

RECORD

OF THE

Seismographic Station, Department of Geology and Geography

HARVARD UNIVERSITY, CAMBRIDGE, MASS., U.S.A.

LATITUDE 42° 22' 56" N., LONGITUDE 71° 06' 59" W. Greenwich; ALTITUDE 5.367 M.

TIME: Mean Greenwich, midnight to midnight.

INSTRUMENTS: Two Bosch-Omori horizontal pendulums (mechanical registration).

 From Jan'y 14th, 1914 to Jan'y 31, 1914

No.	Date	Comp.	Phase	Time			Periods	Amplitudes	REMARKS
				h.	m.	s.			
357	Jan. 8		EeP?	12	23	41			Jan. 5th No record E-W from 3h 50m to 13h 57m Stylus against rim of drum during eastern elongation of diurnal wave. L-P Dist. 3500? Kms. P to F in micros. 3 waves With local jars.
			eS?	12	29	48			
			L	12	31	48	30		
				12	54	46	30		
			?	13	05	26	15		
		F	13	57					
358	" 13		NSM	10	21	47	?	N2.50	Local frost-crack (?) origin N.E.
			NF	10	21	49			
359	" 13		NSM	12	14	26	?	N1.0	do do(?) origin N.W.?
			NF	12	14	32			
360	" 14		NM	0	46	02			do do(?) origin.
			F	0	46	04			
361	" 14		EM	4	44	36	0.85	29.W	do do(?) origin SW of station. Condition of station: bare ground 6-8° below 0°F (-21° to -22°C).
				4	44	46			



RECORD

OF THE

Seismographic Station, Department of Geology and Geography

HARVARD UNIVERSITY, CAMBRIDGE, MASS., U. S. A.

LATITUDE 42° 22' 56" N., LONGITUDE 71° 06' 59" W. Greenwich; ALTITUDE 5.367 M.

TIME: Mean Greenwich, midnight to midnight.

INSTRUMENTS: Two Bosch-Omori horizontal pendulums (mechanical registration).

From Jany 15th, 1914

to Jany 31, 1914

No.	Date	Comp.	Phase	Time			Periods	Amplitudes	REMARKS
				h.	m.	s.			
362	Jan. 30		N+P	3	47	58	4		S-P equals 9m36s; 7325 kms. t0:10h 37m 25s.
			L	4	13	10	22		
			eM	4	18	14	22		
			F	4	57	ca			
			EP	3	48	04	2		
			S	3	57	40	14	2.0	
			eL	4	09	36	20		
					17	05	22		
			M?		26	01	18	1.0	
		F	5	44	ca				



RECORD

OF THE

Seismographic Station, Department of Geology and Geography

HARVARD UNIVERSITY, CAMBRIDGE, MASS., U. S. A.

LATITUDE 42° 22' 56" N., LONGITUDE 71° 06' 59" W. Greenwich; ALTITUDE 5.367 M.

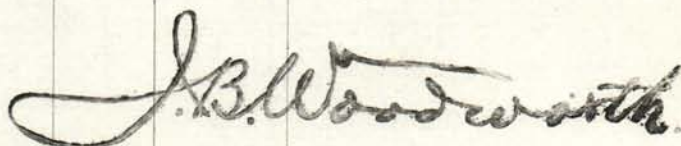
TIME: Mean Greenwich, midnight to midnight.

INSTRUMENTS: Two Bosch-Omori horizontal pendulums (mechanical registration).

From Feb. 1, 1914

to Feb. 1³, 1914

No.	Date	Comp.	Phase	Time			Periods	Amplitudes	REMARKS
				h.	m.	s.			
Addendum 361a	Jan. 20		e	12	21	44		imp.	Please note after 361 on Sheet 1, 1914. In micros. 6 secs. per.
			eLE?	12	35	30			
			F	12	45	04	20		
				13	00				
363	Feb. 10		eP	18	32	03			Thickening of line.
			N	18	32	11	0.4		
				18	32	43	0.5		S(L)-P, 48 secs., 435 kms.
			SL	18	32	51	16		
				18	33	07	6		
			M	18	33	22			
			C	18	33	37			
			F	18	36	32			
			eP _F	18	32	04	0.4		Thickening of line. Rapid vibrations of stylus set in.
				18	32	11			
				18	32	40	0.5		
	18	32	51	8					
	18	33	07						
		M			11				
					13				
					18				
		F	18	33	31			F for rapid vibration. Earthquake felt from Montreal to New York; Boston to Buffalo. Slight motion, swinging of open doors, on 5th floor of Mus. Comp. Zool. at Cambridge, Mass. Intensity ca. II Rossi-Forel Scale-Motion reported stronger to W and NW. Frost crack?	
			18	40					
364	Feb. 12		M _E	2	32	36	0.5		
			F	2	32	38			
365	Feb. 12		M _N	7	37	52?			Frost crack? Temperature ca -10F. (-28C.)
			F	7	38	00?			



RECORD

4

OF THE

Seismographic Station, Department of Geology and Geography

HARVARD UNIVERSITY, CAMBRIDGE, MASS., U.S.A.

LATITUDE 42° 22' 56" N., LONGITUDE 71° 06' 59" W. Greenwich; ALTITUDE 5.367 M.

TIME: Mean Greenwich, midnight to midnight.

INSTRUMENTS: Two Bosch-Omori horizontal pendulums (mechanical registration).

From Feb. 14, 1914

to Feb. 28, 1914

No.	Date	Comp.	Phase	Time			Periods	Amplitudes	REMARKS
				h.	m.	s.			
366	Feb. 14		P _N	9	29	56?		μ mm	Tremors like P. (Qr. Quebec 5:40 a.m. 75° time W not recorded.
			F _N	9	30	23?			
			P _N	9	30	23			
			F	9	31	57			
367	Feb. 26		eP _N	5	08	19	3		6675 kms. 0:4h 58m 27secs. Aleutian Ids ?
			S	5	08	49	3		
			eP _e	5	16	31	5		
			S	5	08	17	3		
			L	5	16	28	10		
			L	5	24	47	16		
			F	5	37	58	18-20		
368	Feb. 28		eP _N	5	08	02			2470 kms. 0:5h 3m 12s West India Ids.?
			eP _E	5	08	09			
			i	5	08	13	6		
			S _E	5	12	05	6		
			S _N	5	12	29	6		
			L _E	5	15	07	4 7		
			L _N	5	19	15			
			F _N	5	21	02			
369	Feb. 28		eP _E	5	12	05			2nd Quake? in Coda of 368.
			eP _N						



RECORD

OF THE

Seismographic Station, Department of Geology and Geography

HARVARD UNIVERSITY, CAMBRIDGE, MASS., U. S. A.

LATITUDE 42° 22' 56" N., LONGITUDE 71° 06' 59" W. Greenwich; ALTITUDE 5.367 M.

TIME: Mean Greenwich, midnight to midnight.

INSTRUMENTS: Two Bosch-Omori horizontal pendulums (mechanical registration).

From March 1, 1914 to March 6, 1914.

No.	Date	Comp.	Phase	Time			Periods	Amplitudes	REMARKS
				h.	m.	s.			
Addendum to February 1914.									
362a	Feb. 10		eS _E	16	35	25			4100 ? kms. In micros. Read after Ottawa.
			L	16	39	09			
			F	17	12	40			
370	Mch. 1		M	10	15	23	0.5		Like small vibrations due to frost cracks; but not freezing weather at time. E:i to E then pendulum slowly shifted W to a new zero line after 1.5 mins. (1.8 mm. on record).
			F	10	15	24			
371	4		e _E	15	57	36			Phases masked by micros.
			eL	16	17	59	46		10000 kms. plus.
					21	48	22		
			M?		23	46	22		(Not recorded N-S damped 4:1).
					43	20	16		
				17	05	48	20-16		Cf. Vienna P16-C8.8
			F?		16	14			
372	4		e?						
			eL _E	19	48	35			Cf. Vienna eL 19.40
			to	19	49	41			Record masked by micros.
			L _E	19	55	31			
			to	19	58	05			
			F?						Lost in pulsations.
373	5		eE?	18	12	21			Cf. Vienna P 18-02-20
			F	18	18	32			
374	6		e?						e and F in micros.
			eS?	19	39	42			
			eL?	19	54	15	20		Cf. Vienna P 19-16-56
				20	02	45	12-14		do P 19-27-44
			to	20	09	00			do P 20-56-54
			F?						

J. B. Woodworth

RECORD

OF THE

Seismographic Station, Department of Geology and Geography

HARVARD UNIVERSITY, CAMBRIDGE, MASS., U. S. A.

LATITUDE 42° 22' 56" N., LONGITUDE 71° 06' 59" W. Greenwich; ALTITUDE 5.367 M.

TIME: Mean Greenwich, midnight to midnight.

INSTRUMENTS: Two Bosch-Omori horizontal pendulums (mechanical registration).

From March 7, 1914

to March 31, 1914

No.	Date	Comp.	Phase	Time			Periods	Amplitudes	REMARKS	
				h.	m.	s.				
375	Mch. 27		eN	1	16	38	6, 8 10 18, 16, 14		Both pendulums undamped. and so during remainder of March. E-W illegible in tangled lines.	
					1	33				00
					1	33				08
					1	34				16
			F	2	09					
375a	28		eL _n	15	40	17			Not shown E-W Period too long for microseisms.	
					15	41				18
376	30		eS _N ?	0	47	41	20 23 20 19 -- 20 15 20 30 23 19 17 17 17 --	6.5 19. 22.5 -- -- 19.5	Both pendulums undamped. L-S = 5.6 mins. = 5000 but S may be P, and L may be S. when S-P = 5m 37s & distance = 3825 kms. 1-03-47 stylus off drum to 1-07-33. A = 1/2 range on record. E steady mass drifted E at 1-00-35 S may be P and L, S. The N record looks as if it were one whole phase in advance of the E record. Microseisms 3-4s period at beginning-I am inclined to think the record begins with P at 0-47-41 and S at 0-53-18 though the N record from 0-53-18 is decidedly sinusoidal and closely resembles L waves.	
			L?	0	53	18				
			M	0	55	16				
			M	1	01	31				
			M	1	03	45				
				--	--	--				
			M	1	08	26				
			C			15				
			eS _E ?	0	47	45				
			L?	0	53	23				
L	0	59	11							
M	1	00	35							
M	1	02	17							
M	1	03	47							
M	1	03	47							
M	1	05	20							
C	1	06	58							
F	2	50	ca							



RECORD

OF THE

Seismographic Station, Department of Geology and Geography

HARVARD UNIVERSITY, CAMBRIDGE, MASS., U. S. A.

L³
LATITUDE 42° 22' 56" N., LONGITUDE 71° 06' 59" W. Greenwich; ALTITUDE 5.367 M.

TIME: Mean Greenwich, midnight to midnight.

INSTRUMENTS: Two Bosch-Omori horizontal pendulums (mechanical registration).

April 1st, 1914

April 30th, 1914

From

to

No.	Date	Comp.	Phase	Time			Periods	Amplitudes mm.	REMARKS
				h.	m.	s.			
376a	Apr. 9		eP _N ?	4	24	36			L _E - eP _N ? 11m 20s. 7450kms?
				4	24	54	3		
			eL	4	36	40	22		
				4	45	12	16		
			F	5	13				
			L _E	4	35	44	24		
				4	45	12	20		
			F	5	20	04			
377	11		e?						e lost in microseisms L-S : 22m 52s :: 12000 kms.
			S _E	16	57	45	8		
			eL	17	30	37	28		
				17	37	13	30		
378	11		eL _E	18	35	03	20		64m 29s after L of No.377.
				18	37	47	20		
379	20		P _N	13	37	07	2		4100 kms.
			S _N	13	43	00	6		
			L	13	48	57	15		
			P _E	13	37	21			
			iS _E	13	43	10	6		
			L	13	46	13?			
				13	51	38	12-16		
F	15	00	ca						

J. B. Woodworth.

HARVARD UNIVERSITY, CAMBRIDGE, MASS., U.S.A.

RECORD OF THE SEISMOGRAPHIC STATION

DEPARTMENT OF GEOLOGY AND GEOGRAPHY

 $\phi = 42^{\circ} 22' 36''$ N. $\lambda = 71^{\circ} 06' 59''$ W. Gr. h = 5.367 M. FOUNDATION: Glacial sand over clay.

TIME: Mean Greenwich, midnight to midnight.

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

No.	Date	Phase	Time	Periods	Amplitudes	Δ	REMARKS	
			h. m. s.	s.	μ .	Kms.		
380	Apr. 24	e _L	8 51 56					
			8 52 36	6				
			8 52 49	4-5			A increases.	
			8 56 02				LL become faint.	
		e _L	8 50 44					
			8 51 53	4				
		F	8 52 28	14				2 waves
			8 55 40	8				
			8 59 44					LL become faint
			9 12 14					
381	May 19	eP _L ?	5 29 09	4				
			5 45 22	20			Very faint	
		F	5 50 01	17				
			6 05 10					
382	May 26	e?N	14 37 18				e? or microseisms.	
			14 45 23	2-3			Beginning doubtful.	
		i	14 46 25	2-4			Line thrown from W?	
			14 57 46	8				
		L	15 09 13				12000 kms. plus.	
			15 29 18	30				
			15 32 55	20				
			15 41 26	20				
			16 27 06	16				
			16 34 26					
		F	14 44 17	10				Undamped pendulum-
			15 06 52	15				e marked by allotro-
			15 30 42	22				centric motion.
						Phases not clearly		
						decipherable before		
						15-30-42.		
383	May 27	P _E	3 30 39	3			Qf Isthmus of Panama	
			3 31 41	3				
		S	3 35 46	6.5				
			3 39 09	16				
		F	4 08 09					
			3 30 39	3			3580 S-P, 5m. 22s.	
		S _N	3 35 01	7				
			3 40 37	15				
F	3 55 09							

N.B.:— Please note correction of misprint in the latitude of this Station as heretofore given in this record. The figures given above are correct to the nearest second. Vd. Second Annual Report of the Harvard Seism. Station, in Annual Report of the Curator of Museum of Comparative Zoology for 1909-10. Cambridge, 1910, p. 29 (out of stock), Professor Woodworth will be engaged in geological field-work in the Rocky Mountains of Montana during July and August. The records for these months will be issued upon his return in September.

J. B. Woodworth

HARVARD UNIVERSITY, CAMBRIDGE, MASS., U.S.A.

RECORD OF THE SEISMOGRAPHIC STATION
 DEPARTMENT OF GEOLOGY AND GEOGRAPHY

Station No. 3580 E-P, Cambridge, Mass.
 Instrument used: Woodworth-Smith 100 lb. pendulum seismograph

Time	Amplitude	Remarks
04		
05		
06		
07		
08		
09		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		
45		
46		
47		
48		
49		
50		
51		
52		
53		
54		
55		
56		
57		
58		
59		
60		
61		
62		
63		
64		
65		
66		
67		
68		
69		
70		
71		
72		
73		
74		
75		
76		
77		
78		
79		
80		
81		
82		
83		
84		
85		
86		
87		
88		
89		
90		
91		
92		
93		
94		
95		
96		
97		
98		
99		
100		

U.S.G. - Please note correction of amplitude in the records of this station on September 21st in this record. The original record shows an error of 10% in the largest record. The second annual report of the Harvard Seismological Station, published in the Bulletin of the Harvard Seismological Station, Vol. 1, No. 1, 1907, contains a list of the records of this station for the year 1906. The records of this station for the year 1906 are given in this record. The records of this station for the year 1907 are given in the next record.

3580 E-P, Cambridge, Mass.
 1906

HARVARD UNIVERSITY, CAMBRIDGE, MASS., U. S. A.

RECORD OF THE SEISMOGRAPHIC STATION

DEPARTMENT OF GEOLOGY AND GEOGRAPHY

 $\phi = 42^{\circ} 22' 36''$ N. $\lambda = 71^{\circ} 06' 59''$ W. Gr. h = 5.367 M. FOUNDATION: Glacial sand over clay.

TIME: Mean Greenwich, midnight to midnight.

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

No.	Date	Phase	Time	Periods	Amplitudes	Δ	REMARKS
384	May 28	eL _N F _N eL _E F _E	18 ^h . 20 ^m . 04 ^s 18 26 08 18 17 ca 18 35	s.	μ .	Kms.	e in microseisms and Unruhe.
385	May 29	eL _E F	5 27 13 5 31 33 5 47 13 5 57 57 6 02 36 6 09 22 6 47 12 6 56	20 20 13 32 20 20 15			Not recognizable N-S damped 4-1 plus or minus. -28-245
386	June 18	L? to	21 22 48 21 27 31 21 32 43	14			e in local disturbances F lost in local disturbances
?	June 19	--	-----	--	-----	----	Disturbances from ca 8h to 9h on E-W comp. but stylus was dragging fuzz
387	June 20	P _E S? L M C F	7 40 45 7 58 00 8 17 37 8 24 17 8 25 05 8 27 41 9 53			12400?	Undamped pendulum. A 1.5mm on record.
388	June 20	eP? _E S? L F	10 56 43 11 10 09 11 22 04 11 27 29 11 30 23 11 56 ca	2 6 30 20 17			Same epic. as 387(?) A weak. N-S damped 4:1 gave microseisms only.
389	June 21	eE eLE F?	0 38 13 0 40 25 0 40 46 0 45 32 0 50 34 0 57 10 0 57 41 1 00 43 1 00 48				Masked by micros 3s pd.

J. B. Woodworth.

HARVARD UNIVERSITY, CAMBRIDGE, MASS., U. S. A.

RECORD OF THE SEISMOGRAPHIC STATION

DEPARTMENT OF GEOLOGY AND GEOGRAPHY

 $\phi = 42^{\circ} 22' 36''$ N. $\lambda = 71^{\circ} 06' 59''$ W. Gr. $h = 5.367$ M. FOUNDATION: Glacial sand over clay.

TIME: Mean Greenwich, midnight to midnight.

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

No.	Date	Phase	Time		Periods	Amplitudes	Δ	REMARKS
			h. m. s.	s.				
390	June 21	e?						e in uncertain motion
		L _E	18 43 41	26				
		F	18 53 24					Not shown N-S on damped component.
391	23	e?						
		L _E	3 45 36	17				
		F	3 52 56	16				
			4 20 ca					Not shown N-S on damped component
392	25	eP _E	19 26 42	2			16,000	Qr. S. Sumatra
		S	19 41 13	8				
			19 47 54	15				
		L	19 11 09	53				
		M	20 15 05	52	2.6mm			
			20 18 22	36	3.3mm			
			20 24 55	29				
			F	22 10 ca				
393	26	e?						
		eL _E	4 08 45	20				Faint
		F	4 12 24					
			4 53 30					
394	26	e?						
		L _E	5 27 01	20				In pulsations
		F	5 47 57	30				
			7 38					

J. B. Woodworth.

HARVARD UNIVERSITY, CAMBRIDGE, MASS., U. S. A.

RECORD OF THE SEISMOGRAPHIC STATION

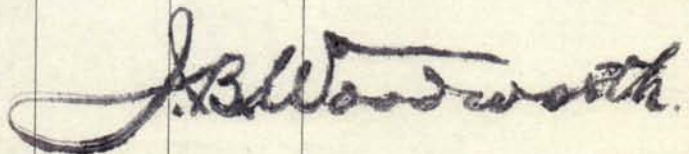
DEPARTMENT OF GEOLOGY AND GEOGRAPHY

 $\phi = 42^{\circ} 22' 36''$ N. $\lambda = 71^{\circ} 06' 59''$ W. Gr. $h = 5.367$ M. FOUNDATION: Glacial sand over clay.

TIME: Mean Greenwich, midnight to midnight.

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

No.	Date	Phase	Time	Periods	Amplitudes	Δ	REMARKS
395	July 3	e? eL F?	h. m. s. 21 05 03? 21 37	s. 15	μ .	Kms.	e in micrseisms Seconds uncertain. F in micros.
396	4	eP? S L F	23 54 56 23 59 36 0 02 53 0 03 54 1 01	8 25		1960?	
397	5	eL L L F	22 49 11 22 54 40 23 02 16 23 56	20 19			e? cf. Graz 22 10 22
398	6	e L F	3 22 14 3 22 54 3 25 18 3 29 45	8 7			
399	6	eP _E ? S? L F	4 11 34 4 15 01 4 17 30 4 22 03	4 7 10			
400	14	eP _E S? L M F	3 31 36 3 39 26 4 04 22 4 43 22 4 44 26 5 20 ca	4 5 12-17 16 17		6350 plus ?	
401	17	eP _E ? eL eM F	7 17 41 7 34 12 7 37 53 7 41 31 7 46 49 8 41 44	28 20 20	(0.37mm)	6300?	L-P? equals 16m 31s.



No. 12

From July 21

to Aug. 18

191

HARVARD UNIVERSITY, CAMBRIDGE, MASS., U. S. A.

RECORD OF THE SEISMOGRAPHIC STATION
DEPARTMENT OF GEOLOGY AND GEOGRAPHY

$\phi = 42^{\circ} 22' 36''$ N. $\lambda = 71^{\circ} 06' 59''$ W. Gr. h = 5.367 M. FOUNDATION: Glacial sand over clay.
TIME: Mean Greenwich, midnight to midnight.
INSTRUMENTS: Two Bosch-Omori 100 kg. horizontal pendulums (mechanical registration).

No.	Date	Phase	Time	Periods	Amplitudes	Δ	REMARKS
402	July 21	eP [?] _E	22 ^h 38 ^m 25 ^s	2	"	Kms. 4280	
		S	22 44 28	6			
		L	22 52 27	9			
		M	22 55 17	10	(1.5mm)		Rayleigh waves characterized by short periods-ca 10 secs. 6 secs. to ca 23h 25m
		F	23 47 25				
		LN	22 52 10	6			
403	Aug. 3	PN	11 30 48			2770	Qf. Kingston, Jamaica, W.I.I.
		S	11 35 12				Seconds uncertain for E
		eLe	11 40 21?				F lost in micros.
		F?	-- -- --				
404	Aug. 4	eE	9 41 51				
		eL?	10 02 36	20			
		L	10 04 06				
		F	10 25 ca				
405	Aug. 4	eP _N	23 05 23				Damping 4:1
		S?	23 10 44				
		L	23 14 45	24			
	5	F	0 25				
	Aug. 4	P _E	23 05 20			2770?	
		S?	23 09 46	6			
			23 12 49				
		L	23 23 00	15			
			23 23 38	40			
		M	23 27 26		(1.7mm)		Undamped component.
			23 28 22	36			
			23 33 18		(1.6mm)		
			23 35 31	20			
			23 38 10	17			
	Aug. 5	F	0 49				
406	Aug. 8	P _N	19 16 09				
			19 16 20	4			
		S	19 22 25	6			
			19 29 20				
			19 29 35	4-6			
		P _E	19 16 09			4,500	
			19 17 51	6			
		S	19 22 24	10			
		L	19 29 25	20			
			19 30 21	8-6			
		M	33 23	10			5 mm W.
		F	20 32				
407	Aug. 17	eL _E	16 34 07				Periods diminishing among pulsations.
		F?	16 35 38				

J. B. Woodworth

HARVARD UNIVERSITY, CAMBRIDGE, MASS., U. S. A.

RECORD OF THE SEISMOGRAPHIC STATION DEPARTMENT OF GEOLOGY AND GEOGRAPHY

$\phi = 42^{\circ} 22' 36''$ N. $\lambda = 71^{\circ} 06' 59''$ W. Gr. h = 5.367 M. FOUNDATION: Glacial sand over clay.
 TIME: Mean Greenwich, midnight to midnight.
 INSTRUMENTS: Two Bosch-Omori 100 kg. horizontal pendulums (mechanical registration).

No.	Date	Phase	Time			Periods	Amplitudes	Δ	REMARKS
			h.	m.	s.				
408	Aug. 19	eL _E	13	47	24			4540	P and S distorted in changing records and obscured by pulsations
		F	14	14	?				
409	Aug. 22	P _E	5	36	02	3		4540	
		PR ₁	5	37	41	4			
		S	5	42	19	10			
			5	48	43	11			
			5	50	28	11			
			5	51	07	9			
410	Aug. 22	e?						4540	P and S obscured by micros.
		eL	15	55	39	25			
			15	57	43	20			
			16	03	16	16			
411	Aug. 28	F	16	30	24			5130?	eP _N ? 8-39-13 or micros? to 5550? kms.
		eP _E ?	8	41	38				
		S?	8	48	26				
		eL?	8	56	54	25			
		L	9	04	12	50			
412	Aug. 28		9	06	50	20		5130?	e in pulsations and micros. in pulsation.
		F	9	35					
		e?	17	52					
		eL	17	54	04				
			17	56	36	20			
	17	59	46	10-12					
	18	11							

J. B. Woodworth

No. 14

From Sept. 1, 1914 to Sept. 30, 1914

191

HARVARD UNIVERSITY, CAMBRIDGE, MASS., U. S. A.

RECORD OF THE SEISMOGRAPHIC STATION

DEPARTMENT OF GEOLOGY AND GEOGRAPHY

 $\phi = 42^{\circ} 22' 36''$ N. $\lambda = 71^{\circ} 06' 59''$ W. Gr. h = 5.367 M. FOUNDATION: Glacial sand over clay.

TIME: Mean Greenwich, midnight to midnight.

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

No.	Date	Phase	Time		Periods	Amplitudes		Δ Kms.	REMARKS
			h. m. s.	ca		s.	μ .		
413	Sept. 12	eL	4	56	65-75				From about 5h56m to 6h31m faint trace of LL in groups as if from a distant quake or quakes. Cf Qr Caravali, Peru about this date.
		F	6	31					
414	Sept. 12	P??E	21	04	38			450?	May be microseismic.
		S	21	05	22	7			
		L	21	06	33	9.5			Tilt to west, with slow return to F
		M	21	06	50	20	W		Trace only N-S damped
		F	21	08	45				4:1.
?	Sept. 25	--	--	--	--			--	12h 9m 24s, 16s pd.; 12h 12m 09s pds. 14, 25, 25, 10; 12h 16m 50s, 20, 25, 26s pd. among quavers.

No.

From

to

191

HARVARD UNIVERSITY, CAMBRIDGE, MASS., U. S. A.

RECORD OF THE SEISMOGRAPHIC STATION

DEPARTMENT OF GEOLOGY AND GEOGRAPHY

 $\phi = 42^{\circ} 22' 36''$ N. $\lambda = 71^{\circ} 06' 59''$ W. Gr. h = 5.367 M. FOUNDATION: Glacial sand over clay.

TIME: Mean Greenwich, midnight to midnight.

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

No.	Date	Phase	Time			Periods	Amplitudes	Δ	REMARKS
			h.	m.	s.				
415	Oct. 1	P _N	5	30	52	3		3980	In micros. O = 6 - 24 -24. N undamped.
		S _N	6	36	38	7.5			
		eL?	6	42	36				
		L	6	43	31	25			
		F?	6	48		15			
			6	54					
416	Oct. 3	P _E	17	27	57	3		2860	S - P: 4m 33s. O : 17h 23m 7s. Qr Martinique and St. Vincent, at 1/18 p.m.
		S _N	17	32	33	17			
		L	17	35	10				
		F	19	30	ca				
417	Oct. 3	P _E	22	18	11	6		8625	Qr Isbarta and Burdur, Konia, Asia Minor, ca. 37 N., 30° E O : 22h 6m 16s G.M.T. (Heidelberg P22-11-31 S22-15-10 from which 0.22-06-09
		S _E	22	28	02				
		L?	22	33	03				
			22	42	28				
		M	22	46	09				
		C	22	49	57				
F	23	55							
418	Oct. 5	e	9	31	32	12-8		3000?	
		L _N	9	33	34				
		F _E	9	35	50				
419	Oct. 5	e	10	20	41				
		F	10	21	16				

J. B. Woodworth.

No. 16

From October 6th

to Oct. 31st

1914

HARVARD UNIVERSITY, CAMBRIDGE, MASS., U. S. A.

RECORD OF THE SEISMOGRAPHIC STATION

DEPARTMENT OF GEOLOGY AND GEOGRAPHY

 $\phi = 42^{\circ} 22' 36''$ N. $\lambda = 71^{\circ} 06' 59''$ W. Gr. h = 5.367 M. FOUNDATION: Glacial sand over clay.

TIME: Mean Greenwich, midnight to midnight.

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

No.	Date	Phase	Time			Periods	Amplitudes	Δ	REMARKS
			h.	m.	s.				
	1914								
420	Oct. 9	eP _N ? L F	3	03	33	4		11,000? 0:24h 29m ?	
			3	35	b37	16-15			
			4	17					
421	Oct. 22	eP _N S _N L _N L _E F	7	02	10	3	2650?	L-S: 1m 23s	
			7	02	26	6			
			7	03	49	8			
			7	05	02	8			
			7	15	ca				
421a	Oct. 22	eN L F	10	54	54			Not well shown on E-W. LL resembles 421.	
			10	57	22	8-9			
			11	05	ca				
422	Oct. 23	P _N i N E S? L _N L _E F	6	37	16	2	5900	S-P : 7m 31s	
			6	40	18	4			
			6	41	25	6		Peru?	
			6	41	30	6			
			6	44	47	6		0? 6-28-22	
			6	53	11	10			
			6	58	11	18			
			6	58	30	14			
			8	13	ca				
423	Oct. 25	eL?	19	39	48	20		3 waves among quavers, possibly non-seismic.	
						24			
						20			

J. B. Woodworth

Nov. 9, 1914

HARVARD UNIVERSITY, CAMBRIDGE, MASS., U. S. A.
 Nov. 1st, 1914

RECORD OF THE SEISMOGRAPHIC STATION

DEPARTMENT OF GEOLOGY AND GEOGRAPHY

 $\phi = 42^{\circ} 22' 36''$ N. $\lambda = 71^{\circ} 06' 59''$ W. Gr. h = 5.367 M. FOUNDATION: Glacial sand over clay.

TIME: Mean Greenwich, midnight to midnight.

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

No.	Date	Phase	Time		Periods	Amplitudes	Δ	REMARKS
			h. m. s.	s.				
								Dear Sirs and Esteemed Colleagues: Acknowledgements:-
								Grateful acknowledgement is hereby made of the receipt of Seismographic Records from the following named foreign observatories including issues of the dates respectively adjoined.
	AUSTRALIA							Sydney, N.S.W. Sept. 30, 1913, No. 9 Special April, 18, 1914
	AUSTRIA-HUNGARY							Czernowitz July, 12, 1914, No. 28 Graz July 5, 1914, No. 27. Innsbruck June 28, 1914 No. 26 Krakau June 14, 1914, No. 23-24 Laibach May 30, 1914, No. 21c Lemberg May 24, 1914. No. 21 Pola July 12, 1914, No. 28 Sarajevo, Bosnia Dec. 31, 1914. No. 52. Triest July 12, 1914. No. 28 Wien (Vienna) June 14, 1914 No. 24
	BELGIUM							Uccle April 19, 1914. No. 8.
	BOLIVIA							La Paz June 30, 1914. No. 284.
	BULGARIA							Sofia Liste No. 12, 1911.
	CANADA							Ottawa Aug. 31, 1914
	DEUTSCH SAMOA-INSSELN							Apia Sept. 5, 1913. No. 10 Jany. 1914
	ENGLAND							Shide March 31, 1914
	FRANCE							Paris, Bureau Central July 31, 1914. No. 11
	GERMANY							Aachen April 23, 1914. No. 4. Postal Darmstadt-Jugenheim June 26, 1914. Frankfort on Main June 27, 1914. No. VIb. Göttingen June 29, 1914. No. 19-29. Hamburg Dec. 31, 1914. No. 43. Heidelberg Oct. 3, 1914. No. 10 Jena Sept. 1912. (Monatsberichte) Königsberg, Prussia May 31, 1914. No. 15. Strassburg July 22, 1914 (Galitzin Pend.)
	GREECE							Athens June 30, 1914. No. 6 vol. vii, No. 1.
	JAPAN							Publications
	ICELAND							Reykjavik (thru Strassburg) Dec. 31, 1910
	JAVA							Batavia Dec. 1913. No. 231.
	SPAIN							Cartuja June 1914
	WEST INDIA IDS.							Jamaica W. Bur. July 1914. No. 432.
								Respectfully yours, J. B. Woodworth.

No. From **November 1** to 191
HARVARD UNIVERSITY, CAMBRIDGE, MASS., U. S. A.
RECORD OF THE SEISMOGRAPHIC STATION

DEPARTMENT OF GEOLOGY AND GEOGRAPHY

 $\phi = 42^{\circ} 22' 36''$ N. $\lambda = 71^{\circ} 06' 59''$ W. Gr. h = 5.367 M. FOUNDATION: Glacial sand over clay.

TIME: Mean Greenwich, midnight to midnight.

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

No.	Date	Phase	Time			Periods	Amplitudes	Δ	REMARKS
			h.	m.	s.				
424	1914 Nov. 10	P _N	11	24	25			Undamped pendulums. Phases S and L not distinct.	
		S _E ?	11	25	45	6			
		SN?	11	26	40	6			
		eL _E	11	28	50	10			
		F _E	11	30					
425	Nov. 18	P _N	9	46	11			5000? P _E in microseisms. S-P: 4340 kms. L-S: 5900, kms.	
			9	46	14	2			
		PR ₁ ?	9	47	43	7			
		SN	9	52	07	12			
		S _E	9	52	27	7			
		N	9	52	44	12			
			9	56	13	12-7			
		L _E	9	59	22	17			
		L _N	9	59	49	20			
		L _E	10	01	26	14			
			10	04	12	17			
			10	07	46	18			
		F	10	16	28	20			
426	Nov. 18	L _E	10	49	44	15			
			10	49	59				
		F	10	51	04				
427	Nov. 20	eP _N	12	11	58			3980 S-P; but L-S: 4350 kms.	
		eP _E	12	12	24				
		S _N	12	17	39				
		S _E	12	17	45				
		SR ₂	12	20	43	10			
		eL _N	12	21	54	10			
		M _N	12	25	45	28	(2.2)		A in mm.
		F	12	15					

Issued Dec. 1, 1914

HARVARD UNIVERSITY, CAMBRIDGE, MASS., U. S. A.

RECORD OF THE SEISMOGRAPHIC STATION

DEPARTMENT OF GEOLOGY AND GEOGRAPHY

$\phi = 42^{\circ} 22' 36''$ N. $\lambda = 71^{\circ} 06' 59''$ W. Gr. h = 5.367 M. FOUNDATION: Glacial sand over clay.

TIME: Mean Greenwich, midnight to midnight.

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

No.	Date	Phase	Time			Periods	Amplitudes	Δ	REMARKS
			h.	m.	s.				
	1914								
428	Nov. 27	e	4	44	31	var.		Trace E-W.	
		L _N	4	45	44	10			
		F	4	57	42				
429	Nov. 28	e?	11	30	10			P and S masked by	
			11	39	22	24		microseisms.	
		L _N	11	48	45	20			
			11	52	49	16			
		L _N	12	05	45	20		Succeeding periods.	
						20			
						15			
						16			
		F	12	08	ca	15			

J. B. Woodworth

Issued Dec. 1, 1914.

HARVARD UNIVERSITY, CAMBRIDGE, MASS., U. S. A.

RECORD OF THE SEISMOGRAPHIC STATION

DEPARTMENT OF GEOLOGY AND GEOGRAPHY

$\phi = 42^{\circ} 22' 36''$ N. $\lambda = 71^{\circ} 06' 59''$ W. Gr. $h = 5.367$ M. FOUNDATION: Glacial sand over clay.

TIME: Mean Greenwich, midnight to midnight.

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

No.	Date	Phase	Time			Periods	Amplitudes	Δ	REMARKS
			h.	m.	s.				
430	1914 Dec. 4	O?	16	59	11			3600?	O: calculated time at origin. P & S in microseisms. No decided M.
		eS?	17	10	37				
		eL	17	13	23	23			
			17	14	08	16			
			17	14	22	14			
			17	19	18	10			
		L	17	25	46	16			
431	Dec. 11	F?	17	27	03			e to F in microseisms	
		O	2	?	?				
		eN	2	37	52				
		L _N	2	30	48	12-18			
432	Dec. 20	ton	2	36	32			6550	O from L _E - S _N : 9m. 26s. P & S in microseisms
		L _{ton}	2	45	06	15			
		ton	2	46	06				
		O	14	18	06				
		e	14	27	54	4			
		e _{SE}	14	33	45	9			
		S _E	14	34	32	6			
			14	35	54	17			
			14	37	23	6			
		eL _E	14	43	31	15			
eL _N	14	43	42	13					
433	Dec. 25	L _E	14	54	19	43		2490	O from S _E - P _N : 4m. 4s.
		L _E	14	56	57	44			
			14	57	39	40			
		L _N	14	58	20	36			
		L _E	14	58	21	28			
		L _N	15	00	37				
		L _E	15	04	54	20-18			
		F	15	06	08	24			
			15	51					
		O	3	42	54				
P _N	3	47	14						
P _E	3	47	17						
S _E	3	51	17						
S _N	3	51	18						
eL _E	3	54	45						
L _N	3	56	37						
F	4	07							

J. B. Woodworth