

Period 12 secs. Damping ratio 20:1 Tilt 1" = 43.2mm.  
Universal

Date	Time	Phase	A	Period	Remarks
1929	h m s		$\mu$	secs.	
Apr. 1	5 37 0	e			
	5 44.5	M	5	11	
8	6 58 30	e			small and obscured by microseisms.
	7 6.5	M	2	11	
<del>8</del>	10 24 58	i			
	10 31 25	S			
	10 33 47	i			
	10 35 2	i			
	10 43 40	L?			
	10 45.7	M	7	13	
8	18 0 3	i			
	18 6 42	L			
	18 7.6	M	4	13	
<del>9</del>	4 24 50	L			
	4 28.0	M	4	22	
<del>13</del>	7 7 45	e			
	7 26 30	L			
	7 32.0	M	2	20	
13	9 25 48	P			$\Delta = 31^{\circ}.2$
	9 31 2	S			
	9 34 27	L			
	9 34.6	M	10	12	
13	13 1 43	iP			$\Delta = 21^{\circ}.6$
	13 5 40	S			
	13 7 10	L			
	13 9.6	M	4	9.5	
<del>13</del>	21 28 25	i			
	21 34 0	i			
	21 40 30	L			
	21 42.4	M	3	17	
<del>14</del>	19 35 3	i			
	19 39 52	L			
	19 40.5	M	4	15	
15	1 0 45	L			
	1 2.2	M1	4	15	
	1 15.0	M2	3	15	
<del>15</del>	16 21 45	i			very small
	16 33 0	L			
	16 36.3	M	3	13	
24	7 19 12	L?			
	7 21.5	M	3	16	

Date 1929	Universal Time			Phase	A $\mu$	Period Secs.	Remarks
	h	m	s				
<del>Apr.</del> 27	21	15	24	iP			$\Delta = 29^{\circ}.4$
	21	20	26	S			
	21	22	33	L			
	21	24.7		M	28	15	
<del>-</del> 28	14	47	30	i			
	14	48	40	e			
	14	52	20	L			
	14	53.6		M	21	15	
29	7	42	0	eL			
	7	45.6		M	1	13	
May <del>-</del> 1	7	55	0	i			
	8	8.3		M	4	16	
<del>-</del> 1	15	56	46	eP'			$\Delta = 105^{\circ}$
	16	2	43	i			
	16	6	3	PS			
	16	13	52	SR1			
	16	16	45	SR2			
	16	27	0	L			
	16	35.7		M1	149	25	
	16	39.2		M2	175	25	
	16	47.2		M3	90	18	
<del>-</del> 2	14	48	37	i			
	15	7	58	e			new disturbance?
	15	9.8		M	5	11	
<del>-</del> 6	5	15	31	P			$\Delta = 32^{\circ}.6$
	5	20	55	S			
	5	23	2	SR1			
	5	24	35	L			
	5	37.6		M	99	10	
<del>-</del> 7	16	19	3	iP			$\Delta = 25^{\circ}.4$
	16	23	32	iS			
	16	25	30	L			
	16	26.8		M	7	20	
<del>-</del> 7	16	44	2	PR1			$\Delta = 24^{\circ}.3$ beginning of disturbance
	16	48	0	S			obscured by preceding
	16	50	10	L			
	16	57	0	M	137	15	
<del>-</del> 8	12	58	40	e			
	13	7	30	L			
	13	12.0		M	2	15	
<del>-</del> 10	17	23	27	iP			
	17	24	14	i			
	17	28	55	L			
	17	29.6		M	10	13	

Date 1929	Universal Time			Phase	A $\mu$	Period secs.	Remarks
	h	m	s				
May 11	2	30	25	iP			$\Delta = 19.2$
	2	34	0	S			
	2	35	8	L			
	2	39.7		M	6	13	
16	12	50	20	e			
	12	56	20	L			
	12	59.6		M	2	10	
17	17	44	27	e			
	17	47.3		M	3	12	
-18	7	10	5	e			
	7	38	50	L			
	7	49.5		M	8	21	
-19	5	24	31	e			
	5	29	30	i			
	5	33	7	L			
	5	37.2		M	4	13	
-20	5	12	55	i			
	5	16	47	i			
	5	17	42	i			
	5	19	2	i			
	5	24	0	e			
	5	33	25	L			
	5	44.7		M	13	21	
-21	16	55	57	iS			
	17	3	30	SR2			
	17	8	0	L			
	17	16	30	M	29	20	
-22	0	34	16	P			phases uncertain; obscured by microseims.
	0	38	32	S			
	0	39	50	L			
	0	41.2		M	6	15	
-22	20	11	42	iP			$\Delta = 24.4$
	20	16	2	iS			
	20	17	3	L			
	20	18.0		M	247	19	
-26	8	49	40	i			PR1?
	8	55	32	S			
	9	4	3	L			
	9	6.5		M	34	15	
-26	22	57	35	i			
	23	0	5	i			
	23	0	27	i			
	23	8	21	i			
	23	9	30	i			
	23	11	20	i			
	23	26	45	L			
	23	47.5		M	50	20	

Date 1929	Universal Time			Phase	A $\mu$	Period secs.	Remarks
	h	m	s				
May-30	10	8	0	i			P?
	10	11	8	e			PR2?
	10	16	7	i			S?
	10	26	32	L			
	10	47.0		M	7	17	
June-1	-7	55	53	e			P?
	8	1	25	i			S?
	8	3	5	L			
	8	3.5		M	8	21	
2	21	58	13	i	19	10	largest movements of whole train
	21	59	0	i	17	8	
	22	0	22	i			
	22	1	20	i			
	22	2	52	e			
	22	4	37	i			
	22	8	48	L?			
<del>4</del>	15	30	31	iP			$\Delta = 36.5$ identification of phases only tentative.
	15	33	0	i			
	15	36	22	S			
	15	39	23	SR1			
	15	42	10	L			
	15	42.6		M	10	20	
<del>6</del>	14	50	42	L			
	14	55	0	M	6	20	
<del>6</del>	15	56	12	iP			$\Delta = 23.7$
	15	58	30	e			
	16	0	25	S			
	16	2	17	L			
	16	4.5		M	60	9	
<del>9</del>	9	25	21	i			S?
	9	30	39	i			
	9	36	15	i			
	9	43		L			
	9	52.7		M	6	16	
<del>12</del>	11	48	58	eP			very small*
	11	49	52	i			
	11	54	52	S			
	11	57	25	SR1			
	11	59	45	L			
	12	3.9		M	55	14	
13	0	35	0	S			this and succeeding shocks from same area; phases other than S difficult to identify.
	0	37	0	i			
	0	53	5	L			
<del>13</del>	0	44	0	i			PR2?
	0	48	40	S			
	1	7	50	L			
	1	10.8		M	21	17	

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MELBOURNE OBSERVATORY  
SOUTH YARRA S.E.1 VICTORIA.

Date 1929	Universal Time			Phase	A $\mu$	Period secs.	Remarks.
	h	m	s.				
June-13	9	33	32	P			$\Delta = 48^{\circ}.0$
	9	35	50	PR2			
	9	40	32	S			
	9	44	30	i			SR2?
	9	46	30	L			
	9	51.8		M	246	24	
<del>13</del>	23	16	33	i			preceded by irregular disturbances of long period for about one hour.
	23	20	0	e			
	23	30	30	L			
	23	36.2		M	17	15	
15	1	46	20	e			
	2	1	30	M	2	16	
<del>15</del>	19	51	17	i			
	19	54	43	e			
	20	4	10	L			
	20	4.4		M	3	13	
<del>15</del>	21	23	42	i			
	21	27	10	e			
	21	43.3		M	3	14	
16	22	53	13	iP			subsequent motion of boom too rapid to permit decipherable record.
<del>17</del>	10	32	22	i			
	10	35	35	e			
	10	42	55	L			
	10	46.4		M	4	13	
18	1	5	30	L			
	1	10.4		M	3	11	
<del>19</del>	3	30	18	e			
	3	34	3	e			
	3	36	25	L			
	3	38.4		M	4	15	
<del>19</del>	7	41	32	e			
	7	46	41	i			
	7	50	10	i	19	11	largest wave in disturbance.
	7	57	24	L			
	8	0.7		M	13	13	
<del>19</del>	9	21	57	iP			$\Delta = 23^{\circ}.7$
	9	26	10	S			
	9	28	31	L			
	9	30.3		M	12	14	
19	12	7	36	i			
	12	11	25	e			
	12	15	15	M	7	9.5	
20	14	57	55	i			masked by strong microseisms.

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MELBOURNE OBSERVATORY  
SOUTH YARRA S.E. 1 VICTORIA.

Date 1929	Universal Time			Phase	A $\mu$	Period secs.	Remarks.
	h	m	s				
June 20	18	43	35	L			
	18	45.9		II	8	20	
<del>22</del>	15	35	2	P			$\Delta = 21^{\circ}.4$
	15	38	57	S			
	15	51	0	L			
	15	53.6		II	69	15	
<del>22</del>	18	44	0	iP			$\Delta = 21^{\circ}.8$
	18	47	58	iS			
	18	49	32	L			
	18	51.6		II	23	14	
23	22	3	5	i			obscured by strong microseisms.
	22	6	30	i			
	22	16.4		II	5	15	
<del>27</del>	13	0	3	eP			
	13	0	45	iP			
	13	10	35	S			
	13	24	40	L			
	13	29.8		M1	384	30	
	13	38.8		M2	240	18	
<del>30</del>	2	53	45	eP			$\Delta = 48^{\circ}.3$
	2	55	38	PR1			
	3	0	47	S			
	3	4	17	SR1			
	3	8	58	L			
	3	11.5		M1	25	15	
	3	15.3		M2	30	15	
	3	20.4		M3	25	15	
<del>30</del>	5	29	35	i			
	5	33	15	i			
	5	40.7		II	2	13	

*J. M. Baldwin.*

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

Period 12.02 secs. Damping ratio 20:1 Tilt 46.8mm = 1".  
Universal

Date	Time	Phase	A	Period	Remarks
1929	h m s		$\mu$	secs.	
July 1	21 50 48	i			
	21 53 47	L			
	21 55.4	M	3	12	
<del>3</del>	18 5 35	i			
	18 7 48	i			
	18 9 42	L			
	18 11.8	M	7	15	
<del>5</del>	14 43 36	S			
	14 49 44	SR1			
	14 58 42	L			
	15 13.3	M1	27	22	
	15 23.9	M2	21	19	
<del>5</del>	23 0 15	e			
	23 0 52	i			
	23 17 10	L			
	23 19.8	M	14	24	
6	2 28 25	e			amplitudes small throughout.
	3 45	F			
6	6 49 25	L			
	6 52.1	M	4	12	
<del>7</del>	21 36 38	P			$\Delta = 91^{\circ}.8$
	21 40 30	PR1			
	21 47 3	i			
	21 47 45	S			
	21 54 12	SR1			
	22 2 50	L			
	22 6.7	M1	91	20	
	22 12.0	M2	90	22	
	22 16.6	M3	84	19	
8	19 9 25	L			small
10	5 2 10	e			
	5 3.5	M	5	10	
<del>13</del>	14 58 10	i			
	15 1 55	e			
	15 2 5	i			
	15 8 13	L			
	15 11.6	M	25	14	
14	6 5 47	i			
	6 8 25	i			
	6 11 42	L			
	6 14.5	M	8	15	
<del>14</del>	9 20 34	i			
	9 25 50	i			
	9 35 48	L			
	9 39.5	II	8	22	

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MELBOURNE OBSERVATORY  
SOUTH YARRA S.E. 1 VICTORIA

Date 1929	Universal Time			Phase	A	Period secs.	Remarks
	h	m	s				
July 14	10	0	8	S			
	10	12	55	L			
	10	13.2		M	15	22	
15	9	3	8	i			
	9	6	48	S			
	9	8	45	L			
	9	11.2		M	15	13	
16	1	14	10	L			
	1	16.8		M	4	11	
17	9	2	40	S			
	9	3	53	i			
	9	9	30	i			
	9	21	25	L			
	9	31.4		M	6	20	
24	3	14	52	i			
	3	17	45	L			
	3	19.2		M	4	10	
26	11	52	18	e			
	11	54.5		M	8	12	
Aug. 1	5	21	46	i			
	5	38	0	L			
	5	42.8		M	6	19	
1	8	33	0	L			
	8	34.8		M	2	12	
3	13	3	58	i			
	13	11	30	L			
	13	14.7		M	12	20	
3	15	7	2	i			
	15	9	57	i			
	15	12	26	L			
	15	14.4		M	22	14	
4	22	35	7	i			
	22	44	53	L			
	22	47.7		M	5	16	
8	13	18	15	i			
	13	23	32	i			
	13	31	0	L			
	13	44.3		M	48	22	
11	18	16	32	i			
	18	20	27	L			
	18	22.2		M	6	16	
14	2	31	18	L			
	2	33.6		M	8	15	



Date	Universal Time.			Phase	A	Period	Remarks
1929	h	m	s		$\mu$	secs.	
Aug. -16	21	39	38	P			$\Delta = 18.2$
	21	43	3	S			
	21	44	50	L			
	21	45.3		M	79	9	
-18	8	42	22	e			doubtful.
	8	46	22	i			
	8	49	14	L			
	8	52.2		M1	36	16	
	8	54.3		M2	30	15	
-19	3	2	31	i			other phases obscured by microseisms.
	3	25.5		M	5	15	
21	8	20	25	L			
	8	22.2		M	4	12	
-22	7	40	52	e			
	7	45	10	i			
	7	48	0	L			
	7	55.3		M	16	15	
24	2	59	24	e			
	3	4	6	i			
	3	6	25	L			
	3	7.0		M	6	20	
-28	19	13	31	i			
	19	30.5		M	4	15	
30	7	17	50	i			
	7	22	50	L			
	7	24.4		M	6	13	
Sept. 1	16	2	13	i			
	16	5	45	i			
	16	9	28	L			
	16	12.5		M	29	20	
2	5	50	35	L			
	5	51.3		M	3	14	
-2	11	21	16	e			
	11	24	0	i			
	11	28	35	i			strong
	11	32	10	e			
	11	39.5		M	9	14	
-10	19	55.3		L			
	19	57.5		M	3	18	
-14	2	22	43	e			
	2	24	30	e			
	2	26	43	L			
	2	28.3		M	5	15	

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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" = 45.4 mm.  
Universal

Date 1929	Time h m s	Phase	A μ	Period secs.	Remarks
Oct. 4	23 47 27	e			
	23 48 50	L			
	23 49.4	M	1	12	
→5	2 51 24	i			
	2 59 3	i			
	3 1.2	M	3	10	
→5	17 24 0	i			
	17 47.5	H	2	20	
→6	8 3 43	i			P?
	8 13 47	e			S?
	8 19 10	i			SR1?
	8 32 7	L			
	8 35.2	H	13	14	
→6	13 25 55	e			
	13 29 40	i			
	13 34 0	L			
	13 37.1	M	8	15	
→7	15 20 48	e			
	15 26 5	L			
	15 27.6	M	23	20	
→8	17 22 40	e			P? Time marks missing
	17 24 0	i			
	17 27 50	i			S?
	17 31 0	i			SR1?
	17 32 30	L			
	17 33.9	M	54	20	
→10	11 1 0	i			
	11 3 55	L			
	11 7.0	M	8	11	
14	3 40 36	iP			Small
	3 44 42	iS			Δ = 22.8
	3 47 42	L			
	3 48.3	M	11	13	
15	8 24.0	L			
	8 27.7	M	2	12	
→16	1 26 44	i			Small
	1 32 35	i			
	1 35 47	L			
	1 36.4	M	3	10	
16	18 40.5	L	1	18	
→16	21 3.8	L			
	21 15.7	M	5	18	

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MELBOURNE OBSERVATORY  
SOUTH YARRA S.E.1 VICTORIA

Date	Universal Time			Phase	A	Period secs.	Remarks
	h	m	s				
1929 Oct-19	10	32	0	i			
	10	38	40	i			
	10	40	25	i			
	10	41	30	i			
	10	48	15	i			
	10	59	5	L			
	11	0.4		M	22	23	
20	20	55	0	e			
	21	0	45	L			
	21	2.4		M	2	17	
21	10	56	20	i			
	11	20	30	L			
	11	21.3		M	6	20	
24	5	4	50	e			
	5	10.5		M	5	19	
25	5	30	11	e			
	5	36.7		M	2	13	
29	21	14	42	L			
	21	15.3		M	5	15	
Nov.-4	15	43	54	i			
	15	46	40	i			
	15	46	50	L			
	15	51.5		M	10	11	
5	11	54		i			No time marks
	12	7		M	12	20	
10	8	38		i			No time marks
	8	45		L			
	8	48		M	4	13	
13	0	49	10	i			
	0	54	10	e			
	1	3.4		M	23	20	
14	20	58	40	i			
	21	7.5		M	2	12	
15	18	58	55	iP			$\Delta = 43.0$
	19	5	25	S			
	19	11	40	L			
	19	16.0		M1	920	21	
	19	17.6		M2	360	12	
17	3	51	49	e			
	3	52	3	iP			
	3	53	58	PR1			
	3	58	59	S	220	15	
	4	2	0	SR1			
	4	8	10	L			
	4	10.4		M	136	17	

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MELBOURNE OBSERVATORY  
SOUTH YARRA S.E.1 VICTORIA

Date 1929	Universal Time			Phase	A $\mu$	Period secs.	Remarks.
	h	m	s				
Nov. 18	5	52	28	e			
	6	0.4		M	4	8	
18	6	12.2		M	6	15	
-18	20	51	50	e			} Suggested identification of phases.
	20	55	40	i			
	20	57	7	i			
	21	3	20	i			
	21	17	33	e			
	21	24	5	i	96	34	
	21	50	25	L			
	21	55.5		M1	37	23	
22	3.2		M2	35	20		
22	15	52	29	i			
	15	55	0	L			
	15	56.3		M	4	15	
-23	0	8	30	e			
	0	13	48	S			
	0	16	37	SR1			
	0	18	50	L			
	0	20.2		M1	415	19	
	0	21.9		M2	204	10.5	
25	13	27.8		M	1	8	
26	11	27	42	e			Small
	11	31	30	i			"
	11	35.6		M	2	12	
Dec. 3	7	48	35	e			
	7	50	3	iP			
	7	54	40	iS			
	7	57	10	L			
	7	57.4		M1	41	18	
	7	58.5		M2	20	10	
	7	59.3		M3	18	9	
4	6	30	3	i			Small
	6	49	40	L			"
4	8	11.3.		M	3	18	
-6	12	1	21	i			
	12	17	0	L			
	12	19.0		M	12	30	
-6	17	3	25	e			PR1?
	17	10	40	iS			$\Delta = 86^\circ$
	17	16	37	SR1			
	17	27	55	L			
	17	36.8		M	17	20	

Seismological  
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MELBOURNE OBSERVATORY  
South Yarra S.E.1 VICTORIA

Date 1929	Universal Time			Phase	A $\mu$	Period secs.	Remarks
	h	m	s				
Dec. 6	20	39	30	e			Apparently from same origin as preceding.
	20	45	32	S			
	20	51	15	SR1			
	21	1	33	L			
	21	11.5		M	12	20	
-9	7	0	25	eP			$\Delta = 63^\circ$
	7	4	17	PR2			
	7	8	54	S			
	8	13	20	SR1			
	8	20	40	L			
	8	30.5		M	71	18	
13	8	33	36	i			
	8	38	10	L			
	8	39.3		M	8	21	
-16	0	49	55	P			$\Delta = 17^\circ.7$
	0	53	15	S			
	0	54	9	L			
	0	54.7		M	24	13	
-16	11	33	50	e			
	11	38	0	iS			
	11	41	20	L			
	11	46.5		M	17	11	
-17	11	12	50	P			Time marks missing from greater part of this day's record. Time differences not greatly in doubt but absolute times may be $\frac{1}{2}$ min. in error.
	11	23	30	S			
	11	35	55	L			
	11	41.2		M	324	25	
-17	21	40	18	i			Ditto.
	21	44	53	L			
	21	48.1		M	14	21	
-20	10	30	50	iP			$\Delta = 21^\circ.4$
	10	34	45	iS			
	10	36	50	L			
	10	38.7		M	5	10	
21	3	14	35	e			
	3	17	50	L			
	3	18.4		M	6	12	
21	11	40	45	i			Amplitudes very small
	11	41	42	i			
	11	46	24	i			
	11	56	50	L			
	12	1.6		M	2	20	
-24	4	39	35	i			
	4	49	25	i.			
	4	52	10	L			
	5	0.0		M1	10	14	
	5	3.8		M2	10	14	

Seismological  
Bulletin No.8 contd.

MELBOURNE OBSERVATORY  
SOUTH YARRA S.E.1 VICTORIA

Date	Universal Time			Phase	A $\mu$	Period secs.	Remarks
	h	m	s				
Dec. 24	8	22	20	e			
	8	25	0	L			
	8	27.0		M	5	20	
27	13	42	36	i			Light failed from 47m to 59m.
	13	45	54	i			
-28	1	24	0	iP			Felt at Deal Is. 39° 30' S; 147° 20' E Felt Strongly on S.S. Kiwitea at 40° 41' S 149° E
	1	24	48	L			
	1	25.8		M	196	3.5?	
-28	11	32	37	eP			$\Delta = 16.0$
	11	35	40	iS			
	11	36	30	L			
	11	37.5		M	25	12	
-31	1	13	22	e			S? SR1
	1	19	50	i			
	1	31	40	L			
	1	35.2		M	8	15	
-31	4	13	35	iP			$\Delta = 14.0$
	4	16	17	S			
	4	16	48	L			
	4	21.5		M	18	9	
-31	4	57	35	L	40		Earlier phases obscured in preceding.
	5	4.5		M	29	13	
31	16	52	8	e			
	17	7.7		M	3	13	
-31	22	21	0	i			
	22	22	11	i			
	22	24	37	i			
	22	25	44	L			
	22	27.4		M	62	15	
Oct. 5	5	18	53	i			
	5	23	24	L			
	5	24.6		M	3	12	

*J. M. Baldwin.*