EARTHQUAKE RECORDS BY MILNE SEISMOGRAPH.

1912

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Register from Toronto, Ontario. *(Name of Station)*

Director, ~~*Superintendent, or Observer*~~ R. F. Stupart F.R.S.C.

Date 1912	P.T. Commence H.	M.	L.W. Commence H.	M.	Max. H.	M.	End H.	M.	Max. Amplitude. MM.	Duration H.	M.	Remarks.
Jany 4th	14	37.0					14	42.5	0.1	0	5.5	
" 4th	14	49.3					14	53.3	0.05	0	4.0	
" 4th	15	57.7	½ 16	6.5	16	29.8	18	1.8	1.0	2	4.1	
			⅓ 16	12.7	B 16	19.7						
" 16th	11	18.6			11	20.7	11	28.2?	0.1	0	9.6	
" 24th	16	59.6	½ 17	6.5	17	11.9	17	35.4	0.2	0	35.8	
			⅓ 17	9.7								
" 25th	2	4.2	2	8.3	2	10.5	2	21.7?	0.2	0	17.5	
" 31st	11	44.0?					12	12.9?	0.1			
	11	49.5										
" 31st	20	21.6	20	28.9	20	37.9	22	18.8?	5.9	1	57.2	Medium. S.W. Alaska
	20	25.8	L.W. 20	33.6								
Feby 19th	23	12.5			23	12.8	23	26.9	0.5	0	14.4	
" 21st	V, 8	2.8	8	15.0	8	15.6	8	25.0	0.4	0	22.2	
	V₂ 8	8.6										
March 11th	10	31.2?	10	35.9	10	37.9	11	44.2	3.0	1	13.0	A second maximal 10 40.2
	10	34.0	L.W. 10	37.1								
" 25th	5	20.3					5	21.5	0.05	0	1.2	
Apl 3rd	21	58.2					22	45.5	0.1	0	47.3	
" 13th	19	8.1			19	8.9	19	12.4	0.4	0	4.3	
" 14th	No P.Ts		13	54.3	13	54.8	14	10.8	0.4	0	16.5	
" 17th	4	2.7	4	10.5	4	14.2	4	58.1	1.0	0	55.4	

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1912

Register from Toronto Canada *(Name of Station)*

Director, Superintendent, or Observer R. F. Stupart - F.R.S.C.

	Date 1912	P.T. Commence H.	P.T. Commence M.	L.W. Commence H.	L.W. Commence M.	Max. H.	Max. M.	End H.	End M.	Max. Amplitude. MM.	Duration H.	Duration M.	Remarks.
7	June 3rd	0	14.2	—		0	14.6	0	28	0.2	0	6.6	Marked thickenings
	" 3rd	12	39.4					12	40.4	0.05	0	1.0	Doubtful as to being seismic
	" 3rd	12	51.9			13 13	28.5) 38.9)	14	0.06	0.3 0.3	1	8.1	Prolonged thickenings increasing at times
	" 6th	15	32.9					15	33.4	0.05	0	0.5	Momentary thickening
	" 6th			16	34.8								

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1912

Register from Toronto, Ontario. *(Name of Station)*

Director, Superintendent, or Observer

	Date 1912	P.T. Commence H.	P.T. Commence M.	L.W. Commence H.	L.W. Commence M.	Max. H.	Max. M.	End H.	End M.	Max. Amplitude. MM.	Duration H.	Duration M.	Remarks.
	April 20th	2	27.8?					2	52.7	0.05	0	24.9	
		2	34.2										
	May 6th	19	13.7	19	20.5	19	24.3	21	11.9	8.5	1	58.2	Off Canary Islands
		½ 19	16.8 (4 L.W)	19	21.9								
	" 11th	5	34.7					5	36.4	0.1	0	1.7	
	" 18th	22	19.8					22	20.5	0.05	0	0.7	
	" 21st	10	16.0	½ 10	23.8	10	26.3	10	57.6	0.4	0	41.6	
		10	20.1										
	" 23rd	2	52.0	½ 3	0.4	3	36.8	5	20.0	4.5	2	28.0	Four well defined max^s echo larger in each case -
		2	54.0	L.W 3	16.3	3	37.8			4.9			
						8	41.0			3.9			
						3	42.1			5.5			
	" 27th	12	52.0					12	52.8	0.2	0	0.8	
	" 27th	13	0.7					13	5.8	0.05	0	5.1	
	" 28th	13	13.6					14	6.3	0.1	0	52.7	

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Date 1912	P.T. Commence H.	P.T. Commence M.	L.W. Commence H.	L.W. Commence M.	Max. H.	Max. M.	End H.	End M.	Max. Amplitude. MM.	Duration H.	Duration M.	Remarks.
June 3rd	0	14.2	—		0	14.6	0	28	0.2	0	6.6	Marked thickenings
" 3rd	12	39.4					12	40.4	0.05	0	1.0	Doubtful as to being seismic
" 3rd	12	51.9			13	28.5) 38.9)	14	0.06	0.3 0.3	1	8.1	Prolonged thickenings increasing at times
" 6th	15	32.9					15	33.4	0.05	0	0.5	Momentary thickening
" 6th			16	34.8	17	52.0			0.05			Do
" 6th	18	45.6					18	47.0	0.05	0	2.0	"
" 6th	21	37.3					21	38.1	0.05	0	0.8	"
" 6th	21	46.7					21	47.2	0.05	0	0.5	"
" 6th	22	21.7					22	23.7	0.05	0	2.0	"
" 6th	22	49.0					22	49.3	0.05	0	0.3	Alaska.
" 7th	0	47.5					0	48.5	0.05	0	1.0	
" 7th	4	3.8			4	5.8	4	48.7	0.2	0	44.9	Extended thickenings
" 7th	5	2.0			5	2.8	5	20.0	0.2	0	18.0	Do
" 7th	5	41.0					6	22.0	0.1	0	41.0	Extended thickenings increasing at times
" 7th	6	36.0					6	46.0	0.05	0	10.0	
" 7th	6	54.6			7	41.7	8	04.0	0.3	0	14.4	Do
" 7th	8	28.0			8	28.9	8	56	0.2	0	28.0	Do
" 7th	9	16	9	20.1	9	23.0	9	48.0	0.4	0	32.0	by Small
" 7th	10	17.1	10	21.0	10	26.7			0.8			continued
" 7th			11	00.1	11	04.1	12	13.0	0.6			Two bulges followed by flattening out

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Register from Toronto Canada *(Name of Station)*

Director, ~~*Superintendent, or Observer*~~ R F Stupart F. R. S. C.

	Date 1912	P.T. Commence H.	M.	L.W. Commence H.	M.	Max. H.	M.	End H.	M.	Max. Amplitude. MM.	Duration H.	M.	Remarks.
7	June 7th	12	24·1	12	49·5	12	51·5	14	14·0	0·8	1	49·9	may be a part of last disturbance
	" 7th	14	39·5	14	45·3	14	46·3	15	27·2	0·3	0	47·7	Marked thickngs
	" 7th	16	28·8					16	53·4	0·5	0	24·6	Minute thickngs at times
	" 7th	18	39·7	18	50·5	18	52·1	21	15·0	08	3	353	Small
		½18	45·5										
	" 7th	21	30·2	Minute thickngs began and became more pronounced at following times culminating in a larger disturbance on 8th at h 1 m 54·9									
	" 7th			22	8·7					0·2			
	" 7th			23	12·0					0·2			
	" 8th			0	25·3					0 3			
	" 8th			0	44·8					0·4			
	" 8th			1	23·2					0·3			
	" 8th			1	45·9					0 3			
	" 8th	2	37·3	2·40·3		2·41·8				0·3			
	" 8th			3	20·0	3	21·3	4	25·0	0.4			
	" 8th	4	54·4	5	00·0					D·1			
	" 8th			5	26·3					0·2			
	" 8th			5	51·0					0·3			
	" 8th			6	39·0	6	42·0			03			
4	" 8th			6	42·4					0·3			
5	" 8th			6	54·0	6	56·9			0·2			

Alaskan Eq Qo

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	Date 1912	P.T. Commence H.	P.T. Commence M.	L.W. Commence H.	L.W. Commence M.	Max. H.	Max. M.	End H.	End M.	Max. Amplitude. MM.	Duration H.	Duration M.	Remarks.
6	June 8th			7	15·6	7	18·5	7	53·6	1·8			
"	8th			7 8	54·9) 01·4)	8 8 8	1·9 3·2 5·7	13	02	4·0 5·0 8·0			Began abruptly boom fairly quiet 2 mins before cigar shaped movement
"	8th	13	6·2							0·05	0	5·8	
"	8th	13	15·0	13	25·2	13	27·6	16	01·0	1·8	2	54·8	medium
"	9th	5	19·1					5	20·8	0·1	0	1·7	Thickings
"	9th	7	21·0					7	27·2	0·1	0	6·2	
"	9th	8	8·2					8	10·1	0·05	0	1·9	
"	9th	8	45·7			8	50·8	9	4·0	0·3	0	18·3	by small
"	9th	16	21·8					16	45·5	0·1	0	23·7	Slight thickings
"	9th	17	1·0					17	5·0	0·05	0	4·0	
"	9th	17	35·7	17	39·6	17	44·1	18	50·6	0·8	1	14·9	Small
"	9th	22	3·9			22	7·5	22	27·5	0·3	0	23·6	
"	9th	22	35·0			22	39·8	23	17·5	0·3	0	42·5	
"	10th	11	59·4					12	0·5	0·05	0	1·1	
"	10th	12	19·4	A continuation of minute thickings up 13·48									
"	10th	13	48·2					13	49·1	0·05	0	0·9	
"	10th	14	25·8					14	26·8	0·05	0	1·0	
"	10th	16	15·5										
		V_2 16	22·9	V_3 16	27·7	16	36·8	19	30·5	6·0	2	15·0	Well defined dis.

Also to Kamloops

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54	June 10th	18	53·0					19	37·0	0·05	0	43·5	Slight thickngs
55	" 12th	7	22·7	7	30·3	7	32·8	8	12·3	0·8	0	49·6	Well defined
		½ 7	28·2										
56	" 12th	12	51·5	12	54·7	12	57·8	14	30·2	0·8	1	38·7	12th minute movements at intervals 12 to 12.46 taken as a Ts
						12	58·8						
	" 13	11	44·5							0·05			Doubtful as to being seismic
	From	11	56 to	13	35·6	of 13th		small movements at intervals			Shide reports small dis 12h 42m		
	" 17th	11	34·3	11	52·6	11	58·7	12	49·1	0·5	1	14·8	Long duration of P.T.
	" 18th	3	54·1					4	10	0·1	0	15·9	
	" 18th	12	13·7					14	20·7	0·2	2	7·0	Prolonged thickngs
	" 27th	19	53·9					18	33·3	0·1	0	6·6	Doubtful as to being seismic
	" 27th	22	39·5	22	41·5			20	0·5	0·2	a Ts		a Ts going on
	" 29th	8	2·6	8	10·6			8	23·6	0·2	0	21·0	Marked thickngs

Period 14·7 Seconds 1 mm 0"64

We shall employ the Rutaken system adopted by the Manchester Session of July 1911 in our next tabulations to you as per according to your Circulars —

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4	July 7th	8	5.6	8	16.9	8	21.4	10	54.0	13.9	2	48.4	Alaska
		½ 8	12.4			8	22.7			11.0			
						8	24.2			15.0			
						8	37.0			6.5			
5	" 8th	22	6.6	22	14.7	22	18.3	23	32.5	2.5	1	25.9	
		22	10.9	22	17.5								
	" 9th	23	1.1					23	7.3	0.05	0	6.2	
	" 9th	23	24.9					23	26.9	0.05	0	2.0	Doubtful
	" 18th	? A.C.	21 34.3	small vibs ~~undecipherable~~		again	21 53.6	+ ending		22	23.0		amp. = 0.1 mm.
	" 19th	13	16.3				13	24.7	0.2	0	8.4		
	" 23th	22	59.1				23	3.8	0.05	0	4.7	Prec Beginning doubtful.	
	" 24th	12	9.8	12	14.4	12	23.5	13	57.0	0.8	1	47.2	Uncertain as to beginning — a part
	" 25	23	26.8	23	43.2			23	50.0	0.2	0	23.4	May be ~~a continuation~~ of ~~last dis.~~ of 1/3
	" 26th	0	2.6			0	6.9	0	13.6	0.3	0	11.6	
	Aug 6th	21	41.3		air currents					0.2			
	" 6th	22	13.4		Do	Do							

Period 14.4 seconds / mm 0"64

No. 191 2

Toronto, Canada.

SEISMOLOGICAL BULLETIN

LATITUDE	LONGITUDE	HEIGHT	SUBSOIL
43° 40′ 0″.8	5h 17m 35.60s W.	373 feet above sea level	Sand and clay.

Apparatus: Milne horizontal pendulum, North.

T_0		$\frac{r}{T_0^2}$
Y 35 seconds	1 mm	0″.64
A_E: 14.Y		

Time: Mean Greenwich, midnight to midnight.

ate	Phase	Hour	Period	Amplitude A_N	Amplitude A_E	Amplitude A_Z	△	Remarks
16h	P	19 13.Y						Two principal
	S	19 16.8						Max Swell
	L	19 20.5						marked
	M_1	19 22.6	12.18					Press Reports
	M_2	19 24.3			8.5			say EQ off
	C_1	19 27.0						the Canary Islands
	C_2	19 27.9						
	2′	19 21.9						
	2′	19 26.Y						
	2′	19 5Y.2						
	H	21 11.9						

Victoria

1912.

Toronto, Canada.

SEISMOLOGICAL BULLETIN

LATITUDE	LONGITUDE	HEIGHT	SUBSOIL
~~48° 40′ 0″.8~~ 48° 24′ North	~~5h 17m 35.60s~~ W. 123° 19′	~~373 feet above sea level~~ Bron, abt 5 feet	~~Sand and clay.~~ Rock -

Apparatus: Milne horizontal pendulum, North.

T_o		$\frac{r}{T_o^2}$
Y: 5		0″.76
A_E: 15·0 seconds		

Time: Mean Greenwich, midnight to midnight.

Date	Phase	Hour	Period	Amplitude A_N	Amplitude A_E	Amplitude A_Z	△	Remarks
Feb 4	P	19 16·0						
	S	19 20 5						
	L	19 23 4	18					
	L	19 26·8	24					Peers reported Say & Q off Canary Islands.
	M.	19 29. 3	24		6·8			
	C_1	19 32·5						
	C_2	19 34·3	18					
	"	19 36·3						
	2	19 37·2						
	F	21·02						

o. /

1912

Toronto, Canada.

SEISMOLOGICAL BULLETIN

LATITUDE	LONGITUDE	HEIGHT	SUBSOIL
43° 40′ 0″.8	5h 17m 35.60s W.	373 feet above sea level	Sand and clay.

Apparatus: Milne horizontal pendulum, North.

	T_o		$\frac{r}{T_o^2}$
A_E:	7.35		0″64

Time: Mean Greenwich, midnight to midnight.

Date	Phase	Hour	Period	Amplitude A_N	Amplitude A_E	Amplitude A_Z	△	Remarks
					m.m.			
	P	1 42.6)						
ust 7th		1 47.8)						
	S	1 50.6						
	L	1 57.9	18 to 30					Turkish Earthquake
	Max	2 16.9	20		4.5			
	M_2	2 18.9	18					
	M_1	2 13.3			3.5			
	M_1	2 14.6			4.0			
	C_1	2 24.1	12					
	F	4 37.8						
	i	2 13.1						
	i	2 18.9						
	i	2 25.6						
ust 17th	P	19 34.0						
	M.1	Not decided			0.3			Extended thickenings
	F	21 28.6						
ust 18th	P	21 21.9						
	L	21 26.7						Sudden vib. just before maximum then gradually takered off.
	M	21 26.8						
		Sudden vib's.			0.8			
	F	21 54.0						Arizona.

o. 2 1912

Toronto, Canada.

SEISMOLOGICAL BULLETIN

LATITUDE	LONGITUDE	HEIGHT	SUBSOIL
43° 40′ 0″.8 N.	5h 17m 35.60s W.	373 feet above sea level	Sand and clay.

Apparatus: Milne horizontal pendulum, North.

T_o		$\frac{r}{T_o^2}$
7.35		0″64

A_E:

On September 14th. after 17h. Period of boom was altered to 17.7 seconds +

Time: Mean Greenwich, midnight to midnight.

Date	Phase	Hour	Period	Amplitude A_N	Amplitude A_E	Amplitude A_Z	△	Remarks
Aug 23rd	P	14 57.7						
	L	15 0.0						
	M.	Not decided			0.2			Thickening
	F	15 57						
23rd	P.	19 27.1						
	L	19 27.3						
	M.	19 27.3						
	F	19 34.2			0.3			
31st	P	23 5.7						Doubtful as to being Seismic
	M.	Not decided						
	F	23 56.9			0.2			Thickening
Sept 1st.	P	4 41.1						
	F	5 13.5			0.1			Do.
10th	P	Not Shown						
	M.	16 48.9						Began suddenly Max at beginning
	F	16 40.0			0.3			
11th	P	2 15.7						Uniform thickening
	F	16 40.0			0.1			
14th	P	0 1.0						A.Ts. going on before and after
	L	0 12.0			0.5			
	M.	0 17.4						
	F	0						

o. 3 191 2

Toronto, Canada.

SEISMOLOGICAL BULLETIN

LATITUDE	LONGITUDE	HEIGHT	SUBSOIL
43° 40′ 0″.8 N.	5 h 17 m 35.60 s W.	373 feet above sea level	Sand and clay.

Apparatus: Milne horizontal pendulum, North.

	T_o		$\frac{r}{T_o^2}$
	8.85		0 " 41
A_E:			

After 15 hours on Sept. 14th Period of boom altered to 17.7 1 mm = 0."41

Time: Mean Greenwich, midnight to midnight.

Date	Phase	Hour	Period	Amplitude A_N	Amplitude A_E	Amplitude A_Z	△	Remarks
			S.		mm			
20th	P	21 43.6						
	S	21 46.8						Thickening of the line Suspicion of A.T's. before 21 43.6
	M.	21 49.1						
	F	22 11.0			0.3			
21th								
	P	21 11.6						
	S	21 21.2						
	L	21 48.1	12 to 18 sec.					
	M1	22 12.6						
	M2	22 18.1	24 sec to 30 sec.		4.3			
	C1	22 19.8						Long duration of L W's
	C2	22 22.6	18 to 24 sec					
	F	24 42.0						Pronounced dio.
	i	21 21.2						
	i	21 48.1						
	i	22 4.8						
	i	22 22.3	18 to 24 sec					

Toronto, Canada.

SEISMOLOGICAL BULLETIN

LATITUDE	LONGITUDE	HEIGHT	SUBSOIL
43° 40′ 0″.8 N	5 h 17 m 35.60 s W.	373 feet above sea level	Sand and clay.

Apparatus: Milne horizontal pendulum, North.

T_o		$\frac{r}{T_o^2}$
8·85 secs		1 mm = 0″41

A_E:

Time: Mean Greenwich, midnight to midnight.

Date	Phase	Hour	Period	Amplitude A_N	Amplitude A_E	Amplitude A_Z	△	Remarks
	P	15	32·8					
	S	15	38·3					S came in abruptly and ended gradually
	L	15	53·7					
	L	15	56·6					
	M_1	16	1·5	18 mm	0·8		6350 km	Marked dis. of a minor character.
	M_1	16	5·9		0·9			
	M_2	16	7·0					
	C_1	16	11·6	24				
	C_2	16	13·6					
	i	15	53·7					
	i	15	56·6					
	i	16	13·6					
	i	17	21·0					

Toronto, Canada.

SEISMOLOGICAL BULLETIN

LATITUDE	LONGITUDE	HEIGHT	SUBSOIL
43° 40′ 0″.8	5h 17m 35.60s W.	373 feet above sea level	Sand and clay.

Apparatus: Milne horizontal pendulum, North.

	T_0		$\frac{r}{T_0^2}$
A_E:	8.85 secs		0″.41

Time: Mean Greenwich, midnight to midnight.

Date	Phase	Hour	Period	Amplitude A_N	Amplitude A_E	Amplitude A_Z	△	Remarks
July 12	P	10	45.9					S doubtful
	S?	10	52.0					
	L	11	1.3					
		11	4.0					
	M_1	11	5.6		0.3			Uniform thickening
	F	11	51.0					
18th	P	12	14.2					
	S	12	22.0				5?000	Beginning well defined - marked dip with double max.
	L	12	27.3					
	L	12	31.2	12				
	M_1	12	34.4					
	M_1	12	32.6	12 to	2.9			
	M_2	12	34.6	18	2.3			
	M_2	12	37.5					
	C_1	12	38.1	18 to				
	C_2	12	39.5	24	1.6			
	C_2	12	43.2					
	i	12	31.9	18				
	i	12	42.5	Quick				
	F	13	57.3					

Toronto, Canada.

SEISMOLOGICAL BULLETIN

LATITUDE	LONGITUDE	HEIGHT	SUBSOIL
43° 40′ 0″.8	5 h 17 m 35.60 s W.	373 feet above sea level	Sand and clay.

Apparatus: Milne horizontal pendulum, North.

T_0		$\frac{r}{T_0^2}$
D. 17.7 seconds		
A_E: 8.85 seconds		0.41

Time: Mean Greenwich, midnight to midnight.

Date	Phase	Hour	Period	Amplitude A_N	Amplitude A_E	Amplitude A_Z	△	Remarks
Jan 20th	P	10	43.8)					A very gradual thickening of line No defined Max
	P	10	44.8)					
	M	10	47.0		0.2			
	F	11	2.3					
21st	P	13	0.0					Nothing in Victoria Doubtful as to being seismic
	F	13	4.0		0.1			
26th	P	10	6.1					
	F	10	38.6		0.05			Minute thickening P. not well marked
31st	P	18	20.7					
	P	18	23.5					
	S	18	33.4					Thickenings at intervals ~~xxx~~ No defined Max
	L	18	40.4					
	M.	18	40.8		0.3			
	M.	18	45.4		0.3			
	F	20	18.7					
Feb 1st	P	16	24.1					Slight thickening may be A.C. Nothing on Victoria traced.
	F	16	57.1		0.05			
Nov 2nd	Nothing on Toronto recorded at 14 h 4 m 5			sheet to correspond to Victoria Toronto paper changed at 14 h 28 m				

Toronto, Canada.

SEISMOLOGICAL BULLETIN

LATITUDE	LONGITUDE	HEIGHT	SUBSOIL
43° 40′ 0″.8	5h 17m 35.60s W.	373 feet above sea level	Sand and clay.

Apparatus: Milne horizontal pendulum, North.

T_0		$\frac{r}{T_0^2}$
T 17.7 seconds		
A_E: 8.85 seconds		0″.41

Time: Mean Greenwich, midnight to midnight.

Date	Phase	Hour	Period	Amplitude A_N	Amplitude A_E	Amplitude A_Z	△	Remarks
7th	P	7 49.0						
	S	7 55.9						
	(M)	7 58.2	? 12		1.4			
	L	7 59.2						A very active dis. Alaska
	L	8 00.1	12 to 18					
	M1.	8 1.0	24		5.4			
	M2	8 3.7						
	C1	8 4.7	24		1.7		4200	
	C2	8 5.7						
	C1	8 12.0						
	C2	8 13.3	12 to 18		2.9			
	i	8 19.3	18 to 24					Reinforced.
	i	9 35.0						
	F	10 50.5						
	F	10 23.7						
	C1	8 7.9						
	C2	8 9.0			2.4			

No. 8

1912

Toronto, Canada.

SEISMOLOGICAL BULLETIN

LATITUDE	LONGITUDE	HEIGHT	SUBSOIL
43° 40′ 0″.8	5h 17m 35.60s W.	373 feet above sea level	Sand and clay.

Apparatus: Milne horizontal pendulum, North.

T_o		$\frac{r}{T_o^2}$
8.85 seconds		0'41
A_E: 7.17.7 seconds		

Time: Mean Greenwich, midnight to midnight.

Date	Phase	Hour	Period	Amplitude A_N	Amplitude A_E	Amplitude A_Z	△	Remarks
Nov 7th	P	16	57.3					
	S	16	59.8					
	M_1	17	3.0	18		0.9		Vibrations of equal cycle from 17h 3m to 17 6 with a quick period
	M_2	17	6.2					Curve presents a bulging appearance
	F	17	37.4				3108	Amplitude became suddenly reduced at 17 6.2
	i	17	2.3		Possibly merged into another clio.			
Nov 7th	P	17	42.2					Small vibrations
	S	17	44.8					May have continued until next Eq.
	L	17	47.5					Nicaragua
	M.	17	48.4	12 to 24	18			Eq. at San Juan
	M_2	17	51.5			1.5	3108	Two shocks were felt this morning
	C_1	17	58.7					both strong and
	C_2	18	1.2		24			separated by an
	F	18	51.2	Quick				interval of an hour
	i	17	51.7					Reinforced small movements at 18 28.0
								Bulging character from 17 48.4 to 17 51.5 by much of a character of the previous clio vibs became very much reduced at 17.51.7

Possibly Nicaragua

No. 9

1912

Toronto, Canada.

SEISMOLOGICAL BULLETIN

LATITUDE	LONGITUDE	HEIGHT	SUBSOIL
43° 40′ 0″.8 N	5 h 17 m 35.60 s W.	373 feet above sea level	Sand and clay.

Apparatus: Milne horizontal pendulum, North.

T_0		$\frac{r}{T_0^2}$
8.85 secs.		0″41
A_E: 0.177 second		

Time: Mean Greenwich, midnight to midnight.

Date	Phase	Hour	Period	Amplitude A_N	Amplitude A_E	Amplitude A_Z	△	Remarks
Nov. 13	P	1 35.0						by gradual thickening of line
	F	2 4.2			0.2			
17th	P	11 51.0						
	M	11 52.0			0.3			Marked thickening gradually died off and became marked again at 11 56.0
	M	11 59.0			0.2			
	F	12 10.8						Came from the east.
	i	11 56.0						
19th	P	14 1.0						
	S	14 5.9						
	L	14 11.1						P. rather doubtful switching of boom before.
	L	14 12.9					3220	
	M_1	14 15.1	12 to 18		1.7			Mexico city a severe Eq occurred at 7 15 this morning N to S. movement It lasted more than three minutes Walls of houses cracked.
	M_2	14 15.3						
	M_2	14 17.7						
	C_1	14 26.4						
	C_2	14 28.5						
	i	14 25.0						
	i	14 47.6						
	F	15 34.5						
		15						
19th	P	15 59.7						
	F	16 2.0			0.05			Doubtful as to being seismic

No./0

1912

Toronto, Canada.

SEISMOLOGICAL BULLETIN

LATITUDE	LONGITUDE	HEIGHT	SUBSOIL
43° 40′ 0″.8	5h 17m 35.60s W.	373 feet above sea level	Sand and clay.

Apparatus: Milne horizontal pendulum, North.

T_0		$\frac{r}{T_0^2}$
8.85 secs		0"41
A_E: 2 17.7 secs		

Time: Mean Greenwich, midnight to midnight.

Date	Phase	Hour	Period	Amplitude A_N	Amplitude A_E	Amplitude A_Z	△	Remarks
Nov. 22	P	1	12.8					Gradual thickening
	F	1	21.0		0.2			E & reported from Vancouver Island just before 5 hour Duration 6 seconds N and south
								Felt in N Vancouver also
25th	P	9	11.6					
	S	9	17.2					No defined Max Enlarged thickening
	M	9	18.3	2/4	0.5			Began abruptly shortly after 9 17.2
	F	9	31.6					
	Sur L	9	17.2					
	L	9	20.0					
26	P	6	50.2					
	M	Not defined			0.05			Minute thickenings Doubtful.
	F	6	54.2					
26	Air tremors pretty general throughout after 1/2							

No. 11

1912

Toronto, Canada.

SEISMOLOGICAL BULLETIN

LATITUDE	LONGITUDE	HEIGHT	SUBSOIL
43° 40′ 0″.8	5h 17m 35.60s W.	373 feet above sea level	Sand and clay.

Apparatus: Milne horizontal pendulum, North.

T_o		$\frac{r}{T_o^2}$
8.85 secs		0"41

A_E:
J 17.7

Time: Mean Greenwich, midnight to midnight.

Date	Phase	Hour	Period	Amplitude A_N	Amplitude A_E	Amplitude A_Z	△	Remarks
Nov. 27	L	9	37.8					Began abruptly A.C going on
	M	9	38.1		0.3			7.45 to 9 17
	F	9	56.9					also after 10h.
Dec 1st	P	9	29.0					
	M	9	43.3		0.5			No defined Max
	F	10	1.5					Thickening
5th	P	12	38.3					
	P	12	41.7					
	S	12	43.4					by small
	Li	12	47.0					
	M.	12	48.1					
	M.	12	54.9		0.4			
	M.	12	57.0		0.4			
	i	13	6.5		0.4			
	F	13	52.0					
	i	12	58.0					
	C.	12	59.0					

No. 12

1912

Toronto, Canada.

SEISMOLOGICAL BULLETIN

LATITUDE	LONGITUDE	HEIGHT	SUBSOIL
43° 40′ 0″.8	5 h 17 m 35.60 s W.	373 feet above sea level	Sand and clay.

Apparatus: Milne horizontal pendulum, North.

T_o	$\frac{r}{T_o^2}$
8.85 secs	0.″41

A_E:
2 17.7 secs

Time: Mean Greenwich, midnight to midnight.

Date	Phase	Hour	Period	Amplitude A_N	Amplitude A_E	Amplitude A_Z	△	Remarks
Dec 7th	P	22 55.4						sudden vrb. at 23 6.1
	L	23 6.1						
	M.	23 6.7	12 to		1.2		?	
	C_1	23 10.9	18				7.000	
	C_2	23 12.8						
	F	2 0 11.7						
Dec 8th	P	0 34.0						Marked thickening Minute vrbs. before 0 34.0 spider effect.
	S	0 38.3						
	M	0 44.0			0.4			
	C_1	0 52.8						
	F	spider effect						
Dec 8th	P	8 38.2						
	Si	8 42.6	6 to					Moderate dis
	L	8 45.0	12					Well marked sharp vrbs just after 8 45.0
	Li	8 50.3						
	M_1	8 51.7	12		7.2			
	M_2	8 55.8						
	e_1	8 57.5	12 to				3.900	
	C_2	9 2.0	18		4.3			
	C_3	9 3.3						
	C_3	9 5.5	18		1.8			Ending doubtful cir c.
	F	2 10 53.5						

No. 13

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Toronto, Canada.

SEISMOLOGICAL BULLETIN

LATITUDE	LONGITUDE	HEIGHT	SUBSOIL
43° 40′ 0″.8	5h 17m 35.60s W.	373 feet above sea level	Sand and clay.

Apparatus: Milne horizontal pendulum, North.

	T_0		$\frac{r}{T_0^2}$
	8 ·85		6!!·41
A_E:			

Time: Mean Greenwich, midnight to midnight.

Date	Phase	Hour	Period	Amplitude A_N	Amplitude A_E	Amplitude A_Z	△	Remarks
Dec 2 1/4	P	0 31·4						
	S	0 35·9			0·3			Thickens
	Y	? 0 52·6						
	Y	? 1·00	3					
14th	P	10 43·8						
	Y	10 53·9			0·05			
21st	P	0 54·8						
	Y	1 2·6			0·1			Rather doubtful as to being Seismic
22nd	P	21 24·8						
	Y	21 33·8			0·05			
22nd	P	23 39·0						
	M	23 42·6						Thickens
	Y	0 5·9			0·3			
								23rd ac 23 15 to 23 39
24th	P	0 25·9						
	Y	0 46·5			0·05			
24th	P	1 00·4						
	M	1 17·4			0·2			Thickens Suspicion
	M	1 31·4			0·3			of ac_s
	Y	1 49·9						
28th	P	8 36·4			0·05			
	Y	8 38·4						
28th	P	9 19·4			0·05			Thickens at intervals
	Y	9 44·2						