No. 1 From January 1 to January 31, 1915

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

RECORD OF THE SEISMOGRAPHIC STATION

DEPARTMENT OF GEOLOGY AND GEOGRAPHY

$\phi = 42° 22' 36''$ N. $\lambda = 71° 06' 59''$ 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
	1915		h. m. s.	s.	μ.	Kms.	
434	Jan.5	O	23 37 39				N.B. Pendulums undamped.
		eP_N	23 44 56				@ equals time at origin,
		S_E	23 50 40			3950@	calculated from Brit.
		eL	23 54 01	10-15			Assoc. Tables after
	6	M_E	0 18 22	24			Galitzin and Walker.
		L_N	0 32 35	20-			
		F	0 56				
435	10	O?	indeterm.				
		eL?	23 24 26	20-15			e in microseisms. Time
		F	23 45 ca				interpolated because of failure of minute ticks.
436	13	@	6 52 29			6750	All phases superposed
		eP_E	7 02 45				on microseisms. P to S
			7 04 17	4			on N component illegible.
		S_E	7 11 01	15			Maximum ill-defined.
		eL_E	7 19 21	35			Destructive earthquake
			7 22 24	25			reported about Lago di
			7 26 25	20			Fucino in Central Italy.
		M_E	7 27 48	20	(1.1 mm.)		Origin near 42°N, 13°E.
		F	8 05 ca				A by undamped pendulum.
437	27	O?	bet. 1h & 2h.				
		e_N?	1 37 44				
		L_E	1 40 30	40			
			1 41 14	22			
			1 43 37	16			No decided maximum.
			1 45 42	20			
		to	1 48 18				
		L_E	1 49 04	20-16			
		L_N	1 51 33				
		F_E	2 12				

J. B. Woodworth.

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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.	
	1915						
438	Feb.7	O	5 16 30			15	Local shock: Not reported by persons.
		iP_N	5 16 32				
		iM	5 16 34				
		F	5 16 50				
439	Feb.16	O	17 05 26			85	Not heard from.
		iP	17 05 38				
		M	17 05 48				
		F	17 05 54				
440	Feb.16	O	19 24 39			100	Not heard from.
		P	19 24 53				
		M	19 25 05				
		F	19 25 18				
441	Feb.19	O	22 24 58			90	Not heard from.
		P	22 25 10				
		M	22 25 20				
		F	22 26 52				
442	Feb.20	O	15 36 37		10	20	Not reported as felt.
		iP	10 36 40				
		M	10 36 42				
		C	10 36 50				
		F	10 37 06				
443	Feb.20	O	19 54 13			95	Not heard from.
		iP	19 54 18				
		L	19 54 37				
		C	19 55 02				
		F	19 55 18				
444	Feb.20	O?	-- -- --			?	Not heard from. Deflection N. No M.
		P_N	23 08 38				
		F	23 09 48				

J. B. Woodworth

No. 3 From February 21 to February 21, 191 5

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

RECORD OF THE SEISMOGRAPHIC STATION

DEPARTMENT OF GEOLOGY AND GEOGRAPHY

$\phi = 42° 22' 36''$ N. $\lambda = 71° 06' 59''$ 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 h. m. s.	Periods s.	Amplitudes μ.	Δ Kms.	REMARKS
	1915						
445	Feb.21	O	0 39 08			?	Not heard from.
		iP_N	0 39 15				
		L	0 39 21	6			
		M	0 39 34		6		
		F	0 39 42				
446	Feb.21	O	-- -- --			70?	Not heard from.
		P	1 20 11				
		L	1 20 19				
		F	1 21 01				
447	Feb.21	O	1 56 58			40	Felt in Haverhill,Mass. (45 kms.) at "8.55".
		P	1 57 06				
		L	1 57 10				
		M	1 57 12				
		F	1 57 22				
447a	Feb.21	O	1 57 49			45	Cf. 447.
		P	1 57 57				
		L	1 58 05				
		F	1 58 16				
448	Feb.21	O?	-- -- --			?	Phases indistinct.No M. Lowell,Mass. reported shock felt at 9.05 p.m.
		P	2 02 46				
		F	2 03 46				
449	Feb.21	O	2 20 53			20	Felt at Andover,Mass. Lowell reported shock felt at 9.30 p.m. (2. 30)G.M.T.
		P	2 20 55				
		L	2 20 58				
		F	2 21 17				
449a	Feb.21	O	2 35 14		5	30	Felt at Andover,Mass (30 kms.). Another at 9.35 p.m. of which there is a trace on records (N). Also 9.45 at Andover (trace on N).
		P	2 35 18				
		L	2 35 21				
		F	2 35 38				
450	Feb.21	O?	- -- --			?	Phase indistinct.
		P_N	3 09 30				
		F	3 09 36				

J. B. Woodworth

No. 4 From February 22 to February 28, 1915

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

RECORD OF THE SEISMOGRAPHIC STATION

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TIME: Mean Greenwich, midnight to midnight.

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

No.	Date	Phase	Time	Periods	Amplitudes	Δ	REMARKS
	1915		h. m. s.	s.	μ.	Kms.	
452	Feb.23	O	23 13 05		6	145	
		P	23 13 25				
		L	23 13 42				
		F	23 14 10				
452a	Feb.25	O?	9 03 41			3440?	O from S-P?
		P_E?	9 10 19	3			Phases masked by micro-
		S	9 15 32	6			seisms.
		L_E	9 25 19	12			0.25 on record.
		L_N	9 26 06	16			A 0.25 mm. on record.
		M	9 28 53				
		F	9 48				
452b	Feb.25	O	20 47 07			9200	
		P?	20 59 42				Phases masked by micro-
			21 01 34				seisms.
		iS	21 10 02	6			
		eLN	21 23 36	13			
			21 24 38	20			
		L_N	21 46 07	20			
		F	21 48				
452c	Feb.25	O	22 14 06			260	Unheard from.
		P	22 14 48				
		L	22 15 17				
		F	22 15 49				
453	Feb.28	O?	-- -- --			?	
		e	19 38 20	7			
			19 39 30	6			P and S in micros.
		L_E	19 49 34	40			
		L	19 54 02	30			
			19 58 03	26			
		M	19 59 20	22			A o.5 mm. on record.
		F	20 49 ca				

J. B. Woodworth.

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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.	UNDAMPED PENDULUMS
454	March 5	e_N	4 36 26				
		L_E	4 37 43				
		L_N	4 37 58	7			
		F	4 49 28				
455	March 12	e_N	15 53 12				Masked by micros.
		L_N	15 56 35	18			
			16 01 59				
		F	16 05				
	March 20	e?	22 -- --				
456		L_N	22 51 12?	18			F? lost in micros.

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No. 5a From March 31, to 191 5

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

RECORD OF THE SEISMOGRAPHIC STATION

DEPARTMENT OF GEOLOGY AND GEOGRAPHY

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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.	UNDAMPED PENDULUM
457	1915 Mar.31	e	17 53 16				Masked by microseisms.
		L_E	17 54 36				
		F?	18 01 --				

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TIME: Mean Greenwich, midnight to midnight.
INSTRUMENTS: Two Bosch-Omori 100 kg. horizontal pendulums (mechanical registration).

No.	Date	Phase	Time	Periods	Amplitudes	Δ	REMARKS
	1915		h. m. s.	s.	μ.	Kms.	
458	Apr.3	L_E	21 04 46				Undamped pendulums 0 = time at origin.
			21 07 43	18			
		F	21 25 ca	16-18			Masked by Microseisms
459	Apr.7	0?	15 58 ca			4300?	0? from eL-S?
		e?					Masked by microseisms.
		$S?_E$	16 11 57				N comp. restrained
			16 13 46	8			by friction.
			16 15 17	13			
		eL	16 15 59	10			
		L	16 20 44	16			
		F	16 37				
460	Apr.23	0	15 29 10			4670	P and S strong; LL weak
		P_N	15 37 21				
		P_E	15 37 23				
		S_E	15 43 45	6			
		S_N	15 43 46	6			
		$S_R1?$	15 46 04				
		L_N	15 48 42	16			
		F?					F lost in microseisms.
461	Apr.28	eE	4 10 04				N record faint.
		L	4 13 28	20			
			4 17 38	20			
		F	4 41 ca				

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 *to*

No.	Date	Comp.	Phase	Time h.	m.	s.	Periods s.	Amplitudes μ.	REMARKS
	1915								
462	May 1	0	4	59				8980	Undamped Pendulums:
		ePN	5	12	16				0 :: time at origin.
		ePE	5	12	21				Kurile Islands ?
		SE	5	22	25	32			
		SR1?	5	28	14				
		SR2	5	28	39				
		eLE	5	37	29				
		M1N	5	46	15			(57)	(mm.)
		M2	5	50	07			(67)	(mm)
			5	53	41				
		CN	5	57	29				
		F	8	17					
463	May 1	e?	9	29	17			3850?	e? = S?. Possibly
		LE	9	32	31	20			part of last. No
			9	34	06	16			trace N.
			9	36	40	15			
		F	9	38	ca				
464	May 5	0?	11	17				8730?	0? from eL-S? P in
		S?	11	39	31	8			micros.
		eL	11	53	50	18			
		LE	12	19	07				
		LN	12	19	31				
		LE	12	20	49	20			
			12	33	31	20	15		
		F?	12	50					

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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 *to*

No.	Date	Comp.	Phase	Time h. m. s.	Periods s.	Amplitudes μ.	REMARKS
	1915						
465	May 6	O		12 08 02		4820	
		ePE		12 16 26			
		?		12 19 55	6		
		S		12 22 58			
		eL		12 33 44			
		M		12 33 59			
		to		12 35 14			
		F		13 20			
466	May 8	e		14 44 42	var.		Disturbances of uncertain origin.
		to		15 10			
467	May12	O		10 29 42		6075	O from eL-P.
		ePE		10 39 29			S ill-defined.
		eE		10 42 14			
		eN		10 43 02	8		
		eLE		10 55 23			
		LE		10 57 04			
		LE		10 59 26	24		
				11 10 17	15		
		F?		11 30			
468	May 21	O?		4 27 46		8800?	
		ePN		4 40 00			
		eLE		5 04 36			S uncertain.
		Le		5 08 09	16		
				5 10 30	24		
				5 14 00	16		
		F		5 30 20			

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RECORD

OF THE

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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 June 1, *to* June 15,

No.	Date	Comp.	Phase	Time h.	m.	s.	Periods s.	Amplitudes μ. / kms.	REMARKS
	1915								
469	June 1		O	14	43	50		5100	N damped 4:1. O:time at origin.
			eP EN	14	52	29			
			S_N	14	59	13			
			S_E	14	59	17			
			SR_1N	15	02	37	15		
			SR_1E	15	02	41	15		
			eL_E	15	05	08			Sinusoidals sets in.
			L_N	15	07	09	26		
			L_E	15	08	47			
			M_E	15	12	33			
			C_E	15	17	03			
			F	16	15				
470	June 6		O?	--	--	--			
			P_E?	20	16	26			P and S in microseisms.
			L_E	20	38	07	30-20		S_N? 20-33-54.
			F	20	50	ca			
471	June 6		O	21	29	37		6450	
			P_N	21	39	32			
			P_E	21	39	34			S_E undamped of large amplitude.
			S_N	21	47	32			
			S_E	21	47	34			Undamped pendulum gave
			eL_E	21	54	14			MM at 24-47-53; 21-49-31;
			eL_N?	21	54	30			21-50-32. No decided ML.
	June 7		F_E	0	20	ca			E comp. undamped

J. B. Woodworth.

No. 11 From June 22nd 1915 to June 30th, 1915 1915

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

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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.	
472	June 22	O	3 24 22			6790	N comp. Damped 4:1
		eP	3 34 40				E comp. Undamped.
		S_E	3 42 58	6			
		L	3 43 42	10			LL indistinct
		F?	3 50 48				
473	23	O	4 00 21			4110	O from eL-S deciphered
		$eP?_N$	4 06 28				in light of published
		S	4 13 45	6			data. Vd.U.S.Monthly
		eL	4 17 31				Weather Rev.June,1915.pp.
			4 18 08	10			289-294.
		F	4 54 ca				So.California.Local obs-
							ervers give time 4:00
474	23	O	4 58 34			3850	Second shock So.Calif.
		eS?	5 11 20				Reported 4:56.Vd.loc/cit.
		eL	5 14 31				
		M_N	5 14 38				E comp. gives different
		F	5 35				but more doubtful read-
							ngs. Short per. phases.
	27	O?	15 35 10			3525?	O from Honolulu P15-48-54
475		L_E	15 51 16				L 15-58-54; whence Δ
		F	16 22				3250 kms.; O as given;
							and on this argument
							Harvard Δ3525 kms.

J.B. Woodworth.

Issued Oct.27, 1915

No. 12 From July 1,1915 to July 29,1915 191 5

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

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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.	
	1915						E undamped. N damped 4:1
476	July 8	O	22 30 48				O from Honolulu P 22-36-36; Δ 2910; O:22-30-48.
		L_E	23 08 41	15			Vd. LaPaz iP22-40-00.
			23 12 27	28			With Harvard eL? 23-08-41, Δ comes out ca. 7700.
			23 14 45	24			Barcelona eL 23-02-18.
		F	23 25 56				North Pacific?
477	22	D?	4 06 08			7140	Readings doubtful.
		eP_N	4 16 44				See Ottawa and Washington,
		S_N	4 25 20				D.C.
		S_E	4 25 36				
		eL_E	4 30 02				
		L_N	4 32 52				
		F	4 46 00				
478	25	O?	20 47 26			7400?	
		S?	21 06 56	7			eP doubtful.
		L_E	21 18 12	28			Compare Ottawa and Washington. Not legible on N comp. Cf. LaPaz L21-55-00
		F	21 49 00				
479	29	O?	10 -- --				
		L_E	10 55 58	20			Cf. Ottawa L10-55.5
			10 59 46	15			
		F	11 04 22				La Paz eL 10-57-00; F 11-45.

Issued Nov. 30, 1915

H. B. Woodworth.

No. 13 From July 30, 1915 to July 31, 1915 1915

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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.	
	1915						
480	July 31	O_P	1 31 26			8200	
		P_E	1 42 58				Compare
		P_N	1 43 00				Sitka △3660; O: 1-31-26
		PR_E	1 45 48				Honolulu △4340; O: 1-31-29
		PR_E	1 47 20				Ottawa △7700; O: 1-31-26.8
		PR_N	1 52 28				Northfield △7990; O: 1-31-26
		S_E	1 52 28				Barcelona △9290; O: 1-31-26
		S_N	1 52 40				St. Louis △7600; O: 1-31-30
		SR_E	1 58 26				Aleutians off Kamtschatka,
		eL_E	2 03 02	60			Near 168°E., 53°N.
		L_N	2 03 56				
		L_E	2 10 10	22			
		L_N	2 19 54	14			
		F_E	4 21 00				

Issued November 24, 1915.

J. B. Woodworth.

No. 14 From August 1st to Sept.6,1915 191 5

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

RECORD OF THE SEISMOGRAPHIC STATION

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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.	
	1915						
481	Aug.3	O	13 04 27				O from Honolulu △ 8920. Sydney △ 2500; O 13-04-59; reports origin in Dutch New Guinea 5°S. λ 138°E.
		L_E	14 16 04			14,900	
		LR_1	15 06 10				$= 20{,}000 - 201\left(\frac{L_R+L}{2}\right)$ ca.
		F	15 47 12				
							Harvard △ on 8 inch globe, 14,780 kms.
482	6	O	13 12 03			9000	O from mean of Ottawa
		eP?	13 23 25				△ 9150; 0:13-12-27
		S	13 35 09				Honolulu △ 8440; 0:13:11-34
		eL_N	13 55 18	20			Barcelona △ 10030; 0:13-12-D
		L_E	14 00 53	24-22			Sydney △ 7030; 0:13-12-03
		F	14 55				Harvard eP in micros.
483	7	O	15 04 16				O from Barcelona △ 1510.
		e	15 31 09				Heidelberg △ 1420; 0:15-04-27. But cf. Sydney △ 7930, 0:15-10-27. Ottawa △ 5600; 0:15-14-51.
		L	15 39 27	20			
			15 46 05	16			
		F	16 07 ca				
484	19	O	? ? ?				La Paz iP 0-07-33, △ 5360, gives 0:18d.23h.56m.42s. Sydney P△ 0-21-36; △ 9250; 0:0-19-11. Ottawa P? 0-16-32; △ ? 5550; O? 0-05-28.8
		e?E	0 21 15?				
		eL?	0 30 20				
		L	0 40 23	15			
		L	0 53 03	24			
		L	1 19 04	16			
		F	1 25 ca				
485	SepT.6	O	17 20 36			10,300?	O from Sydney iP 17-32.7 △ 3840. Cf. La Paz △ 9750; 0:17-26-36. Harvard △ from L-O (Sydney), when (L-O) 201 kms. = △.
		e	17 53 59				
		L	18 16 55				
		L	18 22 15	15			
		F	19 22				

Issued Nov.30,1915

J. B. Woodworth.

No. 15 From September 8,1915 to September 7,1915 191 5

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

RECORD OF THE SEISMOGRAPHIC STATION

DEPARTMENT OF GEOLOGY AND GEOGRAPHY

$\phi = 42° 22' 36''$ N. $\lambda = 71° 06' 59''$ 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.	
	1915						N damped 4:1.E undamped.
486	Sept.7	Q	1 20 30			3580	Q from S-P. Cf.Ottawa
		iP_E	1 27 19	2			and Georgetown 0:1-20-27.5
		N	1 27 21	2			La Paz △4120; 0:1-20-27.
		iR	1 27 51				Destructive quake in
		iR	1 27 56				Guatemala and Salvador.
		iR	1 28 33				
		iR	1 28 40				
		iS_N	1 32 41				
		iS_E	1 33 54				
		eL_E	1 34 23	26			
		M_E	1 35 54				
		eL_N	1 37 01				
		M_E	1 38 07				
			1 38 35				Stylus off drum.
		M_N	1 39 42				do
		E	1 39 44				Stylus on drum again.
			1 40 01				Off drum 2d time.
		M_N	1 40 53				On drum again.
			1 40 58				Off drum 2d time.
		M_E	1 41 03				On drum again.
			1 42 58				Off drum 3d time.
		M_N	1 43 20				On 2d time.
		~~M_E~~	~~1 44 05~~				On 3d time.
			~~1 44 21~~				Off 4th time.
		C_N	1 45 03				
		M_E	1 45 22				On drum 4th time.
			1 46 11				7th M on E.
			1 47 14				8th M on E.
		C_E	1 50 02				
		LR_N	2 35 03	12-14			
		F_N	2 59 56				Damped pendulum.
							Pendulum undamped. F in next.

J. B. Woodworth.

No. 16 From September 7,1915 to 191 5

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

RECORD OF THE SEISMOGRAPHIC STATION

DEPARTMENT OF GEOLOGY AND GEOGRAPHY

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TIME: Mean Greenwich, midnight to midnight.

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

No.	Date	Phase	Time h. m. s.	Periods s.	Amplitudes μ.	Δ Kms.	REMARKS
	1915						
487	Sept. 7	0	4 28 42			3610	0 from S-P. Cf. Ottawa
		eP_N	4 35 31				△ 3650 0:4-28-25.
		S	4 40 50				Cornell △ 3620?; 0?4-28-08
		L	4 44 25				
		F	5 05				Off west coast Central America? Set off by reflected L returning to epicentre? Interval 3h 8m ±1.
488	7	0	5 -- --				
		eP	5 10 30				
		$SL?_E$	5 15 34				
		L	5 20 19	10			
		F	5 37 ca				
489	7	0	7 -- --				Vd. Ottawa.
		P?	7 54 59				L & F lost in changing records.
		S?	7 59 43				
490	7	0?	20 39 52			3040?	P,S,0 uncertain.
		eP?	20 45 53				Times doubtful from uncertain setting of time-ticker.
		S?	20 49 39	7			
		L	20 53 44				
			20 59 12				
			21 02 47				
		F	21 33				

N.B. For Sydney in Remarks read "Riverview".

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J. B. Woodworth.

No. From October 1st to Octo 191

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

RECORD OF THE SEISMOGRAPHIC STATION

DEPARTMENT OF GEOLOGY AND GEOGRAPHY

$\phi = 42° 22' 36''$ N. $\lambda = 71° 06' 59''$ 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.	
	1915						
		Q?	-- -- --		?		e in microseisms.
	Oct.2	e	23 58 12				
		S_E	23 59 55	6			Undamped comp. N comp. out of commission.
	3	L	00 01 22	8,10			
		F	00 05 52				
	Oct.3	Q?					
		e_E	2 03 17				e in micros.
		S	2 06 35				
		L	2 08 50	10,12			
		F	2 25 22				
	3	Q	~~6 53 12~~			3780	O from S-P by tables furnished by Dr.Klotz.
		eP_E	7 00 06				
		S	7 05 40	22			
		eL	7 10 36				
		M-1	7 12 11				Undamped pendulum N comp.
		F	8 57 ca				out of commission.
	11	O	19 33 23			2450	Press reports slight
		eP_N	19 38 25	3			shock felt at San Juan,
		P_E	19 38 44				Puerto Rico at "3.35" p.m.
		S	19 42 24	10			Oct.11th.
		eL	19 45 22				
		L_N	19 48 51	11.12			eS and eL same on N and E
		F_E	20 40				
	12	-	-- -- --				
		e_E	22 19 38				e in microseisms.
		eL?	22 22 00	17-24 20			
		L	22 28 10	15			No trace on N,damped 4:1.
		F	22 43 ca				

Issued Nov.3,1915

J.B. Woodworth

No. 18 From November 1 to November 30, 1915

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

RECORD OF THE SEISMOGRAPHIC STATION

DEPARTMENT OF GEOLOGY AND GEOGRAPHY

$\phi = 42° 22' 36''$ N. $\lambda = 71° 06' 59''$ 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 1915	Phase	Time	Periods	Amplitudes	Δ	REMARKS
			h m s.	s.	μ.	Kms.	
496	Nov.1	e	7 24 31			9590	From S-P. eP in micros.
		eP	7 37 13				Cf. Berkeley Δ 7570; 0:7-24-29.
		S_E	7 47 06				
		S_N	7 47 52	6			
		eL_E	8 09 59				Earthquake in Imperial
		M_L	8 20 28				Valley, Southern Calif-
		L_r	9 50 36	18-20			ornia.
		F	10 33				
497	21	o	0 13 35			3900	From eL-S.S-eP gives
		eP_E	0 20 46				Δ 3850; 0:0-13-39. But eL
		S_N	0 26 33				may be taken too early!
		S_E	0 26 35				
		eL_E	0 29 54				
		eL_N	0 30 00				
		M_N	0 33 14	16	(30mm)		A = trace on 'gram.
		M_E	0 33 58				Stylus left drum, re-
		M_E	0 35 57				turning at 1-35-34.
		C_N	0 36 03				Maxima of E undamped
		C_E	0 39 50				less than M_N damped 4/1.
		F	1 45 ca				
498	26	e?	19 27 34				e to F masked by micro-
		L	19 31 46	29			seisms.
		L	19 36 14				
			to	16-13			
			19 39 14				

Issued December 4, 1915.

J. B. Woodworth.

No. 19 From December 1, 1915 to Dc 191

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

RECORD OF THE SEISMOGRAPHIC STATION

DEPARTMENT OF GEOLOGY AND GEOGRAPHY

$\phi = 42° 22' 36''$ N. $\lambda = 71° 06' 59''$ 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 1915	Phase	Time	Periods	Amplitudes	Δ	REMARKS
				s.		Kms.	N damped 4:1. E,Q.
499	Dec. 6	Q?	20h 36m ca.		16,000?		Δ ? from L_{R1}-L::30.75 mins.
		e?	21 30 35				Δ = 20,000-30.75/2 X 202 km.
		eL	21 49 15				P and S masked by microseism
		L	21 50 30				
			to	20			
			21 52 28				A decreases suddenly.
		L_{R1}	22 20 00				N.B. A.M.Minimum of atmos-
			to	12			pheric pressure intersects
			22 22 22				Δ curve near λ 110°E. φ 10°S.
		F	22 59				
500	7	Q	10 38 26		4500		
		P_E	10 46 20				N.B.P.M.Maximum of atmos-
	5/	S	10 52 37	6			pheric pressure intersects
		L	10 57 08	20			Δ curve between λ 75°W. and
		F	11 28				100°W. between φ 3°S. and 10
501	7	Q?	12 30 25		2460?		
		iP	12 35 28	2			
		S?	12 39 30				
		eL	12 41 36				P? 12 41 36! another quake.
		L	12 53 34	16			
			13 10 02				
			to	10			
			13 11 39				
		F?	- - -				Lost in microseisms. Changed
							records at 13h 35m 30s.
501a	7	Q?	18 40 ca.				Q from St.Louis records.
		iP	18 43 35				Reported near Cairo. Ill.
		L_E	18 47 50				by St. Louis Observatory.
		L_N	18 48 14	- 4			
		F	18 50 ca				
502	8	e?	18 25 53	11			Record of doubtful charac-
			18 33 46	70			ter. Preceded and followed
				36			by similar disturbances.
				62			
			18 39 05	26			
			18 44 34				
			to	15			
			18 45 24				F indeterminate.

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J. B. Woodworth.

No. 20. From December 9, 1915 to December 31, 1915 191 6

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

RECORD OF THE SEISMOGRAPHIC STATION

DEPARTMENT OF GEOLOGY AND GEOGRAPHY

$\phi = 42° 22' 36''$ N. $\lambda = 71° 06' 59''$ 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.	
	1915						
503	Dec 12	0	21 02 01			4000	
		P_N	21 09 19	3			
		iP	21 09 35	44			iP steady-mass thrown south.
		ePp?	21 10 34				
		S_N	21 15 06				Except P_N, record much masked by microseisms.
		S_E	21 15 23				
		L_N	21 18 20				
		L_E	21 18 22				
		F	21 35 30				F masked.
504	17	L	5 57 29	16			Masked by microseisms.
		F	5 58 31				
505	17	0?	7 40 21			4345?	e-S? Δ from L - S?
		e?	7 54 11				
		L_E	7 58 30	20			Not registered on N.
		F	8 15 12				
506	18	L_E	--- ---				Between 14h and 21h a group of long waves baginning about 4 mins. past the hour; undeterminable because of entangled lines.
507	19	L_E?	21 23 ca.				
		F	21 44 ca.				

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J. B. Woodworth

From (Continuation of Record No. 20)

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

RECORD OF THE SEISMOGRAPHIC STATION

DEPARTMENT OF GEOLOGY AND GEOGRAPHY

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TIME: Mean Greenwich, midnight to midnight.

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

No.	Date	Phase	Time	Periods	Amplitudes	Δ	REMARKS
	1915		h. m. s.	s.	μ.	Kms.	
508	Dec 29	L_E?	0 12 34				e earlier?
		P?	0 17 58				Much masked by micro-seisms.
509	31	O?	12 19 23			4810	O from eL-S.
	2	ePP?	12 37 38				Readings for P and S unreliable.
		R	12 28 57				
		S_E	12 33 53				
		S_N	12 34 00				
		eL_N	12 40 25				
		L_E	12 41 13	10–12			
		M_E	12 45 03	16–14			
		F?	13 42				F lost in changing records.

Issued January 11, 1916.

J. B. Woodworth.