					
27		e	19 32 06	4				
		M_E	19 33 01	5	50			
		M_N	19 32 48	5		40		
		C	19 34 00					
27		e	19 49 55	4				
		M	19 51 09	5	30	30		
		C	19 54 00	4				
29		e	6 49 44	4				
		M	6 50 20	5	90	70		
		C	6 53 00	4				
29		e	8 33 34	3				
		M	8 34 10	4	20	20		
		C	8 36 00					

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.

Date.	Character.	Phase.	Time.	Period. T	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1915.			H. m. s.	Sec.	μ	μ	Km.	
May 1			8 30 00		500	100		

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

Lat., 39° 40′ 36″ N.; long., 101° 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.
1915.			H. m. s.	Sec.	μ	μ	Km.	
May 1		L_N	5 31 00	40		7		Good record, but preliminary phases not discernible. Said to have been in Japan, but not confirmed.
		L_E	5 31 00	35	6			
		M_E	5 33 00	35	8			
		M_N	5 34 00	40		9		
		C_E	5 39 00	20?				
		C_N	5 40 00	20?				
		F_E	5 55 00					
		F_N	6 08 00					
4								Activity on E-W from 21h 54m to 22h.
8								Long slender waves on both components from 18h 20m to 19h; especially on E-W.
12								Activity on E-W from 20h 25m to 20h 26m.
13								Activity on E-W from 20h to 20h 10m.
14								Activity on E-W. Visible all day.
22								Broken, irregular waves on E-W from 21h 28m to 21h 34m.
30								Irregular waves on E-W from 16h to 20h 03m.

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

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

Instrument: Marvin (vertical pendulum), undamped. Mechanical registration.

Instrumental constants..... V 110, T_0 6

Date.	Character.	Phase.	Time.	Period. T	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1915.			H. m. s.	Sec.	μ	μ	Km.	
May 1	II_u	iP	5 12 24	3			8,935	
		S	5 22 31	6				
		$SR1_N$	5 24 40					
		$SR2_E$	5 27 56	8				
		$SR3_E$	5 31 38					
		eL	5 36 22	16				
		M_E	5 45 16	20	14			
		M_N	5 45 16	20		14		
		M_E	5 57 30	20	27			Distinct long waves continue for over 3 hours.
		F	10 00 00					
3	I_u	P_N	3 26 40	4			9,190	
		S_N	3 37 00					
		eL_E	3 51 50					
		M_E	4 05 30	18				
		L_N	4 14 00	18				
		F	4 30 00					
3	I_u	P_N	4 24 22				8,875?	Origin presumably the same as that of preceding.
		S_N?	4 34 26					
		L_N	5 14 00	22				
		L_E	5 14 00	22				
		F	5 50 00					
6	I_r	P_N	12 15 43				4,015	
		S_N	12 21 31					
		eL_N	12 25 05					
		M_N	12 30 00	20		14		
		F	13 20 00					
12	I_u	P_N	10 39 58				7,215	All amplitudes very small.
		S_N	10 48 38					
		L_E	11 03 00	24				
		F	11 40 00					
17	I_r	P_N	13 15 10				3,125	All amplitudes very small.
		S_N	13 20 02					
		L_N	13 25 08					
		L_N	13 28 00	16				
		F	13 40 00					
27	I_r	P_N	19 42 03				3,125	Long waves not perceptible. Another quake from 20h 05m to 20h 10m, phases indistinct.
		S_N	19 45 55					
29	I_r	P_N	7 02 55				1,600?	No long waves perceptible.
		S_E?	7 05 41					
		F	7 10 00					
29		e	8 46 57					
		F	8 50 00					
30		P_N	13 32 00				990?	
		S_N	13 33 57					
		L_N	13 34 52					
		F	13 40 00					

District of Columbia. Washington. Georgetown University. F. L. 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.

Instrumental constants: E: V 165, T_0 5.4, ε 0; N: V 143, T_0 5.2, ε 0

Date.	Character.	Phase.	Time.	Period. T	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1915.			H. m. s.	Sec.	μ	μ	Km.	
May 1	I_r	iP_N	5 12 24					P_E less distinct than P_N. S_E much more discernible.
		iP_E	5 12 34					
		S_N	5 22 30					
		S_E	5 22 40					
		M_N	5 44 42	12-18		6		
		M_E	5 45 02	20	11			
		F_N	7 02 32?					
		F_E	?					
5	II_r	eP_N	12 25 42					
		P_E	?					
		S_E	12 29 24					
		S_N	12 29 50					
		L_N?	12 31 43	10		5		
		L_E	12 32 24	10				
		L_N	12 32 47			4		
		F_N	12 39 50					
		F_E	12 45 40					

Hawaii. Honolulu. Magnetic Observatory. U. S. Coast and Geodetic Survey. Wm. W. Merrymon.

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 19.2.

Date.	Character.	Phase.	Time.	Period. T	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1915.			*H. m. s.*	*Sec.*	*μ*	*μ*	*Km.*	
May 1	.....	P.....	5 09 00					
		S.....	5 15 54					
		L.....	5 21 30	25				
		M.....	5 25 00		17,000*			
		C.....	7 04 36					
		F.....	11 05 54					
2	.....	P.....	4 14 24					
		S.....	4 18 18					
		L.....	4 22 18	24				
		M.....	4 25 54		1,200*			
		C.....	4 33 24					
		F.....	5 07 54					
3	.....	P.....	3 29 36					
		S.....	3 33 24					
		L.....	3 37 18	21				
		M.....	3 40 12		2,100*			
		C.....	3 47 54					End covered by beginning of next earthquake.
3	.....	P.....	4 22 48					
		L.....	4 35 06	27				
		M.....	4 40 24		2,800*			
		C.....	4 53 42					
		F.....	7 16 36					
3	.....	e.....	12 31 42					
		M.....	12 51 18		200*			
		P.....	13 10 24					
3	.....	P.....	22 09 18					
		L.....	22 22 00	23				
		M.....	22 26 36		300*			
		C.....	22 31 18					
		F.....	22 55 36					
5	.....	P.....	11 30 18					
		L.....	11 42 18					
		M.....	11 49 42	20	1,000*			
		C.....	11 59 36					
		F.....	12 48 24					
5	.....	eL.....	15 53 24					
		M.....	15 54 24	20	200*			
		F.....	16 15 48					
6	.....	eP.....	12 17 00					
		eL.....	12 23 00					
		M.....	12 25 36	19	1,400*			
		C.....	12 40 00					
		F.....	13 39 00					
8	.....	eL.....	15 09 18	22				
		M.....	15 15 18	19	200*			
		C.....	15 41 54					
		F.....	16 08 12					
12	.....	eP.....	11 41 36					
		eL.....	12 09 00	20				
		M.....	12 33 48		200*			
		C.....	12 44 24					
		F.....	13 05 00					
14	.....	P.....	6 56 42					
		S.....	7 00 12					
		L.....	7 04 00	24				
		M.....	7 06 48	18	800*			
		C.....	7 13 42					
		F.....	7 56 24					
14	.....	eL.....	14 47 00	20				
		M.....	14 54 36		200*			
		F.....	15 10 06					
16	.....	eL.....	17 09 00	18				
		M.....	17 10 48		200*			
		F.....	17 18 00					
16	.....	eL.....	17 50 00	20				
		M.....	17 52 18		200*			
		F.....	18 03 00					
21	.....	eL.....	5 48 30	22				
		M.....	5 53 12		200*			
		F.....	6 11 42					
21	.....	P.....	12 32 54					
		eL.....	12 59 00	20				
		M.....	13 01 30		200*			
		F.....	13 09 12					

* Trace amplitude.

Kansas. Lawrence. University of Kansas. Department of Physic and Astronomy. F. E. Kester.

Lat., 38° 57′ 30″ N.; long., 95° 14′ 58″ W. Elevation, 304.8 meters.

Instrument: Wiechert.

Instrumental constants.. {E: V 121, T_0 3.7, ϵ 3.7; N: V 126, T_0 3.7, ϵ 4.5}

Date.	Character.	Phase.	Time.	Period. T	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1915.			*H. m. s.*	*Sec.*	*μ*	*μ*	*Km.*	
May 1	.....	P.....	5 11 30	2				
		S.....	5 20 53	10				
		L.....	5 36 30	20	28	24		
6	.....	P.....	12 14 21	3				Not certain as to seconds.
		S.....	12 18 45	6				
		L.....	12 22 26	16	7	28		
		F.....	12 56 00					

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 31; N: V 10, T_0 29}

Date.	Character.	Phase.	Time.	Period. T	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1915.			*H. m. s.*	*Sec.*	*μ*	*μ*	*Km.*	
May 1	.....	P_E.....	5 12 23	3				
		P_N.....	5 12 29	3				
		S_E.....	5 22 27	8				
		S_N.....	5 22 42	12				
		L_E.....	5 38 31	20				
		L_N.....	5 39 21	16				Phases on E more clearly defined than on N.
		M_E.....	5 48 50	26	100			
		M_N.....	5 45 40	26		150		
		C_E.....	5 58 ..	16				
		C_N.....	6 06 ..	18				
		F.....	7 04 ..	12				
6	.....	eP_N.....	12 21 55					Phases on E uncertain.
		L.....	12 29 12	14				
		M.....	12 30 12	17	10	50		
		C.....	12 37 ..	10				
		F.....	12 41 ..					

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, undamped (mechanical registration).

Instrumental constants.. {E: V 80, T_0 23; N: V 50, T_0 25}

Date.	Character.	Phase.	Time.	Period. T	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1915.			*H. m. s.*	*Sec.*	*μ*	*μ*	*Km.*	
May 1	.....	*0*.....	4 59 00				8,980	Kurile Islands?
		eP_N.....	5 12 16					
		eP_E.....	5 12 21					
		S_E.....	5 22 25	32				
		SR1?..	5 28 14					
		SR2...	5 28 39					
		eL_E.....	5 37 29					
		M_N.....	5 46 15			114		
		M_N.....	5 50 07			134		
		M_N.....	5 53 41					
		C_N.....	5 57 29					
		F.....	8 17 00					
1	.....	e?.....	9 29 17				3,850?	S? Possibly part of last. No trace on N.
		L_E.....	9 32 31	20				
		L_E.....	9 34 06	16				
		L_E.....	9 36 40	15				
		F.....	9 38 00					
5	.....	*0*?.....	11 17 00				8,730?	*0* from eL–S. P in microseisms.
		S?.....	11 39 31	8				
		eL.....	11 53 50	18				
		L_E.....	12 19 07					
		L_N.....	12 19 31					
		L_E.....	12 20 49	20				
		L_E.....	12 33 31	20–15				
		F?.....	12 50 00					
6	.....	*0*.....	12 08 02				4,820	
		eP_E.....	12 16 26					
		?.....	12 19 55	6				
		S.....	12 22 58					
		eL.....	12 33 44					
		M.....	12 33 59					
		M.....	12 35 14					
		F.....	13 20 00					

0 = Time at origin.

Massachusetts. **Cambridge. Harvard University Seismographic Station**—Continued.

Date.	Character.	Phase.	Time.	Period. T	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1915.			*H. m. s.*	*Sec.*	*μ*	*μ*	*Km.*	
May 8	.....	e.....	14 44 42	.....	.....	.....	.....	Disturbance of uncertain origin.
		to.....	15 10 00	.....	.....	.....	.....	
12	.....	*0*.....	10 29 42	.....	.....	.....	6,075	*0* from eL-P. S not well defined.
		eP_E...	10 39 29	.....	.....	.....	.....	
		eE.....	10 42 14	.....	.....	.....	.....	
		eN.....	10 43 02	8	.....	.....	.....	
		eL_E...	10 55 23	.....	.....	.....	.....	
		L_E...	10 57 04	.....	.....	.....	.....	
		L_E...	10 59 26	24	.....	.....	.....	
		L_E...	11 10 17	15	.....	.....	.....	
		F.....	11 30 00	.....	.....	.....	.....	
21	.....	*0?*.....	4 27 46	.....	.....	.....	8,800?	S uncertain.
		eP_N...	4 40 00	.....	.....	.....	.....	
		eL...	5 04 36	.....	.....	.....	.....	
		L_E...	5 08 09	16	.....	.....	.....	
		L_E...	5 10 30	24	.....	.....	.....	
		L_E...	5 14 00	16	.....	.....	.....	
		F.....	5 30 20	.....	.....	.....	.....	

0=Time at origin.

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:1 5:1

Date.	Character.	Phase.	Time.	Period. T	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1915.			*H. m. s.*	*Sec.*	*μ*	*μ*	*Km.*	
May 1	II_r..	eP.....	5 11 55	.....	.....	.....	8,300	
		eS.....	5 21 33	.....	.....	.....	.....	
		L.....	5 35 00	.....	.....	.....	.....	
		M_E...	5 42 12	24	50	.....	.....	
		M_N...	5 43 09	21	.....	38	.....	
		M_E...	5 44 18	19	38	.....	.....	
		M_N...	5 46 15	18	.....	50	.....	
		F.....	7 00 00	.....	.....	.....	.....	
6	I_r...	eP.....	12 15 01	.....	.....	.....	3,300	
		eS?....	12 20 03	.....	.....	.....	.....	
		L_N...	12 23 00	.....	.....	.....	.....	
		L_E...	12 24 00	.....	.....	.....	.....	
		M_E...	12 25 15	11	12	.....	.....	
		M_N...	12 25 24	12	.....	62	.....	
		F.....	12 50 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: ————.

[Report for May, 1915, not received.]

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

Lat., 40° 57′ 47″ N.; long., 73° 53′ 08″ W. Elevation, 23.9 meters.

Instrument: Wiechert 80 kg.

Instrumental constants.. T_0 E..6.6, N..7.1

Date.	Character.	Phase.	Time.	Period. T	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1915.			*H. m. s.*	*Sec.*	*μ*	*μ*	*Km.*	
May 1	II_u..	iP_N...	5 07 54	.....	.....	.....	.....	Trace of E-W component from 5h 08m 15s till 5h 33m 00s lost through defective smoking of record.
		P_N...	5 08 02	8.4	.....	6	.....	
		P_N...	5 08 17	10.2	.....	7	.....	
		iP_E...	5 07 54	.....	.....	.....	.....	
		P_E...	5 07 59	3.0	2	.....	.....	
		$PR1_N$.	5 10 49	11.4	.....	5	.....	
		$PR2_N$.	5 12 39	10.2	.....	4	.....	
		iS_N...	5 17 41	.....	.....	.....	.....	
		S_N...	5 18 12	7.2	.....	15	.....	
		S_N...	5 18 52	16.0	.....	66	.....	
		$SR1_N$..	5 23 35	.....	.....	.....	.....	
		$SR2_N$..	5 26 46	.....	.....	.....	.....	
		$SR2_N$..	5 27 36	20.0	.....	35	.....	
		L_N...	5 32 24	11-22	.....	.....	.....	
		$M1_N$...	5 41 05	21.0	.....	170	.....	

New York. **Fordham. Fordham University**—Continued.

Date.	Character.	Phase.	Time.	Period. T	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1915.			*H. m. s.*	*Sec.*	*μ*	*μ*	*Km.*	
May 1		$M2_N$...	5 45 37	19.0	.....	180	.....	
		M_E...	5 50 23	22.0	350	.....	.....	
		C_E...	5 57 00	.....	.....	.....	.....	
		C_N...	6 00 00	.....	.....	.....	.....	
		F_N...	7 55 00	.....	.....	.....	.....	
		F_E...	7 55 00	.....	.....	.....	.....	
3	I....	eL_N...	5 07 34	.....	.....	.....	.....	
		F_N...	5 23 34	.....	.....	.....	.....	
	I....	eL_N...	6 06 30	.....	.....	.....	.....	
		M_N...	6 10 51	23.0	.....	13	.....	
		L_E...	6 09 30	.....	.....	.....	.....	
		F_N...	6 17 00	.....	.....	.....	.....	
5	I....	L_N...	12 17 04	18.0	.....	.....	.....	
		F_N...	12 25 34	.....	.....	.....	.....	
6	I....	eP_N?..	12 09 06	.....	.....	.....	.....	
		eL_E?..	12 09 13	.....	.....	.....	.....	
		S_E?...	12 14 44	.....	.....	.....	.....	
		S_N?...	12 14 59	.....	.....	.....	.....	
		L_N...	12 20 40	.....	.....	.....	.....	
		L_E?...	12 24 25	.....	.....	.....	.....	
		$M1_N$...	12 25 54	19.0	.....	20	.....	
		$M1_E$...	12 27 00	10.0	5	.....	.....	
		$M2_N$...	12 27 22	11.0	.....	19	.....	
		$M2_E$...	12 27 28	12.0	10	.....	.....	
		F_N...	13 00 00	.....	.....	.....	.....	
17	I....	P_N?...	16 12 08	4.0	.....	.....	.....	
		P_E?...	16 12 11	3.0	.....	.....	.....	
		S_N?...	16 16 55	4.0	.....	.....	.....	
		eL_N...	16 21 35	20.0	.....	.....	.....	

Panama Canal Zone. Balboa Heights. Isthmian Canal Commission.

Lat., 8° 57′ 39″ N.; long., 79° 33′ 23″ W. Elevation, ——.

Instruments: Two Bosch-Omori 25 kg.

Instrumental constants.. V 8, T_0 20

[No earthquake recorded during May, 1915.]

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.. V E..10, N..10; T_0 15, 16

Date.	Character.	Phase.	Time.	Period. T	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1915.			*H. m. s.*	*Sec.*	*μ*	*μ*	*Km.*	
May 1	II_u	IP_N...	5 12 11	.....	.....	.....	8,755	
		S_N...	5 22 09	.....	.....	.....	.....	
		$SR2_E$.	5 27 17	.....	.....	.....	.....	
		$SR2_E$.	5 27 25	.....	.....	.....	.....	
		L_N...	5 44 30	28	.....	.....	.....	
		M_N...	5 45 45	.....	.....	45	.....	
		M_N...	5 51 00	.....	.....	55	.....	
		M_N...	5 54 15	28	.....	55	.....	
		M_N...	5 58 15	.....	.....	45	.....	
		F.....	9 00 00	.....	.....	.....	.....	
3	.....	P_N?..	3 26 31	.....	.....	.....	.....	
		S_N...	3 36 40	.....	.....	.....	.....	
		M_N...	4 05 00	18	.....	.....	.....	
		F?....	4 20 00	.....	.....	.....	.....	Second earthquake beginning about 4h 24m, continued until 5h 30m.
5	.....	P_N?..	11 32 00	.....	.....	.....	.....	Record faint; phases doubtful.
		F.....	12 00 00	.....	.....	.....	.....	
6	.....	P_N...	12 15 16	.....	.....	.....	5,165?	
		S_N?...	12 22 07	.....	.....	.....	.....	
		L_N...	12 25 20	16	.....	.....	.....	
		F.....	13 20 00	.....	.....	.....	.....	
27	.....	L_N...	19 50 30	.....	.....	.....	.....	
29	.....	P_N?...	7 03 07	.....	.....	.....	1,700?	No long waves visible.
		S_N?...	7 05 12	.....	.....	.....	.....	
		F.....	7 12 00	.....	.....	.....	.....	

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

Lat., 42° 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.
1915.			*H. m. s.*	*Sec.*	*μ*	*μ*	*Km.*	
May 1	.....	iP	5 11 56	3			8,420	The L waves continue for over 4 hours, hence must show some LRs. The average speed of the L waves is about 220 km./min.; but this velocity does not fit in very well; 270 km./min. fits best, hence, and for other reasons, the Ls are interpreted as the various LR's.
		S	5 21 37	6				
		eL	5 33 05	44				
		M_N	5 43 03	24		65		
		M_N	5 48 03	20		70		
		M_E	5 52 00	20	65			
		M_N	5 53 00	18		80		
		L	5 56 00–	18				
			6 16 00	18				
		L	6 29 00	16				
		L	6 49 00	12				
		LR1	6 58 00	12–16				
		L	7 21 00	20				
		L	7 27 00	13				
		L	7 43 00	18				
		LR2	7 59 00	20				
		L	8 21 00	18				
		LR3	9 25 05	20				
		L	9 38 00	16				
		F	9 50 00					
2	.....	P_N?	4 10 19	2			9,280?	
		PR1?	4 13 54					
		PR2?	4 16 10					
		S?	4 20 43	6				
		eL	4 37 09	20				
		L	4 39 00	20				
		L	4 43 00–	18				
			4 50 00	18				
		L	4 52 00–	16–14				
			5 02 00					
		F	5 15 00					
3	.....	P	3 26 14				8,640	
		S	3 36 08					
		L	3 50 05	30				
		L	3 55 00	18				
		L	4 04 00–	14				
			4 20 00	14				
		i_N	4 24 47	4				i_N apparently another quake, but no S shows.
		L	5 00 00	40				
		L	5 06 00	30				
		L	5 14 00	20				
		L	5 28 00	18				
		F	6 10 00					
5	.....	P_N?	11 32 08				8,000?	
		eL	11 53 00	40				
		L_E	12 12 00	24				
		L_N	12 15 03	30				
		L	12 18 00–	20–18				
			12 38 00					
		F	13 00 00					
6	.....	P	12 16 15	4			3,960	
		S	12 22 00	10				
		L_E	12 27 05	30				
		L_N	12 27 06	40				
		M_N	12 29 07	14		50		
		M_E	12 32 00	14	45			
		L	12 34 00	8				
		L	12 42 00	8				
		F	13 30 00					
8	.....	L_E	14 41 00	30				L_N masked by microseisms.
		L_E	14 57 00	16				
		F	15 10 00					
12	.....	P_E?	10 40 13				6,500?	
		S_N?	10 49 07	6				
		L_N	10 57 00	28				
		L_E	11 04 06	20				
		L_N	11 05 06	20				
		L	11 11 00–	18–14				
			11 36 00					
		F	12 00 00					
14	.....	e	6 52 49					Phases difficult to read.
		L	7 21 00	18				
		L	7 25 00	17				
		L	7 31 00	14				
		L	7 47 00	14				
		F	8 00 00					
17	.....	P_N	13 17 23	4			2,740?	
		S_N?	13 21 47	8				
		L_N	13 26 02	14				
		L_E	13 27 00	20				
		L	13 29 00	20				
		F	13 50 00					

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

Date.	Character.	Phase.	Time.	Period. T	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1915.			*H. m. s.*	*Sec.*	*μ*	*μ*	*Km.*	
May 18	.....	e_N	14 56 11				5,600?	
		S_E?	15 03 27	6				
		eL	15 10 03	20				
		L	15 13 00	16				
		F	15 20 00					
21	.....	e_N?	4 43 20				7,000?	N somewhat masked by microseisms.
		e_E	4 43 24					
		e_N	4 44 12					
		eL_N	5 01 05	40				
		L_N	5 05 06	30				
		L	5 09 00	20				
		L	5 13 00–	18–14				
			5 24 00					
		F	5 35 00					
29	.....	eL	0 35 03	20				
		L	0 37 00	16				
		F	0 45 00					
29	.....	e_N	7 03 00					
		e_E	7 03 05	6				
		L_E	7 06 00	10				
		F	7 15 00					
29	.....	eL_N	8 47 08	20				
		L_E	8 50 00	10				
		F	8 53 00					
30	.....	e	13 31 38	2–3				
		L?	13 32 00	7				
		F	13 40 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 = 0.59″.

[Report for May, 1915, not received.]

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

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

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

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

[Report for May, 1915, not received.]

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

Missouri, **Saint Louis. St. Louis University,** Geophysical Observatory.

J. B. Goesse, S. J.

Lat., 38° 38′ 15″ N.; long., 90° 12′ 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:1 5:1

Date.	Character.	Phase.	Time.	Period.	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
1915.			*H. m. s.*	*Sec.*	*μ*	*μ*	*Km.*	
Apr. 23	I_r	eP	15 37 18				4,450	Record on N-S component too slight for analysis.
		iS	15 43 30					
		L_E	15 46 00					
		M_E	15 46 04	5	25			
		F	15 55 00					