

NO. AND DATE	PHASE	TIME	PERIOD	AMPLITUDE			Δ	REMARKS
				A N μ	A E μ	A Z μ		
1931. January 2nd.	e L L F	0-20-45 0-51-30 1-03-52 1-30	15	6				Micros & winds effect record. EW not so clear.
2nd.	O iP PR ₁ PR ₁ E iS eL LE iL M ME	9-48-40 9-55-48 9-57 9-57-10 10-01-15 10-05-42 10-06-26 10-07-14 10-10-52 10-13-15	5-6 7 9 8 10 10 9	-30 -142	+152		3856 3833	F lost in pre- liminaries of next quake.
2nd. 8th	Small e L? F	quake 11-27-05 to 13-20, 0-16-47 0-17-15 0-19-37						preliminaries masked by previous. Minor disturbance located near Baie St. Paul, P.Q.
12th	eE eE LE F	20-56-30 21-01-38 21-07-41 22-33	18		5			Sinusoidal waves, NS record not interpretable, due to wandering light.
15th.	O iP iPE PR ₁ iS eL iL M ME F	1-50-29 1-57-02 1-57-03 1-57-57 2-02-01 2-05-19 2-07-03 2-09-15 2-17 6-30	5-6 5 12-14 9 30 30 17	+38 +455 3mm	-22 +196 +690		3411	O from EW at 1-50-31. Well marked. P & S phases quite large. Disastrous Oaxaca Mexico.
15th.	Sinusoidal waves 21-54 to 22-45, more marked on NS.							
15th.	Sinusoidal 23-35-25 to 1h. on 16th.							
16th.	e i i F	16-58-03 17-02-55 17-04-23 17-34						Microseisms mask record, EW not clear.
16th.	O iP iPE PR ₁ iS iSE LE eL iL LE M F	19-19-21 19-26-08 19-26-09 19-27-12 19-31-17 19-31-18 19-34-26 19-35-09 19-36-51 19-37-28 19-43-30 20-48	7 16	8 -41			3578	O from EW at 19-19-22 Winds effect EW


 From the ISC collection scanned by SISIMOS

INSTRUMENTS—Two Milne-Shaw

NO. AND DATE	PHASE	TIME	PERIOD	AMPLITUDE			Δ	REMARKS
				A N	A E	A Z		
JANUARY 1931 (continued)								
17th	O	2-49-51	s	μ	μ	μ		
	e?	2-56-21						
	P	2-56-28						Micros render P on EW doubtful.
	e	3-01-18						
	iS	3-01-30						Trailers lost in next quake.
	iSE	3-01-39					3456	
	SR	3-03-45	10					
	iL	3-05-25	15					
	M	3-07-45	10	-580	+277			
17th	i	5-42-15						
	S	5-47-30						
	L?	5-51-45					3667	Early phases mixed with previous quake.
	F	6-27						
20th	Small quake 9-52-24 to 10-39							
23rd.	c	5-57-32						
	e	5-58-06						
	iS	6-03-30					4356	EW record not so well defined
	L	6-08-30						
	M	6-16-20	12	4				
	F	6-49						
23rd.	Small quake 23-38-26 to 23-54.							
24th.	Disturbance at 14-08-30? to 16h. interfering with, when changing papers at 15-10. Small amplitude.							
25th.	e	12-41-26						
	eE	12-46-35						Not so marked on EW
	i	12-46-56						
	L	12-50-15						
	LE	12-55-45						
	LN	12-55-58	9	3				
	F	13-40						
27th	Small quake with L at 14-52-16, vibrations to 15-11.							
27th.	ePE	20-23-51						
	eN	?20-24-00						(11,800) PR ₁ & PR ₂ well marked phases, also i on EW at 20-36-05
	eP'E	20-27-35						
	eP'	20-27-41						
	iPR ₁	20-28-26	14					
	iPR ₂	20-30-40	14					
	iScPcS	20-34-27	11	8				
	iP	20-36-05						
	iPS?	20-38-14						
	i	20-39-02	10	23				
	iSR	20-43-27						
	iSR ₁	20-43-58						
	i	20-44-07						
	LE	20-58-52						
	LE	21-00-06						
	iL	21-01-09	15					
	L	21-04-35	21					
	M	21-09	24	+375				
	F	23-59						
28th	eP	?21-38-37						O 21-24-30
	ePR ₁	21-43-34						P indistinct.
	iN	21-50-39	8					eP'E 21-41-25
	PPS	21-53-35						iN 21-51-19
	SR ₁	21-59-11						
	L	22-15-22	21					
	M	22-24-15	23	-160				F lh? on 29th.
29th	i	16-46-26						Winds disturb EW.
	i	17-16-47						
	L	17-33-25	15	10				

No. AND DATE	PHASE	TIME	PERIOD	AMPLITUDE			Δ	REMARKS
				A _N	A _E	A _Z		
1931 February 2nd.		h. m. s.	"	μ	μ	μ		(Phases given are from NS component unless otherwise noted)
	O	22-46-25						
	PE	23-02-31						
	iP'	23-05-38						
	iP'E	23-05-52					13.889	Destructive
	PR ₁	23-07-32						New Zealand eq.
	SR ₁	23-24-34	18					Napier and near
	SR ₁ E	23-24-53						vicinity.
	L	23-39-04						
	L	23-41-06	36					
	eL	23-47-09						
	M	23-53-37						
	F	2-42						
3rd.		5-49-37						Small amplitude.
		to 6-11						
3rd.		9-42						Small, more marked
		to 10-08						on EW.
		Microseisms prominent on the 4th and 5th.						
7th		1-14-44						Amplitude quite
		to 1-26						small.
7th	e	3-37-11						
	e	3-42-11						Small
	L	3-47-40						
	F	4-19-30						
8th		1-01-26 to 1-53; preliminaries of another quake						
		merge into trailers.						
8th.		Long distant quake with L about 2-45						
		ending about 4h, masked by previous eq.						
9th.		2-29-26 to 2-55. Trace on NS.						
10th.		2-15 to 2-54						
		Sinusoidal.						
10th.	P'	6-53-51						
	PR ₁	6-57						
	PR ₂	7-00-11						
	i	7-10-55					15.778	
	SR ₁	7-15-24	10					
	iSR ₂	7-21-43						
	LE	7-41-06	42					
	ME	7-52-36	19					
	M	7-58-08	19					
	F	9-56						
11th		18-00-15						Small more marked
		to 18-48						on EW
12th	e	6-00-29						Distant, small
	i	6-03-25						record with trace
	L	6-48-43	26					only on EW. Trailers
	M	7-12						lost in next eq.
12th	e	8-15-52						Small amplitude.
	i	8-17-17						Defined and rapid
	i	8-20-34						movements at
	L	8-25						8-20-34
	F	8-44						

From the ISC collection scanned by SISIMOS


Time: Mean Greenwich, MIDNIGHT TO MIDNIGHT

INSTRUMENTS—Two Milne-Shaw

NO. AND DATE	PHASE	TIME	PERIOD	AMPLITUDE			Δ	REMARKS
				A N μ	A E μ	A Z μ		
1931 February 13th	ePE i eP'E i PR ₁ E i iE SR ₁ SR ₁ E L LE L ME M F	1-43-37 1-44-30 1-46-23 1-47-30 1-48-12 1-54-15 1-54-45 2-05-04 2-05-09 2-20-52 2-23-06 2-29-22 2-36-45 2-37-00 4-58	 26 21 13 16				13,889	Early phases on EW. small but marked. NS record obscured by irregular movements at intervals. SR ₁ on NS, quite prominent.
14th								Record of distant quake with L from 14-52-07 to 16-30, paper being changed.
16th	e i L F	19-09-21 19-11-37 19-36-42 20-22	 22					Sinusoidal
19th	e i L L i? F	17-57-28 18-03-45 18-50-16 19-02-30 20-07-25 20-20	 20					Microseisms mask record. Apparently a long-distant eq.
20th	iP i i i iE F	5-46-52 5-55-22 5-57-20 5-58-00 5-55-14 7-21	 9					EW record masked by shifting lines. i phases of pronounced amp. East Central Siberia?
20th	to	10-40-30 10-58						Trace on NS.
27th	e i i L F	?9-52-57 10-00-31 10-16-24 10-40-33 11-50	 30					Sinusoidal.

William G. Carroll.

Time: Mean Greenwich, MIDNIGHT TO MIDNIGHT

INSTRUMENTS—Two Milne-Shaw.

Period 12 seconds.

Magnification 150

Damping 20-1

NO. AND DATE	PHASE	TIME	PERIOD	AMPLITUDE			Δ	REMARKS
				A N	A E	A Z		
		h. m. s.	s.	μ	μ	μ		
1931. MARCH.								
2nd.	e	2-38-32					Phases are from NS component, unless stated.	
	i	2-46-16						
	i	2-54-38						
	L?	3-06-16						
	L	3-21-12	19					
	F	4-50						
4th.	A heavy microseismic storm after 10h, continuing to the 5th. Some movements having large amplitude. This agrees with the disastrous storm on the Atlantic Seaboard.							
7th.	PE	0-47-38					Early phases marred by winds. NS record not clear.	
	iPE	0-47-53						
	eSE	0-53-05						
	LE	0-57-24						
	ME	1-00-06	15			3856		
	F	2-30						
7th.	Small quake 10-48-26 to 12h.							
8th.	iP	2-01-38					Records effected by gales. Greco-Servian border, Balkans badly effected.	
	eS	2-10-45						
	iS	2-10-50						
	SR1	2-15-30						
	SR2	2-18-34						
	L	2-21-38				7889		
	L	2-25-30						
	M	2-28-34	15					
	F	4-15						
8th.	Trace from 22-16-15 to 22h 28m.							
9th.	eP	4-01-44					Well marked, large amplitude. 0-3h 49m 14s. Microseisms before "i" phase, S on both components pronounced.	
	i	4-02-08	6					
	iPR1	4-05-30	8			9333		
	e	4-11-45						
	iS	4-12-15	8					
	iSR1E	4-18-09						
	L	4-26-22						
	M	4-36-30	20					
	F	7-05						
10th.	Trace from 3h-43-10 to 4-02-30							
11th.	eP?	12-40-18					10,000	
	iS	12-51-15						
	i	12-59-51						
	i	13-04-36						
	L	13-13						
	L	13-24	18					
	F	15-01						
12th.	i	11-05-13					Small amplitude.	
	e	11-13-28						
	L	11-26-22						
	F	12-37						
12th.	Trace from 20-02-38 to 20-22							
15th.	Trace from 17-21 to 17-36							
18th.	Quake at 8h 14m lost, due to shifting of light spot after mid.							
18th.	e	20-34-26						
	i	20-39-24						
	i	20-41-16						
	i	20-45-03						
	i	20-51-45						
	L	21-12-45	30					
	F	22-29						
19th.	PR1E	6-44-30						
	PR1	6-44-45						
	iE	6-52-21						
	PPSE	6-56-05						

INSTRUMENTS—Two Milne-Shaw

*No. AND DATE	PHASE	TIME	PERIOD	AMPLITUDE			Δ	REMARKS
				A N	A E	A Z		
MARCH 1931 (continued)				s.	μ	μ	μ	
19th (contin.)	SR ₁ EN	7-00-45						
	SR ₃ E	7-10-14					13,333	EW record more marked.
	LE	7-21-45						
	ME	7-29-21	23					
	F	8-40						NW coast Luzon.
25th	Trace only from 13-42 to 14-11.							
28th.	e	12-57-45						
	iE	12-57-52						
	iE	12-58-10						
	i	13-00-45						
	iPR ₁	(13-01-22 13-01-38)	9					Possibly two quakes.
	i	13-02-30	12					
	iPR ₂	(13-03-20 13-03-38)						
	iPR ₃	13-07-10)						
	i	13-07-26)						
	i	13-14-24	15					
	i	13-18-07						
	i	13-18-34						
	L	13-36-34	19					
	M	13-44-12	18					
	F	15-45						
29th	e	17-42-48						F lost in next quake.
	L	17-56-22	18					
29th.	i	18-14-23						
	F	19-18						
29th	Small quake 19h 40m to 20h 17m.							
30th	Trace from 15-20 to 15-38							
31st.	O	16-01-53						
	e?	16-08-20						
	iP	16-08-41						
	PR ₁	16-09-50						
	iS	16-13-52					3600	Managua, Nicaragua. Disastrous.
	L	16-18-48						
	M	16-21-23						
	F	17-45						
	ePE	16-08-33						
	iSE	16-13-49						
	LE	16-18-23						

William G. Carroll.

Time: Mean Greenwich, MIDNIGHT TO MIDNIGHT Period 12 seconds.

INSTRUMENTS—Two Milne-Shaw.

Magnification 150

Damping 20-1

NO. AND DATE	PHASE	TIME	PERIOD	AMPLITUDE			Δ	REMARKS
				A N μ	A E μ	A Z μ		
1931 April 1st	i	13-05-00						Readings from NS instrument unless otherwise stated. Small record
	i	13-14-09						
	eL	13-25-08						
	L	13-34-19	14					
	F	15-05						
3rd.	i	1-47-44						
	e	2-03-12						
	i	2-13-00						
	L	2-27-08	17					
	F	3-46						
3rd.	eE	23-39-23						Three impulses about a minute apart of similar nature Not so marked on NS component.
	iE	23-42-21	6					
	iE	23-43-25	6					
	iE	23-44-22	6					
	iE	23-46-26						
	LE	23-56-07						
	F	0-55						
6th	ePRI	7-09-35						
	iPPS	7-19-30						
	IPPSE	7-19-42						
	i	7-21-17						
	iE	7-26-30						
	i	7-26-44						
	L	7-45-23	27					
	M1	7-53-30	19					
	M2	7-59	15					
	M3	8-09						
	F	10-19						
8th	Large waves of small quake 19-57 to 20h 55m.							
9th	Quake of small amplitude 23h-24m23s to 0h 29m							
11th	Small quake 15h 38m to 16h 59m, masked by wind effects.							
12th	Small quake 2h-29m-30s to 4h 30m							
13th	Small quake 21h-38m-30s to 23h 11m.							
15th	O	16-58-34						F not shown on NS component, S better marked.
	iPE	17-05-53						
	iE	17-06-42						
	SE	17-11-30						
	iSN	17-11-32				4011		
	LNE	17-16-37						
	MN	17-19-03	18					
	F	18-04						
16th	i	22-31-18						Small amplitude
	i	22-37-21						
	L	22-55-22						
	F	23-16						
18th	Small quake 13h-20m-31s to 13h-43m							
19th	e	2-04-38						
	i	2-09-42						
	i	2-12-23						
	iL	2-17-56	14					
	F	3-49						
19th	Trace only from 17h 36m to 18h 05m.							
20th	Small quake 9h-29m to 9h-46m, barely noticeable.							
20th	ePE	19-55-12						Felt in New York State
	eSE	19-55-43						
	LE	19-56-22				280		
	ME	19-56-34						
	F	19-59						

No. AND DATE	PHASE	TIME	PERIOD	AMPLITUDE			Δ	REMARKS
				A N	A E	A Z		
		h. m. s.	s.	μ	μ	μ		
April (continued) 1931								
21st		Trace on NS from 5h-09m-30s to 5h-20m						
22nd.	i	0-18-14						Lwaves of small amplitude.
	e	0-28-08						
	iL	0-48-16						
	F	2-15						
23rd		Quake of small amplitude 23h-53m-36s to 0h-37m						
24th.		Small quake 2h-27m-25s to 3h-10m.						
24th	O	?17-22-29						
	P	17-37-15						
	eP'	17-41-18						
	iPR1	17-42-30						
	i	17-49-25						
	iSR1	17-58-47					12,778	
	LE	18-18	30					
	ME	18-25	18-22					
	F	20-25						
26th		Trace from 4h-37m-20s to 5h-25m.						
27th	e	17-02-11						Early phases masked by wind effects.
	P?	17-03-14						
	iS	17-13-28					8,933	
	eL	17-29-06						
	F	18-57						
				William, G. Carroll				

Time: Mean Greenwich, MIDNIGHT TO MIDNIGHT

Period 12 seconds
Magnification 150
Damping, 20-1

INSTRUMENTS—Two Milne-Shaw.

NO. AND DATE	PIECE	TIME	PERIOD	AMPLITUDE			Δ	REMARKS
				A N μ	A E μ	A Z μ		
May 1931. 1st.	O ePN iPR1 eS L F	22-36-35 22-43-54 22-45-11 22-49-30 22-54-15 23-49					4000	
9th	eE eN eE LEN F	10-40-38 10-46 10-46-19 10-51 11-58	12					Chiefly short period L waves. P & S not clear
10th	eN iN iN LN F	19-36-54 19-46-22 19-51-35 20-03 20-47						
12th	O iPN iSN iSE eLN iLN F	1-37-42 1-48-44 1-57-43 1-57-41 2-10-23 2-15-31 3-13					7444	Small amp. S sharply defined. EW record quite faint.
15th	iN iN iN F	8-08 8-11-43 8-18-21 8-30						
16th	O iPN iSNE iN LN iLN LN F	20-47-12 20-53-50 20-58-52 20-59 21-02-36 21-05 21-10-37 22-26					3467	
20th	O iPNE iPR1E eN eSN iSR1N eLN iLN F	2-22-43 2-31-25 2-33-14 2-34-53 2-38-14 2-41-25 2-45-36 2-49-11 6-00	18 18				5222	Other records, of small ampl. on 2nd, 4th, 6th, 8th, 11th, 23rd, 27th (3) 28th (3) 30th.
20th	O iPN iSN LN F	21-54-04 22-05-19 22-14-41 22-28-22 23-34					7878	
29th	eN LN F	5-31-28 5-39-28 5-59						

Wm. G. Carroll.

Time: Mean Greenwich, MIDNIGHT TO MIDNIGHT

Period 12 seconds.

INSTRUMENTS—Two Milne-Shaw

Magnification 150.
Damping 20-1.

NO. AND DATE	PHASE	TIME	PERIOD	AMPLITUDE			Δ	REMARKS
				A N μ	A E μ	A Z μ		
JUNE 1931.								Readings are from NS instrument unless stated.
1st.		12-47 to 13-18						Sinusoidal
4th	e? L F	10-44-30 11-15-13 11-25						Small amplitude.
9th	O eP eS eL? F	13-57-58 14-10-11 14-20-28 14-39 Lost in preliminaries of next quake.				9000		Record on EW confused, due to shifting of light.
9th	i eL F	16-25-35 16-48-30 19-10						May be second quake, or part of former.
13th	e e eL? F	16-00-23 16-10-22 16-27-15 18-14						Small amplitude.
15th	O eP eS eL? M F	11-20-12 11-30-00 11-37-50 11-47-23 11-52 12-58				6289		Small amplitude. Preliminary phases not very distinct.
20th	e i L? F	15-13-52 15-20-22 15-32 15-57						Small record
21st.	O eP e PR2 S SR3 eL M F	12-22-45 12-29-49 12-30-20 12-31-24 12-35-13 12-38-20 12-39-49 12-42-47 13-43				3811		P quite small.
23rd.	eE eE eIE F	6-39-02 6-45-21 7-04 7-58						NS instrument disturbed, local cause.
29th.	eP? e F	20-35-38 20-45 21-32						Small amp.
<p>Other small records shown on the following dates, some of them barely traced, others small L waves.</p> <p>2nd-4h 44m to 4h 55m; 2nd-6h31m to 6h59m; 7th-0h46m to 1h; 9th-5h 57m to 6h16m; 9th-12h41m to 13h32m; 11th-19h35m to 20h15m; 17th-12h35m15s to 13h22m; 17th-17h41m to 18h31m; 18th-0h32m30s to 0h50m 19th-23h 34m to 23h 57m.; 20th- 20h42m to 20h59m; 22nd-14h44m to 15h 12 22nd-16h 21m 30s to 17h 34m; 27th-18h 39m to 19h 30m; 28th- 17h to 17h 33m.;</p>								
Wm. G. Carroll.								


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Time: Mean Greenwich, MIDNIGHT TO MIDNIGHT

Period 12 seconds.

Damping 20-1

Magnification 150

INSTRUMENTS—Two Milne-Shaw

NO. AND DATE	PHASE	TIME	PERIOD	AMPLITUDE			Δ	REMARKS
				A _N	A _E	A _Z		
		h. m. s.	s.	μ	μ	μ		
1931 July.								
5th	eN	7-18-27					Quite small.	
	eN	7-24-19						
	LN	7-28-19						
	F	8-22						
7th	eN	4-05-14					Unless otherwise noted, phases given are from NS comp.	
	eE	4-05-29						
	iN	4-05-52						
	eN	4-05-56						
	LE	4-13-22						
	LN	4-15						
	LEN	4-19						
	F	5-00						
12th	e	17-05-35						
	e	17-16-						
	L?	17-33-37						
	L	17-50						
	F	18-54						
15th	e	16-47-22						
	e	16-54-15						
	L?	17-03-37						
	F	18-03						
17th	O	9-13-31					3511	
	ePNE	9-20-02						
	ePR ₂ N	9-21-18						
	iSN	9-25-07						
	iSE	9-25-10						
	eN	9-26-11						
	iSR ₂ E	9-28-05						
	LE	9-29-50						
	eLN	9-30-09						
	LN	9-33-33						
	LE	9-35-28						
	LN	9-35-38						
	F	10-39						
18th	O	5-27-11					7078	
	iPN	5-37-43						
	eSNE	5-46-20						
	iE	5-47-10						
	SR ₂ N	5-53-35						
	LN	5-57-25						
	F	6-18						
18th	O	11-23-59					7511	
	eP	11-34-54						
	ePR ₁	11-37-19						
	ePR ₂	11-39-12						
	i	11-42-19						
	eS	11-43-57						
	L	11-57-12						
	M	12-02-12						
	F	13-14						
	O	11-24-01						
	ePE	11-34-55						
	iE	11-42-21						
	iSE	11-43-56						

Time; Mean Greenwich, MIDNIGHT TO MIDNIGHT

INSTRUMENTS—Two Milne-Shaw.

NO. AND DATE	PHASE	TIME	PERIOD	AMPLITUDE			Δ	REMARKS
				A N μ	A E μ	A Z μ		
1931 July (continued)								
19th	e	20-29-37						Small amp.
	eL?	20-41-06						
	F	21-42						
20th	eE	8-54-56						
	eN	8-56-07						
	LN	9-20						
	F	10-12						
21st	eE	3-54-50						Not so well marked on NS.
	eE	3-56-12						
	iE	4-01-30						
	eE	4-05-40						
	LE	4-33						
	F	5-29						
23rd	eE	14-40-32						Phases lost when changing paper at 15:06. Small amp.
	eE	14-45-14						
	F	16-30						
27th	O	7-16-30						NS component not so marked.
	ePN	7-22-06						
	ePE	7-22-12						
	iSEN	7-26-33						
	PR ₁ E	7-27-11						
	LE	7-29-32				2844		
	iLN	7-31-19						
	F	8-30						
27th	O	16-28-46						Small amp.
	ePN	16-37						
	iS	16-43-24				4778		
	eL?	16-49-31						
	F	17-38						
Other disturbances shown on the following days, but quite small, phases not distinguishable:								
2nd-4h 29m 30s ; 9th-12h-15m; 9th-21h-11m-30s; 10th-21h-40m								
11th-16h 47m; 16th-20h 21m; 17th- 4h 08m ; 17th-12h 28m								
19th-11h 45m; 21st-12h 28m; 30th-20h 56m.								
Wm. G. Carroll.								

No. AND DATE	PHASE	TIME	PERIOD	AMPLITUDE			Δ	REMARKS
				A N	A E	A Z		
7th AUGUST	O	2-11-26	36 18	μ	μ	μ	14,000	Unless otherwise noted, times are from NS instrument Difficult to interpret.
	eP'E	2-30-40						
	ePR1E	2-32-23						
	ePR1N	2-32-25						
	ePR2E	2-35-21						
	iE	2-40-34						
	PSN	2-42-38						
	PSE	2-45-00						
	iSR1N	2-49-15						
	iSR1E	2-49-22						
	LEN	3-10						
	ME	3-20						
10th	O	21-18-47	18 14	306			9,722	Well marked.
	oPNE	21-31-36						
	iS	21-42-22						
	iSE	21-42-20						
	iSR1	21-48-28						
	L	22-01						
	eL	22-10-45						
	M	22-16-15						
	W2	23-45-37						
13th	iE	22-38-37						Distant quake, early phases not shown
	LE	23-00						
	F	0-44						
14th	e	16-23-31						Small amplitude.
	e	16-29-32						
	e	16-39-14						
	L	16-46-29						
	F	18-00						
16th	O	11-40-10	6				2,700	Well marked disturbance, felt in Texas. Some of time eclipses on NS record, irregular after 11-47 F mixed with L of next quake.
	iPE	11-45-38						
	iSE	11-49-49						
	LE	11-52-36						
	ME	11-54-30						
	F	13-42						
	O	11-40-04						
	iP	11-45-34						
	eS	11-49-47						
	iS	11-49-58						
16th	L	11-52-18						
	e	11-25-18						
	i	11-27-22						
16th	F	11-41						
	e?	13-44						
	i	13-45-24						
16th	F	14-33					2,522	Early phases confused with trailers of last. This record should be listed as the first quake on this date.
	O	8-05-33						
	eP	8-10-21						
	eS	8-14-07						
	L	8-16						
F	9-09							

From the ISC collection scanned by SISIMOS


Time: Mean Greenwich, MIDNIGHT TO MIDNIGHT

INSTRUMENTS—Two Milne-Shaw.

No. AND DATE	PHASE	TIME	PERIOD	AMPLITUDE			Δ	REMARKS
				A _N	A _E	A _Z		
		h. m. s.	s.	μ	μ	μ		
1931.								
August (continued)								
17th	e	13-23-17						
	e	13-34-11						
	i	13-35-41						
	F	13-47						
18th	O	14-20-58						
	eP	14-33-52						
	i	14-44-17						
	iS	14-44-42	14				9822	The sharp movement at 14-44-17 which would look like S, not shown on EW.
	iSE	14-44-45						
	SR1	14-51						
	LE?	15-01-17						
	L	15-02-07						
	L	15-09-30	21					
	F	17-42						
18th	e	19-45-27						
	e	19-48-30	7					Small amp.
	F	20-05						
23rd.	O	18-01-21						
	ePE	18-08-26						P not clear on NS record.
	eSE	18-13-51						
	eSN	18-13-50					3822	
	L	18-18-29						
	M	18-21	8					
	LE	18-18-24						
	ME	18-21-30						
	F	19-05						
24th	eE	21-53-15						
	iE	21-59-47						
	iE	22-02-29						
	LE?	22-23-07						
	ME	22-34-30						
	F	1-00						
27th.	O	15-27-12						
	ePE	15-41-07						
	PR1E	15-45-13					11,000	Distance from PR1 -0. NS record not measureable, no <u>time marks</u> .
	PR2E	15-51-42						"S" a sharp, pronounced movement..
	iE	15-52-26						Baluchistan destructive.
	iSE?	15-52-44						
	SR2E	16-04-29						
	LE	16-16						
	ME	16-23						
	F	19-50						
Other quakes recorded of minor intensity- 1d at 0h-41m; and at								
20h-33m.	6th-16h 15m 15s;			6th-18h-50m-15s;			8th-13h 25m;	
8th-21h 40m.	9th-1h21m 20s.			10th-10h 50m;			11th-7h 46m 30s;	
22nd-23h 30m;	25th-4h 05m;			25th-22h 33m 22s;			28th-1h 31m;	
30th-7h 48m.								
Wm. G. Carroll.								

Time; Mean Greenwich, MIDNIGHT TO MIDNIGHT

Period 12 seconds
Damping 20-1
Magnification 150

INSTRUMENTS—Two Milne-Shaw.

NO. AND DATE	PHASE	TIME h. m. s.	PERIOD s.	AMPLITUDE			Δ	REMARKS
				A N μ	A E μ	A Z μ		
1931 September 6th	ePN	8-02-37						
	eSN	8-08-33						
	LN	8-13-32					4322	
	MN	8-17-15						
	F	10-10						
9th	O	13-40-20						
	ePE	13-47-14						
	ePN	13-47-12)						
		13-47-26)						
	eSE	13-52-29						
	iSN	13-52-32					3667	Changing records at F.
	SR ₁ N	13-54-30						
	LE	13-56-32						
	ME	13-59-07						
	F	14-46						
9th	O	20-38-00						
	ePNE	20-52-15						
	PR ₁ N	20-56-30						
	iN	21-02-39						
	iN	21-03-23					11533	"i" movements of similar appearance, quite sharp.
	iN	21-03-51						
	iPSN	21-05-52						
	iSR ₁ N	21-12-19						
	LN	21-27						
	F	22-57						
20th	eNE	23-07-14						
	iLE	23-07-30						Nearby epicentre Anna, Ohio
	iLN	23-07-34						
	F	23-10-30						
21st.	eN	2-43-23						Micros mask record.
	iN	2-43-47						
	L	3-00						
	F	4-30						
21st.	eE	10-56						
	LE?	11-18-00						Small amp, masked by micros
	F	12-20						
23rd.	eE	22-48-37						
	LE	22-49-14						Nearby epicentre
	F	22-52						
23rd.	O	5-59-27						
	eP'N	6-19-08						
	iPRLN	6-22-14						
	iN	6-32-22						
	SR ₁ N	6-40-51					15,556	
	LN	7-05						
	F	9-14						
26th.	eN	20-02						
	iN	20-08-30						
	iN	20-10-29						Two quakes superimposed. Micros mask phases.
	iN	20-12-23						
	MN	20-21-15						
	F	21-36						
Minor disturbances on the 2nd at 15h 41m; 3rd at 8h 54m								
3rd, 9h-40m; 6th-16h 01m; 8th-19h 54m; 11th 23h 30m;								
12th-2h 12m; 12th-15h 54m; 16th-12h 33m; 16th-13h 06m;								
17th-17h 34m; 19th-9h 49m; 21st-21h 54m; 22nd-10h 28m;								
27th-0h 40m; 29th 9h 53m.								

Wm. G. Carroll.

NO. AND DATE	PHASE	TIME	PERIOD	AMPLITUDE			REMARKS
				A _N	A _E	A _Z	
1931.							
October.	O	11-45-28		μ	μ	μ	Times from NS instrument unless otherwise stated. Early phases indistinct.
	ePE?	11-52-49					
	eE	11-54-34					
	iE	11-57-03					
	SE	11-58-27				4033	
	LE	12-00-39					
	ME	12-02-17					
	LE	12-05-42					
	F	14-26					
	ePN?	11-52-41					
	SN	11-58-19					
3rd.	O	19-13-29					EW lines crossed making readings uncertain The "i" at 20-02-23 a pronounced movement of large amp.
	eP	19-28-57					
	eP'	19-32-30					
	iPR ₁	19-34-12					
	iPR ₂	19-36-46					
	PS	19-43-40					
	iPPS	19-44-42					
	i	19-49-52				13,267	
	SR ₁	19-50-12					
	i'	20-02-23					
	L	20-09-32					
	F	Covered by following.					
	ePE?	19-28-53					
	iPSE	19-43-23					
	iE	19-49					
3rd.	eE	23-13-19					Early phases masked by previous quake.
	iE	23-17-30					
	iE	23-24-38					
	LE	23-43-16					
	F	2-30					
th	e	22-21-39					Small amplitude.
	e	22-54-35					
	i	22-58-16					
	L	23-20-30					
	F	24-00					
0th	O	0-19-48					Distant. phases difficult. NS does not show P nor marked early phases. Large disturbance.
	ePE	0-35-15					
	ePR ₁ E	0-40-07					
	ePR ₁	0-40-08					
	ScFcSE	0-45-52					
	PS	0-49-40					
	SR ₁ E	0-56-22					
	SR ₂ E	1-01-07					
	LE	1-16					
	ME	1-24-30					
	F	6-50 ca					
18th.	iE	4-54-15					Small amp.
	iE	4-55-37					
	iE	4-58-20					
	iE	5-01-30					
	F	6-20					

Minor quakes recorded on the 6th at 12h 54; 18h 04m and 19h 07m.
7th at 9h 38m; 8th at 2h 56m; 9th at 3h 55m and 23h 44m.
10th at 16h 57m; 12th at 1h 08m; 3h 30m and 13h 54m;
13th at 5h 35m; 17th at 12h 53m; 18th at 1h 14m; 21st at 2h 02m.
and 9h 32m; 23rd at 20h 42m; 26th at 4h 36m; 27th at 19h 14m
28th 6h 35m.

Wm. G. Carroll.

From the ISC collection scanned by SISIMOS



Time: Mean Greenwich, MIDNIGHT TO MIDNIGHT

Period 12 seconds
Magnification 150
Damping 20-1

INSTRUMENTS—Two Milne-Shaw

No. AND DATE	Phase	Time	PERIOD	AMPLITUDE			Δ	REMARKS
				A N	A E	A Z		
		h. m. s.	s.	μ	μ	μ		
NOVEMBER	1931							
2nd.	O	0-31-42						
	iPN	0-38-24						
	iSN	0-43-30						
	iN	0-46-49					3522	
	LN	0-48-38						
	LN	0-53-58						
	F	2-33						
2nd	O	10-02-44						
	ePN	10-16-44						
	PRN	10-20-53						
	iN	10-27-23						
	SRN	1035-15						
	LN?	10-48-30					11,211	SW Japan.
	LN	10-51-17						
	F	14-00 ca.						
2nd.	eN	17-23-38						
	eN	17-31-23						
	LN	18-00						
	F	19-54						
5th	eE	12-43-15						Driving clock on NS stopped.
	LE?	12-59-39						
	F	14-20 ca.						
14th	eN	14-07-52						
	LN?	14-09-30						Small amp.
	F	14-37						
20th	eN	14-39-21						
	eN	14-44-16						
	eN	14-52						
	eLN?	15-12						
	F	17-16						
<p>Quakes of minor intensity shown on the 1st at 19h-40m. 2nd at 23h-34m. 3rd at 16h-59m; 5th at 2h-06m-30s 5th at 7h-12m; 6th at 4h-40m-30s; 11th at 2h-51m 11th at 13h-12m; 17th at 21h-06m; 18th at 3h-52m; 20th at 10h-53m; 20th at 11h-27m 21st at 18h-06m 24th at 9h-46m; 25th at 15h-28m.</p>								
<p>William G. Carroll.</p>								

From the ISC collection scanned by SISIMOS


Time: Mean Greenwich, MIDNIGHT TO MIDNIGHT

Period 12 seconds.

INSTRUMENTS—Two Milne-Shaw

Magnification 150

Damping 20-1

NO. AND DATE	PHASE	TIME h. m. s.	PERIOD s.	AMPLITUDE			Δ	REMARKS
				A N μ	A E μ	A Z μ		
1931 DECEMBER.								
1st		1-34 to 2-57						Small irregular movements.
3rd.	iN F	10-37-14 10-59						Short period waves, micros blur record.
6th & 7th		Heavy microseismic storm.						
14th		Record lost, instrumental trouble.						
20th		15-11 to 15-24						Small amplitude.
29th 7 30th.		Heavy microseismic storm in progress.						
<p>Besides the above, seismic movements of minor nature shown at 1st. 4h 2m to 5h 20m; 1st at 18h 53m 32s; 6th. 5h-06-30 to 5h 22m 10th at 1h 53 to 2h 38m; 18th 10h 05m to 11h 58m; 24th at 3h 49m; 25th. 4h 11m to 5h 20m; 28th. 11h 44m to 11h 59m; 31st 1h 32m to 1h 58m.</p>								
Wm. G. Carroll.								