Seismological Bulletin No.21

MELBOURNE OBSERVATORY
SOUTH YARRA S.E.1 VICTORIA

MILNE-SHAW SEISMOGRAPH No.41 E-W COMPONENT.

Period 12 secs. Damping ratio 20:1 Tilt 1" = 41.6mm

Date 1933	Universal Time h m s	Phase	A μ	Period secs.	Remarks.
Jan. 1	8 54 43	iP			
	55 30	PR1			
	57 37	i			
	59 18?	S			Δ 26°.4? (Jeffreys' Tables 1932)
	9 1.7?	L			
	2.9	M	232	20	
4	1 43 47	i			p receded by very small waves
	51 9	i			
	53 40	L			
	56.6	M	13	23	
5	14 3 13	e			
	8 31	L			
	17.6	M	6	13	
7	4 28 30	e			
	29 12	i			small
	33 26	i			
	41.4	L			
9	2 19 16	i			small throughout
	25 27	i			
	29 35	i			
	33 35	i			main feature in trace
11	20 13 21	e			severe at Dunning N.S.W.
	13 25	i	6	4	
	13 40	L			
13	15 2 52	e			very small
	4 48	i			
	6 10	L			
	6.6	M	5	10	
15	18 9 15?	e			extremely small
	13 28	i			
	14 5	S			
	18.4	L			
	21.7	M	28	11	
17	19 7 48	e			very small
	8 46	e			
	19 52	L			
	22.5	M	7	20	
21	19 32 19	P			
	35 10	PR1			
	36 40	PR2			
	41 19	S			Δ 68°.2
	41 53	PS			
	42 18	S			
	49 3	SR2			probably SR3 at 50 32
	53 10	L			
	55.4	M	192	20.5	

Seismological Bulletin No.21contd.

MELBOURNE OBSERVATORY
SOUTH YARRA S.E.1 VICTORIA.

Date 1933	Universal Time h m s	Phase	A μ	Period secs.	Remarks
Jan.23	18 25 48	i			amplitudes small throughout
	29 0	e			
~~27~~	22 44 44	eP			
	44 56	i			
	46 42	PR1			
	51 14	S			Δ 43.7
	54 59	iSR1			
	57 40	L			
	23 4.2	M	100	19	
~~29~~	11 5 29	e			
	9.9	L			
	10.4	M	6	18	
Feb ~~9~~	15 46 55	i			S?
	49 13	i			SR1?
	52 50	L			
	56.3	M	14	10.5	
13	7 51.3	L			
	52.2	M	4	15	
~~14~~	~~4 39 5~~	~~e~~			~~small and preceded by micros~~
	~~41 47~~	~~i~~			
	~~43.54~~	~~L~~			
	~~46.4~~	~~M~~	~~8~~	~~16~~	
15	9 17ca	e			
	17 45	e			three waves of very long period
	19.4	e			
	23.2	L			
16	9 22 45	e			small throughout
	32.5	L			
~~19~~	8 41 7	i			P?
	46 5	i			S? Δ 29.4?
	50.5	L			
	52.6	M	24	18	
21	3 9.5ca	e			small
	10.7	L			
~~23~~	8 29 23	e			micros very strong throughout day
	34 34	i			
	38 13	i			some larger waves
	44 25	i			
	51 50	e			
	56.9	e			
	9 1	L			
	7	M	58	20	
25	1 33ca	e			small
	40.4	L			

Seismological Bulletin No.21contd.

MELBOURNE OBSERVATORY
SOUTH YARRA S.E.1 VICTORIA

Date 1933	Universal Time h m s	Phase	A μ	Period secs.	Remarks
Feb.14	4 39 5	e			small and preceded by micros
	41 47	i			
	42.5?	L			
	43.5	M	15	7	
14	5 40.2	e			obscured by irregular micros
	42 25	i			
	43 54	L			
	46.4	M	8	16	
27	14 59 15	e			
	15 0 56	L			
	1.8	M	7	11	
27	16 15.3?	e			
	17 29	i	56	19	
	18 22	i			
	19 20	L			
	19.7	M	68	12	
28	9 13	i			
	15.1	M	3	14	
Mar. 1	20 42 15	i			
	45.5	M	5	10	
2	4 22.3	e			small and obscured by micros
	24.2	L			
	26.8	M	8	12	
2	17 42 57	eP			record much confused by overlapping
	43 7	iP			
	47 27	i			
	49 52	i			
	52 40	S			Δ 76°.1
	18 3.3	L			
	8.3	M	1320	24	
5	8 33 15	e			
	40 29	i			
	42 32	i			
	46?	L			
	47.3	M	22	23	
9	20 39.6	e			extremely small
	44 0	i			
	48.3	L			
	50.4	M	7	16	
11	2 19 37	e			very small
	30 20	e			one wave
	47.5	L			
	3 1	M	3	20	Press reports Southern California
11	7 33 0	i			small but distinct
	39	L			

Seismological Bulletin No.21contd.

MELBOURNE OBSERVATORY
SOUTH YARRA S.E.1 VICTORIA

Date	Universal Time	Phase	A μ	Period	Remarks
Mar.11	14 44 24	i			
	15 3	L			
11	19 50 33	i			any earlier phases lost in micros
	51 37	i			
	53 33	i			
	20 4 57	i			may be L
13	16 46 25	i			small
	50.7	L			
	52.8	M	12	20	
15	5 15.5?	e			earlier phases lost in micros
	18 42	iL			
	21.9	M	16	16	
17	16 19 47	i			earlier phases lost in strong micros
	38	L			which obscure whole record
	55.5	L			
	17 0	M	14	20	
17	19 42 0	i			small and obscured by micros
	47 55	i			
	51 18	i	42	14	
	20 0ca	L			
	2.3	M1	74	20	
	5.8	M2	33	12	
18	3 28 6	e			small
	36 54	i			
	38 56	e	73	30	
	41.3	L			
	46.8	M	29	20	
29	18 51 53	i			
	52 25	e			
	54 30	e			
	55.6	M	5	9	

Small and undecipherable shocks were recorded as follows:-

Jan. 10d 16h; 18d 9h; 19d 19h; 20d 4h; 24d 3h; 25d 12h; 27d 12h, 17h; 31d 5h

Feb. 3d 22h; 19d 4h; 20d 2h; 27d 18h, 20h, 23h.

Mar. 2d 8h; 3d 9h; 18d 18h; 26d 17h.

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Seismological Bulletin No.22

MELBOURNE OBSERVATORY
SOUTH YARRA S.E.1 VICTORIA

MILNE SHAW SEISMOGRAPH No.41 E-W COMPONENT.

Period 12 secs. Damping ratio 20:1 Tilt 1" = 44.7 mm.

Date 1953	Universal Time h m s	Phase	A μ	Period secs.	Remarks.
Apr. 9	3 8 18	S			or [S]
	9 0	PS			or Σ
	13 23	SR1			
	22 50	i			may be L
9	4 34 31	e			very small; may be SR1
	52 22	L			
11	5 56.4	e			extremely small
	59 50	i			
	6 0 48	L			
	2.3	M	6	12	
13	22 2 30	e			may be P
	5 28	S			
	6 22	L			
	7.9	M	13	11	
16	6 7 29	PR1			identification of phases uncertain
	11 34	S			
	14 43	SR1			
	16 52	L			
	18.2	M	17	15	
16	19 24 42	e			PR1?
	28 52	S			
	31 25	SR1			
	33 32	L			
	36.1	M	235	15	
19	2 10 28	i			small
	18.5	e			
	19.5	L			
19	7 4 7	i			small
	18.3	L			
21	22 40 47	i			small and obscured by micros.
	41 8	i			" " " " "
23	6 19 6	e			very small
	20 13	i			small
	31 15	i			"
	42 0	e			
	7 4.7	e			long period
	7.7	e			
	10.4	e			
	13.7	L			
26	22 45.4	i			small
	51.3	e			"

Seismological Bulletin No.22contd.

MELBOURNE OBSERVATORY
SOUTH YARRA S.E.1 VICTORIA

Date 1933	Universal Time h m s	Phase	A μ	Period secs.	Remarks
June11	13 22 6	e			very small
	27.4	L			
	31.4	M	6	20	
12	18 46 31	i			small
	48.6?	L			
	49.5	M	3	18	
18	4 3 45	e			very small
	8 38	e			long period
	11 45	e			
	13 47	e			
	15 43	L			
	20.2	M	14	14	
18	21 51 23?	e			very small
	50 0	iS	8	25	largest wave in trace
	22 3 45	SR1			
	9 42	L			
21	13 57 30	i			
	14 9.2	L			small
22	5 50 11	i			small
	54 9	e			"
	55 13	L			
	56.7	M	5	15	
24	22 3 38	P			
	6 31	PR2			
	10 40	S			Δ= 48°.8
	15 17	SR2			
	17.9	L			
	25.8	M	527	20	
27	3 27 25	i			small
	35 40	L			

Small and undecipherable disturbances recorded as follow_

Apr. 1d 8h; 2d 9h; 7d 22h; 11d 10h; 11d 23h; 12d 4h; 12d 6h; 12d 12h; 17d 3h; 21d 23h; 23d 14h.

May 6d 6h; 11d 2h; 16d 17h; 28d 16h; 29d 12h.

June 3d 17h; 18d 6h; 19d 6h; 25d 6h, 18h.

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Seismological Bulletin No.23

MELBOURNE OBSERVATORY
SOUTH YARRA S.E.1 VICTORIA.

MILNE-SHAW SEISMOGRAPH No.41 E-W COMPONENT.

Period 12 secs. Damping ratio 20:1 Tilt 1" = 46.2mm.

Date 1933	Universal Time h m s	Phase	A μ	Period secs.	Remarks.
July 9	1 52 45	iS			small, but larger than all following
	58 57	i			waves
	2 4 33	e			
	34.7	M	3	20	
9	12 49 8	e			very small
	53 13	iS			largest wave of trace.
	58 45	e			
	13 5 0	e			
	15.6	M	12	16	
10	10 39 53	eP			32°.4 Jeffreys' Tables 1932
	41 3	PR1			
	45 11	S			
	45 26	i			
	48 48	L			
	51.7	M	58	9	
13	14 46.5ca	L			
	50.4	M	7	22	
14	1 44 48	i			small
	48 31	e			
	50 20	i			
	54ca	L			
	55.5	M	4	11	
18	19 24 46	i			
	25 53	i			
	32 12	L			
21	20 30 2	i			very small indications earlier, but
	35 50	e			times not observable.
	42 30	i			
	46.3	e			few long waves.
	49.9	L?			
	21 1.7	M	17	17	
22	21 19 32	e			[S]?
	20 21	S			
	27 3	SR1			
	30 40	SR2			
	36 34	SR3			
	43	L			
	47.2	M	49	22	
24	19 3 43?	P			46°.3?
	10 30	S			
	13 32	SR1			
	16 20	L			
	22.0,	M	33	14	

Seismological Bulletin No.23contd. MELBOURNE OBSERVATORY SOUTH YARRA S.E.1 VICTORIA.

Date 1933	Universal Time h m s	Phase	A μ	Period secs.	Remarks.
July30	17 21 35	i			
	22 27	i			
	27 30	S?			
	29 25	i			
	29.6	m	17	13	
Aug. 5	0 50 37	P			
	55 52	S			
	57 18	SR1			
	58 48	L			
	1 1.5	M	78	14	
8	4 50 7	e			
	51 33	L			
	53.1	M	97	16	
11	9 15 42?	e			very small
	24 53	e			
	30.5?	L			
	41	M	6	21	
13	10 0.5ca	L			small and obscured by micros.
	2.5	M	7	20	
20	11 57 53	i			small
	12 2 10	i			
	5 50	i			
	14.5?	L			
	23.3	M	5	15	
25	8 2 33	eP			Chiu-feng reports West China.
	3 2	i			
	12 42	S			80°8
	13 10	PS			
	18 5?	SR1			
	22 3	SR2			
	28?	L			
	33.5	M	62	20	
28					Lamp out 1h5m to 5h 33m.
28	22 32 10	eP			
	36 59	i			
	42 29	S			83°0
	42 [illegible]	i			
	47 22	i			
	48.0	m			
	51.2	i			
	52 48	i			
	54.8	m	872	34	much the largest amplitude.
	55-59				group of long waves
31	12 36 52	e			
	41 30	i			
	42.6	L			
	46.0	M	3	12	

Seismological Bulletin No.23 contd

MELBOURNE OBSERVATORY
SOUTH YARRA S.E.1 VICTORIA.

Date 1933	Universal Time h m s	Phase	A μ	Period secs.	Remarks
Sept.1	19 10 59	i			small throughout.
	14 16	L			
	15.4	M	6	18	
2	16 51 10	i			small
	59 55	iS			
	17 0 55	i			
	2 34	i			
	3 50	i			
	9 37	i			little evidence of surface waves.
5	0 46 18	i			small
	47 55	L			
	48.7	M	5	11	
6	1 20 47	i			small
	23 56	S			
	24 42	i			
	25 0	L			
	26.5	M	36	10	
6	17 40 32	i			
	47 53	L			
	50.0	M	12	20	
6	22 14 35	iP			28°.0
	16 10	i			
	17 22	i			
	19 23	iS			
	22 58	i			
	23 30	i			
	23 47	i			
9	21 26 18	P			
	27 23	PR1			
	31 20	S			30.0
	34 13	L			
	36.5	M	40	19	
13	13 47 12	e			small
	50.5	M	3	9	
16	3 31 12	L			
	33.9	M	9	11	
22	11 45 36	e			small
	49 42	S			
	53 42	L			
	55.4	M	16	19	
24	15 40 24	e			very small
	41 49	e			" "
	44 17	i			well marked
	44 40	i			

Seismological Bulletin No.23 contd.

MELBOURNE OBSERVATORY
SOUTH YARRA S.E.1 VICTORIA.

Date 1933	Universal Time h m s	Phase	A μ	Period secs	Remarks
Sept.25	13 54.5	e			very small
	14 1 10	e			
	4 36	i			largest wave in train.
	15.3?	L			
25	19 15 5	i			small
	16 52	i			
	21 55	e			
	34.5	e			some long waves.
	56.3	M	21	13	
27	21 53 7	i			
	58.5	L			
28	0 1.2	M	7	12	
30	14 33 56	P			
	36 49	i			
	37 54	S			22.2
	40.8	L			
	42.3	M	354?	10	

Small undecipherable disturbances were recorded as follows:-

July 9d 6h; 9d 9h; 10d 4h; 12d 16h; 15d 17h; 19d 14h,15h;

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Seismological Bulletin No.24

MELBOURNE OBSERVATORY
SOUTH YARRA, S.E.1 VICTORIA.
MILNE-SHAW SEISMOGRAPH No.41 E-W COMPONENT.

Period 12 secs. Damping ratio 20:1 Tilt 1" = 43.8 mm.

Date 1933	Universal Time h m s	Phase	A μ	Period secs.	Remarks.
Oct. 2	6 13 21	i			small and obscured by micros.
	14 48	L			
	15.7	M	15	14	
2	14 11 12	i			
	13 55	e			
	15 25?	L			
	19 6	L			
	21.4	M	10	15	
2	15 50 17	PR1			identification dependent upon USCGS report.
	53 0	PR2			
	55 22	S			
	59 57	PS			
	16 6 42	SR1			
	29.15	L			
	30.5	M	35	25	
3	18 32.8?	e			
	39.4	M	2	10	
4	17 40 33	i			small
	41 7	i			
	41 46	i			
	43 30	L			
	46. 9	M	6	10	
5	14 24.8?	e			very small throughout
	30.5	L			
	36.3	M	5	20	
7	2 17 47	S			nothing definite earlier
	18 45	L			
	20.5	M	18	11	
7	11 58. 6	e			small
	12 0.1	M	3	14	
17	10 17.6	e			very small
	18.8	M	2	15	
17	12 35 42	iS			
	36 57	iL			followed by short period waves till 42m.
	42.2	M	9	10	
19	18 0.0	e			small
	3.7	L			
	5.3	M	2	20	
23	4 0	e			
	10 36	e			obscured by irregular micros.
	11 32	L			
	13.1	M	10	18	

Seismological Bulletin No.24 contd.

MELBOURNE OBSERVATORY
SOUTH YARRA S.E.1 VICTORIA.

Date 1933	Universal Time h	m	s	Phase	A μ	Period secs	Remarks.
Oct.25	23	52	55	e			very small
		54	33	i			
		56	14	e			
26	0	2	30	i			
		4	0	i	8	20	largest amplitude.
~26	12	19	40	P?			small
		20	26	e			
		29	20	S			75°.5?
		34	45	i			
		40	47	L			four waves of about 40s period.
		44.0		M	82	32	
~30	7	5	48	e			very small, may be P
		7	34	e			
		10	44	S			
		13	10	L			
		17.2		M	20	15	
31	16	41	29	L			
		43.6		M	9	14	
Nov.2	10	35	15	i			small
		35	41	i			
~2	12	51	6	e			very small
		51	38	i			small
		58	7	i			
	13	1	48	i			
		15.5?		L			
		18.5		M	6	22	
~2	17	27.5		L			
		29.5		M	4	15	
11	18	12.8		L			
		15.9		M	3	12	
12	19	6	7	e			
		8	5	e			
		9.5		M	7	7	
~18	4	5	27?	e			small and obscured by microse
		9	0	i			
		11	20	L			
		12.4		M	11	12	
18	16	55.3		e			very shallow waves
	17	15		i			
		23.5		L			
~19	3	17	20	P			
		21	35	i			
		22	12	S			28.6
		25.5		L			
		30.5		M	42	15	

Seismological Bulletin No.24 contd.

MELBOURNE OBSERVATORY
SOUTH YARRA S.E.1 VICTORIA.

Date 1933	Universal Time h m s	Phase	A μ	Period secs.	Remarks
Nov.19	14 16 24	i			small
	19 5	i			
	26.3	M	3	12	
20	23 41 0	P			In collaboration with Dr C.E.Adams of
	43 52	P'			Wellington, N.Z.
	46 45	PR1			
	49 25	PR2			
	52 8	PR3			
	56 51	PS			
	58 5	PPS			
21	0 4 30	SR1			
	24 +	L			
22	12 49 24	P			
	54 6	S			27.3°
	56.3	L			
	59.0	M	90	12	
26	14 18 22	e			very small
	23.5	L			
	26.5	M	2	16	
27	20 39 13	e			very small
	42 33	i			small
	50.4	M	3	14	
28	11 43.6	e			very small
	12 4.5	eL			small
	9.1	M	7	20	
Dec. 1	7 0 15	e			shallow train.
1	10 31.8?	e			very small
	33 36	i			
	38 28	i			
	40.7	L			
	42.3	M	4	17	
2	5 21 29	iP			
	24 58	S			19.2°
	26 42	L			
	27.2	M	192	10	
2	20 28 34	e			possible traces earlier
	29 27	e			
	35 24	i			
	42 40	L			
4	19 55 45	i			
	58 5	i			followed by train of shallow waves.
12	14 17 59	P			felt at Rabaul
	23 28	S			34.0°
	26.5	L			
	30.2	M	52	13	

Seismological Bulletin No.24 contd.

MELBOURNE OBSERVATORY
SOUTH YARRA S.E.1 VICTORIA.

Date 1933	Universal Time h m s	Phase	A μ	Period secs.	Remarks
Dec.13	21 53 35	i			
	22 0 23	i			
	18 30	L			
	32	M	5	16	
21	0 16.0	i			very small
	21.3	L			small
21	10 23 42	i			
	24.6	L			
	26.0	M	6	11	
24	10 58 3	S			
	11 0 42	i			
	4 3	L	16	11	
27	11 36 17	e			
	40 7	L			
	45.3	M	7	14	
30	5 41 20	i			very small
	44 15	e			" "
	49 40	L			
30	12 41 45	i			very small
	44 3	i			small
	45 22	L			
	47 10	M	6	12	

Small disturbances without definite phases were recorded as follows:-

Oct. 23d 14h;

Nov. 9d 7h; 19d 8h; 29d 6h.

Dec. 1d 7h; 3d 7h; 14d 6h; 17d 12h; 18d 20h.

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