

Earthquake Records by Milne Seismograph Meridian Boom. Stonyhurst College Observatory.

Lat. $53^{\circ} 50' 7''$ N., Long $2^{\circ} 28' 2''$ W., Above Sea, 363 feet.

Time, Greenwich, 0 or 24 = Midnight. *Subsidiary Meridian Boom* Abbreviations on the other side.

Date	P ₁		P ₂		P ₃		Maximum		2 A	End		Boom Deviation, 1 mm = 20 " arc
	H.	M.	H.	M.	H.	M.	H.	M.	mm	H.	M.	Boom Period 150 sec.
1923												Pillar Inclination 1 mm = 40 " arc
Jan												January.
9-10	Instrument out of action owing to work in room.											
10			21.8.0	21.10.0	21.11.0	23.0	21.40					
12	2.44	$\frac{I_m}{2}$				2.55		3.11				small
21	9.16	$\frac{I_m}{2}$	9.25.5	9.34.0								phases uncertain
			9.41.5	9.44	6.0	12.37						
Feb												February.
2	5.19.3	$\frac{I_m}{2}$	5.28.7		5.56.0	5.0	9.0					
4	16.13.5	$\frac{I_m}{2}$	16.32.2		16.41.5	25.0						$\Delta = 76^{\circ} = 5250$ mls.
					16.57.0	29.0						(N Pacific) $T_0 = 16.1.0$
	Instrument put out of action by boom adhering to slip at $17^h 5^m$ ca. End test.											
11	23.6	$\frac{I_m}{2}$			23.32	1.0	24.31					
12	2.17.5	$\frac{I_m}{2}$			2.45.5	1.1	3.57					
	Clock stopped $17^h - 18^h$											
19					0.20	0.5						
24	7.46.0	$\frac{I_m}{2}$	7.53.3		8.20.5	6.0						
					8.45.5	3.0	11.40					F fluctuating change.
26					2.3							very small.
Mar												March
2	17.8.0	$\frac{I_m}{2}$	17.16.5		17.57	6.0	20.9					
4	8.0	$\frac{I_m}{2}$			8.15.5	0.5						
14	21.3	$\frac{I_m}{2}$			21.57.5	1.8						
15	5.44.2	$\frac{I_m}{2}$			5.52.7	3.2						
					6.38.0	1.0	7.25					a. several shocks
16	22.20.2	$\frac{I_m}{2}$	22.26.2	22.57.0	23.15	4.0	25.04					
24	12.57.7	$\frac{I_m}{2}$	13.2.0	13.12.7	13.20.5	2.9						
					13.43.5	2.5						
					13.26.5	4.1	16.25					
Apr												April.
13	15.57.3	$\frac{I_m}{2}$			16.16	3.5	18.35					
19	3.29.9	$\frac{I_m}{2}$			3.38.8	0.7						
					4.16	1.1	5.45					
23	3.48.3	$\frac{I_m}{2}$			4.11.5	1.3	5.17					
29	9.45.8	$\frac{I_m}{2}$			9.58	1.0						out during change.

Issued, 15/5/23.

J. Rowland S. J.
Observer

ABBREVIATIONS.

$P_1 P_2 P_3$ = 1st, 2nd and 3rd phases (arrivals).

M.—Maximum.

A.—Amplitude. Greatest Displacement.

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Date	P ₁		P ₂		P ₃		Maximum		2 A	End		Boom Deviation, 1 mm = $8.0''$ arc Boom Period = 4.0 sec. Pillar Inclination 1 mm = $2.20''$ arc	
	H.	M.	H.	M.	H.	M.	H.	M.	mm	H.	M.		
1923 May													
2	18.0	0 ²⁰					15.2					small	
4	16.36	0 ²⁰	16.47	0 ²⁰			17.14	0	4.0	21.0		$\Delta = 90^{\circ} = 10000$ km	
		22.45					22.53		0.5				
							23.12		0.5	25.8			
12	2.45	2 ²⁰					4.36		1.0	5.5			
24	20.44	0 ²⁰	22.55	0			23.14		1.0	26.0			
25	22.40	5 ²⁰					22.53	5	0.7	23.42			
28	1.42	8	1.56	6			2.19	5	1.0	3.14			
30	18.12	5 ²⁰					18.31		0.5	19.29			
31	6.44	5 ²⁰					6.50	5	0.5	7.16			
"	22.14	5 ²⁰								23.23		small tremors	
June													
1	17.37	5 ²⁰	17.47	9 ²⁰	18.13	5	18.19	5	4.0			June $\Delta = 84^{\circ} = 9330$ km. afternoon.	
			20.39	0	21.37		21.10	0	1.5	23.21			
	1.7	5 ²⁰					2.53	5	0.5	2.44			
14	8.3	5 ²⁰	Small irregular tremors								9.34		Local?
15	8.36	5 ²⁰					9.38		1.0	10.40			
19	23.10	5 ²⁰					23.25	5	0.5	24.15			
22	6.56	8 ²⁰	7.6	6	7.16	5	7.19	5	4.0				
							7.31	5	4.2				
							7.34	5	4.0				
							8.35	7.43	3.0				
22							12.23		1.0				

Continuation, EA. entered to Feb. 7th 16th started used Feb 3rd 16th

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Date 1923	P ₁		P ₂		P ₃		Maximum		2 A	End		Boom Deviation, 1 mm = 220" arc
	H.	M.	H.	M.	H.	M.	H.	M.	mm	H.	M.	Boom Period = 15.0 sec.
July 2	2.	55.5 ²⁴					3.	25	2.0		4. 12	
10	0.	54.1 ²⁴					2.	20.5	1.0		2. 0	
"	5.	37.7 ²⁴					5.	34.5	1.0		5. 47.	Doubtful if seismic.
12	3.	57 ²⁴					4.	37.5	1.0		5. 40	
13	11.	25.3	14.	56.2	14.	59.6	12.	4	6.0		14. 6	Δ = 85°
20.	15.	20.3	15.	26.4	15.	32	15.	32.3	2.0		16. 34	6. 42"
22	14.	21 ²⁴										Almost equal Max 14.58 to 15. 15.
"	14.	39.0					15.	3	1.0		17. 4	
27-30	No record owing to fracture of Mirror Clock.											
Aug 1.	5.	8 ²⁴					5.	29	0.5		6. 22	
"	8.	14 ²⁴					7.	30	0.3		8. 56	
	No Record: 1 st - 17 th ; 19 th - 20 th , 22 nd - 25 th .											
28.	23.	37.0	23.	46.7			24.	3.5	2.8		25. 32	
Sept 1.	3.	11.3 ²⁴	3.	21.3 ²⁴	3.	55.5	2.	47	2.0			Δ. 79° Tokio.
							2.	49.5	2.0			Rest of record lost through boom sticking, and remaining out of action to 22 nd 10 ^h .
2.	22.	54	22.	1			22.	25.5	1.0			
"							23.	37.5	0.8		25. 5	
10	22.	15.2	22.	24.4			22.	52	5.5		25. 8	
13-14	No Record.											
16	17.	1 ²⁴					17.	51	1.2			
							18.	50	0.6		19. 24	
17	7.	19 ²⁴					7.	32.5	2.0		10. 60	
19-23	No Record.											
26	2.	47 ²⁴					2.	55	0.5			
"	8.	47.35			9.	8.5	9.	12.8	1.1			
							9.	15.5	1.2			
							9.	24	2.0		11. 6	
30	1.	25.2 ²⁴	1.	28.3			1.	32.3	6.0		4. 52	
Oct 1.	8.	37 ²⁴					8.	54	0.5		9. 51	
"							23.	57				Small.
7	3.	30.3 ²⁴										Doubtful if seismic.
"	2.	49.6 ²⁴	4.	0.0	4.	29.0	4.	35	4.2		7. 21	Δ. 86°
10	7.	15.9	7.	19.0			7.	20.5	7.0		9. 21	
12	20.	7 ²⁴					20.	31	0.5		22. 21.	No definite Max.
13 th	23 rd to 14 th 11 th . Light faded.											
15	3.	2 ²⁴					3.	16	0.9		10. 26	
21	6.	35.5 ²⁴							0.6			Doubtful if seismic.

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	H.	M.	H.	M.	H.	M.	H.	M.	mm	H.	M.	Boom Period = 440" sec.
Nov 1	0.	30 ^{In}										Doubtful if Seismic
"	4.	45.5 ^{In}										
2	21.	28					22.	31.5	2.0			
"							23.	13 to 22	2.0			
"							23.	22		24.	52	
4	0.	15.3 e	0.	25.7	1.	1.0	1.	19.5	1.0			
"							1.	26	1.0			
5	21.	41.0	21.	51.5	22.	14.5	22.	25.5	4.5			
"							22.	29.5	4.0	24.	35	
18	21.	54 ^{In}					22.	22	1.0			
"							22.	28.5	1.2	24.	6	
19	4.	1 ^{In}										Doubtful if Seismic.
21 st to 26 th	and 29 th to 30 th No Record.											
Dec 5	21.	2.0	21.	6.1	21.	9.5	21.	10	3.2	22.	3	
"	22.	33 ^{In}					23.	41	0.5			
"							23.	55	0.5	24.	7	
14	11.	2 ^{In}					11.	21	1.0			
19	16.	27 ^{In}					18.	25.5	Small			Continual small tremors with numerous small ill-defined Max.
"							20.	17	"			
"							22.	14	"			
20										4.	35	
22	7.	6 ^{In}					10.	41	1.0	22.	35	
27	14.	39 ^{In}					15.	34	0.9	16.	34	
28	17.	49 ^{In}					22.	58	1.3			Continual small tremors
29										6.	26	

Note. Records from the Milne Seismograph, which has been in use since 1909, will now be discontinued, and those from a new Milne-Shaw Seismograph, installed in September last, will be substituted as from 1924 Jan 1.

J. P. Howland S. J.

[Issued. 1924. Jan 8.]

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