

# OTTAWA

## EARTHQUAKE STATION, DOMINION OBSERVATORY



LATITUDE 45° 23' 38", LONGITUDE 75° 42' 57" or 5<sup>h</sup> 02<sup>m</sup> 51<sup>s</sup>.8 W. Greenwich, ALTITUDE 83m.

TIME: Mean Greenwich, midnight to midnight

INSTRUMENTS: Two Bosch photographic horizontal pendulums, one Spindler and Hoyer 80 kg. vertical seismograph.

From **January 1st., 1921.** to **January 9th., 1921.** No. 1.

No.	DATE	PHASE	TIME			PERIOD	AMPLITUDE			DISTANCE
			h.	m.	s.		$A_E$	$A_N$	$A_Z$	
						s.	$\mu$	$\mu$	$\mu$	km.
1144	Jan. 2	o?	7	29	00		Very faintly marked.			
		oe?	7	39	00					
		ee	7	45	20		Barely discernable.			
		oL?	7	51	15					
		F	8	10	ca					
1145	" 7	oLE	4	09.5		20	Small amplitude L			
		LE	4	31		24?				
		LE	4	38.5		20	waves. Earlier phases			
		LE	4	46						
		F	Lost in micros				lost entirely in micros.			
1146	" 8	O	6	35	23					3910
		PN	6	42	35					
		PR <sub>1</sub> N?	6	43	42					
		PR <sub>2</sub> N?	6	43	52					
		S	6	48	17					
		oL	6	51	27					
		F	7	05	ca					
1147	" 9	O	12	55	03					6480
		PN	13	05	02					
		PR <sub>1</sub> E?	13	07	34					
		PR <sub>2</sub> N?	13	08	25					
		S	13	13	04					
		SR <sub>2</sub> E?	13	19	14					
		oLE	13	23	40		12?			
		LE	13	31			20			
		LE	13	35			16			
F	13	45	ca							

*Ernest A. Hodgson*

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LATITUDE 45° 23' 38", LONGITUDE 75° 42' 57" or 5<sup>h</sup> 02<sup>m</sup> 51<sup>s</sup>.8 W. Greenwich, ALTITUDE 83m.

TIME: Mean Greenwich, midnight to midnight

INSTRUMENTS: Two Bosch photographic horizontal pendulums, one Spindler and Hoyer 80 kg. vertical seismograph.

From January 9th., 1921. to January 31st., 1921. No. 26

No.	DATE	PHASE	TIME	PERIOD	AMPLITUDE			DISTANCE
					$A_E$	$A_N$	$A_Z$	
			h. m. s.	s.	$\mu$	$\mu$	$\mu$	km.
1148	Jan. 9	LE LE LE F	14-55.6 15-03.5 15-17 15-20	20	May possibly be part of No. 1147.			
1149	" 19	eLE LE LE F	15-19-11 15-44-30 15-53 16-02 ca	20 16	NS lost in micros.			
1150	" 20	O PFN? SE? eLE LE LE F	21-06-34 21-11-52 21-16-05 21-18-40 21-22-40 21-32 21-50	20 16				2600

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TIME: Mean Greenwich, midnight to midnight

INSTRUMENTS: Two Bosch photographic horizontal pendulums, one Spindler and Hoyer 80 kg. vertical seismograph.

From Feb. 1, '21. to Feb. 10, '21. No. 31

No.	DATE	PHASE	TIME			PERIOD	AMPLITUDE			DISTANCE			
			h.	m.	s.		$A_E$	$A_N$	$A_Z$				
							$\mu$	$\mu$	$\mu$	km.			
1151	Feb. 4	O	8	22	37					3420			
		P	8	29	11								
		SE	8	34	23								
		eL?	8	37	25								
		M	8	42									
		LE	9	03		14							
		LE	9	15		16							
		F	10	06	ca.								
		HALIFAX RECORD											
		O	(8-22-36)									(4340)	
PE	8-30-19												
PR	8-31-32												
S?	(8-36-25)												
eL	8-41												
M	8-47												
LN	9-00				14								
F	9-30												
1152	" 6	eLE	5	06	36					(4340)			
		L	5	11		20							
		L	5	19.5		15							
		F	5	26									
1153	" 10	eE	20	39									
		eLE	20	44		18							
		F	20	59									

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TIME: Mean Greenwich, midnight to midnight

INSTRUMENTS: Two Bosch photographic horizontal pendulums, one Spindler and Hoyer 80 kg. vertical seismograph.

From Feb. '10'21. to Feb, 19'21. No. 4.

No.	DATE	PHASE	TIME	PERIOD	AMPLITUDE			DISTANCE
					$A_E$	$A_N$	$A_Z$	
					$\mu$	$\mu$	$\mu$	km.
1154	Feb. 11	e?E	<sup>h.</sup> 0- <sup>m.</sup> 18- <sup>s.</sup> 48					
		e?E	0-27-43					
		e?	0-33-13					
		eLE	0-44					
		L	0-49.5	25				
		LE	0-57.5	18				
		LE	1-12					
		F	1-30					
1155	" 11	eLE	22-52-53					
		eLE	22-57					
		LE	22-59	24				
		LE	23-01	17				
		F	23-08					
1156	" 14	LE	1-54					Small sinusoidal waves. Heavy micros on NS.
		LE	1-58					
		LE	2-05	28				
1157	" 19	e?E	(15-11-37)					
		eL	15-18					
		LE	15-37	20				
		LE	15-51	30				
		F	16-20					
1158	" 19	eE	18-35-44					
		i	18-36-57					
		e	18-40-46					
		e	18-42-39					
		eE	18-45					
		eE	18-56	12				
		eL	19-11	30				
		L	19-20	22				
		L	19-31	17				
		LE	19-25	20				
		F	20-45					

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TIME: Mean Greenwich, midnight to midnight

INSTRUMENTS: Two Bosch photographic horizontal pendulums, one Spindler and Hoyer 80 kg. vertical seismograph.

From Feb. 19<sup>th</sup> 21.

to Feb. 28<sup>th</sup> 21.

No. 5.

No.	DATE	PHASE	TIME	PERIOD	AMPLITUDE			DISTANCE
					<i>A<sub>E</sub></i>	<i>A<sub>N</sub></i>	<i>A<sub>Z</sub></i>	
					<i>μ</i>	<i>μ</i>	<i>μ</i>	km.
1159	Feb. 21	i F	<sup>h.</sup> 11- <sup>m.</sup> 58- <sup>s.</sup> 45 to 12-04 ca.					
1160	" 21	e <sub>E</sub> M <sub>1</sub> NEV M <sub>2</sub> NEV F	16-08-45 16-14 to 16-25 16-34 to 16-45 16-52		Very irregular periods. Small Amplitudes. Micros mask much.			
1161	" 21	e <sub>E</sub> M <sub>NEV</sub> F	19-42-45 19-43-05 19-45-15 20-hr ca.		Very similar in appearance to No. 1160			
1162	" 27	O P S <sub>E</sub> SR <sub>1</sub> SR <sub>2</sub> ? eL L <sub>E</sub> L LR <sub>1</sub> L <sub>N</sub> F	18-29-56 18-41-57 18-51-56 18-57-38 19-01-19 19-07-55 19-17 19-26 20-35 20-46 20-20					8780

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TIME: Mean Greenwich, midnight to midnight

INSTRUMENTS: Two Bosch photographic horizontal pendulums, one Spindler and Hoyer 80 kg. vertical seismograph.

From **March 1, 1921.** to **March 10, 1921.** No. **6.**

No.	DATE	PHASE	TIME			PERIOD	AMPLITUDE			DISTANCE
							$A_E$	$A_N$	$A_Z$	
			h.	m.	s.	s.	$\mu$	$\mu$	$\mu$	km.
1163	Mar. 3	i	3	26	11					
		eL?E	3	45.4						
		L <sup>E</sup>	3	55		20				
		F	4	20						
1164	" 3	i <sup>E</sup>	9	01	45					
		eL <sup>E</sup>	9	23.5		40				
		L	9	35		24				
		L	9	46		20				
		F	10	00						
1165	" 5	e?E	7	06	51					
		eL <sup>E</sup>	7	18.7						
		L <sup>E</sup>	7	24.5						
		L <sup>E</sup>	7	40		20				
		F	8	10						
1166	" 6	O	7	24	52					3740
		P <sup>E</sup>	7	31	51					
		S <sup>E</sup>	7	37	23					
		eL <sup>E</sup>	7	41.5						
		M <sup>N</sup>	7	44.8		10				
		M <sup>E</sup>	7	46.3		10				
		L	7	50		6				
		LR <sub>1</sub> ? F	9	02						
F	9	-								
1167	" 10	eL	21	05		20				
		L	21	20		17				
		L	21	30						
		F	21	40						

Irregular periods in M.

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TIME: Mean Greenwich, midnight to midnight

INSTRUMENTS: Two Bosch photographic horizontal pendulums, one Spindler and Hoyer 80 kg. vertical seismograph.

From **March 11th., 1921.** to **March 24th., '21.** No. **7.**

No.	DATE	PHASE	TIME			PERIOD	AMPLITUDE			DISTANCE
							$A_E$	$A_N$	$A_Z$	
			h.	m.	s.	s.	$\mu$	$\mu$	$\mu$	km.
1168	Mar. 12	O?	10	29	08					(4830)
		Pv?	10	37	25					
		S	10	43	58					
		eLE	10	50		26				
		LE	10	52		22				
		LE	10	58		13				
		F	11	35						
1169	" 16	e	12	16	00					
		eLE	12	35		24				
		LE	12	45		18				
		F	13	00						
1170	" 21	i	4	20	59					
		eLE	4	24	12					
		LE	4	27		18				
		LE	4	34		16				
		F	4	55						
1171	" 21	i	6	55	55					
		e	6	59	10					
		F	7	15	ca					
1172	" 24	eE	9	42	50					
		eE	9	47	10					
		eL	9	53	28					
		F	merges into next disturbance							
1173	" 24	eE	10	09	56					
		eLE	10	23	.5	18				
		LE	10	31		16				
		LE	10	37		15				
		LE	10	44		15				
		LE	10	53		15				
		F	11	10	ca					

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TIME: Mean Greenwich, midnight to midnight

INSTRUMENTS: Two Bosch photographic horizontal pendulums, one Spindler and Hoyer 80 kg. vertical seismograph.

From March 24'21                      to March 28'21.                      No. 8.

No.	DATE	PHASE	TIME			PERIOD	AMPLITUDE			DISTANCE
			h.	m.	s.		$A_E$	$A_N$	$A_Z$	
							$\mu$	$\mu$	$\mu$	km.
1174	Mar. 24	O	14	41	58					8040
		P <sub>V</sub>	14	55	21					
		PR <sub>2</sub> NE	14	58	16					
		S <sub>E</sub>	15	02	43					
		SR <sub>1</sub> LE	15	08	08					
		eL <sub>1</sub> NE	15	17						
		L	15	21		20				
		L	15	31		18				
L	15	34		17						
F	16	30	ca							
1175	" 25	e <sub>E</sub>	0	44	16		14	Very unusual record. No apparant preliminary phases on any component.		
		i	0	49	38					
		eL <sub>E</sub>	0	50	04					
		L	0	53	45					
		F	1	45	ca					
1176	" 25	e	22	19.5		4.5				
		F	22	27						
1177	" 28	O	7	49	17					3600
		P	7	56	05					
		S	8	01	29					
		SR <sub>2</sub> ?	8	03	37	30				
		eL <sub>1</sub> ?	8	06.5		20				
		L	8	15		18				
		L	8	20		12				
		L	8	30		13				
		L	9	00		13				
		L <sub>E</sub>	9	26		22				
		LR <sub>1</sub>	10	40						
F	11	-								

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TIME: Mean Greenwich, midnight to midnight

INSTRUMENTS: Two Bosch photographic horizontal pendulums, one Spindler and Hoyer 80 kg. vertical seismograph.

From Mar. 28'21.

to Mar. 31'21.

No. 9.

No.	DATE	PHASE	TIME			PERIOD	AMPLITUDE			DISTANCE
							$A_E$	$A_N$	$A_Z$	
							$\mu$	$\mu$	$\mu$	
1178	Mar. 29	eE	22	33	56					
		e?E	22	42	45					
		eL?E	22	49						
		LE	22	57		17				
		LE	23	00		19				
		LE	23	05		15				
		LE	23	11		15				
		F	23	20	ca					
1179	" 30	iPv	15	21	21				Of order of 13000 +  Very faint record.	
		PR <sub>1</sub> EV	15	24	00					
		eS?E	15	33	.9					
		eSv	15	36	04					
		eLE?	16	00						
		LE	16	05		25				
		LE	16	14		20				
		LE	16	25		18				
		LR <sub>1</sub> E	17	00		25				
		F	17	15						

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TIME: Mean Greenwich, midnight to midnight

INSTRUMENTS: Two Bosch photographic horizontal pendulums, one Spindler and Hoyer 80 kg. vertical seismograph.

From April 1st., 1921. to April 5th., 1921. No. 10.

No.	DATE	PHASE	TIME	PERIOD	AMPLITUDE			DISTANCE
					A <sub>E</sub>	A <sub>N</sub>	A <sub>Z</sub>	
			h. m. s.	s.	μ	μ	μ	km.
1180	April 1	i <sub>NV</sub>	4-29-27					
		e?	4-45-38					
		eL <sub>E</sub>	5-01.5					
		L <sub>E</sub>	5-10	45				
		L <sub>N</sub>	5-12	38				
		L <sub>E</sub>	5-18	22				
		L <sub>N</sub>	5-21	24				
		L	5-28	27				
F	6-20							
1181	" 1	e	12-57					
		eL	13-01					
		eL	13-05.5	17				
		F	13-15-13					
1182	" 2	e?	10-05-13					
		eL <sub>E</sub>	10-25	(38)				
		L <sub>E</sub>	10-36	26				
		L <sub>EV</sub>	10-46	20				
		L <sub>E</sub>	10-51					
		F	11-ca					
1183	" 5	e?	0-37.5					
		F	0-45	irreg.				May not be seismic. No vertical component.
<u>No. 1177</u>	<u>March 28</u>	SASKATOON RECORD, RECEIVED IN APRIL.						
		O	7-49-42					4650
		eP <sub>N</sub>	7-57-46					
		i	7-59-37					
		iS <sub>E</sub>	8-04-09					
		iE	8-07-32					
		iN	8-07-37					
		eN	8-09-41					
		eL <sub>N</sub>	8-11.4					

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TIME: Mean Greenwich, midnight to midnight

INSTRUMENTS: Two Bosch photographic horizontal pendulums, one Spindler and Hoyer 80 kg. vertical seismograph.

From April 6th., 1921. to April 22nd., 1921 No. 11.

No.	DATE	PHASE	TIME	PERIOD	AMPLITUDE			DISTANCE	
					$A_E$	$A_N$	$A_Z$		
			h. m. s.	s.	$\mu$	$\mu$	$\mu$	km.	
1184	April 10	O	13-40-05					4100	
		P	13-47-30						
		S	13-53-23						
		eL	13-57.9						
		L	14-03		8				
		L	14-19		7				
		F	15-00 ca						
1185	" 10	e	23-34 to 23-40					Very slight indication of a record.	
1186	" 12	iF? VE	7-48-30						
		e	7-49- to						
		L	7-56		8				
		F	8-10						
1187	" 20	e <sup>E</sup>	18-52.5					NS interfered with by micros. Traces only on the vertical.	
		eL <sup>E</sup>	19-01 to		18 to				
			19-10		16				
		F	19-11						
1188	" 22	eL	7-25.8					Traces only on Vertical.	
			7-35		18				
		L <sup>E</sup>	7-40		16				
		L <sup>E</sup>	7-52		16				
		L <sup>E</sup>	8-03		15				
		F <sup>E</sup>	8-15						

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TIME: Mean Greenwich, midnight to midnight

INSTRUMENTS: Two Bosch photographic horizontal pendulums, one Spindler and Hoyer 80 kg. vertical seismograph.

From April 22, 1921. to April 30, 1921. No. 12.

No.	DATE	PHASE	TIME			PERIOD	AMPLITUDE			DISTANCE
			h.	m.	s.		$A_E$	$A_N$	$A_Z$	
							$\mu$	$\mu$	$\mu$	km.
1189	April 25	eL <sub>E</sub>	18	30.5		26				
		L <sub>E</sub>	18	35		23				
		L <sub>E</sub>	18	41		18				
		L <sub>E</sub>	18	46		16				
		F	19	10						
1190	" 27	eN	21	47 to						
			21	51						
							May not be seismic.			
							On NS only. Irregular.			

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TIME: Mean Greenwich, midnight to midnight

INSTRUMENTS: Two Bosch photographic horizontal pendulums, one Spindler and Hoyer 80 kg. vertical seismograph.

From May 1st., 1921. to May 14th., 1921. No. 14.

No.	DATE	PHASE	TIME			PERIOD	AMPLITUDE			DISTANCE
			h.	m.	s.		$A_E$	$A_N$	$A_Z$	
						s.	$\mu$	$\mu$	$\mu$	km.
1192	May 12	e <sup>?</sup> E	4	00						
		e <sup>?</sup> E	4	05	40					
		eL <sup>?</sup> E	4	17	.5	(40)				
		L <sup>?</sup> E	4	30	.5					
		L <sup>?</sup> E	4	35						
		L <sup>?</sup> E	4	43		23				
		L <sup>?</sup> E	4	57		18				
		F <sup>?</sup>	5	20						
1193	" 14	e <sup>?</sup> E	13	28	.5					
		L <sup>?</sup> E	13	36		16				
		L <sup>?</sup> E	13	44		16				
		F <sup>?</sup>	14	ca						
1194	" 14	e <sup>?</sup> E	20	44	.1					
		e <sup>?</sup> E	20	48						
		eL <sup>?</sup> E	20	54	.7					
		F <sup>?</sup>	merges into the next quake.							
1195	" 14	eL <sup>?</sup> E	21	16						
		L <sup>?</sup> E	21	24		19				
		L <sup>?</sup> E	21	28		17				
		L <sup>?</sup> E	21	33		15				
		L <sup>?</sup> E	21	40		15				
		L <sup>?</sup> E	21	44		15				
		L <sup>?</sup> E	21	51	.5	15				
		L <sup>?</sup> E	21	59		13				
		F <sup>?</sup>	22	15	ca					
1196	" 14	e <sup>?</sup> EV	22	16	.5					Periods very irregular. Difficult to decipher. Impossible to assign a value for $\Delta$ .
		e <sup>?</sup>	22	17	36					
		e <sup>?</sup>	22	22	00					
		e <sup>?</sup>	22	25	36					
		eL <sup>?</sup> E	22	28	45					
		F <sup>?</sup>	23	40						

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LATITUDE  $45^{\circ} 23' 38''$ , LONGITUDE  $75^{\circ} 42' 57''$  or  $5^{\text{h}} 02^{\text{m}} 51^{\text{s}}.8$  W. Greenwich, ALTITUDE 83m.

TIME: Mean Greenwich, midnight to midnight

INSTRUMENTS: Two Bosch photographic horizontal pendulums, one Spindler and Hoyer 80 kg. vertical seismograph.

From May 1st., 1921. to May 1st., 1921. No. 13.

No.	DATE	PHASE	TIME			PERIOD	AMPLITUDE			DISTANCE		
			h.	m.	s.		$A_E$	$A_N$	$A_Z$			
							$\mu$	$\mu$	$\mu$	km.		
1191	May 1	O	5	38	43					3980		
		P	5	46	00							
		PR <sub>2</sub>	5	47	18							
		S	5	51	46							
		eL	5	56	12							
		L <sub>N</sub>	5	58	8							
		MEV	6	01	5							
		L <sub>E</sub>	6	09		16						
		L <sub>E</sub>	6	17		12						
		L <sub>E</sub>	6	30		8						
		F	Lost in micros				8-00	ca				
		SASKATOON RECORD										
				O	(5	38	40)					3740
				P <sub>N</sub>	5	45	39)					
				PR <sub>1N</sub>	5	46	44					
				S <sub>N</sub>	5	51	11					
				L <sub>N</sub>	5	54	5					
		HALIFAX RECORD										
				O	(5	38	43)					4750
				eP <sub>N</sub>	5	47	0					
		eS <sub>N</sub>	5	53	10							
		SR <sub>1N</sub>	5	56	25							
		eL <sub>N</sub>	6	00								

The NS component of all three stations was better in each case than the EW. The three values of  $\Delta$  yield a location at  $\phi = 18^{\circ}.5$  N but the Saskatoon and Halifax records were both incomplete and the location can only be taken as approximate.

$\lambda = 104^{\circ}.5$  W

*Ernest A. Hodgson*

# OTTAWA

## EARTHQUAKE STATION, DOMINION OBSERVATORY



LATITUDE 45° 23' 38", LONGITUDE 75° 42' 57" or 5<sup>h</sup> 02<sup>m</sup> 51<sup>s</sup>.8 W. Greenwich, ALTITUDE 83m.

TIME: Mean Greenwich, midnight to midnight

INSTRUMENTS: Two Bosch photographic horizontal pendulums, one Spindler and Hoyer 80 kg. vertical seismograph.

From May, 15th., 1921. to May 21st., 1921. No. 15.

No.	DATE	PHASE	TIME			PERIOD	AMPLITUDE			DISTANCE
							$A_E$	$A_N$	$A_Z$	
			h.	m.	s.	s.	$\mu$	$\mu$	$\mu$	km.
1197	May 16	e?	15	39						
		e?E	16	03						
		cLE	16	16						
		LE	16	18		18				
		LE	16	26		15				
		LE	16	35		15				
		LE	16	44		15				
		F	17	00	ca					
1198	" 20	e?N	0	56	10		irregular small periods throughout the disturbance all of small amplitude.			
		eN	1	01	10					
		S or eL	1	06	25					
		LE	1	17						
		LE	1	27		15				
		LN	1	27		22				
		LE	1	35		17				
		F	1	55		17				
1199	" 21	e	9	02	3					
		eLE	9	18	40					
		LE	9	30		17				
		LE	9	37		21				
		L	9	48		19				
		L	10	00		19				
		L	10	11		17				
F	10	35								
1200	" 21	eL	11	28		18				

*Ernest A. Hodgson*

# OTTAWA

## EARTHQUAKE STATION, DOMINION OBSERVATORY



LATITUDE 45° 23' 38", LONGITUDE 75° 42' 57" or 5<sup>h</sup> 02<sup>m</sup> 51<sup>s</sup>.8 W. Greenwich, ALTITUDE 83m.

TIME: Mean Greenwich, midnight to midnight

INSTRUMENTS: Two Bosch photographic horizontal pendulums, one Spindler and Hoyer 80 kg. vertical seismograph.

From May 21st., 1921. to May 31st., 1921. No. 16

No.	DATE	PHASE	TIME	PERIOD	AMPLITUDE			DISTANCE
					$A_E$	$A_N$	$A_Z$	
			h. m. s.	s.	$\mu$	$\mu$	$\mu$	km.
1201	May 21	e <sup>?E</sup>	22-41-19					
		e <sup>E</sup>	22-47-15					
		e	22-56					
		e <sup>E</sup>	23-00					
		eL	23-05	20				
		L <sup>E</sup>	23-14.5	18				
		L	23-21	16				
		F	24-00 ca					
1202	" 28	e <sup>N</sup>	21-06-22					
		e <sup>EV</sup>	21-08-55					
		eL	21-10.5					
		M <sup>N</sup>	21-12.4					
		L <sup>E</sup>	21-32	15				
		L <sup>E</sup>	21-37	15				
		F	21-55					

*Ernest A. Hodgson*



# OTTAWA

## EARTHQUAKE STATION, DOMINION OBSERVATORY



LATITUDE 45° 23' 38", LONGITUDE 75° 42' 57" or 5<sup>h</sup> 02<sup>m</sup> 51<sup>s</sup>.8 W. Greenwich, ALTITUDE 83m.

TIME: Mean Greenwich, midnight to midnight

INSTRUMENTS: Two Bosch photographic horizontal pendulums, one Spindler and Hoyer 80 kg. vertical seismograph.

From **June 1st, 1921** to **June 25th, 1921** No. **17**

No.	DATE	PHASE	TIME		PERIOD	AMPLITUDE			DISTANCE
			h.	m.		s.	$A_E$	$A_N$	
						$\mu$	$\mu$	$\mu$	km.
1203	June 4	eN e L F	1-37-30 1-43-49 to 2-39 2-55			No trace on vertical			
1204	June 15	e?E eL F	19-01.5 19-08-17 19-50			No trace on vertical			
1205	June 17	e?E i LEV F	8-25.2 8-26-44 8-29.4 8-55						
1206	June 17	iN eE LE F	10-35-51 10-36 10-38.4 10-52 ca						
1207	June 25	e?E eLNEV L L F	2-17-54 2-23-39 2-31 2-37.5 3-05		irreg "				

*Ernest A. Hodgson*

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## EARTHQUAKE STATION, DOMINION OBSERVATORY



LATITUDE 45° 23' 38", LONGITUDE 75° 42' 57" or 5<sup>h</sup> 02<sup>m</sup> 51<sup>s</sup>.8 W. Greenwich, ALTITUDE 83m.

TIME: Mean Greenwich, midnight to midnight

INSTRUMENTS: Two Bosch photographic horizontal pendulums, one Spindler and Hoyer 80 kg. vertical seismograph.

From **June 25th, 1921** to **June 30th, 1921** No. **18**

No.	DATE	PHASE	TIME	PERIOD	AMPLITUDE			DISTANCE
					$A_E$	$A_N$	$A_Z$	
			h. m. s.	s.	$\mu$	$\mu$	$\mu$	km.
1208	June 28	sEV	14-17-45					Note curious increase of period in L waves instead of usual maximum period first.
		iNV	14-19-49					
		iV	14-20-49					
		eL?	14-29-43					
		LE	14-37		16			
		LE	14-41		11			
		LE	14-55		28			
		LE	15-05		21			
		LE	15-24		18			
		F	16-10					
<del>1209</del>	June 30	O	2-10-08					3190
		P	2-16-22					
		S	2-21-19					
		eLE	2-24.5		18			
		eLN	2-25.5		18			
		LE	2-31.5		12			
		F	3-00					

*Ernest A. Hodgson*

# OTTAWA

## EARTHQUAKE STATION, DOMINION OBSERVATORY



LATITUDE 45° 23' 38", LONGITUDE 75° 42' 57" or 5<sup>h</sup> 02<sup>m</sup> 51<sup>s</sup>.8 W. Greenwich, ALTITUDE 83m.

TIME: Mean Greenwich, midnight to midnight

INSTRUMENTS: Two Bosch photographic horizontal pendulums, one Spindler and Hoyer 80 kg. vertical seismograph.

From **July 1st, 1921** to **July 10th, 1921** No 19

No.	DATE	PHASE	TIME			PERIOD	AMPLITUDE			DISTANCE
							$A_E$	$A_N$	$A_Z$	
							$\mu$	$\mu$	$\mu$	
1210	July 4	i	14-42-11							
		i	14-42-48							
		•	14-44-48							
		•LE?	14-55							
		LE	14-59							
		LE	15-04	22						
		F	15-30							
1211	July 7	•N	10-57-07							
		•LE	11-11-00							
		LE	11-16	19						
		LE	11-27	21						
		LE	11-38	16						
		LE	11-51.5	19						
		LE	12-02.5	17						
		LE	12-13	15						
		F	12-40							
1212	July 8	•N	10-54-27							
		•NE	10-58-50							
		•LE	11-02-38							
		L	11-03.5	12						
		F	11-25							
1213	July 9	•?	7-13.2							
		•LE	7-14							
		LE	7-15	11						
		F	7-20 <sup>ea</sup>							
1214	July 10	•?E	2-46.2							
		LE	2-52	20						
		LE	3-05	20						
		F	3-25 <sup>ea</sup>							

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# OTTAWA

## EARTHQUAKE STATION, DOMINION OBSERVATORY



LATITUDE 45° 23' 38", LONGITUDE 75° 42' 57" or 5<sup>h</sup> 02<sup>m</sup> 51<sup>s</sup>.8 W. Greenwich, ALTITUDE 83m.

TIME: Mean Greenwich, midnight to midnight

INSTRUMENTS: Two Bosch photographic horizontal pendulums, one Spindler and Hoyer 80 kg. vertical seismograph.

From July 11th, 1921 to July 31st, 1921 No. 20

No.	DATE	PHASE	TIME			PERIOD	AMPLITUDE			DISTANCE
							$A_E$	$A_N$	$A_Z$	
			h.	m.	s.	s.	$\mu$	$\mu$	$\mu$	km.
1215	July 12	e	20	22	17	8				
		e	20	23	21					
		eL	20	25	4					
		LE	20	27						
		F	20	35						
1216	July 13	e?	10	42		19				
		eLE	10	56	5					
		LE	11	01						
		LE	11	08						
		F	11	35	ca					
1217	July 24	e(?)	21	17	30		May be P and S as shown. If so $\Delta = 21-10-34$ and $\Delta = 3700$ km. Press report California quake.			
		e	21	18	15					
		i(?)	21	23	00					
		eL?	21	26	5					
		F	21	45						
1218	July 25	e	19	07	21					
		e	19	12	45					
		e	19	22	24					
		eL?	19	34						
		F	19	50	ca					
1219	July 25	e	19	57	5					
		e	20	01	7					
		eLE	20	17						
		LE	20	24						
		F	20	47						
1220	July 31	e?E	10	21		23				
		e?E	10	28						
		eLE	10	50						
		LE	10	55	5					
		LE	11	01						
		LE	11	35	5					
		LE	12	00						
F	12	08	ca							

*Ernest A Hodgson*

# OTTAWA

## EARTHQUAKE STATION, DOMINION OBSERVATORY



LATITUDE 45° 23' 38", LONGITUDE 75° 42' 57" or 5<sup>h</sup> 02<sup>m</sup> 51<sup>s</sup>.8 W. Greenwich, ALTITUDE 83m.

TIME: Mean Greenwich, midnight to midnight

INSTRUMENTS: Two Bosch photographic horizontal pendulums, one Spindler and Hoyer 80 kg. vertical seismograph.

From August 1st, 1921 to August 23rd, 1921. No. 21

No.	DATE	PHASE	TIME			PERIOD	AMPLITUDE			DISTANCE			
			h.	m.	s.		$A_E$	$A_N$	$A_Z$				
							$\mu$	$\mu$	$\mu$	km.			
1221	Aug. 14	eE oLE LE F	13	39	38	21							
			14	02									
			14	08									
			15	00									
1222	Aug. 16	eL F	18	24.2			Press report quake on coast of Red Sea.						
			18	30									
1223	Aug. 17	eL <sub>2</sub> ?	(23	47.3)									
		L?	23	52.4									
	Aug. 18	F	1	00									
1224	Aug. 19	eE eLE L L F	8	37	19	13 9							
			8	40.5									
			8	42									
			8	43									
			9	03									
1225	Aug. 21	eE eLE F	1	21.8		20	Micros obscure N.S.						
			1	26									
			1	31									
1226	Aug. 23	O P  PR <sub>2</sub> SH ST eL L L <sub>1</sub> L L F	20	17	29	21 20 13 9	3910						
			20	24	40								
			20	26	04								
			20	30	24								
			20	30	22								
			20	34									
			20	37									
			20	38									
			20	40									
			20	53									
			21	45									

*Ernest A. Hodgson*

# OTTAWA

## EARTHQUAKE STATION, DOMINION OBSERVATORY



LATITUDE 45° 23' 38", LONGITUDE 75° 42' 57" or 5<sup>h</sup> 02<sup>m</sup> 51<sup>s</sup>.8 W. Greenwich, ALTITUDE 83m.

TIME: Mean Greenwich, midnight to midnight

INSTRUMENTS: Two Bosch photographic horizontal pendulums, one Spindler and Hoyer 80 kg. vertical seismograph.

From August 24th, 1921. to August 31st, 1921. No. 22

No.	DATE	PHASE	TIME			PERIOD	AMPLITUDE			DISTANCE
			h.	m.	s.		$A_E$	$A_N$	$A_Z$	
							$\mu$	$\mu$	$\mu$	km.
1227	Aug. 25	e L F	2-19-43 2-24 2-35				Micros obscure			N.S.
1228	Aug. 25	e e? eL F	4-08-07 4-10-27 4-14 4-26							
1229	Aug. 27	O Fy S F	8-12-14 8-12-47 8-13-11 8-14-16				Local Quake. Good vertical record.			220
1230	Aug. 29	e? eL L F	19-05-47 19-10-40 19-11 19-25		11					

*Ernest A Hodgson*

# OTTAWA

## Earthquake Station, Dominion Astronomical Observatory



LATITUDE 45° 23' 38", LONGITUDE 75° 42' 57" or 5<sup>h</sup> 02<sup>m</sup> 51<sup>s</sup>.8 W. Greenwich, ALTITUDE 83m.

TIME: Mean Greenwich, midnight to midnight.

INSTRUMENTS: Two Bosch photographic horizontal pendulums, one Spindler and Hoyer 80 kg. vertical seismograph.

From September 1, 1921. to September 11, 1921. No. 23

No.	DATE	PHASE	TIME	PERIOD	AMPLITUDE			DISTANCE
					$A_E$	$A_N$	$A_Z$	
			h. m. s.	s.	$\mu$	$\mu$	$\mu$	km.
1231	Sep. 5	e?E	20-14-32		Micros obscure NS			
		e	20-18-53					
		e?N	20-23-41		Sinusoidal L waves.			
		e=N	20-25-13					
		eL?E	20-28.5					
		L <sup>E</sup>	20-31	13				
		L <sup>E</sup>	20-37.4	24				
		L	20-47	15				
		L	20-51	13				
		L	21-07	15				
F	21-45							
1232	" 8	i <sup>N</sup>	19-40-56		Small irregular periods			
		i	19-41-08					
		i <sup>N</sup>	19-41-26					
		i <sup>N</sup>	19-42-02					
		eL <sup>E</sup>	19-43-45					
		L <sup>E</sup>	19-45					
		F	20-20					
1233	" 11	O	4-06-25		12340			
		i <sup>F</sup>	4-21-15					
		eS?	4-33-49					
		eL <sup>E</sup> ?	5-01					
		L	5-05	60				
		L	5-12	52				
		L	5-20	27				
		L	5-30	19				
		L	5-40	18				
		L <sup>E</sup>	5-53	18				
		L <sup>E</sup>	6-00	17				
		L <sup>E</sup>	6-08	17				
		L <sup>E</sup>	6-10	17				
		L <sup>E</sup>	6-18	16				
		L <sup>E</sup>	6-23	16				
L <sup>E</sup>	6-28	16						
L <sup>E</sup>	6-50	15						
L <sup>E</sup>	7-06	15						
F	7-30							

*Ernest A. Hodgson*

# OTTAWA

## Earthquake Station, Dominion Astronomical Observatory



LATITUDE 45° 23' 38", LONGITUDE 75° 42' 57" or 5<sup>h</sup> 02<sup>m</sup> 51.8 W. Greenwich, ALTITUDE 83m.

TIME: Mean Greenwich, midnight to midnight.

INSTRUMENTS: Two Bosch photographic horizontal pendulums, one Spindler and Hoyer 80 kg. vertical seismograph.

From September 11 '21.

to September 30 '21.

No. 24.

No.	DATE	PHASE	TIME	PERIOD	AMPLITUDE			DISTANCE
					$A_F$	$A_N$	$A_Z$	
			h. m. s.	s.	$\mu$	$\mu$	$\mu$	km.
1234	Sep. 13	O	2-48-00				4370	
		P	2-55-45					
		S	3-01-53					
		SR <sub>1</sub> E	3-04-15					
		i <sub>1</sub> E	3-05-18					
		eL	3-09					
		L <sub>D</sub>	3-15		17			
		L	3-36		18			
		L	3-47		15			
		L <sub>D</sub>	4-23		18			
F	5-30							
1235	" 19	e <sub>1</sub> ?E	4-31.7					
		eL <sub>1</sub> ?E	4-35					
		L	4-42		21			
		L	4-44		15			
		F	5- ca.					
1236	" 19	e <sub>1</sub> ?E	23-45-45				Micros obscure NS  No traces of P on any component.	
		S <sub>1</sub> ?E	23-52-15					
	" 20	eL <sub>1</sub> ?E	0-01					
		L <sub>1</sub> E	0-11		30			
		L	0-15		22			
		L	0-25		17			
		L <sub>1</sub> E <sub>1</sub> V	0-44		15			
		L <sub>1</sub> E	0-48		15			
		L <sub>1</sub> E	0-54		15			
		F	1- ca.					
1237	" 20	eL <sub>1</sub> E	19-49		21		Sinusoidal L waves. Of small amplitude in both No. 1237 and 1238.	
		F	19-56					
1238	" 21	c <sub>1</sub> ?E	(11-25-34)				Micros obscure NS in each record.	
		eL <sub>1</sub> E	11-50					
		L <sub>1</sub> E	11-54		21			
		F	12-17					

*Ernest A. Hodgson*



# OTTAWA

## EARTHQUAKE STATION, DOMINION OBSERVATORY



LATITUDE 45° 23' 38", LONGITUDE 75° 42' 57" or 5<sup>h</sup> 02<sup>m</sup> 51<sup>s</sup>.8 W. Greenwich, ALTITUDE 83m.

TIME: Mean Greenwich, midnight to midnight.

INSTRUMENTS: Two Bosch photographic horizontal pendulums, one Spindler and Hoyer 80 kg. vertical seismograph.

From October 1st, 1921 to October 31st, 1921 No. 25

No.	DATE	PHASE	TIME	PERIOD	AMPLITUDE			DISTANCE
					A <sub>E</sub>	A <sub>N</sub>	A <sub>Z</sub>	
			h. m. s.	s.	μ	μ	μ	km.
1239	Oct 1	eL <sub>1</sub>	21-20	50				
		L <sub>1</sub>	21-25	25				
		F <sub>1</sub>	21-30					
1240	Oct 15	eS <sub>1</sub>	5-28-00					Probably of the order of 11000km to 12000 km.
		eSR <sub>1</sub>	5-34-47					
		eL <sub>1</sub>	5-45					
		eL <sub>1</sub>	5-55	26				
		L <sub>1</sub> V	5-59	22				
		L <sub>1</sub> V	6-03	19				
		L <sub>1</sub> V	6-31	16				
		eLR <sub>1</sub>	6-55	(22)				
		L <sub>1</sub>	7-08	15				
		L <sub>1</sub>	7-23	18				
1241	Oct 20	O?	6-03-15					(7140)
		P?	6-13-50					
		i	6-14-21					
		iR <sub>1</sub>	6-16-42					
		S?	6-22-26					
		i	6-23-22					
		i	6-24-29					
		SR <sub>1</sub>	6-27-20					
		SR <sub>2</sub>	6-29-50					
		eL <sub>1</sub>	6-33					
L <sub>1</sub>	6-37							
L <sub>1</sub>	7-09							
F <sub>1</sub>	7-20							

*Ernest C. Hodgson*

# OTTAWA

## EARTHQUAKE STATION, DOMINION OBSERVATORY



LATITUDE 45° 23' 38", LONGITUDE 75° 42' 57" or 5<sup>h</sup> 02<sup>m</sup> 51<sup>s</sup>.8 W. Greenwich, ALTITUDE 83m.

TIME: Mean Greenwich, midnight to midnight.

INSTRUMENTS: Two Bosch photographic horizontal pendulums, one Spindler and Hoyer 80 kg. vertical seismograph.

From November 1st, 1921 to November 11th, 1921 No. 26

No.	DATE	PHASE	TIME	PERIOD	AMPLITUDE			DISTANCE
					$A_E$	$A_N$	$A_Z$	
			h. m. s.	s.	$\mu$	$\mu$	$\mu$	km.
1242	Nov 2	o <sub>E</sub>	3-59					
		o <sub>E</sub>	4-01-50					
		F	4-15					
1243	Nov 2	e?E	8-07.5					
		o <sub>E</sub>	8-15-04					
		eL <sub>E</sub>	8-20-40					
		L <sub>E</sub>	8-24	35				
		L <sub>E</sub>	8-32	17				
		i <sub>E</sub>	8-40-11					
		L <sub>E</sub>	8-49.5	30				
		F	9-00	17				
			Lost in micros					
1244	Nov 6	eL <sub>E</sub>	17-53					
		L <sub>E</sub>	17-55	17				
		F	18-04					
1245	Nov 7	eL?E	16-56.5					
		L <sub>E</sub>	16-59	35				
		L <sub>E</sub>	17-04	26				
		L <sub>E</sub>	17-09	25				
		L <sub>E</sub>	17-13	21				
		F	17-30					
1246	Nov 11	eL <sub>E</sub>	(15-02)					
		L <sub>E</sub>	15-03	22				
		L <sub>E</sub>	15-09	16				
		L <sub>E</sub>	15-35					

Probably a second quake but not differentiated sufficiently for separate reading.

Micros on MS.

*Ernest A. Hodgson*

# OTTAWA

## EARTHQUAKE STATION, DOMINION OBSERVATORY



LATITUDE 45° 23' 38", LONGITUDE 75° 42' 57" or 5<sup>h</sup> 02<sup>m</sup> 51<sup>s</sup>.8 W. Greenwich, ALTITUDE 83m.

TIME: Mean Greenwich, midnight to midnight.

INSTRUMENTS: Two Bosch photographic horizontal pendulums, one Spindler and Hoyer 80 kg. vertical seismograph.

From November 11th, 1921 to November 30th, 1921 No. 27

No.	DATE	PHASE	TIME			PERIOD	AMPLITUDE			DISTANCE
			h.	m.	s.		$A_E$	$A_N$	$A_Z$	
						s.	$\mu$	$\mu$	$\mu$	km.
1247	Nov 11	O	(18-450)							(8800)
		P	18-56-58							
		S	(19-07)							
		SR1E	19-13-30							
		eL	19-27							
		L	19-42			27				
		L	19-51			20				
		i	19-55-35							
		L <sub>1</sub>	20-00			22				
		L <sub>2</sub>	20-03			17				
		L	20-10			19				
L	20-20			17						
F	21-30									
1248	Nov 13	eL	8-53-08							
		eL	8-55-26							
		L	9-00			20				
		L	9-07			16				
		F	9-35							
1249	Nov 15	O	8-37-17							9010
		P	8-49-30							
		PR <sub>1</sub>	8-53-02							
		PR <sub>2</sub> E	(8-55-12)							
		S	8-59-41							
		SR <sub>1</sub> E	(9-05-53)							
		SR <sub>2</sub> E				(9-09-32)				
		eL	9-18							
		L	9-20			16				
L	9-30			12						
F	10-20									

*Ernest A. Hodgson*

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TIME: Mean Greenwich, midnight to midnight.

INSTRUMENTS: Two Bosch photographic horizontal pendulums, one Spindler and Hoyer 80 kg. vertical seismograph.

From December 1<sup>st</sup> '21.

to December 31, '21.

No. 28.

No.	DATE	PHASE	TIME	PERIOD	AMPLITUDE			DISTANCE
					$A_E$	$A_N$	$A_Z$	
			h. m. s.	s.	$\mu$	$\mu$	$\mu$	km.
1250	Dec. <sup>18</sup> <del>13</del>	O P i <sub>NV</sub> S SR <sub>1</sub> ? eL F	15-29-27 15-37-29 15-40-29 15-43-50 15-46-14 15-49 17-31 ca.		Irregular L waves.			4620
					Ernest A Hodgson			