RIVERVIEW COLLEGE OBSERVATORY, RIVERVIEW, N.S.W. SEISMOLOGICAL BULLETIN.

Riverview College Observatory Seismological Bulletins have been issued monthly since March, 1909. Beginning with 1948 they will be issued quarterly.

The constants of the Wiechert and Mainka seismographs are determined at the middle of each quarter. The Galitzin constants are determined about once a year.

Many shocks are recorded for which only surface waves are observed at Riverview. Beginning with the 1948 Bulletin, the approximate times only of these shocks will be listed at the end of each month. In our registers all shocks, including these, are numbered consecutively. The numbers are retained in the Bulletin.

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 for determining distances, origin times and phases, unless otherwise stated.

D O'Connell S.J.

Director,
Dec.6th, 1949.

No. 1

1948, January-March.

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	$\epsilon : l$	$\frac{r}{T_o^3}$		T_1 (Galv.)	T (Pend)	μ^2	V_s
N	1	207	7.4	5.3	0.003	4	11.8	11.9	+0.04	410
	3	156	9.6	5.0	0.030					
E	1	225	7.1	5.0	0.010	4	12.3	12.2	-0.02	490
	3	141	10.0	3.2	0.026					
Z	2					4	11.0	11.0	0.0	450

No.	Date	Phase	Time (G.M.T.)	Per	Amplitude			Δ	Remarks
					A_N	A_E	A_Z		
	1948		h. m. s.	s.	μ	μ	μ	km	
1	Jan. 2	P?NZ	03 15 39						
		e(S)E	21 52	13					Masked by large microseisms.
		eLE	21.8	27					
		MEZ	30.4	19		13	13		
3	" 4	iPEZ	09 02 01	5		-5	+10	3270	Compression.
		ipPNEZ	03 33	5	+5	-4	+8	29°4	h 0.09
		iPcPEZ	04 47	7		+28	-27		H 08 56 42
		iPcPN	04 48	6	+13				
		iSE	06 15	9		+35			Gutenberg's Tables
		iN	06 39	7	+23				give: Δ 3200km., 28°8
		iE	09 10	5		+13			h 600 km.
		iE	09 36	8		+32			H 08 56 44
		iScSNE	11 31	7	-50	+34			
		iN	15 39	7	+15				
		iE	15 43	7		+33			
5	" 6	eSKSE	17 48 53	9					Preliminaries mask-
		iE	49 09	5		+5			ed by microseisms.
		eSKKSE	50 06	12					
		ePSEZ	52 50	15					
		ePPSZ	54 08	14					
		eE	58 29	15					
		eLREZ	18 16.8	31					
		MNEZ	22.1	18	4	4	9		
		eW2Z	19 33.7	19					
8	" 8	ePZ	04 23 00	5				3500	
		iSN	28 04	6	+6			31°5	
		isSN	28 21	6	-4				
		iN	29 39	6	-4				
		iSSE	29 50	6		+3			
		iSSSE	30 11	6		-3			
		MZ	34.1	17			7		
		MN	34.4	16	5				
		ME	35.0	13		4			
13	" 10	iPZ	05 20 13	4			+11	2600	Compression
		iPNE	20 14	4	-4	-8		23°4	H 05 15 06
		ipPEZ	20 22	4		-13	+21		
		iPPNEZ	20 46	7	-10	-20	+27		
		eSE	24 21	10					
		eN	24 30	8					
		isSE	24 35	10		+18			
		iSSN	25 02	9	+31				
		iSSSE	25 24	10		+44			
		iN	25 29	10	-59				
		iNE	25 52	9	+87	+35			
		eLREZ	26.1	24					
		ME	27.6	19		69			
		MZ	28.1	19			71		
		MN	29 4	14	72				

1948, January.

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No.	Date	Phase	Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
					A_N	A_E	A_Z		
	1948		h m s	s	μ	μ	μ	km.	
16	Jan. 11	iP_Z	16 16 54	4			-2	4300	Dilatation.
		eS_N	22 44	10				38°?	
		eS_E	22 47	10					
		eSS_{NE}	25 34	11					
		eN	25 49	15					
		eL_N	29.9	25					
		MEZ	34.0	13		3	1		
18	" 12	$e(P)_Z$	10 22 47						
		$i(PP)_Z$	23 41	5			+3		
		$i(PP)_N$	23 44	5	+3				
		$e(S)_N$	27 33						
		eL_N	31.6	27					
		MNZ	34.2	17	9		9		
		ME	35.3	14		8			
20	" 13	iP_Z	17 30 28	4			+4	3980	Compression
		$ePPP_E$	32 09	8				35°8	
		iN	32 47	4	+3				
		eS_E	36 08	10					
		iE	36 26	9		-4			
		eLQ_N	39.0	21					
		eLR_Z	41.2	27					
		MEZ	43.0	19		6	7		
		MN	44.1	22	3				
21	" 15	$i(PP)_Z$	05 06 44	4			-4		
		iS_N	10 01	8	+6				
		eL_Z	10.7	12					
24	" 16	ePZ	11 21 37	8				9800	h 100 km.
		eZ	24 03					88°2	Δ and h from
		$eSKS_N$	31 48	9					Gutenberg's
		eSN	32 16	9					tables.
		$i(ScS)_E$	32 25	4		-2			
		epS_N	32 38	6					
		eN	33 02	9					
		eSS_E	38 11	11					
		eSS_N	38 14	11					
		eLQ_E	44.7	20					
		eLR_Z	50.0	25					
		MNZ	53.3	22	5		6		
		ME	56.1	19		2			
25	" 17	$e(P)_Z$	02 04 23						
		eEZ	05 26	9					
		eE	10 32	12					
		eL_{EZ}	13.1	22					
		MN	15.7	13	14				
		MEZ	16.5	16		8	8		
26	" 17	iPZ	07 20 01	4			+7	5500	Compression
		$ipPZ$	20 10	4			+6	40°	
		eS	27 05	10					H 07 11 12
		iPS_E	27 20	10		-11			
		$iScS_E$	29 54	7		-7			
		iN	30 59	13	+13				
		eLQ_E	32.2	24					
		eLR_N	34.2	33					
		ME	34.5	21		35			
		MNZ	38.2	18	22		16		
29	" 18	iP_Z	13 44 57	4			-6	2590	Dilatation
		$iPNE$	45 00	4	-6	-6		23°3	h 0.01
		$ipPZ$	45 16	4			-8		H 13 39 57
		ipP_N	45 17	4	+5				
		$iPPP_{NZ}$	45 47	6	+8		-8		
		iZ	46 07	6			+12		
		iS_N	49 03	6	-11				
		iS_E	49 08	5		-10			
		iN	49 09	7	+39				
		eL_E	50.8	18					
		MNE	52.8	13	30	15			
		MZ	53.8	13			12		
		iE	55 20	7		-9			

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No.	Date	Phase	Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
					A_N	A_E	A_Z		
	1948		h m s	s	μ	μ	μ	km.	
31	Jan.20	iPEZ	09 49 38	7		-4	+8	2950	Compression
		iNEZ	49 43	9	-4	+16	-28	26°5	Dilatation
		iZ	50 05	10			+24		H 09 44 02
		iPPNE	50 21	8	-10	+19			
		iZ	50 25	7			+27		
		iSE	54 08	8		-19			
		iN	54 16	9	+10				
		eLQ_N	55.0	20					
		iSS_N	55 18	16	-62				
		eLR_Z	56.3	30					
		MN	59.0	13	61				
		MEZ	59.2	17		74	106		
32	" 20	iPZ	20 22 41	2			-4	3420	Dilatation
		iS_N	27 14	4	+4			30°8	h 0.06;H 20 17 00
		$i(SS)_N$	30 04	8	-7				
		MZ	30.3	14			3		Gutenberg's tables:
		$iScS_E$	32 30	4		+4			Δ 30°6; h 400 km.
37	" 22	iPEZ	14 01 24	5		+7	-9	3410	Dilatation
		ipPEZ	01 54	5		+5	-6	30°7	h 0.02
		iZ	02 04	5			-12		H 13 55 22
		isPEZ	02 15	6		+12	-20		
		iPP_{NEZ}	02 30	6	+9	-9	+10		
		$iPcP_E$	04 18	4		+5			
		iS_N	06 13	7	-29				
		iS_E	06 14	7		-17			
		isS_E	07 14	7		+18			
		isS_N	07 15	7	-44				
		$iScP_N$	07 34	7	+22				
		iZ	07 52	5			-20		
		iSS_N	08 06	8	+26				
		$iSSS_N$	08 36	12	-77				
		LN	09.0	23					
		MN	10.7	13	33				
		$i(ScS)_{NEZ}$	11 50	6	-16	+56	+19		
		i_N	12 21	9	+73				
		ME	12.4	15		14			
		MZ	12.9	16			23		
		i_E	13 00	9		+52			
42	" 24	iP_{NEZ}	17 55 57	10	-44	+30	+82	5850	Compression
		i_N	56 34	6	+33			52°6	H 17 46 44
		$iPcP_{NE}$	57 04	6	+38	-23			
		$iPcP_Z$	57 06	6			+80		Gutenberg's tables
		i_N	57 23	6	-46				give:
		iPP_{NE}	58 03	6	+60	-52			Δ 52°7, 5860 km.
		iS_N	18 03 20	10	-170				H 17 46 39
		iPS_E	03 34	10		-64			
		i_N	03 51	9	+81				iPS to iE super-
		iNE	04 01	8	-170	+130			imposed on irreg-
		i_N	04 17	10	+290				ular long waves.
		i_E	04 22	10		-160			
		iSS_N	06 49	12	+180				
		iSS_E	07 01	12		+130			
		$iSSS_N$	08 45	13	-160				
		LQ_N	09.0	60					
		LR_E	10.5	35					
		ME	16.5	20		290			
		MZ	17.2	18			145		
		MN	17.8	18	310				
44	" 25	eP?Z	16 08 41						
		$e(PP)_Z$	10 37						
		$e(S)_N$	15 50	9					
		eE	18 15	19					
		eN_Z	18 48	19					
		MZ	28.[illegible]	15			1		
		MN	30.2	19	2				
		ME	32.7	20		2			

1948, January

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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
	1948								
48	Jan.26	ePZ	21 56 41	7				2480	
		iS_N	22 00 39	6	-4			22°3	
		i_{NE}	00 43	7	+10	-4			
		i Z	00 47	7			+4		
		iE	00 52	6		-7			
		i_N	01 02	6	+6				
		eLR_E	02.1	19					
		eLR_Z	02.3	28					
		MN	03.6	16	4				
		MZ	03.7	19			6		
		ME	04.1	18		4			
49	" 26	iPZ	14 19 54	5			+7	5880	Compression
		$ePcP_Z$	21 04					52°9	H 14 10 40
		iZ	21 17	5			+7		
		$ePPP_Z$	22 58	15					
		iS_E	27 19	6		-6			
		iS_N	27 22	7	+10				
		eE	27 27	27					
		i_N	29 28		+				
		$iSSS_E$	32 37	10		+11			
		eL_E	37.4	30					
		MEZ	40.6	23		44	23		
		MN	42.0	20	18				
		eW_2Z	16 53.9	23					
51	" 27	iP_EZ	12 03 54	5		45	-7	3300	Dilatation
		ipP_EZ	05 33	5		-5	+17	29°7	h 600 km.,
		i_N	05 39	5	+6				H 11 58 29
		i_N	05 48	5	+8				Δ, h & H from
		i_{NEZ}	06 00	6	+6	+11	-17		Gutemberg's tables
		iEZ	06 11	7		+17	-23		
		iEZ	06 49	10		+27	-43		
		iN	06 51	9	+15				
		iE	07 22	7		+13			
		iE	07 36	9		+40			
		iS_{NEZ}	08 13	4	-20	+31	+28		
		i_{NEZ}	08 15	4	-94	+78	+48		
		$iScP_N$	09 19	7	-31				
		isS_N	11 09	8	-36				
		iE	11 23	7		-40			
		i_N	11 25	7	-105				
		iZ	11 27	12			+67		
		i_N	11 53	7	-90				
		LN	12.1	18					
		$iScS_E$	13 23	6		-54			
		$iScS_N$	13 24	6	-180				
		iN	13 58	5	+47				
		i_{NE}	17 46	8	-140	-110			
		MNEZ	18.2	19	44	60	72		
53	" 28	iP_{NEZ}	03 55 12	4	-6	+3	+14	4700	Compression
		ipP_{ZN}	55 32	3	+15		-8	42°3	h 0.01
		$iPcP_Z$	57 04	7			+17		H 03 47 27
		$i\{pPP\}_{NE}$	57 19	4	-18	+11			
		$i\{PcS\}_Z$	4 00 52	6			+18		Gutenberg's tables
		iS_{NE}	01 25	6	+30	+23			give:
		iSS_E	04 31	10		-29			42°5, 4720 km.,
		i_{NE}	04 36	10	-64	+65			h 100 km.,
		$iScS_Z$	05 03	11			+48		H 03 47 21
		$iScS_E$	05 04	12		+62			
		iNEZ	07 59	10	+48	+48	+24		
		iE	09 29	6		+41			
		iE	09 49	7		-51			
		iE	11 01	10		-70			
		iN	11 08	9	+68				
		iE	11 33	10		-48			
		iE	12 21	9		-60			
		MN	15.4	15	45				
		MZ	16.9	14			35		

1948, January/February.
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No.	Date	Phase	Time (G.M.T.) h m s	Per. s	Amplitude AN μ	Amplitude AE μ	Amplitude AZ μ	Δ km.	Remarks
	1948								
54	Jan.28	ePPEZ	16 09 50	8					Masked by micro-seisms.
		eSKSE	16 16	8					
		ePSE	19 10	14					
		eSSE	24 45	15					
		eLE	47.0	22					
		MEZ	54.6	22		4	5		
55	" 30	e(SKKS)E	09 08 51						Masked by very heavy microseisms
		e(SS)E	17 04	14					
		eE	20 15	14					
		eE	21 32	20					
		e(LQ)E	25.0	20					
		eLN	33.1	30					
		MN	37.5	24	16				
		MEZ	40.8	23		31	42		

Minor shocks: 2d 20.6h; 6d 14.1h; 7d 07.0h,21.7h; 8d 14.7h; 9d 02.4h,05.6h & 08.4h; 11d 01.0h,01.6h; 12d 03.8h; 13d 10.1h; 15d 13.5h; 16d 05.3h; 18d 00.7h & 01.5h; 19d 06.7h; 21d 09.1h,11.9h,21.4h,22.6h; 22d 20.9h; 23d 09.4h,19.9h; 24d 04.7h,21.8h; 25d 10.3h,10.5h,13.9h; 27d 02.1h,18.2h.

56	Feb. 1	e(P)Z	20 33 31						Masked by very large microseisms
		e(PP)Z	34 03						
		e(S)E	37 45						
		iE	38 02	7		+10			
		iN	38 04	7	+17				
		iN	38 24	7	-15				
		eLQN	38.6	21					
		eLRN	39.5	20					
		iN	41.19	12	+69				
		MN	43.2	12	31				
		MZ	44.3	15			13		
		ME	44.9	12		10			
57	" 3	eN	00 43.1	12					Masked by micro-seisms.
		iN	44 09	6	+4				
		iN	44 56	7	+8				
		eLE	44.8	20					
		MEZ	46.8	19		8	10		
		MN	47.8	13	7				
58	" 3	i(S)N	06 23 22	5	+3				Masked by micro-seisms.
		iE	23 30	5		-3			
		ME	29.7	12		2			
		MZ	30.7	14			3		
		MN	31.1	12	3				
62	" 6	iPNZ	01 42 31	4	+4		-8	5800	Dilatation
		ePcPNZ	43 33	7				52°2	h 0.03
		eSE	49 37						
		i(ScS)E	52 00	7		-3			
		eLZ	55.5	19					
		MNE	02 00.8	19	2	2			
63	" 6	i(S)N	22 35 34	9	-6				Masked by micro-seisms.
		eLN	39.3	19					
		MN	42.8	16	6				
		ME	46.2	18		6			
65	" 9	iPKPZ	13 17 37	6			-4	14,800ca.	Dilatation
		iPPZ	20 10	7			+15	133°ca	Δ from Guten-berg's tables.
		iZ	21 03	7			+16		
		iN	21 08	7	-6				
		iE	21 09	8		-27			
		i(PPP)E	22 09	8		-12			
		iE	23 58	9		-10			
		iE	24 55	6		+5			
		iSKKKSE	27 02	8		-13			
		iPSE	30 31	9		+16			
		iZ	32 17	7			+7		
		i(PPS)E	32 19	11		-9			
		iE	38 06	7		+11			
		PSPSE	38 36	18		11			
		i(ScSScS)E	39 56	9		+12			
		eE	40.2	28					
		eE	43.3	24					
		eE	48.1	31					
		eLRN	14 00.0	40					
		M	17.2	21	20	32	34		

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No.	Date 1948	Phase	Time (G.M.T.) h m s	Per. s	Amplitude AN μ	AE μ	AZ μ	Δ km	Remarks
66	Feb. 9	iPEZ	15 02 11	5		+7	+8	4770	Compression
		iN	02 14	6	+6			42°9	h 0.02
		ipPNEZ	02 44	5	-16	+11	+35		H 14 54 27
		iZ	02 53	6			+17		
		iPPPZ	04 38	6			+18		
		iSN	08 23	9	-45				
		iSE	08 25	9		+38			
		iN	09 04	7	+18				
		isSN	09 24	10	-24				
		isSE	09 26	10		-67			
		iE	09 38	8		-28			
		iSSN	11 32	10	-25				
		iEZ	11 41	9		-35	+36		
		iN	11 44	11	-64				
		iScSE	11 52	10		-66			
		LZ	12 3	24					
		iE	12 24	7		+33			
		iE	12 34	7		-32			
		iN	12 42	10	+58				
		iNE	15 55	6	-27	-32			
		iN	17 12	10	+50				
		iE	17 14	10		+40			
		iE	19 28	7		-33			
		MN	20.4	17	23				
		MZ	20.7	21			35		
		ME	21.2	17		17			
67	" 10	e(S)N	13 11 11	7					
		eLE	14.4	18					
		ME	16.1	13		1			
		MNZ	17.1	14	2		1		
68	" 10	ePNZ	18 23 33	7					
		i(S)NE	28 16	7	-4	-4			
		e(LQ)E	29.2	16					
		eLRZ	29.8	23					
		MNZ	33.4	10	9		8		
		ME	34.7	9		13			
70	" 11	eSSN	16 16 21						
		eLRZ	32.8	20?					
		MNEZ	30,0	20	1	1	2		
72	" 13	eSKSE	05 21 15	13					
		eSKSN	21 19	12					
		ePSZ	23 12	11					
		eSSN	28 18						
		eE	28 35						
		e(LQ)E	35.8	18					
		eLRN	44.8	37					
		MNEZ	49.5	27	5	4	5		
		MNEZ	56.4	21	2	2	4		
73	" 14	iPEZ	00 46 56	7		-6	+10	2420	Compression
		iPPNE	47 22	6	+7	+5		21°8	H 00 42 05
		iZ	47 53	8			+7		
		iE	47 57	7		-5			
		iSN	50 50	8	+13				
		iSE	50 52	8		-23			
		iZ	51 03	7			-26		
		eLRN	52.2	19					
		MZ	53.5	18			21		
		MNE	54.1	16	22	14			
74	" 14	e(S)E	06 26 48	7					
		eLZ	29.8	20					
		MEZ	31.4	19		2	3		
77	" 14	e(S)E	13 32 41	9					
		eLE	35.8	24					
		MNEZ	37.6	19	2	3	6		
78	" 14	e(S)E	14 15 56	10					
		eLE	17.6	20					
80	" 14	e(SS)E	22 36 55	16					
		eLRN	57.5	30					
		MEZ	23 04.2	17		2	3		

1948, February
RIVERVIEW COLLEGE OBSERVATORY.
SEISMOLOGICAL BULLETIN.

No.	Date	Phase	Time (G.M.T.)	Per.	Amplitude			km	Remarks
					AN	AE	AZ		
	1948		h m s	s	μ	μ	μ		
83	Feb.15	eZ	18 39 03	6					
		i(S)N	42 03	7	-3				
		i(S)E	42 04	7		+4			
		eLN	43.1	18					
		MNEZ	45.0	13	1	1	1		
84	" 16	ePNZ	00 47 28	10				2610	H 00 42 20
		iSE	51 36	7		+9		23°5	
		iSN	51 38	7	-7				
		mE	51 50	10		12			
		eLQE	52.2	25					
		iN	52 15	8	+12				
		eLZ	52.4	26					
		iSSSSNE	52 43	11	+22	+12			
		eLN	52.9	26					
		MNEZ	55.1	10	19	19	10		
86	" 18	e(P)Z	01 41 01						
		e(PP)Z	42 33						
		e(S)E	47 22	10					
		eN	47 41	9					
		e(SS)Z	50 30	10					
		e(SS)N	50 31	10					
		eN	51 26	15					
		eLN	56.1	25					
		MNZ	02 02.4	16	4		4		
		ME	03.2	17		5			
87	" 18	e(PP)Z	20 50 49	9					
		ePSN	21 00 52	12					
		iE	24 03	7		+4			
		eLN	31.0	25					
		MNZ	43.5	21	2		3		
		ME	46.7	19		1			
89	" 19	e(S)E	22 13 30						
		eLN	20.6	28					
		MN	23.7	19	4				
		MEZ	25.4	21		3	7		
91	" 23	iPZ	09 31 25	5			+4	3010	Compression
		iNZ	31 28	6	-13		+17	27°1	H 09 25 43
		iN	31 54	7	+13				
		iN	32 06	5	+11				
		iZ	32 09	5			+15		
		iNE	34 48	5	+6	+5			
		eE	35 39	10					
		iSE	35 59	7		-8			
		iN	36 01	10	-21				
		i(sS)E	36 16	6		+16			
		iN	36 20	10	-51				
		iZ	36 28	10			-30		
		iZ	36 40	6			+38		
		iN	36 48	7	-26				
		iN	37 19	7	-25				
		eLNE	38.8	30					
		ME	42.9	15		110			
		MNZ	44.0	16	115		110		
94	" 27	iPZ	02 19 32	3			+4	9660	Compression
		iSKKSN	29 59	5	+2			86°9	H 02 06 49
		eSE	30 06	7					
		ePSN	31 08	15					
		MNZ	57.6	17	2		2		
95	" 28	ePSNE	02 26 28	10					
		ePPSN	27 34	10					
		eSSE	32 42	18					
		eLREZ	48.4	27					
		MNEZ	53.5	19	1	1	2		

Minor shocks: 3d 12.0h; 4d 03.3h,13.6h; 7d 19.4h; 11d 11.1h; 12d 07.1h; 14d 12.4h,13.5h,16.3h; 15d 03.6h,15.3h; 17d 20.4h; 19d 16.7h; 20d 21.7h; 23d 12.6h; 25d 15.3h; 28d 12.1h,22.9h

1948, March

RIVERVIEW COLLEGE OBSERVATORY
SEISMOLOGICAL BULLETIN.

No.	Date 1948	Phase	Time (G.M.T.) h m s	Per. s	Amplitude AN μ	AE μ	AZ μ	Δ km.	Remarks
98	Mar. 1	iPZ	01 19 41	6			+55	4020	Compression
		iP$_{NE}$	19 42	6	-34	+24		36°2	H 01 12 39
		ipP$_{NE}$	19 56	5	+3	-2			
		iPP$_{E}$	21 04	5		-8			After iP all
		iPP$_{N}$	21 06	5	48				readings are
		iNE	21 21	5	-37	+32			from the Wiechert
		iNE	21 27	5	-20	+22			
		i$_{E}$	21 56	5		+11			
		i$_{E}$	25 04	6		+14			
		iS$_{N}$	25 18	6	-16				
		i$_{N}$	25 21	6	-18				
		i$_{E}$	25 49	10		+22			
		eLQ$_{E}$	27.7	19					
		i$_{N}$	28 00	10	-74				
		iSS$_{E}$	28 11	15		-48			
		i$_{N}$	28 13	11	+83				
		i$_{N}$	28 38	10	+66				
		ME	33.3	22		110			
		MN	36.9	14	77				
99	" 3	iPNEZ	09 20 08	4	-4	+2	+10	6870	Compression
		iNEZ	20 22	6	+17	-10	-31	61°8	H 09 09 50
		iPcP$_{N}$	20 46	6	-10				
		iPP$_{NZ}$	22 22	6	+8		-13		
		iPPPZ	23 52						
		i$_{N}$	24 01	12	+18				
		i$_{N}$	28 16	8	+10				
		iSNE	28 27	5&15	-32	-17			
		iPPS$_{Z}$	28 53	9			-24		
		iPPS$_{E}$	28 54	9		+19			
		i(ScS)$_{E}$	30 03	6		-12			
		iSS$_{E}$	32 13	15		-25			
		i$_{N}$	33 56	15	-21				
		iSSSE	35 04	16		-58			
		eLQ$_{N}$	35.2	30					
		eL$_{N}$	37.2	46					
		ME	41.1	25		81			
		MNZ	44.7	20	52		52		
		eW$_{2}$N	11 49.0						
100	" 3	e(S)$_{E}$	13 02.5						
		e(LQ)$_{E}$	03.6	21					
		ME	06.2	19		6			
		MNZ	06.5	14	6		5		
101	" 4	e(SKS)$_{E}$	02 18 50						
		e(PS)$_{N}$	22.9						
		eLRZ	50.1	20					
		MNEZ	53.9	19	2	2	3		
103	" 6	eP$_{NZ}$	04 49 38	7				2980	
		eS$_{E}$	54 07	9				26°8	
		i$_{N}$	54 37	5	+4				
		eLR$_{EZ}$	56.3	23					
		MZ	57.2	23			2		
		MNE	57.5	20	2	1			
104	" 6	iPZ	13 52 39	3			+5	3470	Compression
		ipPEZ	54 06	5		-2	+4	31°2	h 0.08; H 13 47 03
		iS$_{E}$	57 08	7		-5			Gutenberg's tables:
		eE	14 00 07	13					Δ 31°0; h 500 km.
		iScS$_{N}$	02 12	6	+5				
106	" 8	ePZ	16 13 39					3200	
		ipPZ	13 50	6			-6	28°8	H 16 07 42
		ePPZ	14 31	10					
		iPPPZ	14 40	6			-13		
		iPPP$_{N}$	14 41	5	+11				
		iZ	18 24	6			-9		
		iS$_{N}$	18 25	6&19	-37				
		isS$_{N}$	18 42	18	-67				
		eE	18 45	24					
		eN	19 12	24					
		iE	21 06	8		-16			
		eLR$_{N}$	21.2	27					
		MNEZ	23.8	20	53	43	66		

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
	1948								
107	Mar. 9	iP_{NZ}	18 54 03	6	-5		+5	3490	Compression
		iPP_{NZ}	55 03	6	-7		+9	31°4	H 18 47 43
		iZ	55 13	10			+23		
		$iPPP_N$	55 21	11	+12				
		iS_{NE}	59 07	10	+24	+16			
		iN	59 13	10	-71				
		iN	59 41	10	-71				
		iZ	59 46	10			-39		
		iE	19 00 33	9		+21			
		iZ	00 35	6			+15		
		iSS_N	00 53	10	+39				
		iN	01 08	8	+50				
		iZ	01 10	10			+48		
		iE	01 12	10		+45			
		iE	01 41	7		-46			
		iZ	01 44	10			-44		
		iN	01 50	9	-85				
		LE	01.9	22					
		LRZ	02.3	36					
		iN	02 28	9	-50				
		iZ	02 33	8			-22		
		iZ	03 23	11			+62		
		iN	04 09	12	+83				
		$iScSE$	04 31	6		+110			
		ME_1	05.3	18		170			
		MN	07.0	18	230				
		ME_2	07.9	13		210			
		MZ	09.3	17			290		
		eW_2Z	21 43.8	22					
108	" 10	iP_{NEZ}	11 30 40	2	-6	-4	+8	2850	Compression
		$iNEZ$	30 43	4	-6	-16	+29	25°6	H 11 25 12
		ipP_{NEZ}	30 49	4	-13	-22	+49		
		iN	31 02	6	-13				
		iEZ	31 04	5		+29	-38		
		$iNEZ$	31 14	6	+22	+24	-33		
		$iPPZ$	31 22	6			-54		
		iE	31 27	6		+38			
		iN	31 28	6	+24				
		iN	31 45	6	-22				
		iZ	31 55	7			+35		
		iE	32 04	6		-27			
		iEZ	32 52	6		+36	-32		
		iZ	33 24	7			+35		
		iE	34 11	6		-16			
		iN	34 14	7	+16				
		iZ	35 01	7			+21		
		iS_N	35 03	6	+17				
		iS_E	35 05	7		-47			
		isS_E	35 20	8		-87			
		isS_N	35 24	7	-140				
		iN	35 49	6	-73				
		iE	35 51	7		+43			
		iSS_{NE}	36 02	6	-160	+37			
		$eLNE$	36.6	20					
		MN	37.6	17	170				
		MEZ	38.9	18		140	200		
109	" 10	iPZ	20 11 31					4150	Dilatation
		iPP_{NZ}	12 58	7	+10		-12	37°3	H 20 04 20
		$iPPPZ$	13 20						
		iS_E	17 16	10		-77			
		eS_N	17 17						
		isS_N	17 31	13	+28				
		eN	19 04	26					
		iNE	19 58	7	-9	-77			
		iZ	20 05	9			-18		
		eL_Z	22.9	35					
		eL_N	23.1	30					
		MN	25.7	22	32				
		MEZ	25.9	25		40	55		

RIVERVIEW COLLEGE OBSERVATORY

SEISMOLOGICAL BULLETIN

No.	Date	Phase	Time (G.M.T.) h m s	Per. s	Amplitude A_N μ	Amplitude A_E μ	Amplitude A_Z μ	Δ km.	Remarks
	1948								
110	Mar. 11	i?E	03 01 22						Masked by microseisms.
		eN	04 28	7					
		iZ	05 22	5			+4		
		iE	05 29	5		-3			
		iN	06 09	5	-8				
		iE	07 07	5		+4			
		iNZ	07 09	5	-9		+8		
		iZ	07 25	4			+7		
		iNE	07 32	5	+7	-7			
		iZ	07 40	3			+8		
		MNEZ	11.4	15	4	5	6		
111	" 11	ePZ	13 36 08					3080	
		iZ	36 18	6			+6	27°7	
		iN	36 38	7	+4				
		iZ	36 41	8			+5		
		eSN	40 46	9					
		iE	40 49	6		-4			
		iN	41 12	9	-28				
		iN	41 33	9	-20				
		iE	42 10	8		-8			
		iN	42 22	7	+6				
		eLE	43.7	22					
		ME	47.0	12		8			
		MNZ	50.1	13	10		8		
116	" 13	iPNEZ	20 10 27	6	-8	+5	+18	4800	Compression
		eNE	12 07	6				43°2	h 100 km.,
		iNEZ	12 14	7	+15	-8	-		H 20 02 34
		PPNEZ	12 29	16	22	12			(Gutenbergs tables)
		iZ	16 04	6			+12		Some evidence
		iSNE	16 41	8	+57	+27			for a depth of
		iE	16 46	6		+16			600 km ca.
		iN	16 53	6	+38				If i 20 12 14=pP
		iN	19 27	6	+13				i 19 49=sS
		iE	19 49						i 20 35=SS
		iN	19 51	7	-77				then ▲ is 49°,
		iNE	20 00	7	+135	+73			h 600km., &
		iZ	20 21	9			+34		H 20 02 29
		iNZ	20 35	9	+50		+35		
		iN	21 24	7	+41				
		iE	21 52	9		+50			
		iN	22 20	7	+35				
		iE	23 16	10		+56			
		iE	25 03	9		-59			
		LE	25.2	27					
		iN	25 22	8	-72				
		iN	26 23	9	+88				
		iE	26 33	7		+42			
		ME	28.4	16		34			
		MN	30.4	16	62				
		MZ	30.6	16			39		
119	" 15	iE	01 29 16	4		+3			Masked by microseisms.
		iNE	38 04	6	+10	+6			
		MNEZ	40.8	16	7	5	6		
120	" 15	iN	09 50 21	4	-4				
		iE	58 09	7		-4			
		eLZ	59.3	22					
		ME	10 00.9	16		2			
		MZ	01.?	18			9		
		MN	01.4	16	7				
122	" 15	eSE	11 44 15	7					
		iE	45 12	5		-3			
		ME	12 02.9	18		1			
		MN	05.0	16	2				
		MZ	05.9	18			1		

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
	1948								
123	Mar.15	iP_{NEZ}	14 36 18	4	-3	-	+5	2640	Compression
		iPP_Z	36 52	4			+6	23°7	Deeper than
		$iPPP_N$	37 08	6	-6				normal.
		$iPPP_Z$	37 09	7			+14		
		i_E	37 13	6		+5			
		i_N	37 17	6	-6				
		i_E	37 31	5		+6			
		eS_N	40 23	8					
		e_E	40 28	8					
		i_N	40 36	6	-6				
		i_Z	40 41	6			+6		
		eLQ_E	40.8	15					
		i_N	40 54	6	+5				
		i_E	41 11	6		-5			
		i_N	41 24	6	-8				
		i_E	41 30	6		-4			
		i_N	41 32	6	+10				
		i_Z	41 39	7			-11		
		eLR_E	41.8	17					
		MEZ	43.8	15		2	3		
		MN	44.7	15	3				
125	" 16	iP_Z	02 50 54	3			+3	6770	Compression
		eS_N	59 08	8				60°9	
		i_E	59 17	8		+4			
		ME	03 12.1	16		2			
		MN	12.6	16	1				
		MZ	12.8	16			1		
127	" 16	iP_{NEZ}	17 03 12	6	+3	+7	-11	2660	Dilatation
		i_N	03 20	6	+6			23°9	H 16 58 00
		iE_Z	03 30	5		+7	-8		
		iNE_Z	03 39	6	+7	+14	-15		
		iE_Z	03 49	6		+12	-20		
		i_{NZ}	06 18	6	+8		-10		
		iS_N	07 23	6	-6				
		iNE_Z	07 33	8	+26	+20			
		i_E	07 47	6		+34			
		i_N	07 48	7	-58				
		iSS_{NE}	08 13	8	-46	+20			
		i_E	08 27	6		-9			
		eL_N	08.9	21					
		eLR_Z	09.3	23					
		ME	09.8	21		47			
		MZ	10.2	19			50		
		MN	10.6	16	76				
129	" 17	iP_Z	19 50 26	4			-2	5470	Dilatation
		iPP_N	52 21	4	+2			49°2	H 19 41 40
		iPP_Z	52 25	4			+4		
		eS_E	57 28	7					Gutenberg's tables
		i_E	57 33	6		+5			give:
		$iPPS_N$	57 47	6	-4				Δ 5460 km.,49°1
		$ePPS_E$	57 48	13					H 19 41 28
		$iScS_E$	20 00 20	7		-4			
		eLQ_{NE}	01.5	19					
		eLR_E	03.9	23					
		ME	05.1	19		8			
		MNZ	07.8	20	5		6		
131	" 18	$i?_E$	23 08 55	4		-2			Masked by
		i_N	13 36	5	-2				microseisms.
		i_N	16 41	5	-2				
		i_E	16 51	5		-2			
		eL_N	17.8	13					
		i_N	18 49	5	-3				
		i_E	18 51	5		+2			

RIVERVIEW COLLEGE OBSERVATORY
SEISMOLOGICAL BULLETIN

No.	Date	Phase	Time (G.M.T.)	Per.	Amplitude A_N	Amplitude A_E	Amplitude A_Z	km.	Remarks.
	1948		h m s	s	μ	μ	μ		
133	Mar.21	iPZ	21 47 44	5			+7	10,160	Compression
		iZ	48 19	5			-4	91°.4	H 21 34 40
		iPPZ	51 15	5			-6		
		$iSKS_N$	58 11	6	+4				Gutenberg's tables
		$iSKKS_N$	58 21	7	+9				give:
		iS_E	58 38	8		+4			Δ 10,050 km.,90°.4
		iS_N	58 39	8	+9				H 21 34 40
		iPS_N	59 55	7	-7				
		eSS_E	22 04 47	15					
		eLQ_E	11.8	21					
		MNEZ	27.2	18	12	9	13		
134	" 23	$e(L)_{NZ}$	05 10.8	16					Masked by heavy
		MNZ	17.4	16	7		5		microseisms.
		iE	17 38	7		+9			
		iE	19 20	7		-8			
		iE	19 50	7		+5			
135	" 24	iPZ	05 28 33	5			+	5610	Compression
		iS_N	35 43	7	+16			50°.5	H 05 19 36
		iS_E	35 44	7		+27			Very heavy micro-
		iZ	35 45	7			+27		seisms present.
		iPS_N	35 57	7	-13				
		$iPPS_{NE}$	36 06	7	+13	+21			
		$iScS_N$	38 19	7	+9				
		iSS_E	39 12	7		-12			
		iE	39 38	8		+15			
		eL_Z	44.7	30					
		MN	48.3	18	35				
		MEZ	49.2	24		77	94		
136	" 25	i_N	04 50 32	8	+7				Masked by large
		eL_Z	52.7	20					microseisms.
		MN	53.8	13	5				
		MEZ	54.2	17		7	9		
137	" 26	iPZ	13 31 32	7			+5	4990	Compression
		eS_{NE}	38 07	9				44°.9	H 13 23 19
		iPS_E	38 20						
		eSS_N	41 17	16					
		iZ	41 24	6			+6		
		$iScS_E$	41 31	6		+7			
		eL_E	44.4	20					
		ME	52.3	17		11			
		MNZ	53.3	15	8		17		
138	" 29	iP_{NEZ}	11 55 36	4	+7	+11	-14	2400	Dilatation
		ipP_{NEZ}	55 54	5	-9	-16	+16	21°.6	h 0.01
		iE	56 01	4		+20			H 11 50 53
		iPP_{NEZ}	56 06	4	-7	-24	+18		
		$iPPP_{EZ}$	56 17	4		+25	-21		
		iS_E	59 24	7		+7			
		i_{NE}	59 28	7	+73	-51			
		$iPcP_{EZ}$	59 34	7		+170	-41		
		i_N	59 48	7	-68				
		iZ	59 50	7			+39		
		iSS_E	12 00 06	7		+38			
		eLQ_N	00.1	21					
		eLR_E	00.9	24					
		eLR_Z	01.0	24					
		MN	03.1	13	28				
		MZ	03.3	15			18		
		ME	03.6	13		17			
		$iScS_N$	06 50	7	+28				

Minor shocks: 4d 11.7h; 8d 11.2h; 12d 00.3h.10.1h,14.7h; 13d 16.2h; 14d 07.0h, 23.0h; 15d 11.7h, 15.3h; 16d 04.6h; 17d 06,1h; 18d 08.5h; 19d 23.5h; 31d 13.6h, 17.9h.

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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	7.2	5.5	0.007	4	11.8	11.9	+0.04	410
	3	160	9.3	4.8	0.019					
E	1	218	7.0	4.6	0.033	4	12.3	12.2	-0.02	490
	3	140	9.6	10.4	0.014					
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
	1948		h. m. s.	s.	μ	μ	μ	km.	
142	Apr. 3	iP_Z	07 50 53	2			+4	5050	Compression.
		i_Z	51 53	3			+5	45°4	h 0.025
		eS_{NE}	57 19						H 07 42 52
		i_E	57 22	4		+5			
		$iScS_{NE}$	8 00 30	4	+4	+4			
		iSS_N	00 42	6	-7				
		iNE	00 55	7	+8	+10			
		i_E	01 04	7		-5			
		$iSSS_E$	01 51	7		+4			
143	" 4	$e(S)_N$	03 24 36	9					Masked by micro-
		eLR_Z	27.4	27					seisms.
		ME	30.2	14		3			
		MNZ	31.5	17	3		4		
146	" 8	eLQ_E	11 20.0	27					
		eLR_Z	21.6	24					
		ME	22.5	19		5			
		MNZ	25.9	13	8		6		
147	" 12	$iPNZ$	08 54 58	5	-5		+10	3090	Compression.
		i_E	58 26	4		-6		27°8	H 08 49 10
		iS_E	59 37	6		-10			
		iS_N	59 40	8	+7				
		isS_E	59 49	6		-17			
		iN	59 52	7	-65				
		i_N	09 00 17	7	+42				
		i_E	00 24	8		-25			
		i_E	00 47	6		+22			
		i_E	01 16	6		+23			
		i_N	01 51	6	+27				
		eLR_N	02.0	27					
		MZ_1	04.8	18			39		
		MN	04.9	18	32				
		ME	05.6	12		67			
		MZ_2	07.9	15			47		
148	" 15	eS_E	19 45 28						Masked by heavy
		eL_E	48.1	23					microseisms.
		ME	51.1	18	9				
		MNZ	51.4	18	9		13		

1948, April
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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
	1948								
149	Apr.17	iP_{NZ}	16 22 33	7	+10		-20	7680	Dilatation
		i_N	22 48	6	+10			69°1	H 16 11 28
		i_N	30 56	6	-10				
		i_Z	31 06	10			+23		Perhaps slightly deeper than
		iS_N	31 35	7	-65				
		iE_Z	31 39	10		+35	+42		normal.
		i_E	31 48	7		-33			
		*i_N	31 52	5	+				* Superimposed
		*i_N	31 57	5	+				on large waves
		*i_N	32 01	5	+				of 20s period.
		i_E	32 03	7		+22			
		i_Z	32 06	12			-40		
		*i_N	32 19	5	+				
		i_{NZ}	32 37	3	+29		+22		
		i_E	32 43	7		+37			
		i_E	32 52	7		-40			
		i_E	33 08	7					
		i_N	33 26	8	+60				
		i_N	35 14	11	-38				
		i_N	35 52	11	-31				
		i_E	36 08	10		+19			
		i_E	36 41	10		+38			
		i_E	38 57	13		-39			
		eL_E	42.0	30					
		eLR_N	45.1	30					
		MN_Z	52.6	19	78		84		
		M_E	53.2	17		37			
150	" 18	iP_{NEZ}	12 26 35	4	-10	+4	+21	3810	Compression
		i_{NZ}	26 47	4	+10		-27	34°3	H 12 19 50
		iS_N	31 59	10	+33				
		iS_E	32 00	5		-19			
		iE_Z	32 07	8		+55	+19		
		i_N	32 22	10					
		i_N	32 51	10	+49				
		i_E	33 01	8		+24			
		i_Z	34 49	9			+39		
		$MNEZ$	39.7	16	330	520	250ca		
		eW_2Z	15 14.4	20					
152	" 20	$iPEZ$	04 34 08	2		-1	+2	2340	Compression
		eS_E	37 55	7				21°0	
		$i(L)_N$	40 08	7	+3				
		eL_E	40.5	12					
153	" 21	iP_Z	15 26 37	3			+6	2670	Compression
		iP_{NE}	26 38	3	-4	-4		24°0	H 15 21 24
		$i(pP)_Z$	26 45	6			+6		
		iS_N	30 49	7	-9				
		iS_{EZ}	30 52	7		-5	+9		
		i_N	30 58	10	+29				
		iE_Z	31 01	9		+13	+22		
		i_Z	31 20	7			+19		
		i_N	31 30	6	+13				
		i_E	31 31	9		+12			
		i_E	31 43	6		-11			
		eL_E	32.7	25					
		$MNEZ$	35.0	17	16	15	21		
154	" 21	$ePKP_Z$	20 41 23	12				15,560ca	
		$ePKP_E$	41 29	12				140.ca	
		i_Z	41 30	9			-12		Dilatation
		ePP_{EZ}	44 34	15					
		ePP_N	44 39	12					
		iE_Z	45 15	8		+7	-16		
		i_N	45 25	8	-9				
		iE_Z	45 27	8		+23	-27		
		$iSKS_E$	48 36	7		+7			
		$iSKS_N$	48 37	7	-6				
		i_E	48 58	9		+12			
		i_E	49 34	7		+7			

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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
	1948								
154	Apr.21	i_E	20 50 08	7		-6			
cont.		i_N	50 17	8	-6				
		$eSKKS_E$	51 27	13					
		i_E	51 41	15		+20			
		iPS_Z	54 56	15			+27		
		iPS_E	54 59	15		-19			
		$iPPS_E$	57 07	10		+6			
		$iPPS_Z$	57 11	12			+25		
		i_E	58 07	12		+14			
		i_E	21 03 54	12		-23			
		i_E	05 02	16		+25			
		i_N	05 08	12	+31				
		e_N	13.0	25					
		eLQ_E	18.8	24					
		eLR_EZ	27.9	25					
		MN	33.1	21	23				
		MEZ	33.3	21		37	51		
155	" 22	$iPKP_Z$	00 47 46	9			-7		Dilatation
		i_{EZ}	51 30	9		-7	+12		Aftershock of
		e_E	57 50	13					No.154
		MEZ	01 42.6	19		4	5		
		MN	52.4	18	3				
156	" 22	$i?_Z$	11 06 39	4			-5		Microseisms pres-
		$e(SSP)_E$	24 03	20					ent.
		eLQ_N	38.8	22					
		eLR_N	46.0	27					
		MNEZ	12 04.1	22	4	8	8		
Minor shocks: 2d 17.5h; 4d 17.7h,19.4h; 19d 07.3h; 23d 13.2h; 29d 03.9h									
	May 1	$i?_Z$	22 48 56	3			-5		Large microseism?
159	" 3	i_N	03 06 44	4	+9				Masked by large
		i_N	08 23	6	+8				microseisms.
		eL_E	08.7	16					
		MN	11.2	15	4				
160	" 6	$i(PP)_Z$	06 56 51	5			-4		
		$e(S)_E$	07 02 28	10					
		$e(SS)_N$	07 50	10					
		ME	16.8	16		1			
163	" 8	$e(SKS)_N$	03 08 20						Masked by micros.
166	" 9	iP_{NZ}	02 20 16	6	-5		+14	7350	Compression
		ipP_{NZ}	20 27	6	-4		+11	66°1	
		iS_N	28 55	7	-5				
		i_N	29 05	7	-14				
		i_{EZ}	29 09	7		+13	+15		
		iPS_{NEZ}	29 26	8	-13	-15	-11		
		i_N	29 45	8	-18				
		$iScS_{NE}$	30 12	8	-33	-22			
		i_N	30 28	8	-16				
		i_E	30 21	8		-20			
		iSS_E	33 27	12		+10			
		i_N	33 47	10	+12				
		e_N	35.0	24					
		iG_E	36 47	15		-22			
		eL_N	40.0	28					
		MNZ	47.5	20	21		20		
		ME	49.3	19		19			
167	" 9	eP_Z	08 22 30					3650	H 08 15 58
		ePP_{EZ}	23 34					32°8	
		$ePPP_Z$	23 56						
		i_E	24 07						
		eS_E	27 46						
		eLQ_N	29.8	18					
		eLR_E	31.3	25					
		MN	33.4	14	13				
		MEZ	34.4	16		16	20		

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
	1948								
170	May 11	i(PKP)	09 15 18	4	-4	+2	-5	12,700ca	Dilatation
		i_{NEZ}	15 36	4	-4	+3	-6	114°ca	h 100 km ca.
		i_Z	15 42	4			+5		
		i_{NEZ}	15 51	6	+5	-3	+4		Δ & h from Gutenberg's tables.
		i_Z	16 21	5			+4		
		ePP_Z	16 43	10					
		$eSKS_E$	22 26	8					
		i_N	22 48	5	-3				
		$eSKKS_N$	23 10	10					
		$iSKKS_E$	23 15	6		+3			
		eS_N	24 23	10					
		epS_N	24 56	7					
		epS_E	24 57	7					
		$i(sS)_Z$	25 07	7			+7		
		i_{NE}	25 16	7	-4	+5			
		i_N	25 44	7	+4				
		e_E	25 48	18					
		iPS_N	26 23	7	+4				
		$iPPS_N$	27 34	7	+6				
		e_E	31 32	30					
		eLQ_N	44.8	18?					
		eLR_Z	49.3	30					
		$MNEZ$	56.1	17	2	4	5		
171	" 12	$iPNZ$	01 08 29	6	-5		+10	7890	Compression
		$iPcPNZ$	08 46	5	+4		-6	71°0	
		$iPPZ$	11 16						Gutenberg's tables give: Δ 8000 km., 72°0 H 00 57 06
		iS_{NE}	17 41	9	-16	-19			
		isS_E	17 57	7		-19			
		i_{NE}	18 01	7	-12				
		i_E	18 18	8					
		$iSKS_N$	18 26	12	+21				
		i_E	18 42	6		+6			
		eSS_E	22.2	15					
		eLQ_E	27.3	25					
		eLR_E	29.3	25					
		$MNEZ$	35.0	19	23	21	24		
		eW_2Z	03 29.3	24					
173	" 13	iP_{NEZ}	23 58 36	3	-2	+2	+7	4890	Compression
		$epPZ$	59 26					44°0	h 0.03
		$iPcPZ$	00 00 20	4			+4		H 23 50 49
		$ePPZ$	00 25	9					
		$ePPPZ$	01 10	8					Gutenberg's tables give: Δ 44°0 h 200 km. H 23 50 44
		$iScPZ$	03 46	5			+4		
		$ePcS_N$	04 02						
		iS_{NE}	04 50	7	+6	+4			
		esS_N	06 06						
		i_N	06 23	6	+4				
		$iScS_{NE}$	08 05	6	+3	+2			
		iSS_{EZ}	08 11	8		-10	-2		
		i_N	08 27	9	+5				
		$isSS_E$	09 15	6		+2			
		$isSS_N$	09 18	6	-2				
		$MNEZ$	15.9	18	3	4	4		
174	" 14	iS_{NE}	13 39 49	7	-4	+4			
		e_E	40 09	8					
		eLQ_E	50.6	20					
		eLR_N	52.9	20					
		MNZ	56.9	20	3		2		
		ME	57.3	22		2			
175	" 14	e_Z	18 52 03						
		$iSKS_E$	19 01 27	6		-2			
		eS_N	01 48	10					
		eLQ_N	11.2	22					
		ME	22.2	19		2			
		MNZ	23.1	18	2		2		

1948, May

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
	1948								
176	May 14	iPZ	22 45 19	10			+4	10,800	Compression
		ePNE	45 19					97°2	H 22 31 48
		ePPZ	49 16	10					
		iPPN	49 18	10	-4				Gutenberg's tables give:
		iZ	49 30	7					Δ 10,900 km ca.,
		$iSKS_N$	55 54	10	+25				H 22 31 40
		$iSKS_E$	55 56	10		+11			
		$iSKKS_N$	56 13	10	-10				
		iE	56 16	10		+15			
		iS_E	56 47	10		-67			
		iZ	56 51	10			+25		
		iE	56 59	10		-117			
		iN	57 06	7	-35				
		iE	57 09	10		-117			
		iPS_N	58 00	15	+22				
		iPS_E	58 04	10		+21			
		iPS_Z	58 05	10			-26		
		$iPPS_N$	58 43	18	+33				
		i_N	59 04	10	+26				
		iSS_E	23 03 13	10		+21			
		$iSSP_N$	03 27	20	-34				
		iE	03 59	21		+56			
		$iSSS_N$	07 00	10	-24				
		$iScSScS_E$	08 57	12		+18			
		$iScSScS_N$	09 12	11	-22				
		eLQ_N	12.1	33					
		eLR_Z	16.2	33					
		eLR_N	17.0	33					
		MZ	19.6	24			68		
		MN	20.1	22	47				
		ME	23.5	22		58			
		eW2	00 42.7	31					
		MNEZ	48.1	22	33	17	31		
178	" 17	$i(P)_Z$	13 39 13	4			+4		Compression
		i_N	44 34	6	+6				
		eLQ_E	45.5	21					
		eLR_N	46.8	33					
		MNEZ	49.7	16	4	5	3		
179	" 17	iS_E	18 13 35	8		-8			Masked by large microseisms.
		eE	13 50	12					
		i_E	13 55	6		+7			
		eE	23 47	13					
		eE	24 47	13					
		eLQ_E	28.0	24					
		eG_E	29.1	24					
		eLR_Z	34.7	28					
		MNEZ	41.8	20	4	4	3		
182	" 22	iPNEZ	19 02 03	3	-5	+6	-6	2240	Dilatation
		iNEZ	02 14	3	-4	+3	-3	20°1	H 18 57 30
		iPPZ	02 22	5			+6		
		iS_E	05 42	8		-5			
		iS_N	05 45	6	+5				
		i_Z	05 46	8			+13		
		eLR_Z	06.9	27					
		MNEZ	08.1	14	6	6	4		
183	" 22	iPZ	19 25 53	4			+5	2240	Compression
		iNEZ	25 57	4	-9	+11	-13	20°1	H 19 21 20
		iPPPNE	26 22	4	+	-10			
		iS_E	29 32	10		-24			Repetition of
		iS_N	29 33	10	-21				No.182
		iE	29 40	10		-48			
		iN	29 53	8	-42				
		iE	30 17	13					
		eLR_Z	30.4	30					
		iN	30 27	12	-65				
		MN	31.4	13	98				
		ME	31.6	15		90			
		MZ	32.1	18			120		

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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.	
	1948								
184	May 22	$i(P)_Z$	19 40 37						Compression
		i_Z	40 53						
		$i(S)_N$	43 57						
185	" 22	iP_EZ	20 05 46	4		+11	-14		Dilatation
		i_N	05 49	6	+24				Masked by pre-
		i_Z	06 19	4			-18		ceding shocks.
		iS_E	09 17	7		-12			
		i_N	09 27	7	-19				
		i_Z	09 32	7			+29		
		eL_N	10.7	18					
		MZ	13.7	12			12		
		MNE	15.0	10	12	11			
186	" 22	$iP_{NE}Z$	21 26 29	3	+5	-4	+11	2210	Compression
		iP_PZ	26 46	6			+8	19°9	H 21 21 57
		iS_E	30 06	8		-11			Repetition of
		iS_N	30 09	7	+9				No.182
		i_Z	30 12	7			+25		
		eLR_Z	30.8	27					
		MNE	32.0	16	15	12			
		M	32.3	19			17		
187	" 23	$iP_{NE}Z$	04 17 27	4	-11	-9	+21	2640	Compression
		ipP_Z	17 55	4			-17	23°7	h 0.015
		ipP_{NE}	17 56	4	+9	+7			H 04 12 26
		i_Z	17 59	4			+17		
		i_E	18 02	4		+14			
		i_E	18 08	4		+8			
		i_Z	18 10	4			+20		
		i_N	18 14	6	+18				
		i_E	18 15	6		+24			
		i_Z	18 18	6			+43		
		i_N	18 19	5	-24				
		i_E	18 29	4		+13			
		i_E	18 41	4		-9			
		i_N	18 51	5	-9				
		i_N	19 53	6	-15				
		$iPcP_{NZ}$	21 09	5	+13		-10		
		iS_{NE}	21 28	5	-27	+13			
		i_Z	21 29	4			+9		
		i_N	21 35	6	-43				
		i_E	21 40	6		-14			
		i_N	21 54	3	+5				
		i_N	22 00	5	-20				
		i_Z	22 04	5			+18		
		i_E	22 08	6		-36			
		i_N	22 09	5	-36				
		i_E	22 22	7		-45			
		i_N	22 25	6	-18				
		i_N	22 38	7	+40				
		i_E	22 41	6		+20			
		i_E	23 08	5		+21			
		i_N	23 16	6	-15				
		eL_{NZ}	24.2	20					
		MN	25.7	13	20				
		MEZ	26.6	14		14	16		
		$iScS_{NE}$	28 21	3	-35	+8			
		i_N	29 40	5	-21				
189	" 25	PZ	07 23 37					8950	
		iP_Z	23 43	4			-15	80°5	Dilatation
		i_Z	24 43	6			-15		H 07 11 27
		$i(PP)_Z$	26 34	5			+8		
		iS_N	33 40	5	+4				
		iS_E	33 42	5		+4			
		$iSKS_{NE}$	33 48	6	+40	-11			
		$iScS_{NE}$	33 57	7	+52	+32			
		i_E	34 11	7		+7			
		i_{NE}	34 41	8	+19	+16			
		eSS_N	38 42	21					
		eSS_E	39 03	21					

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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
	1948								
189	May 25	i_E	07 39 20	14		+45			
cont.		$iSSS_N$	41 06	12	+38				
		e_N	41 17	30					
		i_E	42 40	12		+45			
		i_N	44 51	16	+76				
		eLQ_N	45.0	30					
		LE	46.0	28					
		eLR_E	48.9	34					
		ME_1	53.9	18		90			
		MNZ_1	56.4	19	165		110		
		MZ_2	08 02.7	19			190		
		MN_2	03.3	16	110				
		ME_2	04.5	19		120			
192	" 31	$i(P)_{EZ}$	08 29 58	3		-3	+3		
		$i(S)_N$	35 16						
		$e(S)_E$	35 18						
		$i(ScS)_N$	39 08	6	-6				
Minor shocks: 6d 08.8h, 20.5h; 8d 07.5h, 13.8h; 9d 10.1h, 12.6h; 13d 15.1h; 15d 18.5h; 20d 16.6h; 21d 19.2h; 23d 12.7h; 26d 10.2h; 27d 10.6h									
194	June 1	$i(PcP)_Z$	19 07 26	3			+2		
		$i(PP)_Z$	09 21	4			+3		
		i_N	10 27	4	+3				
		iS_N	15 54	7	-4				
		$ePPS_E$	16 38	9					
		e_E	18 18	9					
		e_N	18 50	12					
		$e(LQ)_N$	25.5	33					
		eLR_N	27.4	38					
		MN	32.1	21	15				
		MEZ	39.3	19		18	21		
201	" 12	$e(P)_Z$	00 37 13	5					
		e_N	41 45	6					
		$e(S)_{NE}$	42 03	8					
		eLR_Z	44.7	27					
		MNE	46.7	15	2	2			
		MZ	47.2	18			2		
202	" 12	$e(S)_E$	01 12 45	7					
		i_N	12 48	6	+4				
		eL_Z	14.9	25					
		MNE	15.7	14	2	2			
		MZ	16.3	17			2		
204	" 14	$i(P)_Z$	10 02 49	4			-4		Dilatation
		$i(S)_E$	07 40	6		+3			
		i_{NZ}	07 43	6	+5		-6		
		i_N	08 20	8	-7				
		i_N	09 44	8	-8				
		i_E	10 19	7		+5			
		eLR_{EZ}	11.2	28					
		$i(ScS)_E$	13 21	7		-4			
		$MNEZ$	14.2	20	7	9	5		
205	" 15	$i(P)_Z$	11 55 44				-		Dilatation. Obscured by very large micro-seisms.
		i_{NZ}	56 03	4	-6		+11		
		$i(PcP)_{NZ}$	56 11	4	-8		+14		
		$e(S)_N$	12 04 39						
		i_N	04 55	6	+8				
		i_E	05 01	8		+14			
		$i(SKS)_N$	05 34	8	-19				
		e_N	05 41	20					
		i_N	06 23	7	-14				
		i_N	10 01	7	-13				
		e_N	10 05	27					
		e_E	12 20	21					
		eLR_E	16.5	26					
		$MNEZ$	22.5	22	32	25	28		
		MNZ_2	26.9	19	34		38		
		ME_2	27.7	18		22			

RIVERVIEW COLLEGE OBSERVATORY
SEISMOLOGICAL BULLETIN

No.	Date	Phase	Time (G.M.T.)	Per.	Amplitude A_N	Amplitude A_E	Amplitude A_Z	Δ	Remarks
	1948		h m s	s	μ	μ	μ	km	
206	June 18	iP_{NZ}	00 59 38	5	+5		-11	2990	Dilatation
		ipP_N	59 52	7	+10			26°9	h 0,005
		i_E	01 00 09	5		+6			H 00 54 00
		i_{NZ}	00 10	5	-20		-11		
		$iPPP_{NZ}$	00 34	7	+20		-21		Very large micro-seisms present.
		i_E	01 04	6		+9			
		i_N	03 41	6	-19				
		iS_N	04 08	10					
		isS_{EZ}	04 36	7		+18	+31		
		i_N	04 38	7	-42				
		i_N	04 54	10	+30				
		i_N	05 14	8	+29				
		i_E	05 34	8		+14			
		i_E	06 07	8		-45			
		i_N	06 22	9	-42				
		i_E	06 33	10		+47			
		i_E	07 33	6		+19			
		i_E	08 24	14		+100			
		i_N	08 25	8	-58				
		ME	09 54	9		20			
		MN	10 46	11	31				
		MZ	12 46	10			22		
208	" 19	iP_{NEZ}	06 22 48	6	-6	+5	-8	2140	Dilatation
		i_{EZ}	23 09	4		-2	+5	19°2	
		i_N	23 21	5	+4				
		iS_E	26 17	7		-6			
		i_Z	26 21	7			+8		
		i_N	26 22	7	+4				
		eLQ_N	26.5	18					
		eLR_Z	27.3	21					
		MN	27.4	13	12				
		ME	27.6	13		9			
		MZ	28.1	16			7		
209	" 19	iP_{NZ}	07 09 44	7	-8		-5		Dilatation
		i_Z	09 51	7			-11		Repetition of No.208
		eS_N	13 11						
		i_N	13 18	7	-8				
		i_E	14 11	12		+17			
		eLR_Z	14.3	22					
		MN	14.7	13	11				
		ME	14.9	13		9			
		MZ	15.1	19			5		
211	" 20	e_{NE}	09 07 39	12					
		e_N	08 35	15					
		e_N	08 41	26					
		eLR_Z	24.2	30					
		MNEZ	27.4	20	4	1	6		
212	" 21	iP_{NEZ}	12 13 37	6	-7	+3	+13	4980	Compression
		ipP_Z	13 46	6			+14	44°8	H 12 05 25
		iPP_{NE}	15 26	6	+8	-7			
		i_{NE}	15 39	6	+8	-6			
		iS_E	20 11	10		+22			
		iPS_N	20 22	6	-11				
		iPS_E	20 23	10		+44			
		iSS_{NE}	23 26	7	+13	+7			
		$iScS_N$	23 30	6	-26				
		i_{NZ}	23 39	7	+38	+18			
		i_E	23 41	7		-34			
		i_Z	23 49	7			+25		
		i_N	24 07	6	-20				
		i_E	24 08	7		-29			
		$iSSS_N$	24 19	7	+24				
		i_N	25 26	6	-19				
		MN	30.9	18	17				
		MZ	34.0	20			21		
		ME	34.3	20		25			

RIVERVIEW COLLEGE OBSERVATORY

SEISMOLOGICAL BULLETIN

No.	Date	Phase	Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
					A_N	A_E	A_Z		
	1948		h m s	s	μ	μ	μ	km	
213	June 21	iP_Z	14 05 53	4			+5	4980	Compression
		ipP_Z	06 04	4			+5	44°8	
		eS_E	12 27						Aftershock of
		iPS_E	12 37	8		+12			No.212
		iSS_N	15 42	6	+6				
		i_E	15 53	6		-3			
		i_N	15 54	7	+11				
		i_E	16 19	7		+5			
		$iSSS_N$	16 34	7	+8				
		i_E	16 40	7		+5			
		MN	23.0	18	4				
		MEZ	26.1	19		4	3		
218	" 27	iZ	22 01 52	6			+8		
		MZ	30 41	21			5		
219	" 28	ePZ	07 24 45	7				7960	
		iZ	25 20	5			+7	71°6	
		iN	33 47	7	-7				
		eS_E	34 01	7					
		iS_E	34 05	7		-8			
		i_E	34 21	8		+21			
		i_E	34 37	8		-10			
		$iScS_N$	34 55	6	-15				
		i_E	35 19	9		-15			
		eG_E	44.0	45					
		L_E	45.3	31		145			
		eLR_E	46.9	37					
		ME	48.8	21		35			
		MNZ	49.6	30	62		52		
220	" 29	iP_Z	10 35 45	6			+14	4100	Compression
		iP_E	35 46	6		-4		36°9	h 0.01
		i_{NE}	36 00	7	+8	+9			H 10 28 42
		ipP_Z	36 08	6			+9		
		isP_{EZ}	36 21	8		+10	-12		Gutenbergs tables
		iPP_{NEZ}	37 15	6	-10	-16	+22		**give :**
		i_{EZ}	37 28	6		-9	+9		Δ 4020 km.,36°2
		$isPP_E$	37 38	6		+22			h 100 km.
		i_Z	37 49	6			-17		H 10 28 47
		i_{NE}	37 50	6	+8	+17			
		i_Z	38 29	5			+10		
		i_E	41 05	6		+7			
		iS_E	41 22	7		-10			
		i_N	41 26	7	-14				
		$iPcS_E$	41 48	10		+30			
		$iPcS_N$	41 50	6	+13				
		$iPcS_Z$	41 51	9			+35		
		isS_E	42 05	10		+26			
		i_E	42 32	8		-24			
		i_N	44 22	9	+37				
		i_E	44 29	6		+15			
		L_N	44.6	21					
		MN_1	45.1	21	140				
		i_N	46 06	8	+60				
		LR_E	46.4	26					
		MEZ_1	47.1	24		63	77		
		MN_2	47.9	13	48				
		MEZ_2	50.0	18		62	77		

Minor shocks: 1d 03.9h; 2d 12.4h; 6d 14.9h; 7d 20.8h; 8d 03.8h,11.3h; 10d 18.6h; 12d 07.4h; 18d 17.1h; 19d 23.6h; 22d 09.6h,22.1h; 23d 05.6h; 27d 13.8h; 30d 13.6h

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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. Gailitzin 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	200	7.4	5.5	0.002	4	11.8	11.9	+0.04	410
	3	155	9.3	6.3	0.023					
E	1	226	7.0	4.1	0.031	4	12.3	12.3	-0.02	490
	3	134	9.7	6.7	0.028					
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
	1948		h. m. s.	s.	μ	μ	μ	km.	
223	July 3	iPEZ	12 56 09	5		+3	-5	3520	Dilatation.
		iPPZ	57 20	4			-3	31°7	h 0.045, H 12 50 13
		isPE	57 38	6		+3			
		iSE	13 00 55	5		+4			Gutenberg's Tables
		iNZ	03 43	10	-9		-5		give: Δ 3500km, 31°5
		iScSN	05 58	4	-4				h 300km., H 12 50 08
		iScSE	05 59	4		+3			
225	" 7	e(S)E	02 39 18						Masked by microseisms
		eN	39 21						and non-seismic waves.
		MN	57.5	17					
232	" 14	ePZ	22 35 22					3390	
		iNZ	35 39	5	+8		-6	30°5	
		iPPZ	36 28	10			+17		
		iPPN	36 30	10	-15				
		eSE	40 20	13					
		iSN	40 26	8	+20				
		iSSN	42 06	10	+67				
		iE	42 16	10		+39			
		eLE	43.1	33					
		ME	48.8	14		150			
		MNZ	49.6	16	105		140		
235	" 18	iPZ	06 51 45	5			+7	4920	Compression.
		i(PcP	Z 53 25	4			+9	44°3	Very large micro-
		iPPEZ	53 31	7			+11		seisms present.
		iSE	58 16	12		+17			
		iN	58 19	8	-14				
		iPSE	58 26	12		+19			
		iN	58 40	7	-19				
		eSSE	07 01 25						
		iScSN	01 40	10	-22				
		iSSSN	02 18	12	+28				
		eLE	05.6	27					
		MNE	10.5	18	28	28			
236	" 18	iSN	22 40 10	10	-11				Masked by micro-
		iN	40 32	12	-25				seisms.
		iE	40 36	10		+15			
		LQE	41.4	19					
		iE	41 54	6		+12			
		eLN	43.7	30					
		MNEZ	45.5	15	30	26	27		
237	" 19	e(S)	04 36 16	9					
		eLQE	38.4	20					
		eLRZ	40.1	19					
		MNEZ	41.7	15	4	4	4		

1948, July
RIVERVIEW COLLEGE OBSERVATORY
SEISMOLOGICAL BULLETIN

No.	Date	Phase	Time (G.M.T.)	Per	Amplitude			Δ	Remarks
					A_N	A_E	A_Z		
	1948		h m s	s	μ	μ	μ	km.	
239	July 20	iZ	00 47 22	4			+5	3060ca	Preliminaries
		iZ	47 59	5			+10	27°5ca	obscured by
		iPPZ	48 07	6			+10		microseisms.
		iPPPZ	48 17	8			+14		
		iS_N	51 55	10	-21				
		iE	52 04	7		+7			
		isS_N	52 12	7	+10				
		iNEZ	52 20	12	+73	+27	-32		
		iSS_E	53 18	10		-28			
		$iSSS_E$	53 38	9		+19			
		eLRZ	55.8	22					
		ME	56.6	16		39			
		MNZ	57.9	16	43		41		
240	" 20	iPPZ	11 21 55	4			-5		Masked by micro-
		iZ	22 17	4			46		seisms.
		$iSKS_{NE}$	27 45	6	+5	-2			
		$eSKKS_E$	28 44						
		$iSKKKS_{NE}$	28 50	7	-4	+3			
		iPS_{NEZ}	31 33	10	-8	+5	-7		
		$iPPS_{NZ}$	32 42	7	-5		-7		
		eSS_E	37 39	14					
		iSS_E	37 55	13		+10			
		eLRZ	54.8	30					
		MNEZ	58.5	21	7	12	19		
241	" 20	iPZ	15 18 18	5			+6	2350	Compression
		iS_N	22 05	7	-6			21°1	
		iS_E	22 06	7		-4			
		isS_N	22 18	7	-5				
		eLQ_E	22.4	14					
		$iPcP_N$	22 28	6	-9				
		eLR_Z	23.8	20					
		MNEZ	26.2	16	4	3	5		
242	" 20	$e(S)_N$	16 52 19						
		eNE	52 42	15					
		eLRZ	56.4	19					
		MNEZ	58.3	14	4	2	3		
243	" 21	iP_E	15 52 00	6		+2		2550	
		iZ	52 04	7			+4	22°9	
		$iPPP_N$	52 35	6	-5				
		iZ	53 07	7			+4		
		iN	54 13	5	+5				
		iE	54 23	5		-19			
		iS_E	56 03	7		-11			
		iS_N	56 04	7	-8				
		iE	56 10	7		-8			
		iZ	56 18	7			-12		
		iN	56 21	7	+10				
		eL_N	58.0	21					
		MN	59.1	15	13				
		MEZ	16 01.3	13		7	9		
245	" 23	$e(S)_N$	12 32 09						Readings from
		iN	32 54	8	-7				Wiechert. Galitzin
		iN	33 54	8	+9				record lost.
		eLR_E	34.8	38					
		MN	39.1	18	70				
		ME	41.0	13		73			
246	" 24	iPPZ	06 25 31	5			-5	15,170ca	From Gutenberg's
		iZ	25 43	5			+5	136°5ca	Tables.
		iPKSZ	26 19	4			+4		
		ePPPZ	27 09	11					
		$ePPP_E$	27 19	11					
		iZ	28 58	5			+4		
		$ePPS_E$	37 18	13					
		$ePPPS_{EZ}$	38.4	11					
		eSS_E	43 29	17					
		$eSSS_N$	48 17	17					
		eE	49 33	27					
		eL_N	07 03.7	27					
		eLRN	10.4	24					
		MEZ	16.7	22		3	4		
		MN	19.8	22	3				

1948, July-August.

RIVERVIEW COLLEGE OBSERVATORY
SEISMOLOGICAL BULLETIN

No.	Date	Phase	Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
					A_N	AE	AZ		
	1948		h m s	s	μ	μ	μ	km	
247	July 24	$i(S)_N$	14 34 05	6	-5				Deep focus.
		i_N	37 00	7	-4				Masked by micro-
		i_E	37 07	6		+3			seisms.
		i_Z	37 08	6			+5		
		i_N	37 18	6	+6				
249	" 26	$i(P)_Z$	19 05 46	3			-5		Masked by micro-
		$e(S)_N$	09 56						seisms.
		MNZ	13.6	22	7		9		
		ME	14.9	20		3			
251	" 30	iP_Z	00 47 54	7			+5	2450	Compression
		iPP_Z	48 17	7			+6	22°0	H 00 43 01
		iS_N	51 50	9	+7				
		$iPcP_E$	51 54	7		+7			
		i_Z	51 59	7			-8		
		eLQ_N	52.3	20					
		eLR_Z	53.4	24					
		MEZ	55.3	17		3	2		
		MN	55.9	13	3				
Minor shocks: 2d 02.6h; 5d 14.9h; 8d 11.9h,14.3h,17.3h; 11d 17.5h; 13d 15.9h; 14d 10.9h; 15d 11.9h; 16d 08.3h; 19d 16.8h; 22d 20.1h; 25d 00.5h; 28d 16.1h									
252	Aug. 3	iP_{NZ}	17 17 08	6	-1		+5	3310	Compression
		ipP_Z	17 32	5			+4	29°8	h 0.01
		i_N	17 34	5	+5				H 17 11 08
		i_Z	17 50	7			-5		
		eS_{NE}	21 56						
		isS_N	22 30	9	-10				
		isS_E	22 32	9		-7			
		i_N	22 50	9	+17				iSE 23 38 6s +6μ
		i_N	23 11	8	+8				iE 24 24 7 -11
		eL_E	25.4	23					
		MZ	27.0	16			10		
		MNE	27.4	13	7	8			
254	" 6	iP_Z	03 32 15	2			+3	1340	Compression
		iPP_{NZ}	32 24	2	+2		+5	12°0	H 03 29 23
		i_E	32 28	3		+3			
		iS_N	34 29	3	+13				Felt in Adelaide
		iS_E	34 30	3		-7			and the SE part
		i_Z	34 33	4			+14		of South Australia
		iSS_N	34 42	4	+22				
		iSS_E	34 44	3		+8			
		iSS_Z	34 45	4			+14		
		$iSSS_N$	34 55	3	+12				
		$iSSS_E$	34 58	3		+9			
		MNZ_1	35.6	5	64		39		
		MEZ_2	36.4	4		47	50		
257	" 7	eP_Z	14 51 17					7700	H 14 40 11
		i_Z	51 31	5			-6	69°3	
		i_Z	51 54	8			+6		
		iS_{NE}	15 00 20	7	+6	+4			
		iPS_N	00 53	10	+8				
		$iPPS_N$	01 03	10	+7				
		$iScS_N$	01 12	6	-6				
		i_Z	02 28	7			+6		
		i_E	02 35	6		+5			
		i_E	03 55	8		-6			
		iSS_E	04 50	11		-6			
		eSSS E	07 50	13					
		ME	18.8	16		7			
		MNZ	23.7	16	13		12		
258	" 8	eP_Z	16 18 11					2540	H 16 13 10
		e_Z	18 22	7				22°8	
		iS_E	22 13	9		-7			
		iS_N	22 14	9	+10				
		$e(LQ)_E$	22.4	16					
		eLR_{EZ}	23.9	22					
		MEZ	25.9	16		3	3		
		MN	26.2	15	3				

1948, August.

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
	1948										
260	Aug. 11	iZ	10	57	34	6					
		eE	11	03	56	16					
		ePSZ		05	55	20					
		ePPSE		07	02	15					
		eSSN		12	31	16					
		eSSPE		12	41	16					
		eLQN		26.7		30					
		eLRNEZ		31.4		32					
261	" 12	iPNZ	22	37	27	6	+4		+4	9420	Compression
		iPPZ		40	53	7			-5	84°8	H 22 24 55
		eSN		47	51	8					
		i(ScS)N		48	11	8	+6				Gutenberg's tables give:
		e(PS)N		48	56	12					
		ePPSN		49	13	14					Δ 9500km., 85°5
		iSSN		53	30	10	-5				H 22 24 50
		iN		53	47	10	-8				
		iN		54	09	10	+6				
		MNZ	23	16.1		18	6		6		
262	" 14	e(P)Z	20	06	54						Masked by micro-seisms.
		MNZ		15.5		18	5		4		
263	" 14	iPZ	23	44	43	4			-5		Dilatation
		MZ		53.0		19			12		Masked by micro-seisms.
		MNE		53.4		16	12	4			
264	" 15	iPZ	01	19	26	6			-6		Dilatation
		MZ		27.8		19			14		Masked by micro-seisms.
		MNE		28.1		16	13	5			
265	" 15	iE	22	20	43	3		+2			
		iE		23	14	3		+2			Masked by micro-seisms.
		iE		23	21	3		+5			
		iEZ		23	52	4		-9	+11		
		iN		24	11	4	-14				
		MNE		24.4		7	5	6			
		iN		25	17	4	+6				
268	" 17	eSNE	17	29	01						
		MNZ		53.3		16	1		1		
270	" 20	iPZ	18	54	16				-	5110	Dilatation
		iSE	19	00	56	7		+7		46°0	H 18 45 56
		ePSN		01	10	8					
		ePPSNE		01	18	10					
		i(ScS)N		04	13	7	+12				
		iN		04	34	8	+8				
		e(L)N		08.6		17					
		MN		12.2		9	3				
273	" 25	i(PKP)Z	06	28	45	5			+9		Compression
		iN		29	31	5	-5				
		iZ		31	50	6			+5		
		iPSN		38	18	10	-8				
		iPSZ		38	28	14			+10		
		iN		38	36	12	-18				
		eSSN		44	38	16					
		eLQN		55.8		21					
		eLRN		01.7		27					
		MNZ		07.0		20	13		20		
		MNEZ		10.9		17	12	5	19		
279	" 28	i(PPP)EZ	12	32	29	4		+2	-2		
		e(S)E		36	17						
		eLRZ		40.4		24					
		MN		41.8		16	3				
		MEZ		43.5		17		2	8		
281	" 29	iPEZ	17	45	08	3		+	-	4110	Dilatation
		iPEZ		45	11	3		+7	-8	37°0	H 17 38 00
		ipPEZ		45	18	4		-7	+8		
		iPPZ		46	40	7			-6		
		iPcPE		47	37	5		-5			
		iZ		47	43	5			+6		
		eSN		50	51	16					
		iN		51	06	7	-17				
		iE		51	10	7		+13			
		iN		51	53	6	-8				
		eLQN		53.9		25					
		eLRZ		55.8		25					
		MEZ		56.5		25					
				59.1		13	22	14	52		

1948, August-September.

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
	1948								
282	Aug.29	eS_N	23 49 13						
		PPS_N	50 00						
		eL_N	00 00.5	20					
		MZ	04.5	16			2		
		MN	05.0	16	2				
Minor shocks: 4d 23.7h; 6d 04.1h,06.5h; 10d 11.2h; 16d 14.0h; 17d 09.3h; 19d 10.5h; 24d 08.6h; 25d 01.7h; 26d 14.4h; 27d 01.5h,14.1h;28d 3.2h,9.7h,13.9									
285	Sept.2	iP_{NEZ}	23 43 48	4	+6	+4	-12	5510	Dilatation
		iN_Z	44 15	5	+6		-15	49°6	Perhaps deeper
		iN_Z	44 41	6	+7		-15		than normal.
		iPP_{NZ}	45 42	7	+16		-20		H 23 34 58
		eS_N	50 53						S from Wiechert.
		eS_E	50 56						
		i_N	54 29	12	-27				
		i_E	54 32	7		-8			
		i_N	55 11	12	-35				
		i_{EZ}	55 21	12		-19	+35		
		i_E	57 37	8		+27			
		ME	00 04.3	14		16			
		MN	06.3	20	70ca				
		MZ	06.7	17			44		
286	" 4	eP_Z	15 20 51					8450ca	
		i_Z	21 18	6			+5	76°ca	
		ePPZ	23 37						
		$iSKS_N$	30 46	10	+9				
		ePS_Z	31 08	13					
		i_N	31 12	7	+4				
		$ePPS_Z$	31 23	14					
		eSS_N	35 36	16					
		eLQ_N	41.3	30					
		eLR_Z	44.7	30					
		MNZ	47.4	21	9		18		
287	" 6	eP_{EZ}	08 48 14						
		i_{EZ}	50 04	7		-9	+8		
		i_N	53 50	8	+5				
		i_N	54 03	8	+12				
		i_N	56 05	6	+8				
		i_N	56 18	8	+15				
		eLR_N	56.7	19					
		MN	59.5	15	20				
		MEZ	09 00.8	18		5	14		
288	" 8	iP_{EZ}	15 15 51	6		-12	+41	3660	Compression
		iPP_E	16 01	5		+35		32°9	H 15 09 18
		i_E	16 15	5		-33			
		i_N	16 23	6	+17				
		i_E	17 08	6		+16			
		i_N	17 37	6	-8				From 15 17 37incl.
		i_E	17 40	6		-18			amplitudes are
		i_E	18 09	6		+16			from the Wiech-
		i_N	18 18	6	-9				ert except MZ
		i_E	18 19	5		-20			
		i_E	19 01	5		+			
		iS_E	21 05	6		-37			
		iS_N	21 08	6	-23				
		$?_E$	21 08	32					
		i_N	21 47	7	-42				
		eLQ_N	23.0	49					
		$eSSS_E$	23 30	18					
		$eSSS_N$	23 32	28					
		eLR_Z	23.6	27					
		MZ	25.5	21			700ca		
		MN_1	26.0	16	500				
		ME	26.1	21		1350			
		MN_2	30.7	11	250				
		eW_2N	18 04.3						
		MNE	09.4	20	22	20			

1948, September
RIVERVIEW COLLEGE OBSERVATORY
SEISMOLOGICAL BULLETIN

No.	Date	Phase	Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
					A_N	A_E	A_Z		
	1948		h m s	s	μ	μ	μ	km	
292	Sept.10	iP_N	14 00 33	4	+9			8580	H 13 48 41
		i_N	00 37	4	+6			77°2	P_Z lost in the
		$iPcP_Z$	00 40	4			+20		hour break.
		i_E	01 46	4		-4			
		iPP_N	03 26		+				
		iPP_Z	03 29			-			
		$iSNE$	10 19	7	-13	+24			
		i_Z	10 24	10			+11		
		$iSKS_E$	10 39	6		-15			
		$iScS_N$	10 42	8	+25				
		i_E	10 56	7		+11			
		$iPSZ$	11 03	11			+18		
		i_E	11 14	6		-10			
		$iPPS_N$	11 23	7	-15				
		iSS_N	15 24	13	+14				
		eZ	15 47	20					
		$eSSS_N$	18 41	14					
		eLQ_E	21.0	27					
		eLR_E	25.5	27					
		MNEZ	30.0	22	36	18	42		
		eW_2N	16 18.0	27					
295	" 12	$ePPZ$	03 27 40	5					
		iS_N	31 42	9	-3				
		eLR_Z	34.0	22					
		$eSSS_N$	34 03	15					
		MN	35.4	18	4				
		MZ	36.2	26			9		
		ME	36.8	20		2			
298	" 14	P?Z	08 19 31						
		i_Z	21 05	5			-4		
		$e(S)_N$	24 55						
		$e(SSS)_N$	27 12	18					
		MN	28.6	18	4				
		eLZ	29.0	25					
		MEZ	31.8	19		3	10		
307	" 21	iS_{NE}	17 53 19	5	-8	-7			
		eLR_N	18 06.1	30					
		MN	09.3	13	3				
		MZ	16.3	18			5		
311	" 23	ePZ	12 36 58	9				2490	12 32 01=H
		epP_{NZ}	37 07	9				22°4	
		i_E	37 15	4		+4			
		iPP_Z	37 28	7			+6		
		iS_N	40 57	5	-2				
		iNE	41 04	6	-6	+2			
		i_Z	41 11	5			+4		
		iEZ	41 21	6		+2	-6		
		i_E	41 28	5		+5			
		eLR_Z	42.5	25					
		MEZ	44.4	17		3	5		
		MN	44.6	13	4				
		$iScS_N$	48 19	7	+7				
312	" 23	i_N	12 55 35	4	+2				Deep focus?
		i_{NZ}	57 35	4	+4		+5		Superimposed on
		i_E	13 00 34	4		+2			coda of No.311
		i_{NE}	02 15	4	+2	-2			
		i_N	03 48	4	+4				
313	" 24	iP_{NZ}	20 48 07	5	+3		-4	3560ca	Dilatation
		iPP_N	49 14	5	-4			32°ca	
		iPP_Z	49 15	5			+5		
		i_Z	49 34	5			-3		
		i_{NZ}	49 45	5	+6		-6		S cannot be
		i_N	53 07	6	-7				identified.
		e_N	53 36	18					
		i_N	53 55	14	-13				
		eLQ_N	55.0	16					
		iSS_Z	55 02	12			-12		
		eLR_E	56.1	36					
		iM_E	21 00 32	12		+110			
		MNEZ	02.6	12	100	60	50		

1948, September

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
	1948								
316	Sept.26	iP_{NEZ}	01 04 51	6	-6	-2	+9	3100	Compression
		ipP_{NE}	05 25	7	+7	+3		27°9	h 0.02
		ipP_Z	05 26	7			-8		H 00 59 14
		i_N	05 34	7	+18				
		iPP_Z	05 42	7			-11		
		iPP_N	05 44	7	+8				
		$iPPP_{NEZ}$	06 04	7	-9	-6	+7		
		i_{NE}	06 28	6	-8	-4			
		i_N	08 23	5	+5				
		iS_N	09 21	7	+12				
		i_N	09 34	9	-22				
		i_E	09 39	8		+10			
		i_N	09 48	8	-26				
		i_E	09 49	6		-6			
		i_N	09 58	7	-18				
		i_Z	10 17	10			+14		
		$i(sS)_N$	10 19	9	-27				
		i_E	10 20	7		-11			
		i_E	10 37	7		+9			
		$i(SS)_N$	10 51	7	+16				
		$iSSS_N$	11 21	8	-19				
		eL_N	11.8	24					
317	" 26	eP_Z	21 12 51	8				2490	H 21 07 54
		iS_N	16 50	9	-6			22°4	
		eLRZ	18.3	22					
		MN	19.9	16	4				
		ME	20.2	16		1			
		MZ	20.8	18			2		
319	" 27	$i(P)_N$	21 22 31	4	+5				Masked by large
		$i(S)_N$	28 49	7	-7				microseisms.
		e_N	35 04	15					
		MN	39.5	18	6				
320	" 28	iP_Z	21 48 44	4			+7	8620	Compression
		$iPcP_Z$	48 56	4			+4	77°6	H 21 36 49
		ePP_Z	51 36	12					
		e_Z	52 31	15					
		iS_N	58 32	6	+17				
		SKS_N	58 50						
		ePS_N	59 11	7					
		i_N	59 17	7	-9				
		$iPPS_N$	59 33	7	-7				
		iSS_N	22 03 27	12	-8				
		eLQ_N	09.2	30					
		$e(G)_N$	11.6	30					
		eLR_N	13.5	36					
		MZ_1	16.3	38			60		
		MN	24.7	22	6				
		MZ_2	26.7	20			7		
321	" 30	iPP_Z	02 11 03	4			+4		
		eS_N	15 13	7					
		eLQ_N	17.3	20					
		eLRZ	18.9	25					
		$i(ScS)_N$	20 10	6	+5				
		MN	20.8	16	4				
		MZ	22.1	16			10		
		ME	22.4	16		3			

Minor shocks: 1d 20.5h; 2d 20.4h; 9d 01.8h, 06.4h, 14.3h; 10d 23.7h; 11d 16.3h; 12d 06.6h; 13d 14.4h; 14d 17.2h; 16d 23.3h; 19d 05.1h, 07.0h & 20.6h; 20d 00.4h, 12.5h; 21d 15.0h; 22d 02.7h, 23.7h; 23d 00.5h; 25d 00.0h 03.7h; 27d 05.6h; 30d 03.6h, 14.8h

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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	$\epsilon : 1$	$\frac{r}{T_o^3}$		T_1 (Galv.)	T (Pend)	μ^2	V_s
N	1	207	7.4	5.7	0.002	4	11.8	11.9	+0.04	410
	3	158	9.3	6.0	0.021					
E	1	218	7.0	4.5	0.010	4	12.3	12.2	-0.02	490
	3	143	9.6	5.4	0.026					
Z	2					4	11.0	11.0	0.0	450

No.	Date	Phase	Time (G.M.T.)	Per	Amplitude			Δ	Remarks
					A_N	A_E	A_Z		
	1948		h. m. s.	s.	μ	μ	μ	km.	
324	Oct. 1	iPZ	22 51 17	3			+5		Compression.
		iNZ	51 28	4	+4		-4		Probably deep.
		iSN	56 03	6	+11				
326	" 2	ePE	14 27 42						Masked by micro-
		eZ	29 17						seisms.
		eSN	32 20						
		e(SS)Z	33 21	10					
		eLRZ	34.8	21					
		MNEZ	37.4	16	5	4	18		
327	" 3	ePZ	06 53 37					3020	
		iN	53 40	4	+5			27°2	
		iN	54 02	4	+4				
		ePPZ	54 12	8					
		iSN	58 12	6	+8				
		eN	58 22	18					
		iN	58 34	7	+10				
		iN	58 57	7	-13				
		eLRZ	07 01.3	23					
		MNZ	03.1	17	6		7		
		ME	04.3	11		5			
328	" 4	iN	06 16 07	6	-4				
		eZ	16 13	12					
		eN	19 51						
		eLN	26.8	20					
331	" 5	iPPZ	20 31 25	7			+15	12,560	ca
		iZ	32 36	7			+8	113°	ca
		iZ	37 09	7			+8		
		iSKSN	37 14	7	+10				
		iZ	37 22	8			+9		
		iSN	39 04	9	-15				
		isSN	39 24	9	-22				
		iPSE	41 00	8	+7	+6			
		ePPSE	42 03	9					
		iN	42 13	9	+24				
		iSSN	47 04	15	+32				
		iN	47 19	15	-62				
		iPSPSE	47 28	9		+14			
		iN	50 44	11	+23				
		SSSN	51 05	20	32				
		eLN	21 05.5	37					
		MN	21.4	18	69				
		MZ	21.6	21			100		
		ME	24.8	18		37			
332	" 7	e(S)N	18 53 17	9					
		eLN	55.2						
		MN	56.4	15	2				
		iScSN	58 33	6	+5				

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
	1948								
336	Oct.12	iP_Z	02 39 44	6			-6		Dilatation
		iS_{NE}	43 36	6	-8	+4			Heavy microseisms
		eLR_Z	45.1	25					present.
		MEZ	47.1	18			13		
		MN	47.2	13	8				
337	" 12	$i(P)_Z$	02 44 53	5			+9		Compression
		eLR_Z	50.3	24					Heavy microseisms
		MZ	52.3	18			10		present.
340	" 14	iP_Z	21 47 26	4			+3	3000	Compression
		isP_Z	50 02	4			+4	27°0	h 600km.
		$iPcP_Z$	50 20	4			+4		H 21 42 26
		iZ	51 06	4			-3		Δ, h & H from
		iS_N	51 25	6	-3				Gutenbergs tables
		$iScP_Z$	53 10	4			-4		
		eL_Z	55.0	16					
		$iScS_E$	57 06	4		+5			
		$iScS_N$	57 09	8	+6				
341	" 15	eP_Z	22 56 28	6				9510	H 22 43 52
		$iPcP_Z$	56 33	5			+4	85°6	
		ePP_N	59 43	9					
		iPP_Z	59 49	9			-5		
		$eSKS_N$	23 06 47	10					
		iS_N	06 56	7	+5				
		$iScS_E$	07 01	6		-5			
		ePS_N	07 51	20					
		iSS_N	12 26	17	-12				
		eLQ_E	18.5	21					
		eG_E	18.9	30					
		MNZ	35.1	17	18		20		
342	" 16	eP_{NZ}	02 00 42					2420	
		iP_{NEZ}	00 50	6	+5	+2	-12	21°8	Dilatation
		ipP_{EZ}	01 02	6		-3	+14		Δ iS-iP
		$iPPP_N$	01 24	8	-7				
		iS_{NE}	04 44	6	+15	+4			EW amplitudes
		$iPcP_Z$	04 48	6			-12		from Wiechert.
		isS_N	05 06	7	+26				
		iE	05 11	7		+4			
		iZ	05 14	7			+20		
		iSS_N	05 20	9	+15				
		iN	05 43	9	+15				
		eLR_{EZ}	06.2	28					
		$MNEZ$	08.1	16	25	12	13		
343	" 16	eP_{NZ}	04 35 32	8				2480	
		iS_N	39 30	7	+4			22°3	
		iS_E	39 32	7		+1			
		eLR_Z	40.8	20					
		MZ	42.9	14			2		
		MN	43.1	18	7				
344	" 16	$e(S)_N$	14 26 29						
		eL_{NZ}	31.2						
346	" 21	$e(P)_Z$	01 53 52						
		$e(S)_N$	58 24						
		MNZ	02 04.4	16	9		5		
347	" 21	eP_{NZ}	05 07 24	12				2980	H 05 01 45
		ipP_{NZ}	07 36	7	+15		-21	26°8	Preceded by heavy
		iN	07 58	8	24				microseisms.
		iE	08 33	7		+3			
		iN	08 38	8	-21				EW amplitudes
		iN	09 02	8	-26				from Wiechert.
		iS_N	11 56	9	-45				
		iZ	12 16	8			+32		
		$i(sS)_N$	12 18	8					
		iE	12 21	8		+12			
		iN	12 33	10	-140				
		iE	13 00	8		+13			
		iE	14 01	8		-18			
		eLZ	15.1	27					
		$MNEZ$	18.6	13	87	60	70		
		MZ_2	22.2	12			90		

1948, October

RIVERVIEW COLLEGE OBSERVATORY

SEISMOLOGICAL BULLETIN

No.	Date	Phase	Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
					A_N	A_E	A_Z		
	1948		h m s	s	μ	μ	μ	km.	
348	Oct.21	$i(P)_Z$	08 37 41	7			+6		Large microseisms present.
		$i(S)_N$	41 58		-				
		iZ	42 27	9			+8		
		eL_Z	45.7	24					
		MNZ	48.2	15	10		9		
		ME	48.9	11					
354	" 23	$i(S)_N$	05 06 15	8	-4				
		eL_N	24.2	19					
		MNZ	30.7	16	2		1		
355	" 23	$e(S)_N$	11 28 24	11					
		eZ	28 46	11					
		eLZ	32.0	24					
		MNZ	34.6	14	2		2		
358	" 24	ePZ	17 01 10						
		iPZ	01 20	8			+7		Compression
		iS_{NE}	05 12	6	+5	+4			
		iZ	05 30	7			-12		
		eLR_Z	06.6	22					
		MEZ	08.4	19			10		
		MN	09.1	14	7				
359	" 24	$i(P)_Z$	17 19 43	8			+4		
364	" 28	iPZ	20 56 42	6			-6	7990	Dilatation
		$iPcPZ$	56 56	3			+5	71°9	H 20 45 31
		iS_E	21 05 51	7		-5			
		iS_N	05 54	7	-12				Gutenberg's tables give:
		$iScS_E$	06 25	6		+9			
		iPS_E	06 49	8		-6			Δ 8160 km., 73°4
		i_N	06 55	8	+6				H 20 45 15
		eLQ_E	15.7	24					
		eLR_E	18.3	24					
		MNZ	24.7	25	15		13		
		ME	25.1	25		5			
365	" 29	$e(S)_E$	10 22 09						
		eLZ	24.3						
		MNZ	25.7	12	2		2		
		ME	25.8	10		1			
368	" 30	$i(P)Z$	22 27 31	3			+3		
		iN	28 59	3	+1				From 22 28 59 to 22 38 17 readings are from Wiechert.
		iNE	30 55	3	-1	-1			
		iNE	33 42	5	+3	-2			
		iNE	33 53	4	+3	+3			
		iNE	38 17	5	+2	-2			
		MN	42.8	13	1				

Minor shocks: 2d 05.0h; 4d 10.5h; 5d 00.9h; 8d 14.0h,20.0h; 10d 04.6h; 13d 13.8h; 14d 05.2h; 17d 02.8h; 21d 14.9h; 22d 15.6h,16.5h,17.6h,21.0h; 23d 16.7h,18.2h; 25d 10.9h; 26d 08.1h,20.5h; 28d 07.8h; 29d 15.4; 30d.13.7h

369	Nov. 1	eE	10 26 07						
		$e(S)_N$	28 26						
		eL_N	32.9	22					
		MNE	33.9	17	5	2			
		MZ	36.5	12			2		
370	" 1	iPZ	12 18 56	3			+4	10,060	Compression
		$iPcPZ$	19 03	3			+4	90°5	H 12 05 56
		$eSKS_N$	29 22	8					
		$iScS_{NE}$	29 51	6	-2	-5			
		eLQ_E	44.2	24					
		eLR_Z	49.4	24					
		MN	54.4	21	3				
		MEZ	56.0	21		2	5		
374	" 2	eE	14 05 54	10					
		eL_E	09.7	21					
		iN	09 48	6	+6				
		ME	11 53	11		5			
		iZ	12 06	6			-12		
		MNZ	13.3	11	6		6		
		i_N	16 38	9	+16				

RIVERVIEW COLLEGE OBSERVA TORY
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No.	Date	Phase	Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
					A_N	A_E	A_Z		
	1948		h m s	s	μ	μ	μ	km.	
375	Nov. 3	iP_Z	05 23 41	3			+5	2500	Compression
		i_{NE}	23 47	3	+	+		22°5	H 05 18 43
		i_{NEZ}	23 53	5	+14	+21	-35		
		iE	24 03	5		+20			
		iPP_Z	24 08	6			-18		
		iPP_{NE}	24 09	6	+8	+34			
		iN	24 26	6	-32				
		iZ	24 29	6			+41		
		iE	25 01	6		+23			
		i_N	25 48	6	+20				
		iS_N	27 41	5	+25				
		iS_E	27 43	5		+7			
		iNZ	27 54	6	-66		+18		
		i_{NE}	28 15	8	+130	+88			
		iSS_Z	28 22	9			-80		
		eLQ_E	28,5	19					
		iZ	29 45	9			+82		
		MN	30.7	16	200				
		MZ	30.9	16			110		
		ME	31.3	16		100			
		eW_2NZ	08 14.9	22					
		MN	25.4	19	2				
		ME	26.6	19		1			
380	" 5	iP_Z	08 37 27	3			-4	2480	Dilatation
		ePP_Z	37 54	8				22°3	H 08 32 31
		iS_N	41 25	7	+7				
		iS_E	41 27	7		+7			
		iZ	41 35	6			+6		
		isS_N	41 43	7	+5				
		iZ	41 51	6			-6		
		eLQ_N	41.9	14					
		iSS_Z	42 07	8			+7		
		eLR_N	43.0	19					
		MZ	44.4	18			9		
		MN	44.7	16	7				
		ME	44.8	16		4			
383	" 5	$i(P)_Z$	23 40 44	3			+2		Compression
		$e(S)_N$	45 54	11					Masked by micro-
		eL_Z	49.8	30					seisms.
		MN	52.2	18	3				
		ME	52.3	14		4			
		iZ	54 28	9			+13		
384	" 6	iP_Z	14 13 42	5			-4	2550	Dilatation
		iN	13 45	6	-3			22°9	H 14 08 30
		ipP_{EZ}	13 51	6		+8	-12		
		i_N	13 54	7	-7				
		iPP_E	14 00	7		+8			
		iPP_Z	14 03	7			+13		
		iE	14 38	6		+7			
		iE	15 00	7		+7			
		iN	15 01	7	+7				
		iS_E	17 45	9		+12			
		iS_N	17 46	7	+9				
		iZ	17 49	7			-12		
		isS_N	18 00	7	-11				
		iE	18 08	9		-9			
		$iSSS_N$	18 34	7	-7				
		eLR_Z	19.2	26					
		MEZ	21.0	19		17	18		
		MN	21.4	15	13				
386	" 8	iS_N	02 50 31	6	+4				Masked by
		iE	50 35	6		+6			microseisms.
		isS_N	50 46	7	+4				
		eLR_N	51.9	20					
		$MNEZ$	53.2	17	7	4	3		
387	" 8	$e(S)_E$	18 01 15	9					Masked by
		eL_E	04.5						microseisms
		i_N	04 38	5	+4				

RIVERVIEW COLLEGE OBSERVATORY

SEISMOLOGICAL BULLETIN

No.	Date	Phase	Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
					A_N	A_E	A_Z		
	1948		H m s	s	μ	μ	μ	km.	
388	Nov.10	iP_Z	03 30 59	4			+3	4900	Compression
		i_{NE}	31 02	4	+3	-2		44°1	H 03 22 52
		iS_N	37 29	6	-8				
		iS_E	37 32	6		+3			
		iE	37 57	4		+4			
		iE	38 53	5		+4			
		eN	40 12	12					
		$iScS_N$	40 52	7	+9				
		eL_E	45.4	28					
		ME	48.4	18		9			
		MN	51.4	16	12				
		MZ	51.9	15			11		
389	" 11	$e(P)_Z$	07 44 20						
		$e(S)_N$	54 33	10					
		$e(S)_E$	54 36	10					
		$e(PS)_N$	55 28						
		$e(SS)_N$	59 24	13					
		$e(SSS)_N$	08 02 55	13					
		eLQ_E	05.9	35					
		eLR_Z	09.8	30					
		MNZ	14.8	18	1		1		
390	" 12	ePZ	17 40 31						
		$i(S)_{NE}$	45 54	7	-3	-3			
		eL_N	48.9	18					
		eL_E	50.4	18					
		$i(ScS)_N$	51 00	4	+5				
		MEZ	53.4	18		5	5		
		MN	54.1	12	5				
391	" 13	iP_{EZ}	07 07 11	5		-2	+3	3850	Compression
		iPP_E	08 28	6		+3		34°6	H 07 00 23
		$iPPP_Z$	08 47	8			+4		
		iS_E	12 37	7		-5			
		eLQ_E	14.7	15					
		iSS_Z	14 52	7			+4		
		eLR_Z	16.7	18					
		$iScS_E$	17 43	6		-7			
		MZ	20.7	16			12		
		MN	20.8	12	9				
		ME	21.3	16		12			
392	" 13	eZ	22 55 31						
		$i(PP)_E$	56 36	5		-1			
		$e(S)_E$	23 00 44	9					
		eLQ_N	03.2	16					
		eLR_Z	04.9	25					
		MN	05.9	16	5				
		MEZ	07.3	19		11	16		
396	" 19	$ePPZ$	01 25 13					13,780ca h 100km.	
		$eSKSP_E$	35 08	13				124°ca	
		ePS_N	35 11	10					Interpretation
		$ePSKS_Z$	35 18	12					from Gutenberg's
		$ePSKS_{NE}$	35 21	10		3			tables.
		$epPS_{EZ}$	35 32	12					
		eE	38 02	20					
		eSS_N	41 52						
		eE	42 12						
		eSS_E	42 41						
		$e(P'_2P'_2)_N$	45 09	15					
		$eSSS_N$	46 31	16					
		eE	46 54	19					
		eLR_Z	02 02.7	33					
		MEZ	05.5	21		2	5		
		MN	14.1	19	2				
		eW_2N	03 11.1	21					

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
	1948								
399	Nov.21	iP_{NEZ}	19 15 42	6	-4	-3	+4	2790	Compression
		ipP_{NEZ}	16 15	6	+4	+4	-13	25°1	h 0.02
		iPP_{NE}	16 24	6	+30	+25			H 19 10 31
		$iPPP_Z$	16 38	6			+24		
		i_N	18 17	6					
		iS_N	19 52	9	-47				
		i_Z	20 06	8			-16		
		i_E	20 11	10		-31			
		isS_N	20 45	9	+44				
		i_E	21 01	7		+27			
		iSS_Z	21 12	10			+56		
		i_N	21 19	11	-110				
		$iSSS_{EZ}$	21 29	10		+55	+70		
		i_E	23 42	10		+50			
		MZ	23.8	16			25		
		i_E	24 00	9		+40			
		MN	24.3	16	30				
		$iScS_E$	26 27	7		+20			
400	" 22	eS_N	09 30 13	8					
		i_N	30 19	8	-5				
		$iScS_{NE}$	30 36	6	-3	-3			
		eLR_E	48.1	26					
		MNEZ	53.0	22	4	3	4		
401	" 24	e_N	07 49 30	2					Nearby shock.
		i_N	51 21	4	+3				
404	" 25	$e(S)_E$	14 58.3	12					
		i_{EZ}	59 45	7		+4	+4		
		$i(ScS)_N$	15 03 06	6	-4				
405	" 26	iP_{NZ}	05 42 36	4	-14		+18	2190	Compression
		i_N	42 50	7	-16			28°7	H 05 36 40
		i_N	43 26	6	+12				
		iPP_N	43 29	7	+21				
		$ePPP_N$	43 41						
		i_N	44 06	5	-28				
		i_E	45 54	5		+8			
		eS_N	47 21	15					
		i_E	48 47	6		+21			
		LQ_E	49.0	21					
		eLR_E	50.2	22					
		i_N	50 27	9	-60				
		i_N	51 01	7	-40				
		$i(ScS)_E$	53 26	5		-45			
		MNE	54.0	20	150	140			
		MNZ	56.0	18	190		240		

Minor shocks: 1d 22.7h; 2d 10.7h,12.5h; 3d 13.8h,16.1h; 4d 14.1h; 5d 05.7h, 11.9h,19.8h; 6d 17.0h; 14d 06.9h,14.0h; 15d 13.4h; 19d 13.2h,21.7h; 24d 18.4h, 19.7h; 27d 07.2h; 28d 11.4h,22.4h; 29d 03.7h; 30d 01.4h.

411	Dec. 1	iP_{NZ}	18 19 57	6	+5		+7	2670	Compression
		i_Z	20 25	7			-10	24°0	H 18 14 44
		iPP_E	20 32	6		+5			
		$iPPP_N$	20 41	7	+7				
		i_Z	20 51	7			+13		
		i_N	20 52	7	+7				
		iS_E	24 09	8		-4			
		i_E	24 18	9		-20			
		isS_N	24 22	7	+12				
		eSS_Z	24 59	14					
		eLR_Z	25.5	25					
		eLR_N	25.8	22					
		ME_1	27.1	13		11			
		MNZ	27.5	17	22		29		
		ME_2	28.9	9		14			
		MN_2	30.9	10	20				
		$iScS_E$	30 57	9		+12			

RIVERVIEW COLLEGE OBSERVATORY
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No.	Date	Phase	Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
					AN	AE	AZ		
	1948		h m s	s	μ	μ	μ	km.	
412	Dec. 4	iPP$_{EZ}$	00 41 23	7		+4	-6	12,450ca	
		ePS$_{Z}$	50 50	13				112°ca	
		ePS$_{E}$	50 59	16					
		i$_{E}$	51 20	8		+9			
		ePPS$_{EZ}$	52.0	15					
		eSS$_{N}$	57.0	13					
		eSS$_{E}$	57.5	20					
		eSSS$_{N}$	01 01.0	16					
		e$_{N}$	01 26	17					
		eLQ$_{N}$	08.6	31					
		eLR$_{EZ}$	13.6	30					
		MEZ$_{1}$	15.2	25		7	5		
		MNEZ	20.8	20	3	5	6		
		eW$_{2}$E	02 31.7	24					
413	" 5	ePS$_{Z}$	00 12 19						
		eLQ$_{N}$	28.7	30					
		eLR$_{EZ}$	34.0	30					
		MEZ	40.0	19		1	3		
		MN	43.1	18	1				
414	" 5	iP$_{NZ}$	06 30 56	4	+4		+5	2860	Compression
		iNEZ	31 01	6	-16	+2	-19	25°7	H 06 25 27
		i$_{N}$	31 29	4	+23				
		iPP$_{Z}$	31 33	7			+90		
		iPP$_{E}$	31 34	7		-16			
		iS$_{E}$	35 20	9		+25			
		i$_{N}$	35 26	9	-55				
		i$_{E}$	35 42	14		+80			
		i$_{Z}$	35 52	10			+120		
		i$_{E}$	36 12	18		-480			
		i$_{N}$	36 15	12	-160				
		iSSS$_{N}$	36 48	10	-90				
		eLR$_{Z}$	37.1						
		MNEZ	40.4	12	110	120	90		
415	" 5	P?$_{Z}$	07 46 37						
		i(S)$_{E}$	51 03	11		-40			
		i$_{N}$	51 05	7	+18				
		i$_{E}$	51 14	10		-65			
		i$_{E}$	52 05	10		-80			
		eL$_{N}$	52.9	19					
		ME	54.4	11		55			
417	" 6	iP$_{Z}$	12 15 39	4			+4	2470	Compression
		iNZ	15 53	9	+6		-14	22°3	H 12 10 44
		iS$_{N}$	19 36	10	+8				
		i$_{E}$	19 43	8		-17			
		i$_{N}$	19 45	10	+70				
		i$_{Z}$	19 47	10			+22		
		i$_{N}$	20 03	10	+43				
		i$_{E}$	20 09	10		-30			
		iSSS$_{E}$	20 30	10		+20			
		eLR$_{EZ}$	21.0	24					
		MN	22.6	16	22				
		MEZ	23.4	19		26	26		
418	" 6	iP$_{Z}$	14 02 02	7			-11	2790	Dilatation
		i$_{N}$	02 04	6	-6			25°1	
		iS$_{NZ}$	06 22	9	+25		-16		
		isS$_{E}$	06 42	10		+31			
		i$_{E}$	07 17	12		-30			
		MENZ	08.6	14	15	15	7		
		iScS$_{N}$	13 05	6	+15				
3	" 7	e(P)$_{Z}$	16 23 47	10					
		eS$_{N}$	27 34						
		iS$_{E}$	27 38	6		-5			
		i$_{N}$	27 40	8	+9				
		i$_{Z}$	27 47	6			-8		
		i$_{N}$	28 00	7	-9				
		i$_{N}$	28 28	7	+7				
		eL$_{NEZ}$	29.2	19					
		MNEZ	31.3	15	6	4	3		

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No.	Date	Phase	Time (G.M.T.)	Per	Amplitude AN	Amplitude AE	Amplitude AZ	Δ	Remarks
	1948		h m s	s	μ	μ	μ	km.	
424	Dec. 7	e(P)Z	21 08 22	9					Replica of No.423
		eSN	12 09						
		iSE	12 13	7		-5			
		iN	12 15	9	+10				
		iZ	12 23	7			-6		
		iN	12 36	7	-9				
		iZ	13 00	5			+5		
		eLE	13.6	18					
		eLZ	14.0	20					
		MZ	15.5	18			5.		
		MNE	16.0	15	6	4			
426	" 8	e(P)Z	03 01 17						
		eSN	05 43						
		isSN	05 59	7	+6				
		eLZ	09.3	18					
		MZ	10.9	17			2		
		ME	11.3	13		1			
427	" 8	e(P)Z	16 25 22						
		eZ	25 51	8					
		e(SKS)E	35 49	10					
		e(SKS)N	35 58	10					
		e(SS)N	42 45	12					
		e(LQ)E	48.7						
		MZ	17 03.5	20			7		
		MNE	05.0	18	5	2			
432	" 12	iPZ	06 40 34	3			+2	2490	Compression
		iPPE	40 59	6		-2		22°4	H 06 35 37
		iSNE	44 33	6	+5	-3			
		iE	44 38	7		-12			
		isSN	44 50	10	+16				
		eLRZ	46.3	25					
		MNEZ	48.2	14	16	11	7		
433	" 12	iPZ	13 30 16	5			+5	9890	Compression
		iPPZ	33 45	5			+4	89°0	H 13 17 23
		eSKSN	40 35	6					
		iSE	41 00	6		+6			
		iSN	41 01	6	+3				
		eE	46 41	13					
		eSSN	47 02	20					
		eLQN	55.1	20					
		eLRE	57.9	19					
		MN	14 05.1	19	1				
		ME	06.8	20		4			
		MZ	08.4	20			3		
437	" 15	iPZ	19 20 48	6			+5	6270	Compression
		ipPZ	21 40	6			-4	56°4	h 0.035
		ipPN	21 42	6	-5				H 19 11 31
		isPNZ	22 09	6	-8		+10		
		iSNZ	28 17	7	-20		-9		
		isSN	29 56	7	-3				isSN & iScSN
		isSE	29 57	10		-26			from Wiechert.
		iZ	30 01	7			+6		
		iScSN	30 04	7	+2				
		ME1	37.3	25		16			
		MN1	38.5	18	7				
		MNEZ	40.7	12	4	6	5		
438	" 16	ePZ	07 24 52					3390	
		iE	26 17	6		-6		30°5	
		eSN	29 50						
		iN	30 09	7	+8				
		iE	30 21	7		+11			
		iE	30 36	9		+17			
		eLN	32.1	23					
		eLE	32.8	22					
		eLRZ	33.5	25					
		MN	35.9	11	41				
		MZ	37.3	16			22		
		ME	38.9	15		22			

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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
	1948								
441	Dec.18	ePNZ	14 18 15					2610	
		iZ	18 31	4			-7	23°5	
		iPPE	18 44	7		-4			
		iPPZ	18 47	7			-8		
		eSNE	22 23	8					
		iE	22 29	9		-20			
		iZ	22 30	9			-12		
		iN	22 35	9	+22				
		iSSN	23 06	12	+30				
		iSSE	23 11	12		+26			
		eLRZ	24.2	22					
		ME	25.7	19		19			
		MN	26.2	15	15				
		MZ	26.5	17			14		
443	" 20	e(P)Z	20 45 32						
		e(S)N	50 13						
		e(S)E	50 15						
		eN	50 23	14					
		eLRE	52.8	26					
		MNZ	55.8	22	8		8		
		ME	56.5	14		4			
446	" 21	iPZ	16 37 19	4			-4	2600	Dilatation
		iPPNEZ	37 52	5	-4	-3	+9	23°4	
		iPPPZ	38.00	5			+6		
		iSNE	41 26	5	-4	+2			
		iN	42 01	7	-5				
		eLRZ	43.3	18					
		MN	45.0	16	2				
		MEZ	45.6	18		1	1		
447	" 23	ePZ	07 17 56	7				3200	H 07 11 59
		iSN	22 42	8	+5			28°8	
		iN	23 06	11	-5				
		eLQN	24.1	19					
		eLRN	25.2	20					
		ME	27.7	14		6			ME from Wiechert
		MN	28.4	12	37				
		MZ	28.9	15			13		
448	" 23	iPZ	08 54 13	6			-10	9940	Dilatation
		iPcPN	54 14	6	+4			89°5	h 100 km.
		iPPZ	57 46	7			-8		H 08 41 25
		iPPPZ	59 50	9			+5		
		iN	09 04 14	9	-5				Interpretation
		iSN	04 49	10	-5				from Gutenberg's
		isSN	05 33	7	+4				tables.
		iPSN	06 12	9	+7				
		isPSN	06 35	10	+6				
		eSSN	10 49	14					
		eSSE	11 03	14					
		esSSN	11 28	14					
		eSSSN	14 28	18					
		eLE	22.4						
		eLRNZ	22.7	38					
		MNZ	26.5	25	25		28		
		eW2Z	10 58.4	26					
449	" 24	e(P)Z	03 19 04	6					
		e(S)N	23 02						
		eLN	24.6	18					
		MN	26.0	15	1				
		MZ	28.3	13			1		
450	" 24	ePZ	04 51 45	8				2480	
		iSN	55 44	6	-5			22°3	
		i(sS)N	56 04	6	+4				
		eLRZ	57.3	22					
		MN	58.8	16	3				
		MZ	59.7	16	1				
454	" 26	e(S)N	07 38 45						
		eLQN	58.8	25					
		MNZ	08 13.7	18	1		1		

1948, December

RIVERVIEW COLLEGE OBSERVATORY

SEISMOLOGICAL BULLETIN

No.	Date	Phase	Time (G.M.T.)	Per.	Amplitude AN	Amplitude AE	Amplitude AZ	Δ	Remarks
	1948		h m s	s	μ	μ	μ	km.	
455	Dec.26	e_Z	09 45.0	13					
		e_Z	49.7	13					
		eLR_Z	56.5	28					
		MNZ	10 00.4	18	2		4		
457	" 27	iP_Z	04 07 03	8			-6	2460	Dilatation
		i_N	07 41	7	+3			22°1	
		iS_N	11 00	7	-7				
		$i(sS)_N$	11 20	6	+5				
		eLR_Z	12.5	22					
		MN	14.1	14	3				
		MZ	15.0	14			2		
458	" 28	$i(P)_Z$	00 21 58	4			-3		Dilatation
		$e(S)_N$	25 34	8					
		eL_Z	26.8						
459	" 28	iP_Z	06 27 18	7			-4	2480	Dilatation
		iS_N	31 16	7	-4			22°3	
		eLR_Z	32.8	21					
		MN	34.4	14	2				
460	" 28	iS_N	15 34 19	7	-4				
		$i(sS)_N$	34 39	7	+4				
		eLR_Z	35.8	21					
		MN	37.4	15	2				
		MZ	38.3	14		1			
461	" 28	$i(P)_Z$	19 36 05	6			-3		Dilatation
		$e(S)_N$	40 30	10					
		eLR_Z	42.8	25					
		MZ	45.7	18			1		
		MN	45.9	14	2				
462	" 29	eP_Z	05 48 48	8				4560	H 05 41 06
		i_Z	49 00	3			+4	41°0	
		ePP_N	50 25	7					
		iNZ	50 32	4	+4		-4		
		$iPcP_Z$	50 48	6			-4		
		$iPPP_N$	50 57	5	+4				
		iS_{NE}	54 57	7	-4	+4			
		$e(LQ)_E$	57.5	19					
		$e(LQ)_N$	57.8	20					
		eLR_Z	59.9	27					
		MN	06 00.7	10	14				
		ME	01.2	10		22			
		MZ	02.0	18			22		
463	" 31	$e(SKS)_E$	00 15 24						Masked by very heavy microseisms.
		eLR_E	39.9	30					
		MNE	44.6	23	6	7			

Minor shocks: 5d 18.6h; 6d 16.1h, 17.0h, 18.0h; 7d 08.5h, 23.0h; 8d 12.1h; 10d 10.3h, 13.5h; 11d 03.2h; 13d 14.2h; 14d 11.4h; 15d 00.7h; 17d 14.3h, 16.0h; 20d 04.9h, 23.4h; 21d 03.1h; 24d 08.2h, 09.4h; 26d 05.4h, 14.4h

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

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