

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

Lat. 53° 50'7" N., Long 2° 28'2" W., Above Sea, 363 feet.

Time, Greenwich, 0 or 24 = Midnight.

Abbreviations on the other side.

1919	P ₁		P ₂		P ₃		Maximum		2A	End		Boom Deviation, 1 mm = 25" arc	Boom Period = sec.	Pillar Inclination 1 mm = " arc
	H.	M.	H.	M.	H.	M.	H.	M.	mm	H.	M.			
Jan. Instrument out of action to Jan 1 st .														
30	18.500	18.555	19.500	19.575	19.575	19.575	19.575	19.575	1.0	19.17				
Feb. February														
2	11.300													
Tremors increasing in intensity to end of curve at 11.4. Commencement marked by wind tremors. Beginning of large waves lost during change.														
									12.47	7.0				
									12.57	7.5	14.15.			
4	14.6													Very small
	14.24													" "
	14.49													" "
	15.65													" "
	15.245													" "
	15.30	16.7							16.9	2.0	16.14			
7	15.535										16.2			Very small
	16.340													
8	6.340								6.42	9	6.58			
	7.150													
10	22.255		22.355		22.375				2.0					Wind Tremors
									22.430	2.5	23.21			Throughout day.
20									12.7	1.1	12.55			2 lost at change.
25	17.45	17.85							17.45	1.0	17.15			Doubtful.
	23.250	23.320	23.360		23.340				1.3		22.0			
26	1.545	2.9									2.27			Very Small.
28	12.29													
	16.245													
	19.45													
	19.115	19.210	19.265		19.305				2.0		19.23			
Mar. March.														
1	15.41													Very small
	17.5													" "
	17.52													" "
4	22.4													" "
Instrument slipping by absence of tremors from 15 th to 20 th .														
20	19.2.0	19.10.8	19.15.5											Boat. 20 sec.
	19.30?								19.45	0.8	21.25			Inclination 1 mm = 0.35"
22	15.345													Very small
	16.8										16.19			Very small
23														Instrument under adjustment. Bo. 40 sec.
														Pillar Incl. 1 mm = 0.65"
29														Record lost 2 nd to 11 th through E-S drift of Boom.
31	15.5								0.7					Doubtful
									1.0					" "

J Rowland S. J. Observer.

ABBREVIATIONS.

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1920 Date	P ₁		P ₂		P ₃		Maximum		2 A	End		Boom Deviation, 1 mm = 25" arc	Boom Period = sec.	Pillar Inclination 1 mm = " arc
	H.	M.	H.	M.	H.	M.	H.	M.	mm	H.	M.			
Instrument out of action to Jan 11 th														
Jan. 30	18.500	18.555	19.500	19.45	1.5	14.17								
February														
Feb. 2	11.380	Tremors increasing in velocity to end of curve at 11.40. Boom swayed & engaged by wind tremors. Beginning of large waves lost during change.												
							12.47	7.0						
							12.57	7.5	14.15.					
4	14.6											Very small		
	14.24											"		
	14.49											"		
	15.65											"		
	15.245											"		
	15.50	16.7					16.9	2.0	16.14					
7	15.535									16.2		Very small		
	16.340													
8	6.340						6.42	7	6.58					
	7.150													
10	22.205		22.355	22.575.	2.3							Wind Tremors		
							22.630	2.0	23.21			throughout day.		
20							22.7	1.1	23.58			3 lost at change.		
25	17.45	17.85					17.65	1.0	17.13			Doubtful.		
	23.250	23.320	23.360	23.400	1.0	24.0								
26	1.545	2.9								2.37		Very Small.		
28	12.24													
	16.245													
	19.45													
	19.115	19.210	19.265	19.305	2.0	19.53								
March														
Mar. 1	15.41											Very small		
	17.5											"		
	17.52											"		
4	22.4											"		
Instrument starting in absence of observer from 15 th to 20 th .														
20	19.20	19.100	19.135				19.45	0.8	21.25			15.8. 20 sec.		
	19.30?											Pillar Incl ⁿ 1 mm = 0.35"		
22	15.345											Very small		
	16.8									16.16		Very Small		
23	Instrument under adjustment. B.P. 40 sec.													
												Pillar Incl ⁿ 1 mm = 0.35"		
29	Record lost 2 ^h to 11 ^h through E ^{ly} drift of boom.													
31	15.5						0.7					Doubtful		
							1.0					"		

J. Rowland S.J. Observer

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Date	P ₁		P ₂		P ₃		Maximum		2 A	End		Boom Deviation, 1 mm = 220" arc Boom Period = 4.0 sec. Pillar Inclination 1 mm = 0.65" arc
	H.	M.	H.	M.	H.	M.	H.	M.	mm	H.	M.	
April 4.	36											Small
4.	51											Very Small
5.	2											
6.	27											
7.	6											
8.	1											
15.	14.7		15.	33.7								
2.	41		2.	1			2.	5	1.0	2.	16	
17.	2.5											Very Small
5.	16. 0		16.	7.5	16.	14.5	16.	0.5	1.5			Doubtful.
16.	54.5											
6.	A series of slight tremors accompanied by small progressive permanent tilts to W between 16 ^h & 17 ^h 15 ^m											
16.	1.0									16.	4.5	T.W. 0.7 mm.
16.	11.5									16.	16.0	" 1.0 "
16.	34.0									16.	23.0	" 0.5 "
16.	53.5									16.	55.5	" — "
17.	3.2									17.	15.0	" 0.5 "
19.	21.0	19.	46.0	19.	59.0	20.	2.5	0.5		20.	30.	
11.	17.	45.0										Very Small
17.	55.0											
18.	12.5											
18.	27.5											
19.	36.0											
19.	54.5											
20.	20.5											
21.	22.5											
22.	28.0											
23.	35.0	23.	29.3	23.	32.5				1.0	23.	45	No well def. Max.
23.	54.0											Very Small
12.	2.	4.6										
2.	21.6											
2.	33.0											

Records lost 2^h to 10^h 30^m owing to drift of boom.

J. Rowland S. J.
Observer

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Date	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 = 40 sec.
1920												Pillar Inclination 1 mm = 065" arc
<i>April</i>												
12												Record lost 4 ^h to 10 ^h 30 ^m owing to drift of boom.
14 to 16												Record confused by wind tremors.
17	16	16							1.0			
"	21	25.0	21	33.0	21	42.0	21	45.5	1.0		22 0	
23												Record lost from fracture of light 4 ^h 30 ^m to 10 ^h 30 ^m .
24	11	27.5							1.0			?
												Many days disturbed by wind tremors.
<i>May</i>												
5												15 20.5 15 23.0 1.0 15 35 Further Phases masked by Wind Tremors.
7	6	49.0	6	16.0	6	30.2	6	35.5	2.0			
"												6 39.5 2.2 7. 18
"	21	54.0										
"	22	10.6	22	15.5	22	25.7	22	37.0	1.8		25.50	No def. Max.
8	21	46.0										very small.
10	19	11.3	19	18.5	19	29.0	19	50.0	2.5		20. 17	15. 17 Max.
"	20	25.0										very small
"	20	45.7										" "
13	2	20.7	2	20.5	2	39.5	2	49.0	2.0			
"												2 54.5 2.0 4 0
20	7	49.3										8 1.9 9 37 Small.
												Record lost 20 ^h 19 ^m 30 ^s to 21 st 10 ^h through drift of boom.
23	16	20.8										
24												Record lost 20 ^h 21 ^m to 25 ^h 0 ^m through drift of boom.
26	20	2.3										Small
27	3	27.0										
	16	39.5										16 40.0 16 40.5 17 16 52 Fairly good.

W. Howard S.J.

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Date	P ₁		P ₂		P ₃		Maximum		2 A	End		Boom Deviation, 1 mm = 220" arc Boom Period = 8.0 sec. Pillar Inclination 1 mm = 460" arc
	H.	M.	H.	M.	H.	M.	H.	M.	mm	H.	M.	
1920												
July												July
24	1	24										very small
"	1	56.8										"
"	7	56								7.43		very small
"	1	23										"
"	15	13										"
"	16	58										"
"	23	56										"
30	12	58			12	24.9	12	25.0	0.5	12	30	Small part of seismic.
Aug												August
3	3	21.32					4	1.8	0.5			
"							4	1.0	0.2			
"							4	1.6	0.4			
"							4	1.96	0.5	5	5	
"	19	25.5										very small.
"	20	18.5			20	4.8	2	2.07	0.13	21	24	
5							4	2.5	0.5			
13	2	26.5					2	2.7	0.3	2	22	
14	21	50.6										very small
15	6	50.4										
"	7	43.7										
"	8	39.0					2	2.0	0.2			Mountain's Mass
"							5	1.2	0.4	12	45	4th.
20	16	34.7	16	46.0	17	10.7	17	2.5	0.5	17	40	
25	22	26.6										
"	22	53.0	22	2.0						23	12	Small
26	23	21.35										
31	2	28.2					23	2.3	0.7			No lines shown Very small.
Sept.												September
1	15	24.8										Very small
3	2	58.2	2	37.3								
"	4	42.5					2	2.6				Small
"												
"												
4	11	51.7	14	36								
"	14	44.2	14	51.0	15	30.7	15	1.0	0.8	17	20	
"	5	50.3	15	42	16	10						
6	11	51.5										very small
"	12	4.4										"
"	12	30.3	12	37.2	15	49.4						"
"					12	12.8	12	1.2	0.5			September
"	15	25.5										very small
"	16	18.8								16	51	"
7	10	30	12	5.2	11	14.2				12	38	"
					6	2.5	6	3.5	2.5	7	2	

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Date	P ₁		P ₂		P ₃		Maximum		2 A	End		Boom Deviation, 1 mm = 220" arc Boom Period = 18.0 sec. Pillar Inclination 1 mm = 1440" arc
	H.	M.	H.	M.	H.	M.	H.	M.	mm	H.	M.	
1920												
Sept.	September											
8	2	58.5			2	28.0	2	28.5	1.1			
"							2	35.5	1.0			
"							2	45.0	0.7			
"							2	48.5	0.9			
"							3	18.0	0.7			
"							3	28.5	0.8			
"							3	30.5	0.8	4	45	
9	19	19.3					20	19.0	1.0	22	3	
20	14	58.8	15	11.8	15	25.2	16	4.2	6.0			
"							16	7.5	10.1			
"							16	12.0	11.0			
"							16	14.0	11.1			
"							16	20.5	5.1			
"							16	24.5	6.5			
"							16	37.5	5.0			
"							16	44.5	2.7	20	19	
21	16	34.8										
"	17	11.6										
"	18	1.6					18	32.5	0.5			
"							18	37.0	0.5			
"							18	41.0	0.5	19	30	
23	5	54.7					6	25.8	1.0	7	15	
27	6	8.0	6	10.8	6	15.7				6	32	Small.
Oct	21	16.8					21	22.5	0.7			Small
"							21	25.0	1.5	22	25	
"	7	5.7										} (A series of small ill-defined disturbances.
"	7	15.5										
"	7	18.4										
"	7	20.6										
"	7	36.5										
"	7	39.2										
12	7	18.5			7	29.0	7	31.0	1.0	8	7	
"	8	36	Incl.									
"	8	52.7					8	53.0	1.1	9	18	Revised of previous.
Instrument out of action during the greater part of remainder of the month.												
Nov.	November											
3	16	17.7			16	33.4	16	41.0	2.0	17	17	
4	2	41.5					2	57.0	0.5	3	5	
6	11	12.5					11	21.5	1.0	11	38	
12	5	55.6	5	54.8	6	2.5	6	15.3	2.0	7	28	
20	8	55.7	8	54.0	9	2.2	9	4.1	2.1	9	55	

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Date	P ₁		P ₂		P ₃		Maximum		2 A	End		Boom Deviation, 1 mm = 2.20" arc Boom Period = 18.0 sec. Pillar Inclination 1 mm = .440" arc
	H.	M.	H.	M.	H.	M.	H.	M.	mm	H.	M.	
1920												
Dec												December
4	6.	35.80					6.	48.5	1.1			
"							6.	46.0	1.1	6.	59	
"	23.	44.9			23.	57.7	24.	0.4	0.5			
"							24.	5.6	0.7	24.	28	
5	10.	12.5					10.	38.0	1.0	11.	11	
6	2.	10.33					2.	17.5	0.3			
"							2.	26.5	0.5	2.	36	
8	2.	70 In.										very small
"	4.	8.5 In.										" "
10	3.	10.5 In.										" "
"	3.	2.5 In.										" "
"	3.	44.9 In.										" "
"	7.	40.0	4.	52.7	5.	45.4	5.	30.0	3.8			
"							5.	55.2	4.0	8.	2	
11	21.	44.8			22.	5.5	22.	14.5	1.0	22.	43	
13	4.	17.0					5.	56.0	1.6	2.	7	Slight tremors almost continuously.
14	15.	58.0								17.	25	small
16	Several earthquakes of which we have no record. The time of commencement was during the period of changing film, and the magnitude of the disturbance was so great that the instrument out of action for causing the boom to stick before the new film was in position. The boom freed itself about 2 1/4 to 13 ^m .											
17	19.	24.6 In.					20.	10	1.6	20.	58	
18	2.	10.0 In.					2.	14.5	2.6	2.	30	
												Light quaked 18 ^h 20 ^m to 19 ^h 12 ^m .
19	20.	67 In.					21.	5.5	1.0	21.	41	
25	11.	58.20	12.	1.8	12.	10.9	12.	15.0	5.0	13.	13	Phases Uncertain
26	20.	15.6 In.								20.	28	Small
30	7.	45.0 In.					7.	50.0	1.0	8.	27	

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