Riverview College Observatory

RIVERVIEW, N.S.W.

SEISMOLOGICAL BULLETIN

$\Phi = 33° 49' 46''$ S. $\lambda = 151° 9' 30''$ E. h = 25m. Foundation : Triassic Sandstone.

INSTRUMENTS :

1. Wiechert Astatic Pendulum Seismometer (1000 kilo.) (NS, EW)
2. Wiechert Vertical Seismometer (80 kilo.)
3. Mainka Conical Pendulum Seismometer (450 kilo.) (NS, EW)
4. Galitzin Aperiodic Seismometer with Galvanometer registration (NS, EW, Vert)

		V	T_o	$\epsilon : 1$	$\frac{r}{T_o^2}$		T_1 (Galv.)	T (Pend)	μ^2	V_s
N	1	212	7.6	5.5	0.003	4	11.8	11.9	+0.04	410
	3	165	9.2	4.0	0.012					
E	1	152	7.1	4.9	0.004	4	12.3	12.2	-0.02	490
	3	138	9.8	5.5	0.022					
Z	2					4	11.0	11.0	0.0	450

No.	Date	Phase	Time (G.M.T.)	Per	Amplitude A_N	Amplitude A_E	Amplitude A_Z	Δ	Remarks
	1949		h. m. s.	s.	μ	μ	μ	km.	
2	Jan. 2	i(S)N	05 02 36	4	+4				P obscured by microseisms.
		e(S)E	02 36	6					
		eLN	13.2	?					
		MN	19.3	20	5				
		MEZ	20.0	22		4	6		
3	" 2	iPZ	08 59 45	4			+5	6700	Compression
		ipPZ	09 00 08	4			+5	60°3	h 0.01
		eN	06 33	13					H 08 49 44
		eSE	07 50	8					
		iE	07 55	8		-12			Microseisms present
		esSE	08 33	8					
		eLE	13.9	25					
		MN	16.5	19	4				
		ME	18.5	17		4			
4	" 2	eLQN	13 35.4	28					
		eLREZ	42.9	27					
		MEZ	51.7	30		9	13		
6	" 4	ePEZ	07 32 44					2690	
		eSN	36 57	7				24°2	
		eLZ	38.0	26					
		MEZ	41.4	16		1	2		
8	" 5	iPEZ	09 01 20	5		+3	-6	2450	Dilatation
		iSE	05 16	7		+5		22°0	
		iSN	05 18	6	-7				
		iPcPN	05 27	4	+5				
		iZ	05 36	6			-12		
		iNE	05 38	4	-5	-6			
		eLRZ	06.6	22					
		MNE	08.4	15	6	4			
		MZ	08.7	18			6		
9	" 7	ePZ	17 26 56					345°	
		ePPZ	27 52	8				31°0	
		ePPN	27 55	8					
		eSE	31 52	8					
		iN	32 00	8	-11				
		eLQE	33.5	25					
		eLZ	36.5	25					
		ME	38.0	18		28			
		MNZ	39.2	17	19		17		
10	" 7	i(P)Z	17 59 44	6			-5		Probably a repetition of No.9
		i(S)N	18 04 45	8	-7				
		eLQE	06.3	23					
		ME	10.8	18		28			
		MN	11.5	17	21				
		MZ	12.1	17			23		

1949, January.
RIVERVIEW COLLEGE OBSERVATORY,
SEISMOLOGICAL BULLETIN.

No.	Date	Phase	Time (G.M.T.) h m s	Per. s	Amplitude A_N μ	A_E μ	A_Z μ	Δ km.	Remarks
	1949								
13	Jan.13	iPEZ	08 52 11	4		+5	-12	2770	Dilatation
		isPZ	55 05	6			-16	24°9	h 0,10;H 08 47 35
		iSN	55 51	6	-41				Gutenberg's Tables
		iSE	55 52	7		+14			give: Δ2680km.,24°1
		iScSN	09 01 51	5	-28				h 700 km.ca.
		iScSE	01 53	4		+30			H 08 47 39
14	" 18	iZ	02 52 49	5			+8		
		eE	58 43						Masked by very
		eLE	03 02.4	22					heavy microseisms.
		MNEZ	07.2	13	11	11	18		
16	" 19	eNE	15 19.7						Masked by micro-
		eLQE	26.6	25					seisms.
		eLRE	30.6	28					
		MEZ	35.6	20		4	6		
17	" 21	ePNZ	15 26 38	4					
		eN	27 13	5					
		S?E	31 24	6					
		eE	31 41	13					
		eE	32 10	10					
		eLZ	33.9	19					
		MNE	37.4	11	4	7			
		MZ	37.8	15			4		
18	" 22	iPNEZ	05 39 24	7	-3	-6	+7	2450	Compression
		ePPNE	39 49	7				22°0	H 05 34 31
		iSE	43 20	5		+4			
		iPcPN	43 24	4	+10				
		isSE	43 37	5		+7			
		MN	47.0	12	6				
		MEZ	48.3	14		7	6		
19	" 22	e(S)N	11 59 57	6					
		e(S)E	59 59	6					
		eLE	12 02.7	18					
		MNE	05.8	11	1	1			
20	" 23	e(SS)E	04 54 24	15					
		e(LQ)E	58.9	17					
		eLRZ	05 01.3	27					
21	" 23	iPEZ	06 40 58	4		-6	-14	6480	Dilatation
		iPPE	43 07	7		-7		58°3	H 06 31 04
		iPPZ	43 10	9			+19		
		iPPPE	44 23	6		-7			
		iSE	48 56	12		+67			
		iZ	49 02	12			+51		
		iPSE	49 14	13		+98			
		iN	49 47	9	+16				
		iSSE	52 51	8		+6			
		iSSSE	55 10	9		+14			
		eLRE	58.4	22					
		MN	07 03.3	10	140cs				
		ME	03.7	21		220			
		MZ	04.0	20			240		
22	" 24	iPEZ	09 22 00	4		-2	+4	3460	Compression
		ipPZ	22 21	5			+4	31°1	h 0.01
		iPPEZ	23 08	6		+3	-4		H 09 15 49
		iZ	23 20	6			-9		
		iZ	23 40	6			-17		Gutenberg's Tables
		iNE	24 31	5	+6	+6			give: Δ3300km.,29°7
		iSN	26 57	6	+10				h 100 km.,
		iZ	26 59	5			+7		H 09 15 57
		iE	27 01	6		+4			
		iScPZ	28 29	6			+10		
		eLRZ	28.9	28					
		iScSNE	32 28	4	+7	+11			
		MZ	32.5	19			21		
		iNE	33 20	6	-34	-22			
25	" 27	e(P)Z	02 47 06						
		e(PPP)Z	48 21	7					
		e(SS)E	53 53	11					
		eLZ	56.0	22					
		MNZ	58.9	18			7		
		ME	03 00.2	13		4			

1949, January-February.
RIVERVIEW COLLEGE OBSERVATORY,
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No.	Date	Phase	Time (G.M.T.) h m s	Per. s	Amplitude AN μ	AE μ	AZ μ	Δ km	Remarks
26	1949 Jan.27	e(P)Z	03 37 02						Repetition of No.25
		e(PPP)Z	38 18	9					
		eSE	42 10	8					
		e(SS)E	43 52	11					
		eLE	45.4	25					
		eLZ	46.0	25					
		MZ	48.6	18			6		
		ME	50.2	14		6			
28	" 27	ePZ	07 24 18	4				3380	
		iPPNZ	25 13	6	+		-5	30°4	
		iPcPZ	27 12	6			+9		
		eSE	29 15	12					
		eLE	31.1	28					
		eLRZ	32.2	28					
		i(ScS)E	34 29	13		+54			
		MN	35.5	16	29				MN from Wiechert.
		MZ	36.1	19			35		
		ME	37.0	13		35			
29	" 27	e(SKS)E	11 23 42	10					
		eE	33.2	13					
		eLE	44.8	17					
		MEZ	56.0	17		1	1		
30	" 27	ePZ	15 04 46					3350	
		iPPNZ	05 50	9			+8	30°1	Aftershock of No.28
		eSE	09 41						
		eSN	09 42	9					
		eLE	11.5	21					
		eLZ	13.4	33					
		MNZ	16.0	19	27		29		MN from Wiechert
		ME	17.8	13		30			

Minor shocks: 2d 00.5h; 4d 02.9h; 5d 01.1h; 7d 20.7h; 9d 17.2h; 19d 13.2h; 24d 22.0h; 26d 06.2h; 27d 06.2h; 28d 05.1h, 08.6h, 10.0h, 22.7h; 29d 06.4h, 20.8h; 30d 01.8h, 17.1h; 31d 00.5h.

40	Feb. 1	iPNZ	18 22 37	4	+5		-11	3710	Dilatation
		iZ	22 56	4			+5	33°4	
		iPPZ	23 50	4			-4		
		iPPN	23 54	4	-4				
		iPcPZ	25 14	4			-4		
		iSE	27 55	10		-6			
		iSN	27 57	10	-16				
		iSSE	29 56	10		+16			
		iSSSE	30 23	8		+19			
		MNEZ	38.0	11	230ca	140			
41	" 2	iPZ	17 54 18	4			-5	10,010	Dilatation
		ipPZ	55 07	4			-4	90°9	h 200 km
		iZ	55 23	6			+3		(From Gutenberg's tables)
		iSKKSNE	18 04 32	6	+6	+2			
		iE	05 05	6		-5			
		iN	05 06	4	+6				
		eSPE	05 57	9					
		ePSZ	06 15	13					
		ePSE	06 17	12					
		iZ	06 41	7			+4		
		ME	23.1	16		2			
		MZ	28.9	16			2		
42	" 3	P?Z	16 36 14					3780ca	
		ePPE	37 34	8				34°ca.	
		eZ	37 57	8					
		eSE	41 44						
		iScSE	46 38	5		-3			
		iScSN	46 39	5	-2				
		eLZ	46.6	19					
		MEZ	49.6	19		5	9		

1949, February.
RIVERVIEW COLLEGE OBSERVATORY,
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No.	Date	Phase	Time (G.M.T.)	Per.	Amplitude A_N	Amplitude A_E	Amplitude A_Z	Δ	
	1949		h m s	s	μ	μ	μ	km.	
44	Feb. 6	iS_E	09 32 30	6		-2			
		eZ	36 17	11					
		eLR_E	39.7	22					
		ME	43.2	15		2			
		MZ	45.0	16			2		
46	" 9	iPNEZ	17 35 02	3	-2	+3	-9		Dilatation
		iPPZ	35 28	4			+5		h 200 km.ca.
		isP_E	35 59	4		+5			
		isP_Z	36 01	4			+6		
		$i(S)_E$	38 33	5		+5			
		$e(S)_N$	38 33						
		iZ	38 35	4			+4		
		i_E	38 39	4		-11			
		i_N	38 40	4	-8				
		iZ	38 43	5			+15		
		iEZ	39 32	7		+4	+5		
		i_E	40 58	7		+5			
47	" 10	iP_{EZ}	22 03 50	5		-3	+9	4190ca	Compression
		iPP_{EZ}	05 18	6		-7	+8	37°7ca	
		iPP_N	05 19		-				
		iZ	05 33	6			+24		
		$iPPP_N$	05 42		+				
		iZ	05 48	5			+10		
		iE	05 50	5		+10			
		i_E	07 21	6		+5			S cannot be
		i_E	09 21	6		-5			identified.
		i_E	09 46	6		+3			
		eZ	09 51	18					
		i_E	10 02	7		-11			
		eN	11 28	22					
		eLR_{EZ}	14.2	25					
		MEZ	15.3	24		33	34		
		MN	16.1	14	7				MN from Wiechert.
48	" 11	$e(S)_E$	07 46 08	9					
		$e(PPS)_E$	47 10	16					
		$e(SS)_{EZ}$	51 28	19					
		eE	57.8	22					
		eLR_Z	08 00.6	25					
		MEZ	06.5	19		2	4		
50	" 13	iP_{EZ}	18 29 53	5		-5	+6	2940	Compression
		ipP_{EZ}	30 03	6		+17	-	26°4	H 18 24 18
		iPP_N	30 32	6	+4				
		iPP_{EZ}	30 33	7		+69	-120		N-S readings
		i_E	30 42	7		+61			from Wiechert.
		iN_Z	30 50	7	-11		-46		
		i_N	33 17	6	-6				
		iS_E	34 22	8		-52			
		iZ	34 27	8			+56		
		isS_E	34 36	7		-55			
		isS_N	34 39	7	+33				
		i_N	34 49	8	+28				
		iZ	34 51	7			+56		
		iSS_N	35 35	9	+17				
		eL_{EZ}	36.0	30					
		ME_1	37.7	24		170			
		MN	37.9	15	90				
		MZ_1	38.1	22			240		
		MEZ_2	39.6	19		140	220		
		eW_2E	21 26.7	25					
51	" 14	iPZ	16 29 37	4			+4	2620	Compression
		$iPPP_N$	30 18	5	-2			23°6	
		$iPPP_Z$	30 19	6			+10		
		$iPPP_E$	30 20	5		-4			
		iS_E	33 46	6		-5			
		i_N	33 51	6	-5				
		iN_Z	34 40	7	+4		+13		
		i_E	34 44	8		-14			
		eL_Z	35.3	20					
		MEZ	37.7	17		5	4		
		MN	37.8	12	1				

1949, February-March.
RIVERVIEW COLLEGE OBSERVATORY,
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No.	Date	Phase	Time (G.M.T.)	Per.	Amplitude A_N	Amplitude A_E	Amplitude A_Z	Δ	Remarks
	1949		h m s	s	μ	μ	μ	km.	
52	Feb.14	iP_Z	18 51 43	4			+5	6280	Compression
		iS_E	59 31	4		+3		56°5	H 18 42 02
		ePS_E	59 44	10					
		eE	19 00.1	20					
		eSS_E	03 14	13					
		eL_Z	05.6	22					
		MEZ	07.6	16		4	4		
53	" 16	iP_Z	11 42 31	4			+5	2820	Compression
		$ipPNEZ$	42 40	4	-8	-7	+14	25°4	H 11 37 05
		iZ	42 50	4			+14		
		iZ	42 58	4			+16		
		$iPPNEZ$	43 09	4	-4	-3	+11		
		i_Z	43 16	4			+14		
		iS_E	46 53	7		-7			
		i_N	47 02	7	+18				
		i_{NE}	47 23	9	-33	-20			
		iSS_N	47 52	10	-16				
		eL_Z	48.9	24					
		$MNEZ$	50.0	16	13	13	11		
55	" 19	iP_Z	01 01 19	3			+5	3020	Compression
		i_{NEZ}	01 36	6	-7	-6	+7	27°2	H 00 55 36
		$iPPNEZ$	02 05	4	-5	-3	+7		
		iZ	02 14	4			+9		
		iS_N	05 54	6	+7				
		i_E	06 04	8		+10			
		i_N	06 08	6	-17				
		iZ	06 09	6			+5		
		eLQ_E	06.9	19					
		iSS_E	07 08	7		-7			
		eLR_E	08.1	25					
		$MNEZ$	09.4	19	10	9	13		
57	" 23	ePZ	16 21 43	11				11,140	
		$ePPZ$	25 53	16				100°2	H 16 07 59
		$eSKS_N$	32 22	13					
		$eSKS_E$	32 23	13					
		eS_E	33 12	13					
		$ePSNEZ$	34 33	13					
		eZ	47 46	25					
		eL_E	56.3	36					
		MNE	17 02.6	30	19	12			
		MZ	06.4	27			13		
		MNE_2	09.0	21	10	8			
	W2	$MNEZ$	18 31.7	18	4	3	12		
61	" 26	$e(S)_N$	09 45 10	8					
		eLZ	47.3	22					
		MEZ	49.0	19		2	3		
62	" 26	$i(P)_Z$	17 09 14	4			+3		Compression
		$i(S)_E$	14 29	6		+2			
		eL_E	19.9	18					
63	" 28	eE	00 39 21						Masked by very heavy microseisms.
		eLQ_E	50.9	25					
		ME	01 02.9	20		10			
		MNZ	07.0	20	9		20		

Minor shocks: 5d 12.8h; 7d 19.9h; 13d 13.7h; 17d 20.7h; 22d 10.6h; 23d 21.2h; 24d 23.9h; 26d 04.6h.

66	Mar. 4	ePZ	01 26 20	4					
		iZ	26 36	4			-5		
		$ipPZ$	26 49	5			-4		h 0.015 ca.
		iS_E	34 01	6		+6			
		i_E	34 21	7		+7			
		eE	34.7	29					
		eZ	37.4	17					
		e_Z	38.6	24					
		eLR_Z	42.5	31					
		$MNEZ$	50.6	20	11	18	27		
67	" 4	$i(S)_N$	08 28 03	4	+4				
		$i(S)_E$	28 05	4		-5			
		eLZ	29.6	16					

1949, March.

RIVERVIEW COLLEGE OBSERVATORY,
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No.	Date	Phase	Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
					A_N	A_E	A_Z		
	1949		h m s	s	μ	μ	μ	km.	
68	Mar. 4	iP_Z	10 33 00	6			+9	11,510	Compression
		ipP_Z	33 56	9			-21	103°6	h 0.03
		iE_Z	37 11	5			-11		
		iPP_N	37 17	6	+6				H 10 19 23
		iPP_Z	37 18	7			+31		
		i_E	38 10	6					
		iZ	38 12	8			-24		
		iZ	38 38	7			+54		
		iZ	39 30	7			-15		
		iZ	40 27	8			+19		
		iZ	40 43	8			-22		
		iZ	42 31	9			-16		
		$iSKS_E$	43 20	7					
		i_N	44 04	6	+8				
		i_{NE}	44 40	10	+14				
		i_N	46 00	7	+19				
		i_N	46 42	6	+17				
		iZ	47 22	9			+57		
		$iPPS_N$	47 31	8	+19				
		$iPPS_{EZ}$	47 34	9			-64		
		iE	48 17	8					
		iZ	48 19	9			-9		
		iZ	48 36	9			-35		
		iE	48 37	9					
		iE	49 18	8					
		i_N	49 55	6	+18				
		iSS_{NE}	51 48	7	-40				
		iZ	53 17	15			-33		
		eN	53 36	16					
		eN	58.1	23					
		eLQ_N	11 01.6	28					
		$MNEZ$	19	20	·10	19	39		ME from Wiechert
74	" 9	iP_Z	15 02 19	3			+4	3790	Compression
		iPP_E	03 35	4		-3		34°1	H 14 55 35
		$iPPPEZ$	03 48	6		-3	+7		
		iS_E	07 42	6		-4			
		eZ	10 39	12					
		eLR_E	11.4	24					
		$iScS_{NE}$	12 28	6	+3	-4			
		MN	13.2	15	3				
		MEZ	15.5	15		3	3		
77	" 10	$iPnNEZ$	22 31 01	2	-12	-22	-23	178	Dilatation
		i_{NEZ}	31 08	2	-51	-56	-47	1°6	H 22 30 31
		iSn_E	31 23	2		-45			Epicentre: 34½°S,
		iSg_N	31 24	2	+120				149½°E. Mag.4½ ca
		MNE	31 37	4	136	77			Damage at Dalton,
		MZ	31 44	4			88		New South Wales.
78	" 10		23 48.6						Small aftershock.
79	" 11	$PnNEZ$	03 33 22	1				167	Aftershock of No.
		$PgNE$	33 24	1				1°5	77
		iSn_E	33 43	1½		-9			Pg from Mainka.
		iSg_N	33 44	1½	+21				
		iZ	33 46	1½			-9		
		LZ	33 55	6					
		MNE	33 57	4	28	16			
		MZ	34 14	2			25		
80	" 11		04 54.5						Small aftershock.
81	" 11		12 52.2						Small aftershock.
84	" 16	$PnNE$	13 24 38					178	Aftershock of
		iSn_{NE}	25 00	1		-3		1°6	No.77
		iSg_N	25 01	1	+7				
		iZ	25 02	1			-4		
		MNE	25 14	4	8	3			
		MZ	25 31	2			9		

1949, March.
RIVERVIEW COLLEGE OBSERVATORY,
SEISMOLOGICAL BULLETIN.

No.	Date	Phase	Time (G.M.T.)	Per.	Amplitude A_N	Amplitude A_E	Amplitude A_Z	Δ	Remarks
	1949		h m s	s	μ	μ	μ	km	
85	Mar.16	iP_Z	22 21 05	5			+3	3100	Compression
		i_N	21 08	5	+4			27°9	H 22 15 16
		ipP_Z	21 14	8			-19		
		ipP_N	21 15	8	+9				
		i_N	21 49	7	-13				
		iPP_Z	21 53	9			-29		
		i_NZ	22 02	9	-28		+24		
		$iPcP_E$	24 21	6		+4			
		iS_N	25 44	9	+29				
		iE	25 49	9		-43			
		i_Z	26 10	9			+59		
		iE	26 11	10		+24			
		i_N	26 13	10	+100				
		i_Z	26 18	11			-115		
		i_N	26 34	10					
		iSS_E	27 05	16		+77			
		iN	27 56	9	+53				
		iE	28 17	9		+45			
		i_E	29 03	9		+180			
		L_N	29.8	19					
		iN	30 09	7	+63				
		MNEZ	31.0	19	270	230			
88	" 17	iP_Z	21 11 12	6			+9	3060	Compression
		eP_N	11 14	10				27°5	H 21 05 27
		ipP_Z	11 21	9			+30		Aftershock of
		iPP_Z	11 58	9			+29		No.85
		i_N	12 02	7	-18				
		$ePPP_E$	12 13	13					
		$iPcP_Z$	14 31	6			+10		
		iS_N	15 49	9	-42				
		i_N	16 09	12	-80				
		i_Z	16 16	12			-90		
		eE	16.3	21					
		iSS_E	17 07	15		-54			
		eLR_Z	18.0	21					
		iN	18 17	7	-33				
		iE	18 30	8		-54			
		i_E	19 18	8		-77			
		eL_N	19.6	26					
		MNEZ	22.2	17	112	160	150ca		
89	" 17	$e(P)_Z$	22 59 57						Obscured by Coda
		$i(pP)_Z$	23 00 06	5			-9		of preceding
		iSN	04 48	6	-8				shock.
		eLR_Z	08.1	23					
		ME	10.3	17		28			
		$i(ScS)_N$	10 30	5	-11				
		MNEZ	11.6	15	11		18		
90	" 19	$e?_Z$	18 30.0						
		iS_{NE}	39 00	7	+6	+5			h 0.02
		isS_E	40 03	7		+11			
		eE	41 08	8					
		$e(SS)_E$	43 10	14					
		$eSSS_E$	46 46	12					
		eL_E	49.0	25					
91	" 23	iP_{NZ}	06 43 01	5	-		+4	3540	Compression
		eS_E	48 08					31°8	
		eS_N	48 13						
		iE	48 29	4		-2			
		iE	51 18	7		+8			
		eL_E	52.5	25					
		MNEZ	56.6	15	23	26	23		
92	" 24	$e(SS)_E$	21 30 53	16					
		eLQ_E	41.6	30					
		eLR_Z	46.6	28					
		MEZ	51.9	19		9	11		
93	" 26	iN	08 12 58	5	+3				
		iE	15 25	4		-7			
		iZ	15 32	4			+6		
		iE	15 55	4		+12			
		MNEZ	19.3	10	4	3	7		

1949, March.

RIVERVIEW COLLEGE OBSERVATORY.

SEISMOLOGICAL BULLETIN.

No.	Date	Phase	Time (G.M.T.) h m s	Per. s	Amplitude AN μ	AE μ	AZ μ	Δ km.	Remarks
	1949								
94	Mar.27	iP_{NEZ}	06 41 58	7	-8	+4	+14	4700	Compression
		ipP_Z	42 11	7			+	42.3	H 06 34 05
		ipP_{NE}	42 12	7	-13	+9			
		iP_E	43 10	7		+12			
		iP_N	43 13	6	+18				
		iPP_N	43 40	7	-10				
		$iPcP_Z$	43 51	6			+20		
		$iPcP_N$	43 54	6	+22				
		$iPPP_{NEZ}$	44 07	7	-58	+	+90		
		iS_E	48 16	9		-20			
		iS_N	48 18	9	-27				
		eN_E	49.2	30					
		iN	51 31	11	+43				
		iZ	51 34	10			+33		
		$iScS_E$	51 52	9		+86			
		$iSSS_Z$	52 04	11			+180		
		$iSSS_E$	52 09	12		-200			
		$iSSS_N$	52 12	10	+160				
		eL_N	52.6	27					
		iN	52 57	10	-100				
		L_Z	58.8	37					
		$MNEZ$	07 02.5	17	120	200	250		
	W_2	MZ	09 28.0	22			4		
95	" 27	eP_Z	11 51 22					3100	
		iZ	51 38	4			+5	27°9	
		eS_N	56 02						
		eZ	56 35	19					
		iN	56 37	10	+19				
		eE	56 52	25					
		eL_Z	12 00.2	24					
		$MNEZ$	02.2	19	16	19	28		
96	" 27	eZ	20 43 51						
		eZ	45 28						
		iE	51 40	4		+5			
		$e(S)_E$	51 47	11					
		eLQ_E	56.2	40					
		eLR_E	58.9	24					
		$MNEZ$	21 02.3	19	8	5	11		
98	" 28	$e(S)_E$	13 07 50	10					
		eN	08 07	12					
		$e(SS)_E$	12 19	15					
		eLQ_E	15.0	21					
		MEZ	22.0	18		2	2		
99	" 29	eE	03 08 33						
		eN	08 37						
		eE	11 35						
		eLE	15.8	34					
		$MNEZ$	22.5	18	4	4	6		
101	" 30	$i(S)_N$	14 59 46	7	+10				Masked by very
		$i(sS)_{NE}$	15 00 05	6	-8	-11			heavy microseisms
		$i(SSS)_N$	02 12	13	+17				
		eL_Z	02.6	21					
		$MNEZ$	06.5	16	36	22	24		
103	" 31	eP_Z	21 46 15					2900	
		ePP_{NZ}	46 53	6				26°1	
		iN	48 22	5	-4				
		iS_N	50 42	7	-6				
		iZ	50 43	5			+5		
		iNZ	51 05	12	-9		+4		
		eLQ_{NE}	51.3	22					
		iEZ	52 52	6		-7	+6		
		eL_Z	54.5	25					
		$MNEZ$	56.1	20	8	11	14		

Minor shocks: 3d 12.6h, 15.3h; 4d 17.9h; 6d 15.4h; 7d 14.8h; 8d 06.8h, 13.7h; 9d 21.5h; 10d 11.5h; 13d 12.9h; 15d 01.8h; 17d 03.3h, 08.8h; 28d 03.9h; 29d 16.0h; 31d 04.1h.

D.J.K.O'CONNELL,S.J.
Director.

T.N.Burke-Gaffney,S.J.
P. F. Rheinberger.

Riverview College Observatory

RIVERVIEW, N.S.W.

SEISMOLOGICAL BULLETIN

$\Phi = 33° 49' 46''$ S. $\lambda = 151° 9' 30''$ E. h = 25m. Foundation : Triassic Sandstone.

INSTRUMENTS :

1. Wiechert Astatic Pendulum Seismometer (1000 kilo.) (NS, EW)
2. Wiechert Vertical Seismometer (80 kilo.)
3. Mainka Conical Pendulum Seismometer (450 kilo.) (NS, EW)
4. Gailitzin Aperiodic Seismometer with Galvanometer registration (NS, EW, Vert)

		V	T_o	$\epsilon : l$	$\frac{r}{T_o^2}$		T_1 (Galv.)	T (Pend)	μ^2	V_S
N	1	206	7.3	5.7	0.002	4	11.8	11.9	+0.04	410
	3	164	9.0	7.4	0.001					
E	1	228	6.9	5.6	0.019	4	12.3	12.2	-0.02	490
	3	136	9.8	7.0	0.025					
Z	2					4	11.0	11.0	0.0	450

No.	Date	Phase	Time (G.M.T.)	Per	Amplitude A_N	Amplitude A_E	Amplitude A_Z	Δ	Remarks
	1949		h. m. s.	s.	μ	μ	μ	km.	
104	April 1	e(P)Z	08 54 49						
		e(S)N	09 01 43						
		eZ	06 32						
		MNEZ	15.3	18	5	12	11		
107	" 2	i_N	16 12 00		+				
		i(S)E	14 34			+			
		eLQE	15.4	21					
		eLRZ	16.3	22					
		ME	17.8	18		10			
		MZ	19.2	18			7		
		MN	19.9	15	7				
108	" 3	e(P)Z	06 43 36	8					
		e(S)N	49 53						
		eE	49 57	15					
		eLE	55.9	27					
		eLZ	58.1	30					
		MNEZ	07 04.2	16	9	12	14		
110	" 5	iPZ	09 38 06	7			+4	8720	Compression
		e(sP)Z	41 03					78°5	h 0.085
		iPPZ	41 12	7			-4		H 09 27 02
		iSE	47 16	6		+4			
		i(ScS)E	47 34	7		+4			
		eN	48 14	9					
		isSE	50 48	7		+5			
113	" 6	ePZ	15 31 49	3				4860	
		eSE	38 17	7				43°7	
		eSN	38 18	7					
		iScSE	41 41	6		+5			
		iN	42 20	6	+4				
		ME	50.5	20		4			
115	" 6	iPZ	23 51 16	4			-4	2610	Dilatation
		ipPZ	51 25	4			-5	23°5	H 23 46 08
		iE	51 26	4		+4			
		eSN	55 24	7					
		esSE	55 39	9					
		eLQN	55.8	22					
		SSN	56 11	11	3				
		eLRZ	57.2	27					
		MNEZ	58.9	18	11	5	7		
116	" 7	iPZ	07 22 17	5			+4	4990	Compression
		iSE	28 52	7		-4		44°9	H 07 14 03
		iSSE	32 08	12		+5			
		iN	32 19	7	+7				
		eLQE	33.1	21					
		eLZ	35.2	23					
		MEZ	37.0	20		5	6		

1949, April.

RIVERVIEW COLLEGE OBSERVATORY,

SEISMOLOGICAL BULLETIN.

No.	Date	Phase	Time (G.M.T.) h m s	Per. s	Amplitude A_N μ	A_E μ	A_Z μ	Δ km.	Remarks
	1949								
120	Apr. 9	iP_{EZ}	21 41 15	6		+5	-5	2810	Dilatation
		iPP_Z	41 52	7			+6	25°3	H 21 35 50
		$ePPP_Z$	42 05	8					
		iS_E	45 36	7		+4			
		i_E	46 23	6		+6			
		eLR_E	47.6	16					
		MN	49.7	15	4				
		MEZ	50.8	18		6	6		
121	" 10	iP_{EZ}	23 54 34	5		-3	+8	3420	Compression
		iPP_{EZ}	55 35	5		-7	+7	30°8	H 23 48 19
		iS_E	59 34	7		-12			
		i_Z	59 52	10			+9		
		eLR_Z	00 02.8	24					
		MEZ	05.4	17		14	15		
		MN	08.1	12	26				
124	" 13	iP_Z	01 12 15	5			+4	3050	Compression
		eS_N	16 51					27°4	H 01 06 31
		eLQ_E	18.0	19					Epicentre about
		eSS_Z	18 09	7					1800 km. North of
		$eSSS_Z$	18 29	10					Wilkes Land.
		eLR_Z	19.3	23					
		MNEZ	20.8	10	6	8	4		
125	" 13	i_Z	19 01 40	5			+3		
		e_N	05 47						
		i_N	07 11	8	+6				
		eL_N	10.5	22					
		i_E	11 38	10		+11			
		MEZ	13.5	15		5	3		
126	" 13	eP_Z	20 10 11					12,340	
		iPP_Z	14 51	6			+3	111°0	
		eZ	14 56	18					
		$eSKS_{NE}$	20 44	18					
		eS_{NE}	22 21	17					
		e_N	23 21	15					
		iPS_{EZ}	24 17	15					
		i_Z	24 42	9			+11		
		i_E	24 45	12		+8			
		i_N	24 51	10	-8				
		i_Z	25 02	9			+13		
		$iPPS_E$	25 28	10		-9			
		e_E	29 10	16					
		eSS_E	30 18	18					
		iSS_E	30 39	13		+7			
		i_N	30 56	12	-9				
		i_E	31 17	13		-10			
		$eSSS_E$	34 05	21					
		eL_N	42.6	36					
		eLR_E	45.7	36					
		$MNEZ_1$	49.1	27	10	20	47		
		$MNEZ_2$	53.0	21	7	6	11		
		eW_2Z	21 53.9	24					
		MZ	59.6	22			7		
128	" 14	$e(PP)_Z$	15 55 01	6					
		$e(S)_E$	59 19	13					
		$i(SS)_N$	16 02 08	10	+5				
		eLR_Z	04.3	22					
		MN	06.5	14	3				
		MEZ	06.7	18		2	4		
129	" 14	$e(P)_Z$	17 10 04	6					Repetition of
		$e(PP)_{EZ}$	11 33	6					No.128
		i_Z	11 36	6			+5		
		$e(S)_E$	15 52	14					
		$i(SS)_N$	18 42	8	+5				
		eLR_E	20.9	21					
		MN	23.1	13	3				
		MEZ	23.3	17		2	3		

1949, April.
RIVERVIEW COLLEGE OBSERVATORY
SEISMOLOGICAL BULLETIN.

No.	Date	Phase	Time (G.M.T.) h m s	Per. s	Amplitude A_N μ	A_E μ	A_Z μ	Δ km.	Remarks.
	1949								
132	Apr.15	ePZ	14 14 45					4360	
		$ePPZ$	16 21					39°2	
		iSE	20 43	9		+3			
		eE	22 26	15					
		eSS_Z	23 26	13					
		eL_E	27.7	21					
		MNE	30.4	19	9	6			
		MZ	31.6	16			6		
		iZ	35 55	8			+12		
133	" 16	iPZ	23 53 24	5			+4	3170	Compression
		iS_E	58 08	7		+2		28°5	H 23 47 30
		eLQ_N	59.4	22					
		iSS_E	59 30	17		+16			
		eLR_Z	00 00.8	21					
		$MNEZ$	04.0	10	3	5	5		
134	" 18	iZ	00 50 10	6			+3		
		e_E	01 06.6						
		$e(LQ)_E$	11.2	25					
136	" 18	iPZ	21 41 53	3			+4		Compression
		$iPPEZ$	43 23	4		-3	+4		
		$iPPPZ$	43 43	4			+5		
		iZ	44 08	4			+3		
		iZ	44 29	4			+4		
		$e(S)_E$	47 29	11					
		iE	47 58	7		+5			
		eN	51 04	19					
		iE	52 23	7		-5			
		eLR_EZ	52.5	25					
		MEZ	53.4	22		8	9		
137	" 19	iPZ	15 31 34	3			+3	9160	Compression
		$iPcPZ$	31 41	5			+3	82°4	H 15 19 14
		$ipPZ$	31 46	5			-3		
		iS_{NE}	41 47	6	-2	-2			
		$iScS_N$	41 57	5	+2				
		$iScS_E$	42 00	5		+1			
		eSS_E	47 05	13					
		eLQ_E	54.1	30					
		eLR_Z	58.2	24					
		MNZ	16 02.3	23	3		4		
138	" 19	eZ	18 05 59						
		$e(S)_N$	10 18	7					
		eZ	10 35	13					
		iN	10 50	6	+6				
		eE	11.6	19					
		eLZ	13.5	25					
		$MNEZ$	14.8	20	6	3	6		
139	" 20	iPZ	03 42 38	7			-10	10,890	Dilatation
		iNE	42 42	6	+7	-3		98°0	H 03 29 08
		$ipPZ$	42 58	6			-5		h 0.005
		eZ	45 55	10					
		iZ	46 21	6			+8		
		iZ	46 38	6			-18		
		iEZ	46 53	7		+9	-21		
		iN	47 00	6	+14				
		iZ	48 05	6			+11		
		$iSKS_{NE}$	53 12	8	-14	+7			
		$iSKKS_{NE}$	53 35	8	-11	+8			
		iNE	53 42	8	+41	-27			
		iS_{NE}	53 56	8	+15	-15			
		iN	54 17	7	-10				
		iN	55 11	7	-8				
		iPS_N	55 28	12	-12				
		iE	55 57	8		+15			
		iE	04 01 24	10		+14			
		iN	01 27	10	+30				
		eLQ_{NE}	10.4	26					
		eLR_Z	13.7	28					
		$MNEZ$	15.6	25	27	28	65		
		eW_2EZ	05 40.2	30					
		$MNEZ$	53.0	24	4	5	8		

1949, April.

RIVERVIEW COLLEGE OBSERVATORY

SEISMOLOGICAL BULLETIN.

No.	Date	Phase	Time (G.M.T.) h m s	Per. s	Amplitude A_N μ	A_E μ	A_Z μ	Δ km.	Remarks
	1949								
143	Apr. 22	$i(P)_Z$	17 28 47	3			+4		Compression
		$i(PS)_E$	39 00	7		-5			Masked by very
		LR_Z	52.2	30					large microseisms.
		$MNEZ$	18 00.0	18	3	6	11		
144	" 23	iP_{NEZ}	11 22 53	6	-2	+3	+8	4310	Compression
		ipP_{NEZ}	23 05	6	+6	-5	-20	38°8	H 11 15 30
		iZ	23 16	6			-14		Slightly deeper
		iE	28 35	8		+12			than normal.
		iN	28 43	8	+10				
		iZ	28 47	6			-14		
		iS_E	28 48	9		+49			
		iN	29 00	8	+23				
		iE	29 06	6		+23			
		iE	29 14	9		+19			
		iSS_Z	31 31	15			+40		
		iSS_E	31 32	15		-14			
		$i(ScS)_E$	32 53	7		+17			
		iN	33 25	6	+27				
		iE	33 41	7		-16			
		eL_E	35.3	30					
		MNE	40.0	15	58	47			
		MZ	40.6	19			57		
145	" 24	$e(SKS)_E$	04 47 18	7					
		ePS_E	50 26	12					
		$ePPS_{NE}$	51.5	16					
		eSS_E	56 15	16					
		$eSSS_E$	05 00 15	24					
		eLQ_E	07.2	22					
		eLR_E	13.1	40					
		MEZ	19.0	27		12	14		
		MN	20.9	24	6				
147	" 25	ePZ	14 09 45	8				12,700	H 13 55 03
		$esPZ$	10 26	10				114°3	h 100 km.
		iPP_{NEZ}	14 30	6	-9	+7	-26		(from Guten-
		iZ	14 41	6			-4		berg's Tables).
		$iNEZ$	14 49	7	-7	+7	-7		
		$iNEZ$	15 06	7	+13	-7	+22		
		iZ	15 11	7			-21		
		$ePPPZ$	17 01	10					
		$ipPPPZ$	17 26	6			+4		
		$iSKS_{NE}$	20 13	7	-6	+6			
		$iSKKS_E$	20 59	10		-7			
		$iSKKS_N$	21 01	7	+9				
		iNE	21 23	7	-8	+5			
		iS_N	22 05	7	-6				
		iS_E	22 07	7		+4			
		ipS_N	22 41	7	+8				
		iSP_N	23 55	7	-4				
		iPS_Z	24 08	10			+29		
		iPS_{NE}	24 13	8	-19	+13			
		$ipPS_{NE}$	24 34	8	-12	+17			
		$isPS_Z$	24 45	10			-55		
		$iSPP_E$	24 56	10		+16			
		$iSPP_Z$	25 00	11			-40		
		$iPPS_N$	25 13	9	+20				
		iSS_N	30 17	10	-10				
		eN	30 41	22					
		$isSS_E$	31 05	14		-38			
		$isSS_N$	31 07	13	+20				
		$iP'P'_Z$	34 24	?			+		
		eGE	42.3	30					
		eG_N	42.5	33					
		eL_{NE}	47.8	33					
		L_{NEZ}	48.9	34	23	33	56		
		$MNEZ$	51.1	21	12	14	29		
	W_2	MZ	16 00.9	21			4		

RIVERVIEW COLLEGE OBSERVATORY
SEISMOLOGICAL BULLETIN.

No.	Date	Phase	Time (G.M.T.)	Per.	Amplitude A_N	Amplitude A_E	Amplitude A_Z	Δ	Remarks
	1949		h m s	s	μ	μ	μ	km.	
148	Apr.25	$P?_Z$	19 31 30						
		e_E	37 13						
		i_N	37 53	7	-7				
		$i(SS)_E$	39 04	11		+7			
		i_N	39 29	7	+9				
		eL_E	40.7	30					
		i_N	41 13	7	-10				
		i_N	41 47	6	+8				
		eL_Z	43.0	22					
		MNEZ	46.0	15	12	19	18		
149	" 26	ePZ	10 17 10					2990	
		$iPNZ$	17 13	4	+6		-7	26°9	Dilatation
		$ipPNZ$	17 30	6	-5		+11		h 0.01
		$ipPE$	17 31	5		-4			H 10 11 36
		iPP_Z	17 59	5			+6		
		eS_E	21 38	10					
		i_N	21 53	7	+9				
		i_N	22 01	6	-8				
		i_E	22 04	7		-7			
		i_{NE}	22 21	9	+7	+6			
		i_Z	22 22	7			+10		
		eLR_{EZ}	24.1	28					
151	" 30	$iPNEZ$	01 31 53	7	-20	+17	+31	5210	Compression
		i_Z	32 09	6			+26	46°9	h 0.015
		ipP_Z	32 19	7			+45		H 01 23 27
		i_Z	32 27	3			+26		
		$isPNEZ$	32 35	7	-50	+24	+90		Gutenberg's Tables
		i_{NZ}	32 51	7	+55		-71		give: Δ 5240km.,
		i_Z	33 06	5			+43		47°1, h 100 km.,
		iPP_Z	33 41	6			-35		H 01 23 26
		i_{NE}	33 44	4	-28	+18			
		$iPPPNEZ$	34 29	7	+41	-20	-48		
		$iPcS_Z$	37 11	6			+39		
		i_E	37 47	8		+34			
		i_Z	38 16	7			+38		
		iS_{NE}	38 33	7	-175	-54			
		iZ	38 37	5			+72		
		iPS_N	39 03	7	+92				
		i_N	39 16	7	+38				
		isS_E	39 23	10		-100			
		isS_N	39 29	10	+110				
		iE	41 36	9		-73			
		i_N	41 39	7	-93				
		i_N	41 58	7	+89				
		iEZ	41 59	5		+88	+28		
		i_Z	42 11	6			+95		
		$iSSS_N$	42 59	8	+41				$iSSS_N$ from Wiech-
		$iSSS_Z$	43 02	9			+180		ert.

Minor shocks: 2d 01.5h, 07.5h; 3d 17.1h; 6d 03.3h, 10.0h, 17.0h; 8d 01.5h, 13.4h; 9d 08.4h; 11d 18.7h; 12d 10.1h; 14d 07.9h, 19.8h; 15d 02.3h; 18d 03.7; 20d 11.4h, 14.7h; 22d 01.7h; 25d 04.2h; 28d 02.0h.

156	May 6	iP_Z	12 51 45	4			-4	3090	Dilatation
		iS_{NE}	56 24	7	-8			27°8	H 12 45 57
		isS_E	56 41	6		+3			
		i_N	57 12	6	-7				
		eLR_Z	58.8	24					
		MNZ	13 00.1	18	3		6		
		$iScS_N$	02 27	4	+5				
		i_N	02 49	4	+5				
		i_N	05 50	5	-6				
157	" 9	iP_Z	13 47 03	3			-4	7380	Dilatation
		ipP_Z	47 31	5			+3	66°4	h 0.01
		iS_N	55 44	7	-9				H 13 36 23
		i_E	55 51	7		-7			
		iE	56 00	7		-7			
		isS_E	56 21	7		+5			
		$iPPS_E$	56 31	7		+6			

(Continued overleaf)

1949, May
RIVERVIEW COLLEGE OBSERVATORY
SEISMOLOGICAL BULLETIN

No.	Date	Phase	Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
					A_N	A_E	A_Z		
	1949		h m s	s	μ	μ	μ	km.	
157 cont.	May 9	i_E	13 56 51	7		+4			
		i_E	56 59	7		+6			
		i_N	57 15	7	-9				
		i_N	14 01 41	6	+7				
		eLQ_N	05.1	38					
		eLR_Z	07.9	40					
		MN	13.5	18	33				
		MEZ	16.5	19		25	41		
160	" 15	iP_Z	06 33 08	5			-4	3250	Dilatation
		ipP_{NZ}	33 20	5	+3		-4	29°2	
		PP_Z	34 02	6					
		eS_N	37 57	10					
		iE	38 06	7		-4			
		iN	38 10	7	+7				
		eLR_{NZ}	40.5	22					
		MZ	41.8	20			6		
161	" 15	iS_N	11 24 49		+				Masked by micro-seisms.
		eLQ_E	27.6	22					
		eLR_Z	29.2	22					
163	" 16	iP_Z	04 39 45	4			-4		Dilatation
		iZ	40 58	4			+3		
		$i(S)_{NE}$	45 15	7	+2	+4			
		$i(sS)_N$	45 31	7	+7				
		iE	45 45	7		+7			
		eE	45 56	24					
		eN	46 07	25					
		eN	47 53	16					
		iZ	48 17	9			-18		
		eL_E	50.2	30					
		eLZ	51.8	33					
		MNEZ	57.0	15	28	32	30		
166	" 19	eP_N	05 20 57	6				2450	
		ipP_N	21 06	6	+8			22°1	
		iPP_N	21 26	6	-5				
		eS_E	24 55						
		iS_N	25 02	7	+10				
		iSS_N	25 33	7	-12				
		iN	25 54	6	+9				
		eL_E	26.2	27					
		MNEZ	30.0	15	10	6	10		
167	" 20	iP_Z	08 18 59	3			-5		Dilatation
		$i(PP)_Z$	20 35	3			+5		Heavy micro-seisms.
		$e(SS)_N$	26 41	15					
169	" 21	PZ	21 51 27						Large micro-seisms present.
		ipP_Z	51 39	6			+9		
		iS_E	22 00 24	6		-10			
		iS_N	00 25	6	-8				
		eLQ_E	10.3	24					
		LR_E	13.2	28					
		MEZ	17.0	24		7	10		
		MN	19.4	20	6				
170	" 23	iP_Z	04 23 05	3			+4	2890	Compression
		ipP_Z	23 26	3			-3	26°0	h 0.01
		iZ	23 31	4			-7		H 04 17 39
		iE	23 35	6		+4			
		iZ	23 37	5			+9		
		iE	23 46	6		-5			
		iZ	24 37	5			-7		
		eS_E	27 26						
		iZ	28 03	7			+5		
		eLR_{NZ}	29.9	24					
		MNEZ	31.3	18	4	10	14		
172	" 23	$i(S)_N$	23 00 48	6	+8				
		eL_N	02.6	15					
173	" 24	$e(P)_N$	02 35 18						
		$e(S)_E$	40 09						
		eL_E	42.3	24					
		eLR_Z	43.3	24					
		MNEZ	46.0	16	9	10	15		

RIVERVIEW COLLEGE OBSERVATORY
SEISMOLOGICAL BULLETIN.

No.	Date	Phase	Time (G.M.T.)	Per.	Amplitude A_N	Amplitude A_E	Amplitude A_Z	Δ	Remarks
	1949		h m s	s	μ	μ	μ	km.	
175	May 25	$eSKS_N$	08 48 04	10					
		$eSKS_E$	48 05						
		ePS_Z	50 18	10					
		ePS_E	50 23	10					
177	" 27	iP_Z	08 58 05	3			+2	1870	Compression
		iPP_Z	58 21	4			+5	16°8	H 08 54 11
		eS_N	09 01 09						
		iE	01 18	6		-6			
		iZ	01 20	6			-5		
		i_N	01 21	6	+6				
		iSS_E	01 29	6		+5			
179	" 28	iP_Z	16 07 05	5			+4	3270	Compression
		iZ	09 01	5			+6	29°4	
		eS_N	11 55	10					
		eLQ_N	13.3	15					
		eLR_N	14.7	20					
		MNEZ	17.6	13	3	3	2		
180	" 31	$i(P)Z$	02 33 13	4			-3		Dilatation
		$e(S)E$	39 25	13					
		eN	39 42	7					
		iN	42 06	4	+4				
		i_N	42 28	5	-4				
		i_N	43 01	4	-4				
		i_N	43 26	4	+5				
		iE	43 35	4		+4			
		i_{NE}	44 32	4	+6	+5			
		i_E	44 42	4		-6			
		iN	44 51	4	-6				
		i_N	45 03	5	+11				
		$e(L)Z$	45.5	20					
		iNE	47 21	5	+6	+6			

Minor shocks: 3d 06.1h; 15.0h; 4d 20.6h; 5d 21.5h; 12d 10.9h; 14d 22.6h; 16d 04.3h, 16.2h; 17d 03.2h; 21d 08.0h; 23d 09.2h; 24d 22.5h; 25d 18.4h; 27d 11.3h

183	June 6	$i(P)Z$	07 05 33	4			-5		Dilatation
		eL_E	15.5	21					Masked by micro-
		MNEZ	18.0	16	5	4	5		seisms.
184	" 9	$e(S)E$	18 50 58	7					
		i_E	51 11	7		+4			
		$e(LQ)E$	51.5	16					
		MZ	54.9	16			2		
185	" 9	iP_Z	21 25 33	4			+3	4000	Compression
		iPP_{NEZ}	26 58	5	+3	+4	-7	36°0	h 100 km.
		$iScS_N$	35 35	5	-3				H 21 18 37
		eL_E	35.9	17					(from Guten-
		i_N	37 02	5	+3				berg's Tables)
186	" 12	$i(SKKS)_E$	18 16 39	4		+2			Masked by micro-
		$i(SKKS)_N$	16 41	4	+4				seisms.
187	" 13	iE	19 30 14	5		+3			
		eN	30 49						Masked by micro-
		eN	31 50	7					seisms.
		iNE	32 14	6	+5	+6			
		$e(LQ)E$	32.6	16					
		eLZ	33.3	16					
		MEZ	37.7	19		5	6		
188	" 14	$e(PS)N$	00 41 52						
		$e(PS)E$	41 55						
		eN	48 22	14					
		eLR_Z	53.4	30					
		MN	01 04.1	21	3				
		MEZ	06.0	21		3	3		
189	" 19	iP_Z	08 46 47	6			+10	2210	Compression
		i_N	46 50	6	-10			19°9	H 08 42 16
		iPP_N	47 08	4	+6				Heavy microseisms
		iS_E	50 24	7		+10			present.
		i_{NE}	50 42	7	+15	+20			
		eLR_Z	51.1	24					
		i_N	51 19	6	+12				
		i_N	51 31	6	+20				
		MNEZ	52.9	10	8	17	6		

1949, June.

RIVERVIEW COLLEGE OBSERVATORY
SEISMOLOGICAL BULLETIN

No.	Date	Phase	Time (G.M.T.) h m s	Per.	Amplitude AN	AE	AZ	Δ	Remarks
	1949			s	μ	μ	μ	km.	
190	June 23	iPZ	22 32 08	3			-3	2590	Dilatation
		iZ	32 19	3			+7	23°3	h 0.02
		ipPZ	32 40	3			-3		H 22 27 13
		$i_{NE}Z$	32 44	4	+6	+5	-8		
		iPPZ	32 53	5			+8		Gutenberg's Tables
		isPNEZ	33 06	6	-8	-8	+17		give: Δ 2620 km.,
		iNZ	33 30	4	-6		-7		23°6, h 200 km.
		iN	34 27	4	-7				H 22 27 11
		iS_N	36 05	6	-24				
		iE	36 08	6		-14			Heavy microseisms
		iN	36 12	6	-44				throughout.
		iE	36 17	7		-21			
		iZ	36 19	7			+14		
		iE	36 31	6		+8			
		iN	36 32	6	+12				
		iZ	36 43	7			+17		
		$i(pS)_{NE}$	36 46	7	+25	-30			
		iZ	37 05	7			+16		
		isS_N	37 08	6	+20				
		$i(SS)_N$	37 22	13	+55				
		iZ	37 28	10			-34		
		iE	~~37 36~~	6		+23			
		iE	37 46	6		+15			
		iNE	37 56	6	-18	+25			
		iN	38 13	6	+15				
		iZ	38 17	7			+10		
		$iScP_E$	38 56	7		-11			
		$iScS_E$	43 01	6		+17			
		$iScS_N$	43 03	5	+17				
		iN	44 28	6	-16				
191	" 24	iPZ	22 47 42	5			+4	5620	Compression
		ipPZ	47 54	7			+10	50°6	H 22 38 44
		iS_{NE}	54 53	7	-11	+11			
		iZ	54 55	7			-6		
		iNE	55 17	7	+5	+7			
		iSS_E	58 27	8		+10			
		eLR_E	23 03.8	30					
		MN	07.5	15	12				
		MEZ	08.5	25		38	52		
193	" 26	iPZ	08 49 08					4770	
		ipPNEZ	49 32	6	+8	-4	-18	42°9	Dilatation
		iPcPNEZ	50 58	5	-4	+3	+7		h 0.01
		iS_{NEZ}	55 26	7	-18	+10	-		H 08 41 18
		iE	55 58	7		+5			
		isS_N	56 03	7	+9				
		iZ	56 31	6			-6		
		eE	57.1	33					
		eSSZ	58 29	16					
		iN	58 38	7	+12				
		iNE	58 45	7	+22	+27			
		iN	59 30	6	+8				
		iN	59 58	6	+12				
		eLE	09 02.2	26					
		MNEZ	06.5	24	19	42	61		
194	" 27	iPZ	23 13 47	3			+5		Compression
		iN	19 31	5	-2				
		iN	21 13	4	+3				
		iZ	21 40	4			+4		
		iN	22 02	5	+5				
		iN	22 37	4	+5				
		iE	24 49	4		+16			
		iZ	24 54	4			-22		
		iN	24 56	4	-53				
		iZ	25 07	4			-11		
		iN	25 26	4	+25				
		iN	25 47	4	-21				
		iN	26 02	4	+25				
		MNEZ	28.3	13	25	32	53		

Minor shocks: 1d 15.2h; 5d 15.2h; 25d 19.6h; 30d 01.7h, 17.6h

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RIVERVIEW, N.S.W.

SEISMOLOGICAL BULLETIN

$\Phi = 33° 49' 46''$ S $\lambda = 151° 9' 30''$ E. h = 25m. Foundation : Triassic Sandstone.

INSTRUMENTS :

1. Wiechert Astatic Pendulum Seismometer (1000 kilo.) (NS, EW)
2. Wiechert Vertical Seismometer (80 kilo.)
3. Mainka Conical Pendulum Seismometer (450 kilo.) (NS, EW)
4. Galitzin Aperiodic Seismometer with Galvanometer registration (NS, EW, Vert)

		V	T_o	$\epsilon : 1$	$\frac{r}{T_o^2}$		T_1 (Galv.)	T (Pend)	μ^2	V_s
N	1	208	7.2	5.0	0.002	4	11.8	11.9	+0.04	410
	3	165	9.1	5.4	0.018					
E	1	220	7.0	5.6	0.006	4	12.3	12.2	-0.02	490
	3	143	9.3	7.0	0.010					
Z	2					4	11.0	11.0	0.0	450

No.	Date	Phase	Time (G.M.T.)	Per	Amplitude A_N	Amplitude A_E	Amplitude A_Z	Δ	Remarks
	1949		h m. s.	s.	μ	μ	μ	km.	
197	July 2	iP$_{NEZ}$	11 32 07	6	+31	-14	+47	2200	Compression
		i$_N$	32 19	6	+17			19°8	H 11 27 37
		iPP$_Z$	32 26	5			+15		
		iPPP$_E$	32 35	6		-12			
		i$_N$	32 39	5	+13				
		iS$_E$	35 43	10		+35			
		i$_{NZ}$	35 49	7	-49		-27		
		isS$_N$	35 57	6	+41				
		i$_E$	36 03						
		iSS$_{NE}$	36 12	11	+39	+81			
		iSSS$_{NZ}$	36 25	8	+48	-25			
		eL$_Z$	36.6	24					
		M$_{NEZ}$	38	11	30	46	38		
198	" 2	iP$_{NZ}$	20 06 10	6	+7		-14	5610	Dilatation
		ipP$_{NZ}$	06 20	6	+13		-25	50°5	H 19 57 13
		iPcP$_Z$	07 26	6			+11		
		iPP$_N$	08 01	7	+7				Gutenberg's Tables
		iPP$_Z$	08 07	7			-9		give: Δ 5600km.,50°4
		iPPP$_Z$	09 04	7			-6		H 19 57 09
		iS$_E$	13 20	9		-10			
		iPS$_E$	13 32	8		+9			
		iScS$_E$	15 55	8		-8			
		iSS$_E$	16 50	9		+8			
		iSSS$_E$	18 25	10		+10			
		eLQ$_E$	19.5	30					
		eLR$_Z$	21.9	30					
		M$_E$	22.4	16		26			
		M$_{NZ}$	26.0	19	29		43		
200	" 4	iP$_Z$	13 52 59	2			-1	2700	Dilatation
		iPP$_Z$	53 35	3			+3	24°4	H 13 47 43
		eS$_N$	57 14						
		isS$_N$	57 29	8	+9				
		iSS$_N$	58 08	8	+7				
		eLR$_N$	58.7	21					
		M$_N$	14 00.1	16	6				
		iScS$_E$	04 02	7		-8			
202	" 6	i(S)$_{NE}$	19 55 29	6	+6	+5			Masked by large
		i$_Z$	55 30	6			+9		microseisms.
		i$_Z$	56 10	5			+9		
		eL$_Z$	58.0	20					

1949, July

RIVERVIEW COLLEGE OBSERVATORY

SEISMOLOGICAL BULLETIN

No.	Date	Phase	Time (G.M.T.) h m s	Per. s	Amplitude A_N μ	A_E μ	A_Z μ	Δ km.	Remarks
	1949								
204	July 10	PZ	04 07 (43)					11,600	P begins under
		iPP_Z	12 03	6			+9	104°.4	paper clip.
		$iPPP_Z$	14 17	6			+6		H 03 53 36
		$iSKS_{NE}$	18 26	8	-10	+12			(from Gutenberg's
		i_{NE}	18 40	8	-16	+14			Tables)
		iS_N	19 37	9	-25				
		iPS_E	21 22	9		+16			Heavy microseisms
		i_Z	21 25	9			+17		present.
		i_Z	23 19	9			+14		
		iSS_E	26 41	10		+14			
		i_N	26 51	7	+11				
		i_{NE}	27 03	8	-17	-14			
		i_N	27 20	7	+19				
		i_N	27 35	8	+13				
		i_E	28 22			+			
		$iSSS_N$	30 50	8	-12				
		i_N	31 37	12	-19				
		e_E	31 53	30					
		i_E	35 05	7		+12			
		i_Z	35 12	12			+20		
		i_E	35 20	17		-14			
		eLQ_{NE}	37.1	32					
		e_E	39.1	35					
		eLR_{NE}	41.3	33					
		LR_{EZ}	45.7	40					
		LR_N	48.4	40					
		MN	54.3	22	46				
		MEZ	58.8	22		85	115		
206	" 10	iP_Z	16 38 10	5			+5		Compression
		iPP_Z	42 25	5			+4		Aftershock of
		$eSKS_{NE}$	48 48	8					No.204.
		iPS_E	51 35	7		+6			Heavy microseisms
		eLQ_N	17 07.6	?					present.
		eLR_E	11.7	34					
		eLR_E	15.6	38					
		MN	25.4	20	6				
		MEZ	29.4	21		6	7		
207	" 11	iP_Z	16 21 57	4			-4		Dilatation.
		ipP_Z	22 06	4			+4		
		iPS_N	31 30	6	-5				
208	" 11	iP_Z	16 35 31	4			+4	4460?	Compression.
		i_Z	36 10	4			+4	40°.1?	H 16 27 57?
		$i(PP)_Z$	37 12	3			+4		
		$e(S)_N$	41 35						
		$i(PS)_N$	41 48	9	+5				
		i_E	42 02	5		-3			
		$i(SS)_E$	44 21	7		-4			
		i_Z	44 34	6			+6		
		i_E	44 53	6		+4			
		$i(ScS)_N$	45 37	5	-6				
		MEZ	51.0	21		11	9		
211	" 14	eP_Z	19 45 47					2810	
		eS_E	50 08					25°.3	
		eSS_{NE}	51 08						
		eL_Z	52.8	20					
		MNEZ	54.9	18	1	1	1		
213	" 14	$e(P)_Z$	23 30 56						
		$i(pP)_N$	32 31	5	+2				h 0,65 ca.
		$i(S)_N$	39 18	5	+2				
		i_E	40 28	5		+1			
		$i(sS)_E$	41 56	7		+2			
214	" 15	$e(P)_Z$	09 21 21						
		$e(S)_N$	26 14						
		e_N	26 24	16					
		eLR_Z	29.2	28					
		MNEZ	31.0	20	3	2	3		
214a	" 17		14 58.5						Small local tremor

RIVERVIEW COLLEGE OBSERVATORY
SEISMOLOGICAL BULLETIN.

No.	Date	Phase	Time (G.M.T.)	Per.	Amplitude A_N	Amplitude A_E	Amplitude A_Z	Δ	Remarks
	1949		h m s	s	μ	μ	μ	km.	
215	July 18	eP_Z	00 40 59					4800	H 00 33 00
		iS_N	47 23	7	-5			43°2	
		i_E	47 29	7		-6			
		iSS_N	50 33	7	-10				
		$iScS_N$	50 54	6	-14				
		$iSSS_E$	51 17	7		+8			
		ME	55.7	19		18			
		MN	56.0	19	17				
		MZ	59.7	17			14		
216	" 18	iP_Z	04 50 16	4			-3	5180	Dilatation
		ipP_Z	50 43	4			+3	46°6	h 0.015
		i_Z	50 52	5			+6		H 04 41 59
		i_{PNZ}	52 04	5	+6		-7		
		iS_N	56 53	4	-4				
		iS_E	56 58	6		-3			
		isS_N	57 43	4	+7				
		iSS_N	05 00 15	8	+7				
		iSS_E	00 19	8		+9			
		ME	07.3	18					
		MN	09.3	15					
217	" 18	iP_{EZ}	08 33 25	3		-1	+6	3020	Compression
		iS_E	37 29	4		+10		27°2	h 500km., H 08 28 16
		$iScS_N$	43 10	4	-3				(Gutenberg's tables
218	" 19	$i(P)_Z$	15 05 26	4			-4		Dilatation
		i_N	13 08	5	+6				Masked by heavy
		i_E	13 11	5		+5			microseisms.
		i_Z	13 49	6			-4		
		i_N	15 46	5	+6				
		i_E	16 54	4		+5			
219	" 20	iP_Z	22 29 15	4			-6	5680	Dilatation
		iS_E	36 24	6		+4		51.1	H 22 20 14
		iSS_E	39 58	9		-4			
		eLR_Z	44.1	23					
		MN	48.3	13	14				
		MEZ	50.2	16		8	9		
220	" 23	iP_{NEZ}	10 31 30	4	+27	+35	-32	2470	Dilatation
		iN	31 56	4	+5			22°2	h 0.02
		i_E	31 58	4		-12			H 10 26 46
		ipP_Z	32 04	4			-11		All readings
		i_E	32 11	4		-17			from the
		i_E	32 35	4		-16			Wiecherts.
		i_N	33 03	4	+21				
		iS_{NE}	35 19	5	-48	+18			
		i_E	35 27	5		+70			
		i_N	35 31	6	-66				
		isS_N	36 13	5	+18				
		i_E	36 21	5		+37			
		$iScS_E$	42 29	5		+20			
221	" 23	$ePKP_Z$	15 22 57	6				15,000	
		ePP_Z	25 31	9				135°	From Gutenberg's
		i_E	26 33	7	-7				tables.
		i_Z	26 37	7			+4		
		i_Z	30 29	5			-6		
		$eSKKKS_E$	32 37	9					
		$e(SKSP)_E$	35 49	13					
		$iPPS_Z$	37 44	7			+4		
		$iPPS_E$	37 51	7		-7			
		eLR_N	16 05.5	25					
		MN	18.8	22	4				
		ME	21.6	23		4			
		MZ	22.0	20			7		
224	" 27	iP_Z	11 08 26	4			-5	4060	Dilatation
		i_E	13 51	6		-3		36°5	H 11 01 22
		iS_E	14 05	6		+4			
		iS_N	14 06	6	-4				
		i_N	16 16	5	+8				
		e_E	18.8	31					
		MNE	21.1	15	16	14			

1949, July-August.
RIVERVIEW COLLEGE OBSERVATORY
SEISMOLOGICAL BULLETIN.

No.	Date	Phase	Time (G.M.T.)	Per.	Amplitude AN	Amplitude AE	Amplitude AZ	Δ	Remarks
	1949		h m s	s	μ	μ	μ	km.	
225	July 27	iP$_E$Z	15 17 36	5		-10	+18	3170	Compression
		ipPZ	17 46	4			-7	28°5	H 15 11 42
		i$_E$Z	18 07	6		-10	+15		
		iZ	18 21	6			+14		
		iPPE	18 27	6		-30			
		iZ	18 32	6			-46		
		i$_N$	18 35	6	+5				
		i$_N$	19 15	6	+17				
		iS$_N$	22 20	8	-14				
		iE	22 52	8		+26			
		i$_N$	24 02	9	-30				
		eLRZ	24.6	24					
		MEZ$_1$	26.7	22		55	87		
		MN$_1$	27.3	15	68				
		MEZ$_2$	29.0	16		56	71		
		MN$_2$	30.7	12	58				
227	" 29	e(P)Z	06 58 44	5					
		e(S)E	07 02 55	7					
		eL$_{NE}$	04.3	18					
		MN	06.9	18	4				
		ME	07.1	12		3			
		MZ	07.3	18			6		
228	" 29	iZ	07 17 26	3			+4		Superposed on 227
229	" 29	e(P)Z	10 07 00	5					
		e(S)E	11 16	7					Repetition of No. 227.
		eL$_{NE}$	12.7	18					
		ME	15.1	12		2			
		MNZ	15.4	18	4		5		
Minor shocks: 3d 07.9h; 9d 15.2h; 10d 16.3h; 13d 20.7h; 14d 19.2h,21.1h; 23d 19.8h; 25d 12.0h; 30d 04.0h; 31d 07.1h.									
233	Aug. 1	e$_N$	08 09 26	13					
		MN	13 25	12	4				
		MZ	13 47	15			3		
236	" 4	iPZ	07 57 18	6			+4		Compression.
		S?N	08 01 30						
		e(sS)$_N$	01 47						
		eZ	02 01	13					
		eLQ$_N$	02.2	22					
		MNZ	06.6	21	5		4		
238	" 5	ePPZ	19 29 19	6					
		eZ	29 55	11					
		iZ	31 12	5			+5		
		e(S)$_N$	37 35	14					
		ePSZ	39 36						
		ePPS$_Z$	41 12						
		e$_N$	46 06	9					
		eSSZ	46 17	16					
		e$_N$	46 31	33					
		eLQ$_N$	20 00.3	27					
		eLR$_Z$	05.4	30					
		MNEZ	10.4	19	5	6	11		ME from Wiechert.
239	" 6	iP$_{NEZ}$	00 42 16	7	+	+	-22	3700	Dilatation
		ipP$_{NEZ}$	42 31	7	+	+	-20	33°3	h 0.005
		iPPE$_Z$	43 27	6		-	+25		H 00 35 42
		i$_{NEZ}$	43 36	7	+4	+6	-28		
		iPPP$_{NEZ}$	43 47	6	+4	-	+49		NS & EW amplitudes from Wiechert.
		iNZ	44 07	6	+2		+35		
		iE	44 11	6		+22			
		iS$_N$	47 31	7	+5				
		iE	47 43	7		-5			
		isS$_N$	47 57	7	-5				
		iZ	48 36	6			-30		
		i$_N$	49 19	7	-6				
		eLRZ	51.3	24					
		iScS$_{NE}$	52 41	5	-16	+35			
		MEZ	52.8	23		510	460		
		MN	54.8	12	71				

RIVERVIEW COLLEGE OBSERVATORY
SEISMOLOGICAL BULLETIN.

No.	Date	Phase	Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
					A_N	A_E	A_Z		
	1949		h m s	s	μ	μ	μ	km.	
243	Aug. 12	ePZ	23 20 56					2660	H 23 15 44
		iPPNEZ	21 26	6	+5	+3	-10	23°9	
		iNZ	21 33	6	+8		-16		
		iZ	21 51	7			-8		
		i_N	21 52	6	+5				
		iS_N	25 07	6	-10				
		i_N	25 14	6	-9				
		iEZ	25 19	7		-7	+10		
		eLQ_N	25.9	15					
		iSSZ	25 57	6			+9		
		i_E	26 03	6					
		eLRZ	27.1	18					
		MNZ	29.8	14	6		2		
		$iScS_E$	31 54	5		+4			
244	" 13	ePZ	18 31 35	6				3790	H 18 24 51
		iZ	31 43	6			+3	34°1	
		iPPNZ	32 53	6	+4		-3		
		iNZ	32 58	6	+9		+4		
		iS_E	36 58	7		+13			
		i_{NZ}	38 01	9	-11		+8		
		iSS_E	39 07	?		-			
		$iSSS_E$	39 31	?		-			
		i_E	39 37	?		+			
		i_E	40 03	8		+35			
		LE	40 09	37					
		eLR_E	40.6	30					
		MNEZ	45.4	16	60	96	61		
247	" 17	iPZ	18 45 54	3			-4	8600	Dilatation
		ipP_Z	46 16	3			+2	77°4	h 0.01
		eS_N	55 33	6					H 18 34 08
		eS_E	55 35	6					
		$eScS_N$	56 00	5					
		ePS_N	56 27	11					
248	" 17	e_E	19 06 10						
		e_E	12 52						
		$ePPS_E$	16 30						
		e_E	18 04						
		$e(SSP)_E$	22 14						
		e_N	24 17						
		e_E	25 12						
		e_N	25 51						
		e_E	30 01						
		eLQ_N	36.4	24					
		eLR_N	42.3	40					
		MN	50.5	24	9				
		MEZ	58.2	22		17	22		
249	" 18	e_E	14 11 27						
		eLRZ	33.3	24					
		MEZ	38.6	19		2	4		
250	" 22	iPKPZ	04 19 32	6			+6	12,170	Compression
		iZ	19 58	6			+6	109°5	
		iPPZ	20 18	6			-8		
		eZ	20 34	9					
		iZ	21 14	5			+9		
		iZ	21 21	8			-15		
		iPPPZ	22 11	8			+9		
		iZ	23 29	8					
		i_E	24 09	7		-5			
		i_N	24 12	7	+14				
		eZ	24 14	12					
		eZ	24.9	14					
		i_E	24 59	8		-8			
		i_N	25 03	7	+12				
		$iSKS_N$	26 36	10	+17				
		i_E	27 21	7		+9			
		iZ	27 24	8			+15		
		iZ	27 36	8			+16		
		iS_N	27 41	10	+13				

(Continued overleaf)

1949, August-September.

RIVERVIEW COLLEGE OBSERVATORY

SEISMOLOGICAL BULLETIN

No.	Date	Phase	Time (G.M.T.)	Per	Amplitude			Δ	Remarks
					A_N	AE	AZ		
	1949		h m s	s	μ	μ	μ	km.	
250	Aug.22	i_E	04 28 13	10		+24			
cont.		e_E	28 57	12					
		ePS_E	29 21	23					
		i_N	29 27	7	-13				
		$iPPS_N$	30 32	15	+19				
		i_N	31 09	13	+37				
		iSS_E	35 38	20		+80			
		iSS_N	35 41	15	-54				
		$iPSPS_N$	35 59	10	+77				
		i_N	39 26	7	+28				
		$eSSS_N$	39 46	19					
		eLQ_{NE}	45.8	48					
		eG_{NE}	46.3	48					
		MNZ	05 02.0	20	130		170		
		ME	06.5	19		130			
		eG_2N	45.1	80					
		eW_2N	06 06.4	25					
		MN	11.9	19	23				
252	" 23	$e(PP)_Z$	20 43 26	6					Aftershock of No.250
		$i(SKKS)_{NE}$	49 48	9	-5	-4			
		$i(S)_N$	50 38	8	+5				
		$i(S)_E$	50 41	8		+2			
		$i(PS)_{NZ}$	52 58	9	+4		-9		
		$i(PS)_E$	53 00	7		+4			
		e_N	56 49	13					
		i_N	58 47	6	+5				
		e_E	58 54	12					
		e_E	59 10	19					
		e_E	21 00 58	16					
		LR_{EZ}	13.9	32					
		MNEZ	22.5	19	2	6	8		
253	" 24	iPZ	06 32 08	3			-2		Dilatation
		eL_N	39.5	19					
		$iScS_E$	42 31	6		+4			
255	" 25	$e(PP)_N$	23 33 28						P lost when changing records
		$i(S)_N$	37 36	7	-21				
		i_E	39 23	4		+11			
		MEN	44.6	7	40	29			
		MZ	47.6	14			33		
256	" 30	ePNZ	07 25 38					2380	H 07 20 51
		eS_E	29 28	7				21°4	
		$iPcP_{NE}$	29 41	5	+3	+3			
		eLQ_E	29.8	15					
		eLR_Z	30.8	24					
		MNEZ	32.0	14	3	3	3		
259	" 30	i_E	23 09 16	5		+3			
		i_E	09 26	5		+4			
		i_N	09 28	5	-5				
		eL_E	10.3	15					
		MZ	12.4	10			2		

Minor shocks: 01d 05.1h; 2d 23.7h; 3d 21.0h; 5d 07.1h; 6d 12.2h; 7d 23.9h; 8d 04.3h; 14d 17.3h; 17d 17.5h; 23d 18.1h; 24d 10.4h; 30d 09.3h, 18.1h; 31d 00.5h.

261	Sept.1	$e(S)_N$	14 21 29						
		$e(S)_E$	21 31						
		ePS_E	22 26	20					
		$ePPS_E$	22 48	20					
		eSS_{EZ}	27.2	17					
		eLR_Z	37.7	30					
		MNEZ	45.8	16	1	1	2		
263	" 4	$e(PP)_Z$	15 04 11						
		eS_E	08 36						
		e_N	11 09	18					
		eLR_E	13.6	24					
		MN	15.3	14	2				
		MEZ	16.8	18		4	4		
265	" 7	$i(P)_Z$	11 04 40	5			+5		Compression
		eL_E	10.8	18					

RIVERVIEW COLLEGE OBSERVATORY

SEISMOLOGICAL BULLETIN

No.	Date	Phase	Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
					A_N	A_E	A_Z		
	1949		h m s	s	μ	μ	μ	km.	
266	Sept.7	ePP_Z	13 37 38	6					P masked by microseisms.
		iS_N	41 22	6	-3				
		iSS_{NE}	42 36	7	+6	+5			
		iSS_Z	42 37	7			+4		
		eLR_E	43.8	23					
		MEZ	45.5	19		3	3		
		MN	46.6	15	2				
268	" 9	iP_Z	08 11 07	3			+4	2780	Compression
		iS_N	15 26	6	-4			25°0	H 08 05 45
		iS_E	15 27	6		-4			
		i_E	15 45	6		-6			
		eLR_Z	17.4	21					
		MNE	20.0	14	12	20			
271	" 12	$iPNEZ$	09 21 47	6	+13	+14	-30	2390	Dilatation
		iNEZ	21 50	6	-8	-21	+44	21°5	H 09 16 59
		ipP_Z	21 56	6			+24		
		iNEZ	21 59	6	+21	+32	-55		
		iPP_{NZ}	22 14	6	-7		-22		
		$iPPP_E$	22 21	7		+26			
		iZ	22 26	7			+28		
		iS_N	25 38	9	+				
		iS_E	25 39	8		+15			
		$iPcP_Z$	25 49	5			+11		
		isS_E	25 53	9		-28			
		isS_N	25 54	9	+				
		i_E	25 59	7		+18			
		eLR_{EZ}	27.0	26					
		MEZ	28.7	18		70	72		
		MN	29.0	15	34				
273	" 13	eP_Z	06 58 20					4670	
		$e(PP)_Z$	59 54	10				42°0	
		eS_N	07 00 36	10					
		eL_E	11.4	28					
		MEZ	15.0	18		4	5		
		MN	16.2	16	5				
274	" 13	$e(P)_Z$	12 02 51						
		$e(PP)_Z$	04 22						
		$e(S)_N$	08 53						
		eL_N	16.1	22					
		MNEZ	20.6	16	4	4	3		
277	" 14	eP_Z	16 47 55	9				5710	H 16 38 51
		eN	52 19	10				51°4	
		eS_E	55 11	8					
		iS_N	55 14	7	-4				
		iN	55 35	7	-8				
		$e(SS)_N$	58 37	20					
		eLQ_{NE}	59.9	28					
		MNEZ	17 04.5	16	5	7	6		
278	" 14	iP_{NEZ}	19 58 10	4	-6	+4	+13	4670	Compression
		iPP_Z	59 56	7			+25	42°0	H 19 50 20
		$iPcP_Z$	20 00 06	3			+16		
		$iPPP_N$	00 16	10	+32				
		iS_N	04 26	12	-74				
		iS_E	04 29	12		+56			
		iZ	04 33	7			+25		
		iN	04 34	7	+130				
		i_E	04 40	7		+59			
		$eNEZ$	05.1	33					
		iSS_{NZ}	07 28	10	+58		+27		
		iEZ	07 33	9		+40	-62		
		iN	07 35	8	+120				
		iNE	07 47	7	-72	-53			
		iZ	07 48	7			-77		
		eLR_E	09.5	42					
		ME	14.9	21		170			
		MN	15.2	20	160				
		MZ	15.9	20			140		
		eW_2NZ	22 43.8	23					

1949, September.

RIVERVIEW COLLEGE OBSERVATORY

SEISMOLOGICAL BULLETIN

No.	Date	Phase	Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
					A_N	A_E	A_Z		
	1949		h m s	s	μ	μ	μ	km.	
279	Sept.16	$e(S)_E$	19 25 15	13					Masked by large microseisms.
		e_E	26 27	15					
		$e(SS)_E$	28 15	13					
		i_N	29 06	6	+8				
		eL_E	33.8	24					
		MNEZ	39.8	17	5	10	8		
280	" 17	$i?_Z$	15 25 57						Masked by micro-seisms.
		i_N	32 42	6	+3				
		i_N	32 57	6	-3				
		iNZ	33 05	8	+14		-11		
		eL_E	35.6	24					
		eLR_Z	36.6	24					
		MNEZ	38.5	15	9	10	10		
281	" 17	i_Z	22 56 29	5			-4		
		e_Z	57 15						
		$i(S)_{NE}$	23 00 37	9	-6	-5			
		eL_{NE}	03.6	19					
		MZ	05.9	22			14		
282	" 19	eP_Z	21 55 12	3				10,180	H 21 42 07
		iS_E	22 06 07	9		-4		91°.6	
		eSS_N	12 18	15					Gutenberg's Tables give: Δ 10,060 km. 90°.5, H 21 42 07
		$e(SSS)_E$	15 27	16					
		eLQ_E	18.8	22					
		eLR_E	22.2	32					
		MNEZ	32.4	20	4	2	4		
283	" 20	iP_{EZ}	12 01 02	4		-7	+13	2900	Compression
		ipP_Z	01 11	7			+10	26°.1	H 11 55 29
		iEZ	01 25	7		+14	+18		
		$iPPP_E$	01 58	7		+11			
		iS_E	05 29	9		+6			
		$i(sS)_E$	05 49	9		-9			
		iZ	05 58	10			+19		
		i_N	06 11	7	+6				
		i_N	07 03	10	+14				
		i_{NE}	07 20	10	+18	+17			
		eLR_Z	07.4	30					
		i_N	08 36	10	+25				
		MNEZ	10.3	18	16	36	60		
284	" 21	ePP_Z	13 15 42	20				13,200ca	
		iZ	16 01	7			-3	119°ca	
		$eSKS_E$	20 56	9					
		e_E	21 32	15					
		e_E	21 47	15					
		iS_E	23 01	8		-5			
		ePS_{EZ}	24 56	18					
		e_E	25 07	16					
		iZ	25 53	9			+7		
		iE	25 58	12		+9			
		e_E	27 22	21					
		eSS_N	31 21	19					
		$ePSPS_E$	32 11	16					
		$eSSS_N$	35 57	23					
		eLQ_N	43.7	26					
		eG_N	45.5	26					
		eLR_{EZ}	50.0	33					
		MNEZ	59.0	19	1	2	3		
		eW_2EZ	14 54.0	31					
285	" 21	eP_Z	18 26 54	6				4310	H 18 19 31
		iPP_{EZ}	28 35	7		-3	+3	38°.8	
		eS_E	32 49	7					
		isS_E	33 06	7		+4			
		eLQ_N	35.4	19					
		eLR_Z	37.2	21					
		$i(ScS)_N$	37 19	7	-8				
		MN	38.9	14	5				
		ME	39.6	19		4			
		MZ	41.4	18			10		

1949, September.

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SEISMOLOGICAL BULLETIN.

No.	Date	Phase	Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
					A_N	A_E	A_Z		
	1949		h m s	s	μ	μ	μ	km.	
287	Sept.24	ePNZ	04 23 28					3120	
		iPNZ	23 32	6	-6		+10	28°1	Compression
		iPPZ	24 16	6			-10		H 04 17 36
		ePPPZ	24 30						
		iS_E	28 09	7		+13			
		iS_N	28 13	0	+37				
		isS_E	28 25	8		-19			
		isS_N	28 26	8	-35				
		iZ	28 29	7			+10		
		iE	28 55	9		+44			
		iNE	29 17	8	+9	-24			
		iSS_E	29 32	8		+24			
		iSS_N	29 33	8	+41				
		eLR_N	30.5	19					
		ME	32.8	15		81			
		MN	33.8	13	86				
		MZ	35.8	15			76		
289	" 25	e(P)Z	02 47 32						Masked by micro-
		eSE	51 29						seisms.
		iE	51 37	7		-13			
		iN	51 40	7	+11				
		eLQ_E	52.0	19					
		eLR_N	53.0	18					
		MNEZ	55.0	10	11	10	6		
291	" 25	iP_NZ	15 20 50	6	+		-4	3160	Dilatation
		ipP_N	20 58	5	+6			28°4	H 15 14 57
		ipPZ	21 02	4			+6		
		iN	21 28	4	+6				
		iPPPZ	21 51	4			+5		
		iN	25 23	4	+8				
		iS_E	25 33	6		+7			
		iS_N	25 36	7	+21				
		isS_N	25 49	5	+10				
		iNZ	25 54	9	+45		-18		
		iSS_N	26 56	7	+18				
		iN	27 29	6	+17				
		eLR_E	28.6	19					
		ME	30.4	15		23			
		MNZ	33.1	15	42		47		
293	" 26	iP_NZ	03 11 05		+		-	3110	Dilatation
		iS_E	15 45			-		28°0	H 03 05 15
		iN	16 06	7	+6				Microseisms
		eLE	18.9	19					present.
		MNEZ	22	14	11	10	12		
294	" 26	ePN	08 10 05						
		SNE	14 47						
		iN	15 08	8	+1				
		iE	15 30	7		+7			
		eLE	17.2	27					
		MNE	20	14	11	15			
		MZ	22	18			8		
296	" 26	ePZ	22 37 46					3120	
		iPP_N	38 33	6	-6			28.1	H 22 32 55
		iS_N	42 27	8	+6				
		iNE	42 46	7	+7	+8			
		eLQ_E	43.8	19					
		eLRZ	44.9	25					
		ME	47.5	15		10			
		MZ	53.0	15			12		
297	" 27	ePZ	12 01 15					4450	
		iS_N	07 18	6	+3			40°0	
		eLE	13.4	19					
		MEZ	17.3	15		5	7		
		MN	18.1	13	13	5			

1949, September.

RIVERVIEW COLLEGE OBSERVATORY

SEISMOLOGICAL BULLETIN.

No.	Date	Phase	Time (G.M.T.)	Per.	Amplitude A_N	Amplitude A_E	Amplitude A_Z	Δ	Remarks
	1949		h m s	s	μ	μ	μ	km.	
298	Sept.27	$iSKS_N$	15 55 35	7	+9				Masked by micro-seisms.
		eE	55 39	18					
		i_N	55 50	7	+10				
		iS_E	56 54	7		-6			
		iS_N	56 57	7	+4				
		i_E	57 06	7		+6			
		ePS_N	58 32	15					
		i_N	58 41	17					
		eSS_Z	16 04 10	18					
		iSS_{NE}	04 16	18					
		e_N	07.9	30					
		$e(SSS)_E$	08 47	23					
		eLQ_E	14.2	30					
		eL_N	15.4	21					
		eLR_Z	19.3	30					
		MNZ	27.3	21	17		33		
		ME	28.3	21		16			
299	" 27	iP_{NZ}	17 17 55	3	-3		-3	2220	Dilatation
		iPP_Z	18 03	3			+4	20.0	H 17 13 22
		iS_N	21 33	7	+9				
		eLR_Z	22.7	18					
302	" 30	eP_{EZ}	04 05 07					3500	H 03 58 46
		iPP_{EZ}	06 07	6		-5	+6	31°5	
		$iPPP_{EZ}$	06 24	6		+7	-6		
		eS_E	10 12						
		i_Z	10 32	12			-12		
		e_E	10 54	15					
		eSS_N	11 54	11					
		$eSSS_N$	12 17	12					
		eLR_E	13.4	27					
		MN	15.9	15	33				
		MEZ	16.8	17		27	33		
303	" 30	iP_{NZ}	08 55 33	6	+2		-3	3210	Dilatation
		iPP_Z	56 35				+	28°9	H 08 49 35
		iS_N	09 00 20	8	+6				
		i_{NZ}	00 38	8	+17		-7		
		eLR_Z	03.5	25					
		MNEZ	06.0	14	15	11	14		
304	" 30	iP_{NEZ}	15 20 40	6	+2	+5	-7	2420	Dilatation
		i_{NEZ}	21 00	6	+4	+7	-10	21°8	H 15 15 49
		i_E	21 11	6		+9			
		iS_{NE}	24 34	7	-7	+6			
		$iPcPZ$	24 37	7			-13		
		i_E	24 42	7		+26			
		i_Z	24 44	7			+19		
		iSS_Z	25 09	7			-15		
		eLR_Z	25.8	25					
		MEZ	28.1	17		11	14		
		MN	28.5	13	15				
306	" 30	eP_Z	18 25 49					3540	H 18 19 23
		iPP_{EZ}	26 50	6		-3	+3	31°8	
		$iPPP_{EZ}$	27 10	6		-4	+4		
		eS_E	30 56						
		i_E	31 56	9		+5			
		MNE	37.3	13	15	10			
		MZ	37.7	15			15		
307	" 30	eP_Z	22 13 14						
		iPP_{EZ}	14 12	6		+3	-4		
		i_E	19 15	7		+4			
		eLR_Z	20.1	?					
		MN	23.6	15	14				
		MEZ	24.0	18		13	18		

Minor shocks: 1d 19.4h; 3d 03.1h; 9d 18.3h. 20.8h; 12d 10.9h; 13d 14.0h; 14d 16.7h; 22d 07.1h; 24d 07.8h; 25d 04.6h, 16.2h; 26d 10.5h; 28d 00.0h, 15.3h; 30d 16.9h.

D.J.K.O'Connell,S.J.
Director.

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P.F.Rheinberger.

Riverview College Observatory

RIVERVIEW. N.S.W.

SEISMOLOGICAL BULLETIN

$\Phi = 33° 49' 46''$ S $\lambda = 151° 9' 30''$ E. h = 25m. Foundation : Triassic Sandstone.

INSTRUMENTS :

1. Wiechert Astatic Pendulum Seismometer (1000 kilo.) (NS, EW)
2. Wiechert Vertical Seismometer (80 kilo.)
3. Mainka Conical Pendulum Seismometer (450 kilo.) (NS, EW)
4. Galitzin Aperiodic Seismometer with Galvanometer registration (NS, EW, Vert)

		V	T_o	$\epsilon : 1$	$\frac{r}{T_o^2}$		T_1 (Galv.)	T (Pend)	μ^2	V_s
N	1 3	204	7.4	5.6	0.002	4	11.8	11.9	+0.04	410
E	1 3	240	7.0	5.5	0.002	4	12.3	12.2	-0.02	490
Z	2	61	5.2	3.5	0.015	4	11.0	11.0	0.0	450

No.	Date	Phase	Time (G.M.T.)	Per	Amplitude A_N	Amplitude A_E	Amplitude A_Z	Δ	Remarks
	1949		h. m. s.	s.	μ	μ	μ	km.	
314	Oct. 3	i(P)Z	12 50 26	4			-4		Dilatation
		eSN	55 25						
		eLRZ	59.0	24					
		MNZ	13 00.6	23	4		8		
		ME	00.7	16		3			
318	" 4	iPKPZ	10 40 17	3			-4	16,000ca	Dilatation
		eZ	40 56					144°ca	
		iZ	41 02	4			+5		
		eSSE	11 02 16	18					
		eSSSE	07 30	18					
		eGE	20.2	35					
319	" 5	ePZ	19 12 57					3140	H 19 07 04
		iZ	13 03	6			-7	28.2	
		eSNE	17 39	8					
		iN	17 57	8	-7				
		eLRZ	20.9	30					
		iE	22 42	8		+25			
		MN	22 51	16	12				
		ME	23.0	15		19			
		MZ	23.5	18			16		
322	" 7	i?Z	08 33 02	3			+3		
		iN	38 22	7	+6				
		iN	39 20	6	+5				
323	" 7	iPNEZ	12 14 04	6	+5	+4	+14	8350	Compression
		i(pP)Z	14 19	6			+10	75°1	H 12 02 24
		iSNE	23 39	8	-14	+4			
		iScSE	24 02	6		+5			
		iPSE	24 10	8		+9			
		iN	24 15	8	-13				
		iPPSE	24 24	8		+10			
		iSSN	28 15	8	-8				
		eLRZ	37.5	30					
		ME	41.3	18		23			
		MZ	42.2	18			21		
		MN	43.2	18	25				
		eW2EZ	14 32	20					
328	" 11	ePEZ	11 42 20	6					
		iZ	42 40	6			+6		
		iSSN	47 18	7	+6				
		iSSSN	47 31	7	+8				
		eLRZ	48.6	35					
		MNEZ	50.4	20	6	5	9		

1949, October.

RIVERVIEW COLLEGE OBSERVATORY,

SEISMOLOGICAL BULLETIN.

No.	Date	Phase	Time (G.M.T.) h	m	s	Per.	Amplitude AN	AE	AZ	Δ	Remarks
	1949					s	μ	μ	μ	km.	
330	Oct.13	ePEZ	03	42	17	5				3910	H 03 35 24
		iPPEZ		43	32	5		-2	-3	35°2	
		iPPPEZ		43	59	5		-3	+3		
		eSN		47	48						
		eSSE		50	03	15					
		eSSSN		50	34	21					
		eLRE		52	.0	23					
		i(ScS)E		52	45	6		-3			
		MEZ		55	.8	16		9	12		
		MN		55	.9	12	8				
337	" 19	ePNZ	21	06	07	6				3250	
		iPNZ		06	15	8	+21		-29	29°2	Dilatation
		ipPNZ		06	40	6	+23		-38		h 0.01
		iN		07	06	6	+17				H 21 00 25
		i(PP)Z		07	11	8			+84		
		iN		07	16	9	+84				
		iNZ		07	55	8	+69		-76		
		iPcPZ		09	26	7			+44		
		iSN		10	59	12	+55				
		iE		11	27			-			
		iE		11	32	12		+56			
		isSN		11	43	12	+225				
		iE		11	52	12		-92			
		iZ		11	54	6			+86		
		iN		11	56	12	-435				
		iE		12	08	12		+180			
		eLE		13	.0	32					
		eLRZ		14	.3	36					
		MN		16	.2	21	1000				MN, ME & i(ScS)
		i(ScS)E		16	40	6		-44			from Wiechert
		ME		17	.1	14		525			
		e(W2)Z	23	36		35					
		MNZ		43		30	7		9		
342	" 20	iPNEZ	12	50	57	6	-22	-3	+36	(3290)	Compression
		iNZ		51	07	6	-15		+23	(29°6)	h 0.02?
		iNZ		51	24	6	-4		+9		H 12 45 05
		i(pP)Z		51	31	6			+45		
		i(pP)N		51	32	6	-32				
		i(PP)N		52	03	6	-14				
		iZ		52	06	6			-22		
		i(PPP)NZ		52	17	6	+20		-16		
		iN		55	19	7	-68				
		iSE		55	39	8		-27			
		iN		55	51	8	+39				
		iN		56	14	12	-110				
		iEZ		56	19	10		-61	-28		
		i(sS)EZ		56	38	10		+65	-25		
		i(SS)NZ		57	22	10	+33		+23		
		iE		58	08	7		-85			
		eLRNZ		59	.0	28					
		iE		59	15	8		+105			
		ME	13	01	.1	12		38			
		MNZ		03	.1	14	65		68		
		eW2Z	15	41	.0	22					
346	" 21	iPNZ	21	40	15	3			+4	3200	Compression
		ipPZ		40	29	3			+10	28°8	H 21 34 20
		iZ		40	32	5			-14		h 0.005
		iSNE		44	58	10	-24	+8			
		isSNZ		45	23	15	+90		-45		
		isSE		45	24	15		+22			
		iE		46	12	10		-20			
		eLQE		46	.4	25					
		iE		46	56	7		+17			
		eLRE		47	.7	22					
		MEZ		49	.9	21		38	87		
		MN		50	.3	21	57				

1949, October.

RIVERVIEW COLLEGE OBSERVATORY

SEISMOLOGICAL BULLETIN.

No.	Date	Phase	Time (G.M.T.)	Per	Amplitude AN	Amplitude AE	Amplitude AZ	Δ	Remarks.
	1949		h m s	s	μ	μ	μ	km.	
347	Oct.22	ePZ	01 15 08					5620	H 01 06 10
		iPPZ	17 11	6			-3	50°6	
		eSNE	22 19	11					
		ePSNE	22 31	11					
		eE	25 02	11					
		eSSNE	25 42	12					
		e(L)N	30.1	15					
		eLZ	33.2	?					
		MNEZ	38.3	18	2	1	1		
349	" 23	eZ	05 19 06						Obscured by microseisms.
		e(S)N	23 44	8					
		e(sS)N	24 44	8					
		iN	25 31	6	+5				
		MNEZ	32.5	12	2	2	2		
354	" 26	ePZ	09 19 08	9				3210	H 09 13 10
		iSN	23 55	7	+9			28°9	
		isSNE	24 14	8	+18	+5			
		iSSN	25 21	9	-6				
		iN	25 35	9	-6				
		eLZ	27.1	21					
		MNEZ	32.3	19	14	18	20		
356	" 27	iE	10 10 20	4		+2			Obscured by microseisms.
		iZ	10 23	4			+3		
		i(S)E	13 16	7		+3			
359	" 28	iPZ	16 32 15	3			+3		Compression Perhaps deeper than normal.
		eZ	32 37						
		iZ	32 49	3			+4		
		eSN	36 53	8					
		iN	37 33	6	-4				
		iE	37 35	6		-3			
		eLNEZ	40.0	21					
		ME	42.1	13		4			
		MNZ	42.6	16	3		4		
360	" 28	iPZ	18 53 30	3			+3	3360	Compression
		eSE	57 55	8				30°2	h 0.07
		eSSN	19 00 29	10					H 18 47 58
		e(ScS)N	03 09						
361	" 28	eZ	22 25 30						
		i(S)E	30 11	7		+4			
		iN	35 41	7	+7				
		iN	36 15	4	+8				
		iE	36 16	4		-10			
		iE	36 30	4		-13			
		MNEZ	40.0	12	7	5	8		
		iE	41 45	7		+7			
363	" 29	e(P)Z	06 11 01						
		eSE	15 36	10					
		iSN	15 37	10	-4				
		eLNE	18.7	21					
		ME	21.0	13		3			
364	" 29	e(P)N	06 37 09						
		e(S)N	41 25						
		iZ	42 05	4			+4		
		iN	42 11	4	+8				
		eLN	43.4	30					
		MN	45.0	20	4				
		MEZ	46.2	16		2	2		
365	" 30	ePZ	05 38 14					2450	H 05 33 21
		ipPZ	38 24	3			-4	22°0	
		iPPZ	38 42	3			-6		
		iSN	42 10	7	-5				
		iSE	42 12	7		-6			
		iPcPZ	42 13	4			-2		
		iZ	42 22	6			-6		
		iNE	42 37	6	-7	+7			
		eLRE	43.7	20					
		MEZ	45.3	19		3	4		
		MN	45.9	13	2				

1949, October-November.
RIVERVIEW COLLEGE OBSERVATORY
SEISMOLOGICAL BULLETIN.

No.	Date	Phase	Time (G.M.T.)	Per.	Amplitude A_N	Amplitude A_E	Amplitude A_Z	Δ	Remarks
	1949		h m s	s	μ	μ	μ	km.	
366	Oct.30	iP_Z	23 59 16	3			+2	2670	Compression
		e_N	59 57					24°0	H 23 54 03
		$iPcP_Z$	00 03 01	3			+4		
		eS_N	03 28	9					
		eL_N	04.8	19					
		MN	07.3	18	10				
		MEZ	09.2	16		5	7		
367	" 31	$i(S)_N$	00 14 20	10	-17				Masked by surface
		i_Z	15 21	6			-6		waves of No.366
		$i(SS)_N$	16 43	12	+18				
		eL_Z	17.3	24					
		MN	20.5	12	32				
368	" 31	$eSKS_N$	02 04 40	7					
		ePS_N	07 51	10					
		ePSZ	07 57	10					
		eSSE	13 33	18					
		eLQ_E	27.0	23					
		eLR_N	31.8	23					
369	" 31	$i(P)_Z$	02 55 04	4			-3		Dilatation
		e_N	59 33						
		eN	59 42	10					
		i_E	59 46	7		+4			
		eL_N	03 01.2	19					
		MEZ	03.3	17		2	3		
		MN	03.7	16	2				
370	" 31	iP_{NZ}	18 01 31	6	-9		+15	3180	Compression
		ipP_{NZ}	01 50	6	48		-12	28°6	h 0.01
		iNZ	01 58	5	+14		-37		H 17 55 42
		iPP_Z	02 20	6			+16		
		$iPPP_Z$	02 39	5			+13		
		iZ	03 30	5			+13		
		$iPcP_Z$	04 43	5			-11		
		iS_{NE}	06 11	7	+19	-13			
		isS_N	06 45	9	-40				
		isS_E	06 49	9		-41			
		iSS_N	07 40	9	+35				
		eL_E	09.6	22					
		eL_{NZ}	09.8	28					
		ME	11.7	16		51			
		MNZ	12.8	15	34		32		

Minor shocks: 1d 03.8h, 07.7h & 18.9h; 2d 14.2h; 3d 09.3h, 10.1h & 23.8h; 4d 04.9h & 07.2h; 6d 01.6h & 09.3h; 7d 23.2h; 8d 11.8h; 9d 14.1h & 19.8h; 11d 20.2h; 14d 03.6h; 18d 08.9h & 15.5h; 19d 08.8h, 10.8h & 14.4h; 20d 02.6h, 08.1h, 08.8h, 11.9h & 18.4h; 21d 18.5h & 20.5h; 22d 05.3h; 25d 15.5h, 18.1h; 26d 01.7h & 08.1h; 27d 09.1h & 14.3h; 28d 12.0h; 29d 00.6h.

371	Nov. 1	iP_{NZ}	07 38 42	4	-2		+3		Compression
		$i(pP)_{NZ}$	39 11	4	+2		-4		h 0.01?
		i_N	42 44	4	+2				
		$e(S)_E$	43 23	9					
		$e(sS)_E$	44 00	8					
		eL_{NE}	46.7	24					
		ME	48.8	16		2			
		MN	49.7	16	2				
		MZ	49.9	16			3		
373	" 2	iP_{NZ}	02 39 20	6	+2		-3	3860	Dilatation
		iPP_{NZ}	40 39	6	+3		-5	34°7	H 02 32 31
		iNE_Z	40 50	4	-6	+3	+11		
		i_N	42 07	6	+6				
		i_{EZ}	42 10	4		+3	+7		
		iS_N	44 47	8	-5				
		iS_E	44 49	8		-4			
		i_N	46 25	9	-13				
		iN_E	47 19	8	+26	-14			
		$iSSS_Z$	47 27	8			+16		
		i_E	48 45	9		-31			
		MNE	53.1	14	90ca	110			
		MZ	55.9	10			90		

RIVERVIEW COLLEGE OBSERVATORY
SEISMOLOGICAL BULLETIN.

No.	Date	Phase	Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
					A_N	A_E	A_Z		
	1949		h m s	s	μ	μ	μ	km.	
375	Nov. 3	$e(S)_E$	00 17 58	7					
		eL_N	21.3	25					
		MZ	23.7	20			3		
376	" 3	iP_{NZ}	01 24 43	4	+2		-4	9200	Dilatation
		epPZ	25 21					82°8	h 0.02
		iS_E	34 46	7		-11			H 01 12 36
		iS_N	34 49	6	+3				
		$iScS_N$	35 05	6	+3				
		isS_E	35 55	8		-9			
		iPS_N	36 05	9	-8				
		MNE	51.6	16	1	3			
380	" 7	iPZ	06 04 56	4			+5	2540	Compression
		iPNEZ	05 01	4	+13	+10	-22	22°8	h 0,01 ca.
		ipPNEZ	05 19	4	+39	+30	-64		H 06 00 01
		iPPNE	05 27	5	+36	+22			
		iPPZ	05 30	5			+65		
		iE	05 31	5		-38			
		iPPPE	05 38	4		-18			
		iN	05 44	5	+14				
		iN	05 49	5	+45				
		iZ	07 05	6			-41		
		iS_E	08 54	12		+17			
		iZ	08 59	6			-		
		iN	09 01	10	-19				
		iN	09 13	10	-80				
		iE	09 21	10		+88			
		iNZ	09 26	10	+170		+115		
		isS_E	09 31	7		-190			
		iSSZ	09 41	7			+135		
		iSS_{NE}	09 43	-	-180	+115			
		$iSSS_{NE}$	10 01	9	+220ca	+140			
		iE	10 17	9		+105			
		LR_Z	10.3	34					
		ME	12.9	18		190			
		MNZ	13.7	18	190ca		270		
386	" 8	P?Z	13 37 10						
		$e(S)_N$	41 37						
		iNE	41 46	7	-4	-2			
		eLZ	43.9	18					
387	" 8	eNE	22 27 38						
		eL_E	40.4						
388	" 9	$e(SKS)_N$	23 28 08	9					
		$e(SKS)_E$	28 09	9					
		eE	34 36						
		eL_Z	47.5	24					
		MEZ	53.1	18		1	1		
393	" 13	$e(PS)_E$	05 13 27	15					
		eL_E	42.4	23					
		MZ	52.7	17			3		
394	" 13	iPZ	20 48 35	3			+4	2750	Compression
		iS_N	52 52	7	+4			24°7	H 20 43 16
		isS_N	53 07	7	+6				
		iSS_N	53 48	8	+6				
		eL_{NE}	55.5	22					
395	" 18	P?Z	08 03 29						
		iPPZ	03 57	4			+4		
		iPPPZ	04 08	4			+4		
		iS_{NE}	07 37	5	-5	+2			
		iNE	07 45	5	-7	+3			
		iNE	08 18	5	+4	-4			
		iZ	08 21	6			+3		
		iN	08 31	5	-5				
		iE	08 34	7		+8			
		iZ	08 37	7			+4		
		iN	09 06	6	+12				
		ME	10.9	16		1			
		MZ	11.9	16			3		
		$i(ScS)_E$	14 24	4		+2			

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No.	Date	Phase	Time (G.M.T.)	Per.	Amplitude A_N	Amplitude A_E	Amplitude A_Z	Δ	Remarks
	1949		h m s	s	μ	μ	μ	km.	
396	Nov.20	e(PP)Z	07 29 07						
		eN	36 40						
		e(S)NE	36 59	13					
		e(PS)E	38 37	13					
		eE	39 04	13					
		e(SS)NE	44 32	16					
		eLQN	55.8	26					
		eLRZ	08 00.9	30					
		MZ	05.6	20			11		
		MNE	06.1	19	3	11			
		eW2Z	09 17.5	21					
397	" 22	iPZ	00 57 15	6			+5	2820	Compression
		iE	57 22	5		-9		25°4	H 00 51 49
		iPPZ	57 55	5			+6		
		iPPPEZ	58 06	4		+31	-50		
		iEZ	58 12	5		-37	+41		
		iZ	58 28	7			-54		
		iN	58 37	5	-13				
		iZ	58 43	6			-51		
		iN	58 49	6	+19				
		iE	58 54	7		+32			
		iE	59 08	7		+56			
		iZ	59 20	7			-33		
		iE	59 43	7		+40			
		iPcPNZ	01 00 43	6	+36		-37		
		iSE	01 37	6		+26			
		iSN	01 42	7	+51				
		iSSNZ	02 40	8	+22		-47		
		iSSSE	02 57	10		+86			
		iN	03 03	8	~120ca				
		iEZ	03 17	8		-45	-140		
		iN	03 23	7	+				
		iZ	03 26	8			+110		
		iE	03 34	8		+80			
		eLRN	03.7	21					
		MN	05.5	16	280ca				
		MZ	07.9	16			80		
		ME	08.0	16		70			
402	" 24	eE	21 26 17						
		eZ	29 30						
		eLNE	32.5	19					
		iE	32 59	4		+10			
		iN	33 30	6	-12				
		MNEZ	36.4	14	8	4	10		
405	" 27	iPEZ	08 49 14	6		-9	+18	3880	Compression
		iPPE	50 32	7		+7		34°9	H 08 42 24
		iPPN	50 34	7	+4				
		iPPPN	50 51	6	+7				
		iN	51 06	7	+8				
		iPcPZ	51 46	4			+6		
		iSN	54 42	7	+10				
		eE	54 43	19					
		eZ	55 04	21					
		iE	55 25	9		+41			
		iZ	55 31	7			+24		
		iN	55 32	7	-12				
		iE	55 35	7		-23			
		iZ	57 29	16			-17		
		eLN	57.7	28					
		eLRZ	58.9	28					
		iScSE	59 35	7		+48			
		ME	09 00.9	21		140			
		MZ	01.1	19			140		
		MN	02.0	14	44				
		eW2Z	11 31.0	24					

Minor shocks: 1d 10.5h; 2d 03.7h; 4d 12.5h; 6d 01.2h, 02.7h; 7d 10.6h; 8d 03.3h, 03.6h, 06.2h, 09.1h; 10d 08.2h; 11d 11.7h, 16.4h; 12d 20.1h; 22d 06.8h, 10.5h, 16.4h; 23d 06.0h; 25d 05.7h, 14.6h; 29d 10.3h.

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No.	Date	Phase	Time (G.M.T.)	Per.	Amplitude AN	Amplitude AE	Amplitude AZ	Δ	Remarks
	1949		h m s	s	μ	μ	μ	km.	
408	Dec. 2	iPNEZ	02 48 27	3	+2	+2	-2	2480	Dilatation
		ipPZ	48 48	3			+2	22°3	h 0.01
		ipPE	48 49	3		-2			H 02 43 37
		iSN	52 21	4	+4				
		iPcPNEZ	52 25	4	+5	-3	-		
		isSN	53 00	7	-4				
		MN	57.1	12	1				
409	" 2	e(P)Z	19 49 28						
		e(S)N	55 09	9					
		e(SS)N	57 35	10					
		eLQN	58.0	22					
		MN	20 01.0	15	5				
412	" 6	eZ	14 36 12						
		eE	40 52						
		eLQN	42.9	19					
		MNEZ	48.9	16	4	2	3		
424	" 11	iPZ	11 38 34	3			-3	2440	Dilatation
		iNEZ	38 38	4	-3	+4	+7	21°9	H 11 33 42
		ipPEZ	38 43	6		+5	-6		
		iNZ	39 04	4	+3		-2		
		iPPPE	39 08	4		-3			
		iPPPZ	39 11	4			-4		
		iNEZ	39 18	4	+6	+5	-4		
		iSE	42 29	4		-7			
		iSN	42 30	6	+20				
		iPcPEZ	42 33	4		-6	+13		
		iZ	42 38	6			+15		
		iE	42 49	6		+9			
		iN	43 01	6	-6				
		iE	43 04	8		+5			
		eLREZ	43.8	25					
		MNEZ	44.8	19	6	5	9		
428	" 16	eZ	14 12 33						
		eE	13 36						
		eLRZ	19.0						
		MNEZ	22.6	17	6	4	5		
429	" 17	iPZ	07 06 07	4			-3	9560	Dilatation
		iPcPZ	06 11	4			+4	86°0	H 06 53 29
		ipPZ	06 19	4			+7		
		iZ	06 27	4			+5		
		iPPPZ	11 19	9			+11		
		iSN	16 37	10	-22				
		iScSE	16 43	7		+15			
		iE	17 15	7		+68			
		iN	17 24	7	-31				
		iZ	17 27	7			+16		
		iPSZ	17 39	13			+38		
		iPSE	17 43	11		+110			
		eN	17 50	15					
		iN	23 46	13	-33				
		eLQE	29.0	41					
		eLRN	33.5	31					
		MNEZ	37.9	19	85	59	120		h F 11.4
431	" 17	iPNZ	15 20 36	4	-4		-13	9560	Dilatation
		ipPNZ	20 49	6	+4		+12	86°0	H 15 07 58
		i(SKS)N	30 52	7	-9				
		iSE	31 06	10		-82			
		iScSN	31 16	7	-31				
		iZ	31 18	8			-33		
		iE	31 51	12		+63			
		iN	31 53	8	+33				
		iPSN	32 11	12	-56				
		iPSE	32 12	12		-96			
		iZ	32 21	8			-30		
		IQNE	43.3	37					
		LRZ	47.3	30					
		MNEZ	52.6	19	150	73	170		
		MNEZ	56.9	16	110	110	180		
		F	19.3						

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No.	Date	Phase	Time (G.M.T.) h	m	s	Per.	Amplitude A_N	A_E	A_Z	Δ	Remarks
	1949					s	μ	μ	μ	km.	
433	Dec.18	iP_{EZ}	05	44	02	7		-10	+15	2860	Compression
		iP_N		44	03	6	+3			25°7	h 200 km.
		i_E		44	24	7		+14			H 05 38 42
		ipP_E		44	38	7		-7			(from Gutenberg's
		i_Z		44	45	4			-13		Tables.)
		iPP_{EZ}		44	52	4		-	+		
		$i(PPP)_{EZ}$		45	06	8		+12	+59		
		i_E		46	02	9		+18			
		$iPcP_Z$		47	20	4			+5		
		i_Z		48	15	9			+19		
		iS_E		48	17	7		-20			
		iS_N		48	20	7	+18				
		i_N		48	32	7	+10				
		i_N		49	04	10	+25				
		isS_N		49	19	9	+120				
		isS_E		49	23	7		+15			
		i_E		49	40	7		-19			
		iSS_N		49	43	10	+56				
438	" 20	iP_{EZ}	04	21	55	3		+2	-6	3140	Dilatation
		e_Z		23	35	9				28°3	h 600 km.
		e_Z		24	39	10					H 04 16 43
		iS_{NE}		26	05	6	-4	+5			(from Gutenberg's
		i_E		26	35	5		+3			Tables.)
		i_N		29	08	4	+4				
		i_{NE}		29	13	5	-6	-5			
		eL_Z		29.2		20					
		$iScS_N$		31	26	6	-6				
		$iScS_E$		31	29	4		+7			
439	" 21	$i(S)_{NE}$	04	39	45	6	+6	+5			Masked by micro-
		i_N		40	04	6	-5				seisms.
		eL_N		42.7		16					
440	" 21	i_Z	13	24	12	4			+4		Masked by micro-
		e_E		27	10	9					seisms.
		eL_N		29.3		15					
441	" 21	$iSKS_N$	19	56	47	7	+6				
		$eSKS_E$		56	47	7					
		$S?_N$		58	07						
		$e(PS)_Z$	20	00	46	16					
		$i(PKKP)_{NZ}$		02	25	4	+5		+5		
		$e(SSS)_E$		11	38	16					
443	" 22	ePP_Z	09	50	46					13,300ca	
		SKS_N		56	11	6				120°ca	h 100 km.
		$eSKKS_E$		57	13	10					(from Gutenberg's
		iS_E		58	34	6		-3			Tables.)
		ePS_Z	10	00	43	18					
		$iSPP_E$		01	33	8		+6			
		$iSPP_Z$		01	36	8			+11		
		e_E		02	48	18					
		$e(SS)_Z$		07	21	15					
		e_E		07	35	20					
		$eP'P'_E$		10	18	13					
		$eSSS_E$		11	37	22					
		eLQ_N		21.2		27					
		eLR_{EZ}		26.2		30					
448	" 25	eP_Z	23	36	14					7870	H 23 24 59
		eS_N		45	25					70°8	
		eLQ_E		53.9		19					
		eLR_E		57.4		25					
		ME	00	01.4		20		3			
		MNZ		03.1		22	5		5		

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No.	Date	Phase	Time (G.M.T.) h m s	Per. s	Amplitude A_N μ	A_E μ	A_Z μ	Δ km.	Remarks
	1949								
450	Dec.26	ePNEZ	06 30 22	6					
		iPNEZ	30 28	6	-10	-16	+32		After P, phases cannot be identified.
		iN	31 00	6	+6				
		iZ	31 17	7			+10		
		iZ	31 37	7			+15		
		iZ	34 33	7			+17		
		iE	34 41	7		-29			
		iN	35 27	15	+31				
		iE	35 36	13		-52			
		iN	35 45	7	-23				
		eL$_N$	36.8	40					
		eL$_{NE}$	37.7	37					
		MN	38.5	19	260ca				
		iZ	38 49	11			-73		
		ME	39.9	24		200			
		MZ	40.2	23			240		
		eW$_2$Z	09 09.2	30					
		MNEZ	14	24					
455	" 27	iPZ	24 09 57	6			-6	9460	Dilatation
		eS$_E$	20 23					85°1	H 23 57 23
		iN	20 34	7	-10				
		iE	20 43	8		+19			Gutenberg's
		iScS$_N$	20 52	6	-19				Tables give:
		iPPS$_E$	21 47	7		-10			Δ 9560 km.,86°0
		iSS$_E$	26 23	9		+7			H 23 57 18
		eLQ$_E$	32.2	32					
		iG$_E$	32 51	26		+88			
		ME	41.6	16		12			
		MNZ	49.1	17	25		28		
457	" 29	ePZ	03 13 49						
		iPNEZ	13 59	8	-12	+8	+27	6500	Compression
		iN	14 27	7	+19			58°5	H 03 03 54
		iPcPZ	14 38	5			-17		
		i(PP)Z	16 07	6			+26		
		iPPPZ	17 23	6			+16		
		iNZ	17 39	7	-32		+48		
		iS$_N$	21 49	9	-35				
		iPS$_{NE}$	22 09	10	+24	-36			
		iPPSZ	22 16	9			+30		
		iE	22 29	7		+25			
		iScS$_N$	22 33	7	-52				
		iE	22 38	10		+41			
		iN	22 54	12	+95				
		iE	22 59	9		-27			
		iN	23 23	10	-68				
		iE	24 07	8		-31			
		iE	24 57	7		-26			
		iN	26 03	10	+46				
		iN	26 56	12	+53				
		iE	27 03	10		-53			
		iN	27 09	12	-71				
		iN	28 34	9	+59				
		LQ$_N$	29.1	25					
		LR$_E$	31.6	28					
		MNE	35.9	13	63	50			
		MZ	36.4	13			46		
		ME	40.0	15		62			
		MNZ	40.6	14	72		75		
		MZ	43.4	18			115		
	W2	MNEZ	05 53	20	4	3	5		
459	" 29	e(P)$_Z$	10 27 46						
		e(S)$_N$	35 48	7					
		e(PPS)$_N$	36 16	7					
		eLQ$_N$	42.4	20					
		MN	49.3	16	1				
		ME	50.7	16		1			

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No.	Date	Phase	Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
					A_N	A_E	A_Z		
	1949		h m s	s	μ	μ	μ	km.	
460	Dec.29	ePZ	16 48 34	9				2910	H 16 43 01
		ePE	48 36	9				26°2	
		eE	49 10	7					
		iPPZ	49 15	7			+4		
		iE	49 39	7		+4			
		iE	49 53	7		+6			
		iEZ	50 11	7		-4	+6		
		iE	50 48	7		-14			
		iS_E	53 02	7		-5			
		iSS_E	54 10	9		+6			
		$iSSS_N$	54 29	9	+13				
		iE	54 45	10		+10			
		iN	55 58	9	+15				
		eL_N	56.8	25					
		MZ	59.5	16			29		
		ME	59.8	15		21			
		MN	17 00.9	13	51				
461	" 29	iPZ	22 14 08	3			-4	4980	Dilatation
		$e_N S$	20 06	6				44°9	H 22 06 41
		$e_{NE} sS$	23 00	12					h 0.08
		i_N	27 02	5	+4				
		i_N	30 13	5	+5				
462	" 30	ePZ	01 46 44					3090	H 01 40 56
		iPPZ	47 30	6			-3	27°8	
		iPP_N	47 32	6	+4				
		iS_E	51 24	5		+3			
		isS_E	51 40	8		+5			
		eL_N	53.1	19					
		eLR_E	54.1	21					
465	" 30	ePZ	10 47 58					3170	H 10 49 04
		eSE	52 42					28°5	
		eSS_N	54 09	12					
		eLRZ	55.2	21					
		MEZ	57.5	16		2	2		
		MN	58.7	13	3				

Minor shocks: 2d 01.4h; 5d 13.8h; 6d 13.7h; 7d 21.6h; 8d 12.9h,15.6h,18.6h; 9d 07.9h,11.4h,15.8h,18.9h; 10d 17.6h,19.7h; 11d 04.2h; 15d 10.7h,11.1h,23.5h 17d 13.1h,20.6h; 19d 08.4h,09.8h,12.2h; 20d 01.2h; 22d 06.1h,13.4h,21.4h; 25d 11.2h,17.3h; 26d 05.8h; 27d 09.0h,16.4h,18.9h,21.3h; 28d 11.2h; 29d 06.7h 30d 04.5h,06.8h,16.6h; 31d 04.4h,08.9h.(No.468).

Unless otherwise stated, readings are from the Galitzins.

The amplitudes of initial impulses on the Galitzins are computed by Galitzin's method.

Jeffreys' and Bullen's Seismological Tables (1940) are used, unless otherwise stated.

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