



# RECORD

OF THE

## Earthquake Station, St. Boniface College Observatory

ST. BONIFACE, MAN.

LATITUDE 49° 53' 31" N., LONGITUDE 97° 6' 39" W. Alt. 230 M.

TIME: Mean Greenwich, midnight to midnight, 0-24 hrs.

INSTRUMENT: Wiechert 80 Kg. Horiz.

NOMENCLATURE: International.

1911

From January 1st.

to January 31st.

DATE.	CHAR.	PHASE.	TIME. h. m. s.	PERIOD. s.	AMPLITUDE.		REMARKS.
					AE P	AN P	
Jan. 2	I	LE	23 50 10	20			
Jan. 3	II	PE	<sup>23</sup> <del>11</del> 18 10	2			
		SN	<sup>23</sup> <del>11</del> 37 50	3			
		SE	<sup>23</sup> <del>11</del> 37 50	4			
		eLN	<sup>23</sup> <del>11</del> 48 25	12@30			
		eLE	<sup>23</sup> <del>11</del> 48 35	12@25			
		MN	<sup>0</sup> <del>12</del> 20 2	20		137	
		ME	<sup>0</sup> <del>12</del> 15 3	20	107		
		CN	<sup>0</sup> <del>12</del> 33 15	15			
		CE	<sup>0</sup> <del>12</del> 35 10	15			
		FN	<sup>1</sup> <del>13</del> 30 30				
FE	<sup>1</sup> <del>13</del> 31 30						
Jan. 20						Microseisms the whole day	
Jan. 21						" " "	
Jan. 27						"	
Jan. 30						" prevailed	

*St. Rousseau*



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TIME: Mean Greenwich, midnight to midnight, 0-24 hrs.

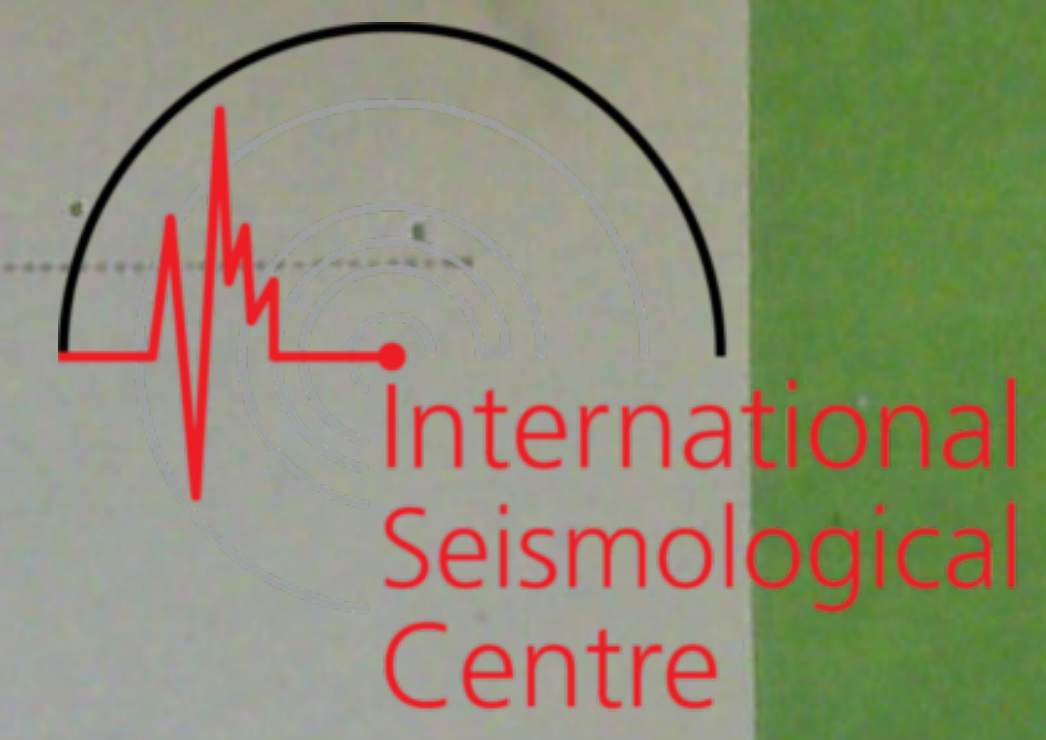
INSTRUMENT: Wiechert 80 Kg. Horiz.

NOMENCLATURE: International.

From February 1rst to 17th.

DATE.	CHAR.	PHASE.	TIME. h. m. s.	PERIOD. s.	AMPLITUDE.		REMARKS.
					AE P	AN P	
3							Microseisms
5	I	PE ?	4 32 5				
		PN	4 30 32				
		SE ?	4 36 22				
		SN ?	4 36 10				
		LE	4 38 50	6	12		
		LN	4 40 15	6	slight		
		CE	4 47 45				
		CN	4 50 20				
		FE	4 59 40				
		FN	4 59 17				
12							Microseisms
13							"
16	I	OE	20 22 27				
		CE	20 23 50				
		FE	20 30 0				
17	I	LE	0 49 35				The N comp. very lightly af-
		LE	0 51 20				ected.
		LE	0 52 40				
		CE	0 54 0				
		FE	1 2 10				

*Russseau S.*



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NOMENCLATURE: International.

From Feb. 17th. to 18th.

DATE.	CHAR.	PHASE.	TIME. h. m. s.	PERIOD. s.	AMPLITUDE.		REMARKS.	
					$A_E$ $P$	$A_N$ $P$		
17	I	PE ?	14 31 45				PE and N covered by local disturbances; might have begun before	
		PN ?	14 31 0					
		SE	14 37 0					
		iLE	14 38 5					
		LN	lines overran one another					
		ME	14 38 55		24			
		CE	14 41 15					
		FE	14 53 20					
18	I	PE	1 51 5				Comp.N slightly affected-irregular.	
		SE?	2 7 0					
		LE	2 9 20					irregular
		LE	2 10 0	12				regular nice curve
		ME	2 10 30		27			
		CE	2 11 0					
		FE	2 29 25					

*A. Rousseau*



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TIME: Mean Greenwich, midnight to midnight, 0-24 hrs.

INSTRUMENT: Wiechert 80 Kg. Horiz.

NOMENCLATURE: International.

From Feb. 18th. to

DATE.	CHAR.	PHASE.	TIME. h. m. s.	PERIOD. s.	AMPLITUDE.		REMARKS.
					AE P	AN P	
18	Iu	PE ?	18 56 10				
		PN	18 54 0				
		SE	19 4 54				
		SN	19 4 50				
		SE	19 19 0				
		EN	19 24 50				
		LE	19 31 10	20			
		LN	19 37 0	20			
		ME	19 50 0		23		
		MN	19 41 30			28	
		CE	19 55 50				
		CN	19 54 15				
		FE	20 16 40				
FN	20 12 10						
18						Microseisms (whole day)	
19						" " "	
20						" A.M.	

*H. Rousseau*



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TIME: Mean Greenwich, midnight to midnight, 0-24 hrs.

INSTRUMENT: Wiechert 80 Kg. Horiz.

NOMENCLATURE: International.

From *March 1st* to *March 31st*.

DATE.	CHAR.	PHASE.	TIME. h. m. s.	PERIOD. s.	AMPLITUDE.		REMARKS.
					<i>AE</i> <i>P</i>	<i>AN</i> <i>P</i>	
<i>March 7</i>	<i>II</i>	<i>P<sub>E</sub></i>	<i>14 25 20</i>				
		<i>S<sub>E</sub></i>	<i>14 29 25</i>				
		<i>L<sub>E</sub></i>	<i>14 31 45</i>	<i>6</i>			
		<i>M<sub>E</sub></i>	<i>14 31 55</i>	<i>6</i>	<i>25'</i>		
		<i>C<sub>E</sub></i>	<i>14 34 20</i>	<i>6</i>			
		<i>F<sub>E</sub></i>	<i>14 44 0</i>				

*A. Rousseau S.J.*



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NOMENCLATURE: International.

From April 1rst.

to April 10

DATE.	CHAR.	PHASE.	TIME. h. m. s.	PERIOD. s.	AMPLITUDE.		REMARKS.
					AE P	AN P	
7	I	eLg	7 11 10	19			Very regular - No P. nor S noticeable
		eLN	7 10 0	19			
		ME	7 18 0				
		MN	7 17 5				
		FE	7 25 0				
		FN	7 25 0				
		PN	18 36 50	3			
		SN	18 38 50				
7	I	iLE	18 37 0	6	25		Very clear and regular for half a minute. Irregular immediately after. No P. nor S.
		LN	18 39 32	10	25		
		CE	18 39 10	6			
		CN	18 40 15				
		FE	18 46 0				
		FN	18 47 0				
10	I	PE	19 41 10				Big wind Comp. W could not be read
		SE	19 50 10				
		LE	19 54 20	12	27		
		CE	20 13 40				
		FE	Lost in disturbances caused by the wind.				



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NOMENCLATURE: International.

From April 10th

to April 31rst

DATE.	CHAR.	PHASE.	TIME. h. m. s.			PERIOD. s.	AMPLITUDE.		REMARKS.
							AE P	AN P	
11									Microseism
19									"
20									"
21									"
22									"
28	I	P <sub>E</sub>	10	1	0	2			
		P <sub>N</sub>	10	1	40	2			
		S <sub>E</sub>	10	8	5	4			
		S <sub>N</sub>	10	9	0				
		L <sub>E</sub>	10	10	45				
		L <sub>M</sub>	10	12	0				Very small and short.
		M <sub>E</sub>	10	11	20	10	25		
		C <sub>E</sub>	10	12	0				
		F <sub>E</sub>	10	22	0				



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NOMENCLATURE: International.

From May 1st.

to May 31st.

DATE.	CHAR.	PHASE.	TIME. h. m. s.	PERIOD. s.	AMPLITUDE.		REMARKS.
					AE P	AN P	
4th.	III	PE	23 41 0		Very rapid and very light.		
		PN	23 41 0		"	"	"
		SE	23 47 17				
		SN	23 47 25	4.7			
		iLE	23 54 45	5			
		iLN	23 54 45	8.15	225		
		CE	0 19 33	15		150	
		CN	0 17 5	15			
9th.	I	PE	18 25 40	3			
		SE	18 30 0				
		eLE	18 36 30	9	12		
		eLN	18 33 0	9		14	
		FE	18 44 0				
		FN	18 47 0				
25th.						Microseism	
26th.						"	
27th.						"	





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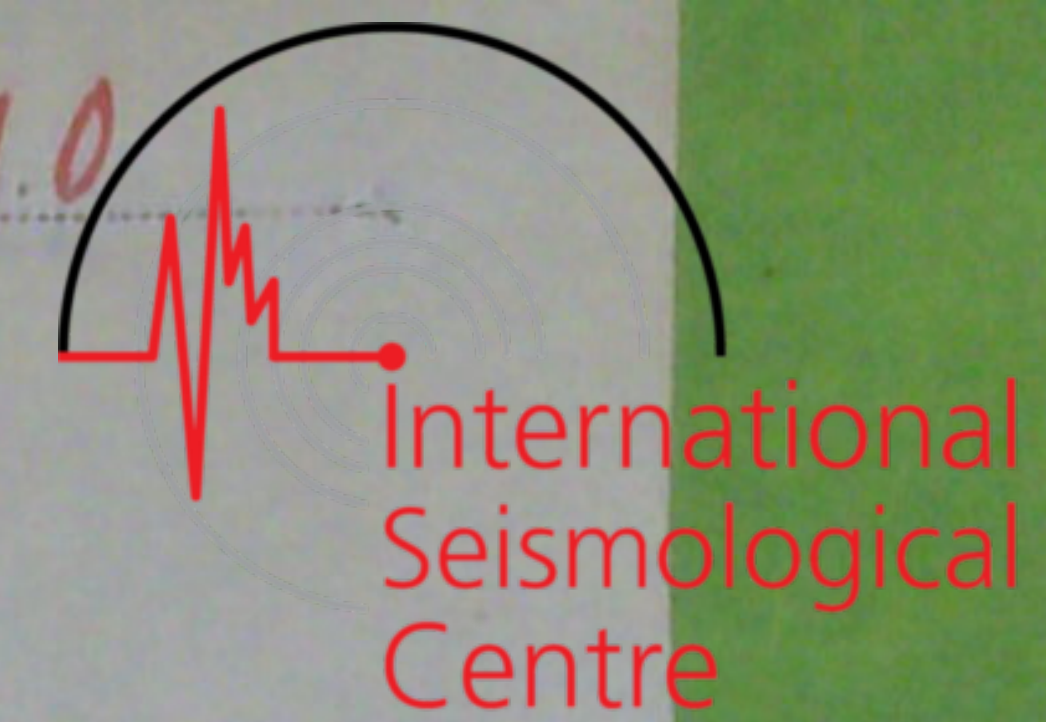
NOMENCLATURE: International.

From June 1st

to June 30

DATE.	CHAR.	PHASE.	TIME. h. m. s.	PERIOD. s.	AMPLITUDE.		REMARKS.	
					AE P	AN P		
7	III <sub>P</sub>	P <sub>N</sub>	11 9 9	3"			<p>Handwritten notes in Remarks column:</p> <p>11 14 20 11 9 30 5 11</p>	
		P <sub>E</sub>	11 9 30	3"				
		S <sub>N</sub>	11 14 20	5"				
		S <sub>E</sub>	11 15 0	5"				
		L <sub>N</sub>	11 19 45	6				
		L <sub>E</sub>	11 19 50	6				
		M <sub>N</sub>	11 23 30	12		1325		
		M <sub>E</sub>	11 22 10	6	1012			immediately after period was 11"
		C <sub>N</sub>	11 58 45	12				Distance calculated 3224 kil.
		C <sub>E</sub>	12 13 40	12				
		F <sub>N</sub>	13 9 30					
		F <sub>E</sub>	13 11 30					
15	III <sub>P</sub>	S <sub>N</sub> ?	14 37 43	5.			<p>Considerable amplitude at the start for one minute.</p>	
		S <sub>E</sub>	14 37 43	5.				
		L <sub>N</sub>	14 48 0	7.5				
		L <sub>E</sub>	14 48 0	7.5				
		M <sub>N</sub>	14 48 35	8.		250		
		M <sub>E</sub>	14 48 32	8.	125			
		C <sub>N</sub>	15 10 0					
		C <sub>E</sub>	15 20 0					
		F <sub>N</sub>	15 38 0					
F <sub>E</sub>	15 54 0							

*A. Fausseaux*



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NOMENCLATURE: International.

From July 1 to July 31

DATE.	CHAR.	PHASE.	TIME. h. m. s.	PERIOD. s.	AMPLITUDE.		REMARKS.
					AE P	AN P	
1	11	P <sub>e</sub>	22 9	3.9			The time is only approximate within a minute.
		S <sub>e</sub>		5			Ampl. reckoned from zero
		L <sub>e</sub>	22 16	12			Distance calculated = 2000
		L <sub>e</sub>	22 17	8.5			Epicenter near San Francisco
		M <sub>e</sub>	22 16 30		34		Hardly noticeable on N.S. Co.
		F <sub>e</sub>	22 34				
12	12	P <sub>n</sub>	4 24 12	3.5			
		P <sub>e</sub>	4 24 5	5.5			
		S <sub>n</sub>	4 33 40				Dist. calcul. = 11520 Kil.
		S <sub>e</sub>	4 33 30				Direct. W 22° 36' N
		L <sub>n</sub>	5 1 30	24		3.12	<del>A regular amount</del>
		L <sub>e</sub>	5 1 0	24	7.5		
		F <sub>n</sub>	5 42				
		F <sub>e</sub>	5 43				



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NOMENCLATURE: International.

From August 1

to August 31

DATE.	CHAR.	PHASE.	TIME. h. m. s.	PERIOD. s.	AMPLITUDE.		REMARKS.
					AE P	AN P	
20			22 59 40	8			Hardly visible
			23 10	8			Not noticeable
			23 30 0	20			A regular sinusoid, on 2/V, continuous from 23 30 to 24
			23 30 15	20			Distance calculated = 9000 Km
			23 40		44		Direction = 127° N
			23 42			20	
			24 20				
			24 16	13			
			24 55				
			24 27				
21	L <sub>y</sub>	Pe	16 38 30	3			Distance calculated = 4155 Km
			16 52 15	5			Direction = N
			16 53 15	5	16.25		A slight vibration on 2/V, comp. when S.E. was at max.
			17 30				
26		Pe	11 9 15	3			Dist. calculated = 2800
		Se	11 15 45	3.5			Direction = N
			11 18 10	3			A very gran. its registration is due to a r fast quiet ab the instrument.
			11 19 15	5	2.5		
			11 30 40	6			

*J. Blair, s.j.*



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NOMENCLATURE: International.

From September 1 to September 31

DATE.	CHAR.	PHASE.	TIME. h. m. s.	PERIOD. s.	AMPLITUDE.		REMARKS.	
					AE P	AN P		
2			21 30	3.5	1.8	1.8	Microseisms during five hrs Microseisms.	
3			13 0 0					
No } 66	15	1 <sub>v</sub>	P <sub>n</sub>	13 31 0	4			
			S <sub>n</sub>	13 37 0				
			L <sub>n</sub>	13 47 0	30		5	Amplitude reckoned from middle line.
			L <sub>n</sub>	13 52 0	20			
			F <sub>n</sub>	14 04 20				
			P <sub>e</sub>	13 31 00				Dist. calcul. = 5600 Km. Direction: S 41° 12' E
			S <sub>e</sub>	13 38 00				
			L <sub>e</sub>	13 47 00	30		4.3	No distinct Max.
			L <sub>e</sub>	13 51 00	20			
			F <sub>e</sub>	13 57 40				Strongly felt in Chili: Iquique.
No } 67	17	1 <sub>r</sub>	P <sub>e</sub>	3 39 00	3			Nothing on Comp. N.S.
			S <sub>e</sub>	3 45 20	4			
			L <sub>e</sub>	3 55 20	20			Dist. Calcul. = 6000 Km.
			L <sub>e</sub>	4 00 00	15			
			M <sub>e</sub>	3 59 00			32	Direct. from West.
			M <sub>e</sub>	4 00 00			32	
			C <sub>e</sub>	4 15 00				Two Max. equal.
			F <sub>e</sub>	4 53 00				
No } 68	22	11 <sub>r</sub>	P <sub>n</sub>	5 07 50	2.7			Dist. calcul. = 2777 Km.
			S <sub>n</sub>	5 12 40	4			
			L <sub>n</sub>	5 16 23	6		32.5	Direct. : W 44° 08' N
			M <sub>n</sub>	5 17 29	6		45	
			F <sub>n</sub>	5 45 45				Felt in Alaska.
			P <sub>e</sub>	5 06 47	2.7			
			S <sub>e</sub>	5 12 40	4			
			L <sub>e</sub>	5 16 20	5.5		33.75	
			M <sub>e</sub>	5 19 57	5.5		46.25	
			F <sub>e</sub>	5 46 10				

*J. Blain, S.J.*

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TIME: Mean Greenwich, midnight to midnight, 0-24 hrs.

INSTRUMENT: Wiechert 80 Kg. Horiz.

NOMENCLATURE: International.

From *Oct 1* to *Nov 1* 1911

DATE.	CHAR.	PHASE.	TIME.			PERIOD.	AMPLITUDE.		REMARKS.
							AE	AN	
			h.	m.	s.	s.	P	P	
3									Microseisms
4									
6									
	Lr	Pn	10	23	40				Felt in Haiti, Port au Prince
		Sn	10	33	40				
		Ln	10	37	45	12		31.25	
		Mn	10	38	18	12		48.75	
		Cn	10	42	00			10	
		Fn	11	01	00				
		Be	10	25	15	3			
		Se	10	33	00	6			
		Le	10	37	30	12	26.8		
		Me	10	38	18	12	49		
	Ge	10	42	00		8			
	Fe	11	10	40					
10	Lu	Ln	13	38		16		6.25	Beginning lost, happened while changing the paper
		Fn	14.03						
		Le	13	38		<del>X15</del>	8		
		Ce	13	48					
	Fe	14	06						
13	Lu	Pn	2	52	15	3.5			Distance calcul. =5583 Km No distinct max.
		Ln	3	10	00	16		3.75	
		Fn	3	27	40				
		Pe	2	52	20				
		Le	3	10	15	16	2.5		
		Fe	3	28	30				
14	Lu	Pn	16	47					Dist. calcul =5333 Microseisms which were lasting for several days are mixed with preliminaries
		Ln	17	04		20			
		Mn	17	04	45	20		5.5	
		Ln	17	09		15			
		Fn	17	21					
		Pe	16	45		5			
		Le	17	04		20			
		Me	17	09	15	15	8.75		
	Fe	17	26						
16			7	10		vibrations		Eruption of Etna Sicilian earthquake	
			11	02		" "			
28			13	38		3	vibrations	Amplitude measured from zero line; always.	
			13	45		3	" " " "		



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NOMENCLATURE: International.

From

to

DATE.	CHAR.	PHASE.	TIME.			PERIOD.	AMPLITUDE.		REMARKS.
							AE P	AN P	
			h.	m.	s.	s.			
29	I <sub>r</sub>	iP <sub>n</sub>	8	34	42	3		3.1	
29	II <sub>r</sub>	P <sub>n</sub>	18	17	19	3		3.1	Dist. calcul. = 3700 Km Direct. = W 36° 24' N Two repetitions of shock on N.S. comp. and four on E.W.    Alaska.
		iS <sub>n</sub>	18	23	15	5		5	
		I	18	30	00	15		16.25	
		iM <sub>n</sub>	18	34	00	15		17.7	
		C <sub>n</sub>	18	35	00	5.5		5	
		F <sub>n</sub>	19	11	12				
		Pe	18	17	19				
		iSe	18	23	15	5	5		
		iLe	18	30	30	5.5	9		
		Me	18	30	43	5.5	23		
		Ce	18	32	00	5.5	9		
		Fe	19	17	45				
November 1	I <sub>r</sub>	iP <sub>n</sub>	8	34	42	3		3.1	
		eS <sub>n</sub>	8	41	24	4		3.1	
		eL <sub>n</sub>	8	49	30	18		3	
		F <sub>n</sub>	9	05					
		Pe	8	34	42	3	3.1		
		iSe	8	40	30	4			

*J. B. Clair, s.j.*



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INSTRUMENT: Wiechert 80 Kg. Horiz.

NOMENCLATURE: International.

( Sheet 1 )

From November 1 1911

to

November 30 1911

DATE.	CHAR.	PHASE.	TIME. h. m. s.	PERIOD. s.	AMPLITUDE.		REMARKS.	
					AE P	AN P		
1	l <sub>r</sub>	N.S. Component					( Amplitude reckoned from (zero line. ( Dist. calc. = 4800 Km ( Direct. : South ( ( Nicaragua ( Time: a little fast.	
		P <sub>1</sub>	8 34 42	3	3			
		S	8 41 24	4	3			
		E	8 49 30	18	2.5			
		F	9 05 00					
		E.W. Component						
		P	8 34 42	3	3			
		S	8 40 30	4				
1			17 28 30	---	---	---	-Microseisms	
			22 47	---	---	---	" "	
5			20 22 to	20 40	---	---	-Microseisms on E.W. Comp.	
7	l <sub>r</sub>	N.S. COMP					( Dist. calc. = 3360 Km ( ( Record heavier on ( E.W. comp. on the whole. ( ( ( (	
		P	5 55 10					
		L	6 06 45					
		M	6 07 00			9.4		
		F	6 14 30					
E.W. Comp.								
		P	5 55 10	4	1.2			
		S	6 01 40					
	L	6 06 45	7.5	7.5				
	M	6 06 45	7.5	7.5				
	F	6 14 40						
8	l <sub>d</sub>	N.S. Comp					People in Brandon, Man. say they felt a tremor.	
		P	12 01					
		F	12 03					
E.W. Comp								
		P	11 57 45					
		M	12 02					
	F	12 03 30						
13	l <sub>u</sub>	N.S. Comp.					Dist. calc. = 6000 Km  Shock repeated four times on E.W. Component.	
		P	16 23					
		L	16 43	16				
E.W. Comp								
		P <sub>e</sub>	16 23					
		S <sub>e</sub>	16 33					
		iLe	16 42 30	14	7.5			
	L	16 53	11	7.5				
	F	17 13						
16			20 40	---	---	---	(Slight vibrations	
			21 06	---	---	---	(Earthquake in Germany, Austria	
17			14 50	---	---	---	Microseisms = 1 mm	



# RECORD

OF THE

## Earthquake Station, St. Boniface College Observatory

### ST. BONIFACE, MAN.

LATITUDE 49° 53' 31" N., LONGITUDE 97° 6' 39" W. Alt. 230 M.

TIME: Mean Greenwich, midnight to midnight, 0-24 hrs.

INSTRUMENT: Wiechert 80 Kg. Horiz.

NOMENCLATURE: International.

( sheet 11 )

From **November 1** to **November 30** 1911

DATE.	CHAR.	PHASE.	TIME. h. m. s.	PERIOD. s.	AMPLITUDE.		REMARKS.	
					AE P	AN P		
18	11 <sub>r</sub>	N.S. Component					Dist. calc = 1350 Km	
		P	7 48 07					
		S	7 50 52	4.5		6.25	Direct : South East	
		L	7 53 10	12		9.4	E 41° 12' S	
		M	7 53 34	12		32		
		C	7 54 42	7.5		10		
		F	8 03 32					
		E.W. Comp						
		P	7 45 22					
		L	7 52 02					
		M	7 53 22	7.5				
		F	8 05 22					
20	1 <sub>r</sub>	N.S. Comp					Dist. calc. := 4080 Km	
		P	13 59 33				<u>Martinique</u>	
		S	14 06 03					
		L	14 13 53					
		M	14 14 43	11		8		
		F	14 29 30					
		E.W. Comp						
		P	13 59 29	4				
		S	14 06 13	6				
		L	14 02 53	20				
		M	14 15 43	13	8			
		F	14 27 37					
22		Instrument not working, repaired						Earthquake in California
25	1 <sub>r</sub>	N.S. Comp						
		P	19 35	4				
		L	19 45 30	11		7		
		C	19 47 30	9		3	Dist. calc = 3300 Km	
		F	20 07				Direct: S.W.	
		E.W. Comp						
		P	19 34 36	4				
		L	19 45 30	12	8			
		M	19 45 54	12	13			
		C	19 47	9	2.5			
		F	20 07					
26			13 --	--	--	--	Microseisms	
			14	9.5	6.25	6.25	" " "	
27			--	--	--	--	Microseisms	
28			--	--	--	--	" " "	
29			--	--	--	--	" " "	
30			--	--	--	--	" " "	





# RECORD

OF THE

## Earthquake Station, St. Boniface College Observatory ST. BONIFACE, MAN.

LATITUDE 49° 53' 31'' N., LONGITUDE 97° 6' 39'' W. Alt. 230 M.

TIME: Mean Greenwich, midnight to midnight, 0-24 hrs.

INSTRUMENT: Wiechert 80 Kg. Horiz.

NOMENCLATURE: International.

(sheet 1)

From *December 1* to *December 31*

*December 1*

*December 31*

DATE.	CHAR.	PHASE.	TIME. h. m. s.	PERIOD. s.	AMPLITUDE.		REMARKS.
					AE P	AN P	
No 81	Ir	P	N.S. 3 54 20	5 11	6.25	2.5 25	Dist. calc. :2700 km.
		S	3 59 25				
		L	4 2 40				
		F	4 9 40				
No 82	3	Iu	E.W. P	3 54 15(?)	4 10	6.25	Dist. calc. :8000 km.
			S	3 59 40			
			L	4 3 23			
			F	4 9 50			
No 83	16	IIIX	N.S. P	14 40 0(?)	18	5.5	Dist. calc. :3250 km. From Colima in Mexico
			L	15 4 50			
			F	15 10 30			
			Pa	14 40			
			L	15 1 40			
			F	15 12			
No 84	20	Ir	N.S. P	19 21 14	4 6 6 6 5 4 6 6 5	12.5 25 31 306 6.25 19 37 462 19	Change in temperature has put the N.S. pen out of zero line, its amplitude should have been greater.
			S	19 26 25			
			L	19 32			
			M	19 36			
			E	19 41			
			F	20 52 45			
			E.W. P	19 21 14			
			S	19 26 30			
			L	19 32 5			
			M	19 33			
F	19 51						
No 84	20	Ir	N.S. P	00 00 30	18 13 15	2 3 2.5	Dist. calc. :3900 km.
			S	00 9 00			
			eL	00 19 00			
			iL	00 22 00			
			F	00 54 00			
			E.W. P	00 00 00			
			S	00 12 00			
			L	00 20 00			
			M	00 29 00			
			L	00 30 00			
F	1 22						



# RECORD

OF THE

## Earthquake Station, St. Boniface College Observatory ST. BONIFACE, MAN.

LATITUDE 49° 53' 31" N., LONGITUDE 97° 6' 39" W. Alt. 230 M.

TIME: Mean Greenwich, midnight to midnight, 0-24 hrs. (sheet 11)

INSTRUMENT: Wiechert 80 Kg. Horiz.

NOMENCLATURE: International.

December 1 From December 31 to

DATE.	CHAR.	PHASE.	TIME. h. m. s.	PERIOD. s.	AMPLITUDE.		REMARKS.
					AE P	AN P	
No 85	23	Ir	N.S.				
		P	13 1 50	3		3	
		S	13 12 50	5		5	
		L	13 15 55				
		M	13 16 00				
		F	13 45				
		E.W.					
		P	13 1 00				
		S	13 11 20		3		
		L	13 11 22		16		
		M	13 14 06	7.5	33		
		F	13 55 30				
No 86	23	I	N.S. Weaker and shorter than on E.W.				
		E.W.					
		P	20 00 50	3s			
			20 01 00	3s			
		M	20 02 40	8	2.5		
		F	20 08 30		3#		
No 87	23	Ir	N.S. Weaker and shorter than on E.W.				
		E.W.					
		P	21 12				
		S	21 23 38	5.5	3.6		Nicaragua ?
		L	21 33 50	25	4.8		
		F	21 55 00				
No 88	29	Ir	N.S.				
		P	15 43 10				
		L	16 02 10	20			
		M	16 04 40	15-18		2	
		F	16 17				
		E.W.					
		P	15 43 10				
		S	15 57 40				
		L	16 00 40				
		M	16 03 40	15-18	2		
		F	16 19				

*B. B. ...*