LITTLE ROCK

LITTLE ROCK COLLEGE SEISMOLOGICAL OBSERVATORY, PULASKI HEIGHTS, LITTLE ROCK, ARK., U. S. A.
(In cooperation with St. Louis University, St. Louis, Mo.—Records kept in St. Louis)

Two Wood-Anderson short-period seismographs, Howard clock, time checked by radio signals.

Bulletin for February and March 1931

No.	Date	Char.	Phase	G.M.Time h. m. s.	Instruments	Remarks
1	Feb.2	II	e_E	23 05 21	W-A	Epicenter 39°S. 177°E. Napier and Hastings. New Zealand destroyed. Δ = 111° Time approximate.
			ePR_{1EN}	23 05 57	W-A	
			$eS_cP_cP_cS_{EN}$	23 13 04	W-A	
			ePS_N	23 15 23	W-A	
			i_{EN}	23 16 15	W-A	
			iSR_{1N}	23 21 17	W-A	
			eL_E	23 38 10	W-A	
			eM_N	23 47 20	W-A	
			F	End covered by following		
2	Feb.3	I	ePR_{EN}	0 57 57	W-A	Time approximate.
			ePS_N	1 07 50	W-A	
			F	2 00 ±	W-A	
3	Feb.10	II	eP'_N	6 54 10	W-A	South of Sumatra. Δ = about 148°
			i_{EN}	6 54 36	W-A	
			iPR_{1N}	6 57 04	W-A	
			eM_{EN}	7 59 00	W-A	
			F	9 00 ±	W-A	
4	Feb.12	I	eP_N	6 03 46	W-A	Same as preceding.
			eM_N	7 08 10	W-A	
			F	End covered by following		
5	Feb.12	I	eP_N	8 10 57	W-A	Apparently two shocks Acapulco Deep. Δ = 19°7
			iP_N	8 11 12	W-A	
			eS_E	8 14 33	W-A	
			iS_{EN}	8 14 48	W-A	
			iSR_{1E}	8 15 08	W-A	
			iSR_{1E}	8 15 29	W-A	
			F	8 30 ±	W-A	

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
6	Feb. 13	I	ePR_{1E}	1 47 02	W-A	New Zealand No record on N-S.
			e_E	1 52 49	W-A	
			eS_E?	1 54 38	W-A	
			ePS_E	1 56 04	W-A	
			eSR_{1E}	2 02 19	W-A	
			eSR_{2E}	2 06 44	W-A	
			$e(L)_E$	2 15 00	W-A	
			eM_E	2 23 30	W-A	
			F	3 20 ±	W-A	
	Feb. 13-15 6 p.m. to 6 p.m. Nc records.					
7	Feb. 16	I	eP_N	19 01 24	W-A	
			eS_E	19 12 09	W-A	
			eM_{EN}	19 34 00	W-A	
			F	20 00 ±	W-A	
8	Feb. 19	I	eP_{EN}	18 00 23	W-A	South of Sumatra. $\Delta = 149^{\circ}$ Second shock.
			e_{EN}	18 01 39	W-A	
			eP_E	18 44 11	W-A	
			eM_E	19 02 00	W-A	
			F	19 50 ±	W-A	
9	Feb. 20	I	eP_E	5 45 47	W-A	Epicenter 44°N. 135°E. Δ_{meas} $90^{\circ}.3$ Apparently very deep focus.
			e_N	5 47 06	W-A	
			eS_E	5 55 38	W-A	
			i_{EN}	5 56 08	W-A	
			e_E	5 58 31	W-A	
			i_E	5 58 36	W-A	
			F	6 45 ±	W-A	
10	Feb. 27	I	e_{EN}	9 56 46	W-A	
			e_{EN}	10 02 56	W-A	
			eM_E	10 40 11	W-A	
			F	11 15 ±	W-A	
11	Mar. 1	I	e_N	14 35 04	W-A	
			i_N	14 35 06.2	W-A	
			F	14 45 ±	W-A	

No.	Date	Char.	Phase	G.M.Time h. m. s.	Instruments	Remarks
12	Mar.2	I	e_{EN}	2 33 07	W-A	Solomon Islands. Phases not sharp.
			e_{EN}	2 37 07	W-A	
			e_{EN}	2 41 02	W-A	
			e_{EN}	2 43 12	W-A	
			e_{E}	2 44 17	W-A	
			e_{E}	2 46 40	W-A	
			F	3 40 ±	W-A	
	Mar.4-6 Very strong microseisms with maximum about 0h.on 5th.					
13	Mar.7	I	eP_{EN}	0 47 08	W-A	Epicenter near 12°N. 87°W. Δ = 24° Interference by distant quake.
			i_{N}	0 47 10	W-A	
			iPR_{1EN}	0 47 42	W-A	
			i_{N}	0 47 49	W-A	
			eS_{E}	0 51 18	W-A	
			eSR_{1E}	0 52 24	W-A	
			eL_{E}	0 56 00	W-A	
			F	1 20 ±	W-A	
14	Mar.8	I	eP_{EN}	2 02 50	W-A	Δ = 82° Ep. = 41°.3 23°.6 (Belgrade) Destructive in Serbia and Greece.
			ePR_{1EN}	2 06 03	W-A	
			$eS_{E(N)}$	2 13 11	W-A	
			ePS_{N}	2 14 01	W-A	
			eL_{EN}	2 28 03	W-A	
			eM_{EN}	2 32 20	W-A	
			F	3 10±		
15	Mar.8	I	e_{N} ?	3 41 04	W-A	Local
			e_{N}	3 41 14	W-A	
			e_{N}	3 41 47	W-A	
			e_{EN}	3 41 49	W-A	
			e_{N}	3 41 50	W-A	
			F	3 43 ±	W-A	
16	Mar.9	I	ePE	4 01 49	W-A	Epicenter 41°N. 142 E. (U.S.C. G.S.) Destructive in Hakodate, Japan Δ = 89°.5
			ePR_{1N}	4 05 18	W-A	
			$eS_{C}P_{C}S_{E}$	4 12 24	W-A	
			i_{EN}	4 12 38	W-A	
			eL_{EN}	4 32 10	W-A	
			eM_{N}	4 39 50	W-A	
			F	5 45 ±	W-A	

No.	Date	Char.	Phase	G.M.Time h. m. s.	Instruments	Remarks
	Mar.9		Moderate microseisms with maximum at 16h.			
17	Mar.11	I	eM_E	13 21 00	W-A	
			F	13 45 ±	W-A	
18	Mar.18	II	eP_N	8 13 36	W-A	Epicenter 32°S. 73°W. $\Delta = 69^\circ$
			eS_{EN}	8 22 48	W-A	
			eSR_{1E}	8 27 36	W-A	
			eSR_{2E}	8 30 54	W-A	Surface waves relatively small.
			eL_{EN}	8 34 05	W-A	
			eM_N	8 40 50	W-A	
			F	10 15 ±	W-A	
19	Mar.19	I	eP'_N	20 32 39	W-A	Epicenter S.E. Coast of Mindanao, Philippines
			ePR_{1N}	20 34 27	W-A	
			$eS_cP_cS_N$	20 39 32	W-A	
			eL_{EN}	21 09 50	W-A	
			F	21 50 ±	W-A	
20	Mar.19	I	e_N	6 43 52	W-A	Epicenter N.W. coast of Luzon, Philippines.
			ePR_{1EN}	6 45 07	W-A	
			e_N	6 52 04	W-A	
			ePS_N	6 54 55	W-A	
			F	7 50 ±	W-A	
21	Mar.21	I	eS_N	13 55 16	W-A	Felt at Sidney, Ohio
			eS_E	13 55 16.7	W-A	
			F	13 58 ±	W-A	
	Mar.22-23		Microseisms.			
22	Mar.25	I	e_N	2 57 22	W-A	
			e_N	2 57 47	W-A	
			e_N	3 00 35	W-A	May be a second quake.
			i_{EN}	3 00 44	W-A	
			F	3 03 ±	W-A	

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
23	Mar. 28	II	e_N	12 57 22	W-A	Epicenter 7°S. 128°E. $\Delta = 133°$
			iP'_N	12 57 47	W-A	
			i_{EN}	12 57 48	W-A	
			iPR_{1EN}	13 01 02	W-A	
			i_{EN}	13 01 15	W-A	
			i_{EN}	13 02 14	W-A	
			e_E	13 10 10	W-A	
			i_{EN}	13 17 50	W-A	Surface waves poorly developed
			i_E	13 20 08	W-A	
			e_E	13 23 00	W-A	
			F	14 40 ±	W-A	
24	Mar. 29	I	e_N	17 34 40	W-A	
			eS_E	17 42 27	W-A	
			F	Covered by following		
25	Mar. 29	I	eP_N	18 04 24	W-A	$\Delta = 84.°3$
			iS_N	18 14 56	W-A	
			e_N	18 15 32	W-A	No surface waves
			F	18 25 ±	W-A	
26	Mar. 29	I	e_N	19 22 10	W-A	
			e_N	19 30 07	W-A	
			F	19 45 ±	W-A	
27	Mar. 31	I	eP_N	16 07 18	W-A	Epicenter Managua. The city destroyed. Record not clear cut. Perhaps several shocks superposed.
			i_N	16 07 37	W-A	
			i_N	16 07 48	W-A	
			i_N	16 09 22	W-A	
			eS_N	16 11 33	W-A	
			eSR_{1N}	16 12 56	W-A	
			F	16 45 ±	W-A	

No.	Date	Char.	Phase	G.M.Time h. m. s.	Instruments	Remarks
28	Apr.1	I	e_N	13 18 24	W-A	
			eS_E?	13 18 41	W-A	
			F	13 30 ±	W-A	
29	Apr.1	I	iP_E	23 21 18.9	W-A	Felt in Western Kentucky, Δ = 385 km.
			e_E	23 21 43.5	W-A	
			i_E	23 21 44.3	W-A	
			i_E	23 21 53.2	W-A	
			iS_E	23 22 04.5	W-A	
			i_E	23 22 05.5	W-A	
			i_E	23 22 07.0	W-A	
			F	23 28 ±	W-A	
30	Apr.3	I	e_N	5 29 40 Only beginning recorded		
31	Apr. 3	I	e_N	23 34 14	W-A	
			e_E	23 41 25	W-A	
			e_N	23 41 32	W-A	
			i_E	23 42 07	W-A	
			e_E	23 43 40	W-A	
			F	24 10 ±	W-A	
32	Apr.4	I	e_E	9 02 10	W-A	
			e_E	9 05 09	W-A	
			F	9 10 ±	W-A	
33	Apr.5	I	e_N	5 08 10 Only beginning recorded	W-A	
34	Apr.5	I	e_N	12 01 45	W-A	
			e_N	12 04 48	W-A	
			F	12 10 ±	W-A	
35	Apr.6	I	e_E	7 08 56	W-A	Epicenter 6°S. 155°E. Δ = 112°
			e_N	7 15 28	W-A	
			e_E	7 18 33	W-A	
			e_E	7 18 50	W-A	
			eL_E	7 41 00	W-A	
			F	9 15 ±	W-A	

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Two Wood-Anderson short-period seismographs, Howard clock, time checked by radio signals.

Bulletin for April and May
1931

No.	Date	Char.	Phase	G.M.Time h. m. s.	Instruments	Remarks
36	Apr.6	I	eP_E	15 38 14.6	W-A	Felt in western Kentucky, Δ = 380 km.
			e_{EN}	15 38 21.1	W-A	
			i_E	15 38 22.1	W-A	
			e_N	15 38 22.7	W-A	
			iP_{EN}	15 38 23.4	W-A	
			i_{EN}	15 38 31.8	W-A	
			iS_N	15 38 47.2	W-A	
			i_{EN}	15 38 53.2	W-A	
			i_{EN}	15 38 55.5	W-A	
			i_{EN}	15 38 57.1	W-A	
			iS_{EN}	15 39 07	W-A	
			F	15 45 ±	W-A	
37	Apr.9	I	eP_E	23 13 41	W-A	
			eS_E	23 23 59	W-A	
			e_E	23 24 21	W-A	
			F	23 40 ±	W-A	
38	Apr.11	I	iP_{EN}	22 45 05	W-A	Local shock blast?
			F	22 46 ±	W-A	
39	Apr.15	I	eP_{EN}	17 07 37	W-A	Epicenter 46°N. 28°W. Δ = 49°
			iP_{EN}	17 07 40	W-A	
			e_E	17 12 59	W-A	
			eS_E	17 14 43	W-A	
			e_E	17 17 53	W-A	
			eL_E	17 24 35	W-A	
			F	17 35 ±	W-A	
40	Apr.17	I	e_N	12 46 05	W-A	
			F	12 55 ±	W-A	
41	Apr.18	I	e_N	13 12 52	W-A	
			e_{EN}	13 15 34	W-A	
			F	13 25 ±	W-A	

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BULLETIN FOR 1931

No.	Date	Char.	Phase	G.M.Time h. m. s.	Instruments	Remarks
The instruments were not functioning during June, first part of July, and first part of August. Time approximate.						
64	July 17	I	iP_N i_N iS_N eM_N F	9 18 25 9 18 38 9 22 05 9 28 18	W-A W-A W-A W-A	Epicenter 14°.5 N. 97°W. Δ = 20°.2
65	July 18	I	eP_N e_N e_N e_N F	5 37 14 5 44 51 5 45 06 5 45 09 5 45 52 5 50±	W-A W-A W-A W-A W-A	Epicenter 21°S. 71°W.
66	July 18	I	i_P eS_N iS_N i_N eL_N F	11 35 08 11 44 20 11 44 33 11 44 49 11 57 00 12 25±	W-A W-A W-A W-A W-A	Epicenter 53°.3 N. 159°E. Δ = 69°.3
67	July 18	I	e_N e_N i_N iS_N F	14 46 07 14 46 38 14 46 41 14 46 43 14 48±	W-A W-A W-A W-A W-A	Felt at New Madrid, Mo., Δ = 190 miles
68	July 21	I	ePR_N $e\ S_OP_OS_N$ e_N ePS F	3 54 48 4 00 48 4 01 41 4 03 23 4 30±	W-A W-A W-A W-A	Epicenter 22°S. 174°E.

No.	Date	Char.	Phase	G.M.Time h. m. s.	Instruments	Remarks
69	July 23	I	e_N	14 39 43	W-A	
			i_N	14 44 58	W-A	
			e_N	14 45 06	W-A	
			e_N	14 50 00	W-A	
			e_N	14 59 51	W-A	
			F	15 15 ±		
70	July 27	I	eP_N	7 20 05	W-A	$\Delta = 17^{\circ}.4$
			iS_N	7 23 21	W-A	
			eM_N	7 30 00	W-A	
			F	7 40 ±		
71	July 27	I	eP_N	16 35 43	W-A	Epicenter Galapagos Islands
			eS_N	16 41 06	W-A	
			eM	16 47 40	W-A	
			F	16 55 ±		
20.5h;	Besides the above traces seismic movement at 19d. 20.4h.- 19d. 21h-21.1h; 20d. 8.7.h-9.0h.					
72	August 16	I	e_N	8 11 37	W-A	
			F	8 20 ±		
73	August 16	I	e_N	11 17 54	W-A	Felt in S. W. Texas
			eS_N	11 19 44	W-A	
			iM_N	11 21 08	W-A	
			F	11 28 ±		
74	August 16	III	eP	11 43 08	W-A	Destructive at Valentine and neighboring town in Texas.
			iS	11 45 06	W-A	
			F	13 50 ±		
75	August 16	I	e_N	13 36 01	W-A	Felt in S. W. Texas.
			eS_N	13 37 57	W-A	
			eM_N	13 39 14	W-A	
			F	14 00 ±		

No.	Date	Char.	Phase	G.M.Time h. m. s.	Instruments	Remarks
76	August 18	I	eP_N	14 34 46	W-A	Epicenter 46°N. 89°E.
			eP_N	14 36 45	W-A	
			$eS_cP_cS_N$	14 45 16	W-A	
			e_N	14 46 02	W-A	
			e_N	14 47 40	W-A	
			eM_N	15 19 30	W-A	
			F	16 00 ±		
	August 23		No records			
77	August 24	I	e_N	21 54 26	W-A	Epicenter 30°N. 67°E.
			ePR_{1N}	21 54 54	W-A	
			ePS_N	21 04 08	W-A	
			$ePPS_N$	21 05 10	W-A	
			eM_N	21 43 00	W-A	
			F	22 10 ±		
	August 25		No records.			
	August 26-27		No time marks on record.			
78	August 30	I	eP_N	7 40 42	W-A	
			eS_N	7 45 35	W-A	
			F	8 00 ±		

Besides the above: 18d. 19.6h-19.8h; 18d. 21.7h-21.8h.
Note: Instruments in operation only during part of September and October: no earthquakes recorded.

79	November 2	I		00 36		Lost during change of record sheets.
80	November 2	II	ePR_{1N}	10 21 00	W-A	Destructive in Southern Japan.
			$eS_cP_cS_N$	10 27 30	W-A	
			e_N	10 28 19	W-A	
			e_N	10 28 48	W-A	
			eSR_{1N}	10 35 27	W-A	

No.	Date	Char.	Phase	G.M.Time h. m. s.	Instruments	Remarks
80	November 2	II	e_N	10 33 45	W-A	
			L_N	10 47 30	W-A	
			F	12 30 ±		
81	November 4	I	iP_N	18 05 15	W-A	Δ_{S-P}= 72°.9
			eS_N	18 14 49	W-A	
			F	18 25 ±		
82	November 5	I	eP_N	7 08 04	W-A	Δ_{S-P}= 33°.2
			eS_N	7 13 25	W-A	
			F	7 20 ±		
83	November 12	I	iS	8 21 14	W-A	
			F	8 30 ±		
84	November 14	I	eP	12 57 29	W-A	Δ_{S-P}= 45°.7
			eS	13 04 10	W-A	
			F	13 15 ±		
85	November 27	I	e_N	9 23 21	W-A	Several shocks reported felt in Nashville, Tennessee.
			i_N	9 23 30	W-A	
			F	9 30 ±		
86	December 10	I	e_N	8 11 42	W-A	Δ_{S-P}= 165 mi. Felt in Blytheville, Arkansas, and south to Wilson, and north to Hayti, Mo.
			iP_N	8 11 45	W-A	
			i_N	8 12 08	W-A	
			i_{EN}	8 12 12	W-A	
			iS_{EN}	8 12 16	W-A	
			F	8 15 ±		
87	December 13	I	eP_N	19 29 05	W-A	Δ_{S-P}= 64°
			eS_N	19 37 44	W-A	
			F	19 45 ±		

The Central Station of the Jesuit Seismological Association acknowledges with thanks the receipt of the following publications from February 5, 1931 to June 18, 1931.

Geodatisk Institut Kobenhavn, Danmark	The Earthquake of 22 III 1928, by I. Lehmann.
Imperial Academy Tokyo, Japan	Proceedings Nov.Dec. 1930. Jan. Feb. March, 1931.
Osservatorio Geofisico Rosmini Domodossola	Bollettino Mensile, Anno XIX, No. 13, 1930.
Osservatorio del Ebro Tortosa, Espana	Boletin Mensual, Vol. XXI, Nos. 4-5-6-7-8-9-10, 1930.
Manila Weather Bureau Manila, P.I.	Seismological Bulletin, Jan-June, 1930.
Observatoire National Athenes	Le Tremblement de Terre du 17 Avril, 1930 Dans Le Golfe Sarmique, by N.A. Critikos.
Seminaire College St. Martial Port-au-Prince, Haiti	Bulletin Annuel 1928.
Saemontaro Nakamura Physical Institute Tohoku Imperial University Sendai, Japan	On the Piezo-electric Accelerometer and its Use in the Measurement of the Velocity of the Elastic Waves Produced by Artificial Shocks.
Inter. Latitude Observatory Mizusawa, Iwate-ken, Japan	Annual Report of the Meteorological and Seismological Observations for the year 1929.
Zurich	Jahresbericht des Schweizerischen Erdbebendienstes 1929. by Dr. E. Wanner.
Meteorological Office London	Studies in Microseisms, by F.J.W. Whipple and A.W. Lee.
Observatoire de Tananarive	Bulletin Seismique, Sept. Oct.1930.
Reichsanstalt fur Erdbebenforschung in Jena.	Die wichtigeren Erdbeben des Jahres 1924 und ihre Bearbeitung by G. Krumbach and A. Sieberg.
	Entstehung und Ausbreitung Deutscher Erdbeben by Fritz Nennstiel.
Osservatorio Geofisico del Seminario Venezia	Bollettino Mensile, Oct-Dec. 1929. Jan-June 1930. Annuario 1931.

The Department of Geophysics acknowledges with thanks the receipt of the following reports from February 5, 1931 to June 18, 1931.

Science Service Washington, D.C.	Daily Science News Bulletin Feb.Mar.April. 1931.
Navy Department Washington, D.C.	Hydrographic Bulletin,Nos. 2162 to 2179.
University Observatory Oxford, England	International Seismological Summary for 1927, April, May, June.
	The Revision of Seismological Tables, by Dr. Harold Jeffreys.
U.S. Department of Commerce Coast and Geodetic Survey Washington, D.C.	Results of Observations at the U.S. Coast and Geodetic Survey Magnetic Observatory at Vieques, P.R. in 1923 and 1924.
U.S. Department of Interior Geological Survey Washington, D.C.	Bull. 824-A, 822-C, 813-D. Water Supply Paper 622. Prof. Paper 160.
Navy Department Washington, D.C.	Pilot Chart of the Upper Air North Atlantic Ocean, March, April, May, June, July, 1931.
Hawaiian Volcano Observatory Honolulu, Hawaii	The Volcano Letter, Nos. 313,319, 323, 326, 332, 335.
L'Universite de Beograd Beograd	Annuaire Seismique, Annee VII, Ser. A. Fasc.5, 1927. Fasc. No.9 Annee IX, 1929.
Seismological Observatory Georgetown University Washington, D.C.	Seismological Dispatches
Central Meteorol. Observatory Tokyo, Japan	The Geophysical Magazine, Vol. III, No. 3, Dec. 1930.
Department of the Interior Ottawa, Canada	Publication of the Dominion Observatory, Vol. XI, No. 2.
Liverpool Observatory Liverpool, England	Annual Report 1930.
Nat. Geol. Survey of China Peiping (Peking), China	Seis. Bull. No. 1, Sept-Oct. 1930. No. 2, Nov.-Dec. 1930.
Nat. Research Council Tokyo, Japan	Japanese Journal of Astronomy and Geophysics, Vol. VIII, No. 2 1931.
Illinois State Geol. Survey Urbana, Illinois	Bulletin no 22, No. 19.

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knowledges with thanks the receipt of the following publications
from February 5, 1931 to June 18, 1931.

Osservatorio Geofisico Montecassino	La Meteorologia Pratica, Sept-Dec. 1930.
R. Oss. Geofis. di Rocca di Papa Roma	Il Recenti Periodo Sismico di Rivodutri, by G. Agamennone.
	Discussione di Alcune Scasse in Italia, by G. Agamennone.
Earthquake Research Institute Imperial University Tokyo, Japan	Bulletin, Vol. IX, Part I, March 1931.

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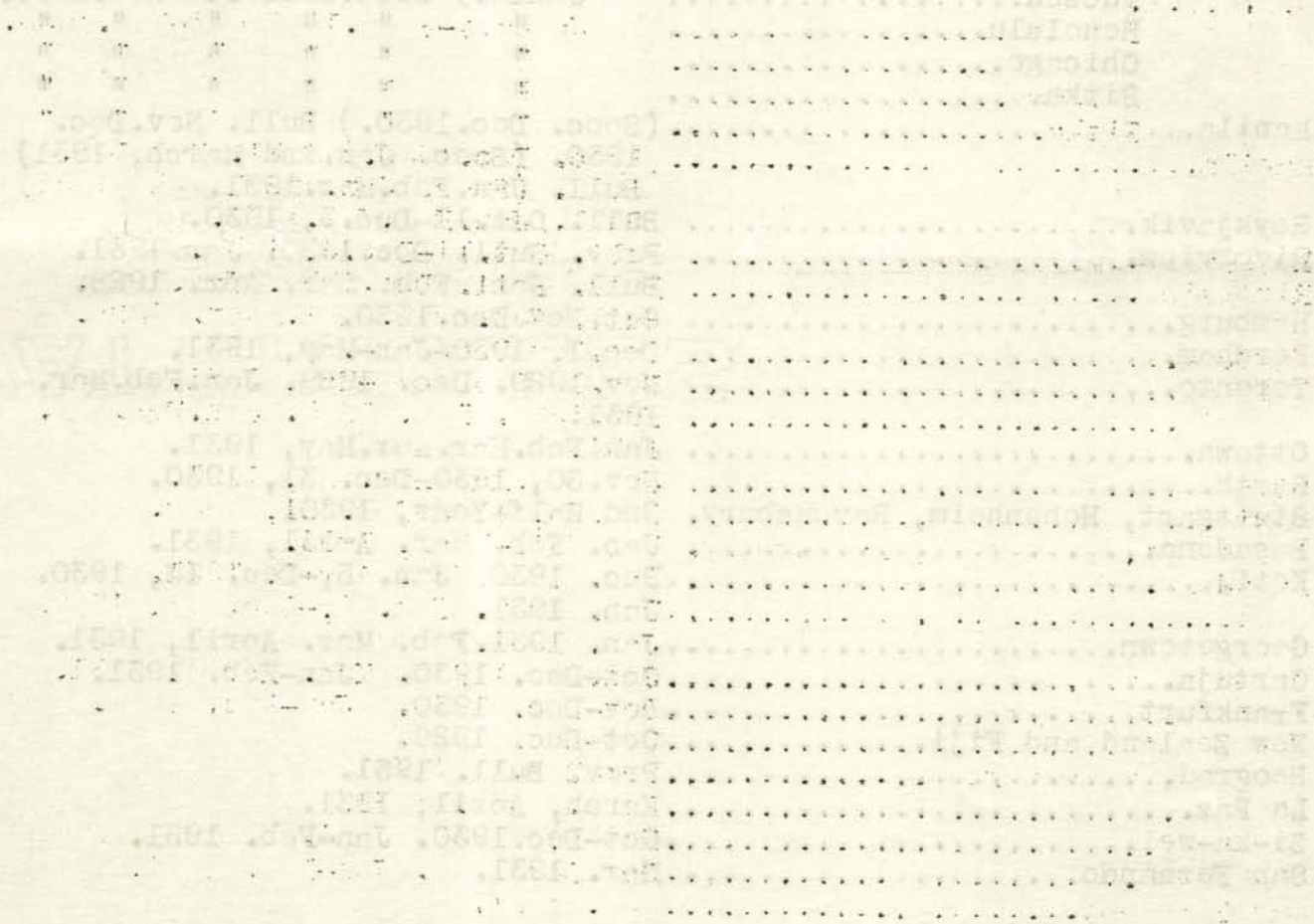
U.S.C.G.S.	
Tucson	January-Sept. 1928 Oct-Nov. 1930.
Honolulu	" " " " " "
Chicago	" " " " " "
Sitka	" " " " " "
Manila	(Spec. Dec. 1930.). Bull. Nov. Dec. 1930. (Spec. Jan. and March, 1931) Bull. Jan. Feb. Mar. 1931.
Reykjavik	Bull. Oct. 11-Dec. 3, 1930.
Riverview	Prov. Bull. Dec. 1930. Jan. 1931. Bull. Jan. Feb. Mar. Apr. 1928.
Hamburg	Oct. Nov. Dec. 1930.
Fordham	Dec. 1, 1930-Jan-May, 1931.
Toronto	Nov. 1929. Dec. 1929. Jan. Feb. Mar. 1931.
Ottawa	Jan. Feb. Mar. Apr. May, 1931.
Perth	Nov. 30, 1930-Dec. 31, 1930.
Stuttgart, Hohenheim, Ravensbury.	2nd Half-Year, 1930.
Pasadena	Jan. Feb. Mar. April, 1931.
Koti	Dec. 1930. Jan. 5,-Dec. 13, 1930. Jan. 1931.
Georgetown	Jan. 1931. Feb. Mar. April, 1931.
Cartuja	Oct-Dec. 1930. Jan-Feb. 1931.
Frankfurt	Nov-Dec. 1930.
New Zealand and Fiji	Oct-Dec. 1929.
Beograd	Prov. Bull. 1931.
La Paz	March, April, 1931.
Zi-ka-wei	Oct-Dec. 1930. Jan-Feb. 1931.
San Fernando	Mar. 1931.



The Central Station of the Jesuit Seismologica[illegible] knowledges with thanks the receipt of the following reports from February 5, 1931 to June 18, 1931.

Osaka	July-Sept 1930. Nov-Dec. 1930. Jan. Feb. Mar. 1931.
Nagoya	Dec. 1930. Jan 1931.
Hamburg	Oct. Nov. Dec. 1930. Jan. 1931.
Toronto	Nov. Dec. 1929. Jan. Feb. Mar. Apr. May, 1931.
Strasbourg	
L'Institut	Dec. 1930. Jan. Feb. Mar. Apr. 1931.
Bureau Central	" " " " " " "
Union International	" " " " " " "
Paris	Jan. Feb. Mar. Apr. 1931.
Victoria	Oct-Dec. 1930. Jan. 1931.
Koti	Dec. 1930. Jan. Feb. 1931.
Batavia	Dec. 1930. (Spec. Bull. Dec. 1930) Jan. Feb. Mar. 1931.
Zagreb	July-December 1930.
Zurich	Jan. Feb. Mar. Apr. May 1931.
Kew	Jan. Feb. Mar. Apr. 1931.
Karlsruhe	No. 17, 1930.
Wellington	Jan. Feb. Mar. 1931.
Hukuoka	Jan-Dec. 1930.
Nagasaki	Sept-Dec. 1930. Jan. Feb. 1931.
Helwan	Jan. Feb. 1931.
Bergen	Jan-Dec. 1930.
Beograd	Dec. 1930. (Prov. Bull. 1931)
Nagoya	Feb. 1930.
San Fernando	Dec. 1930. Jan. 1931.
Perth	Jan. 1-Feb. 14-Mar. 3, 1931.
DeBilt	No. 108, 16, 1928.
New Zealand and Fiji	Oct-Dec. 1929.
Uccle	Oct-Dec. 1930. Jan-Feb. 1931. Bulletin Sismique 1930.
Numazu	Feb. Apr. 1931.
Kobenhavn	No. 7, July-Sept. 1928.
Koutchino	No. 35, 1928.
Wien	July-Dec. 1930. Jan. 1931.
Graz	Sept-Dec. 1930. Jan-Feb. 1931.
Innsbruck	April-Nov. 1930.
Lemberg	July-Dec. 1930. Jan-Mar. 1931.
Apia	Feb. Mar. Apr. 1931.
Tananarive	Nov. Dec. 1930.
Matuyama	Sept. 1, 1929--Dec. 21, 1929. Jan. 11-June 1, July 7-Sept. 29, Oct. 7-Oct. 26 Nov. 12-Nov. 24, Nov. 26-Dec 12, Dec 12-Dec 26, 1930.
U.S.C.G.S.	Preliminary Determinations of Epicenters. Feb. 17, Mar. 13, 14, 25, 31; Apr. 7, 10, 22, 28; May 7, 13, 15, 21, 23, 25; June 2. 1931. Telegrams. Feb. 13, 14, 20; Mar. 2, 3, 7, 9, 10, 11, 18, 19, 28, 30, 31; Apr. 1, 4, 6, 16, 19, 20, 22, 24, 25, 27, 28; May 2, 9, 11, 12, 18, 20, 21, 27; June 1, 1931. Washington, D.C., Feb. 14, 24, 26; Mar. 9, 10, 13, 19, 30; Apr. 6, 7, 16, 20, 22, 23, 24, 25, 28; May 4, 11, 12, 13, 19, 20, 21, 22, 28, 29; June 1, 1931.

LITTLE ROCK

LITTLE ROCK COLLEGE SEISMOLOGICAL OBSERVATORY, PULASKI HEIGHTS, LITTLE ROCK, ARK., U. S. A.

(In cooperation with St. Louis University, St. Louis, Mo.—Records kept in St. Louis)

Two Wood-Anderson short-period seismographs, Howard clock, time checked by radio signals.

Preface

The Little Rock College Seismological Observatory is situated on Pulaski Heights northwest of the city of Little Rock, Arkansas. Its geographical coordinates are 34°46.7' north latitude and 92°21.1' west longitude. The concrete pier on which the two Wood-Anderson short-period seismographs are mounted is built into a dense trap flow in Carboniferous Sandstone and Shale at an elevation of about one hundred and fifty meters above sea level.

The station is operated on a cooperative basis by Little Rock College and Saint John's Seminary of Little Rock, Arkansas, and Saint Louis University of Saint Louis, Missouri, as a part of the network of stations planned by the latter for the study of the seismic conditions in the central Mississippi valley. Credit for the establishment of the station is due to the enthusiastic effort and cooperation of the Reverend John J. Healy, President of Little Rock College, as well as to the Right Reverend John B. Morris, D.D., Bishop of Little Rock, the founder of the college, and to the Very Reverend Monsignor James P. Moran, LL.D., its former president.

The seismographs and the modified Howard clock were obtained through a generous grant of the National Research Council. The periods of both the north-south and east-west components are adjusted to about two and one-half seconds and the electromagnetic damping to aperiodicity.

The reports will be issued at convenient intervals. Routine registration began February Second, 1931. Hence the present Bulletin for February and March is the first of the series. Under the general direction of the Very Reverend Monsignor A.L. Fletcher, M.S., Ph.D., Mr. J.A. Murray and two assistants from the Seminary care for the instruments and develop the records. After local use has been made of them, the records are sent to the seismological laboratory at Saint Louis University where they are measured for publication by the Reverend Joseph S. Joliat, S.J. They remain the property of Saint Louis University and are kept in Saint Louis.

James B. Macelwane, S.J.
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