The International Seismological Summary.

1934 April, May, June.

FORMERLY THE BULLETIN OF THE BRITISH ASSOCIATION SEISMOLOGY COMMITTEE.

There are 144 epicentre in the present quarter of the Summary; of these, 62 are new and 82 are repetitions of old epicentres.

The classification of the determinations on the quality of the material is as follows :—

N.1=15	R.1=2	X.=40
N.2=22	R.2=22	
N.3=25	R.3=18	

The following are earthquakes of abnormal focus :—

	Date. d.	h.	m.	s.	Epicentre. °	°	Focal Depth. (Below Normal)
April	6	19	9	37	37·3N.	141·7E.	+0·010
April	11	21	12	6	19·8S.	169·9E.	+0·025
April	11	21	12	48	19·8S.	169·9E.	+0·025
April	13	22	3	54	25·7N.	124·8E.	+0·030
April	15	10	33	24	34·5N.	140·0E.	+0·010
April	19	16	13	32	30·1N.	139·8E.	+0·060
April	25	5	3	21	18·3N.	146·8E.	+0·080
May	1	7	5	2	3·5N.	97·5E.	+0·0225
May	13	9	2	18	5·0S.	153·9E.	+0·015
May	13	23	8	6	28·5N.	141·5E.	+0·070
May	30	23	4	0	36·3N.	140·5E.	+0·015
June	9	12	58	51	6·0S.	147·5E.	+0·020
June	13	1	51	1	44·2N.	147·4E.	+0·0125
June	19	15	47	10	30·3N.	139·4E.	+0·070
June	29	8	25	20	6·1S.	123·4E.	+0·106

UNIVERSITY OBSERVATORY,
OXFORD.

1940, May 20.

Original bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and have been scanned and collected by SGA Storia Geofisica Ambiente (Bologna) thanks to funding provided by the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

1934 APRIL, MAY, JUNE.

April 1d. 21h. 55m. 32s. Epicentre 18°·0N. 120°·4E. (as on 1931 March 30d.). X.

$A = -\cdot481$, $B = +\cdot820$, $C = +\cdot309$.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Manila	3·5	169	i 0 50a	0	1 32	+ 2	—	—
Hong Kong	7·2	308	1 43	+ 1	3 19	+15	—	4·1
Chiufeng	22·4	351	e 4 55	0	9 6	+13	—	—
Tashkent	49·3	310	—	—	e 19 46	SS	e 23·5	32·7
Sverdlovsk	58·6	327	i 9 50	− 5	e 17 53	− 4	28·5	—
Pulkovo	74·5	330	—	—	e 21 34	PS	39·5	43·4

Sverdlovsk gives also SS = +21m.52s.
Long waves were also recorded at Phu-Lien, Vladivostok, Baku, Kucino, Copenhagen, and Stuttgart.

April 1d. Readings at 1h. (near Tiflis), 2h. (near Manila), 5h. (near Erevan), 7h. (Malabar), 8h. (Vladivostok and near Amboina), 9h. (Baku and Tashkent), 13h. (near Tyosi), 16h. (Amboina), 21h. (near Algiers), 23h. (New Plymouth, Nagoya, Mizusawa, near Tyosi, and near Branner).

April 2d. 4h. 57m. 48s. Epicentre 0°·0 125°·0E. (as on 1930 May 30d.). R.2.

$A = -\cdot574$, $B = +\cdot819$, $C = \cdot000$; $D = +\cdot819$, $E = +\cdot574$; $G = \cdot000$, $H = \cdot000$, $K = -1\cdot000$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Amboina		4·8	139	i 1 9	+ 1	i 2 0	− 3	—	—
Manila		15·1	345	i 3 37k	+ 7	6 48	+31	—	—
Malabar		18·8	247	4 22	+ 6	—	—	—	—
Batavia	Z.	19·2	251	i 4 20	− 1	—	—	—	—
Hong Kong		24·7	335	5 15	− 2	9 31	− 5	—	14·7
Medan		26·6	278	i 5 36	+ 1	10 32	+23	—	—
Nagoya		36·9	17	e 7 5	− 1	e 7 52	?	—	—
Vladivostok		43·5	8	8 1	0	14 25	− 3	e 22·2	—
Agra	E.	52·7	306	e 9 10	− 2	—	—	—	—
Bombay		54·5	295	—	—	i 19 10	(− 4)	—	35·4
Almata		60·9	323	10 14	+ 3	e 18 35	+ 7	—	—
Andijan		62·6	318	10 22	0	18 48	− 2	—	—
Tashkent		65·0	318	10 29	−10	i 19 17	− 3	e 27·7	41·9
Samarkand		65·9	317	10 47	+ 2	—	—	—	—
Sverdlovsk		76·3	330	i 11 43	− 5	i 21 21	−14	35·2	—
Grozny		82·3	314	e 12 20	0	e 22 34	− 6	—	—
Kucino		88·4	326	e 12 48	− 2	23 26	−15	e 39·2	43·1
Pulkovo		92·4	330	e 13 6	− 3	i 24 2	−16	47·2	57·3
Copenhagen		102·5	329	—	—	26 12?	?	50·2	—
Stuttgart		106·7	322	—	—	(e 34 12?)	SS	e 34·2	—
Strasbourg		107·6	322	—	—	(e 35 12?)	?	e 35·2	—
Edinburgh		110·3	332	—	—	e 33 12?	SS	—	—

Additional readings :—
Pulkovo ePP = +16m.45s.
Long waves were also recorded at De Bilt, Uccle, and Paris.

April 2d. Readings also at 0h. and 1h. (near New Plymouth), 2h. (Zagreb), 6h. (Arisan, Tainan, Taihoku, Takao, and near Karenko), 8h. (Tucson, near Berkeley, Branner, Lick, and San Francisco), 10h. (Hong Kong, Nanking, Bombay, Sverdlovsk, Tashkent, near Phu-Lien, and near Medan), 12h. (near Karenko), 13h. (Wellington and near New Plymouth), 19h. (near Mizusawa and Tyosi), 20h. (near New Plymouth), 22h. (Vladivostok, near Sumoto, and near Tashkent), 23h. (Bozeman, Pasadena, Seattle, Tucson, St. Louis, and Little Rock)

April 3d. 1h. 10m. 9s. Epicentre 35°·2N. 141°·7E. (as on 1934 Feb. 21d.). X.

A = −·641, B = +·506, C = +·576; D = +·620, E = +·785;
G = −·452, H = +·357, K = −·817.

		Δ	Az.	P.	O−C.	S.	O−C.	M.
		°	°	m. s.	s.	m. s.	s.	m.
Tyosi		0·8	308	i 0 11	0	0 16	− 5	0·3
Nagoya		3·9	270	e 1 3	P*	1 51	S*	2·3
Mizusawa		4·0	354	e 0 57	0	e 1 49	+ 7	—
Osaka		5·1	265	1 30	P_g	e 2 40	S_g	3·1
Kobe	E.	5·4	266	—	—	e 2 40	S*	3·0
Sumoto	E.	5·6	263	e 2 14	S	e 2 54	S_g	3·5
	N.	5·6	263	e 1 57	P_g	e 2 52	S_g	3·1

Additional readings:—
Mizusawa eSE = +1m.53s. = S* − 4s.
Osaka i = +2m.22s. = S* − 8s.

April 3d. 7h. 36m. 36s. Epicentre 4°·5N. 77°·5W. (as on 1920 Jan. 30d.). R.2.

A = +·216, B = −·973, C = +·078; D = −·976, E = −·216;
G = +·017, H = −·077, K = −·997.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Huancayo		16·7	173	e 3 40	−10	i 6 47	− 8	i 9·3	—
San Juan		17·8	38	i 4 8	+ 4	e 7 24	+ 4	—	—
La Paz	E.	22·9	156	4 59	− 1	i 9 8	+ 5	11·8	20·3
Columbia		29·7	354	—	—	e 11 0	+ 1	e 18·4	—
Georgetown		34·4	2	e 6 57	+13	i 12 13	+ 1	e 17·4	—
St. Louis	N.	36·0	343	e 6 56	− 2	e 12 29	− 7	—	—
Pittsburgh		36·1	357	—	—	i 12 37	− 1	e 15·2	—
Chicago		38·4	350	e 9 0	PP	e 17 14	(−18)	—	—
Oak Ridge		38·4	8	e 7 8	−10	e 13 15	+ 3	e 18·1	—
Ottawa		40·9	4	e 7 42	+ 2	e 13 52	+ 2	e 19·4	—
Tucson		41·8	316	28	+41	e 14 2	− 1	19·5	—
La Plata	E.	43·5	156	—	—	18 24	(+21)	24·0	26·1
Granada		74·4	53	i 11 38	+ 1	e 22 22	?	40·0	—
Scoresby Sund		74·8	17	11 36	− 3	21 12	− 6	—	—
Edinburgh		77·5	34	—	—	e 21 24?	−24	—	—
Paris		80·1	41	e 12 10	+ 2	—	—	40·4	42·4
Uccle		81·4	40	12 16	+ 1	22 25	− 6	e 35·4	—
De Bilt		81·9	39	e 12 20	+ 2	e 22 32	− 4	e 34·4	56·6
Stuttgart		84·4	42	e 12 28	− 2	e 22 59	− 3	e 41·4	—
Copenhagen		86·3	35	—	—	23 17	− 3	—	—
Cheb		86·5	41	—	—	e 23 6	−16	e 45·4	53·9
Venice		86·7	45	15 24	PP	—	—	—	—
Triest		87·6	45	e 13 1	+15	23 28	− 5	e 44·4	53·4
Helsingfors	E.	92·2	29	e 12 24?	−44	—	—	—	—
Pulkovo		94·9	29	—	—	(e 24 24?)	17	e 24·4	—
Suva		104·8	252	—	—	26 24?	+15	—	—
Sverdlovsk		109·9	23	—	—	e 26 46	{+40}	43·4	—
Tashkent		125·1	30	e 7 48	?	e 26 13	[+ 8]	e 53·8	68·2

Additional readings:—
Huancayo i = +8m.7s.
San Juan i = +4m.34s and +5m.36s., iS = +7m.33s., i = +7m.56s.
St. Louis ePPN = +7m.55s., eEN = +15m.13s., iEN = +17m.12s. = S_cS − 6s. and +17m.28s.; T_o = 7h.36m.45s.
Oak Ridge ePZ = +7m.17s., iZ = +7m.33s. and +7m.38s., eSSNE = +15m.52s.
Ottawa e = +9m.42s. = P_cP − 3s., eE = +16m.42s. = SS + 11s.
Helsingfors e?N = +16m.24s. = PP − 19s., e?E = +32m.24s.
Sverdlovsk e = +28m.36s. = PS + 9s. and +34m.16s. = SS − 1s.
Tashkent e = +37m.45s. = SS + 7s.
Long waves were also recorded at Christchurch, Perth, Vladivostok, Agra, Bombay, Strasbourg, and Kew.

April 3d. 11h. 26m. 44s. Epicentre 35°·4N. 65°·3E. N.3.

A = +·341, B = +·740, C = +·579; D = +·909, E = −·418; G = +·242, H = +·526, K = −·815.

	△ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
Samarkand	4·5	18	e 1 4	0	(2 0)	+ 5	2·0	2·0
Tashkent	6·7	27	i 1 34	− 1	(2 46)	− 5	2·8	5·2
Andijan	7·7	44	e 1 52	+ 3	(e 3 10)	− 6	e 3·2	4·0
Frunse	10·4	41	(e 2 43)	+17	(e 4 22)	− 1	(e 5·5)	—
Almata	12·0	44	e 2 47	− 1	—	—	6·0	—
Grozny	17·0	304	e 4 5	+11	e 7 58	+56	—	—
Tiflis	17·2	298	e 3 53	− 4	e 7 28	+22	10·0	15·9
Sverdlovsk	21·7	353	e 4 46	− 2	8 38	− 2	i 13·1	—

Additional readings and note :—
Samarkand i = +1m.13s. = P* − 1s. and +1m.42s.
Frunse readings have been *increased* by 8m.
Sverdlovsk iL_g = +11·1m.
Long waves were also recorded at Agra, Baku, Pulkovo, and Copenhagen.

April 3d. 17h. A shock for which no determination is made.
St. Louis eE = 17h.41m.32s., ePPE = 43m.28s., eSKS = 50m.3s., ePSE = 53m.30s., ePPSE = 54m.27s.
La Paz eP = 17h.42m.17s., PPE = 44m.12s., iSE = 48m.25s., iSN = 48m.29s., iLE = 51m.12s., LN = 53m.6s., M = 57m.30s.
Huancayo e = 17h.42m.18s., 46m.25s., and 47m.42s., iL = 49m.20s.
Tucson P = 17h.42m.24s., S = 48m.14s., L = 51m.6s.
Riverside eZ = 17h.42m.48s.
Pasadena eP = 17h.42m.53s., eL = 53m.24s.
Christchurch ePZ = 17h.49m.10s., SSE? = 18h.7m.25s., LEZ = 16m.40s.
San Juan e = 17h.49m.40s. and 53m.18s.
Oak Ridge eEN = 17h.56m.12s., eL = 18h.2m.
Ottawa e? = 17h.56m.30s., eL = 18h.1m.
Scoresby Sund 17h.59m., L = 18h.24m.
Kucino e = 18h.12m.3s. and 15m.18s., eL = 41m.18s., M = 46m.54s.
Wellington 18h.13m.
Sverdlovsk iS = 18h.13m.15s., L = 29m.
Tashkent e = 18h.16m.24s., eL = 43m.36s., M = 19h.0m.24s.
Long waves were also recorded at Honolulu, Ukiah, Ivigtut, Baku, Pulkovo, Bombay, Vladivostok, and several European stations.

April 3d. 22h. 32m. 7s. Epicentre 28°·0N. 140°·5E. N.2.

A = −·681, B = +·562, C = +·469; D = +·636, E = +·772; G = −·362, H = +·299, K = −·883.

	△ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
Susaki	6·8	350	1 42	+ 5	3 57	L	(4·0)	—
Nagoya	7·8	338	1 57	+ 6	—	—	8·9	—
Osaka	7·9	329	1 49	− 3	3 36	+15	—	4·3
Sumoto	7·9	324	2 0	+ 8	4 5	L	(4·1)	8·9
Kobe	8·1	327	2 2	+ 7	i 3 26	0	—	7·5
Koti	8·2	315	2 7	+11	(3 23)	− 6	3·4	4·4
Toyooka	8·9	329	2 12	+ 6	—	—	—	—
Hukuoka	10·3	305	e 1 7	?	—	—	—	—
Nagasaki	10·3	300	e 2 26	+ 1	e 5 36	S_g	—	—
Mizusawa	11·1	3	e 4 14	S	(e 4 14)	−27	—	—
Taikyu	12·8	311	3 6	+ 7	5 55	+33	6·9	—
Keizyo	14·8	314	3 34	+ 8	6 35	+25	8·8	—
Zinsen	15·1	313	e 3 32	+ 2	e 6 37	+20	—	—
Vladivostok	16·6	338	e 3 54	+ 5	e 7 12	+20	8·1	9·5
Nanking	19·2	288	i 4 21	0	i 8 5	+15	—	13·8
Manila	22·5	238	i 4 55a	− 1	9 3	+ 8	—	—
Chiufeng	23·4	307	5 3k	− 2	i 9 23	+11	—	—
Hong Kong	24·4	263	5 13	− 1	9 33	+ 3	—	—
Phu-Lien	31·6	264	e 6 19	0	e 11 28	− 1	14·9	—
Amboina	33·8	202	6 37	− 2	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Calcutta		47·1	276	9 14	+45	—	—	—	—
Almata		52·6	305	e 9 12	+ 1	—	—	—	—
Agra	E.	54·7	284	9 27	+ 1	17 7	+ 2	—	—
Andijan		56·3	302	e 9 38	0	e 17 32	+ 5	—	—
Tashkent		58·4	304	i 9 52	− 1	i 17 58	+ 3	e 23·9	42·6
Samarkand		60·5	302	e 10 6	− 2	e 18 24	+ 1	—	—
Sverdlovsk		61·4	323	e 10 10	− 4	e 18 33	− 1	31·9	35·6
Bombay		62·0	278	i 11 16	+58	i 19 44	+62	—	—
Baku		72·7	307	11 25	− 2	e 20 58	+ 5	35·5	45·1
Kucino		73·7	325	e 11 24	− 9	—	—	e 36·6	40·8
Grozny		74·4	311	e 11 35	− 2	e 22 20	PS	—	—
Pulkovo	'	75·4	331	e 11 33	−10	21 15	−10	39·9	45·4
Tiflis		75·6	310	11 33	−11	e 21 19	− 8	e 38·2	49·2
Scoresby Sund		80·7	355	12 10	− 2	22 19	− 4	—	—
Santa Barbara	Z.	81·9	56	e 12 35	+17	—	—	—	—
Pasadena		83·2	55	i 12 21	− 3	—	—	—	—
Riverside	Z.	83·8	55	e 12 23	− 4	—	—	—	—
Copenhagen		85·3	334	—	—	22 59	−12	45·9	—
Triest		92·0	326	e 12 9	−58	e 25 45	PS	—	46·9
La Paz	N.	151·2	73	19 45	[+ 2]	—	—	—	—

Additional readings :—
Osaka i = +2m.6s. = P* − 6s. and +2m.24s. = P_g − 8s.
Sumoto eSE = +4m.16s. = S_g + 1s.
Kobe iZ = +2m.53s. and +3m.14s., iE = +3m.46s.
Mizusawa eSN = +6m.22s., eSE = +6m.32s.
Agra PSE = +17m.39s., SSE = +20m.36s., SSSE = +22m.15s.
Kucino PPP = +16m.4s., ePS = +21m.29s., SSS = +29m.41s.
Tiflis eP_cPN = +11m.57s., PPN = +14m.51s., eSKSE = +21m.49s. = PS − 3s., eN = +33m.35s.
Long waves were also recorded at other European stations.

April 3d. Readings also at 0h. (Wellington and Christchurch), 1h. (near Tyosi), 2h. (near Triest), 5h. (Suva), 6h. (Almata, Frunse, Samarkand, near Andijan, and near Arisan), 8h. (Adelaide, Melbourne, Wellington, Riverview, Perth, Christchurch, Hong Kong, Manila, and near Nagoya), 9h. (De Bilt, Sverdlovsk, Oak Ridge, and near Tyosi), 11h. (Frunse), 13h. (near Berkeley, Branner, Lick, and San Francisco), 20h. (near Lick), 22h. (Frunse, near Zurich, and near Sumoto), 23h. (Agra, Almata, Andijan, and Samarkand).

April 4d. Readings at 3h. (near Christchurch, Wellington, and New Plymouth), 4h. (Vladivostok, Sverdlovsk, and Neuchatel), 5h. (Baku and Tashkent), 6h. (Malabar, Tyosi, and Nagoya), 7h. (near Sumoto), 8h. (Batavia), 9h. (La Paz), 11h. (Tananarive), 12h. (Pasadena, San Juan, Little Rock, Sucre, and La Paz), 15h. (near La Paz), 20h. (Wellington and near Tyosi), 21h. (Agra, Bombay, Almata, Andijan, Frunse, Samarkand, and near Manila (2)), 22h. (near Tokyo), 23h. (Wellington).

April 5d. 8h. 56m. 55s. Epicentre 35°·2N. 141°·7E. (as on 3d.). X.

	Δ	Az.	P.	O−C.	S.	O−C.	M.
	°	°	m. s.	s.	m. s.	s.	m.
Tyosi	0·8	308	i 0 12	+ 1	0 17	− 4	0·3
Susaki	2·3	257	0 33	0	0 54	− 5	—
Nagoya	3·9	270	e 1 1	+ 5	e 1 57	S*	2·1
Mizusawa	4·0	354	e 0 57	0	e 1 41	− 1	—
Osaka	5·1	265	1 21	P*	2 23	S*	3·0
Kobe	5·4	266	—	—	i 2 7	−11	2·8
Sumoto	5·6	263	e 2 12	S	e 3 4	S_g	3·4

Additional readings :—
Kobe eNZ = +2m.32s. = S* − 7s.
Sumoto eSE = +3m.8s., eSZ = +3m.14s.
Long waves were also recorded at Vladivostok and Sverdlovsk.

April 5d. 9h. 1m. 46s. Epicentre 23°·0N. 121°·7E. (as on 1932 Nov. 29d.). X.

A = −·484, B = +·783, C = +·391 ; D = +·851, E = +·526 ;
G = −·205, H = +·332, K = −·921.

	Δ	Az.	P.	O−C.	S.	O−C.
	°	°	m. s.	s.	m. s.	s.
Arisan	1·0	302	i 0 18	+ 4	0 29	+ 3
Tainan	1·4	270	e 0 17	− 3	0 26	P_g
Takao	1·4	254	0 20	0	0 28	P_g
Taihoku	1·9	359	0 57	S	(0 57)	S*

April 5d. Readings also at 1h. (Sumoto), 3h. (Christchurch, Wellington, and New Plymouth (2)), 4h. (near Sumoto), 5h. (near Barcelona), 9h. (near Tyosi and near Sumoto), 10h. (Agra, Bombay, Calcutta, Hyderabad, Kodaikanal, Almata, Andijan, Frunse, Samarkand, Tashkent, Sverdlovsk, and Chiufeng), 11h. (Agra and Bombay), 14h. (Erevan, Grozny, and Tiflis), 15h. (New Plymouth (2) and Wellington), 17h. (near Grozny, and near Tyosi), 21h. (De Bilt, Uccle, Stuttgart, Strasbourg, Triest, Zagreb, and Tiflis), 23h. (near Sumoto).

April 6d. 15h. Shock probably in Persia.
Tiflis eN = 15h.35m.16s., eLE = 37m.24s., M = 39m.0s.
Ksara eP = 15h.36m.0s., S = 39m.1s.
Baku eP = 15h.36m.1s., eS = 38m.0s., L = 39m., M = 42m.42s.
Tashkent P = 15h.36m.55s., eS = 40m.21s., eL = 43m.54s., M = 45m.36s.
Erevan e = 15h.37m.12s.
Sverdlovsk eP = 15h.38m.3s., eS = 42m.55s., L_q = 47m.24s., L_r = 49m.48s.
Helwan P = 15h.41m.8s., eS = 43m.27s., L = 46m.34s., M = 47m.30s.

April 6d. 19h. 9m. 37s. Epicentre 37°·3N. 141°·7E. R.1.
(Epicentre given by the Japanese stations and as on 1932 Aug. 8d.).

A = −·624, B = +·493, C = +·606 ; D = +·620, E = +·785 ;
G = −·476, H = +·376, K = −·795.

A *depth* of focus 0·010 has been assumed.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Onahama	+0·3	0·7	240	0 16k	+ 2	0 27	+ 1	—	—
Hukusima	+0·2	1·1	294	0 17a	− 1	0 29	− 4	—	—
Sendai	+0·2	1·2	326	0 21a	+ 1	0 36	0	—	—
Mito	+0·2	1·3	227	0 23k	+ 2	0 38	− 1	—	—
Aidu	+0·2	1·3	282	0 24	+ 3	0 43	+ 4	—	—
Yamagata	+0·2	1·4	312	0 22a	− 1	0 38	− 3	—	—
Kakioka	+0·2	1·6	229	0 25	− 1	0 42	− 4	—	—
Utunomiya	+0·2	1·6	243	0 25	− 1	0 44	− 2	—	—
Tyosi	+0·2	1·7	204	i 0 28a	0	0 45	− 4	—	1·1
Tukubasan	+0·2	1·7	229	0 26k	− 2	0 44	− 5	—	—
Mizusawa	+0·2	1·9	346	i 0 30a	0	i 0 48	− 6	—	—
Niigata	+0·2	2·2	287	0 33k	− 1	1 0	− 2	—	—
Kumagaya	+0·2	2·2	238	0 33a	− 1	0 58	− 4	—	—
Tokyo	+0·2	2·3	224	0 35a	− 1	0 59	− 5	—	2·7
Maebasi	+0·2	2·3	247	0 35a	− 1	0 57	− 7	—	—
Morioka	+0·2	2·4	350	0 36k	− 1	1 3	− 4	—	—
Yokohama	+0·2	2·5	222	0 40a	+ 1	1 9	0	—	—
Takada	+0·1	2·7	266	0 38a	− 2	1 1	−11	—	—
Akita	+0·1	2·7	333	0 40a	0	1 11	− 1	—	—
Nagana	+0·1	2·8	257	0 43a	+ 2	1 6	− 8	—	—
Mera	+0·1	2·8	212	0 47k	+ 6	1 18	+ 4	—	—
Kohu	+0·1	3·0	236	0 45a	+ 1	1 22	+ 2	—	—
Hunatu	+0·1	3·0	233	0 44a	0	1 19	− 1	—	—
Misima	+0·1	3·1	225	0 45a	− 1	1 35	+13	—	—
Numadu	+0·1	3·2	242	0 45	− 2	1 31	+ 6	—	—

Continued on next page.

		Corr. for Focus	Δ	Az.	P.	O–C.	S.	O–C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Susaki		+0·1	3·4	220	0 23?	−27	1 2	−28	—	—
Toyama		+0·1	3·7	261	0 53a	− 1	1 21	−16	—	—
Wazima		+0·1	3·8	272	0 55a	− 1	1 25	−15	—	—
Omaesaki		+0·1	3·9	227	1 2	+ 5	1 53	+11	—	—
Hamamatu		+0·1	4·1	232	1 54a	+54	2 54	+66	—	—
Nagoya		0·0	4·4	242	1 2	− 1	2 11	+18	—	3·0
Gihu		0·0	4·4	245	1 3a	0	1 52	− 1	—	—
Hatidyozima		0·0	4·5	200	1 11	+ 7	1 54	− 1	—	—
Kameyama		0·0	4·9	241	1 8	− 2	2 20	+15	—	—
Hikone		0·0	4·9	246	1 6a	− 4	2 19	+14	—	—
Osaka		0·0	5·6	243	1 22	+ 2	2 37	+14	—	3·5
Toyooka		0·0	5·8	254	1 19	− 3	2 22	− 6	—	3·6
Sapporo		0·0	5·8	357	1 25	+ 3	2 34	+ 6	—	—
Kobe		0·0	5·9	245	1 24	0	i2 57	+26	—	3·2
Wakayama		0·0	6·1	242	1 26	− 1	2 41	+ 5	—	—
Siomisaki		0·0	6·2	233	1 27a	− 1	2 56	+18	—	—
Sumoto		0·0	6·3	243	i1 29	− 1	3 1	+20	—	3·2
Nemuro		0·0	6·7	25	1 37	+ 2	2 45	− 6	—	—
Koti		0·0	7·6	243	1 47	− 1	e3 20	+ 6	3·6	4·0
Matuyama		−0·1	8·0	247	1 52	0	4 17	+56	—	—
Hamada		−0·1	8·2	255	1 47	− 8	3 19	− 7	—	—
Vladivostok		−0·1	9·4	311	i2 39	+28	4 19	+23	4·6	5·2
Hukuoka		−0·1	9·9	251	e2 15	− 3	4 31	+23	—	—
Hukuoka B		−0·1	9·9	251	2 15	− 3	(e4 51)	+43	e4·9	—
Kumamoto		−0·1	10·0	246	2 24	+ 5	4 48	+37	—	—
Miyazaki		−0·1	10·0	240	2 18a	− 1	4 42	+31	—	—
Titizima		−0·1	10·2	178	2 23	+ 1	4 8	− 8	—	—
Unzendake		−0·1	10·4	247	2 25	0	5 15	+54	—	—
Taikyu		−0·1	10·6	266	2 29	+ 1	4 37	+11	7·9	—
Nagasaki		−0·1	10·7	248	e2 28	− 1	5 15	+47	—	5·9
Keizyo		−0·1	11·6	276	i2 42	0	—	—	6·4	—
Zinsen		−0·1	12·1	276	i2 45a	− 3	—	—	e6·6	—
Heizyo		−0·2	12·6	283	2 55	+ 1	—	—	—	—
Zi-ka-wei	z.	−0·3	17·8	256	4 1	+ 1	7 15	+ 2	9·6	12·5
Nanking		−0·4	19·5	261	4 17	− 3	i8 7	+19	e10·7	—
Chiufeng		−0·4	20·1	286	i4 21a	− 5	7 56	− 4	—	13·4
Hong Kong		−0·6	28·0	245	5 43	+ 1	10 21	− 1	—	17·9
Manila		−0·7	29·2	224	5 53k	+ 1	10 36	− 4	14·0	—
Phu-Lien		−0·8	34·6	251	e6 23?	−16	e12 4	+ 1	—	—
Amboina		−0·9	42·8	199	7 50	+ 2	—	—	—	—
Calcutta		−1·0	47·8	267	8 27	0	15 7	− 9	e21·8	—
Almata		−1·0	48·5	298	e8 49	+17	—	—	—	—
Frunse		−1·0	50·3	298	9 39	+53	e16 38	+47	e24·9	—
Andijan		−1·1	52·6	296	e9 15	+12	e16 29	+ 7	—	—
Agra		−1·1	53·8	278	e9 13	+ 1	i16 41	+ 3	—	34·2
Batavia		−1·1	54·3	224	i9 14	− 1	e16 34	−11	—	—
Tashkent		−1·1	54·5	298	i9 19	+ 2	16 39	− 8	e27·4	33·5
Sverdlovsk		−1·1	54·9	319	i9 21	+ 1	i16 57	+ 4	e33·5	34·4
Samarkand		−1·1	56·7	297	e9 38	+ 5	e17 20	+ 3	—	—
Hyderabad		−1·2	58·4	268	9 48	+ 3	17 46	+ 7	27·3	38·1
Bombay		−1·2	62·2	273	10 20	+ 9	e18 40	+11	e29·4	—
Kodaikanal	E.	−1·2	63·4	263	10 21	+ 1	—	—	—	—
Kucino		−1·2	66·8	323	e10 40	− 2	i19 29	+ 2	e31·9	39·8
Pulkovo		−1·3	67·3	330	i10 47	+ 2	i19 40	+ 8	35·4	41·2
Baku		−1·3	68·1	305	i10 52	+ 1	i19 47	+ 5	34·4	41·6
Tiflis		−1·3	70·6	309	11 6	0	20 14	+ 1	38·7	45·2
Scoresby Sund		−1·3	71·6	355	11 15	+ 2	i20 30	+ 5	—	—
Theodosia		−1·3	74·2	315	11 25	− 3	20 54	− 2	—	—
Simferopol		−1·3	75·0	316	11 33	0	21 4	− 1	—	—
Yalta		−1·3	75·3	315	11 34	− 1	21 6	− 2	—	—
Santa Barbara		−1·3	75·8	58	i11 43	+ 6	—	—	—	—
Haiwee		−1·3	76·0	56	i11 43	+ 4	—	—	—	—
Pasadena		−1·3	77·1	57	i11 47k	+ 2	—	—	—	—
Mount Wilson		−1·3	77·1	57	e11 48	+ 3	—	—	—	—
Copenhagen		−1·3	77·4	334	i11 48	+ 1	i21 31	− 2	—	—

Continued on next page.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Riverside	−1·3	77·6	57	i 11 51	+ 3	—	—	—	—
La Jolla	−1·3	78·4	58	i 11 56	+ 3	—	—	—	—
Hamburg	−1·3	80·0	334	e 12 0	− 1	e 21 57	− 5	e 43·4	—
Ksara	−1·3	80·9	305	e 12 6	0	22 12	+ 1	—	—
Budapest	−1·3	81·0	325	12 6	0	22 10	− 2	e 41·4	51·4
Ivigtut	−1·3	81·1	6	i 12 9	+ 2	22 16	+ 2	—	—
Cheb	−1·3	81·9	330	e 12 19	+ 8	e 28 53	?	—	44·4
Edinburgh	−1·3	82·1	341	—	—	e 22 23?	− 1	—	—
De Bilt	−1·4	82·9	335	12 16	0	22 29	− 3	e 39·4	41·6
Stuttgart	−1·4	84·2	331	i 12 23	+ 1	e 22 38	− 7	e 44·4	—
Uccle	−1·4	84·3	335	i 12 23k	0	i 22 40	− 6	e 40·4	—
Bidston	−1·4	84·3	340	—	—	i 22 36	−10	e 43·4	—
Triest	−1·4	84·8	327	12 23k	− 2	i 22 39	−12	—	e 47·9
Strasbourg	−1·4	84·9	332	i 12 26k	0	i 22 47	− 5	e 45·4	—
Kew	−1·4	85·2	337	i 12 25	− 2	e 22 43	−12	e 39·4	46·2
Oxford	−1·4	85·2	338	—	—	e 22 40	−15	—	—
Venice	−1·4	85·5	327	12 53?	+24	i 22 46	−13	—	—
Paris	−1·4	86·6	335	e 12 37	+ 3	e 22 56	−14	43·4	54·4
Piacenza	−1·4	86·9	329	e 12 7	−29	23 7	− 6	—	55·1
Florence	−1·4	87·3	326	i 12 33k	− 5	22 57	−20	46·9	52·4
Prato	−1·4	87·3	326	e 12 31	− 7	22 58	−19	—	—
Fordham	−1·4	95·4	27	—	—	e 23 41	[−22]	—	—
Georgetown	−1·4	95·8	30	e 13 16	− 2	i 24 28	− 9	e 46·4	—
San Juan	—	118·4	30	—	—	e 27 23	{+17}	—	—
La Paz	—	146·5	60	i 19 36	[0]	—	—	—	—
Sucre	—	150·2	60	19 44	[+ 2]	—	—	—	—

Additional readings :—
Osaka i = +1m.41s., +1m.53s. and +2m.53s.
Kobe iE = +1m.44s. and +2m.5s., SZ = +3m.0s.
Sumoto SEZ = +3m.4s.
Koti eP_g? = +2m.38s.
Taikyu i = +2m.53s.
Zinsen iE = +3m.11s.
Zi-ka-wei iZ = +4m.17s., PPPZ? = +4m.32s., iZ = +7m.39s., SSZ = +7m.57s., iZ = +11m.17s.
Chiufeng P_g = +4m.42s., S_g = +8m.30s.
Agra PSE = +17m.12s., SS?E = +20m.15s.?
Sverdlovsk eL_g = +27·4m.
Bombay PS = +19m.12s., SS = +22m.45s.
Tiflis SKSE = +21m.0s., SSN = +24m.54s., eN = +28m.53s.
Scoresby Sund +25m.17s. =SS − 30s.
Santa Barbara iZ = +12m.5s.
Pasadena iZ = +12m.9s.
Copenhagen +26m.5s. =SS − 9s. and +29m.59s.
Riverside iZ = +12m.14s., eZ = +15m.22s.
Hamburg iSN = +22m.0s.
Stuttgart eZ = +12m.44s., ePS = +23m.30s. ; T_0 = 19h.9m.30s.
Uccle iPS = +23m.33s.
Triest iPS = +23m.19s., iPPS = +23m.32s.
Strasbourg iPSZ = +23m.39s., eSSSN = +32m.53s.
Kew e = +22m.52s., eSPP = +23m.50s.
Fordham i = +24m.31s.
Georgetown iPPZ = +17m.11s.
Long waves were also recorded at Prague, Almeria, and Toledo.

April 6d. Readings also at 0h. (Sumoto, Nagasaki, and near Hukuoka), 1h. (near Tyosi), 9h. (near Nanking), 10h. (Tashkent, Vladivostok, and near Mizusawa), 11h. (Baku, Sverdlovsk, Copenhagen, and Scoresby Sund), 15h. (near Lick), 16h. (near Branner and Lick).

April 7d. 2h. Shock from an epicentre in the State of Utah.
Bozeman eP = 2h.15m.28s., iS = 16m.24s., L = 16m.50s.
Haiwee iP = 2h.16m.6s.
Denver eEN = 2h.16m.18s., iP*N = 16m.26s., iN = 16m.35s. and 16m.39s., iP_gE = 16m.46s., iE = 17m.15s., iSEN = 17m.19s., iS*EN = 17m.36s., iS_gEN = 17m.43s., M = 17m.51s.

Continued on next page.

Pasadena iP = 2h.16m.31s., eL = 19m.49s.
Lick eN = 2h.16m.55s., eE = 17m.55s., i = 18m.42s., and 18m.47s.
Berkeley eEZ = 2h.17m.1s., eN = 17m.8s., eEN = 18m.44s., eZ = 18m.50s.
Little Rock e = 2h.17m.7s.
Tucson P = 2h.17m.40s., S = 18m.52s., iL = 19m.26s.
Branner eN = 2h.17m.45s., eE = 17m.47s., iEN = 18m.47s., iE = 18m.57s., iN = 19m.9s., iE = 19m.18s., iEN = 19m.29s.
St. Louis ePEN = 2h.18m.27s., eSEN = 21m.48s., MEN = 23m.31s.
Ukiah e = 2h.18m.45s., i = 19m.10s., L = 19m.26s.
Florissant eP = 2h.18m.50s., eS = 22m.12s., eL = 23m.30s., M = 25m.15s.
Seattle e = 2h.18m.55s., eL = 19m.10s.
Ann Arbor e?N = 2h.23m.0s., eN = 25m.24s., eE = 25m.42s., iN = 25m.54s., eL? = 28m.24s.
Chicago e = 2h.23m.54s.
Pittsburgh i = 2h.24m.8s., e = 27m.18s. and 29m.12s.
Charlottesville e = 2h.28m.10s.
Columbia e = 2h.28m.12s.
Fordham eN = 2h.29m.22s., iE = 29m.37s., iN = 29m.43s., e = 32m.
Long waves were also recorded at Victoria, Oak Ridge, and Scoresby Sund.

April 7d. Readings also at 0h. (near Tyosi), 2h. (Perth and Wellington), 6h. (Nanking, near Arisan, and Karenko), 7h. (near Santiago), 9h. (near Almata), 11h. (Sverdlovsk, Tashkent, Chiufeng, near Branner, and Lick), 13h. (near Malabar), 14h. (Almata, Andijan, Frunse, Samarkand, and near Tananarive), 16h. (near Mizusawa, Nagoya, and Tyosi), 17h. (Nagoya and near Tyosi (2)), 23h. (La Paz, near Nagoya, near Branner, and Lick).

April 8d. 2h. Earthquake shock in the South Pacific.
Suva P = 2h.15m.54s. ? S = 17m.48s., L = 18m.6s.
Riverview e? = 2h.18m.12s. and 19m.16s., i = 21m.59s., eL = 25m.18s.
Wellington 2h.22m.
Batavia iPZ = 2h.23m.23s.a, S = 31m.44s.
Melbourne i = 2h.23m.52s. and 25m.7s., L = 27m.45s.
Pasadena iP = 2h.25m.53s.
Mount Wilson iPZ = 2h.25m.55s.
Haiwee iPZ = 2h.25m.58s.
Triest e = 2h.32m.15s., i = 32m.46s.
De Bilt eZ = 2h.32m.42s., eL = 3h.29m.
Uccle i(P) = 2h.32m.47s., eL = 3h.30m.
Stuttgart iP = 2h.32m.47s.a, eL = 3h.30m.
Strasbourg iPZ = 2h.32m.50s., iZ = 33m.2s., eLEN = 3h.27m.
Paris iPZ = 2h.32m.53s., L = 3h.30m.
Sverdlovsk e = 2h.42m.34s., L = 3h.1m.
Tashkent e = 2h.50m.42s., M = 3h.13m.48s.
Long waves were also recorded at Baku.

April 8d. 2h. 53m. 39s. (I) } Epicentre 34°·7N. 134°·5E. **R.3.**
3h. 22m. 46s. (II) } (as on 1932 Oct. 1st.). **R.3.**

A = −·576, B = +·586, C = +·569.

	Δ	Az.	P.	O−C.	S.	O−C.	M.
	°	°	m. s.	s.	m. s.	s.	m.
I Sumoto	0·5	138	0 6a	− 1	0 10	− 3	0·2
II	0·5	138	0 5	− 2	0 9	− 4	0·2
I Kobe	0·5	92	0 9	+ 2	0 16	+ 3	0·3
II	0·5	92	e 0 9	+ 2	0 16	+ 3	0·3
I Osaka	0·8	94	0 11	0	0 19	− 2	0·3
II	0·8	94	0 10	− 1	0 18	− 3	0·3
I Nagoya	2·0	77	e 0 40	P_g	0 56	S*	—
II	2·0	77	e 0 32	+ 3	0 52	+ 1	—

Additional readings :—
Kobe PEN = +11s.

April 8d. Readings also at 11h. (Chiufeng, Sverdlovsk, and Kucino), 12h. (Baku and near Malaga), 13h. (near Almata, Andijan, and Frunse), 20h. (Agra, Bombay, and Calcutta), 22h. (Triest and Wellington (2)), 23h. (near Apia).

April 9d. 15h. 29m. 29s. Epicentre 35°·5S. 99°·5W. (as on 1928 Aug. 22d.). R.2.

A = −·134, B = −·803, C = −·581; D = −·986, E = +·165; G = +·096, H = +·573, K = −·814.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Santiago		23·7	93	—	—	9 23	+ 5	—	—
Huancayo		32·0	49	i 6 24	+ 1	i 11 37	+ 2	i 15·2	—
La Paz		33·7	65	i 6 36a	− 2	i 12 3	+ 2	14·5	17·9
La Plata		33·8	101	6 33	− 6	—	—	14·1	17·5
Sucre		34·4	70	6 30	−14	i 11 57	−15	14·5	—
Chatham Ils.		57·7	235	—	—	i 25 31	?	—	—
San Juan		62·4	36	e 10 56	(− 7)	i 18 42	− 5	e 36·2	—
Wellington		64·7	235	10 37	0	19 24	+ 8	29·5	—
Christchurch		65·1	232	10 42	+ 3	19 28	+ 7	30·0	—
La Jolla	Z.	70·4	344	e 11 15	+ 2	—	—	—	—
Riverside		71·5	344	i 11 20	0	—	—	—	—
Columbia		71·6	16	e 11 27	+ 7	e 20 17	−23	e 33·2	—
Pasadena		71·8	343	i 11 27a	+ 5	—	—	—	—
Mount Wilson		71·9	343	i 11 24	+ 2	—	—	—	—
Suva		73·3	259	—	—	e 20 31?	−29	—	—
Haiwee	N.	73·7	344	i 11 35	+ 2	—	—	—	—
St. Louis		74·6	7	i 11 38	0	i 21 13	− 2	e 32·8	—
Florissant		74·8	7	i 12 1	+22	i 22 6	PS	—	—
Berkeley		76·4	341	e 11 49	+ 1	—	—	—	—
Georgetown		77·3	18	i 11 51k	− 3	i 21 39	− 7	e 36·5	—
Pittsburgh		78·1	15	e 17 19	?	e 21 34	−21	e 44·7	—
Chicago		78·7	8	—	—	e 21 45	−17	e 34·8	—
Ann Arbor		79·2	12	—	—	e 22 1	− 6	e 42·0	—
Fordham		79·9	19	e 12 4	− 3	i 22 5	−10	e 37·5	—
Toronto		81·2	14	e 12 2	−12	e 22 18	−10	33·5	—
Oak Ridge		82·1	21	e 12 14	− 5	e 22 30	− 8	e 34·0	—
Ottawa		83·7	16	—	—	e 22 43	[− 6]	e 34·5	—
Riverview		84·3	232	—	—	e 23 1	0	e 39·0	46·5
Sydney		84·3	232	—	—	e 22 26	[−28]	40·9	43·3
Melbourne		85·5	225	—	—	i 23 5	− 8	39·7	49·0
Victoria		86·6	344	23 26	S	(23 26)	+ 3	37·5	—
Cape Town		89·6	132	20 34	?	29 15	?	42·5	—
Adelaide		91·1	223	—	—	e 35 37	?	e 40·1	45·7
Perth		104·9	211	e 33 31	SS	—	—	49·0	—
Toledo		115·6	58	—	—	e 29 13	PS	—	—
Alicante		117·4	60	—	—	e 31 59	?	—	—
Scoresby Sund		119·2	21	—	—	30 0	PS	50·5	—
Bidston		121·4	43	—	—	e 42 3	?	e 58·5	—
Edinburgh		122·1	41	—	—	e 29 51	SKSP	e 59·5	—
Kew		122·4	46	—	—	e 30 9	SKSP	e 57·5	61·5
Paris		123·3	50	e 20 28	PP	—	—	57·5	67·5
De Bilt		125·8	46	e 21 1	PP	—	—	59·5	63·6
Strasbourg		126·5	51	e 19 31?	[+31]	30 31?	SKSP	52·5	—
Piacenza		126·9	55	18 1	[−60]	—	—	—	71·5
Stuttgart		127·5	51	e 19 7	[+ 5]	—	—	e 60·5	—
Florence		127·6	58	e 20 11	[+68]	31 16	PS	43·0	63·5
Hamburg		129·0	45	e 21 31?	PP	—	—	62·5	66·5
Cheb		129·8	50	e 22 31?	?	—	—	62·5	68·5
Triest		129·8	56	e 21 18	PP	24 5	PPP	61·5	67·1
Copenhagen		130·9	41	22 25	PKS	—	—	60·5	—
Batavia		131·5	216	22 11	PKS	27 35	{−56}	—	—
Helsingfors		137·2	36	—	—	e 41 31?	SS	e 64·5	—
Pulkovo		139·8	36	e 19 20	[− 1]	—	—	66·5	70·9
Vladivostok		140·1	297	e 23 1	PKS	—	—	66·5	—
Sebastopol		143·4	60	e 19 28	[− 1]	—	—	—	—
Ksara		143·6	80	e 18 43	[−47]	e 34 1	?	—	—
Simferopol		143·9	59	e 19 28	[− 3]	—	—	—	—
Yalta		143·9	61	19 29	[− 2]	—	—	—	—
Medan		144·0	212	e 19 39	[+ 8]	23 42	?	—	—
Theodosia		144·7	59	e 19 32	[− 1]	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Kucino		144·9	42	e 19 44	[+11]	e 31 20	?	e 58·1	72·5
Sotchi		147·9	62	e 12 26	?	—	—	—	—
Tiflis		151·6	67	e 20 1	{− 5}	e 26 39	PPP	70·5	106·4
Chiufeng		151·7	290	e 19 42	[− 2]	—	—	71·7	—
Grozny		152·2	63	e 12 53	?	—	—	—	—
Sverdlovsk		154·9	26	i 19 44	[− 4]	e 30 30	{−20}	72·5	87·5
Baku		155·6	69	e 19 44	[− 5]	—	—	—	—
Bombay		162·0	156	e 20 21	[+25]	—	—	—	81·6
Samarkand		168·5	65	e 20 26	[+24]	—	—	78·5	—
Tashkent		169·5	53	20 5	[+ 2]	—	—	e 75·5	98·9
Frunse		171·3	30	e 21 41	{+ 6}	—	—	—	—
Agra	E.	171·4	164	e 26 56	?	—	—	—	—
Andijan		171·7	48	e 20 15	[+11]	—	—	78·2	—
Almata		171·8	18	e 20 30	[+25]	—	—	—	—

Additional readings :—
Huancayo i = +7m.11s. = PP − 12s., iPP = +7m.33s. = PPP + 3s., iSS = +13m.41s. = SSSS + 6s.
La Paz PPP = +7m.43s.
La Plata PZ = +6m.35s., PPPE = +7m.37s. = PP − 9s., SSSE = +11m.58s. = S − 5s., SSSN = +11m.50s.
San Juan e = +12m.10s., +15m.19s., and +26m.49s.
Wellington S_eS = +19m.51s., SS = +23m.31s.?, SSS = +26m.31s.?
Christchurch L_gN = +27·2m.
Columbia e = +25m.17s. = SSS + 11s.
Berkeley iZ = +11m.52s.
Pittsburgh e = +25m.5s.
Fordham ePSN = +22m.52s.
Oak Ridge eSNW = +22m.23s., ePSNW = +23m.16s. ; T_0 = 15h.29m.33s.
Ottawa e = +27m.31s. = SS − 27s.
Riverview e = +28m.39s. = SS + 22s.
Melbourne i = +24m.4s. = PS + 7s. and +28m.44s. = SS + 10s.
Victoria S = +29m.15s. = SS + 24s.
Cape Town +23m.22s. = SKS − 8s., +24m.42s. = PS − 5s., SS = +33m.40s., SSS = +35m.49s. = SSSS + 16s.
Scoresby Sund +36m.37s. = SS + 14s.
Kew eE = +41m.52s. = SSS + 28s.
De Bilt eE = +38m.13s. = SS + 26s.
Strasbourg eE = +22m.31s. ?
Stuttgart ePP = +20m.57s., ePPS = +33m.31s., eSS = +38m.31s.
Triest SKP = +24m.5s., eE = +43m.24s. = SSS + 10s.
Pulkovo e = +22m.16s. = PP − 4s., +23m.23s. = PKS + 15s., +31m.34s., +34m.30s., +40m.34s. = SS − 6s., and +46m.4s.
Kucino e = +41m.37s. = SS − 3s.
Tiflis eN = +20m.43s., eE = +21m.53s., eN = +24m.7s., ePPSE = +32m.39s., ePPPE = +36m.27s., eE = +48m.7s. = SSS − 18s.
Chiufeng eP = +19m.52s. = PKP_2 − 14s., iZ = +25m.1s.
Sverdlovsk e = +20m.39s. = PKP_2 + 18s., +23m.56s. = PP + 8s., +26m.4s., +34m.16s. = SKSP + 5s., +44m.24s., and +48m.42s. = SSS − 27s.
Bombay eE = +20m.34s. = PKP_2 − 19s.
Tashkent i = +20m.10s., e = +20m.57s., i = +21m.15s. = PKP_2 − 12s. and +24m.5s., e = +25m.12s. = PP + 8s., +50m.55s., and +56m.49s. = SSSS + 2s.
Long waves were also recorded at Honolulu, Bozeman, Charlottesville, Ivigtut, Almeria, San Fernando, Uccle, and Hong Kong.

April 9d. 15h. 39m. 48s. Epicentre 33°·8N. 136°·3E. N.3.

A = −·601, B = +·574, C = +·556.

	Δ	Az.	P.	O−C.	S.	O−C.	M.
	°	°	m. s.	s.	m. s.	s.	m.
Osaka	1·1	323	0 16	0	0 28	0	0·5
Kobe	1·3	314	0 17	− 1	0 32	− 1	0·6
Sumoto	1·3	295	0 19	+ 1	0 33	0	0·6
Nagoya	1·5	22	0 22	+ 1	e 0 38	− 1	—

Additional reading :—
Osaka i = +21s.

April 9d. Readings also at 2h. (Scoresby Sund, Nagoya, and near Tyosi), 3h. (Almata, Andijan, Frunse, Tashkent, Baku, Sverdlovsk, and near Erevan), 6h. (Almata, near Nagoya, Koti, and Sumoto), 9h. (La Paz), 11h. (Grozny, Sotchi, Sebastopol, Simferopol, near Theodosia, and Yalta), 13h. (Zagreb), 14h. (Andijan, Piatigorsk, Samarkand, and near Apia), 17h. (Kew), 18h. (Piatigorsk), 22h. (Wellington).

April 10d. 5h. Shock with epicentre in Central America.
Little Rock ePN = 5h.43m.37s., epPN = 44m.30s., eE = 47m.16s., eN = 47m.24s.
Tucson P = 5h.45m.25s., e = 49m.30s.
Florissant iP = 5h.45m.26s., iZ = 46m.1s., iSEN = 50m.5s.
St. Louis iPEN = 5h.45m.26s., epPN = 46m.0s., eN = 49m.29s., eEN = 49m.54s., eE = 50m.6s., eN = 50m.34s.
Pasadena eZ = 5h.46m.3s.
La Jolla eZ = 5h.46m.4s.
Haiwee eZ = 5h.46m.48s.
Edinburgh e = 5h.48m.
Fordham e = 5h.48m.7s., iN = 56m.44s., eL = 58m.
Toronto e = 5h.49m.22s., i = 53m.37s.
La Paz eP = 5h.49m.30s., L = 53m.15s., M = 6h.1m.29s.
San Juan eP = 5h.50m.40s., e = 51m.17s. and 51m.55s.
Copenhagen 5h.51m., L = 6h.24m.
Ann Arbor e?N = 5h.51m.6s., e?E = 51m.36s., eE = 53m.18s., eLN = 6h.0m.12s.
Pittsburgh eL = 5h.51m.24s.
Scoresby Sund 5h.51m.28s., 6h.0m.36s., L = 18m.
Ottawa e = 5h.52m.16s., eL = 55m.
Paris ePZ = 5h.52m.38s., L = 6h.22m.
Uccle P = 5h.52m.47s., SE = 6h.3m.5s., eL = 20m.
De Bilt PZ = 5h.52m.48s., eLE = 6h.20m.
Strasbourg ePZ = 5h.53m.2s., eL = 6h.21m.
Stuttgart eP = 5h.53m.4s., eS = 6h.3m.30s., eL = 22m.
Triest ePZ = 5h.53m.24s., S = 6h.3m.51s., i = 4m.18s., M = 26m.13s.
Pulkovo e = 5h.54m.27s., S = 6h.3m.59s., L = 27m., M = 29m.24s.
Ukiah e = 5h.57m.30s.
Tashkent i = 6h.0m.41s., e = 10m.31s. and 10m.51s., eL = 35m., M = 54m.6s.
Sverdlovsk e = 6h.4m.58s., 5m.33s., 7m.57s., and 13m.51s., L = 27m., M = 41m.48s.
Baku e = 6h.10m.13s., L = 34m.30s., M = 41m.42s.
Sumoto eN = 6h.10m.38s.
Long waves were also recorded at Ivigtut, Kew, and Bombay.

April 10d. 10h. 23m. 2s. Epicentre 6°·9S. 115°·9E. N.1.

A = −·434, B = +·893, C = −·120; D = +·900, E = +·437; G = +·052, H = −·108, K = −·993.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Malabar		8·3	267	i 2 2	+ 4	i 4 32	S_g	—	—
Batavia		9·0	275	e 2 4	− 3	i 4 7	+18	—	—
Soengei Langka		10·8	278	e 2 31	− 1	e 4 49	+16	—	—
Amboina		12·6	76	2 59	+ 3	5 32	+15	—	—
Medan		20·1	301	e 4 22	− 9	i 8 31	+23	—	—
Manila		22·1	13	i 4 54a	+ 2	i 9 1	+13	—	—
Palau		23·3	53	5 10	+ 6	9 19	+ 9	—	—
Perth		25·0	180	5 27	+ 7	7 53	?	—	10·0
Phu-Lien		29·2	342	e 5 59	+ 1	10 53	+ 2	13·0	—
Hong Kong		29·3	356	5 58	− 1	10 49	− 4	—	18·1
Takao		29·8	8	e 6 13	+10	11 39	+38	—	—
Arisan		30·8	9	e 6 24	+12	—	—	—	—
Isigakizima		32·2	14	6 58	+34	—	—	—	—
Adelaide		35·0	147	i 6 48	− 1	i 12 21	0	i 15·2	19·5
Zi-ka-wei		38·4	8	i 7 19	+ 1	13 19	+ 7	—	35·0
Nanking		39·1	3	i 7 20k	− 4	i 13 22	0	e 18·7	23·5
Calcutta		39·9	318	7 40	+ 9	13 53	+18	21·2	25·3
Melbourne		40·6	144	7 38	+ 1	13 51	+ 6	19·7	23·7
Nagasaki		41·8	18	e 7 48	+ 1	e 17 12	?	—	—
Kodaikanal	E.	42·0	294	i 7 48	− 1	14 9	+ 3	22·4	24·4

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Riverview		42·2	135	i 7 53	+ 3	i 14 13	+ 4	e 22·5	25·5
Sydney		42·3	135	e 5 3	?	i 13 58	−12	24·0	28·0
Koti		43·8	22	e 8 6	+ 3	e 18 10	(+ 5)	—	35·0
Hyderabad		44·3	304	8 8	+ 1	14 37	− 3	20·5	28·8
Taikyu		44·4	15	e 8 9	+ 1	—	—	—	—
Sumoto		45·0	22	e 8 13	0	e 14 46	− 4	—	—
Kobe		45·4	22	8 16	0	e 18 40	SSS	—	37·4
Zinsen		45·5	12	e 8 18	+ 1	—	—	—	—
Osaka		45·5	23	7 27	−50	13 40	−77	—	—
Keizyo		45·7	13	e 8 18	0	—	—	e 30·9	—
Toyooka	N.	46·0	22	8 23	+ 2	e 18 16	(− 2)	—	37·6
Nagoya		46·5	23	8 27	+ 2	(e 16 27)	+75	e 16·5	—
Chiufeng		47·0	0	i 8 21a	− 8	i 14 58	−21	23·7	31·4
Bombay		49·7	302	i 8 50	+ 1	15 57	0	23·7	30·8
Agra	E.	50·0	315	i 8 50	− 1	15 59	− 2	e 24·3	32·4
Hukusima		50·2	27	8 34	−19	—	—	—	—
Dehra Dun		52·0	318	8 58	− 8	14 38	?	20·6	33·0
Vladivostok		52·1	15	i 9 13	+ 6	16 37	+ 7	25·0	39·0
Almata		61·3	329	10 18	+ 4	18 40	+ 7	36·2	—
Christchurch		61·5	136	i 10 14	− 1	i 18 46	+10	32·5	—
Suva		61·8	107	12 58?	PP	—	—	—	—
Wellington		61·9	133	10 18	0	18 45	+ 4	28·0	—
Andijan		62·2	324	10 18	− 2	18 44	− 1	e 33·9	—
Frunse		62·4	327	11 32	(+29)	19 58	(−11)	37·5	—
Tashkent		64·4	323	i 10 35	0	i 19 9	− 3	34·8	40·8
Samarkand		64·8	320	10 38	+ 1	—	—	—	—
Tananarive		67·4	253	10 53	− 1	20 0	+10	35·1	44·3
Baku		76·7	314	i 11 49	− 1	21 37	− 2	39·0	46·7
Sverdlovsk		77·9	333	i 11 51	− 6	i 21 44	− 9	41·2	46·6
Erevan		80·6	313	e 12 7	− 4	—	—	—	—
Grozny		80·6	316	i 12 13	+ 2	i 22 18	− 4	48·3	—
Tiflis		80·8	314	12 11	− 1	22 19	− 5	46·9	57·1
Piatigorsk		82·7	316	e 12 7	−15	e 22 34	−10	—	—
Sotchi		84·9	315	e 12 10	−23	—	—	—	—
Ksara		85·6	304	12 2	−34	e 22 32	−42	43·0	49·0
Theodosia		88·2	316	12 51	+ 2	23 33	− 6	—	—
Helwan		88·8	300	i 12 50	− 2	i 24 44	PS	—	52·5
Kucino		89·0	327	e 12 50	− 3	i 23 35	−11	44·5	49·7
Yalta		89·0	315	e 12 51	− 2	e 23 36	−10	—	—
Simferopol		89·1	316	12 53	0	e 23 41	− 6	—	—
Sebastopol		89·4	315	e 12 55	0	e 23 46	− 4	—	—
Pulkovo		93·7	330	i 13 12	− 2	24 16	−14	48·5	53·6
Helsingfors		96·4	331	e 13 30	+ 3	e 24 1	[− 7]	e 42·0	—
Budapest		99·7	317	e 17 28	PP	24 22	[− 2]	57·0	59·0
Upsala		100·2	330	—	—	e 24 58?	{+ 3}	e 51·0	56·1
Zagreb		101·9	315	e 17 38	PP	e 25 29	−14	—	59·5
Copenhagen		103·3	326	18 16	PP	25 9	{− 9}	52·0	—
Triest		103·4	315	e 17 10k	?	i 25 41	−15	e 55·0	57·4
Cheb		103·9	320	e 18 12	PP	e 24 55	[+10]	e 56·0	59·0
Hamburg		105·0	324	e 17 58?	[− 3]	—	—	e 56·0	60·0
Göttingen		105·2	322	e 18 22	PP	—	—	e 53·0	59·1
Florence		105·3	313	e 17 36	[−26]	27 30	PS	42·5	59·0
Piacenza		106·3	315	18 46	PP	27 58	PS	—	64·0
Stuttgart		106·2	319	e 14 10	− 2	e 26 4	{+23}	e 54·0	60·0
Strasbourg		107·1	319	e 14 16	− 1	i 26 16	{+30}	e 37·0	60·3
De Bilt		108·1	323	e 18 49	PP	—	—	e 55·0	60·7
Uccle		108·9	322	—	—	e 26 31	{+32}	e 55·0	—
Paris		110·5	320	e 19 2	PP	e 28 29	PS	60·0	61·0
Scoresby Sund		111·0	346	19 12	PP	25 16	[− 2]	61·0	—
Kew		111·5	323	—	—	e 28 41	PS	e 54·0	70·3

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Edinburgh		111·7	328	e 20 18	?	—	—	e 56·0	69·1
Oxford		112·0	323	—	—	i 28 49	PS	e 58·0	—
Bidston		112·5	326	—	—	e 27 8	{+43}	e 53·0	63·1
Toledo		117·2	312	—	—	e 38 35	?	—	—
Granada		117·5	309	i 21 16	?	i 33 18	?	63·3	—
Haiwee		122·9	52	e 18 56	[+ 4]	—	—	—	—
Pasadena	z.	123·3	54	i 18 55	[+ 2]	—	—	—	—
Mount Wilson	z.	123·4	54	i 18 55	[+ 2]	—	—	—	—
Ottawa		140·2	13	—	—	e 40 46	SS	e 61·0	—
Toronto		140·9	17	e 23 26	PKS	i 29 17	{−12}	—	—
Oak Ridge		143·8	9	i 19 31	[0]	—	—	e 63·8	—
Fordham		144·9	13	e 19 34	[+ 1]	e 29 45	{− 8}	72·0	—
Georgetown		145·9	18	i 19 37a	[+ 2]	—	—	—	—
Sucre		154·1	177	19 55	[+ 8]	—	—	78·0	—
La Paz		156·3	170	i 19 54	[+ 5]	26 23	?	78·0	87·8
Huancayo		158·0	149	e 20 2	[+11]	—	—	e 76·3	—
San Juan		168·3	9	e 24 38	PP	e 33 27	?	—	—

Additional readings :—
Malabar i = +2m.31s., +2m.45s., +5m.47s., +7m.13s.
Batavia iP = +2m.14s., i = +3m.25s., iE = +4m.39s., iZ = +4m.52s. = S_g +1s.
Soengei Langka i = +5m.46s., +5m.59s., and +6m.35s.
Amboina i = +6m.33s.
Medan iP = +4m.34s., iE = +9m.24s., iN = +9m.35s.
Manila PP = +5m.24s., PPP = +5m.34s.
Perth PPP = +5m.58s.
Hong Kong PP = +7m.2s., SS = +12m.57s.
Adelaide i = +14m.19s. = SS − 7s.
Zi-ka-wei iZ = +8m.48s. = PP + 6s., +14m.42s., +16m.47s., and +19m.29s.
Nanking eN = +7m.49s., iPP = +9m.4s., eN = +16m.37s. = SSSS + 6s.
Melbourne PP = +9m.15s., SS = +17m.3s.
Riverview iE = +14m.20s. and +17m.20s., iNE = +17m.39s. = SSS + 1s.
Koti e = +9m.51s. = P_cP − 3s.
Sumoto eSE = +14m.49s.
Kobe eE = +19m.33s.
Osaka i = +9m.22s. and +17m.46s.
Chiufeng PP? = +10m.14s., SS? = +18m.50s.
Bombay PP = +10m.42s., PS = +16m.22s., SSSE = +20m.29s.
Agra eN = +8m.35s., PPE = +10m.43s., PPPE = +11m.27s., PSE = +16m.37s., SSE = +19m.32s.
Christchurch e = +25m.32s. = SSSS − 3s., L_qN = +27·4m.
Wellington SS = +21m.58s.?
Tananarive PS = +20m.57s., N = +21m.9s. = S_cS + 23s.
Sverdlovsk L_q = +34·8m.
Tiflis SSE = +27m.47s., SSSE = +31m.22s.
Helwan iPP = +16m.20s.
Kucino PP = +16m.29s., SS = +29m.4s.
Pulkovo iPP = +17m.1s., SKS = +23m.48s., PS = +25m.36s., eSSS = +36m.16s., L_q = +44·0m.
Helsingfors ePPEZ = +17m.18s., eSKKSNE = +25m.9s., ePSNE = +26m.6s., ePPSNE = +26m.59s., e?NE = +39m.9s. ; T_o = 10h.22m.47s.
Zagreb e = +32m.30s. = SS + 2s.
Copenhagen +25m.46s. = S − 9s., +28m.6s. and +32m.58s. = SS + 11s.
Triest iPPEZ = +18m.13s., iPSE = +27m.20s., iE = +28m.20s. and +28m.47s., iSSN = +32m.48s., iSSE = +33m.3s.
Florence i = +18m.17s. = PP − 5s.
Stuttgart ePPEZ = +18m.23s., ePPP = +20m.52s., ePSE = +27m.52s., ePPSZ = +28m.46s., eSSN = +33m.24s. ; T_o = 10h.22m.45s.
Strasbourg iPPEZ = +18m.34s., ePPPZ = +21m.0s., ePSE = +28m.0s., ePPSEZ = +29m.1s.
Uccle eE = +28m.15s. = PS − 2s.
Paris PP = +21m.28s. = PPP + 13s.
Oak Ridge iPPZ = +22m.38s., ePPSNE = +34m.10s., eSSNE = +41m.28s., eSSSNE = +47m.10s. ; T_o = 10h.22m.59s.
Fordham ePPN = +23m.15s. = PKS − 4s., eN = +30m.16s.
Georgetown iPPNZ = +23m.1s., iN = +23m.18s. = PKS − 3s.
Sucre pPKP = +21m.31s.
La Paz iPKP$_3$ = +20m.22s., pPKPZ = +21m.31s., sPKPZ = +22m.11s., iPPZ = +23m.59s., PPPE = +26m.59s., SSE = +44m.15s., SSSE = +50m.11s.
Huancayo ePP = +24m.11s., eSS = +44m.30s., eSSS = +50m.38s.
Long waves were also recorded at Colombo, Ivigtut, Bergen, Durham, San Fernando, and Toledo,

April 10d. Readings also at 2h. (Sumoto and near Almata), 6h. (Koti and near Sumoto), 8h. (Tortosa), 11h. (Tiflis), 13h. (Sumoto), 14h. (Andijan and Samarkand), 18h. (Apia), 19h. (near Almata and near Oak Ridge), 20h. (near Santiago), 21h. (near Santiago), 23h. (Sverdlovsk, Andijan, Samarkand, Tashkent, Mount Wilson, Pasadena, Suva, and near Apia).

April 11d. 10h. 53m. 54s. Epicentre 35°·5N. 140°·0E. X.
(as on 1933 July 6d. and near the position 35°·6N. 140°·1E., suggested by the stations.)

A = −·624, B = +·523, C = +·581.

		Δ	Az.	P.	O−C.	S.	O−C.	M.
		°	°	m. s.	s.	m. s.	s.	m.
Tokyo		0·3	312	0 5a	+ 1	0 16	+ 8	—
Tyosi		0·7	72	i 0 7	− 3	0 17	− 1	0·3
Susaki		1·2	225	0 18	+ 1	0 35	+ 4	—
Nagoya		2·5	262	e 0 36	0	1 14	S*	1·6
Mizusawa	E.	3·7	14	e 0 50	− 3	e 1 38	+ 3	—
Osaka		3·8	259	0 55	+ 1	1 53	S*	2·8

Mizusawa eSN = +1m.48s. =S* +0s.

April 11d. 21h. 12m. 6s. Epicentre 19°·8S. 169°·9E. N.2.

A = −·926, B = +·165, C = −·339; D = +·175, E = +·985;
G = +·333, H = −·059, K = −·941.

A *depth* of focus 0.025 has been assumed.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Suva	−0·2	8·3	80	2 12?	+17	3 57	+31	—	—
New Plymouth	−1·0	19·6	170	3 54?	−20	—	—	—	—
Riverview	−1·1	21·7	226	i 4 35k	− 1	8 26	+ 8	12·2	13·6
Sydney	−1·1	21·7	226	(e 4 26)	−10	(i 8 12)	− 6	11·1	12·1
Wellington	−1·1	21·8	181	4 41	+ 4	8 34	+14	—	—
Christchurch	−1·3	23·8	176	i 4 57	+ 1	i 9 6	+11	—	—
Melbourne	−1·6	28·1	225	5 36	+ 2	10 9	+ 2	14·6	18·8
Adelaide	−1·8	31·4	234	e 6 2	+ 1	i 10 54	− 4	12·4	14·8
Amboina	−2·3	43·8	286	7 31	−13	i 13 4	−55	—	—
Perth	−2·6	49·6	244	10 29	PP	15 24	+ 5	19·0	24·6
Honolulu	−2·6	51·8	40	—	—	e 16 54	+64	—	—
Manila	−3·0	59·2	303	e 9 31	− 6	i 17 28	+ 3	—	—
Tokyo	−3·0	62·4	333	10 31	+31	—	—	—	—
Batavia	−3·1	62·6	273	i 10 2k	+ 1	i 18 13	+ 4	—	—
Hunatu	−3·1	62·7	332	10 7	+ 5	18 12	+ 1	—	—
Kohu	−3·1	62·9	332	10 6	+ 3	18 14	+ 1	—	—
Maebasi	−3·1	63·3	332	10 8	+ 2	18 20	+ 1	—	—
Oiwake	−3·1	63·5	332	10 11	+ 4	18 22	+ 1	—	—
Osaka	−3·1	63·5	329	8 55	?	15 52	?	—	—
Kobe	−3·1	63·7	329	—	—	e 18 24	0	—	—
Nagano	−3·1	63·9	333	10 12	+ 2	18 28	+ 2	—	—
Mizusawa	−3·1	64·8	336	e 10 17	+ 1	18 40	+ 2	—	—
Nagasaki	−3·1	65·0	323	e 18 10	S	(e 18 10)	−31	—	—
Hong Kong	−3·2	68·8	305	10 43	+ 1	19 29	+ 2	—	29·3
Nanking	−3·2	71·3	316	e 10 57	− 2	—	—	—	—
Vladivostok	−3·2	71·9	332	i 11 0	− 3	i 20 8	+ 3	—	—
Medan	−3·2	73·7	280	11 12	− 2	i 20 21	− 6	—	—
Chiufeng	−3·3	78·0	321	11 34	− 5	i 21 15	− 2	—	—
Branner	−3·4	85·7	48	i 12 20	0	—	—	—	—
Berkeley	−3·4	85·9	48	e 12 18	− 3	i 22 30	−12	—	—

Continued on next page.

		Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Santa Barbara		−3·4	86·1	52	i 12 18a	− 4	—	—	—	—
Lick		−3·4	86·1	48	e 12 21	− 1	—	—	—	—
Pasadena		−3·4	87·1	52	i 12 25a	− 2	i 22 50	− 4	—	—
La Jolla		−3·4	87·2	54	i 12 27a	0	—	—	—	—
Mount Wilson		−3·4	87·2	52	i 12 27a	0	—	—	—	—
Riverside		−3·5	87·6	52	i 12 28a	− 1	i 15 54	PP	—	—
Haiwee		−3·5	88·1	50	i 12 32a	+ 1	—	—	—	—
Calcutta		−3·5	90·1	293	13 15	+34	22 35	−48	e 40·1	—
Tucson		−3·5	91·9	56	e 12 52	+ 2	e 23 7	−34	—	—
Hyderabad		−3·6	97·1	286	—	—	23 29	−59	47·8	72·3
Agra	E.	−3·7	100·5	295	e 13 50	+21	23 36	[−52]	—	—
Bombay		−3·7	102·7	285	17 19	PP	25 0	−18	—	—
Almata		—	105·5	311	i 19 10	PP	i 24 17	[−35]	—	—
Frunse		—	107·2	310	e 19 27	PP	e 25 17	{−30}	—	—
Little Rock		—	107·3	58	17 54?	[−15]	—	—	—	—
Huancayo		—	108·4	111	e 18 39	PP	e 27 54	PS	e 45·6	—
Andijan		—	108·5	307	e 18 48	PP	i 24 23	[−43]	—	—
St. Louis		—	109·7	55	e 18 41	PP	e 24 26	[−46]	—	—
Tashkent		—	110·7	308	e 14 47	+13	25 25	{−46}	e 49·9	54·0
Sverdlovsk		—	117·0	324	i 18 14	[−24]	i 24 54	[−47]	44·9	—
Georgetown		—	119·9	55	e 19 48	PP	i 25 6	[−44]	e 29·9	—
Ottawa		—	120·9	48	e 15 54	+31	e 25 18	[−35]	28·9	—
Fordham		—	122·4	53	e 18 33	[−18]	—	—	—	—
Baku		—	125·3	306	e 18 45	[−13]	25 31	[−35]	58·9	—
San Juan		—	127·3	81	e 20 44	PP	—	—	—	—
Grozny		—	128·1	310	e 18 48	[−15]	i 25 38	[−36]	—	—
Scoresby Sund		—	128·9	5	20 36	PP	—	—	—	—
Tiflis		—	129·0	308	18 46	[−19]	e 25 27	[−49]	58·3	—
Erevan		—	129·4	306	e 18 48	[−18]	e 21 53	PP	—	—
Kucino		—	129·4	327	e 22 6	PKS	e 28 31	?	e 34·6	38·0
Pulkovo		—	130·8	334	e 18 51	[−17]	e 30 45	PS	90·9	96·7
Ivigtut		—	130·8	23	18 47	[−21]	—	—	—	—
Sotchi		—	132·3	311	e 18 38	[−33]	e 22 30	PKS	—	—
Helsingfors		—	132·6	337	e 21 55	PP	—	—	—	—
Theodosia		—	134·9	315	22 13	PP	—	—	—	—
Simferopol		—	135·8	315	22 16	PP	e 28 15	{−43}	—	—
Yalta		—	135·9	314	22 16	PP	e 28 13	{−46}	—	—
Ksara		—	137·0	298	e 19 4	[−14]	—	—	—	—
Copenhagen		—	140·3	340	19 5	[−17]	—	—	—	—
Edinburgh		—	143·5	353	—	—	e 26 4	SKS	—	—
Budapest		—	143·6	326	e 19 24	[− 6]	—	—	—	—
Vienna		—	144·4	329	e 19 12	[−20]	—	—	—	—
Jena		—	144·5	335	i 19 12	[−21]	—	—	—	—
Göttingen		—	144·6	339	i 19 12	[−21]	—	—	—	—
Cheb		—	144·9	334	e 18 54?	[−39]	e 32 59	SKSP	—	42·9
De Bilt		—	145·6	343	i 19 15	[−20]	—	—	—	—
Zagreb		—	146·3	326	e 19 17	[−19]	—	—	—	—
Uccle		—	147·0	342	i 19 17	[−20]	—	—	—	—
Stuttgart		—	147·2	336	i 19 18a	[−20]	—	—	e 87·9	—
Kew		—	147·4	349	e 19 15	[−23]	—	—	—	—
Triest		—	147·6	328	i 19 19a	[−19]	i 29 18	{−51}	e 64·9	71·9
Strasbourg		—	147·9	337	i 19 19a	[−20]	29 23	{−47}	e 44·9	—
Venice		—	148·4	330	19 30	[−10]	—	—	—	—
Chur		—	148·5	337	e 19 19	[−21]	—	—	—	—
Zurich		—	148·6	337	e 19 20	[−20]	—	—	—	—
Basle		—	148·8	337	e 19 20	[−20]	—	—	—	—
Paris		—	149·3	344	e 19 22	[−19]	—	—	83·9	—
Neuchatel		—	149·4	337	e 19 32	[− 9]	—	—	—	—
Piacenza		—	149·9	333	19 26	[−16]	—	—	—	43·4
Prato		—	150·1	328	e 19 27	[−15]	i 29 31	{−52}	—	—
Florence		—	150·1	328	i 19 24a	[−18]	31 54	?	—	41·9
Toledo		—	159·3	347	—	—	e 40 21	?	—	—
Algiers		—	159·5	329	e 19 38	[−15]	—	—	—	—
Granada		—	161·7	343	e 19 49	[− 6]	i 24 59	PP	93·9	—

For Notes see next page.

NOTES TO APRIL 11d. 21h. 12m. 6s.

Additional readings and note :—
Suva P_g? = +3m.18s.
Sydney readings have been *increased* by 3m.
Wellington sS = +9m.34s., S_cS = +15m.31s.
Perth P_cS = +17m.4s., SS = +17m.14s., SSS = +17m.54s.
Batavia i = +13m.19s. = PPP + 4s.
Osaka i = +18m.12s.
Kobe iE = +19m.51s. = S_cS − 28s.
Mizusawa eP = +9m.26s.; true P is given as eS, and iS given as for another shock fits this quake.
Medan i = +21m.35s., iN = +22m.4s.
Chiufeng iE = +12m.14s.
Branner iEN = +12m.24s. and +12m.31s.
Berkeley iPENZ = +12m.20s.
Lick iN = +12m.32s.
Pasadena epP = +13m.0s., isP = +13m.27s., iPP = +15m.48s., isS = +24m.9s.
Mount Wilson iZ = +15m.53s. = PP + 18s.
Agra PPE = +17m.27s., PPPE = +19m.23s., eN = +23m.45s., PPSE = +26m.17s., SSE = +31m.20s., SSSE = +35m.10s.
Bombay PPPE = +19m.39s., SKS = +23m.54s., SS = +32m.8s.
Huancayo eSS = +34m.59s.
St. Louis eSKKSE = +25m.26s., eSE = +26m.46s., ePSN = +27m.18s.
Tashkent iPKP = +18m.28s., iPS = +28m.7s., eSS = +33m.54s.
La Paz sP = +21m.34s., isS = +30m.42s.
Sverdlovsk iPPP = +21m.33s., iS = +26m.58s.
Fordham eEZ = +20m.12s. = PP − 14s., eN = +28m.2s., +36m.44s. = SS − 19s., and +39m.46s.
Baku S = +27m.13s. = SKKS − 38s.
Tiflis eZ = +21m.23s. = PP + 12s., eSKKSE = +27m.32s., ePSE = +30m.48s., eE = +40m.52s.
Pulkovo iPKS = +22m.10s., eSS = +38m.6s.
Ivigtut i = +21m.56s. = PP + 33s.
Helsingfors ePPPE = +24m.4s., ePPSE = +34m.54s., eSSE = +41m.55s.
Copenhagen i = +22m.25s. = PP + 2s., SS = +40m.24s.
Vienna iZ = +22m.39s. = PP − 9s.
Göttingen iZ = +22m.36s. = PP − 13s.
De Bilt i = +19m.58s., +22m.39s., e = +41m.18s.
Zagreb iZ = +19m.20s., e = +19m.29s.
Uccle i = +19m.21s. and +20m.1s., e = +41m.30s.
Stuttgart iPKP = +19m.22s., e = +41m.32s. = SS − 36s.
Kew i = +19m.22s.
Triest iE = +19m.43s. and +35m.40s., iSS = +41m.34s., SSS = +47m.4s.
Strasbourg SKP = +23m.30s., ePPPPPE = +30m.42s.
Zurich i = +19m.22s.
Neuchatel e = +19m.37s.
Algiers PPN = +24m.21s.
Long waves were also recorded at Ukiah and San Fernando.

April 11d. 21h. 12m. 48s. Epicentre 19°·8S. 169°·9E. (as at 21h. 12m. 6s.). X.

A *depth* of focus 0·025 has been retained.

		Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Christchurch		−1·3	23·8	176	i 5 6	+10	i 9 8	+13	—	—
Melbourne		−1·6	28·1	225	5 42	+ 8	—	—	—	—
Adelaide		−1·8	31·4	234	i 6 23	+22	i 12 20	L	(12·3)	—
Amboina		−2·3	43·8	286	i 9 2	PP	i 16 37	SS	—	—
Manila		−3·0	59·2	303	i 9 44	+ 7	—	—	—	—
Batavia		−3·1	62·6	273	i 9 59	− 2	—	—	—	—
Osaka		−3·1	63·5	329	i 10 16	+ 9	—	—	—	—
Hong Kong		−3·2	68·8	305	10 41	− 1	19 42	+15	—	—
Nanking		−3·2	71·3	316	i 11 2	+ 3	i 20 4	+ 6	—	—
Vladivostok		−3·2	71·9	332	i 10 57	− 6	20 5	0	30·2	—
Medan		−3·2	73·7	280	12 8	+54	i 20 21	− 6	—	—
Phu-Lien		−3·2	74·1	300	10 12?	−64	—	—	—	—
Chiufeng		−3·3	78·0	321	i 11 32	− 7	—	—	—	—
Kodaikanal	E.	−3·6	95·7	281	12 58	− 9	—	—	—	—
Bombay		−3·7	102·7	285	e 13 31	− 8	23 58	[−41]	—	—

Continued on next page.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
St. Louis	—	109·7	55	—	—	e 25 30	{−35}	—	—
Tashkent	—	110·7	308	(i 18 33)	PP	—	—	—	—
La Paz	—	112·4	119	18 26a	?	i 28 4	PS	—	—
San Juan	—	127·3	81	i 21 0	PP	—	—	—	—
Pulkovo	—	130·8	334	—	—	30 53	SKSP	—	—
Ivigtut	—	130·8	23	e 21 29	PP	—	—	—	—
Ksara	—	137·0	298	21 40	PP	—	—	—	—
Copenhagen	—	140·3	340	22 2	PP	—	—	—	—
Göttingen	—	144·6	339	i 19 9	[−24]	—	—	—	—
De Bilt	—	145·6	343	i 19 16	[−19]	—	—	—	—
Zagreb	—	146·3	326	e 19 23	[−13]	—	—	—	—
Stuttgart	—	147·2	336	19 17	[−21]	—	—	—	—
Kew	—	147·4	349	i 19 20	[−18]	—	—	—	—
Triest	—	147·6	328	i 19 20	[−18]	—	—	—	—
Strasbourg	—	147·9	337	i 19 20	[−19]	—	—	—	—
Paris	—	149·3	344	19 24	[−17]	—	—	—	—

Additional readings and note :—
Christchurch iZ = +9m.38s., =SS +10s., and +9m.57s.
Melbourne SS = +11m.9s.
La Paz pPKP = +19m.16s., SPKP = +20m.52s., PPE = +21m.56s., pPP = +23m.14s., SPE = +28m.50s., isS = +30m.0s., SSS = +34m.44s.
Tiflis (Δ = 129°·0), eEZ = +21m.10s. =PP −1s.
Erevan (Δ = 129°·4), e = +21m.11s. =PP −2s.
Ivigtut i = +21m.14s. =PP −9s.
Sotchi (Δ = 132°·3) e = +21m.18s. =PP −14s.
De Bilt iZ = +22m.57s. =PP +1s.
Stuttgart ipPKP = +19m.20s., ePP = +22m.42s., eSS = +42m.0s.
Kew e = +39m.56s., i = +42m.10s. =SS +0s.
Triest i = +19m.31s., e = +32m.43s. =SKSP −38s., iE = +42m.7s. +2s.

April 11d. 21h. 56m. 7s. Epicentre 6°·9S. 115°·9E. (as on 10d.). R.3.

A = −·434, B = +·893, C = −·120 ; D = +·900, E = +·437 ; G = +·052, H = −·108, K = −·993.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Malabar	8·3	267	2 2	+ 4	—	—	—	—
Batavia	9·0	275	i 2 14	+ 7	4 43	S_g	—	—
Amboina	12·6	76	2 54	− 2	—	—	—	—
Medan	20·1	301	4 34	+ 3	8 39	SS	—	—
Manila	22·1	13	4 53	+ 1	8 53	+ 5	—	—
Perth	25·0	180	—	—	i 9 58	+17	12·9	—
Phu-Lien	29·2	342	5 53?	− 5	—	—	—	—
Hong Kong	29·3	356	—	—	10 58	+ 5	—	21·6
Almata	61·3	329	e 9 53	−21	—	—	—	—
Andijan	62·2	324	e 10 22	+ 2	—	—	—	—
Frunse	62·4	327	e 11 16	+55	—	—	—	—
Tashkent	64·4	323	i 10 32	− 3	i 19 6	− 6	e 34·9	41·5
Sverdlovsk	77·9	333	i 11 51	− 6	i 21 45	− 8	37·9	—
Grozny	80·6	316	i 12 12	+ 1	—	—	—	—
Tiflis	80·8	314	e 12 11	− 1	e 22 33	+ 9	—	—
Ksara	85·6	304	e 12 37	+ 1	e 23 10	− 4	—	—
Georgetown	145·9	18	i 19 35a	[0]	(e 28 53?)	{−63}	e 28·9	—
La Paz	N. 156·3	170	e 20 41	{+14}	—	—	—	—

Additional readings and notes :—
Malabar i = +2m.45s., +4m.47s., and +5m.17s.
Medan i = +5m.12s., +8m.25s. =SS −4s., and +8m.54s.
Perth i = +10m.53s.

April 11d. Readings also at 0h. (Baku and near Andijan), 8h. (Bombay), 10h. (Agra, Bombay, Kodaikanal, Baku, Sverdlovsk, and Tashkent), 14h. (near Arisan, Karenko, and Taihoku), 18h. (Florence and near Prato), 19h. (Ravensburg, near Basle, Chur, Zurich, Neuchatel, and Prato), 22h. (Medan).

April 12d. 3h. 20m. 48s. Epicentre 19°·5N. 120°·5E. N.2.

A = − ·478, B = + ·812, C = + ·334 ; D = + ·862, E = + ·508 ;
G = − ·169, H = + ·288, K = − ·943.

		Δ	Az.	P.	O − C.	S.	O − C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Taito		3·3	11	1 7	P_g	—	—	—	—
Arisan		4·0	4	0 57	0	1 49	+ 7	—	—
Manila		4·9	174	i 1 15	+ 5	2 10	+ 5	—	—
Taihoku		5·6	10	1 42	P_g	—	—	—	—
Hong Kong		6·5	297	1 25	− 7	3 2	S*	3·5	5·2
Zi-ka-wei	z.	11·7	3	—	—	e 5 41	S*	—	10·4
Nanking		12·6	353	e 2 52	− 4	e 5 57	S*	8·0	9·2
Phu-Lien		13·1	278	e 3 2	− 1	e 5 27	− 2	6·2	—
Nagoya		21·4	40	e 4 51	+ 7	—	—	—	—
Oiwake		23·1	40	5 14	+12	—	—	—	—
Amboina		24·4	161	5 17	+ 3	9 27	− 3	—	—
Vladivostok		25·5	20	5 29	+ 4	9 55	+ 5	13·2	18·4
Medan		26·5	236	5 37	+ 3	11 8	SS	—	—
Batavia		29·0	209	i 5 56	0	e 11 20	+32	—	—
Calcutta		30·0	281	6 29	+24	10 19	−45	14·0	15·5
Agra	E.	39·5	290	e 7 14	−14	e 13 13	−16	—	—
Kodaikanal	E.	42·5	265	7 54	+ 1	—	—	—	—
Almata		43·4	314	e 8 17	+17	—	—	—	—
Bombay		44·9	278	e 8 10	− 2	14 51	+ 2	—	27·5
Frunse		44·9	312	e 8 51	+39	—	—	—	—
Tashkent		48·4	309	i 8 32	− 7	e 15 36	− 2	e 25·7	30·7
Sverdlovsk		57·4	327	9 42	− 4	i 17 39	− 3	29·2	—
Baku		62·9	307	e 10 29	+ 4	18 57	+ 3	33·8	41·8
Grozny		65·8	310	e 10 45	+ 1	—	—	—	—
Tiflis		66·7	308	e 10 49	− 1	19 41	0	e 35·2	42·9
Pulkovo		73·3	328	e 10 58	−33	e 19 55	?	36·2	45·1
Ksara		75·0	301	e 11 12?	−28	21 22	+ 2	—	—
Cheb		86·1	323	—	—	e 39 12?	?	e 49·2	55·2
Scoresby Sund		86·3	348	—	—	23 18	− 2	45·2	—
Triest		87·2	319	e 12 42	− 2	23 20	− 9	45·2	53·2
Stuttgart		88·6	322	—	—	e 23 46	+ 3	e 49·2	—
De Bilt		89·1	326	—	—	e 23 42	− 5	e 46·2	50·1
Florence		89·5	317	e 23 12	SKS	(e 23 12)	[−18]	—	23·7

Additional readings :—
Manila ePNE = +1m.17s.
Hong Kong PP = +1m.30s.
Agra eN = +14m.42s.?
Scoresby Sund +29m.6s.
Triest e = +24m.21s. = PS +3s.
Long waves were also recorded at Koti, Hyderabad, Kucino, and other European stations.

April 12d. 9h. 10m. 40s. Epicentre 25°·5N. 98°·5E. (as on 1934 Jan. 19d.). X.

A = − ·133, B = + ·893, C = + ·431 ; D = + ·989, E = + ·148 ;
G = − ·064, H = + ·426, K = − ·903.

		Δ	Az.	P.	O − C.	S.	O − C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Phu-Lien		8·9	120	e 2 20?	+14	4 49	S_g	5·1	—
Calcutta		9·7	254	3 36	+79	5 20?	+74	e 5·8	—
Hong Kong		14·7	99	6 35	S	(6 35)	+27	8·2	8·7
Agra		18·4	280	3 55	−16	7 24	− 9	—	12·6
Dehra Dun		18·7	290	7 50	S	(7 50)	+10	10·7	11·3
Nanking		19·0	65	i 4 25	+ 6	—	—	i 10·4	11·7
Hyderabad		20·3	251	4 42	+ 9	8 22	+10	9·9	13·7
Chiufeng		20·7	41	e 4 38	+ 1	8 38	+18	i 11·0	—
Zi-ka-wei	z.	21·0	69	—	—	e 8 44	+18	(11·1)	13·2
Medan		21·9	179	4 50	0	—	—	i 11·6	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Manila		23·7	113	4 57	−10	9 49	SS	—	15·3
Bombay		24·6	260	e 5 20	+ 4	9 41	+ 7	13·3	18·8
Almata		24·9	321	5 32	+13	e 10 10	+31	—	—
Kodaikanal	E.	25·1	236	5 31	+10	—	—	—	—
Frunse		26·2	318	e 5 28	− 3	e 10 12	+10	e 15·8	—
Andijan		26·5	312	e 6 3	+29	—	—	—	—
Tashkent		28·8	311	6 0	+ 6	e 10 46	+ 1	e 14·7	17·3
Tchimkent		29·0	313	e 8 25	?	13 16	?	—	—
Vladivostok		32·4	48	—	—	e 13 44	SS	17·0	18·9
Sumoto		32·6	65	—	—	e 14 20?	?	e 17·7	—
Sverdlovsk		41·4	330	7 43	− 1	i 13 58	+ 1	22·9	—
Baku		42·8	304	e 8 20	+25	e 14 29	+11	23·3	31·8
Grozny		46·1	307	8 18	− 3	e 15 12	+ 6	—	—
Tiflis		46·7	305	8 33	+ 7	e 15 23	+ 9	25·6	34·0
Sotchi		50·5	307	e 8 33	−22	—	—	—	—
Kucino		52·7	322	—	—	e 16 20	−18	e 25·6	29·4
Ksara		54·2	295	e 9 20?	− 3	17 12	PS	—	—
Pulkovo		57·3	327	e 12 43	PPP	—	—	29·3	33·7
Triest		68·5	312	e 5 5	?	e 19 3	−60	e 30·3	38·3

Additional readings and notes :—
Hong Kong S = +7m.51s.
Agra PPE = +4m.16s., eN = +7m.13s., SSE = +8m.5s.
Zi-ka-wei gives S as e and L as S.
Vladivostok e = +15m.29s.
Sverdlovsk L_g = +21·3m.
Tiflis PPEZ = +10m.23s., SSN = +18m.35s.
Long waves were also recorded at Batavia, Scoresby Sund, and other Japanese and European stations.

April 12d. Readings also at 1h. (New Plymouth and near Wellington, Florissant, St. Louis, and near Little Rock), 2h. (La Paz and Sucre), 3h. (Batavia), 4h. (La Paz), 8h. (near Ksara), 10h. (Amboina), 11h. (near Tananarive), 13h. (Branner and Lick), 14h. (near Tyosi), 15h. (near Nagoya), 17h. (near Victoria), 18h. (Andijan), 22h. (Sucre), 23h. (Little Rock, Haiwee, Mount Wilson, Pasadena, and Wellington).

April 13d. 11h. Epicentre in the vicinity of Formosa.
Takao eP =11h.33m.41s., S =33m.58s.
Taito e =11h.33m.49s. and 34m.2s.
Tainan eP =11h.34m.9s., S =34m.26s.
Arisan iP =11h.34m.9s., S =34m.31s.
Karenko iP =11h.34m.14s., S =34m.40s.
Nanking e =11h.38m.25s.

April 13d. 22h. 3m. 54s. Epicentre 25°·7N. 124°·8E. (as on 1919 June 1d.). R.3.

A = −·514, B = +·740, C = +·434 ; D = +·821, E = +·571 ;
G = −·247, H = +·356, K = −·901.

A *depth* of focus 0·030 has been assumed.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Taihoku	+0·4	3·0	257	0 47a	− 2	1 26	− 1	—	—
Karenko	+0·3	3·3	241	i 0 51	0	1 31	− 1	—	—
Arisan	+0·2	4·2	240	i 1 2a	− 1	1 51	− 2	—	—
Taito	+0·1	4·4	229	e 0 59	− 5	i 42	−13	—	—
Zi-ka-wei	−0·1	6·2	333	e 1 24	− 3	i 2 33	− 3	—	7·2
Nanking	−0·3	8·2	322	i 1 51	− 1	e 3 21	0	—	—
Nagasaki	−0·3	8·3	31	i 1 55a	+ 2	e 3 10	−14	—	—
Husan	−0·4	10·0	20	e 1 52	−24	—	—	5·3	—
Hong Kong	−0·4	10·2	253	1 17	−61	5 13	+65	—	6·7
Taikyu	−0·5	10·7	17	2 24	0	e 4 32	+14	—	—

Continued on next page.

		Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Manila		−0·5	11·7	199	i 2 42a	+ 5	5 6	+23	—	—
Chiufeng		−0·9	16·1	335	i 3 30k	− 1	i 6 25	+ 5	—	—
Phu-Lien		−1·0	17·4	257	5 6?	?	—	—	—	—
Vladivostok		−1·1	18·3	17	e 4 26	+29	e 7 16	+10	—	—
Mizusawa		−1·2	19·2	42	—	—	i 7 35	+10	—	—
Almata		−2·6	42·4	307	e 7 34	+ 4	—	—	—	—
Andijan		−2·8	45·1	303	e 7 53	+ 2	—	—	—	—
Sverdlovsk		−3·4	54·7	323	i 9 2	+ 1	17 44	+85	24·1	—
Sotchi		−3·8	69·2	309	e 10 22	−19	—	—	—	—
Pasadena	z.	−4·3	95·5	48	i 13 2a	− 1	—	—	—	—

Vladivostok i = +4m.54s. and +8m.16s.

April 13d. Readings also at 1h. (near Dehra Dun), 4h. (Bombay and near Calcutta), 5h. (Wellington), 7h. (near Triest), 9h. (Sverdlovsk, Tashkent, Ksara, Theodosia, Kucino, Baku, Sotchi, near Erevan, Grozny, and Tiflis), 10h. (near Grozny and Tiflis), 11h. (Grozny and Tiflis), 13h. (Suva, Christchurch, Wellington, Grozny, Tiflis, Haiwee, Pasadena, Riverside, and Santa Barbara), 14h. (Riverview, Sydney, Grozny, and Tiflis), 15h. (De Bilt and near Tyosi), 16h. (Wellington), 17h. (near Branner), 19h. (Agra, Bombay, Tashkent, Chiufeng, Hong Kong, Nanking, and Phu-Lien), 20h. (Hyderabad, Sverdlovsk, and Vladivostok), 21h. (Andijan, Frunse, Tashkent, and Sverdlovsk), 22h. (Bombay), 23h. (Agra, Bombay, and near Calcutta).

April 14d. 8h.
Bunnythorp P_g = 8h.45m.0s.?, S_g = 45m.10s.
New Plymouth P = 8h.47m.58s., i = 48m.7s., S = 48m.28s.
Dannevirke P_g = 8h.48m.21s., S_g = 48m.28s.
Takaka P? = 8h.48m.21s., S = 48m.57s.
Wellington P = 8h.48m.43s., i = 48m.52s., S = 49m.3s., i = 49m.10s.
Hastings P_g = 8h.49m.0s.?, S_g = 49m.11s., i = 49m.21s.
Glenmuick eP = 8h.49m.1s., e = 49m.20s., 49m.31s., and 49m.56s., M = 50m.3s.
Christchurch e = 8h.49m.34s., iEZ = 50m.10s., iEN = 50m.29s., i = 50m.52s., iZ = 51m.22s.
Arapuni 8h.49m.35s.
Melbourne i = 8h.58m.14s., L = 9h.1m.30s.

April 14d. 17h. 45m. 28s. (I) } Epicentre 34°·7N. 134°·5E. X.
18h. 50m. 7s. (II) } (as on 8d.). X.
20h. 35m. 58s. (III) } X.

A = −·576, B = +·586, C = +·569.

	Δ	Az.	P.	O−C.	S.	O−C.	M.
	°	°	m. s.	s.	m. s.	s.	m.
I Sumoto	0·5	138	e 0 7	0	0 12	− 1	0·2
II	0·5	138	0 6	− 1	0 10	− 3	0·2
III	0·5	138	0 6	− 1	0 12	− 1	0·2
I Kobe	0·5	92	0 7	0	0 11	− 2	0·2
II	0·5	92	0 5	− 2	0 10	− 3	0·2
III	0·5	92	0 5	− 2	0 10	− 3	0·2
I Osaka	0·8	94	0 13	+ 2	0 21	0	0·4
II	0·8	94	0 11	0	0 20	− 1	0·4
III	0·8	94	0 13	+ 2	0 21	0	0·4
II Toyooka	0·9	17	0 15	+ 2	0 25	+ 2	0·4
II Nagoya	2·0	77	—	—	e 0 56	S*	—

April 14d. 21h. 26m. 38s. Epicentre 41°·6N. 112°·5W. N.2.

A = −·286, B = −·691, C = +·664; D = −·924, E = +·383; G = −·254, H = −·613, K = −·748.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Bozeman		4·2	14	e 1 0	0	i 1 56	S*	2·5	—
Denver		6·0	106	i 1 37	P*	i 2 32	− 1	—	—
Haiwee		6·9	220	i 1 35	− 3	—	—	—	—
Lick		8·2	242	e 1 57	+ 1	i 3 46	+17	—	—
Berkeley	N.	8·4	247	e 2 1	+ 2	i 4 11	S*	—	—
Branner		8·6	244	e 2 26	+24	i 3 37	− 2	—	—
Pasadena		8·7	212	i 2 0	− 3	—	—	—	—
Seattle		9·2	314	—	—	e 3 38	−16	e 4·4	—
Tucson		9·4	171	e 2 16	+ 3	e 4 51	S_g	—	—
Victoria		10·2	315	4 55	S	(4 55)	S*	6·0	6·1
Florissant		17·1	91	i 3 55	0	i 7 17	+13	i 8·5	—
St. Louis		17·2	91	e 3 56	− 1	e 7 8	+ 2	e 8·1	9·0
Little Rock		17·2	107	e 3 58	+ 1	e 7 12	+ 6	e 8·4	—
Chicago		18·5	81	e 7 32	S	(e 7 32)	− 4	(e 9·6)	—
Sitka		21·3	324	—	—	e 8 43	+11	i 11·0	—
Toronto		24·3	74	e 2 22?	?	(e 9 34)	+ 6	e 9·6	—
Ottawa		26·7	69	—	—	e 10 40	+30	i 13·8	—
Georgetown		27·0	84	—	—	e 12 11	+116	e 13·3	—

Additional readings and notes:—
Denver iP_gEN = +1m.54s., iS_gEN = +3m.9s.
Lick i = +4m.3s., iN = +4m.8s. = S* +6s. and +4m.16s.
Berkeley eN = +2m.9s.
Branner iN = +3m.5s., i = +4m.16s. = S* +2s. and +4m.39s. = S_g +1s., iN = +4m.42s., i = +4m.58s.
Tucson e = +2m.53s., i = +5m.2s. = S_g −2s.
Chicago gives S as P and L as S.
Sitka e = +10m.30s.
Long waves were also recorded at other American stations.

April 14d. Readings also at 0h. (near Tiflis and Wellington), 1h. (Agra, Bombay, Calcutta, Dehra Dun, Hyderabad, Andijan, and near Port au Prince), 2h. (San Juan), 3h. (La Paz, Triest, Baku, Sverdlovsk, Pulkovo, Sebastopol, Yalta, near Simferopol, Theodosia, and near Sumoto), 4h. (Copenhagen, Wellington, and Phu-Lien), 5h. (Tyosi, Wellington, and near Mizusawa), 7h. (Sebastopol, Theodosia, and Yalta), 8h. (Wellington and near New Plymouth), 9h. (Serra do Pilar), 11h. (near Algiers), 14h. (Andijan, near Mizusawa, and near Tananarive), 18h. (Kobe and Sumoto), 21h. (Triest, Fordham, and near Sumoto), 22h. (Colombo). 23h. (Tyosi).

April 15d. 10h. 33m. 24s. Epicentre. 34°·5N. 140°·0E. N.1.

Epicentre and focal depth given by the Japanese stations.

A = −·631, B = +·530, C = +·566; D = +·643, E = +·766; G = −·434, H = +·364, K = −·824.

A *depth* of focus 0·010 has been assumed.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Mera	+0·3	0·4	342	0 10a	0	0 28?	+ 9	—	—
Susaki	+0·3	0·8	281	0 13k	− 3	0 28	0	—	—
Ito	+0·3	0·9	302	0 14	− 3	0 27	− 4	—	—
Yokosuka	+0·3	0·9	341	0 20a	+ 3	0 33	+ 2	—	—
Misima	+0·3	1·0	305	0 17a	− 1	0 34	+ 1	—	—
Numadu	+0·2	1·1	302	0 17a	− 1	0 34	+ 1	—	—
Tokyo	+0·2	1·2	350	0 16k	− 4	0 34	− 2	—	0·7
Hatidyozima	+0·2	1·4	185	0 17k	− 6	0 35	− 6	—	—
Hunatu	+0·2	1·4	314	0 24a	+ 1	0 44	+ 3	—	—
Tyosi	+0·2	1·5	30	i 0 19a	− 5	0 40	− 4	—	

Continued on next page.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Omaesaki	+0·2	1·5	274	0 23k	− 1	0 54	+10	—	—
Kohu	+0·2	1·7	314	0 26a	− 2	0 48	− 1	—	—
Tukubasan	+0·2	1·7	3	0 24a	− 4	0 46	− 3	—	—
Kakioka	+0·2	1·7	5	0 24a	− 4	0 47	− 2	—	—
Kumagaya	+0·2	1·7	343	0 26a	− 2	0 50	+ 1	—	—
Mito	+0·2	1·9	12	0 27	− 3	0 54	0	—	—
Hamamatu	+0·2	1·9	277	0 29k	− 1	0 55	+ 1	—	—
Maebasi	+0·2	2·0	338	0 29a	− 2	1 0	+ 3	—	—
Iida	+0·2	2·0	300	0 31	0	0 54	− 3	—	—
Utunomiya	+0·2	2·1	357	0 29	− 4	0 54	− 5	—	—
Oiwake	+0·2	2·2	327	0 33a	− 1	1 3	+ 1	—	—
Matumoto	+0·2	2·4	316	0 40a	+ 3	1 12	+ 5	—	—
Nagoya	+0·1	2·6	285	−0 20	−59	0 12	−57	—	0·9
Nagano	+0·1	2·6	326	0 39a	0	1 15	+ 6	—	—
Gihu	+0·1	2·8	289	0 41k	0	1 18	+ 4	—	—
Kameyama	+0·1	2·9	277	0 45	+ 2	1 38	+21	—	—
Hikone	+0·1	3·2	284	0 49k	+ 2	1 30	+ 5	—	—
Hukusima	+0·1	3·3	7	0 46k	− 3	1 26	− 1	—	—
Kyoto	+0·1	3·5	280	0 54	+ 3	1 36	+ 4	—	—
Siomisaki	+0·1	3·6	254	0 52k	− 1	1 41	+ 6	—	—
Osaka	+0·1	3·7	274	0 54	0	1 50	+13	—	3·1
Osaka B	+0·1	3·7	274	0 56	+ 2	2 6	+29	—	—
Wazima	+0·1	3·8	318	0 56	0	1 42	+ 2	—	—
Sendai	+0·1	3·9	10	0 52k	− 5	1 32	−10	—	—
Wakayama	+0·1	4·0	269	0 59	+ 1	1 46	+ 1	—	—
Kobe	+0·1	4·0	274	0 58	0	i 1 47	+ 2	—	2·5
Sumoto E.Z.	+0·1	4·2	269	i 1 0k	− 1	2 2	+12	—	2·2
N.	+0·1	4·2	269	i 1 3	+ 2	2 6	+16	—	2·4
Toyooka	0·0	4·3	285	1 4	+ 4	2 3	+13	—	2·5
Mizusawa	0·0	4·8	11	i 1 5	− 3	i 1 57	− 6	—	—
Akita	0·0	5·2	1	1 12	− 2	2 9	− 4	—	—
Morioka	0·0	5·3	10	1 10	− 5	2 9	− 6	—	—
Koti	0·0	5·4	262	1 16	− 1	2 22	+ 4	—	3·4
Matuyama	0·0	6·0	266	1 27	+ 2	3 23	+50	—	—
Hirosima	0·0	6·2	270	1 31	+ 3	2 50	+22	—	—
Hamada	0·0	6·5	276	1 35	+ 3	2 50	+ 4	—	—
Miyazaki	−0·1	7·6	253	1 48k	+ 2	3 9	− 2	—	—
Kumamoto	−0·1	7·9	260	1 56	+ 5	3 18	− 1	—	—
Hukuoka	−0·1	8·0	266	e 1 54	+ 2	e 3 44	+23	—	—
Hukuoka B	−0·1	8·0	266	1 54	+ 2	—	—	4·9	—
Unzendake	−0·1	8·3	261	2 0a	+ 4	4 20	+51	—	—
Nagasaki	−0·1	8·6	261	3 3k	?	e 5 3	?	—	—
Sapporo	−0·1	8·7	6	2 14	+ 9	3 34	− 5	—	—
Husan	−0·1	9·0	277	2 8	+ 2	4 30	+44	—	—
Taikyu	−0·1	9·4	282	e 2 18	+ 7	—	—	—	—
Nemuro	−0·1	9·9	25	2 14	− 4	3 55	−13	—	—
Vladivostok	−0·1	10·6	326	i 2 32	+ 4	4 32	+ 6	5·0	6·7
Keizyo	−0·1	10·9	290	2 39	+ 7	—	—	—	—
Zi-ka-wei	−0·2	15·9	264	3 40	+ 2	6 50	+19	9·3	10·6
Nanking	−0·3	17·9	268	4 3	+ 1	e 7 29	+14	—	—
Chiufeng	−0·4	19·7	293	e 4 17	− 5	e 7 56	+ 4	e 10·5	—
Manila	−0·6	26·3	225	5 22	− 4	10 23	+30	13·5	—
Andijan	−1·1	52·6	299	e 9 16	+13	e 16 43	+21	—	—
Agra E.	−1·1	52·9	280	e 9 7	+ 2	—	—	—	—
Tashkent	−1·1	54·7	300	—	—	i 16 59	+ 9	e 25·6	28·9
Sverdlovsk	−1·1	56·1	320	i 9 26	− 3	17 13	+ 4	34·7	—
Bombay	−1·2	61·0	274	i 10 17	+14	e 18 31	+18	—	—
Kucino	−1·3	68·2	324	—	—	i 19 48	+ 5	33·6	37·8
Baku	−1·3	68·6	306	e 10 58	+ 4	i 19 59	+11	33·5	39·4
Pulkovo	−1·3	69·5	330	—	—	e 20 4	+ 5	35·6	—

Continued on next page.

		Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Grozny		−1·3	69·9	310	e 11 17	+15	e 20 10	+ 6	—	—
Tiflis		−1·3	71·3	309	11 9	− 2	e 20 49	+27	40·6	—
Haiwee		−1·3	78·7	54	i 12 12a	+18	—	—	—	—
Mount Wilson	z.	−1·3	79·8	56	i 11 59	− 1	—	—	—	—
Pasadena		−1·3	79·8	56	e 11 57	− 3	—	—	—	—
Riverside	z.	−1·3	80·4	56	i 12 1	− 2	—	—	—	—
La Jolla	z.	−1·3	81·1	57	i 11 44	−23	—	—	—	—
Ksara		−1·3	81·5	304	e 12 10	+ 1	e 22 20	+ 2	—	—
De Bilt		−1·4	84·9	335	—	—	e 22 44	− 8	e 45·6	—
Triest		−1·4	86·3	327	e 12 30	− 3	i 23 2	− 5	e 40·6	47·3

Additional readings :—
Osaka i = +57s. and +1m.11s.
Wazima +2m.6s.
Kobe iN = +1m.52s., iZ = +2m.5s.
Zi-ka-wei iZ = +3m.59s.
Nanking eN = +8m.2s.
Chiufeng SNZ = +8m.17s.
Manila iE = +11m.10s.
Tashkent e = +17m.27s.
Sverdlovsk L_g = +30·8m.
Tiflis eZ = +30m.54s.
Pasadena iZ = +12m.16s.
Triest i = +24m.36s.
Long waves were also recorded at Hong Kong, Phu-Lien, Wellington, Paris, Strasbourg, Stuttgart, and Uccle.

April 15d. 22h. 15m. 19s. Epicentre 7°·7N. 127°·0E. N.1.

A = −·596, B = +·791, C = +·134 ; D = +·799, E = +·602 ;
G = −·081, H = +·107, K = −·991.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Palau	7·4	91	1 45	0	3 52	S_g	—	—
Manila	9·1	320	i 2 10a	+ 1	i 4 5	+14	—	—
Amboina	11·4	174	e 2 38	− 2	i 4 56	+ 8	—	—
Taito	16·1	340	3 43	0	8 56	L	(9·0)	—
Takao	16·3	337	3 52	+ 7	6 1	−44	—	—
Isigakizima	16·8	351	3 53	+ 1	7 7	+10	—	—
Arisan	16·9	341	2 58	−55	5 53	−66	—	—
Karenko	17·1	343	2 57	−58	8 38	L	(8·6)	—
Taihoku	18·1	344	4 11	+ 3	7 45	+18	—	—
Hong Kong	19·1	321	4 19	− 1	7 51	+ 3	8·8	10·7
Nake	20·8	6	4 40	+ 2	8 31	+ 9	—	—
Phu-Lien	23·7	306	i 5 7	0	i 9 21	+ 3	10·7	14·5
Zi-ka-wei	24·1	348	i 5 11a	0	9 28	+ 3	11·7	14·4
Titizima	24·2	35	5 14	+ 2	9 33	+ 6	—	—
Batavia	24·5	236	i 5 17a	+ 2	i 9 47	+15	15·2	—
Malabar	24·5	233	e 5 21	+ 6	9 43	+11	14·7	—
Miyazaki	24·6	10	5 4	−12	9 37	+ 3	—	—
Nagasaki	25·2	6	i 5 22a	0	9 55	+11	e 13·4	17·9
Soengei Langka	25·4	240	e 5 46	+22	e 10 31	SS	16·7	—
Nanking	25·6	344	i 5 23a	− 2	i 9 56	+ 5	i 13·2	—
Simidu	25·8	12	5 28	+ 1	9 58	+ 3	—	—
Hukuoka	26·2	7	5 29	− 2	10 9	+ 7	—	16·9
Hukuoka B	26·2	7	5 33	+ 2	(10 40)	SS	10·6	—
Koti	26·6	12	i 5 36	+ 1	e 10 21	+12	12·3	12·9
Matuyama	26·7	11	5 36	+ 1	10 14	+ 4	—	—
Niihama	27·0	12	5 39	+ 1	10 19	+ 4	—	—
Tadotu	27·3	12	5 46	+ 5	10 37	+17	—	—
Husan	27·5	4	i 5 43	0	10 6	−18	—	—
Sumoto	27·6	14	e 5 45a	+ 1	10 36	+11	11·4	14·4
Wakayama	27·6	15	5 41	− 3	10 34	+ 9	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Kobe		28·1	14	5 48	0	e 10 47	+13	e 12·9	—
Osaka		28·2	15	5 45	− 4	11 13	+38	19·0	—
Taikyu		28·3	3	5 52	+ 2	10 45	+ 8	17·6	—
Medan		28·5	263	5 55	+ 3	—	—	—	—
Kameyama		28·6	16	5 55	+ 2	11 1	+19	—	—
Toyooka		28·8	14	e 5 54	0	10 48	+14	13·8	14·3
Nagoya		29·0	17	5 57	+ 1	(11 45)	+57	11·8	—
Susaki		29·1	21	6 8	+11	11 56	+66	13·9	18·6
Zinsen		29·8	359	i 6 3	0	e 10 48	−13	e 14·3	20·9
Keizyo		29·9	1	6 5	+ 1	11 4	+ 1	12·8	14·8
Kohu		29·9	19	6 6	+ 2	11 9	+ 6	—	—
Tokyo		30·4	21	6 25	+16	11 26	+16	—	—
Kumagaya		30·6	20	6 6	− 4	11 4	−10	—	—
Nagano		30·7	19	6 12	+ 1	11 17	+ 1	—	—
Tyosi		30·8	23	e 7 20	PP	—	—	14·5	28·2
Kakioka		30·9	20	6 14	+ 1	11 25	+ 7	—	—
Wazima		31·1	16	6 15	0	11 26	+ 5	—	—
Heizyo		31·4	358	6 24	+ 7	11 22	− 4	15·7	—
Dairen		31·6	352	6 19	0	11 23	− 6	—	—
Hukusima		32·5	22	6 27	0	11 40	− 3	—	—
Chiufeng		33·8	345	i 6 37 a	− 2	i 11 58	− 5	14·8	—
Mizusawa		33·9	21	i 6 42	+ 3	e 12 2	− 2	14·4	—
Morioka		34·4	20	6 47	+ 3	12 12	0	—	—
Vladivostok		35·7	7	i 6 56	+ 1	12 32	0	i 15·1	20·0
Sapporo		37·6	18	7 6	− 6	12 45	−15	—	—
Calcutta		40·0	297	8 2	+30	14 36	+60	23·3	26·5
Perth		41·1	195	e 7 41	0	i 14 11	+18	19·3	20·7
Ootomari		41·3	17	7 51	+ 8	—	—	—	—
Adelaide		44·1	168	i 8 9	+ 3	14 31	− 6	i 20·2	32·5
Riverview		47·4	152	e 8 59	+27	e 15 2	−22	25·9	37·7
Sydney		47·4	152	e 8 39	+ 7	i 16 21	+57	27·3	37·4
Hyderabad		48·2	287	8 36	− 2	15 39	+ 3	24·8	32·3
Melbourne		48·5	162	e 8 26	−14	15 54	+14	22·0	31·2
Kodaikanal	E.	49·0	278	i 8 44	0	i 15 51	+ 4	i 24·8	26·9
Agra	E.	50·2	299	8 53	0	16 2	− 2	23·7	28·3
	N.	50·2	299	e 9 8	+15	i 16 20	+16	—	30·8
Dehra Dun		51·1	304	8 51	− 9	16 21	+ 5	24·0	32·7
Bombay		53·7	288	9 17	− 2	i 16 42	−10	25·2	34·9
Almata		56·3	319	9 39	+ 1	e 18 25	+58	e 30·7	—
Suva		57·0	118	10 41?	+58	19 5	(−26)	31·7	33·7
Frunse		57·8	317	e 10 9	+20	—	—	e 26·2	—
Andijan		58·6	314	9 35	−20	e 18 12	PS	e 24·2	—
Tashkent		60·9	314	i 10 11	0	i 18 24	− 4	29·8	38·2
New Plymouth		64·0	141	10 41?	+ 9	—	—	—	—
Arapuni		64·4	139	—	—	20 11	(−13)	31·7	33·7
Wellington		65·7	143	11 1	(−15)	19 34	+ 5	31·7	36·7
Christchurch		65·8	146	i 10 44	0	i 19 28	− 2	62·0	—
Sverdlovsk		70·7	329	i 11 7	− 8	i 20 16	−14	38·1	40·7
Honolulu		73·5	71	i 11 38	+ 6	i 21 6	+ 3	e 30·4	—
Baku		75·2	311	i 11 43	+ 2	22 13	PS	39·2	46·6
Grozny		78·4	314	i 12 0	+ 1	i 21 46	−12	i 35·8	—
Tiflis		79·1	312	12 2	− 1	21 54	−12	35·9	51·2
Erevan		79·4	310	12 2	− 3	e 22 16	+ 7	e 38·2	—
Sotchi		82·7	313	12 58	+36	e 23 32	+48	e 35·9	—
Tananarive		82·7	250	12 16	− 6	22 45	+ 1	40·4	49·7
Kucino		83·1	325	12 21	− 3	23 5	PS	37·7	45·2
Theodosia		85·7	316	12 36	− 1	22 56	[− 8]	35·7	—
Ksara		86·6	304	e 12 42	+ 1	23 17	− 6	42·9	49·2
Simferopol		86·6	316	12 39	− 2	22 59	[−12]	32·7	—
Yalta		86·6	315	i 12 41	0	e 23 2	[− 9]	36·7	—
Pulkovo		86·7	331	i 12 39	− 3	i 23 13	−11	40·7	53·9

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Sebastopol		87·0	316	12 43	0	23 8	[− 5]	36·7	—
Sitka		87·7	33	i 12 47	+ 1	i 23 30	− 4	36·0	—
Helsingfors		89·2	333	i 12 52	− 2	i 23 37	−11	e 35·7	—
Helwan		91·0	300	i 13 1	− 1	i 23 43	[+ 4]	47·5	53·4
Lemberg		92·3	322	e 16 53	PP	e 23 53	{ 0}	e 33·6	61·9
Upsala		92·8	333	e 16 53	PP	e 24 0	{+ 3}	e 41·7	58·3
Königsberg		93·0	327	—	—	i 24 34	+10	46·7	53·3
Entebbe		94·5	271	13 7	−11	23 49	[− 9]	e 40·6	47·4
Belgrade		96·1	317	e 21 11	?	e 24 52	0	e 33·8	60·0
Budapest		96·2	320	13 27	+ 1	24 19	{− 5}	39·7	47·7
Copenhagen		96·9	330	13 28	− 1	24 13	[+ 2]	44·7	—
Victoria		97·0	40	13 55	+25	24 23	{− 7}	40·0	40·5
Vienna		97·6	322	e 13 32	0	25 21	+16	e 45·7	63·7
Seattle		97·8	40	e 17 47	PP	e 24 11	[− 4]	e 40·5	—
Bergen		98·0	336	e 14 9	+35	26 40	PS	41·1	54·7
Prague		98·1	324	e 13 27	− 8	24 17	[+ 1]	e 45·2	59·7
Graz		98·6	321	e 16 48	PP	e 24 29	[+10]	e 44·7	61·7
Zagreb		98·7	320	e 13 37	− 1	e 24 15	[− 4]	e 46·1	65·2
Leipzig		98·8	325	—	—	e 24 35	{− 9}	40·7	54·2
Scoresby Sund		99·0	351	13 40	+ 1	24 29	[+ 8]	44·7	—
Hamburg		99·2	328	e 13 39k	− 1	e 24 13	[− 9]	e 47·2	51·7
Cheb		99·3	324	e 17 3	PP	28 34	?	46·7	54·7
Jena		99·4	325	e 13 41	0	e 24 35	[+12]	e 39·2	51·9
Göttingen		100·1	327	i 13 42	− 2	i 24 32	[+ 6]	e 44·7	55·1
Ukiah		100·1	48	—	—	e 24 21	[− 5]	e 41·4	—
Triest		100·3	320	13 42a	− 3	i 24 40	{−15}	45·8	49·7
Venice		101·2	320	e 13 43	− 6	e 24 51	{−11}	—	—
Berkeley		101·2	50	i 14 0	+11	i 25 50	+13	—	—
Stuttgart		101·8	324	e 13 51	− 1	e 24 47	[+13]	e 50·7	55·7
De Bilt		102·4	329	e 13 54	− 1	e 24 54	[+17]	45·7	65·3
Florence		102·6	319	i 13 51a	− 4	25 11	{− 2}	—	—
Prato		102·6	319	e 13 51	− 4	i 24 46	[+ 8]	34·5	56·7
Strasbourg		102·7	325	i 13 55a	− 1	i 26 1	+11	50·7	54·1
Piacenza		103·1	321	17 5	?	24 51	[+10]	50·0	63·5
Basle		103·3	324	e 13 57	− 2	—	—	—	—
Uccle		103·5	328	e 13 58	− 2	25 55	− 2	44·7	64·8
Neuchatel		103·9	323	e 13 59	− 2	e 24 46	[+ 1]	—	—
Edinburgh		104·3	334	i 18 44	PP	i 25 2	{−23}	e 40·7	65·7
Haiwee	E.	105·0	50	e 14 11	+ 5	—	—	—	—
Kew		105·6	330	e 14 28	+19	i 25 8	[+15]	46·7	50·5
Paris		105·6	326	e 14 7	− 2	e 25 6	[+13]	41·7	54·7
Pasadena		105·6	52	e 14 16	+ 7	e 25 12	[+19]	e 43·6	—
Bozeman		105·7	39	e 18 1	[− 3]	e 24 51	[− 2]	44·2	—
Mount Wilson	Z.	105·7	52	e 14 9	− 1	—	—	—	—
Bidston		105·8	332	e 18 51	PP	25 1	[+ 7]	43·7	65·7
Oxford		105·9	330	—	—	e 25 5	[+11]	45·7	65·2
Riverside	Z.	106·3	52	e 14 13	0	—	—	—	—
Marseilles		106·7	319	—	—	(e 28 41?)	PS	e 28·7	—
Puy de Dôme		106·9	323	—	—	e 26 43	{+59}	e 55·7	—
Barcelona		109·6	320	e 19 5	PP	—	—	e 38·6	64·6
Cape Town		109·6	238	—	—	26 10	{+ 6}	50·7	58·2
Bagnères		110·0	322	—	—	e 28 41?	PS	49·7	—
Ivigtut		111·0	358	e 19 7	PP	25 35	[+17]	51·7	—
Algiers		111·3	315	e 14 31	− 6	25 30	[+11]	52·7	61·7
Tucson		112·0	51	18 39	[+15]	29 11	PS	46·0	—
Alicante		112·9	319	e 19 9	PP	29 25	PS	e 53·0	68·9
Toledo		114·4	321	19 36	PP	25 42	[+11]	e 50·8	70·9
Almeria		115·0	318	e 19 34	PP	29 29	PS	e 49·4	70·6
Granada		115·6	319	e 19 18	PP	26 0	[+24]	54·3	73·9
Malaga		116·4	319	20 4	PP	27 58	?	54·3	—

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
San Fernando	117·8	319	23 0	?	29 53	PS	46·7	71·2
Chicago	121·2	31	e 20 14	PP	e 30 11	PS	50·5	—
Florissant	122·0	34	e 15 38	+ 9	e 28 21	?	—	—
St. Louis	122·2	34	e 19 6	[+15]	e 27 25	{− 6}	e 50·7	—
Ann Arbor	122·6	27	e 20 41	PP	—	—	—	—
Ottawa	123·1	19	20 37	PP	e 27 49	{+12}	e 56·7	—
Toronto	123·4	23	e 15 53	+19	i 30 25	SKSP	58·1	—
Little Rock	123·6	40	e 19 10	[+16]	e 27 36	{− 4}	—	—
Ithaca	125·4	21	e 19 7	[+ 9]	26 29	[+23]	—	50·7
Pittsburgh	125·8	25	—	—	e 42 46	SSS	e 52·2	—
Oak Ridge	127·0	17	i 19 4	[+ 3]	—	—	e 49·7	—
Fordham	127·8	20	e 19 6	[+ 3]	i 22 21	?	—	74·7
Georgetown	128·3	24	e 17 20	?	i 22 58	?	e 59·7	—
Charlottesville	128·4	26	e 21 13	PP	e 38 30	SS	e 49·7	—
Columbia	130·5	31	e 21 25	PS	33 31	?	56·0	—
Port au Prince	147·5	36	e 19 47	[+ 9]	e 30 17	{+ 9}	—	—
San Juan	150·8	26	e 19 46	[+ 3]	—	—	—	—
Huancayo	157·5	103	i 20 7	[+16]	i 37 38	?	57·8	—
La Paz	162·8	122	e 20 0	[+ 3]	27 4	?	79·4	81·4
Sucre	163·6	135	20 4	[+ 7]	—	—	77·7	—

Additional readings and notes :—

Amboina i = +6m.49s.
Hong Kong PP = +4m.41s., PPP = +5m.11s., PPPP = +6m.44s.
Zi-ka-wei iZ = +5m.31s. =PP − 7s. and +6m.28s., iN = +6m.47s. and +9m.49s., iE = +10m.2s. =SS − 6s., SSZ = +10m.45s., SSSZ = +11m.4s.
Malabar iN = +5m.52s. =PP + 9s., iE = +5m.57s., iN = +6m.1s., i = +6m.21s., iE = +6m.59s.
Koti eZ = +5m.57s., e = +6m.23s., eE = +10m.59s.
Kobe iN = +6m.11s., iE = +7m.33s., eZ = +11m.10s.
Osaka i = +6m.11s., +7m.40s., +13m.29s., and +13m.48s.
Taikyu i = +6m.52s.
Medan iPE = +5m.59s., iN = +7m.10s., iE = +7m.17s., iN = +8m.4s. and +9m.11s. =P_cP + 6s., iE = +9m.15s., +10m.4s., and +14m.3s., iN = +15m.6s., iE = +15m.58s.
Toyooka SEN = +10m.59s.
Perth PP = +9m.46s., PPP = +10m.6s., PPPP = +10m.16s., PS = +14m.21s., SS = +17m.11s., SSS = +17m.46s., SSSS = +18m.16s.
Adelaide iPP = +9m.36s., i = +11m.17s., +17m.33s. =SS − 1s. and +19m.8s.
Riverview iN = +15m.31s., eE = +15m.34s., iN = +15m.44s., iE = +15m.47s., iNE = +18m.47s. =SS +12s.
Sydney SSS = +22m.14s.
Melbourne i = +9m.14s., PP = +11m.4s., i = +16m.22s., SS = +19m.36s.
Agra PPE = +10m.48s., PPPE = +11m.43s., SSE = +19m.30s., SSSE = +20m.53s.
Bombay PP = +11m.19s., iPS = +17m.17s., SSN = +20m.12s., SSS = +21m.47s..
Arapuni SS = +24m.35s.
Wellington PP = +13m.36s., SS = +24m.5s., i = +29m.30s.
Christchurch P_cP = +11m.25s., iZ = +12m.19s., PP = +13m.36s., i = +49m.45s., iSSEN = +54m.23s., L_q = +59·0m.
Sverdlovsk L_q = +32·2m.
Honolulu ePP = +14m.11s., e = +25m.51s. =SS +16s., eSS = +26m.31s.
Baku SS = +27m.17s.
Tiflis PPZ = +12m.24s., PPPE = +17m.1s., SKKSN = +22m.35s. =PS − 2s., SSSE = +31m.18s.
Tananarive PPE = +15m.38s., SKSE = +22m.28s., PSE = +23m.44s., SSE = +28m.50s.
Kucino PP = +16m.0s., ePPS = +25m.54s., SS = +29m.23s.
Ksara PP = +16m.2s., SKKS = +23m.28s. =S +5s., SS = +29m.17s.
Pulkovo SKS = +23m.1s., PS = +24m.3s., SS = +29m.11s., L_q = +38·2m.
Sitka PP = +16m.13s., eSKS = +23m.11s., i = +23m.54s., eSS = +28m.59s.
Helsingfors iP_cPZ = +13m.17s., ePPEZ = +16m.15s., ePPPN = +19m.19s., iSKSE = +23m.32s., iPSEZ = +24m.33s., ePPSE = +24m.57s., eSSE = +29m.41s., eSSSE = +33m.51s. ; T_g = 22h.15m.25s.
Königsberg iSKSEN = +23m.54s., ePPSN = +26m.20s., eSSE = +30m.6s.
Entebbe PP = +16m.33s., S = +24m.11s. =SKKS +0s., i = +25m.52s. =PS +8s., SS = +30m.47s.
Copenhagen e = +16m.53s., +17m.17s. =PP − 2s., +24m.26s. =SKKS − 3s., PS = +26m.41s., SS = +31m.59s.
Vienna iNE = +14m.45s., PKP = +18m.0s., iE = +18m.53s., iN = +19m.24s. = PPP + 4s., PPP = +20m.14s., iN = +21m.46s., SKS = +24m.14s., PS = +27m.14s., PKP_2 = +29m.48s., eE = +30m.19s.

Continued on next page.

Seattle ePS = +26m.51s., e = +29m.42s.
Bergen SPS = +24m.37s. =SKKS − 2s.
Prague ePP = +17m.45s., ePS = +26m.41s.?, eSS = +32m.5s.
Graz i = +18m.2s.
Zagreb P_cP =eZ = +13m.53s., eE = +16m.54s., e = +17m.31s. =PP − 2s., ePPPP = +20m.29s., e = +24m.33s. =SKKS −10s., ePS = +25m.22s., e = +26m.35s. =PS +4s., eSS = +30m.41s., eSSSS = +36m.29s., e = +39m.17s., +50m.15s., +52m.17s., +53m.15s., and +54m.24s.
Leipzig eE = +26m.47s. =PS +15s. and +31m.53s. =SS +8s., e = +35m.41s. = SSS +12s.
Scoresby Sund PP = +17m.47s., e = +18m.7s., and +21m.47s., PS = +27m.5s., SS = +32m.23s., SSS = +35m.59s.
Hamburg ePPZ = +17m.46s., ePS = +26m.47s., eSSE = +32m.17s., eSSSE = +36m.5s., iE = +41m.4s.
Cheb e = +24m.37s. =SKKS − 11s. and +32m.41s., eSS = +36m.41s.
Jena eN = +25m.11s. =S − 10s., eE = +27m.17s., eN = +27m.29s., eE = +32m.41s., eN = +36m.29s.
Göttingen eNE = +41m.41s.
Ukiah ePS = +26m.55s., eSS = +31m.9s., eSSS = +37m.9s.
Triest iPP = +17m.45s., i = +18m.11s., +18m.32s., +19m.28s., and +19m.49s. =PPP +4s., PPP = +20m.2s., i = +24m.29s. =SKS +2s., iPS = +26m.51s., iPPS = +27m.31s., i = +27m.45s. and +28m.0s., iSS = +32m.27s., iSL? = +33m.2s. and +33m.24s., SSS = +36m.19s., iE = +41m.20s., iN = +42m.55s.
Berkeley iE = +15m.11s.
Stuttgart e = +14m.15s., eZ = +17m.10s., ePPEZ = +17m.47s., eEZ = +19m.41s., e = +23m.9s., iZ = +23m.57s., ePS = +27m.21s., iPPS = +28m.2s., eSS = +32m.59s.
De Bilt ePP = +18m.11s., e = +27m.28s. =PS +16s.
Florence i = +18m.11s. =PP +9s., +20m.21s. =PPP +15s., and +27m.13s. = +0s.
Prato PP = +17m.41s.
Strasbourg i = +14m.18s., ePP = +18m.30s., SKS = +24m.57s., iPS = +27m.26s., PPS = +28m.23s., SS = +33m.23s., SSS = +37m.11s.
Uccle ePPE = +18m.16s., SKSN = +24m.50s., iPS = +27m.30s., SSE = +33m.27s., SSSE = +37m.27s.
Neuchatel ePP = +18m.39s.
Edinburgh i = +27m.45s. =PS +14s. and +34m.29s.
Halwee iPPE = +18m.29s.
Kew ePP = +18m.56s., ePS = +27m.58s., eSS = +33m.51s.
Paris PP = +18m.53s., e = +27m.41s.? =PS − 3s.
Pasadena ePKPZ = +17m.33s., iPPZ = +18m.28s., eSKSE = +24m.50s.
Bozeman ePS = +27m.52s., eSS = +33m.41s.
Mount Wilson ePPZ = +18m.26s.
Bidston ePS = +28m.21s. ; T_0 =22h.15m.17s.
Riverside iPPZ = +18m.28s.
Cape Town PS = +29m.29s., SS? = +35m.47s., SSS = +39m.39s.
Ivigtut PP = +19m.27s., SKSN = +25m.35s., eE = +27m.5s., PSN = +28m.47s., eE = +29m.18s., SS = +34m.41s. ?
Algiers PP = +19m.9s., PS = +28m.43s., PPS = +30m.24s., SS = +35m.15s., SSS = +41m.0s.
Tucson PP = +19m.50s.
Alicante eS? = +31m.35s., SS = +39m.35s.
Toledo PPP = +22m.26s., SKKS = +26m.45s., PS = +29m.18s.
Almeria eS = +30m.51s.
Granada PP = +19m.48s., PPP = +22m.46s., iPS = +29m.50s.
Malaga PPP = +22m.23s., PS = +29m.55s., e = +34m.48s.
San Fernando SE = +29m.57s. =PS +16s.
Chicago SS = +37m.3s.
Florissant iPPZ = +20m.28s., ePKSEN = +21m.49s., iSKSEN = +25m.50s., iSKKS = +27m.20s., iPSEN = +30m.43s., ePPSEN = +31m.46s., SS = +36m.41s. ? ; T_0 =22h.15m.19s.
St. Louis iPPE = +20m.30s., ePPPE = +23m.8s., ePSEN = +30m.30s., eSSEN = +37m.30s. ; T_0 =22h.15m.19s.
Ottawa PS = +30m.53s., SS = +37m.29s., SSSSE = +46m.29s.
Toronto iPP = +20m.41s.?, SS = +37m.52s., iSSS = +41m.58s.
Little Rock ePP? = +20m.47s., eSKP = +22m.9s. ; T_0 =22h.15m.19s.
Oak Ridge iPP = +21m.1s., eSSNE = +38m.14s., eSSNW = +38m.24s.
Fordham iPPNZ = +21m.8s., ePSN = +31m.26s., iSSN = +38m.31s.
Georgetown iPNEZ = +19m.8s.a =PKP +4s., iPPNEZ = +21m.33s., ePSN = +31m.37s., iSSNE = +38m.32s.
Columbia iPP = +22m.35s. =PKS − 1s.
Port au Prince i = +20m.3s., i_2 = +21m.8s., PP = +23m.12s., i = +23m.46s.
San Juan i = +20m.8s. =PKP_2 +6s. and +22m.18s., ePP = +23m.30s., ePPP = +26m.56s., e = +32m.37s., ePS = +33m.59s. =SKSP +15s., e = +39m.1s., eSS = +42m.24s., eSSS = +48m.31s.

Continued on next page,

Huancayo ePP = +24m.31s., e = +26m.7s. and +38m.36s., iSS = +45m.1s., SSS = +50m.31s.
La Paz iPKPZ = +20m.3s., iN = +20m.33s., iPKP$_2$Z = +21m.8s., ipPKP = +21m.49s., sPKP = +22m.50s., iPPZ = +24m.53s., SKSE = +27m.8s., PPPN = +28m.44s., PPPE = +28m.57s., SKKS = +31m.25s., SKSP? = +35m.34s., SSZ = +45m.20s., SSN = +45m.57s., SSSN = +51m.53s., SSSS = +57m.52s.
Long waves were also recorded at La Plata, Durham, and other European stations.

April 15d. Readings also at 0h. (Baku, Sverdlovsk, and near Ksara), 1h. (near Santiago), 2h. (Ottawa and near Oak Ridge), 3h. (Georgetown, Fordham, Tucson, and near Wellington), 8h. (Haiwee, Mount Wilson, Pasadena, and Riverside), 9h. (Almata, Andijan, Frunse, Grozny, Tashkent, Baku, Sverdlovsk, and Ksara), 10h. (Andijan and near Ksara), 13h. (Koti), 14h. (Perth), 15h. (Sverdlovsk, Tashkent, Bombay, and Nanking), 16h. (Batavia and Medan), 21h. (Ukiah), 23h. (Nagasaki, Almata, Andijan, and Tiflis).

April 16d. 3h. 59m. 21s. Epicentre 7°·7N. 127°·0E. (as on 15d.). R.2.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Palau		7·4	91	3 17	S	(3 17)	+ 8	—	—
Manila		9·1	320	2 8a	− 1	4 4	+13	—	—
Amboina		11·4	174	e 3 4	+24	i 5 9	+21	—	—
Hong Kong		19·1	321	4 12	− 8	8 1	SS	9·6	10·6
Nake		20·8	6	4 38	0	8 24	+ 2	—	—
Phu-Lien		23·7	306	e 3 39?	?	e 9 17	− 1	10·6	—
Zi-ka-wei	Z.	24·1	348	i 5 8	− 3	9 28	+ 3	14·4	17·4
Batavia		24·5	236	e 5 16	+ 1	e 9 52	+20	—	—
Malabar		24·5	233	e 5 30	+15	e 10 6	+34	—	—
Nagasaki		25·2	6	5 19	− 3	9 44	0	—	—
Nanking		25·6	344	e 5 31	+ 6	i 9 53	+ 2	e 14·6	—
Koti		26·6	12	e 5 35	0	—	—	—	—
Sumoto		27·6	14	e 5 18	−26	—	—	—	—
Medan		28·5	263	5 59	+ 7	—	—	e 23·6	—
Chiufeng		33·8	345	6 35a	− 4	11 54	− 9	—	—
Vladivostok		35·7	7	i 6 55	0	e 12 26	− 6	e 18·2	—
Melbourne		48·5	162	—	—	e 15 55	+15	30·2	—
Kodaikanal	E.	49·0	278	8 47	+ 3	—	—	—	—
Agra	E.	50·2	299	e 9 6	+13	16 0	− 4	—	—
Bombay		53·7	288	e 9 20	+ 1	e 17 8	+16	e 26·6	34·8
Almata		56·3	319	e 10 23	(−16)	—	—	—	—
Suva		57·0	118	—	—	18 39?	+63	—	—
Andijan		58·6	314	e 10 40	(− 8)	—	—	—	—
Tashkent		60·9	314	i 10 11	0	18 28	0	e 30·8	38·6
Baku		75·2	311	11 43	+ 2	21 29	+ 7	36·6	46·8
Grozny		78·4	314	e 12 13	+14	e 22 3	+ 5	—	—
Tiflis		79·1	312	e 12 3	0	e 22 2	− 4	e 42·6	50·8
Kucino		83·1	325	—	—	e 23 40	PS	e 37·4	45·8
Ksara		86·6	304	e 12 45	+ 4	e 23 21	− 2	—	—
Pulkovo		86·7	331	12 41	− 1	23 11	[0]	44·6	51·8
Triest		100·2	320	—	—	e 24 30	[+ 3]	e 54·2	61·8
Florence		102·6	319	e 26 39	S	(e 26 39)	PS	—	60·6

Additional readings :—
Palau S = +4m.23s.
Amboina e = +15m.36s.
Hong Kong ? = +8m.29s.
Zi-ka-wei iZ = +9m.39s.
Medan i = +8m.13s., iE = +11m.20s., iN = +14m.24s.
Melbourne i = +19m.31s.
Agra iPPE = +10m.46s., PPPE = +11m.32s., SSE = +19m.21s., SSSE = +20m.34s.
Bombay PP?E = +11m.29s., PS = +17m.51s., SSE = +21m.20s.
Triest e = +27m.28s. and +37m.12s.
Long waves were also recorded at Kobe, Hyderabad, Wellington, Scoresby Sund, and European stations.

April 16d. 13h. 40m. 24s. Epicentre 21°·5N. 121°·4E. N.2.

A = −·485, B = +·794, C = +·367 ; D = +·854, E = +·521 ; G = −·191, H = +·313, K = −·930.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Kosyun		0·8	310	0 16	+ 5	0 23	+ 2	—	—
Taito		1·3	349	0 19	+ 1	0 34	+ 1	—	—
Tainan		1·9	324	0 27	− 1	0 45	− 4	—	—
Karenko		2·5	4	0 39	+ 3	1 11	+ 7	—	—
Taityu		2·7	346	0 33	− 6	0 54	P_g	—	—
Taihoku		3·5	3	0 54	+ 4	1 40	S*	—	—
Hong Kong		6·8	278	1 35	− 2	3 16	S*	3·8	5·0
Manila		7·0	183	1 41	+ 2	3 37	S_g	—	—
Zi-ka-wei	Z.	9·7	0	2 18	+ 1	4 50	S*	6·0	8·7
Nanking	N.	10·8	348	2 29	− 3	e 4 55	+22	—	—
Nagasaki		13·5	32	e 3 15	+ 6	e 7 45	?	—	—
Phu-Lien		13·8	270	e 3 13	0	6 36?	S*	7·6	—
Taikyu		15·7	22	3 40	+ 2	—	—	—	—
Zinsen		16·6	14	e 3 51	+ 2	—	—	—	—
Sumoto		17·5	40	4 7a	+ 7	e 7 32	+19	—	—
Kobe		17·8	40	e 4 13	+ 9	e 7 42	+22	—	—
Chiufeng		19·1	348	i 4 20a	0	i 7 56	+ 8	—	11·8
Nagoya		19·3	42	e 4 29	+ 7	—	—	—	—
Vladivostok		23·3	20	i 5 9	+ 5	i 9 23	+13	11·6	17·6
Mizusawa	E.	24·3	40	(e 5 21)	+ 8	e 5 21	P	—	—
Amboina		26·1	164	5 11	−19	10 5	+ 5	—	—
Calcutta		30·6	278	e 10 56	S	(e 10 56)	−18	(17·0)	—
Andijan		45·5	306	e 8 27	+10	—	—	—	—
Bombay		45·5	276	e 8 29	+12	e 15 21	+24	—	28·8
Tashkent		47·8	307	8 43	+ 8	e 15 36	+ 6	—	19·6
Sverdlovsk		56·2	325	i 9 34	− 3	i 17 21	− 4	33·0	35·6
Baku		62·4	306	—	—	e 19 35	+48	32·1	37·0
Grozny		65·2	310	e 10 47	+ 7	—	—	—	—
Tiflis		66·1	308	e 10 58	+12	e 19 36	+ 2	34·2	39·8
Pulkovo		72·1	328	11 22	− 1	e 20 48	+ 2	41·6	43·5
Sebastopol		73·6	312	e 11 41	+ 9	—	—	—	—
Triest		86·3	318	e 12 51	+11	e 24 10	PS	e 38·6	44·3

Additional readings and notes :—
Zi-ka-wei iZ = +5m.28s.
Kobe eZ = +4m.30s.
Calcutta gives S as P and L as S.
Sverdlovsk L_q = +26m.0s.
Tiflis P_gPE = +11m.32s., ePSE = +19m.58s., eSSSN = +27m.18s., eE = +30m.48s.
Pulkovo L_q = +36·6m.
Long waves were also recorded at Koti, Kucino, and at other European stations.

April 16d. Readings also at 0h. (Almata, Andijan, and Frunse), 1h. (Amboina), 2h. (near Medan), 3h. (near Berkeley, Branner, and Lick), 6h. (Amboina (2)), 8h. (Grozny and near Tiflis (2)), 10h. (La Paz, Almata, and near Andijan), 11h. (Paris and near Andijan), 12h. (Agra and Wellington), 13h. (Ksara, Amboina, near Andijan), 15h. (Almata, Andijan, near Frunse, and near Oak Ridge), 16h. (Hyderabad), 17h. (Malabar), 18h. (Tucson and near Andijan), 19h. (near Amboina), 22h. (Wellington).

April 17d. 2h. Undetermined shock in the Atlantic.
Kew eP = 2h.41m.11s., eL = 45m., M = 46m.3s.
Toledo eP? = 2h.41m.32s., eS = 44m.18s., eL = 46m.8s.
Paris iP = 2h.41m.35s., L = 47m., M = 48m.
Granada eP = 2h.41m.41s., S = 44m.38s., L = 44m.39s., i = 48m.5s., P_gS = 50m.11s., S_gS = 53m.41s.
Uccle e(P) = 2h.41m.42s., eL = 47m.
De Bilt iPZ = 2h.41m.46s., eL = 47m.30s., M = 49m.50s.
Strasbourg eZ = 2h.42m., eL = 46m., M = 49m.

Continued on next page.

Neuchatel eP = 2h.42m.8s.
Alicante eP = 2h.42m.14s., eL = 48m.18s.
Stuttgart ePEZ = 2h.42m.16s., eSN = 46m.50s., eLN = 49m.0s., MN = 50m.18s.
Triest eP = 2h.42m.56s., i = 51m.27s. and 52m.59s., M = 54m.40s.
Almeria e = 2h.43m.47s., eL = 47m.27s.
Edinburgh e = 2h.46m. ?
Sverdlovsk eP = 2h.46m.0s., eS = 53m.18s., L = 3h.1m.
Long waves were also recorded at Bidston, Baku, Kucino, Tashkent, Scoresby Sund, and other European stations.

April 17d. 19h. 25m. 8s. Epicentre 5°·0S. 104°·2E. (as on 1933 June 28d.). X.

A = −·244, B = +·966, C = −·087; D = +·969, E = +·245;
G = +·021, H = −·084, K = −·996.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Soengei Langka	1·1	111	i 0 3	−13	i 0 24	− 4	—	—
Batavia	2·9	114	e 0 43	+ 2	i 1 21	S*	—	—
Malabar	4·1	124	1 3	+ 5	i 1 43	− 2	—	—
Medan	10·2	327	e 2 54	+30	i 5 15	+57	—	—
Almata	54·1	337	e 9 35	+13	—	—	—	—
Andijan	54·3	330	e 9 21	− 2	e 16 57	− 2	—	—
Frunse	54·9	333	e 9 33	+ 5	—	—	—	—
Tashkent	56·2	329	i 9 37	0	e 17 9	−16	28·5	40·9
Sverdlovsk	71·2	337	i 11 27	+ 9	e 20 54	PS	33·9	—
Grozny	71·4	320	e 11 44	+25	—	—	—	—
Theodosia	78·8	318	e 12 3	+ 2	—	—	—	—
Simferopol	79·7	318	e 12 4	− 2	—	—	—	—
Little Rock	146·5	25	19 52?	[+16]	—	—	—	—

Additional readings :—
Batavia iPZ = +47s. = P* + 1s., iSE = +1m.27s. = S_g − 3s., iZ = +1m.36s., i = +2m.40s.
Medan iE = +5m.50s. and +6m.24s., iN = +6m.38s., iE = +7m.19s.
Long waves were also recorded at Chiufeng and Baku.

April 17d. Readings also at 0h. (near Tyosi and near Branner), 1h. (near Andijan), 4h. (Hong Kong and Manila), 6h. (La Paz and Phu-Lien), 7h. (Little Rock), 10h. (Hastings), 13h. (St. Louis, Wellington, and near Sumoto), 14h. (Berkeley, Lick (2), Ann Arbor, Florissant, Little Rock, Bozeman, and near Denver), 15h. (Oak Ridge and Pittsburgh), 18h. (near Tananarive), 19h. (Andijan), 20h. (Simferopol, Yalta, and near Lick), 21h. (Berkeley).

April 18d. 13h. 5m. 2s. Epicentre 38°·8N. 71°·2E. (as on 1934 Jan. 18d.). X.

A = +·251, B = +·738, C = +·627; D = +·947, E = −·322;
G = +·202, H = +·593, K = −·779.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Andijan	2·1	25	0 55	S	(i 1 9)	S_g	i 1·2	1·2
Tashkent	2·9	330	i 0 37	− 4	(i 1 9)	− 5	i 1·2	1·4
Samarkand	3·4	285	i 0 45	− 4	(1 22)	− 5	1·4	1·5
Frunse	4·8	31	e 1 10	+ 2	(2 14)	S*	2·2	2·7
Almata	6·2	42	e 1 31	+ 3	—	—	—	—
Grozny	19·6	291	e 4 27	+ 2	—	—	—	—

April 18d. Readings also at 1h. (Mizusawa, Nagoya, Tyosi, and near Osaka), 2h. (Lick, Andijan, Tashkent, Baku, and Sverdlovsk), 3h. (Tiflis and Wellington), 4h. (Wellington and Nagoya), 5h. (Andijan and near Manila), 6h. (Almata (2), Andijan, Frunse (2), Tiflis, and Balboa Heights), 9h. (Malabar), 10h. (near La Paz and near Wellington), 11h. (Tyosi, near Nagoya, Hukuoka, Nagasaki, Sumoto, Osaka (2), and Susaki), 12h. (Ottawa, Tucson (2), Little Rock, Oak Ridge, San Juan, Huancayo, La Paz, Strasbourg, Almata, Andijan, Frunse, and Tashkent), 13h. (Baku, Sverdlovsk, Pulkovo, Copenhagen, Edinburgh, Kew, De Bilt, Paris, Stuttgart, Scoresby Sund, near Florissant, St. Louis, and near Wellington), 14h. (near Malabar), 16h. (near Hukuoka), 18h. (Triest, Tiflis, and Ksara), 19h. (near Prato), 20h. (Pasadena and Riverside), 21h. (Manila), 22h. (Chiufeng).

April 19d. 2h. 37m. 34s. Epicentre 33°·3N. 139°·8E. (as on 1932 Feb. 2d.). R.3.

A = −·638, B = +·539, C = +·549 ; D = +·645, E = +·764 ;
G = −·419, H = +·354, K = −·836.

		Δ	Az.	P.	O−C.	S.	O−C.	M.
		°	°	m. s.	s.	m. s.	s.	m.
Susaki		1·5	333	0 13a	− 8	0 19	?	—
Tyosi		2·6	20	e 0 39	+ 2	0 54	−13	1·3
Nagoya		3·0	308	e 0 41	− 2	1 16	− 1	1·3
Osaka		3·8	293	0 55	+ 1	1 42	+ 5	3·4
Kobe		4·1	291	e 0 56	− 2	e 1 43	− 2	1·9
Sumoto		4·2	286	e 1 9	P*	1 47	− 1	—
Toyooka	N.	4·6	301	e 1 16	P*	2 8	S*	2·2
Mizusawa	E.	5·9	10	e 1 53	P_g	e 2 38	+ 7	—

Kobe gives also eE = +1m.1s.

April 19d. 16h. 13m. 32s. Epicentre 30°·1N. 139°·8E. N.1.

A = −·661, B = +·558, C = +·502 ; D = +·645, E = +·764 :
G = −·383, H = +·324, K = −·865.

A *depth* of focus 0·060 has been assumed.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Hatidyozima	+1·3	3·0	1	1 6	+ 5	1 57	+ 7	—	—
Titizima	+1·0	3·7	146	1 12a	+ 5	2 9	+ 9	—	—
Susaki	+0·7	4·6	352	1 20a	+ 5	2 22	+ 7	—	—
Omaesaki	+0·6	4·7	344	1 20a	+ 5	2 22	+ 7	—	—
Mera	+0·6	4·8	1	1 23	+ 6	2 25	+ 7	—	—
Siomisaki	+0·6	4·8	315	1 18a	+ 1	2 17	− 1	—	—
Hamamatu	+0·5	4·9	339	1 22	+ 5	2 27	+ 9	—	—
Misima	+0·5	5·0	352	1 23a	+ 5	2 28	+ 8	—	—
Numadu	+0·5	5·0	351	1 18	0	2 29	+ 9	—	—
Hunatu	+0·4	5·4	351	1 26a	+ 4	2 34	+ 6	—	—
Kameyama	+0·4	5·5	330	1 27a	+ 3	2 33	+ 2	—	—
Kohu	+0·4	5·6	349	1 27a	+ 2	2 34	+ 1	—	—
Nagoya	+0·4	5·6	335	i 1 29a	+ 4	2 37	+ 4	—	2·7
Tokyo	+0·4	5·6	359	1 28a	+ 3	2 39	+ 6	—	2·7
Muroto	+0·4	5·7	305	1 28k	+ 1	2 35	− 1	—	—
Tyosi	+0·4	5·7	9	i 1 31a	+ 4	2 42	+ 6	—	2·8
Wakayama	+0·4	5·7	317	1 28a	+ 1	2 38	+ 2	—	—
Osaka	+0·3	5·8	323	1 30	+ 3	2 42	+ 6	—	3·1
Osaka B;	+0·3	5·8	323	1 31	+ 4	2 41	+ 5	—	—
Gihu	+0·3	5·8	334	1 31a	+ 4	2 39	+ 3	—	—
Hikone	+0·3	5·9	330	1 34a	+ 6	2 39	+ 1	—	—
Sumoto	+0·3	5·9	316	i 1 30a	+ 2	i 2 41	+ 3	—	2·8
Kyoto	+0·3	6·0	327	1 31a	+ 1	2 43	+ 2	—	—
Kobe	+0·3	6·0	320	i 1 31k	+ 1	2 39	− 2	—	2·8
Kumagaya	+0·3	6·0	357	1 34a	+ 4	2 45	+ 4	—	—
Tukubasan	+0·3	6·1	2	1 33a	+ 2	2 39	− 4	—	—
Maebasi	+0·2	6·3	354	1 35a	+ 3	2 49	+ 3	—	—
Mito	+0·2	6·3	6	1 35a	+ 3	2 50	+ 4	—	—
Koti	+0·2	6·3	304	i 1 34a	+ 2	e 2 42	− 4	—	—
Nagano	+0·1	6·6	348	1 40a	+ 5	2 58	+ 7	—	—
Toyooka	+0·1	6·8	323	1 40a	+ 2	2 59	+ 3	—	3·1
Toyama	0·0	6·9	342	1 41a	+ 3	3 5	+ 9	—	—
Matuyama	0·0	7·0	304	1 38	− 1	2 58	− 1	—	—
Miyazaki	−0·1	7·4	286	1 46a	+ 2	3 4	− 2	—	—
Wazima	−0·1	7·6	342	2 16a	+30	3 42	+31	—	—

Continued on next page.

		Corr. for Focus	Δ	Az.	P.	O–C.	S.	O–C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Hukusima		−0·1	7·6	4	1 51a	+ 5	3 17	+ 6	—	—
Hamada		−0·2	8·1	308	1 52a	0	3 23	+ 2	—	—
Kagosima		−0·2	8·1	283	1 53	+ 1	3 18	− 3	—	—
Kumamoto		−0·3	8·2	292	1 54a	+ 2	3 24	+ 3	—	—
Unzendake		−0·4	8·6	290	1 59	+ 3	3 32	+ 3	—	—
Hukuoka		−0·4	8·7	296	i 1 58	0	i 3 33	+ 2	—	—
Nagasaki		−0·5	8·9	290	i 2 0a	+ 1	i 3 36	+ 2	—	3·7
Mizusawa		−0·5	9·0	6	i 2 9	+ 9	i 3 51	+15	—	—
Nake		−0·5	9·2	261	2 2k	− 1	3 42	+ 1	—	—
Akita		−0·6	9·6	1	2 17a	+10	4 5	+16	—	—
Morioka		−0·6	9·6	6	2 13a	+ 6	3 59	+10	—	—
Husan		−0·8	10·4	301	i 2 16a	0	4 6	+ 3	—	—
Taikyu		−0·9	11·0	304	2 24	+ 2	4 19	+ 3	—	—
Naha		−1·0	11·4	253	2 27	+ 1	—	—	—	—
Urakawa		−1·1	12·3	10	3 58	+81	6 11	+98	—	—
Sapporo		−1·2	13·0	5	2 51	+ 5	5 9	+11	—	—
Keizyo		−1·2	13·0	308	i 2 45	− 1	4 56	− 2	—	—
Zinsen		−1·3	13·3	307	i 2 46a	− 2	e 5 0	− 3	—	—
Vladivostok		−1·5	14·4	336	i 3 4	+ 3	i 4 51	−34	e 6·9	9·5
Heizyo		−1·5	14·6	311	i 3 2	− 1	i 5 48	+19	—	—
Isigakizima		−1·6	15·1	251	3 5	− 4	5 37	− 2	—	—
Zi-ka-wei	z.	−1·7	15·9	278	e 3 13	− 5	i 5 57	+ 1	—	7·1
Ootomari		−1·9	16·7	7	3 32	+ 6	6 29	+19	—	—
Nanking		−2·1	18·1	282	3 37	− 4	i 6 37	− 1	—	—
Chiufeng		−2·6	21·7	304	i 4 12a	− 8	i 6 13	−95	—	—
Manila		−2·9	23·3	232	e 4 27	− 7	7 11	−63	—	—
Palau		−2·9	23·3	193	4 30	− 4	8 8	− 6	—	—
Hong Kong		−3·0	24·2	257	4 36	− 6	8 15	−15	—	15·2
Phu-Lien		−3·8	31·3	260	e 5 37	− 7	e 10 9	−15	—	—
Amboina		−4·3	35·6	201	i 6 11	− 6	i 11 9	−15	—	—
Medan		−5·3	47·0	244	i 7 50	+ 4	i 14 3	+ 1	—	—
Batavia		−5·4	48·2	227	i 7 55	0	i 14 16	− 2	—	—
Almata		−5·6	50·8	304	8 17	+ 3	—	—	—	—
Frunse		−5·7	52·6	303	8 14	−14	15 7	−10	—	—
Agra	E.	−5·8	53·6	283	e 8 33	− 2	i 15 29	− 1	—	—
Andijan		−5·9	54·7	301	8 27	−15	e 15 31	−13	—	—
Tashkent		−6·0	56·8	302	i 8 59	+ 2	i 16 15	+ 3	e 27·8	36·1
Samarkand		−6·1	58·9	301	9 15	+ 3	16 41	+ 2	—	—
Sverdlovsk		−6·2	59·4	322	i 9 12	− 3	i 16 44	− 1	—	—
Bombay		−6·3	61·2	276	i 9 30	+ 2	i 17 8	0	—	—
Baku		−6·8	71·0	307	—	—	19 9	− 1	e 38·5	—
Kucino		−6·9	71·7	325	—	—	i 19 13	− 4	e 41·8	45·8
Grozny		−6·9	72·6	311	e 10 44	+ 1	19 28	− 1	—	—
Pulkovo		−6·9	73·3	330	10 45	− 3	19 35	− 2	27·5	—
Tiflis		−6·9	73·6	309	10 48	− 2	19 39	− 2	39·5	48·0
Erevan		−7·0	74·8	308	i 10 35	−22	—	—	—	—
Sotchi		−7·1	76·4	313	e 10 57	− 9	e 20 2	−11	—	—
Berkeley	z.	−7·1	77·6	53	i 11 15	+ 1	—	—	—	—
Theodosia		−7·1	78·3	316	11 13	− 5	i 20 30	− 5	—	—
Scoresby Sund		−7·1	78·6	355	i 11 17	− 3	i 20 40	+ 1	—	—
Simferopol		−7·2	79·1	317	e 11 17	− 5	20 37	− 7	—	—
Yalta		−7·2	79·3	316	11 19	− 4	20 40	− 6	—	—
Sebastopol		−7·2	79·6	317	e 11 20	− 5	20 42	− 8	—	—
Tinemaha		−7·2	80·8	53	i 11 33k	+ 1	e 21 8	+ 4	—	—
Santa Barbara		−7·2	81·1	55	i 11 35k	+ 1	—	—	—	—
Haiwee		−7·3	81·5	53	i 11 36k	0	e 21 13	+ 2	—	—
Mount Wilson		−7·3	82·4	55	i 11 40	− 1	e 21 24	+ 3	—	—
Pasadena		−7·3	82·4	55	i 11 40k	− 1	i 21 23	+ 2	e 40·8	—
Riverside	z.	−7·3	83·0	55	i 11 43k	− 1	—	—	—	—
Copenhagen		−7·3	83·1	334	i 11 40	− 5	21 17	−12	—	—

Continued on next page.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
La Jolla	−7·3	83·7	56	i 11 48k	0	—	—	—	—
Ksara	−7·4	83·9	305	e 11 43	− 6	e 22 22	[−29]	—	—
Vienna	−7·4	86·8	326	i 11 56	− 9	21 35	−34	—	—
Cheb	−7·4	87·2	330	e 22 4	SKS	(e 22 4)	−10	e 41·5	50·5
Edinburgh	−7·5	88·4	340	—	—	e 21 28?	?	—	—
De Bilt	−7·5	88·7	334	—	—	e 22 15	−13	—	—
Stuttgart	−7·5	89·7	330	e 12 9	−10	e 21 57	−42	e 51·5	—
Triest	−7·5	89·8	326	e 12 1	−19	i 21 54	−46	—	50·5
Strasbourg	−7·5	90·5	331	—	—	e 22 16	−31	e 51·5	—
Basle	−7·6	91·3	330	e 12 18	− 9	—	—	—	—
Florence	−7·6	92·4	325	e 12 23	− 4	22 11	−44	50·5	56·5
Prato	−7·6	92·4	325	e 13 21	+54	22 12	−43	—	—
La Paz	—	151·0	68	e 19 1	[−42]	—	—	—	—

Additional readings :—
Osaka i = +2m.33s.
Kobe eE = +2m.37s., SE = iSN = 2m.45s.
Koti iS = +2m.48s., S_cS = +14m.5s.
Nanking eE = +8m.51s., iE = +14m.27s.
Chiufeng pP? = +5m.20s., iN = +7m.35s., iE = +7m.37s.
Bombay i = +19m.44s. = S_cS − 16s.
Tiflis pPZ = +12m.26s., sPZ = +13m.10s., sSN = +22m.28s., eSSN = +23m.56s.
Berkeley iZ = +12m.52s.
Pasadena iZ = +13m.14s.
Copenhagen +23m.28s.? and +26m.28s.?
De Bilt e = +23m.16s.
Stuttgart eSP = +23m.27s.
Triest i = +23m.30s.
Strasbourg i = +23m.40s.
Long waves were also recorded at Paris.

April 19d. 23h. 27m. 3s. Epicentre 24°·0N. 64°·5E. (as on 1933 July 7d.). R.3.

A = +·393, B = +·825, C = +·407 ; D = +·903, E = −·431 ;
G = +·175, H = +·367, K = −·914.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Bombay		9·2	122	e 2 2	− 8	—	—	—	10·3
Agra	E.	12·5	73	e 3 4	+ 9	6 26	S*	7·8	9·5
Hyderabad		14·6	114	6 38	?	8 53	?	9·6	12·3
Samarkand		15·8	7	e 4 51	?	—	—	—	—
Tashkent		17·7	12	i 4 3	0	i 7 45	+28	e 11·0	13·8
Andijan		18·0	20	e 4 3	− 4	—	—	—	—
Kodaikanal	E.	18·5	136	4 9	− 4	—	—	—	—
Frunse		20·7	21	e 4 38	+ 1	—	—	—	—
Almata		21·8	25	e 4 50	+ 1	—	—	—	—
Calcutta		21·9	89	9 27	S	(9 27)	SS	14·5	—
Tiflis		24·1	322	e 5 19	+ 8	e 9 39	+14	e 13·4	—
Sverdlovsk		32·9	356	i 6 34	+ 3	e 11 54	+ 5	16·4	—

Calcutta gives also S = +12m.49s.

April 19d. Readings also at 0h. (Grozny and near Tiflis), 1h. (near Lick), 3h. and 4h. (near Malabar), 6h. (near Nagasaki), 7h. (Tashkent, Sverdlovsk, Osaka, Nagoya, Chiufeng, near Manila, Phu-Lien, and Hong Kong), 8h. (Suva), 10h. (Almata, Andijan, and Frunse), 11h. (Tyosi), 13h. (near Almeria), 14h. (La Paz), 15h. (Pasadena, Riverside, Tinemaha, and near Oak Ridge), 16h. (Tiflis and near Grozny), 19h. (Mizusawa and Oak Ridge), 20h. (near Chiufeng), 22h. (Copenhagen), 23h. (Agra (3), Bombay, near Calcutta, near Glenmuick, and Wellington).

April 20d. Readings at 5h. (Andijan), 6h. (Medan), 9h. (Bunnythorp, Andijan (2), Tchimkent, Sverdlovsk, Tashkent, Frunse (2), Samarkand, Almata (3)), 14h. (near Ferndale), 15h. (Sverdlovsk, Tashkent, Tiflis, Copenhagen, Cheb, De Bilt, Paris, Stuttgart, Piacenza, Triest, Kew, Bidston, Edinburgh, Ivigtut, and Oak Ridge), 16h. (near Tananarive, near Bunnythorp, and Wellington), 17h. (near Manila), 21h. (Sverdlovsk (2), and Tashkent (2)).

April 21d. Readings at 1h. (Amboina (2), and near Lick), 6h. (Bombay, Grozny, Tiflis, Sebastopol, Simferopol, Theodosia, Yalta, near Oak Ridge, Pasadena, Tinemaha, Medan, near Batavia, and Malabar), 7h. (Baku, Sverdlovsk, and Perth), 8h. (Tinemaha), 10h. (near Mizusawa), 12h. (near Amboina), 15h. (Balboa Heights), 17h. (Erevan), 19h. (Christchurch, Suva, Almata, Andijan, Frunse, Samarkand, Tashkent, and Sebastopol), 20h. (near Amboina), 21h. (near Oak Ridge), 23h. (Berkeley (2), Branner (2), Lick (2), Tucson, and near Wellington).

April 22d. Readings at 0h. (Almata, Andijan, Frunse, Tashkent, and near Samarkand, and near Santiago), 1h. (Andijan), 2h. (near Tyosi), 5h. (near Tiflis), 6h. (Almata, Andijan, Tashkent, Frunse, and near Samarkand), 7h. (near Apia), 8h. (near Arisan and Karenko), 9h. (Karenko, near Amboina, and near Manila), 10h. (Berkeley, Haiwee, La Jolla, Mount Wilson, Pasadena, Riverside, Tinemaha, Medan, Amboina, Batavia, and near Malabar), 12h. (Sotchi, Tiflis, and near Erevan), 17h. (near Branner and Lick), 19h. (near Kobe, Osaka, and Sumoto), 20h. (near Manila), 21h. (Almata, Andijan, and Frunse), 22h. (Andijan).

April 23d. Readings at 1h. (Samarkand, near Andijan, and Tchimkent), 2h. (Andijan (2), 3h. (Andijan (2), Samarkand, Frunse, and Wellington), 4h. (Andijan, Tashkent, Bombay, Medan, Phu-Lien, and Hong Kong), 5h. (Vladivostok), 6h. (Zagreb, Tiflis, Samarkand, Andijan, and near Erevan), 7h. (Zurich, Tchimkent, and near Tananarive), 8h. (Tiflis and near Erevan), 9h. (near Malabar and near Wellington), 12h. (Almata, Andijan (2), Frunse, and Samarkand), 16h. (Nagoya, near Berkeley, Branner, and Lick), 17h. (near Berkeley, Branner, and Lick), 18h. (near San Francisco), 21h. (near Berkeley, Branner, Lick, and San Francisco), 22h. (near Susaki).

April 24d. 1h. 59m. 17s. Epicentre 5°·5S. 130°·0E. (as on 1929 Feb. 2d.). R.2.

A = −·640, B = +·763, C = −·096; D = +·766, E = +·643;
G = +·062, H = −·073, K = −·995.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Amboina		2·5	314	i 0 49	P_g	i 1 42	+38	—	—
Palau		13·6	19	3 16	+ 6	6 11	+30	—	—
Manila		22·0	336	i 4 58a	+ 7	i 9 0	+14	—	—
Malabar		22·3	264	i 4 59	+ 5	8 52	0	—	—
Batavia		23·0	267	4 58	− 3	—	—	—	—
Perth		29·6	205	i 10 33	S	(i 10 33)	−25	—	14·2
Adelaide		30·5	166	i 6 13	+ 4	i 11 9	− 3	i 13·6	16·4
Hong Kong		31·9	331	8 13	?	11 29	− 5	—	16·7
Medan		32·6	285	e 6 20	− 8	—	—	—	—
Riverview		34·5	148	e 9 18	(− 6)	13 37	?	—	17·7
Sydney		34·5	148	e 9 11	(−13)	—	—	17·2	20·9
Melbourne		35·1	160	—	—	11 43	−40	14·9?	18·3
Nanking	E.	39·1	344	7 27	+ 3	i 13 23	+ 1	—	—
Kameyama		40·8	9	7 38	− 1	14 45	+57	—	—
Oiwake		42·6	11	7 57	+ 4	—	—	—	—
Nagano		42·9	10	7 55	− 1	14 14	− 5	—	—
Hukusima		44·4	13	8 3	− 5	14 44	+ 3	—	—
Chiufeng		47·4	345	e 8 31	− 1	i 15 23	− 1	—	—
Vladivostok		48·6	2	—	—	e 18 43?	(+ 8)	—	—
Christchurch		53·4	143	e 8 58	−19	e 16 36	−11	e 27·2	31·4
Bombay		61·3	295	i 10 11	− 3	i 18 33	0	—	—
Almata		68·3	321	e 11 2	+ 2	e 20 6	+ 5	—	—
Frunse		69·6	320	e 10 17	−51	—	—	—	—
Andijan		70·1	317	e 11 8	− 3	e 20 17	− 5	—	—
Tashkent		72·4	317	i 11 24	− 1	e 20 35	−15	—	43·0
Samarkand		73·4	314	11 29	− 2	20 57	− 4	—	—
Baku		86·1	311	e 12 38	− 1	i 22 58	[− 9]	44·2	53·4
Tiflis		90·1	313	e 12 55	− 3	e 23 47	−10	—	—
Kucino		95·7	325	—	—	e 24 1	[− 3]	e 48·9	58·0
Theodosia		97·2	315	—	—	e 23 57	[−15]	—	—
Yalta		98·0	314	—	—	e 24 1	[−15]	—	—

For Notes see next page.

NOTES TO APRIL 24d. 1h. 59m. 17s.

Additional readings :—
Amboina i = +3m.13s.
Malabar i = +5m.5s. =PP −8s.
Batavia i = +7m.10s.
Adelaide i = +7m.27s. and +12m.17s.
Melbourne SS = +13m.11s.
Bombay PPE = +12m.34s., PPPE = +13m.34s.
Tiflis eSKKSE = +23m.17s., eSSN = +28m.55s., eSSSN = +33m.27s.
Kucino e = +27m.31s. and +31m.17s. =SS +16s.
Long waves were also recorded at Wellington, Copenhagen, and De Bilt.

April 24d. 17h. 36m. 22s. Epicentre 16°·0S. 172°·0W. (as on 1934 Jan. 31d.). X.

A = −·952, B = −·134, C = −·276 ; D = −·139, E = +·990 ;
G = +·273, H = +·038, K = −·961.

		△ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
Apia		2·2	5	0 42	P_g	—	—	—	2·6
Suva		9·4	255	2 11	− 2	3 41	−18	—	—
Arapuni		24·6	204	9 38	S	(9 38)	+ 4	10·9	—
Wellington		27·8	202	9 58	S	(9 58)	−30	12·1	—
Christchurch		30·5	202	6 36	+27	11 40	+28	i 14·2	—
Riverview		37·6	235	(e 6 50)	−22	(e 12 26)	−34	(e 15·5)	(28·6)
Sydney		37·6	235	e 7 14	+ 2	e 12 23	−37	17·8	20·1
Honolulu		39·8	22	—	—	e 16 26	SS	17·1	—
Melbourne		43·6	232	e 9 31?	PP	i 13 55	−35	i 20·3	24·3
Adelaide		47·9	237	e 10 28	PP	i 18 50	SS	e 20·2	25·8
Ukiah		71·5	38	—	—	e 20 53	PS	e 30·0	—
Pasadena		71·6	45	e 11 21	+ 1	—	—	—	—
Mount Wilson	z.	71·8	45	i 11 24	+ 2	—	—	—	—
Riverside		72·1	45	e 11 22	− 1	—	—	—	—
Manila		73·0	292	i 11 32	+ 3	e 19 34	−83	29·6	34·0
Haiwee		73·0	44	i 11 32	+ 3	—	—	—	—
Tinemaha	z.	73·3	43	e 11 32	+ 1	—	—	—	—
Vladivostok		78·3	322	11 41	−18	21 30	−27	34·0	38·7
Sitka		79·2	20	—	—	e 22 2	− 5	e 32·4	—
Zi-ka-wei	z.	79·4	307	e 11 43	−22	—	—	—	37·3
Batavia		79·9	267	11 38	−29	21 45	−30	—	—
Hong Kong		81·8	296	19 5	?	22 28	− 7	38·1	40·1
Chiufeng		87·1	313	e 12 23	−21	e 22 52	[−22]	—	51·7
Columbia		99·6	57	—	—	e 23 56	[−27]	e 51·6	—
Georgetown		103·7	52	e 18 45	PP	i 25 25	{+ 4}	e 51·6	—
Ottawa		105·7	46	—	—	e 24 56	[+ 3]	e 44·6	—
Fordham		106·4	51	—	—	e 25 39	{− 2}	e 53·6	—
Oak Ridge		108·3	50	—	—	e 25 9	+ 4	e 42·1	—
Kodaikanal	E.	112·4	275	17 53	[−32]	—	—	—	—
Bombay		118·5	283	e 20 38?	PP	e 23 38?	?	—	—
Tashkent		122·0	309	e 19 55	PP	e 27 7	{−23}	60·6	67·8
Scoresby Sund		122·5	11	—	—	e 29 38?	SKSP	53·6	—
Pulkovo		133·3	344	e 21 24	PP	e 29 35	{+53}	64·6	67·4
Kucino		134·2	336	—	—	e 25 59	[−32]	e 67·1	72·1
Tiflis		139·3	316	e 19 22	[+ 1]	—	—	e 67·6	84·7
Yalta		144·0	327	e 24 26	?	—	—	—	—
Uccle		145·1	5	e 19 32	[− 2]	—	—	e 74·6	—
Paris		146·9	7	—	—	e 48 38?	?	67·6?	74·6?
Stuttgart		147·2	358	e 19 35	[− 3]	—	—	e 74·6	—
Strasbourg		147·4	0	e 19 42	[+ 4]	—	—	e 63·6	—
Ksara		149·2	309	e 19 52	[+11]	—	—	—	—
Triest		150·0	352	e 19 43	[+ 1]	e 25 50	?	e 64·6	78·2
Florence		152·1	354	e 19 53	[+ 8]	—	—	73·6	81·6

Additional readings and notes :—
Suva P_g? = +2m.56s.
Arapuni S = +10m.38s.
Wellington S? = +11m.27s. =SS −10s.

Continued on next page.

Christchurch $L_gE = +12m.48s.$, $P_gSNZ = +13m.15s.$
Riverview readings have been *increased* by 10m. which makes them comparable with those of Sydney.
Melbourne i = +17m.54s.
Adelaide e = +16m.26s.
Pasadena iZ = +11m.25s.
Manila ePEN = +11m.35s.
Columbia e = +30m.20s.
Georgetown ePSZ = +28m.25s.
Ottawa eE = +28m.2s. =PS +17s., +34m.2s., and +42m.38s.
Fordham eE = +34m.14s.
Oak Ridge eNE = +28m.24s. =PS +13s., eSS?NE = +34m.43s.
Tashkent e = +20m.45s., +29m.24s., +36m.38s. =SS −20s., +40m.20s., and +48m.38s.?
Scoresby Sund +37m.38s.? =SS +33s.
Pulkovo e = +22m.58s. =PKS +11s., +35m.20s., +38m.59s. =SS −22s., +41m.35s., +44m.30s. =SSS +23s. and +51m.26s.
Kucino e = +27m.39s., +37m.0s., +42m.18s., and +47m.8s.
Tiflis eN = +25m.56s., +31m.8s., and +45m.8s.
Stuttgart eN =iZ = +20m.4s.
Strasbourg iZ = +20m.6s. and +20m.38s.?
Ksara ePSKS = +33m.28s., ePPS = +35m.55s.
Triest e = +31m.13s. and +43m.43s.
Long waves were also recorded at New Plymouth, Perth, Nanking, Agra, Cape Town, Huancayo, La Paz, and at other European stations.

April 24d. Readings also at 2h. (Andijan), 3h. (Wellington), 4h. (Baku, Tashkent, Vladivostok, Haiwee, Mount Wilson, Pasadena, Tinemaha, Sitka, near La Paz, and Sucre), 6h. (near Amboina), 7h. (Frunse, Andijan, and Samarkand), 10h. (Sumoto), 14h. (Simferopol), 16h. (near Toyooka), 18h. (Suva), 20h. (Bombay), 21h. (Tucson), 22h. (Little Rock, and near Tananarive), 23h. (near Berkeley, Branner, and Lick).

April 25d. 5h. 3m. 21s. Epicentre 18°·3N. 146°·8E. (as on 1934 Feb. 4d.). X.

A = −·794, B = +·520, C = +·314; D = +·548, E = +·837; G = −·263, H = +·172, K = −·949.

The *depth* of focus 0·080 of Feb. 4d. has been retained here.

		Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Tyosi		−2·8	18·2	345	e 3 38	+ 4	6 23	− 1	—	—
Nagoya		−3·0	19·0	335	3 42	+ 1	6 32	− 6	—	—
Osaka		−3·0	19·2	331	3 44	0	6 18	−25	9·0	9·4
Sumoto		−3·0	19·2	329	3 41	− 3	6 33	−10	—	6·7
Mizusawa	E.	−3·4	21·4	348	e 7 31	S	i 7 31	+ 6	—	—
Manila		−4·0	25·0	265	e 4 33a	− 7	7 39	−47	—	—
Nanking	E.	−4·7	28·7	304	e 5 2	− 8	—	—	—	—
Chiufeng		−5·3	34·2	318	i 4 52a	−63	i 10 23	−24	—	—
Phu-Lien		−5·8	37·9	282	—	—	10 39?	−58	—	—
Batavia		−6·7	46·4	243	7 34	+ 5	13 29	− 3	—	—
Medan		−7·1	49·2	260	—	—	e 14 7	− 1	—	—
Almata		−8·0	63·0	311	9 27	− 2	17 5	− 4	—	—
Agra	E.	−8·0	63·3	293	—	—	e 16 50	−23	—	—
Frunse		−8·1	64·8	310	e 8 41	−60	e 16 26	−66	—	—
Andijan		−8·2	66·5	309	e 9 45	− 7	e 17 41	−12	—	—
Tashkent		−8·4	68·8	310	i 10 7	0	i 18 12	− 9	—	42·4
Bombay		−8·5	69·5	285	—	—	i 18 15	−14	—	—
Tinemaha		−9·3	82·9	53	i 11 37	+ 5	e 21 10	+ 6	—	—
Haiwee		−9·3	83·4	53	i 11 40	+ 5	i 21 15	+ 5	—	—
Mount Wilson		−9·4	83·9	55	i 11 41	+ 6	e 21 18	+ 4	—	—
Pasadena		−9·4	83·9	55	i 11 39k	+ 2	i 21 16	+ 2	—	—
Riverside		−9·4	84·5	55	i 11 43	+ 2	—	—	—	—
Pulkovo		−9·5	86·7	334	—	—	i 21 1	−44	—	—

Additional readings:—
Mizusawa iS = +7m.58s.
Batavia eN = +16m.14s.
Bombay iN = +19m.7s.

April 25d. Readings also at 1h. (Andijan, near Tyosi, and near Mizusawa), 3h. (near Mizusawa), 5h. (near Apia), 7h. (Bombay), 8h. (near Algiers), 10h. (Mizusawa and near Tyosi), 11h. (near Tyosi), 12h. (Mizusawa), 15h. (Vladivostok), 17h. (Almata), 19h. (Frunse, Samarkand, Almata, Tashkent, near Andijan, and near Oak Ridge), 22h. (Lick), 23h. (near Tananarive).

Arpil 26d. 5h. 31m. 55s. Epicentre 22·7S. 171°·8E. N.3.

A = −·913, B = +·132, C = −·386; D = +·143, E = +·990; G = +·382, H = −·055, K = −·923.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Suva		7·7	55	2 41?	P_g	4 45	S_g	5·6	—
Wellington		18·8	173	4 18	+ 2	7 53	+11	9·1	—
Christchurch		20·8	178	i 4 36	− 2	e 8 28	+ 6	10·5	—
Riverview		21·2	234	e 4 49	+ 7	e 8 44	+14	e 10·3	15·4
Sydney		21·2	234	e 4 41	− 1	i 8 41	+11	10·7	13·1
Chatham Is.		23·3	158	6 41	?	10 29	?	—	—
Melbourne		27·5	231	e 5 56	+13	10 28	+ 4	13·1	16·8
Adelaide		31·3	239	e 6 11	− 6	i 11 24	0	e 13·7	17·8
Amboina		46·2	287	8 15	− 7	—	—	27·6	—
Perth		50·0	246	8 57	+ 6	e 16 10	+ 9	23·1	26·6
Manila		62·2	302	i 10 19a	− 1	18 37	− 8	29·6	34·1
Batavia		64·5	274	10 35	0	i 19 19	+ 5	36·0	—
Hong Kong		71·9	305	11 22	0	20 9	−35	—	30·7
Vladivostok		75·3	331	i 11 42	0	21 24	0	31·6	—
Medan		75·9	280	e12 17	+32	21 23	− 7	—	—
Chiufeng		81·4	321	12 14a	− 1	22 25	− 6	—	—
Pasadena		87·5	51	i 12 46	+ 1	—	—	—	—
Mount Wilson		87·6	51	i 12 45	− 1	—	—	—	—
Riverside		88·0	51	i 12 47	− 1	—	—	—	—
Haiwee		88·6	49	i 12 53	+ 2	—	—	—	—
Tinemaha		88·9	49	i 12 53	+ 1	—	—	—	—
Kodaikanal	E.	97·9	278	24 16	SKS	(24 16)	[0]	—	—
Agra		103·3	294	—	—	e 23 30	?	—	—
Bombay		105·2	284	e 17 5?	?	e 23 5?	?	—	63·1
La Paz		109·5	118	e 23 35	?	i 28 41	PS	—	—
Tashkent		113·9	306	e 18 39	[+10]	—	—	—	83·4
Georgetown		120·1	57	e 20 9	PP	e 25 44	[− 7]	e 58·1	—
Ottawa		121·5	49	—	—	e 30 11	PS	e 53·1	—
Oak Ridge		124·5	53	e 20 34	PP	—	—	e 52·1	—
Scoresby Sund		131·6	6	20 53	PP	22 35	PKS	70·1	—
Tiflis		132·1	306	19 10	[0]	e 31 17	SKSP	71·5	—
Ivigtut		132·7	25	22 39	PKS	—	—	70·1	—
Pulkovo		134·2	334	e 19 13	[− 1]	—	—	62·1	74·8
Theodosia		138·1	313	e 13 1	?	—	—	—	—
Yalta		139·1	312	e 13 31	?	—	—	—	—
Ksara		139·9	295	e 19 29	[+ 8]	—	—	e 73·1	—
Copenhagen		143·6	340	19 30	[0]	—	—	76·1	—
Hamburg		146·2	340	i 19 39	[+ 3]	—	—	e 84·1	—
Vienna	z.	147·8	328	e 19 41	[+ 2]	—	—	—	—
De Bilt		148·9	343	e 19 47	[+ 7]	—	—	e 73·1	—
Stuttgart	z.	150·5	335	e 19 40	[− 2]	—	—	—	—
Paris		152·6	345	18 5?	[−100]	—	—	89·1	—
Granada		165·0	347	i 24 44	PP	—	—	89·8	—

Additional readings :—
Wellington PP = +4m.35s.
Christchurch iNZ = +8m.35s., iE = +8m.43s., iZ = +8m.49s., L_qN = +9·9m.
Riverview iSE = +8m.48s.
Pasadena iN = +18m.19s.
Tashkent ePP = +22m.5s., PPS = +30m.29s., eSS = +39m.23s.
Georgetown ePSE = +29m.37s.
Tiflis PKS = +22m.41s., PSSZ = +39m.59s.
Pulkovo iPP = +21m.44s., PKS = +22m.39s., PS = +31m.43s.
Ksara ePKS = +23m.0s.
Long waves were also recorded at New Plymouth, Ukiah, Bozeman, Sitka, and San Fernando.

April 26d. 7h. 56m. 55s. Epicentre 22°·7S. 171°·8E. (as at 5h.). R.2.

A = −·913, B = +·132, C = −·386; D = +·143, E = +·990; G = +·382, H = −·055, K = −·923.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Suva		7·7	55	2 23?	P_g	4 5?	S_g	5·1	—
Wellington		18·8	173	4 15	− 1	7 50	+ 8	9·6	—
Christchurch		20·8	178	i 4 37	− 1	8 33	+11	10·2	—
Riverview		21·2	234	e 4 47	+ 5	e 8 46	+16	e 10·3	12·5
Sydney		21·2	234	e 4 35	− 7	i 8 35	+ 5	10·4	13·3
Chatham Is.		23·3	158	5 29	+25	9 29	+19	—	—
Melbourne		27·5	231	e 5 47	+ 4	10 35	+11	14·0	16·9
Adelaide		31·3	239	e 2 35	?	i 11 23	− 1	i 13·7	18·0
Amboina		46·2	287	8 19	− 3	—	—	28·3	—
Perth		50·0	245	11 37	PPP	16 12	+11	e 23·2	—
Manila		62·2	302	e 10 38	+18	18 53	+ 8	—	—
Batavia		64·5	274	i 10 35	0	i 19 18	+ 4	35·7	—
Vladivostok		75·3	331	11 41	− 1	21 25	+ 1	e 33·1	—
Medan		75·9	280	11 51	+ 6	21 25	− 5	—	—
Chiufeng		81·4	321	12 14a	− 1	22 27	− 4	—	—
Pasadena	Z.	87·5	51	e 12 42	− 3	e 15 35	PP	—	—
Mount Wilson	Z.	87·6	51	i 12 47	+ 1	—	—	—	—
Riverside	Z.	88·0	51	i 12 46	− 2	—	—	—	—
Haiwee	E.Z.	88·6	49	i 12 55	+ 4	—	—	—	—
Tinemaha	Z.	88·9	49	e 12 54	+ 2	—	—	—	—
Sitka		91·2	25	—	—	e 23 35	[− 5]	e 40·7	—
Kodaikanal	E.	97·9	278	25 5	S	(25 5)	− 3	—	—
Agra	E.	103·3	294	—	—	e 24 38	[− 4]	—	—
Bombay		105·2	284	e 19 5?	?	—	—	—	58·3
La Paz	E.	109·5	118	—	—	i 28 57	PS	—	—
Tashkent		113·9	306	e 19 31	PP	e 29 11	PS	—	84·7
Georgetown		120·1	57	e 20 13	PP	e 29 55	PS	e 57·1	—
Ottawa		121·5	49	e 20 23	PP	e 30 11	PS	e 53·1	—
Scoresby Sund		131·6	6	22 59	PKS	—	—	69·1	—
Tiflis		132·1	306	e 19 3	[− 7]	—	—	e 71·6	—
Pulkovo		134·2	334	i 19 12	[− 2]	—	—	67·1	81·2
Hamburg		146·2	340	e 19 36	[0]	—	—	—	—
Vienna	Z.	147·8	328	e 19 43	[+ 4]	—	—	—	—
De Bilt		148·9	343	e 19 47	[+ 7]	—	—	e 74·1	—
Triest		150·9	328	—	—	e 39 29	?	e 72·1	82·7
Florence		153·5	327	e 19 5	[−41]	—	—	—	—
Granada		165·0	347	i 24 46	PP	—	—	93·5	—

Additional readings :—
Wellington PP = +4m.30s.
Christchurch eN = +7m.27s., iP_cP = +8m.37s., L_qN = +9·8m.
Melbourne i = +6m.37s. and +6m.49s.
Perth iP_eS = +16m.0s., PS = +16m.25s., iSS = +18m.55s., iSSS = +19m.50s., iSSSS = +20m.30s.
Sitka e = +35m.5s.
Tashkent eSSS = +42m.17s.
Tiflis eEZ = +22m.40s. =PKS − 3s., eZ = +41m.11s.
Pulkovo iPP = +21m.47s., ePKS = +22m.42s., ePS = +31m.52s., eSSS = +45m.29s.
Triest i = +44m.43s.
Long waves were also recorded at Honolulu, Hong Kong, Cape Town, Ukiah, Bozeman, Ivigtut, and at other European stations.

April 26d. 13h. 39m. 40s. Epicentre 1°·1N. 123°·9E. (as on 1933 Feb. 16d.). R.2.

$A = -\cdot 558$, $B = +\cdot 830$, $C = +\cdot 019$; $D = +\cdot 830$, $E = +\cdot 558$; $G = -\cdot 011$, $H = +\cdot 016$, $K = -1\cdot 000$.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Amboina		6·4	138	i 1 45	P*	i 3 14	S*	—	—
Manila		13·8	348	i 3 12k	− 1	6 34	S*	—	—
Malabar		18·3	243	e 4 14	+ 4	—	—	—	—
Batavia		18·5	247	4 3	−10	i 7 23	−13	—	—
Hong Kong		23·3	337	4 59	− 5	9 4	− 6	—	14·8
Medan		25·3	276	i 5 18	− 5	i 9 39	− 7	i 13·2	—
Phu-Lien		26·0	321	e 5 25	− 4	e 9 54	− 4	—	—
Zi-ka-wei	Z.	30·2	356	6 7	0	10 51	−16	i 16·0	20·6
Nanking		31·4	351	e 6 18	+ 1	e 11 21	− 5	e 16·3	20·2
Perth		33·9	192	—	—	e 14 20	SSS	—	—
Adelaide		38·6	161	e 7 21	+ 1	i 12 28	−47	e 17·1	23·8
Chiufeng		39·6	350	i 8 26k	+57	14 23	+53	e 20·4	26·8
Calcutta		40·6	304	7 15	−22	14 15	+30	24·8	28·6
Vladivostok		42·6	9	7 57	+ 4	i 14 17	+ 2	19·3	23·6
Riverview		43·3	146	—	—	e 14 50	+25	e 25·5	28·6
Sydney		43·3	146	e 7 50	− 9	—	—	26·3	28·7
Melbourne		43·5	155	e 9 50	(− 3)	i 14 44	+16	25·6	28·7
Colombo		44·3	279	8 0	− 7	14 24	−16	—	26·8
Kodaikanal	E.	47·1	283	i 8 20	− 9	i 15 6	−14	28·4	—
Hyderabad		47·6	293	8 15	−18	15 10	−17	22·6	32·1
Agra	E.	51·1	305	e 8 55	− 5	i 15 55	−21	23·2	—
Bombay		53·2	293	9 19	+ 4	i 16 26	−19	—	37·7
Almata		59·3	322	e 10 17	+17	e 18 1	− 6	—	—
Frunse		60·7	320	e 9 7	−62	—	—	—	—
Andijan		61·1	317	e 10 59	(+ 1)	e 18 23	− 7	—	—
Sverdlovsk		74·8	329	e 11 28	−11	i 20 57	−21	34·3	50·5
Tiflis		81·2	312	e 12 8	− 6	22 10	−18	e 40·4	—
Kucino		86·9	325	e 12 50	+ 7	—	—	e 40·8	48·8
Ksara		87·8	303	e 12 55	+ 8	23 40	[+ 5]	—	—
Pulkovo		90·9	329	e 11 18	?	i 23 33	[− 4]	51·3	54·0
Stuttgart		105·2	322	e 21 56	?	—	—	e 62·3	—
De Bilt		106·2	326	—	—	e 28 20?	PS	e 55·3	70·2
Triest		120·2	318	e 16 20	+60	e 24 31	?	e 50·3	60·1
La Paz	E.	160·5	143	e 20 10	[+16]	—	—	—	—

Additional readings :—
Malabar i = +4m.50s.
Batavia iN = +8m.55s., iE = +12m.5s.
Hong Kong PP = +5m.24s.
Zi-ka-wei iZ = +7m.13s., +15m.59s.
Adelaide i = +8m.48s. =PP +0s.
Chiufeng PP?N = +9m.41s., PPP? = +10m.2s.
Riverview e = +18m.14s. =S_cS +12s.
Melbourne i = +18m.54s.
Agra ePPE = +10m.43s., PPPE = +11m.29s., SSE = +19m.7s.
Tiflis eZ = +12m.17s., ePPZ = +15m.20s., PSZ = +23m.22s., eSSE = +30m.54s.
Kucino e = +21m.50s., +28m.8s., and +31m.44s.
Pulkovo e = +23m.22s. and +24m.26s., L_q = +44·3m.
Long waves were also recorded at Koti, Christchurch, Wellington, Tashkent, Oak Ridge, and other European stations.

April 26d. 21h. 0m. 25s. Epicentre 14°·0S. 166°·5E. (as on 1929 May 22d.). R.2

A = −·943, B = +·227, C = −·242; D = +·233, E = +·972;
G = +·235, H = −·056, K = −·970;

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Suva		12·2	112	2 59?	+ 8	5 17	+10	6·1	—
Riverview		24·2	212	i 5 7k	− 5	i 9 27	0	e 11·6	13·4
Sydney		24·2	212	e 4 17	−55	i 9 15	−12	12·4	13·6
Wellington		28·2	167	5 50	+ 1	—	—	11·1	—
Christchurch		30·0	171	6 13	+ 8	i 10 54	−10	12·7	—
Melbourne		30·5	215	i 6 8	− 1	11 15	+ 3	14·8	19·4
Adelaide		32·7	226	e 6 23	− 6	i 11 45	− 1	e 14·6	21·5
Amboina		39·1	282	i 7 18	− 6	13 22	0	e 22·6	—
Perth		49·4	240	12 25	?	e 19 35	?	27·2	29·6
Manila		53·3	300	i 9 17k	+ 1	17 1	+15	26·6	30·6
Wakayama		56·7	330	9 43	+ 2	17 35	+ 3	—	—
Oiwake		56·8	334	9 42	0	17 39	+ 5	—	—
Osaka		56·9	330	9 36	− 6	14 13	?	—	—
Koti		57·0	327	9 41	− 2	17 36	0	—	—
Kobe		57·0	330	e 9 43k	0	e 19 29	(− 2)	—	30·5
Hukusima		57·2	337	9 45	0	—	—	—	—
Sendai		57·5	337	9 49	+ 2	17 44	+ 1	—	—
Mizusawa	E.	58·2	339	(e 9 58)	+ 6	e 9 58	P	—	—
Nagasaki		58·4	325	i 9 52k	− 1	e 17 28	−27	—	—
Batavia		59·0	271	i 9 55	− 2	e 18 5	+ 2	—	—
Zi-ka-wei		62·5	319	10 21	− 1	—	—	—	37·8
Hong Kong		62·8	307	10 24	0	18 57	+ 5	—	33·1
Nanking		64·8	316	10 37	0	e 19 20	+ 3	—	39·9
Vladivostok		65·3	333	i 10 43	+ 2	i 19 30	+ 6	26·9	35·4
Phu-Lien		68·3	300	e 11 0	0	—	—	—	—
Medan		69·4	279	i 11 17	+10	20 41	PS	—	—
Chiufeng		71·5	322	i 12 18k	+58	21 39	PS	—	46·7
Ukiah		84·2	48	—	—	e 22 55	− 5	e 38·9	—
Berkeley		84·4	49	i 12 36	+ 6	i 23 0	− 2	—	—
Calcutta		84·7	295	13 3	+31	23 28	+23	e 43·4	—
Sitka		85·7	28	—	—	i 23 1	[− 3]	e 39·6	—
Pasadena		86·2	54	i 12 38a	− 1	i 23 8	[0]	—	—
Mount Wilson		86·3	54	i 12 41	+ 1	—	—	—	—
La Jolla		86·4	56	i 12 45	+ 5	—	—	—	—
Riverside		86·7	54	i 12 39	− 3	—	—	—	—
Haiwee		87·0	52	i 12 44	+ 1	—	—	—	—
Tinemaha		87·1	51	i 12 44	0	—	—	—	—
Victoria		87·9	39	23 12	SKS	(23 12)	[− 7]	41·4	47·0
Colombo		88·3	277	12 53	+ 4	23 17	[− 5]	—	—
Kodaikanal	E.	91·6	280	i 13 7	+ 2	i 23 40	[− 2]	47·8	60·3
Hyderabad		92·3	287	—	—	23 35	[−11]	—	64·9
Bozeman		94·9	44	—	—	e 23 58	[− 2]	46·6	—
Agra	E.	95·0	297	e 17 4	PP	i 23 56	[− 5]	—	—
Bombay	N.	97·8	287	—	—	i 24 15	[0]	—	—
Almata		99·2	313	e 14 10	+30	e 18 4	PP	—	—
Frunse		100·9	312	e 16 45	?	—	—	—	—
Andijan		102·1	309	e 14 42	+49	e 18 18	PP	—	—
Tashkent		104·5	310	14 3	− 1	24 27	[−20]	e 57·6	68·9
Florissant		108·9	53	—	—	i 25 0	[− 8]	—	—
St. Louis		109·0	53	e 19 5	PP	e 25 2	[− 7]	e 51·1	—
Sverdlovsk		110·3	326	e 14 25	− 7	25 13	[− 2]	51·6	63·2
Tananarive		111·5	243	—	—	24 52	[−28]	55·3	62·6
Huancayo		113·5	110	—	—	e 29 10	PS	e 54·1	—
Ann Arbor		114·0	49	—	—	i 25 17	[−13]	e 57·6	—
Toronto		117·0	46	—	—	e 35 46	SS	52·6	—

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
La Paz	118·0	119	e 19 5	[+24]	i 25 45	[+ 1]	57·6	72·3
Baku	119·2	310	e 19 58	PP	i 30 1	PS	49·6	74·2
Georgetown	119·3	51	e 18 36	[− 8]	i 25 41	[− 7]	e 57·6	—
Ottawa	119·3	44	—	—	e 25 43	[− 5]	e 54·6	—
Kucino	122·7	329	18 57	[+ 5]	30 1	SKSP	60·3	74·5
Tiflis	122·8	311	e 18 44	[− 8]	—	—	e 72·6	—
Oak Ridge	122·8	48	i 18 54	[+ 2]	e 25 54	[− 5]	e 56·1	—
Scoresby Sund	123·3	4	20 41	PP	30 35	PS	65·6	—
Pulkovo	124·2	335	18 55	[0]	30 4	SKSP	64·6	71·4
Sotchi	126·0	314	e 20 46	PP	—	—	—	—
Theodosia	128·4	317	e 19 5	[+ 1]	e 22 24	PKS	—	—
Simferopol	129·3	318	e 19 7	[+ 2]	e 22 30	PKS	—	—
Yalta	129·4	317	e 19 7	[+ 1]	i 22 31	PKS	—	—
Sebastopol	129·8	318	e 19 8	[+ 2]	e 22 32	PKS	—	—
Ksara	131·2	302	e 19 14	[+ 5]	33 48	?	—	—
Copenhagen	133·8	340	19 15	[+ 2]	—	—	59·6	—
Hamburg	136·3	340	e 10 20	?	—	—	e 78·6	95·6
Vienna	137·8	330	e 19 22	[+ 3]	—	—	—	—
Cheb	138·2	335	e 40 35?	SS	—	—	e 60·6	87·6
De Bilt	139·1	342	e 19 23	[+ 3]	e 40 47	SS	e 71·6	79·4
Stuttgart	140·5	337	e 19 29	[+ 7]	—	—	109·6	—
Uccle	140·5	342	e 19 26	[+ 4]	e 40 53	SS	e 69·6	—
Triest	140·9	330	e 19 28	[+ 6]	—	—	65·6	74·2
Kew	141·1	347	—	—	e 40 53	SS	e 69·6	80·9
Strasbourg	141·2	336	e 19 35?	[+12]	28 47	{−44}	54·6	—
Zurich	141·9	334	e 19 26	[+ 3]	—	—	—	—
Basle	142·1	337	e 19 29	[+ 5]	—	—	—	—
Neuchatel	142·8	337	e 19 28	[+ 1]	—	—	—	—
Paris	142·8	343	e 19 29	[+ 2]	—	—	75·6	105·6
Prato	143·4	329	e 19 32	[+ 3]	—	—	—	—
Florence	143·5	329	i 19 31k	[+ 2]	—	—	80·6	88·6
Tortosa	150·5	338	19 57	[+15]	—	—	e 80·6	—

Additional readings :—
Wellington i = +6m.39s. = PP + 6s.
Adelaide e = +9m.7s. = P_cP − 11s. and +13m.41s. = SS + 8s.
Perth SS = +23m.25s., SSS = +24m.30s., SSSS = +25m.15s.
Osaka i = +12m.7s., +12m.51s., +21m.43s., and +23m.35s.
Kobe iE = +10m.1s., eZ = +12m.54s. and +15m.20s., eE = +19m.27s. = S_cS − 4s., eSE = +19m.34s.
Zi-ka-wei iZ = +10m.41s.
Medan iN = +12m.0s.
Berkeley iE = +12m.52s., eE = +38m.36s., eN = +38m.42s., eZ = +38m.45s.
Pasadena iPPZ = +16m.9s.
Mount Wilson iPPZ = +16m.11s.
La Jolla iPPE = +16m.7s.
Riverside iPPZ = +16m.15s.
Tashkent iPKP = +17m.38s., iPP = +18m.11s., ePS = +27m.35s., eSS = +33m.17s.
Florissant eSKKS = +25m.52s., eS = +26m.37s.
St. Louis eSKKSE = +25m.58s., ePSE = +28m.28s.
Sverdlovsk iPKP = +18m.8s., ePP = +18m.59s., S = +26m.38s., iPS = +28m.28s., eSS = +34m.11s.
Georgetown PPZ = +20m.14s., ePS = +29m.57s., eSS = +38m.32s.
Ottawa e = +29m.47s. = PS − 9s., eE? = +36m.35s. = SS + 12s.
Kucino eSS = +37m.23s.
Tiflis eN = +19m.9s., ePPZ = +20m.31s., ePSSZ = +37m.53s.
Oak Ridge e = +37m.35s. = SS + 26s.
Pulkovo PP = +20m.33s., SS = +37m.23s., L_q = +58·6m.
Ksara PKS = +22m.39s.
Copenhagen +22m.41s. = PKS − 8s. and +23m.13s.
Vienna iZ = +22m.11s. = PP + 3s.
De Bilt eZ = +22m.18s. = PP + 2s.
Stuttgart ePP = +22m.29s., ePKS = +23m.3s., eSS = +40m.35s.
Uccle PP = +22m.28s.
Triest i = +22m.14s. = PP − 13s., PKS = +23m.6s., i = +23m.35s. and +28m.28s. SS = +40m.56s.
Strasbourg ePPZ = +22m.41s., eSSE = +41m.5s.
Paris PP = +22m.41s.
Long waves were also recorded at Honolulu, Cape Town, San Juan, Ivigtut, and other American and European stations.

April 26d. 22h. 47m. 38s. Epicentre 34°·5N. 140°·0E. X.
(as at 15d. 10h., and near the position attributed by the Japanese stations).

$A = -\cdot631$, $B = +\cdot530$, $C = +\cdot566$; $D = +\cdot643$, $E = +\cdot766$; $G = -\cdot434$, $H = +\cdot364$, $K = -824$.

		Δ	Az.	P.	O−C.	S.	O−C.	M.
		°	°	m. s.	s.	m. s.	s.	m.
Susaki		0·8	281	0 9	− 2	0 19	− 2	—
Tokyo		1·2	350	0 13a	− 4	0 28	− 3	—
Tyosi		1·5	30	i 0 16	− 5	0 33	− 6	0·6
Nagoya		2·6	285	0 36	− 1	1 5	− 2	1·4
Osaka		3·7	274	0 50	− 3	1 44	S*	2·8
Kobe	E.	4·0	274	e 1 0	+ 4	1 57	S*	2·2
	N.	4·0	274	e 0 58	+ 1	2 9	S_g	2·2
	Z.	4·0	274	e 0 59	+ 2	2 0	S*	2·5
Sumoto		4·2	269	e 1 0	0	2 9	S*	2·4
Toyooka		4·3	285	1 12	P*	2 5	S*	2·3
Mizusawa	E.	4·8	11	e 1 13	+ 5	i 2 6	+ 3	—
	N.	4·8	11	e 1 10	+ 2	e 1 56	− 7	—

Additional readings :—
Osaka i = +52s., +60s. = P* +3s. and +2m.0s.
Kobe iN = +1m.10s. = P* +6s.
Toyooka SN = +2m.8s. = S* −3s.

April 26d. Readings also at 4h. (Sumoto), 6h. (Tiflis), 9h. (Copenhagen), 10h. (Adelaide, Suva, and Wellington), 13h. (Almata, Andijan, Frunse, Sverdlovsk, Vladivostok, near Chiufeng, and near Nagoya), 14h. (near Göttingen), 15h. (Riverview, Sydney, Wellington, Suva, and Andijan), 16h. (Adelaide, Christchurch, Budapest, Graz, and near Vienna), 17h. (Riverview, Sydney, Christchurch, Wellington, Suva, and near Berkeley), 18h. (Andijan), 19h. (near Triest and Zagreb), 20h. (Almata, Andijan, Frunse, and Samarkand), 23h. (Almata, Andijan, Frunse, Florence, near Prato, and Triest).

April 27d. 3h. 10m. 38s. Epicentre 5°·0S. 132°·0E. (as on 1914 July 5d.). R.3.

$A = -\cdot667$, $B = +\cdot740$, $C = -\cdot087$; $D = +\cdot743$, $E = +\cdot669$; $G = +\cdot058$, $H = -\cdot065$, $K = -\cdot996$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Amboina		4·0	289	i 0 57	0	i 1 41	− 1	—	—
Manila		22·4	331	4 57a	+ 2	9 4	+11	—	—
Batavia		25·1	266	i 5 9	−12	—	—	—	—
Riverview		33·9	151	—	—	e 13 58	SS	—	—
Melbourne		34·9	162	—	—	e 14 6	SS	16·1	18·5
Osaka		39·8	5	7 35	+ 5	13 38	+ 5	—	—
Chiufeng		47·4	343	e 9 29	+57	e 16 20	+56	—	—
Tashkent		73·4	316	i 11 25	− 6	i 20 50	−11	e 38·4	44·0
Sverdlovsk		84·2	329	i 12 18	−11	i 22 36	[−17]	37·4	—
La Paz	N.	150·7	137	e 19 47	[+ 4]	—	—	—	—

Additional readings :—
Batavia i = +8m.52s. = P_cP −3s. and +10m.49s.
Perth (Δ = 30°·9) gives P 3h.10m.0s.
Riverview e = +14m.28s.
Osaka i = +9m.40s. = P_cP −1s. and +16m.38s.

April 27d. 6h. Shock in North Japan.

Mizusawa ePE = 6h.11m.12s., ePN = 11m.14s., iS = 11m.37s.
Nagoya eP = 6h.12m.30s., S = 14m.21s.
Osaka P = 6h.12m.31s., S = 14m.36s.
Tyosi P = 6h.12m.55s., S = 13m.26s., M = 13m.33s.
Vladivostok iP = 6h.13m.46s., e = 14m.36s.
Long waves were also recorded at Sverdlovsk.

April 27d. 9h. 16m. 36s. Epicentre 39°·1N. 145°·2E. (as on 1933 March 13d.). X.

A = −·637, B = +·443, C = +·631 ; D = +·571, E = +·821 ;
G = −·518, H = +·360, K = −·776.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Mizusawa	E.	3·1	271	i 0 39	− 5	i 1 14	− 6	—	—
	N.	3·1	271	0 41	− 3	1 17	− 3	—	—
Tyosi		4·8	227	e 1 9	+ 1	2 19	S*	—	2·8
Nagoya		7·6	242	e 1 48	0	3 23	+ 9	—	3·8
Osaka		8·9	243	2 9	+ 3	3 56	+10	—	5·1
Toyooka	N.	9·0	249	e 2 11	+ 4	—	—	—	5·0
Kobe		9·2	244	e 2 15	+ 5	e 4 20	S*	—	4·7
Sumoto		9·5	243	e 2 38	+24	e 4 43	S*	—	—
Vladivostok		10·8	296	i 2 28	− 4	e 4 32	− 1	4·9	6·4
Chiufeng		22·3	282	e 5 47	+53	—	—	—	14·6
Sverdlovsk		55·3	318	i 9 28	− 3	e 17 16	+ 3	34·5	—
Tashkent		56·1	298	e 9 36	− 1	e 17 40	+16	e 29·5	36·3
Agra	E.	56·3	279	—	—	e 17 25	− 2	—	—

Additional readings :—
Osaka i = +2m.35s.
Kobe eE = +2m.25s., eN = +2m.32s.
Sumoto eZ = +4m.23s.
Sverdlovsk e = +21m.12s. =SS +20s., L_q = +26·4m.
Tashkent e = +11m.26s. =PP −9s.
Long waves were also recorded at Koti, Keizyo, Hong Kong, Phu-Lien, and other Russian and European stations.

April 27d. 20h. 47m. 1s. Epicentre 22°·7S. 171°·8E. (as on 26d.). R.2.

A = −·913, B = +·132, C = −·386 ; D = +·143, E = +·990 ;
G = +·382, H = −·055, K = −·923.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Suva	7·7	55	2 29?	P_g	4 14	S_g	5·8	—
New Plymouth	16·5	174	2 59?	−49	—	—	—	—
Wellington	18·8	173	4 15	− 1	7 46	+ 4	9·1	—
Christchurch	20·8	178	i 4 38	0	8 27	+ 5	10·4	—
Riverview	21·2	234	e 4 44	+ 2	i 8 41	+11	10·2	15·1
Sydney	21·2	234	i 4 29	−13	i 8 47	+17	10·8	19·6
Chatham Ils.	23·3	158	4 53?	−11	9 26	+16	12·5	—
Melbourne	27·5	231	e 5 45	+ 2	e 10 12	−12	14·0	16·8
Adelaide	31·3	239	e 5 46	−36	i 11 30	+ 6	i 14·2	17·9
Amboina	46·2	287	i 8 19	− 3	14 24	−43	—	—
Perth	50·0	246	11 34	PPP	16 4	− 3	i 22·1	34·7
Honolulu	53·0	36	—	—	e 15 19	−83	e 30·3	—
Manila	62·2	302	i 10 21k	+ 1	18 57	PS	30·5	35·5
Batavia	64·5	274	e 11 20	+45	i 19 17	+ 3	35·0	—
Hong Kong	71·9	305	11 21	− 1	21 4	PS	—	47·5
Zi-ka-wei	72·3	316	11 24	− 1	17 32	?	—	53·4
Vladivostok	75·3	331	11 40	− 2	21 26	+ 2	36·0	—
Medan	75·9	280	e 12 23	+48	21 29	− 1	47·0	—
Phu-Lien	77·0	299	16 59?	?	—	—	—	—
Chiufeng	81·4	321	13 12	+57	23 26	PS	e 33·7	44·2
Berkeley	86·5	46	i 12 28	−13	i 23 25	+ 3	—	—
Ukiah	86·6	45	e 18 47	?	e 23 19	− 4	e 40·3	—
La Jolla Z.	87·5	52	e 12 49	+ 4	—	—	—	—
Pasadena	87·5	51	e 12 54	+ 9	—	—	e 47·7	—
Riverside	88·0	51	e 12 49	+ 1	e 23 15	[− 5]	—	—
Haiwee	88·6	49	e 12 52	+ 1	—	—	—	—
Tinemaha	88·9	49	e 12 54	+ 2	—	—	—	—
Sitka	91·2	25	—	—	e 22 39	[−61]	e 41·5	—
Victoria	91·6	37	19 30	PPPP	30 4	SS	—	64·6
Seattle	91·8	38	—	—	e 22 35	[−68]	e 51·5	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tucson		92·0	55	—	—	e 24 20	+ 5	—	—
Calcutta		92·8	293	12 57	−13	24 17	− 5	e 45·1	—
Colombo		94·4	276	23 51	S	(23 51)	[− 7]	—	—
Bozeman		97·6	44	—	—	e 24 17	[+ 3]	e 47·4	—
Kodaikanal	E.	97·9	278	10 59	?	—	—	—	—
Hyderabad		99·6	285	—	—	24 16	[− 7]	—	66·8
Agra	E.	103·3	294	e 18 7	PP	i 24 40	[− 2]	—	—
Bombay		105·2	284	e 18 31	PP	i 24 38	[−13]	—	71·9
Huancayo		105·7	111	—	—	e 24 59	[+ 6]	e 50·1	—
La Paz		109·5	118	e 18 35	[+19]	25 33	{+22]	73·0	90·0
Sucre		110·4	123	18 59	PP	—	—	68·0	—
Tashkent		113·9	306	i 19 32	PP	27 11	{+37}	e 53·0	87·4
Cape Town		117·9	205	—	—	35 52	?	64·0	95·0
Sverdlovsk		120·3	324	e 18 44	[− 2]	e 28 5	?	i 55·0	74·6
Ottawa		121·5	49	e 20 23	PP	e 25 47	[− 8]	e 58·0	—
Oak Ridge	N.E.	124·5	53	e 21 35	?	e 27 41	{− 5}	e 52·2	—
San Juan		126·0	83	—	—	(e 25 53)	[−15]	e 25·9	—
Baku		128·4	305	e 19 44	[+40]	e 28 45	{+34}	e 46·0	—
Scoresby Sund		131·6	6	22 42	PKS	28 47	{+15}	67·0	—
Tiflis		132·1	306	19 13	[+ 3]	27 39	{−56}	e 79·0	88·3
Kucino		132·7	326	22 43	PKS	28 40	{+ 1}	64·8	78·4
Pulkovo		134·2	334	19 15	[+ 1]	28 43	{− 5}	55·0	70·8
Helsingfors		136·0	338	—	—	e 33 40	?	e 73·0	—
Ksara		139·9	295	e 19 19	[− 2]	28 49	{−34}	65·0	—
Copenhagen		143·6	340	19 31	[+ 1]	—	—	73·0	—
Hamburg		146·2	340	i 19 40k	[+ 4]	i 25 45	PPP	e 73·0	—
Edinburgh		146·6	355	e 23 29	PKS	—	—	e 82·0	—
Budapest		147·0	325	e 19 59?	[+22]	—	—	e 75·0	—
Cheb		148·2	334	e 19 54?	[+15]	e 32 7	?	e 74·0	82·0
De Bilt		148·9	343	e 19 44	[+ 4]	e 25 52	PPP	e 77·0	79·8
Zagreb		149·7	325	e 19 44	[+ 3]	e 33 22	SKSP	e 74·0	—
Uccle		150·2	344	e 19 45	[+ 3]	e 29 29	PPPP	e 73·0	—
Stuttgart		150·5	335	e 19 44k	[+ 2]	e 33 35	SKSP	e 74·0	—
Kew		150·6	350	e 19 59?	[+16]	e 39 39	?	72·0	89·6
Triest		150·9	327	19 46k	[+ 3]	30 11	{−17}	e 72·0	84·6
Strasbourg		151·2	338	19 47k	[+ 4]	e 26 47	PPP	e 70·0	—
Paris		152·6	345	e 19 49	[+ 4]	e 29 50	PPPP	77·0	100·0
Piacenza		153·3	331	20 25	{+11}	—	—	59·0	92·4
Prato		153·5	328	e 19 46	[0]	—	—	—	—
Florence		153·5	327	i 19 50k	{+ 4}	—	—	54·0	76·0
Toledo		162·5	350	e 30 36	PPPP	—	—	—	—
Alicante		163·0	339	e 16 17	?	—	—	e 95·2	—
Almeria		165·0	342	e 30 58	PPPP	(e 52 0)	?	e 52·0	—
Granada		165·0	347	e 25 17	PP	—	—	87·1	—
Malaga		165·6	348	19 56	[− 4]	31 18	{−31}	—	—

Additional readings :—

Suva i = +7m.29s. and +10m.29s.
Wellington PP = +4m.34s.
Christchurch iP_GP = +8m.41s., L_GE = +9·0m., L_GN = +9·6m.
Riverview iPE = +4m.47s., iSE = +8m.46s.
Sydney e = +1m.49s.
Chatham Ils. SS = +10m.59s., S_GS = +15m.26s.
Melbourne i = +6m.19s. =PP −6s., +6m.32s. =PPP +2s. and +10m.59s.
Perth P_GS = +15m.19s., PS = +16m.16s., SS = +18m.49s., SSS = +19m.59s., SSSS = +20m.24s.
Honolulu e = +22m.23s. =SSSS +11s.
Manila iN = +19m.13s., iE = +19m.22s., iN = +26m.13s.
Batavia eE = +12m.11s., eN = +12m.35s. =PP −15s.
Chiufeng iEZ = +19m.23s. and +29m.30s.
Berkeley iZ = +12m.41s., iEZ = +18m.44s., iZ = +24m.9s. =PS −1s., iN = +29m.25s.
Ukiah eSS = +30m.34s.
La Jolla eZ = +18m.41s.
Pasadena iZ = +18m.40s.
Riverside iEZ = +18m.55s., eE = +27m.55s.

Continued on next page.

Haiwee i = +18m.58s.
Tinemaha eEZ = +18m.58s.
Sitka e = +23m.39s. =SKS − 1s., eSS = +29m.39s.
Tucson e = +30m.28s. =SS + 19s.
Bozeman e = +31m.23s.
Huancayo eS = +26m.19s., iSS = +32m.24s., e = +35m.15s., eSSS = +39m.44s.
La Paz SKKSZ = +28m.29s. =PS + 6s., PPSZ? = +34m.33s. =SS + 21s., SS = +40m.39s.
Tashkent ePS = +29m.7s.
Cape Town +38m.14s. and +43m.41s. =SSSS − 2s.
Sverdlovsk ePP = +20m.6s., SKS = +25m.40s., ePS = +29m.56s., SKSP = +30m.45s., iPPS = +31m.51s., eSS = +36m.5s.
Ottawa e = +30m.15s. =PS − 1s., eE = +36m.11s., e = +49m.1s.
Oak Ridge eNW = +21m.59s., eNE = +30m.59s., and +36m.35s.
Tiflis eEZ = +22m.41s. =PKS − 2s., PPPZ = +24m.17s., eE = +29m.47s., PPSZ = +33m.14s., eZ = +41m.11s. and +46m.11s.
Kucino PS = +31m.55s., eS = +33m.35s., SS = +44m.29s.
Pulkovo PP = +21m.47s., PKS = +22m.42s., PPS = +33m.55s., SS = +39m.47s.
Helsingfors ePPE = +22m.47s. =PKS − 10s., eSS?E = +42m.27s.
Ksara PKS = +22m.49s.
Hamburg eNE = +53m.59s.
De Bilt eZ = +23m.6s. =PP − 8s.
Zagreb e = +25m.53s., e = +72m.59s., +79m.59s. and +85m.29s.
Uccle e = +26m.11s. =PPP − 25s.
Stuttgart ePPP = +25m.59s., e = +29m.5s. =PPPP + 18s.; T_0 = 20h.46m.45s.
Kew e = +25m.59s.
Triest i = +21m.47s., +26m.2s., +26m.10s., +27m.49s., +34m.35s., +37m.29s., +39m.29s., +41m.23s., +44m.30s., and +45m.3s., SSS = +48m.59s., i = +50m.41s., +55m.8s., and +55m.48s.
Strasbourg ePP = +23m.26s., e = +25m.50s.
Paris PP = +23m.42s., e = +31m.59s.?
Malaga PKP_3 = +21m.0s., e = +22m.38s., PP = +24m.30s., PPP = +28m.34s., e = +38m.0s., +41m.58s., and +51m.18s.
Long waves were also recorded at Apia, Koti, Chicago, Columbia, Pittsburgh, Tananarive, Algiers, and other European stations.

April 27d. Readings also at 0h. (Tashkent and near Andijan), 8h. (Osaka (2) and Kobe), 9h. (near Yalta), 11h. (Hong Kong and near Manila), 13h. (near Algiers), 14h. (Seattle and Stuttgart), 18h. (near Nagoya), 19h. (Triest and near Oak Ridge), 21h. (Hyderabad), 22h. (Riverview, Melbourne, Wellington, Suva, and near Triest), 23h. (Adelaide, Perth, and Tiflis).

April 28d. 2h. 1m. 23s. Epicentre 33°·5N. 130°·3E. X.
(as on 1932 Sept. 29d., and near the position 33°·6N. 130°·4E., given by Husan)

A = −·539, B = +·636, C = +·552; D = +·763, E = +·647; G = −·357, H = +·421, K = −·834.

	△	Az.	P.	O − C.	S.	O − C.	M.
	°	°	m. s.	s.	m. s.	s.	m.
Hukuoka	0·1	49	0 1	0	0 4	+ 1	0·1
Hukuoka B	0·1	49	i 0 1	0	0 3	0	—
Nagasaki	0·9	205	0 13k	0	i 0 25	+ 2	—
Husan	1·9	327	0 33	P_g	0 58	S_g	—
Sumoto	3·9	76	e 1 1	P*	2 4	S_g	2·2
Kobe	4·2	72	—	—	e 2 16	S_g	2·4
Toyooka	4·3	61	—	—	2 13	S_g	2·3

Sumoto gives also ePE = +1m.4s. =P* + 0s., eZ = +2m.1s. =S_g − 2s.

April 28d. 15h. 8m. 0s. Epicentre 3°·9S. 153°·6E. N.2.

A = −·894, B = +·444, C = −·068; D = +·445, E = +·896;
G = +·061, H = −·030, K = −·998.

		△ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
Amboina		25·3	270	6 14	+51	11 20	?	15·0	—
Suva		28·1	122	e 6 30?	PP	—	—	i 16·5	—
Riverview		30·0	183	e 6 6	+ 1	—	—	e 13·1	18·1
Sydney		30·0	183	—	—	e 10 48	−16	16·8	18·0
Adelaide		34·0	202	e 6 35?	− 5	e 12 24	+18	e 16·3	21·2
Melbourne		34·7	192	—	—	i 12 52	+35	16·5	22·8
Manila		37·2	301	e 7 7a	− 1	13 19	+25	19·3	—
Wellington		41·9	156	—	—	14 0?	− 5	—	—
Christchurch		43·0	160	e 8 34	+37	e 15 30	+69	22·2	—
Perth		45·1	227	8 30	+16	e 14 40	−12	23·5	25·5
Hong Kong		46·6	306	8 23	− 2	15 19	+ 6	—	25·5
Zi-ka-wei	Z.	46·6	322	8 25	0	—	—	23·6	24·5
Nanking		48·8	320	i 8 43	+ 1	—	—	—	—
Vladivostok		50·9	340	i 9 0	+ 2	16 18	+ 5	23·0	—
Phu-Lien		52·2	300	9 0?	− 8	—	—	—	—
Chiufeng		55·8	326	i 10 5a	+31	—	—	—	—
Kodaikanal	E.	77·2	282	10 46	−67	—	—	—	—
Agra	E.	79·0	298	e 11 57	− 6	i 22 41	PS	—	—
Bombay		82·6	289	12 27	+ 6	i 22 31	−12	—	—
Almata		83·0	315	e 12 24	+ 1	—	—	—	—
Andijan		85·9	311	e 12 44	+ 6	—	—	—	—
Tchimkent		88·2	313	e 15 21	?	—	—	—	—
Tashkent		88·3	312	i 12 46	− 3	i 23 31	− 9	e 41·0	51·9
Pasadena		90·7	56	i 13 2a	+ 1	—	—	—	—
Haiwee		91·0	54	i 13 0	− 2	—	—	—	—
Riverside		91·4	56	i 13 5	+ 1	—	—	—	—
Sverdlovsk		94·9	327	i 13 10	−10	e 24 12	{− 2}	52·3	53·4
Baku		103·0	311	18 27	PP	28 26	?	52·0	66·5
Tiflis	E.	106·6	312	e 18 36	PP	e 27 56	PS	e 55·0	—
Kucino		107·4	328	—	—	e 28 0	PS	e 50·8	63·8
Pulkovo		109·6	333	e 18 57	PP	e 28 19	PS	52·0	65·6
Copenhagen		119·6	336	20 0?	PP	—	—	58·1	—
Ottawa		120·3	39	—	—	e 30 0?	PS	e 42·0	—
De Bilt		125·2	337	e 20 54	PP	—	—	e 58·0	—
Triest		125·6	326	e 20 28	PP	e 30 46	PS	e 63·0	72·7
Stuttgart		125·9	332	e 20 54	PP	—	—	71·0	—
Florence		128·1	325	e 20 43	PP	—	—	e 73·0	75·0

Additional readings:—
Christchurch L_q = +20·0m.
Perth SS = +17m.55s.
Bombay iN = +22m.6s.
Tashkent e = +13m.32s. and +24m.30s. = PS − 1s.
Sverdlovsk iPP = +17m.2s., ePS = +25m.41s., eSS = +31m.30s., L_q = +41·0m.
Baku e = +32m.42s. = SS − 1s.
Tiflis PSE = +28m.26s.
Long waves were also recorded at Oak Ridge, Sitka, Scoresby Sund, and at other European stations.

April 28d. 18h. Epicentre in the neighbourhood of Bismarck Archipelago.
Amboina eP = 18h.5m.45s., S = 9m.43s., L = 17m.
Riverview e = 18h.7m.30s. and 11m.48s., eL = 16m.18s., M = 18m.18s.
Zi-ka-wei e↑Z = 18h.9m.43s., LZ = 23m.25s., MZ = 25m.7s.
Triest e = 18h.10m.0s. and 17m.22s., eL = 50m., M = 19h.8m.36s.
Vladivostok iP = 18h.10m.6s., eS = 17m.28s., L = 27m.
Chiufeng eP = 18h.11m.4s., eS = 19m.8s.
Sydney eP = 18h.11m.18s., eS = 13m.50s., L = 15m.40s., M = 19m.0s.
Adelaide eL = 18h.13m.28s., MN = 19m.24s.
Tashkent P = 18h.13m.36s., ePP = 17m.0s., eSS = 31m.0s., eL = 39m.12s., M = 51m.30s.

Continued on next page.

Wellington e = 18h.14m., L = 23m.
Melbourne e = 18h.14m.30s., L = 18m.38s., M = 24m.48s.
Hong Kong S? = 18h.15m.50s., M = 24m.30s.
Perth i = 18h.17m.40s.
Sverdlovsk ePP = 18h.18m.0s., eSKS = 24m.35s., ePS = 26m.58s., eSS = 31m.54s., L_q = 39m.36s., L_r = 50m.36s., M = 55m.36s.
Agra eE = 18h.22m.25s.
Kucino e = 18h.25m.0s. and 31m.18s., eL = 46m.18s., M = 58m.36s.
Pulkovo e = 18h.29m.24s., L = 57m., M = 19h.4m.54s.
Copenhagen 18h.31m., L = 19h.0m.
Florence e = 19h.5m.0s., L = 19h.12m.0s.
Long waves were also recorded at Oak Ridge, Sitka, Scoresby Sund, Baku, and other European stations.

April 28d. 23h. 25m. 31s. Epicentre 39°·3N. 146°·3E. (as on 1931 Mar. 11d.). X.

A = −·644, B = +·429, C = +·633; D = +·555, E = +·832; G = −·527, H = +·351, K = −·774.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Mizusawa	4·0	270	i 0 54	− 3	i 1 31	−11	—	—
Tyosi	5·6	235	e 1 36	P*	3 2	S_g	—	3·1
Nagoya	8·5	244	e 2 17	P*	3 47	+11	—	4·7
Osaka	9·8	245	1 57	−21	3 39	?	—	5·1
Vladivostok	11·4	294	2 40	0	e 4 50	+ 2	5·2	6·5
Sverdlovsk	55·8	319	e 9 38	+ 4	e 17 14	− 6	e 35·1	35·6
Tashkent	56·8	297	e 9 50	+ 8	e 17 39	+ 5	e 30·3	36·1
Pulkovo	67·9	329	e 10 54	− 4	—	—	37·5	41·2
Triest	86·0	329	e 9 48	?	14 36	?	—	46·6

Sverdlovsk gives also L_q = +28·8m.
Long waves were also recorded at Hong Kong, Koti, Paris, Strasbourg, Florence, Stuttgart, De Bilt, Uccle, Granada, Baku, Kucino, and Copenhagen.

April 28d. Readings also at 0h. (Sumoto), 1h. (Wellington), 2h. (Glenmuick and near Hukuoka (2)), 3h. (near Santiago), 4h. (Wellington), 8h. (near New Plymouth), 9h. (Bozeman, Haiwee, Pasadena, and near Hukuoka (2)), 10h. (near La Paz and Sucre), 11h. (near Nagoya and near Tyosi), 15h. (near Hukuoka, Mizusawa, and Osaka), 17h. (Berkeley, San Francisco, near Branner, Lick, near Osaka, and Sumoto), 18h. (near Mizusawa), 21h. (Pasadena, Sverdlovsk, Chiufeng, Nagoya, and Osaka), 22h. (Oak Ridge and San Juan).

April 29d. Readings at 3h. (Calcutta), 4h. (Manila), 9h. (Christchurch and La Paz), 10h. (near Medan and near Wellington), 12h. (Manila, New Plymouth, and near Wellington), 13h. (Wellington, near Hastings, New Plymouth, and near Tiflis), 14h. (near Amboina), 15h. (near Nagasaki), 18h. (near Tyosi), 19h. (near Tiflis).

April 30d. 12h. 26m. 0s. Epicentre 37°·5N. 70°·5E. X.
(as on 1933 July 25d. and near 37°·4N. 70°·6E., the position suggested by the Central Asia stations).

A = +·265, B = +·748, C = +·609; D = +·943, E = −·334; G = +·203, H = +·574, K = −·793.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Samarkand		3·4	310	0 49	0	—	—	1·7	1·9
Andijan		3·6	24	e 0 52	+ 1	—	—	i 1·8	1·8
Tashkent		3·9	347	i 0 58	+ 2	—	—	i 1·8	2·6
Frunse		6·2	29	e 0 42	−46	2 0	P_g	—	2·2
Almata		7·6	39	5 44	?	—	—	—	—
Agra	E.	12·1	146	e 4 11	?	—	—	—	—
Baku		16·2	287	—	—	(e 6 30)	−13	e 6·5	—
Bombay	N.	18·7	173	e 4 0?	−15	—	—	—	—
Tiflis		20·2	290	e 5 10	+38	e 7 50	−20	—	—
Sverdlovsk		20·4	345	i 4 10	−24	i 7 55	−19	—	—

Bombay eE = +5m.0s.,?

April 30d. 15h. 19m. 51s. Epicentre 23°·7N. 141°·3E. N.3.

A = −·715, B = +·572, C = +·402; D = +·625, E = +·780;
G = −·314, H = +·251, K = −·916.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Koti		12·0	327	2 52	+ 4	5 11	+ 8	—	—
Sumoto		12·0	334	e 2 50	+ 2	e 5 7	+ 4	—	—
Tyosi		12·0	358	e 2 52	+ 4	4 53	−10	—	—
Osaka		12·1	337	(2 59)	+ 9	(4 55)	−10	—	(5·9)
Nagoya		12·1	342	e 2 50	0	—	—	—	—
Kobe		12·2	335	e 2 5	−46	e 3 16	?	—	4·2
Mizusawa		15·4	359	e 3 31	− 3	i 6 11	−13	—	—
Husan		15·6	320	e 3 41	+ 5	e 6 38	+ 9	—	—
Taikyu		16·4	321	e 3 52	+ 6	6 57	+ 9	—	—
Keizyo		18·5	322	e 4 29	+16	7 33	− 3	—	—
Zinsen		18·8	321	e 4 1	−15	e 7 32	−10	—	—
Zi-ka-wei	z.	19·2	298	4 20	− 1	7 58	+ 8	—	—
Vladivostok		20·9	340	4 1	−38	i 7 19	−65	7·8	—
Manila		21·3	248	4 45a	+ 2	8 38	+ 6	—	—
Nanking		21·6	298	i 4 44	− 2	i 8 40	+ 2	—	—
Hong Kong		25·0	272	5 20	0	9 39	− 2	—	13·6
Chiufeng		26·8	314	e 5 31	− 5	e 9 57	−15	—	—
Tashkent		61·5	306	—	—	i 18 18	−18	—	26·2
Bombay		63·4	280	e 11 9?	(+ 2)	—	—	27·2	—
Sverdlovsk		65·3	324	i 10 25	−16	i 18 55	−29	26·2	—
Baku		76·0	309	e 11 39	− 7	21 13	− 9	36·4	40·8
Kucino		77·8	326	—	—	21 15	−37	e 39·0	49·0
Tiflis		79·1	312	11 53	−10	21 55	−11	40·8	48·4

Additional readings and notes:—
Sumoto eE = +5m.13s.
Osaka readings have been *increased* by 2m.
Kobe eN = +3m.26s.
Mizusawa iSN = +6m.15s.
Zi-ka-wei PLZ = +5m.6s.
Nanking iPP = +5m.12s., iSS = +8m.52s.
Chiufeng eEN = +6m.3s. =PP −11s.
Tashkent e = +19m.16s. and +25m.9s.
Kucino e = +30m.3s.
Long waves were also recorded at Copenhagen, De Bilt, Paris, and Strasbourg.

April 30d. Readings also at 0h. (Cheb), 2h. (Suva), 3h. (Ann Arbor and Wellington), 8h. (Honolulu, Tucson, Ukiah, Pasadena, Riverside, Tinemaha, Oak Ridge, Huancayo, and La Paz), 9h. (Andijan, Frunse, Samarkand, Baku, Tashkent, Sverdlovsk, and Paris), 10h. (Chiufeng, Vladivostok, Baku, Tiflis, Sverdlovsk, Tashkent, La Jolla, Pasadena, Riverside, and Tinemaha), 12h. (near Sumoto), 13h. (Triest), 15h. (Stuttgart), 17h. (Tiflis), 18h. (Theodosia, near Simferopol, and Yalta), 19h. (near Malabar), 20h. (Almata, Andijan, Frunse, near Tashkent, and near Amboina), 23h. (Almata, Frunse, Tashkent, near Andijan, near Batavia, and Malabar).

May 1d. 3h. 40m. 45s. Epicentre 26°·2N. 66°·7E. N.3.

A = +·355, B = +·824, C = +·442; D = +·918, E = −·396;
G = +·175, H = +·405, K = −·897.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Bombay	9·2	141	i 2 11	+ 1	3 41	−13	—	5·5
Agra	10·2	82	2 10	−14	e 3 45	−33	—	—
Dehra Dun	10·8	65	1 55	−37	3 15	−78	4·2	6·2
Samarkand	13·4	1	3 3	− 4	e 5 49	+12	—	—
Hyderabad	14·0	126	3 2	−13	5 59	+ 8	6·4	9·6

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tashkent		15·2	7	i 3 29	− 2	i 6 35	+15	e 7·6	10·0
Andijan		15·3	16	3 35	+ 3	e 6 27	+ 5	—	—
Kodaikanal		19·0	145	i 4 21	+ 2	i 8 0	+14	i 10·0	10·6
Calcutta		20·1	96	3 53	−38	8 3	− 5	10·3	—
Tiflis		23·7	316	5 9	+ 2	9 28	+10	e 15·1	—
Ksara		27·6	294	e 6 1	+17	e 11 0	+35	—	—
Sotchi		27·9	315	e 5 34	−12	—	—	e 16·5	—
Sverdlovsk		30·9	353	i 6 3	−10	11 1	−17	14·6	19·8
Theodosia		31·4	314	6 18	+ 1	—	—	—	—
Yalta		31·8	313	e 6 23	+ 2	e 11 29	− 3	—	—
Simferopol		32·0	314	6 24	+ 1	11 32	− 3	—	—
Kucino		36·1	331	e 7 3	+ 4	e 12 37	− 1	e 17·8	22·4
Pulkovo		41·8	333	7 56	+ 9	13 58	− 5	23·2	27·9
Chiufeng		43·0	58	e 7 53	− 4	e 14 10	−11	—	29·6
Helsingfors		44·2	332	e 7 49	−17	e 13 57	−42	—	—
Vienna	z.	44·6	313	e 8 11	+ 1	—	—	—	—
Nanking		45·4	70	e 8 20	+ 4	e 15 6	+10	—	29·0
Triest		46·1	309	e 8 12	− 9	15 1	− 5	22·2	28·8
Florence		47·7	306	e 8 27	− 7	15 30	+ 1	—	27·2
Prato		47·8	306	e 8 37	+ 2	e 15 41	+11	—	—
Copenhagen		48·6	323	10 15?	PP	—	—	28·2	—
Manila		51·8	92	i 9 13	+ 8	16 20	− 5	—	—

Additional readings :—
Bombay $P^* = +2m.32s.$, $P_g = +2m.58s.$, $S_g = +4m.30s.$ $= S^* - 2s.$
Agra $eN = +2m.34s.$, $P_gE = +3m.4s.$, $S^*N = +4m.15s.$, $S_gN = +4m.49s.$
Tiflis $PPN = +5m.40s.$, $eZ = +9m.36s.$, $SE = +10m.27s.$
Helsingfors $ePPE = +9m.48s.$, $eSSE = +14m.54s.$; $T_0 = 3h.40m.24s.$
Long waves were also recorded at Phu-Lien, Hong Kong, Oak Ridge, and at other European stations.

May 1d. 7h. 5m. 2s. Epicentre 3°·5N. 97°·5E. N.1.

$A = -·130$, $B = +·990$, $C = +·061$; $D = +·991$, $E = +·131$;
$G = -·008$, $H = +·061$, $K = -·998$.

A *depth* of focus 0·0225 has been assumed.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Medan	+0·2	1·2	86	i 0 19	− 1	—	—	—	—
Soengei Langka	−0·4	11·8	139	2 21	−19	4 28	−20	—	—
Batavia	−0·4	13·5	136	i 2 58k	− 5	i 5 12	−17	—	—
Malabar	−0·6	14·7	137	i 3 14	− 3	i 15 21	?	—	—
Colombo	−0·8	17·9	281	4 3	+ 8	7 18	+14	17·3	18·8
Phu-Lien	−0·8	19·4	26	i 4 10	− 4	i 7 45	+ 7	9·0	14·0
Kodaikanal	−1·0	21·0	290	i 4 35	+ 5	i 8 27	+21	—	9·9
Calcutta	−1·0	21·0	336	4 13	−17	8 3	− 3	10·0	—
Hyderabad	−1·1	23·2	308	4 50	− 2	8 50	+ 2	10·7	15·6
Hong Kong	−1·2	24·8	39	5 1	− 5	10 4	SSS	—	16·5
Manila	−1·3	25·6	63	i 5 10a	− 3	10 28	SS	—	17·5
Bombay	−1·5	28·6	304	i 5 43	+ 4	9 33	−44	11·3	13·1
Agra	−1·6	30·0	324	5 48	− 3	e 9 49	−49	11·8	—
Karenko	−1·6	31·0	47	6 1	+ 1	—	—	—	—
Amboina	−1·6	31·5	103	i 5 58	− 6	i 10 55	− 8	—	—
Taihoku	−1·6	31·6	45	5 57	− 8	—	—	—	—
Dehra Dun	−1·7	32·5	328	7 58	?	11 48	+31	16·8	21·0
Nanking	−1·8	34·8	33	6 30a	− 2	i 14 33	?	e 18·0	24·0
Zi-ka-wei	−1·8	35·7	36	i 6 37a	− 2	12 38	+34	—	24·7
Naha	−1·8	36·8	48	6 48	− 1	—	—	—	—

Continued on next page.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Perth	−1·9	39·4	155	e 8 13	PP	i 13 23	+24	—	—
Chiufeng	−1·9	40·3	23	i 7 17a	− 1	12 54	−18	—	—
Husan	−2·0	43·0	39	7 41	+ 1	9 25	PP	—	—
Zinsen	−2·0	43·1	34	i 7 39	− 2	—	—	—	—
Taikyu	−2·0	43·3	38	7 41	− 2	9 23	PP	—	—
Keizyo	−2·0	43·5	35	7 41	− 3	13 22	−37	20·1	—
Andijan	−2·0	43·5	332	e 7 43	− 1	e 13 56	− 3	—	—
Almata	−2·1	43·8	339	e 7 49	+ 3	e 14 5	+ 3	—	—
Frunse	−2·1	44·4	336	(e 8 2)	+11	(i 14 20)	+10	—	—
Koti	−2·1	45·1	44	i 7 55	− 2	i 13 16	−65	—	—
Samarkand	−2·1	45·4	326	8 2	+ 3	14 26	+ 1	—	—
Tashkent	−2·1	45·4	330	i 8 2	+ 3	i 14 30	+ 5	—	27·7
Sumoto	−2·2	46·4	44	8 5	− 1	e 13 21	−78	—	—
Wakayama	−2·2	46·6	44	8 7	− 1	13 22	−79	—	—
Kobe	−2·2	46·8	44	e 8 9	− 1	i 13 22	−72	—	32·9
Osaka	−2·2	47·1	44	6 56	−76	13 28	−81	21·1	—
Nagoya	−2·3	48·3	44	e 8 22	+ 1	—	—	—	—
Titizima	−2·3	48·7	56	8 23	− 1	—	—	—	—
Kohu	−2·3	49·7	45	8 31	− 1	13 49	?	—	—
Vladivostok	−2·4	50·0	34	i 8 34	+ 1	—	—	28·0	33·6
Hukusima	−2·4	52·1	44	8 48	− 1	—	—	—	—
Mizusawa	−2·5	53·2	42	i 8 59	+ 2	13 56	?	—	—
Tananarive	−2·5	54·0	244	i 9 14	+11	e 16 42	+20	—	—
Adelaide	−2·6	54·5	138	e 9 2	− 4	i 16 32	+ 5	e 21·9	26·4
Sapporo	−2·6	55·4	38	9 10	− 2	—	—	—	—
Baku	−2·6	56·4	318	i 9 27	+ 7	i 17 7	+14	26·0	30·3
Erevan	−2·7	60·1	315	e 9 51	+ 5	e 17 50	+ 8	—	—
Melbourne	−2·7	60·3	137	—	—	i 17 56	+12	—	35·0
Tiflis	−2·7	60·5	317	i 9 51	+ 2	i 17 53	+ 6	e 30·7	42·4
Sverdlovsk	−2·7	60·8	338	i 9 45	− 6	i 17 48	− 3	i 29·0	36·2
Piatigorsk	−2·8	62·6	319	e 18 27	S	(e 18 27)	+14	26·3	—
Riverview	−2·8	62·8	131	e 11 58	PP	i 18 24	+ 8	e 25·5	31·0
Kasra	−2·8	64·6	305	i 10 21	+ 4	i 18 52	+13	—	—
Sotchi	−2·8	64·7	317	e 10 16	− 2	e 18 42	+ 1	—	—
Helwan	−2·9	67·6	301	i 10 40	+ 3	i 19 25	+ 9	—	—
Theodosia	−2·9	68·1	318	i 10 41	+ 1	i 19 22	0	—	—
Yalta	−2·9	68·7	317	i 10 45	+ 1	i 19 32	+ 2	—	—
Simferopol	−2·9	68·9	318	i 10 46	+ 1	i 19 35	+ 3	—	—
Kucino	−2·9	70·3	328	e 10 53	− 1	i 19 49	− 1	e 33·5	37·2
Pulkovo	−2·9	75·7	331	i 11 25	− 3	20 49	− 5	37·0	70·9
Helsingfors	−3·0	78·3	332	i 11 43	+ 1	i 21 22	− 2	e 30·0	—
Trenta	−3·0	80·9	309	i 12 1	+ 4	21 58	+ 5	—	—
Vienna	−3·0	81·5	318	12 0	0	i 21 57	− 2	—	—
Zagreb	−3·0	81·6	316	e 11 58?	− 2	e 21 58?	− 2	—	—
Christchurch	−3·0	81·7	135	i 12 2	+ 1	i 22 2	0	—	—
Upsala	−3·0	81·9	330	i 12 0	− 2	i 21 57	− 7	—	—
Wellington	−3·0	82·8	132	—	—	i 22 8	− 6	—	—
Triest	−3·0	83·1	316	i 12 7	− 1	i 22 10	− 7	—	—
Venice	−3·0	84·1	315	i 12 15	+ 1	i 22 26	− 1	—	—
Cheb	−3·0	84·2	320	i 12 13	− 1	i 22 21	− 7	e 35·0	—
Copenhagen	−3·0	84·3	326	i 12 14	− 1	i 22 25	− 5	—	—
Padova	−3·0	84·5	316	e 12 15	− 1	i 22 27	− 4	—	—
Florence	−3·0	84·8	313	i 12 18a	+ 1	22 26	− 9	32·0	—
Prato	−3·0	85·0	313	i 12 16	− 2	i 22 40	+ 3	—	—
Göttingen	−3·1	85·7	321	i 12 21	0	e 22 34	− 9	—	—
Hamburg	−3·1	85·7	324	i 12 20a	− 1	e 22 31	−12	—	—
Piacenza	−3·1	86·0	315	12 24a	+ 1	(22 48)	+ 2	—	22·8
Stuttgart	−3·1	86·3	318	i 12 24	0	e 22 30	−19	—	—
Karlsruhe	−3·1	86·7	319	12 27	+ 1	i 22 35	−18	—	—
Zurich	−3·1	86·7	317	e 12 26	0	e 22 36	−17	—	—

Continued on next page.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Strasbourg	−3·1	87·2	318	i 12 30a	+ 1	i 22 54	− 5	e 35·0	—
Basle	−3·1	87·4	317	e 12 29	− 1	e 22 40	−21	—	—
Neuchatel	−3·1	87·8	317	e 12 35	+ 3	e 22 40	−25	—	—
De Bilt	−3·1	88·6	322	i 12 36k	0	i 22 50	−23	—	—
Uccle	−3·1	89·3	321	i 12 38a	− 1	i 23 13	− 6	—	—
Paris	−3·2	90·6	319	i 12 46	+ 1	i 23 0	−31	25·0	25·0
Algiers	−3·2	91·4	306	i 12 50	+ 1	23 38	− 1	—	—
Kew	−3·2	92·1	322	i 12 51a	− 1	i 23 40	− 6	—	—
Tortosa	−3·2	93·0	311	13 2	+ 6	—	—	—	—
Edinburgh	−3·2	93·0	326	—	—	e 22 58?	−56	—	—
Bidston	−3·2	93·4	324	—	—	e 25 18	PS	—	—
Alicante	−3·2	94·1	309	23 25	S	(23 25)	−39	—	—
Almeria	−3·3	95·8	307	e 13 6	− 3	23 26	[−39]	—	—
Scoresby Sund	−3·3	96·1	343	—	—	24 58?	?	—	—
Toledo	−3·3	96·5	311	e 13 17	+ 5	e 22 41	?	—	—
Granada	−3·3	96·6	308	i 23 35	SKS	(i 23 35)	[−34]	—	—
Malaga	−3·3	97·4	307	13 18	+ 2	23 40	[−33]	—	—
Tinemaha	—	127·6	36	i 18 48	[−14]	—	—	—	—
Haiwee	—	128·4	36	i 18 50	[−14]	—	—	—	—
Santa Barbara	—	128·4	40	i 18 50	[−14]	—	—	—	—
Mount Wilson	—	129·6	38	i 18 39k	[−27]	—	—	—	—
Pasadena	—	129·6	38	e 18 34k	[−32]	—	—	—	—
Riverside	—	130·2	38	e 18 37	[−30]	—	—	—	—
Ottawa	—	130·8	353	i 18 53	[−15]	—	—	38·0	—
La Jolla	—	131·0	39	i 18 54	[−15]	—	—	—	—
Toronto	—	132·8	354	e 20 39	?	—	—	—	—
Oak Ridge	—	132·9	348	i 18 57	[−15]	—	—	—	—
Fordham	—	134·9	350	i 19 39	[+24]	e 26 40	[+ 7]	—	—
Florissant	—	137·1	8	e 18 59	[−19]	i 22 23	PKS	—	—
Georgetown	—	137·3	352	i 19 4a	[−14]	i 23 4	PKS	—	—
St. Louis	—	137·3	8	e 19 6	[−12]	i 22 39	PKS	—	—
Little Rock	—	140·7	13	19 19	[− 3]	22 56	PKS	—	—
San Juan	—	152·9	324	e 19 33	[−12]	—	—	—	—
La Paz	—	160·8	226	i 19 45a	[− 9]	i 26 37	SKS	—	—
Huancayo	—	168·9	219	i 19 52	[−11]	e 35 15	SKSP	—	—

Additional readings and notes :—
Soengei Langka i = +4m.49s.
Batavia iN = +5m.51s. and +6m.48s.
Hong Kong SN = +10m.16s.
Bombay PPP = +6m.16s. = PP − 3s., SS = +10m.16s.
Agra eN = +6m.25s. = PP − 9s., SS = +10m.37s.
Amboina i = +16m.20s. = S_cS − 32s.
Nanking iPP = +7m.53s., iZ = +9m.3s. = P_cP − 22s., iEZ = +12m.35s.
Zi-ka-wei PZ = +8m.10s., PP = +8m.31s., PPP = +9m.7s. = P_cP − 21s., iZ = +15m.3s., SS = +16m.3s., iZ = +16m.27s., SSS = +17m.0s. = S_cS − 16s., SSSS = +17m.41s.
Chiufeng iZ = +8m.51s. = PP + 9s., iEN(P_2)? = +8m.56s., iSEN = +13m.9s., iZ = +14m.32s., iEN(S_2?) = +14m.50s., iEN = +16m.0s. = SSS − 6s., iE = +16m.26s.
Andijan i = +13m.21s.
Frunse readings have been *increased* by 2m.
Koti iZ = +9m.37s. = PP + 6s., iN = +17m.38s.
Sumoto eZ = +9m.42s. = PP − 1s., eE = +13m.20s., eN = +13m.25s., eEN = +17m.46s. = SS + 11s.
Kobe iPE = +8m.11s., iZ = +9m.41s. = PP − 6s., eZ = +10m.0s., eN = +10m.2s. = P_cP − 3s., eN = +17m.31s. = SS − 12s.
Osaka i = +8m.13s. = P + 1s., +8m.35s., +10m.32s. and +16m.12s.
Vladivostok iPP = +10m.30s., e = +16m.38s. and +17m.3s.
Mizusawa SN = +14m.5s.
Tananarive i = +9m.47s., e = +11m.55s. = PPP + 7s.
Adelaide i = +16m.54s. and +18m.45s. = S_cS − 29s.
Melbourne i = +18m.54s.
Tiflis pPZ = +10m.37s., ePPZ = +12m.26s., ePPPNZ = +14m.1s., sSN = +19m.29s. = S_cS − 27s., eSSN = +22m.10s.
Riverview iN = +19m.46s. = S_cS − 26s.
Helsingfors ePPPZ = +16m.34s., eS_cSE = +21m.32s., ePSE = +21m.40s., eSSE = +26m.28s. ; T_0 = 7h.5m.10s.

Continued on next page.

Vienna $P_cP = +12m.46s.$, iZ = +13m.29s., iN = +13m.49s., PP = +15m.29s., PS = +22m.37s.
Christchurch ipPZ = +12m.35s., isSNE = +23m.0s.
Triest i = +12m.45s., ipP = +13m.10s., i = +22m.25s., iPS = +22m.40s., i = +23m.8s.
Copenhagen +23m.4s. =PS −40s.
Florence i = +12m.46s., +22m.50s. =SKS −8s. and +23m.10s. =PS −39s.
Hamburg iN = +22m.36s. =SKS −28s.
Stuttgart ePP = +16m.13s., ePS = +23m.38s., e = +24m.43s.
Strasbourg SKS = +22m.43s., PS = +23m.53s.
De Bilt i = +23m.8s. =SKS −16s.
Uccle iSKSE = +22m.53s., iPS = +24m.12s.
Paris PS = +23m.25s.
Algiers SKS = +23m.6s., PS = +24m.31s.
Kew SKS = +23m.10s.
Almeria SKS is given as P_g of another shock.
Toledo PS = +23m.28s. =SKS −40s.
Granada PP = +23m.40s., PPP = +23m.49s., S = +24m.1s. =SKKS −26s., SSS = +24m.23s. =S −4s.
Malaga e = +17m.15s., PPP? = +19m.6s., PS = +25m.22s.
Tinemaha iZ = +20m.20s. =PP −41s., iNEZ = +21m.51s.
Haiwee iEZ = +21m.55s.
Mount Wilson iNEZ = +18m.53s. and +21m.59s.
Pasadena iNEZ = +18m.51s. and +21m.58s., iZ = +22m.13s.
Riverside iNEZ = +18m.51s. and +21m.58s. =PKS −36s.
Ottawa eN = +21m.9s. =PP −14s., iN = +22m.3s. =PKS −34s., e = +22m.15s.
La Jolla iNEZ = +22m.3s. =PKS −35s.
Toronto i = +22m.7s. =PKS −38s.
Oak Ridge PP = +22m.11s., iNE = +22m.24s. =PKS −22s., eNE = +34m.21s., +39m.53s., and +44m.18s.
Fordham eNZ = +22m.14s., iZ = +22m.56s., iN = +23m.10s., eN = +32m.38s.
Florissant iPZ = +19m.3s., iEZ = +21m.37s. =PP −26s., iZ = +21m.45s.
Georgetown iPP = +21m.50s.; T_g =7h.4m.24s.
Little Rock pPE = +19m.28s., sSEN = +23m.10s.
La Paz iZ = +20m.21s., ipPZ = +21m.6s., iPPE = +23m.41s., iZ = +24m.45s., SKKS? = +31m.39s., SSE = +44m.21s.
Huancayo i = +21m.8s. =PKP_2 −17s. and +21m.42s., iPP = +25m.25s., ePPP = +31m.14s., eSS = +46m.38s.
Long waves were also recorded at San Fernando.

May 1d. Readings also at 1h. (Mizusawa), 2h. (Alicante, Barcelona, and Wellington), 7h. (Tiflis (2), Sverdlovsk, Vienna, and near Sumoto), 8h. (Berkeley), 9h. (Christchurch, Bunnythorp, near Hastings, Dannevirke, Glenmuick, New Plymouth, Wellington, Tiflis, and near Erevan), 10h. (Sotchi, near Erevan, and near Tiflis (2)), 11h. (Sotchi and Tiflis (2)), 12h. (Tiflis), 14h. (Tiflis and near Erevan), 16h. (Branner, La Paz, near Nagoya, and Tyosi), 17h. (Jena and near Hukuoka), 19h. (Tiflis), 22h. (Almeria, near Granada, and Malaga), 23h. (Barcelona, La Paz, and Tiflis).

May 2d. 9h. 45m. 43s. Epicentre 16°·9N. 99°·6W. (as on 1934 Jan. 28d.). X.

A = −·160, B = −·943, C = +·291; D = −·986, E = +·167; G = −·048, H = −·287, K = −·957.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Tucson	18·4	329	e 4 9	− 2	e 7 41	+ 8	e 9·5	—
Little Rock	19·0	19	5 49	+90	9 30	+106	—	—
St. Louis	23·3	19	e 5 0	− 4	e 9 23	+13	—	—
Florissant	23·4	18	i 5 5	0	e 9 41	SS	—	—
Riverside	23·4	320	i 5 1	− 4	—	—	—	—
Mount Wilson	23·9	320	e 5 12	+ 3	—	—	—	—
Pasadena	23·9	320	i 5 8k	− 1	—	—	e 13·0	—
Haiwee	25·2	323	e 5 24	+ 2	—	—	—	—
Tinemaha	26·0	325	e 5 29	0	—	—	—	—
Georgetown	29·6	37	e 6 6	+ 5	e 11 6	+ 8	e 15·3	—
San Juan	31·9	81	—	—	e 11 17?	−17	—	—
Fordham	32·7	37	e 5 52?	−37	e 11 21?	−25	e 18·3	—
Ottawa	34·7	30	—	—	e 15 17	?	e 18·3	—
Oak Ridge	35·1	37	i 6 49	− 1	e 12 6	−17	e 20·6	—

For Notes see next page.

NOTES TO MARCH 2d. 9h. 45m. 43s.

Additional readings :—
Tucson e = +8m.45s. and +9m.20s.
Little Rock pPN = +5m.56s., sSE = +9m.44s.
St. Louis eE = +9m.33s. and +13m.29s.
Florissant i = +5m.12s.
Tinemaha iZ = +5m.40s.
Oak Ridge i = +6m.57s. and +7m.1s.
Long waves were also recorded at Baku, Sverdlovsk, Victoria, and at other American stations.

May 2d. Readings also at 3h. (La Paz), 4h. (Bombay, Hong Kong, Phu-Lien, Wellington, Pasadena, and Riverside), 5h. (Lick and Taikyu), 9h. (near Mizusawa), 11h. (Andijan, Frunse, and near Samarkand), 13h. (Bunnythorp and Wellington), 14h. (near Tananarive), 16h. (Samarkand and near Andijan), 18h. (near Mizusawa, Nagoya, Tyosi, and near Oak Ridge), 19h. (near Nagoya and Tyosi), 20h. and 21h. (near Oak Ridge).

May 3d. 1h. 31m. 15s. Epicentre 27°·5N. 142°·5E. N.2.

A = −·704, B = +·540, C = +·462 ; D = +·609, E = +·793 ;
G = −·366, H = +·281, K = −·887.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tyosi		8·4	351	e 1 55	− 4	e 5 34	+120	—	10·2
Nagoya		9·0	330	2 6	− 1	e 3 58	+ 9	—	10·4
Osaka		9·3	322	2 14	+ 3	4 8	+12	—	4·7
Sumoto	E.	9·4	318	2 14	+ 1	4 11	+12	6·9	11·6
	N.	9·4	318	2 15	+ 2	4 8	+ 9	6·6	11·9
	Z.	9·4	318	2 12	− 1	e 4 5	+ 6	5·1	8·2
Kobe		9·6	321	e 2 14	− 2	4 14	+11	4·6	5·3
Koti		9·8	311	2 20	+ 2	4 25	+17	5·1	5·5
Toyooka		10·3	323	e 2 17	− 8	—	—	5·0	7·2
Mizusawa		11·7	355	e 2 51	+ 7	e 4 39	−16	—	—
Hukuoka		12·0	303	2 54	+ 6	e 5 40	S*	—	—
Hukuoka B		12·0	303	2 53	+ 5	(6 46)	S_g	6·8	—
Husan		13·8	307	3 24	+11	—	—	7·8	—
Taikyu		14·4	309	3 25	+ 4	e 6 10	+ 9	8·4	—
Keizyo		16·5	312	3 46	− 2	7 1	+11	8·8	10·7
Zinsen		16·8	311	e 3 36	−16	—	—	—	—
Vladivostok		17·8	334	4 1	− 3	7 26	+ 6	8·4	10·4
Zi-ka-wei	Z.	18·7	287	4 16	+ 1	7 40	0	10·3	12·2
Nanking		21·1	289	i 4 40a	− 1	i 8 35	+ 7	i 12·5	16·5
Manila		23·8	242	5 10	+ 2	10 3	SSS	13·2	16·2
Chiufeng		25·1	307	5 19a	− 2	9 41	− 2	13·2	16·4
Hong Kong		26·1	265	5 35	+ 5	10 19	+19	15·0	19·0
Irkutsk		37·6	322	i 7 13	+ 1	13 8	+ 8	19·8	23·7
Honolulu		54·2	82	—	—	e 17 5	+ 7	e 24·6	—
Frunse		56·0	305	e 13 19	?	—	—	—	—
Agra	E.	56·6	284	9 30	−10	17 15	−16	—	37·9
Andijan		58·0	303	9 43	− 7	—	—	33·8	—
Tashkent		60·2	304	i 10 8	+ 2	e 18 12	− 7	e 29·8	37·9
Samarkand		62·2	303	e 10 21	+ 1	—	—	—	—
Sverdlovsk		62·9	323	i 10 17	− 8	i 18 45	− 9	36·5R	39·9
Bombay		63·8	279	e 10 31	0	e 19 18	+13	e 31·8	41·1
Melbourne		65·3	178	e 17 0	?	e 19 21	− 3	—	—
Baku		74·4	308	11 42	+ 5	i 21 20	+ 7	35·9	42·0
Kucino		75·2	326	e 16 9	PPP	e 21 27	+ 5	e 35·5	47·6
Pulkovo		76·7	331	11 46	− 4	21 34	− 5	40·8	44·8
Berkeley	Z.	77·3	54	e 11 52	− 2	—	—	—	—
Tiflis		77·4	311	11 52	− 2	21 42	− 5	e 39·4	49·4
Helsingfors		78·6	334	e 11 58	− 2	e 22 19	PS	e 41·8	—
Sotchi		79·9	314	e 11 52	−15	—	—	—	—
Haiwee		81·1	53	e 12 11	− 3	—	—	—	—
Theodosia		81·8	317	e 12 18	+ 1	22 31	− 4	53·8	—

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Pasadena	81·9	55	i 12 17	− 1	e 22 56	+20	e 38·8	—
Mount Wilson	82·0	55	i 12 19	+ 1	—	—	—	—
Riverside	82·6	55	i 12 20	− 1	—	—	—	—
Simferopol	82·6	317	12 22	+ 1	22 37	− 6	—	—
Yalta	82·8	316	12 25	+ 3	—	—	—	—
Sebastopol	83·2	317	e 12 26	+ 2	e 22 45	− 4	—	—
Copenhagen	86·6	332	—	—	23 17	− 6	45·8	—
Ksara	87·3	306	e 12 39	− 6	e 23 23	− 7	—	—
Vienna	90·2	327	e 13 0	+ 2	—	—	e 54·8	61·8
Cheb	90·7	330	—	—	e 22 45?	?	e 44·8	49·8
De Bilt	92·1	335	—	—	e 23 51	{− 1}	e 47·8	50·9
Stuttgart	93·1	331	—	—	e 23 45?	[− 6]	e 48·8	—
Triest	93·3	327	e 16 59	PP	e 23 58	{− 3}	e 46·8	52·2
Uccle	93·4	335	—	—	e 23 45?	[− 7]	e 48·8	—
Chur	94·4	330	e 13 19	+ 1	e 30 59?	SS	—	—
Florence	95·9	327	17 11	PP	24 2	[− 3]	46·8	50·8
Prato	95·9	327	e 17 22	PP	e 25 25	+35	—	—
Ottawa	99·2	26	—	—	e 24 15	[− 7]	46·8	—
La Paz	149·7	75	19 48	[+ 7]	—	—	83·8	96·0

Additional readings :—
Tyosi P = +3m.19s. =S −15s.
Osaka i = +3m.27s.
Kobe iP = +2m.17s., iN = +3m.24s., S?E = +4m.17s.
Toyooka iZ = +2m.27s. =PP +1s.
Zi-ka-wei PP = +4m.34s., PPP = +4m.42s., SS = +8m.8s., SSS = +8m.15s.
Bombay PS = +19m.46s., SS = +23m.31s.
Melbourne i = +27m.9s. =SSSS +5s.
Kucino e = +25m.27s. and +30m.33s.
Tiflis ePPZ = +14m.50s., eE = +36m.21s.
Helsingfors ePPZ = +15m.37s., eSKSEN = +21m.51s. =S −9s.
Chur e = +17m.3s. =PP +3s.
Ottawa eE = +31m.45s.? =SS −6s.
La Paz iPKPZ = +20m.8s., iN = +21m.14s., PPE = +23m.22s.
Long waves were also recorded at Ukiah, Scoresby Sund, and other European stations.

May 3d. Readings also at 0h. (Oak Ridge), 1h. (Osaka and near Tyosi), 2h. (Tananarive), 3h. (near Algiers and near Mizusawa), 7h. (Reykjavik), 8h. (Baku, Sverdlovsk, Stuttgart, De Bilt, Paris, Scoresby Sund, and Ivigtut), 9h. (Scoresby Sund, De Bilt, Paris, and Graz), 10h. (near Reykjavik), 11h. (Malabar), 12h. (Tananarive), 21h. (Amboina and La Paz), 22h. (La Paz, La Plata, and near Santiago), 23h. (near Amboina).

May 4d. 4h. 36m. 10s. Epicentre 61°·5N. 147°·5W. N.1.

Probable error of epicentre ±0°·21.

A = −·402, B = −·256, C = +·879 ; D = −·537, E = +·843 ;
G = −·741, H = −·472, K = −·477.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Sitka	7·6	121	i 1 45	− 3	i 3 38	S*	—	—
Victoria	18·9	123	4 22	+ 5	(8 2)	SS	8·0	10·8
Saskatoon	23·8	95	i 5 11	+ 3	i 9 30	+11	—	—
Bozeman	26·3	110	5 31	− 1	i 10 1	− 2	i 13·6	—
Ukiah	26·9	135	i 5 39	+ 2	i 10 13	− 1	e 12·1	—
Berkeley	28·3	135	i 5 51	+ 1	e 10 39	+ 2	—	—
San Francisco	28·4	135	e 5 35	−16	e 10 10	−28	e 18·1	—
Lick	29·0	134	e 6 0	+ 4	e 9 51	−57	—	—
Tinemaha	30·5	131	i 6 12k	+ 3	11 16	+ 4	—	—
Haiwee	31·4	131	i 6 19k	+ 2	i 11 31	+ 5	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Mount Wilson		33·1	132	i 6 35	+ 2	i 11 54	+ 2	—	—
Pasadena		33·2	132	e 6 33a	− 1	i 11 55	+ 1	i 14·5	16·3
Riverside		33·5	132	i 6 38k	+ 2	—	—	—	—
Denver		33·7	111	i 6 41	+ 3	i 12 4	+ 3	e 16·4	18·0
La Jolla		34·6	132	i 6 45	− 1	i 12 16	+ 1	—	—
Tucson		37·6	124	i 7 14	+ 2	e 12 46	−14	18·5	—
Chicago		40·2	92	i 7 33	− 1	i 13 41	+ 2	i 17·0	—
Honolulu		40·9	195	i 7 37	− 3	i 13 33	−17	i 18·8	—
Florissant		41·2	97	i 7 41	− 1	i 13 57	+ 3	—	—
Ann Arbor		41·4	87	i 7 50	+ 6	i 14 8	+11	i 19·6	22·5
St. Louis		41·4	97	e 7 42	− 2	i 13 57	0	e 19·1	21·1
Nemuro		42·3	277	6 51	−60	—	—	—	—
Scoresby Sund		42·6	24	i 7 55	+ 2	i 14 20	+ 5	—	—
Toronto	N.	42·6	82	i 7 39	−14	i 13 57	−18	i 20·0	—
Ivigtut		42·8	45	i 7 56	+ 1	i 14 23	+ 5	—	—
Ottawa		43·1	78	i 7 58	0	i 14 17	− 5	—	—
Little Rock		43·5	103	i 8 3	+ 2	i 14 34	+ 6	—	—
Sapporo		44·5	280	7 11	−58	13 44	−59	—	—
Ithaca		44·9	81	i 8 10	− 2	i 14 50	+ 1	—	23·8
Aomori		46·6	279	8 26	+ 1	—	—	—	—
Oak Ridge		47·2	77	8 30	0	i 15 19	− 2	i 19·1	—
Georgetown		47·4	84	i 8 32k	0	i 15 19	− 5	e 24·7	—
Fordham		47·4	80	e 8 31	− 1	i 15 28	+ 4	22·8	—
Weston		47·4	77	e 7 51	+19	e 14 57	−27	—	—
Charlottesville		47·5	87	i 8 36	+ 4	e 15 26	0	23·8	—
Mizusawa		47·7	277	e 8 34	0	i 15 28	− 1	—	—
Akita		47·8	277	8 34	− 1	15 28	− 2	—	—
Sendai		48·5	276	8 41	+ 1	15 40	0	—	—
Vladivostok		48·9	287	i 8 43	0	i 15 45	0	21·2	30·5
Hukusima		49·1	275	8 38	− 6	15 48	0	—	—
Halifax		49·2	70	i 9 14	+29	i 16 22	+32	24·8	—
Mito		50·2	275	8 54	+ 1	16 4	0	—	—
Tyosi		50·5	274	i 8 57	+ 2	16 12	+ 4	—	—
Takada		50·7	278	9 1	+ 4	16 22	+11	—	—
Maebasi		50·8	277	8 58	+ 1	16 6	− 6	—	—
Kumagaya		50·9	277	8 58	0	16 14	+ 1	—	—
Nagano		51·0	278	9 0	+ 1	16 19	+ 4	—	—
Oiwake		51·1	277	9 0	0	16 21	+ 5	—	—
Tokyo		51·1	275	9 0	0	16 18	+ 2	—	—
Matumoto		51·5	277	9 4	+ 1	16 24	+ 2	—	—
Toyama		51·5	278	9 3	0	16 21	− 1	—	—
Misima		52·0	276	9 6	0	16 28	0	—	—
Susaki		52·3	276	9 4	− 5	16 33	0	—	—
Gihu		52·8	277	9 11	− 1	16 37	− 2	—	—
Omaesaki		52·8	276	9 12	0	16 38	− 1	—	—
Irkutsk		52·8	314	i 9 13	+ 1	16 36	− 3	28·8	34·5
Hamamatu		52·9	276	9 14	+ 1	16 46	+ 5	—	—
Nagoya		52·9	277	9 13	0	(16 41)	0	16·7	—
Hikone		53·1	278	9 19	+ 4	16 48	+ 5	—	—
Hatidyozima		53·2	273	9 16	+ 1	16 46	+ 1	—	—
Tsu		53·4	277	9 18	+ 1	16 49	+ 2	—	—
Kameyama		53·4	277	9 18	+ 1	16 49	+ 2	—	—
Toyooka	N.	53·6	279	e 9 18	0	16 50	0	e 25·3	31·6
Osaka		53·9	278	9 22	+ 1	17 0	+ 6	28·6	32·7
Osaka B		53·9	278	9 23	+ 2	16 55	+ 1	—	—
Kobe		54·1	278	9 20	− 2	e 16 57	0	e 27·8	33·1
Wakayama		54·5	278	9 26	+ 1	17 2	0	—	—
Sumoto		54·5	278	9 25	0	17 2	0	27·9	33·3
Siomisaki		54·8	276	9 28	+ 1	17 9	+ 3	—	—
Heizyo		54·9	289	9 28	0	17 10	+ 2	29·2	35·2

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Hamada		55·3	281	9 28	− 3	17 13	0	—	—
Keizyo		55·5	287	9 32	0	17 18	+ 2	25·1	32·4
Zinsen		55·8	287	e 9 34	0	i 17 16	− 4	e 26·5	—
Taikyu		56·2	284	9 38	+ 1	17 27	+ 2	30·5	—
Bergen		56·3	17	i 9 38	0	i 17 29	+ 2	27·8	—
Husan		56·7	283	9 42	+ 1	17 36	+ 4	26·0	—
Simidu		56·7	278	9 41	0	17 37	+ 5	—	—
Dairen		56·9	292	9 39	− 3	17 30	− 5	—	—
Titizima		57·1	267	9 42	− 2	17 37	− 1	—	—
Hukuoka		57·2	281	9 46	+ 1	17 38	− 1	e 25·8	30·8
Koti		57·3	279	i 9 35	−10	i 17 22	−18	23·2	30·2
Kumamoto		57·7	281	9 49	+ 1	17 44	− 2	—	—
Unzendake		58·0	281	9 53	+ 3	17 56	+ 7	—	—
Miyazaki		58·1	279	9 52	+ 1	17 52	+ 1	—	—
Upsala	N.	58·1	10	9 51	0	i 17 44	− 7	e 27·8	30·8
Helsingfors		58·2	6	i 9 54	+ 2	i 17 52	0	e 24·3	—
Nagasaki		58·2	281	9 51	− 1	17 48	− 4	—	—
Chiufeng		58·3	297	i 9 52k	0	i 17 53	0	24·4	33·3
Pulkovo		58·7	2	i 9 54	− 1	i 17 56	− 3	25·8$_q$	30·1
Edinburgh		59·3	23	10 4	+ 4	i 18 11	+ 4	25·8	34·8
Sverdlovsk		59·6	343	i 9 54	− 8	i 17 59	−12	26·1$_q$	40·1
Durham		60·7	22	i 10 12	+ 3	i 18 26	+ 1	32·3	—
Bidston		61·6	24	i 10 16	0	i 18 39	+ 2	e 29·8	38·3
Copenhagen		61·7	13	i 10 16	0	i 20 8	(+ 4)	23·8	—
Nake		62·0	279	10 18	0	18 41	− 1	—	—
Kucino		62·6	358	e 10 30	+ 8	i 18 57	+ 7	e 27·5	32·1
Königsberg		63·2	9	i 10 28	+ 1	i 18 58	+ 1	e 27·9	33·0
Zi-ka-wei		63·4	287	i 10 27k	− 1	18 54	− 6	30·6	36·4
Hamburg		63·5	16	i 10 30	+ 1	i 19 6	+ 5	e 30·8	33·8
Oxford		63·6	23	i 10 30k	+ 1	i 19 5	+ 3	e 26·8	39·6
Nanking		63·9	291	i 10 29k	− 2	i 19 3	− 3	32·1	35·1
Kew		64·0	23	i 10 32	0	i 19 10	+ 3	28·8	34·1
De Bilt		64·3	19	i 10 35k	+ 1	i 19 14	+ 3	e 30·8	33·2
Uccle		65·4	20	i 10 41k	0	i 19 28	+ 3	28·8	34·0
Göttingen		65·5	16	i 10 42	0	i 19 29	+ 3	e 31·8	32·8
Jena		66·4	14	i 10 48	0	i 19 37	0	e 29·8	35·8
Port au Prince		66·7	94	i 10 46	− 4	i 19 48	+ 7	e 31·4	—
Paris		67·1	22	i 10 51k	− 1	i 19 47	+ 1	26·8	33·8
Cheb		67·3	14	i 10 52	− 2	i 19 46	− 2	e 35·8	36·8
Prague		67·5	13	i 10 55	0	i 19 52	+ 1	e 31·8	35·8
Karlsruhe		67·6	18	10 59	+ 3	19 56	+ 4	e 36·5	—
Isigakizima		68·0	281	10 53	− 5	19 53	− 4	—	—
Stuttgart		68·1	17	i 10 59	0	i 19 58	0	e 29·8	45·3
Strasbourg		68·2	18	i 10 58k	− 1	i 19 59	0	e 33·8	38·3
Basle		69·1	18	i 11 4	− 1	e 20 14	+ 4	—	—
Almata		69·2	327	e 11 10	+ 4	—	—	—	—
Zurich		69·4	18	i 11 6	− 1	e 20 16	+ 2	—	—
Neuchatel		69·5	18	i 11 6	− 2	e 20 16	+ 1	—	—
Vienna		69·5	12	e 11 6	− 2	i 20 18	+ 3	e 29·8	59·8
San Juan		69·8	88	i 11 5	− 4	i 20 10	− 9	e 33·1	—
Chur		70·0	18	i 11 9	− 2	e 20 21	0	—	—
Puy de Dôme		70·1	22	i 10 12	−59	i 20 23	+ 1	e 34·8	—
Frunse		70·2	329	e 14 44	?	e 23 52	?	—	—
Budapest		70·5	10	i 11 11	− 3	i 20 26	− 1	29·8	48·3
Graz		70·6	13	i 11 13	− 1	i 20 29	+ 1	e 34·8	41·6
Takao		71·2	283	11 16	− 2	20 29	− 6	—	—
Laibach		71·4	14	(i 11 21)	+ 2	(i 20 42)	+ 4	—	—
Treviso		71·5	15	i 11 21	+ 1	i 20 43	+ 4	43·8	—
Triest		71·7	15	i 11 20k	− 1	i 20 40	− 1	i 30·1	38·6
Padova		71·7	15	11 23	+ 2	20 41	0	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Piacenza		71·8	18	i 11 24k	+ 2	i 20 50	+ 7	32·0	47·8
Zagreb		71·8	12	e 11 21k	− 1	e 20 41	− 2	e 35·8	—
Venice		71·8	15	i 11 22	0	i 20 45	+ 2	—	—
Serra do Pilar		72·1	32	i 11 27	+ 4	i 20 50	+ 4	—	—
Bagnères		72·2	25	11 23	− 1	20 45	− 2	33·8	—
Andijan		72·8	330	11 22	− 6	20 49	− 5	e 40·1	—
Tashkent		73·0	332	i 11 25	− 4	i 20 49	− 8	e 36·8	42·8
Belgrade		73·2	9	(11 15)	−15	(20 48)	−11	35·3	40·0
Prato		73·2	16	i 11 30	0	i 21 0	+ 1	e 29·8	41·8
Simferopol		73·2	0	11 31	+ 1	21 1	+ 2	30·1	—
Florence		73·3	16	i 11 28k	− 3	i 20 58	− 2	30·8	42·8
Livorno		73·4	17	e 11 30	− 1	—	—	—	—
Theodosia		73·4	358	11 30	− 1	20 58	− 3	37·8	—
Siena		73·7	16	11 50?	+17	21 20	PS	—	—
Sebastopol		73·8	0	e 11 34	+ 1	i 21 6	0	31·8	—
Yalta		73·9	0	11 32	− 2	21 4	− 3	33·8	—
Barcelona		74·1	24	e 11 36	+ 1	e 21 6	− 4	37·3	42·3
Hong Kong		74·3	289	11 31	− 5	21 8	− 4	37·5	43·5
Toledo		74·4	29	i 13 35	?	i 21 13	0	e 34·6	44·6
Tortosa		74·4	25	11 32k	− 5	i 21 11	− 2	e 32·8	—
Sotchi		74·7	355	i 11 15	−24	i 20 48	−29	e 29·8	—
Samarkand		75·0	334	i 11 42	+ 2	i 21 16	− 4	42·3	—
Rome		75·4	15	i 11 38	− 5	e 20 50	−35	—	—
Tiflis		76·3	352	i 11 45	− 3	i 21 28	− 7	34·1	48·0
Benevento		76·3	14	i 11 44	− 4	(21 50)	PS	—	21·8
Alicante		76·6	27	i 11 51	+ 2	i 21 40	+ 2	e 37·2	59·1
Granada		77·0	30	i 11 53	+ 1	i 21 43	0	37·8	43·4
San Fernando	E.	77·2	32	11 53	0	21 46	+ 1	37·3	49·3
	N.	77·2	32	11 56	+ 3	21 50	+ 5	35·3	45·3
Baku		77·2	347	i 11 54	+ 1	i 22 5	PS	39·8	54·5
Malaga		77·3	30	i 11 54	0	i 21 46	0	37·5	—
Almeria		77·6	29	e 11 53	− 2	i 21 45	− 4	e 36·3	44·3
Palau		77·8	264	11 53	− 4	—	—	—	—
Erevan		77·8	351	i 11 57	0	i 21 48	− 4	e 42·8	—
Manila		77·9	279	i 11 54k	− 3	i 21 45	− 8	36·5	44·3
Trenta		78·4	13	i 12 0	+ 1	e 21 50	− 8	41·3	63·8
Algiers		78·8	24	i 12 1	0	i 22 0	− 3	i 38·7	44·6
Phu-Lien		79·1	294	12 0	− 3	i 21 59	− 7	35·8	51·6
Catania		79·9	14	e 12 24	+17	—	—	44·6	—
Tunis		80·0	27	i 12 4	− 4	i 22 10	− 6	33·8	—
Dehra Dun		81·1	321	11 50	−24	22 0	−27	43·2	49·8
Agra		84·0	320	12 30	+ 2	i 22 49	[− 3]	e 40·0	49·8
Suva		84·2	213	e 11 14	−75	—	—	—	—
Ksara		84·6	358	12 31	0	i 22 57	[+ 1]	40·8	46·8
Calcutta		84·8	310	12 32	0	23 3	− 3	e 46·7	53·4
Helwan		88·6	2	e 12 53	+ 2	23 36	− 7	—	—
Amboina		90·5	263	12 50	−10	23 22	[−14]	43·3	—
Huancayo		92·4	112	i 13 8	− 1	i 24 50	+32	e 37·8	—
Hyderabad		93·0	316	13 7	− 4	23 34	[−16]	39·5	55·2
Bombay		93·4	322	13 12	− 1	23 40	[−12]	e 44·3	54·6
Medan		97·9	293	e 13 57	+23	i 24 5	[−11]	50·8	—
La Paz		99·5	107	i 13 37k	− 4	i 24 14	[− 9]	49·8	60·8
Kodaikanal		100·1	315	13 42	− 2	26 46	PS	51·8	62·4
Colombo		102·4	312	e 18 7	PP	i 24 25	[−12]	51·6	61·2
Batavia		102·9	281	17 24	?	24 29	[−11]	49·8	—
Sucre		103·1	106	13 55	− 3	i 24 51	[+10]	49·8	—
Arapuni		104·0	209	—	—	23 50?	[−55]	—	—
Riverview		107·4	230	e 13 14	−64	e 25 8	[+ 7]	e 50·5	60·8
Melbourne		113·3	233	19 22	PP	29 13	PS	54·1	56·6
Adelaide		113·3	239	i 19 20	PP	i 28 54	PS	e 45·7	59·1

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Entebbe		118·4	2	e 19 39	PP	i 36 2	SS	e 52·8	74·8
La Plata	N.	120·0	109	19 49	PP	31 7	?	55·9	59·6
	N.	120·0	109	20 9	PP	27 24	{+ 8}	63·0	73·6
Perth		120·8	259	e 20 35	PP	e 25 50	[− 3]	—	65·8
Tananarive		136·1	339	22 53	PKS	43 55	?	72·7	83·8
Cape Town		151·1	25	19 42	− 1	26 33	PPP	74·8	91·8

Additional readings and notes :—

Bozeman i = +5m.49s., e = +8m.37s. = P_cP − 22s., +9m.21s., and +12m.1s.
Ukiah iPP = +6m.40s., i = +9m.50s., eSS = +11m.18s.
San Francisco eE = +6m.44s. = PPP + 3s. and +13m.30s.
Pasadena iNEZ = +6m.50s.
Denver iE = +6m.54s., iN = +6m.59s., iPPP = +8m.0s., iEN = +8m.12s., iP_cPE = +11m.58s., eSSSN = +13m.41s., iSSS = +14m.53s.
Tucson i = +7m.31s., iPP = +8m.46s., iS = +13m.12s., e = +15m.3s. and +16m.23s.
Chicago ipP = +7m.53s., iPP = +9m.6s., i = +9m.24s. = PPP + 2s.
Honolulu PP = +9m.32s. = PPP + 1s., i = +14m.8s., eSS = +16m.4s., i = +16m.50s. and +17m.3s.
Florissant iPP = +9m.11s., iPPP = +9m.41s. = P_cP − 5s.
Ann Arbor i = +8m.8s., iPPP? = +9m.44s. = P_cP − 2s., eSS = +16m.56s., iLN = +17m.8s., iLE = +17m.20s. = SSS + 1s., iSSS = +18m.8s. = S_cS + 18s.
St. Louis iEN = +7m.43s., iE = +8m.0s., iPPE = +8m.59s., iE = +9m.35s. = P_cP − 11s., iSSE = +16m.55s. ; T_o = 4h.36m.15s.
Scoresby Sund i = +9m.36s. = PP + 9s., +9m.58s. = P_cP + 8s., iE = +10m.18s., iN = +10m.31s., eE = +17m.26s., iN = +17m.37s., eE = +17m.44s. = S_cS − 13s.
Toronto iPE = +7m.43s., iPPPN = +8m.29s., iSE = +13m.59s., SSS = +17m.17s.
Ivigtut e = +9m.32s. = PP + 3s., +9m.56s. = P_cP + 5s., +17m.44s. = S_cS − 15s.
Ottawa iN = +8m.36s., PP = +9m.32s., PPP = +10m.8s., P_cS = +13m.36s., SS = +17m.12s., iN = +17m.30s., SSS = +19m.42s. ; T_o = 4h.36m.18s.
Little Rock PP = +9m.23s., PPP = +9m.59s., iSS = +17m.21s., iSSS = +18m.5s.
Ithaca ePP = +9m.57s. = P_cP − 1s., iSS = +18m.4s. = S_cS − 7s. ; T_o = 4h.36m.2s.
Oak Ridge i = +8m.42s., iNW = +8m.48s., iPPZ = +10m.11s., ePNW = +10m.15s., iNW = +15m.21s., e = +15m.24s., iNE = +15m.25s., iPS = +15m.41s.
Georgetown iEZ = +15m.28s. ; T_o = 4h.35m.50s.
Fordham iE = +8m.47s., iZ = +10m.1s., iE = +10m.37s., iN = +15m.17s.
Charlottesville i = +8m.51s., e = +10m.29s., iPP = +10m.42s., eSS = +18m.30s.
Halifax PP = +11m.28s., SS = +20m.14s. = SSS − 9s., SSS = +21m.20s.
Osaka i = +10m.35s. = P_cP + 5s., +11m.43s. and +20m.5s.
Kobe iP = +9m.22s., iZ = +9m.32s., iPN = +9m.34s., eE = +17m.22s. and +18m.44s., iZ(PKP,PKP) = +39m.18s.
Koti PP = +11m.50s., SS = +21m.5s.
Upsala iPPN = +13m.36s.?, iPPPN = +14m.36s.?, iSE = +17m.50s.
Helsingfors eP_cPZ = +10m.43s., ePPNZ = +12m.24s., ePPPZ = +13m.26s., ePSEZ = +18m.7s., eS_cSEN = +19m.38s., eSSSNZ = +23m.26s.
Chiufeng iZ = +12m.19s., iEZ = +13m.52s. ; T_o = 4h.36m.18s.
Pulkovo L_r = +28·8m.
Edinburgh i = +18m.13s.
Sverdlovsk L_r = +32·6m.
Bidston PP = +12m.50s., SS = +22m.30s.
Copenhagen e = +10m.32s., +12m.32s. = PP + 7s.
Königsberg e?E = +10m.53s., e?N = +11m.26s., eP_cPN = +11m.54s., e?N = +14m.34s., ePPPE = +15m.21s., e?N = +16m.54s., e?Z = +18m.21s., ePSE = +20m.15s.
Zi-ka-wei PP = +13m.2s., PPP = +14m.42s. = PPP + 7s., PZ = +15m.4s., PSZ = +19m.11s., SS = +23m.41s., SSS = +26m.17s. = SSSS + 2s., iZ = +26m.50s., SSSS = +27m.14s., iZ = +28m.4s.
Hamburg e = +26m.50s.?
Oxford iPPN = +15m.7s., i = +23m.10s. = SS + 6s.
Nanking iNZ = +10m.41s.
Kew iPP = +12m.54s., iSS = +23m.10s.
De Bilt ePPZ = +12m.52s., iEZ = +19m.17s.
Uccle iPP = +13m.6s., i = +19m.25s., SSN = +23m.31s.
Jena iPZ = +10m.43s., iPPNZ = +13m.15s., iPPE = +13m.20s. and +13m.30s., iSEN = +19m.40s., ePSN = +20m.29s. = S_cS − 9s.
Port au Prince PP = +13m.21s., PPP = +14m.33s., PS = +20m.13s.
Prague eSS = +23m.50s.
Stuttgart i = +11m.10s., ePP = +13m.20s.
Strasbourg ipP = +11m.32s., iPP = +13m.28s., ipPP = +14m.34s., isS = +21m.21s., iSS = +24m.12s., iSSS = +28m.20s.
Vienna iP = +11m.10s., P_cP? = +12m.11s., PP? = +13m.28s., PPP = +15m.20s., PS = +20m.29s., S_cS? = +20m.56s., iE = +50m.14s.

Continued on next page.

San Juan iPP = +13m.22s., e = +19m.35s., i = +21m.8s. = S_eS +4s., iSS = +24m.40s., iSSS = +27m.30s.
Graz iPPP = +15m.43s., isS = +25m.5s.
Laibach readings have been *increased* by 10m.
Treviso PP = +11m.32s.
Triest i = +11m.33s., +11m.37s., and +11m.44s., iP_eP = +11m.51s., i = +13m.37s., and +21m.5s., iPS = +21m.20s., i = +21m.26s. and +21m.36s., iSS = +25m.14s.
Piacenza ePP = +12m.6s., PS = +21m.18s
Zagreb e = +11m.40s., eP_ePNE = +12m.1s., iNE = +12m.33s., ePPE = +14m.23s., ePS = +21m.9s., eS_eS = +21m.36s., eSSS = +28m.50s.
Venice iP = +11m.28s.
Bagnères PP = +14m.11s.
Belgrade P and S have been *increased* by 3m.
Florence i = +11m.38s., PP = +13m.3s., i = +15m.7s., SSS = +26m.20s.
Hong Kong PN = +11m.36s., PP = +14m.40s., PPP = +17m.49s., SS = +25m.50s., SSS = +30m.0s.
Toledo PP = +14m.16s., PS = +21m.41s., SS = +25m.58s.
Tiflis P_ePEZ = +12m.12s., PPPEZ = +17m.11s., eSKSE = +22m.3s. = PS +2s., eSSSZ = +30m.20s.
Benevento S = +17m.40s. ; PS is given as M.
Alicante PP = +14m.50s., PPP = +17m.9s. = PPP −13s.
Granada iPP = +14m.44s., iPPP = +16m.33s.
Baku SSS = +31m.8s.
Malaga P_eP = +12m.36s., PP = +14m.54s., PS = +22m.21s., e = +22m.35s.
Almeria iP = +11m.59s., PP = +14m.19s.
Algiers iPP = +15m.2s., PS = +22m.42s.
Tunis PP = +14m.31s.
Agra PPP = +17m.35s., PS = +23m.41s., iSS = +28m.27s., SSS = +32m.13s.
Ksara PS = +23m.49s., SS = +28m.37s.
Amboina PP = +16m.27s., e = +18m.22s. = PPP +3s.
Huancayo i = +16m.20s., iPP = +16m.50s., iSKS = +23m.36s., iPS = +25m.55s., eSS = +30m.7s.
Bombay PP = +16m.54s., PPP = +18m.59s., SKKS = +24m.16s., S = +24m.29s., PS = +25m.27s., PPS = +26m.10s., SS = +30m.54s.
La Paz PPZ = +17m.36s., iPPPE = +20m.0s., iE = +24m.36s., iSKKS = +24m.56s., iSN = +25m.28s., PSE = +26m.40s., SSN = +32m.24s., SSSN = +36m.39s., SSSS = +39m.18s.
Kodaikanal PP = +17m.58s.
Riverview eN = +18m.32s. = PP −6s., eE = +26m.2s. = SKKS +14s., eN = +28m.14s. = PS +12s. and +33m.32s. = SS −11s.
Melbourne SS = +35m.5s., i = +38m.57s. = SSS −12s. and +42m.57s. = SSSS +28s.
Adelaide i = +21m.36s. = PPP −3s., iSS = +34m.54s.
La Plata PPZ = +20m.8s., E +20m.21s. = PP +12s., N = +70m.14s.
Perth i = +36m.25s. = SS −17s.
Tananarive E = +71m.10s.
Cape Town PKP_2 = +20m.4s., SKP = +23m.14s., PP = +23m.39s., SKKS = +30m.14s., PPS = +37m.28s., SS = +43m.26s.
Long waves were also recorded at Wellington and Sydney.

May 4d. 13h. 56m. 10s. Epicentre 46°·5N. 13°·0E. (as on 1931 Dec. 25d.). R.2.

A = +·671, B = +·155, C = +·725 ; D = +·225, E = −·974 ; G = +·707, H = +·163, K = −·688.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Treviso	1·0	214	i 0 11	− 3	0 30	+ 4	—	0·8
Triest	1·0	148	0 9	− 5	i 0 27	+ 1	—	—
Venice	1·1	204	i 0 20	+ 4	i 0 35	+ 7	—	1·0
Padova	1·4	216	0 21	+ 1	0 39	+ 3	—	—
Graz	1·8	71	0 24	− 2	(i 0 51)	+ 5	i 0·8	0·9
Zagreb	2·2	108	e 0 30	− 1	e 0 55	− 2	—	1·2
Chur	2·4	278	e 0 37	+ 3	e 1 10	+ 8	—	—
Prato	2·9	207	e 0 40	− 1	i 1 15	+ 1	—	1·5
Vienna	2·9	52	e 0 43	+ 2	1 19	+ 5	—	1·7
Florence	3·0	206	e 0 33	−10	1 10	− 7	—	1·6
Zurich	3·2	288	e 0 47	+ 1	e 1 36	S*	—	—
Siena	3·4	200	1 10	P_g	—	—	—	—
Stuttgart	3·5	312	e 0 49	− 1	i 1 50	S_g	e 2·1	—
Basle	3·8	287	e 0 56	+ 2	e 1 59	S_g	—	—
Karlsruhe	4·0	311	e 1 5	P*	—	—	—	2·3

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Strasbourg	4·1	302	e 0 59	+ 1	e 2 4	S*	—	—
Neuchatel	4·1	278	e 1 0	+ 2	e 2 9	S_g	—	—
Jena	4·5	348	e 1 4	0	—	—	e 2·2	2·4
Göttingen	5·4	339	e 1 20	+ 3	e 2 51	S_g	—	3·0
Uccle	7·2	310	e 2 38	P_g	—	—	—	—

Additional readings :—
Triest iPP = +22s.
Zagreb e = +33s., iZ = +36s., e = +38s., iN = +43s., e = +46s., i = +1m.3s. = S* − 1s. and +1m.6s. = S_g − 1s.
Vienna iPN = +46s. = P* +0s., iPP = +54s. = P_g +2s., +58s., and +1m.1s., iN = +1m.10s., PS = +1m.24s., S* = +1m.29s., iZ = +1m.32s.
Zurich eP_g = +55s.
Stuttgart e = +54s., iP_g = +1m.2s., e = +1m.46s.
Basle eP_g = +1m.12s.
Strasbourg eP_g = +1m.12s., SS = +2m.14s. = S_g +5s., SSS = +2m.22s.
Neuchatel eP_g = +1m.13s.
Jena i = +1m.7s. and +1m.24s. = P_g +0s.
Göttingen eP_g = +1m.40s.
Long waves were recorded at Copenhagen.

May 4d. Readings also at 0h. (New Plymouth, Wellington, Ukiah, Tinemaha, Haiwee, Mount Wilson, Pasadena, Riverside, Tucson, Florissant, St. Louis, Chicago, Ann Arbor, Toronto, Ottawa, and Ithaca), 1h. (Sverdlovsk, Tashkent, Mizusawa, and near Branner), 4h. (near Lick), 5h. (Paris, Strasbourg, Neuchatel, and Zurich), 6h. (Adelaide and Florence), 7h. (Balboa Heights and Piacenza), 9h. (New Plymouth, Wellington, near Nagoya, Tyosi, and near Oak Ridge), 11h. (La Jolla, Haiwee, Mount Wilson, Pasadena, Riverside, Tinemaha, Sitka, and Sverdlovsk), 12h. (near Mizusawa (2) and Tyosi), 16h. (near Oak Ridge), 17h. (near Nagoya).

May 5d. 1h. Epicentre near Mexico.
Tucson eP = 1h.24m.4s., eS = 28m.10s., e = 28m.50s. and 30m.44s.
Riverside iP = 1h.24m.36s.
Pasadena eP = 1h.24m.39s., eL = 31m.18s.
Mount Wilson iP = 1h.24m.42s.
Haiwee iP = 1h.24m.54s.
Tinemaha eZ = 1h.25m.5s.
St. Louis eEN = 1h.25m.14s. and 25m.55s., eE = 26m.50s., eEN = 30m.5s.
Florissant eP = 1h.26m.3s., eS = 30m.11s., eL = 34m.
Little Rock 1h.26m.22s.
La Paz PN = 1h.27m.10s., SE = 33m.46s., LN = 41m.14s., M = 45m.12s.
Fordham e = 1h.28m.3s. and 32m.46s., eL = 39m.
Oak Ridge eNE = 1h.28m.32s. and 33m.20s., eNW = 36m.30s., eLNE = 39m., eLNW = 41m.
Ottawa eE = 1h.29m.48s., eS? = 33m.20s., eE = 37m.0s., eL = 41m.
Bozeman e = 1h.30m.15s., 31m.41s., and 34m.31s., eL = 36m.12s.
Huancayo i = 1h.31m.30s., eL = 34m.30s.
San Juan e = 1h.32m.0s., eL = 34m.40s.
Ukiah e = 1h.35m.0s.
Kucino e = 1h.40m.0s. and 54m.8s., eL = 2h.10m.12s., M = 19m.36s.
Triest e = 1h.46m.33s. and 55m.23s., M = 2h.10m.8s.
Sverdlovsk e = 1h.47m.37s. and 53m.47s., L = 2h.15m.
Pulkovo e = 1h.51m.24s., L = 2h.14m., M = 17m.6s.
Tashkent e = 1h.53m.0s., eL = 2h.22m., M = 37m.48s.
Long waves were also recorded at Agra, Baku, Tiflis, Copenhagen, Stuttgart, Paris, and Scoresby Sund.

May 5d. 14h. 32m. 23s. Epicentre 31°·6S. 179°·5W. N.3.

A = −·852, B = −·007, C = −·524; D = −·009, E = +1·000; G = +·524, H = +·005, K = −·852.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Arapuni		7·6	210	2 19	P_g	3 32	+18	—	—
Hastings		8·6	199	3 37	S	5 3	?	—	—
New Plymouth		9·1	213	2 17	+ 8	4 5	+14	—	—
Wellington		10·8	204	2 23	− 9	4 11	−22	—	—
Christchurch		13·5	205	3 6	− 3	5 21	−18	—	—
Suva		13·6	352	1 37	−33	4 37	−65	—	—
Riverview		24·6	257	e 5 24	+ 8	e 9 43	+ 9	e 12·0	13·7
Sydney		24·6	257	e 5 7	− 9	e 9 31	− 3	12·1	13·7
Melbourne		29·6	248	6 7	+ 6	10 52	− 6	13·2	15·7
Adelaide		34·9	252	e 5 45	−63	i 12 17	− 3	i 14·7	17·0
Perth		54·1	251	—	—	e 17 22	+25	—	—
Manila		73·4	299	e 11 10	−21	20 56	− 5	—	—
Nagoya		78·3	325	—	—	e 19 32	−145	—	—
Wakayama		78·5	323	11 58	− 2	21 50	− 9	—	—
Osaka		78·6	323	11 58	− 2	21 39	−21	—	—
Kobe		78·8	323	e 11 58	− 3	e 23 53	?	—	—
Nagano		78·9	327	12 0	− 2	—	—	—	—
Hong Kong		83·2	301	12 47	+23	22 41	− 8	—	41·1
Vladivostok		86·9	327	i 12 43	0	e 23 2	[−11]	41·6	—
La Jolla		87·2	48	i 12 47	+ 3	—	—	—	—
Pasadena		87·5	46	e 12 43	− 2	(e 23 7)	[−10]	e 23·1	—
Mount Wilson		87·6	46	i 12 47	+ 1	—	—	—	—
Berkeley	z.	87·6	42	e 12 46	0	—	—	—	—
Riverside		87·9	46	i 12 46	− 1	—	—	—	—
Haiwee		88·9	45	i 12 52	0	—	—	—	—
Tinemaha		89·4	44	i 12 55	0	—	—	—	—
Chiufeng		93·2	316	e 13 12	0	e 23 39	[−12]	—	48·0
Huancayo		95·5	108	—	—	e 23 52	[−11]	44·0	—
La Paz		98·6	115	13 41	+ 4	i 24 8	[−11]	45·6	—
Kodaikanal		106·4	272	18 37	PP	—	—	—	—
Agra		113·7	288	e 19 34	PP	—	—	—	—
Bombay		114·5	277	e 19 37	PP	e 25 16	[−16]	—	62·0
San Juan		119·1	85	—	—	e 25 37	[−10]	—	—
Oak Ridge		123·2	57	—	—	e 30 37	PS	e 55·6	—
Tashkent		125·3	301	e 18 53	[− 5]	26 31	[+25]	e 61·6	74·3
Sverdlovsk		132·1	320	19 2	[− 8]	26 3	[−22]	53·6	69·8
Scoresby Sund		139·2	12	22 37?	PP	40 37	SS	75·6	—
Baku		139·6	297	23 5	PKS	e 32 20	PS	64·6	80·8
Tiflis		143·5	299	19 26	[− 3]	e 32 43	SKSP	e 69·6	79·1
Kucino		144·5	324	19 25	[− 8]	29 25	{−25}	75·2	77·4
Pulkovo		145·6	334	19 34	[− 1]	—	—	68·6	77·2
Sotchi		147·0	303	e 14 37	?	—	—	—	—
Theodosia		149·8	306	e 19 46	[+ 5]	—	—	—	—
Ksara		150·3	284	19 48	[+ 6]	—	—	—	—
Simferopol		150·8	307	e 19 54	{+ 8}	—	—	—	—
Yalta		150·8	306	e 19 50	[+ 7]	—	—	—	—
Sebastopol		151·1	306	e 20 7	{+ 3}	—	—	—	—
Copenhagen		154·5	344	20 15	{− 4}	—	—	75·6	—
De Bilt		159·2	352	—	—	e 41 37?	?	e 78·6	89·8
Stuttgart		161·6	342	e 20 45	{− 6}	—	—	e 82·6	—
Strasbourg		162·2	344	20 48	{− 6}	(e 27 37?)	?	e 27·6	—
Triest		162·6	328	e 21 31	?	—	—	e 75·8	84·0
Paris		162·7	356	e 19 37?	[−20]	—	—	81·6	—
Florence		165·1	328	e 20 37?	[+38]	—	—	—	88·6

Additional readings:—
Riverview PPE = +5m.55s., iN = +9m.58s., eN = +10m.6s. and +10m.16s. = SS − 4s., iN. = +10m.35s.
Melbourne i = +6m.30s. and +7m.1s.

Continued on next page.

Adelaide e = +7m.15s., i = +12m.53s.
Perth e = +21m.12s.
Manila i = +11m.31s.
Kobe P = +12m.1s., PPEN = +13m.4s.
Pasadena iZ = +12m.48s., eZ = +16m.13s. =PP +8s.
Berkeley eZ = +13m.3s.
Riverside eZ = +16m.42s.
Chiufeng iN = +24m.18s. =S −8s.
Huancayo ePS = +25m.57s., eSS = +31m.7s.
La Paz PPZ = +17m.40s., iSKSN = +24m.11s., PPSZ = +26m.46s.
San Juan ePS = +29m.55s.
Oak Ridge eNE = +37m.10s. =SS −4s. and +37m.13s.
Tashkent PP = +20m.41s., PS = +30m.41s., SS = +38m.1s.
Sverdlovsk SS = +39m.1s.
Tiflis PKS = +23m.8s., ePPPZ = +25m.55s., PPSN = +35m.19s.
Kucino PP = +22m.45s., PPS = +35m.17s., SS = +41m.55s.
Pulkovo PKS = +23m.19s., PS = +33m.9s., PPS = +35m.25s., SS = +41m.7s.
Ksara PPS = +37m.33s.
Stuttgart e(PPP_3) = +32m.37s.?, ePS = +38m.1s.
Triest i = +25m.51s. and +35m.26s.
Long waves were also recorded at Helsingfors, Kew, and Uccle.

May 5d. 16h. 43m. 18s. Epicentre 1°·0S. 124°·0E. (as on 1927 Dec. 16d.). R.2.

A = −·559, B = +·829, C = −·017 ; D = +·829, E = +·559 ;
G = +·010, H = −·015, K = −1·000.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Amboina	5·0	122	i 0 57	−14	i 1 44	P_g	—	—
Palau	13·4	51	5 46	S	(5 46)	+ 9	—	—
Manila	15·9	349	i 4 20k	+40	i 7 57	+81	—	—
Malabar	17·5	249	i 4 7	+ 7	i 7 23	+10	—	—
Batavia	17·9	253	i 4 10	+ 5	i 7 35	+13	—	—
Hong Kong	25·2	338	7 5	?	12 54	L	(12·9)	—
Medan	25·7	281	6 40	+74	—	—	—	—
Perth	31·9	192	e 9 17	(+ 1)	—	—	—	—
Miyazaki	33·7	11	6 43	+ 5	12 7	+ 6	—	—
Adelaide	36·6	160	i 10 10	?	—	—	i 15·3	17·3
Wakayama	36·8	15	7 5	0	12 43	− 5	—	—
Osaka	37·2	15	6 57	−11	12 51	− 3	—	—
Osaka B	37·2	15	7 15	+ 7	12 54	0	—	—
Nagoya	38·1	17	e 6 32	−44	e 13 4	− 4	—	—
Oiwake	39·7	19	7 26	− 3	13 21	−11	—	—
Nagano	39·9	18	7 30	− 1	13 27	− 8	—	—
Wazima	40·2	16	7 33	− 1	13 36	− 3	—	—
Melbourne	41·6	155	—	—	e 14 12	+12	20·4	—
Riverview	41·6	145	—	—	e 15 54	?	—	21·6
Chiufeng	41·7	350	i 7 55	+ 9	—	—	—	—
Mizusawa	43·1	20	(e 7 53)	− 5	e 7 53	P	—	—
Vladivostok	44·6	8	i 8 10	0	i 14 44	0	—	—
Agra	52·4	306	—	—	i 16 40	+ 6	—	—
Andijan	62·6	317	e 10 19	− 3	e 18 56	+ 6	—	—
Tashkent	65·0	319	i 10 38	− 1	i 19 20	0	—	42·5
Samarkand	65·9	314	10 45	0	19 32	+ 1	—	—
Sverdlovsk	76·6	330	i 11 33	−16	i 21 12	−26	—	—

Additional readings :—
Medan i = +10m.6s., +10m.28s., and +14m.24s.
Adelaide i = +12m.29s. and +14m.31s.

May 5d. Readings also at 1h. (near Malaga), 4h. (Haiwee, Mount Wilson (2), Pasadena (2), Riverside, Tinemaha, Little Rock, Seattle, and near Victoria), 8h. (San Francisco and near Apia), 10h. (Chiufeng, Irkutsk, Sverdlovsk, Tashkent, and near Santiago), 12h. (Haiwee, La Jolla, Mount Wilson, Pasadena, Riverside, Tinemaha, Little Rock, Sverdlovsk, near Tainan, and Takao), 13h. (Baku, Tashkent, Glenmuick, and near Mizusawa), 16h. (near Malabar), 18h. (near Malaga), 19h. (near Oak Ridge).

May 6d. 8h. 9m. 55s. Epicentre 41°·8N. 113°·0W. (as on 1934 March 12d.). R.3.

A = −·291, B = −·686, C = +·667; D = −·921, E = +·391; G = −·260, H = −·614, K = −·745.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Bozeman		4·1	20	0 59	+ 1	i 1 56	S*	i 2·4	—
Tinemaha		6·3	222	i 1 30	0	i 3 9	S*	—	—
Denver		6·4	106	e 1 41	P*	i 2 42	− 1	—	—
Haiwee		6·8	216	i 1 39	+ 2	i 3 30	S_g	—	—
Lick	N.	8·0	239	e 1 57	+ 4	—	—	—	—
Berkeley	Z.	8·1	244	e 2 2	+ 7	—	—	—	—
Branner		8·3	241	i 4 17	S_g	—	—	—	—
Ukiah		8·3	253	e 2 35	P_g	e 4 12	S*	e 4·4	—
Mount Wilson	Z.	8·6	209	e 2 3	+ 1	—	—	—	—
Riverside		8·6	205	i 2 1	− 1	—	—	—	—
Pasadena		8·7	209	e 2 4a	+ 1	i 3 53	+12	i 5·4	—
Seattle		8·8	314	—	—	e 4 33	S_g	5·1	—
Tucson		9·7	169	e 2 56	+39	i 5 6	S_g	e 5·8	—
Victoria		9·8	316	1 57	−21	(4 57)	S*	5·0	6·2
Florissant		17·4	92	i 3 59	0	i 7 21	+10	i 8·8	10·6
St. Louis		17·6	93	i 3 55	− 7	e 7 10	− 5	—	9·0
Little Rock		17·6	107	e 4 17	+15	i 8 36	+81	i 9·3	—
Sitka		20·9	325	—	—	i 8 45	SS	i 11·0	—
Ann Arbor		21·6	79	—	—	e 8 41	+ 3	e 11·1	11·5
Toronto	E.	24·6	74	i 4 58	−18	i 9 21	−13	12·2	—
Columbia		26·2	97	—	—	10 16	+14	e 13·8	—
Charlottesville		26·5	87	—	—	e 12 59	?	e 13·8	—
Ithaca		26·8	76	—	—	e 10 45	+33	e 14·2	—
Ottawa		26·9	70	—	—	e 10 5?	− 9	e 13·6	—
Georgetown		27·3	84	e 5 38	− 3	e 10 20	0	e 13·6	—
Fordham		29·2	79	—	—	e 11 53	+62	e 14·8	—
Oak Ridge		30·4	75	i 6 7	− 2	e 11 13	+ 3	e 15·1	—

Additional readings:—
Tinemaha 1 = +1m.50s. = P* +5s.
Denver iP_gEN = +2m.0s., iS* = +3m.0s., S_g = +3m.10s., i = +3m.26s. and +4m.27s.
Lick iEN = +4m.9s., iE = +4m.14s. = S_g − 4s.
Berkeley eE = +2m.21s., eN = +2m.36s., eNZ = +4m.10s., eE = +4m.16s. = S_g − 6s.
Branner iEN = +4m.21s., +4m.30s. = S_g +2s., and +4m.44s., iE = +4m.51s., iN = +4m.54s., iE = +5m.3s.
Ukiah e = +2m.55s.
Tucson e = +3m.45s. and +4m.48s. = S* +1s.
Ann Arbor eE = +8m.47s., eN = +9m.17s. and +10m.35s., iE = +11m.5s.
Toronto eE = 8h.8m.20s.
Columbia e = +13m.42s.
Ithaca e = +11m.45s. and +15m.49s.
Georgetown eE = +10m.34s.; T_0 = 8h.9m.25s.
Fordham iN = +14m.58s., iE = +15m.14s.
Long waves were also recorded at San Juan, Scoresby Sund, Baku, and Sverdlovsk.

May 6d. Readings also at 0h. (near Karenko), 6h. (Agra and near Amboina), 9h. (Agra, Andijan, and Samarkand), 13h. (near Tyosi), 14h. (near Tyosi), 18h. (Baku, Sverdlovsk, and Tashkent), 19h. (near Branner), 20h. (Lick), 21h. (La Paz and Manila).

May 7d. 1h. 55m. 0s. Epicentre 9°·2N. 127°·5E. (as on 1930 Sept. 24d.). R.3.

A = −·601, B = +·783, C = +·160; D = +·793, E = +·609;
G = −·097, H = +·127, K = −·987.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Manila	8·4	311	2 6	+ 7	3 39	+ 5	4·6	—
Hong Kong	18·3	317	4 7	− 3	7 30	− 1	8·2	11·7
Batavia	25·7	234	5 32	+ 6	9 30	−23	—	—
Chiufeng	32·5	345	e 6 29	+ 2	e 11 38	− 5	—	—
Agra	49·9	298	e 10 42	PP	—	—	—	—
Bombay	53·7	287	—	—	e 16 54	+ 2	—	35·0
Tashkent	60·3	314	i 10 5	− 2	18 21	+ 1	e 29·7	37·1
Sverdlovsk	69·7	329	11 0	− 9	20 3	−15	33·0	—
Baku	74·6	310	e 12 19	+41	e 21 18	+ 3	38·0	41·8
Pulkovo	85·7	331	—	—	e 23 5	[+ 1]	46·0	51·9

Long waves were also recorded at Vladivostok, Irkutsk, Kucino, Copenhagen, De Bilt, and Uccle.

May 7d. 4h. 6m. 40s. Epicentre 9°·2N. 127°·5E. (as at 1h.). R.3.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Manila		8·4	311	i 1 58k	− 1	3 33	− 1	4·6	—
Hong Kong		18·3	317	4 9	− 1	7 24	− 7	8·7	11·6
Zi-ka-wei	z.	22·7	347	5 2	+ 4	9 4	+ 5	—	16·9
Phu-Lien		23·2	302	5 20?	+17	—	—	—	—
Batavia		25·7	234	5 28	+ 2	i 9 20	− 3	—	—
Chiufeng		32·5	345	e 6 30	+ 3	11 38	− 5	—	—
Vladivostok		34·1	5	e 6 49	+ 8	—	—	14·3	—
Agra		49·9	298	e 8 49	− 2	—	—	—	—
Bombay		53·7	287	—	—	e 16 49	− 3	—	35·1
Tashkent		60·3	314	e 9 57	−10	e 18 26	+ 6	e 30·7	38·7
Sverdlovsk		69·7	329	10 59	−10	e 20 47	PS	33·3	44·5
Kucino		82·2	325	—	—	e 22 26	−13	e 44·1	47·9
Pulkovo		85·7	331	—	—	e 23 7	[+ 3]	46·3	51·8

Additional readings:—
Batavia iN = +10m.31s.
Tashkent e = +14m.5s. and +28m.26s.
Kucino e = +32m.8s.
Long waves were also recorded at Copenhagen, De Bilt, Uccle, Stuttgart, and Scoresby Sund.

May 7d. Readings also at 0h. (near Santiago), 1h. (Phu-Lien, near Treviso, and Triest), 4h. (Frunse, Tashkent, Bagnères, and near Tortosa), 5h. (Lick), 6h. (Glenmuick, Christchurch, Wellington, Mizusawa, near Nagoya, and Tyosi), 7h. (Manila), 8h. (near Tyosi), 9h. (Huancayo), 10h. (San Juan and near Nagoya), 11h. (Baku, Sverdlovsk, Tashkent, Basle, Neuchatel, Zurich, and near Chur), 13h. (near Wellington), 16h. (near Sumoto), 18h. (Tiflis, near Bunnythorp, near Andijan, near Hastings, New Plymouth, Christchurch, Glenmuick, and Wellington), 19h. (Samarkand and Andijan), 20h. (near Santiago and near Wellington), 22h. (Haiwee, Mount Wilson, Pasadena, Riverside, Tinemaha, near Apia, and near Tananarive).

May 8d. 19h. Readings for a shock in the South Pacific
Suva S? = 19h.18m.20s.
Riverview, e = 19h.18m.33s., eL = 27m.48s., M = 30m.9s.
Arapuni i = 19h.21m.0s.
Adelaide e = 19h.23m.46s., i = 28m.17s. and 30m.55s., M = 36m.0s.
Wellington i = 19h.23m.53s., L = 25m.21s.
Sydney eP = 19h.25m.16s., eS = 28m.36s., L = 30m.25s., M = 31m.20s.
Chatham Ils. i = 19h.25m.30s.
Pasadena eZ? = 19h.26m.26s., i = 26m.32s.k
Riverside ePZ = 19h.26m.30s.
Mount Wilson i = 19h.26m.32s., iZ = 26m.54s.
Tinemaha iPZ = 19h.26m.35s., iZ = 26m.41s.
Melbourne i = 19h.29m.48s. and 33m.12s., M = 41m.24s.
Copenhagen 19h.34m.0s., L = 20h.48m.
Perth eP = 19h.43m.40s.
Long waves were also recorded at Bombay and other Russian and European stations.

May 8d. Readings also at 1h. (Tucson and near Manila), 3h. (Samarkand and near Tyosi), 4h. (Triest), 9h. (near Tyosi), 12h. (Zagreb), 13h. (Andijan, Samarkand), 14h. (Wellington and near Amboina), 15h. (Erevan, Tashkent, and Ksara), 18h. (near Andijan).

May 9d. 3h. 44m. 46s. Epicentre 40°·9S. 172°·5E. (as on 1932 June 11d.). X.

Wellington gives 40°·8S. 172°·5E.

A = −·749, B = +·099, C = −·655; D = +·131, E = +·991; G = +·649, H = −·086, K = −·756.

	Δ	Az.	P.	O−C.	S.	O−C.
	°	°	m. s.	s.	m. s.	s.
Takaka	0·3	78	−0 11	?	−0 9	?
Wellington	1·7	103	0 23	− 1	0 44	0
Glenmuick	2·1	166	(0 38)	P_g	(1 4)	S_g
New Plymouth	2·2	34	0 33	+ 2	0 55	− 2
Christchurch	2·6	178	i 0 41	P*	1 12	+ 5

Additional readings and note:—
Wellington i = +34s. = P_g +6s.
Glenmuick readings have been *diminished* by 1m.
Christchurch i = +48s. = P_g +2s., S_g? = +1m.27s.

May 9d. 10h. 7m. 57s. Epicentre 35°·7N. 140°·4E. (as on 1934 March 17d.). X.

A = −·626, B = +·518, C = +·584.

	Δ	Az.	P.	O−C.	S.	O−C.	M.
	°	°	m. s.	s.	m. s.	s.	m.
Tyosi	0·4	85	0 9	+ 3	0 20	+10	0·6
Tokyo	0·5	268	0 4	− 3	0 12	− 1	0·3
Nagoya	2·9	259	0 39	− 2	1 12	− 2	—
Mizusawa	3·5	9	e 0 52	+ 2	e 1 20	−10	—

Mizusawa gives also iSE = +1m.24s.

May 9d. 16h. 13m. 40s. Epicentre 47°·9N. 154°·6E. N.2.

A = −·606, B = +·288, C = +·742; D = +·429, E = +·903; G = −·670, H = +·318, K = −·670.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Mizusawa		13·1	233	e 2 57	− 6	i 5 15	−14	—	—
Vladivostok		16·5	261	e 3 52	+ 4	e 7 10	+20	8·8	10·1
Nagoya		18·2	232	e 4 7	− 2	—	—	—	—
Osaka		19·4	234	3 59	−24	7 20	−34	9·8	11·1
Kobe	E.	19·6	235	e 4 22	− 3	e 8 13	+15	e 10·6	12·5
	N.	19·6	235	e 4 27	+ 2	8 10	+12	—	13·2
Sumoto		20·0	234	4 28	− 2	8 5	− 1	e 12·9	—
Koti		21·3	235	e 4 43	0	—	—	—	—
Chiufeng		28·4	268	e 5 51	0	—	—	—	17·5
Zi-ka-wei	Z.	30·1	248	6 7	+ 1	—	—	16·4	18·9
Irkutsk		31·9	297	e 6 16	− 6	e 11 47	+13	16·3	20·3
Hong Kong		41·0	245	14 0	S	(14 0)	+ 9	—	24·8
Sitka		41·7	50	—	—	e 14 8	+ 6	e 21·7	—
Sverdlovsk		53·4	317	e 9 8	− 9	—	—	—	—
Tashkent		57·9	298	i 9 48	− 2	17 52	+ 4	e 29·0	37·4
Agra		61·4	279	e 10 15	+ 1	—	—	—	39·2
Tinemaha		61·7	65	i 10 25	+ 9	—	—	—	—
Pulkovo		63·2	332	e 10 28	+ 1	e 19 12	PS	33·3	41·3
Mount Wilson		63·7	67	i 10 31	+ 1	—	—	—	—
Pasadena		63·7	67	i 10 31k	+ 1	—	—	—	—
Riverside		64·3	67	i 10 33	− 1	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Baku		69·4	309	10 5	−62	—	—	31·3	44·9
Bombay		70·7	277	i 11 15	0	i 20 26	− 4	—	44·7
Tiflis	E.	71·1	312	11 15	− 2	e 20 46	+12	40·3	46·5
Copenhagen		71·7	338	11 22	+ 1	21 2	PS	37·3	—
Erevan		72·4	311	e 11 30	+ 5	—	—	—	—
Theodosia		72·9	320	e 11 28	0	—	—	—	—
Simferopol		73·5	321	e 11 33	+ 1	—	—	—	47·3
Yalta		73·9	320	e 11 35	+ 1	—	—	—	—
Hamburg		74·8	340	i 11 37a	− 2	—	—	—	46·3
De Bilt		76·7	341	i 11 51	+ 1	—	—	e 40·3	54·8
Vienna		77·2	332	i 11 56	+ 3	—	—	—	—
Uccle		78·0	342	i 11 58	+ 1	e 21 56	+ 2	e 41·3	—
Stuttgart		78·8	337	e 12 3	+ 2	—	—	e 38·3	50·3
Strasbourg		79·4	338	i 12 4a	− 1	—	—	e 38·3	—
Paris		80·3	342	i 12 12	+ 3	—	—	51·3	55·3
Basle		80·3	338	e 12 11	+ 2	—	—	—	—
Zurich		80·3	338	e 12 11	+ 2	—	—	—	—
Triest		80·4	334	12 9	− 1	22 22	+ 2	—	41·4
Chur		80·5	337	e 12 13	+ 3	—	—	—	—
Oak Ridge		80·9	33	i 12 8	− 5	e 22 18	− 7	e 38·1	—
Neuchatel		81·0	338	e 12 15	+ 2	—	—	—	—
Ksara		81·6	313	e 12 14	− 2	e 22 38	+ 5	—	—

Additional readings and note :—
Osaka i = +4m.17s., +5m.13s., and +8m.14s. =SS +2s.
Hong Kong gives S as P and S = +17m.26s.
Pasadena iEZ = +10m.42s.
Tiflis SSSE = +38m.44s.
Vienna iZ = +12m.29s., iN = +14m.3s., eL? = +15m.0s.
Uccle eN = +27m.50s.
Strasbourg ePP? = +16m.20s.
Oak Ridge eNE = +35m.26s.
Long waves were also recorded at Phu-Lien, Honolulu, Scoresby Sund, Ivigtut, and at other European stations.

May 9d. Readings also at 0h. (near Karenko), 3h. (Bozeman, near Nanking, and near Tyosi), 4h. (New Plymouth, near Takaka, Wellington, and near Suva), 8h. (near New Plymouth (2), Wellington (2), and Takaka), 9h. (Takaka, Casamari (2), and near Rome), 13h. (Kucino and Sverdlovsk), 15h. (near Amboina, near Manila, and near Malabar), 18h. (Chiufeng, Vladivostok, Irkutsk, Tashkent, Sverdlovsk, and Kucino), 19h. (Agra, Bombay, Baku, Piatigorsk, Pulkovo, Copenhagen, Stuttgart, Paris, Uccle, Florence, and Triest), 20h. (Sebastopol, Theodosia, and Yalta), 21h. (Baku, Erevan, near Tiflis, near Ksara, and near Oak Ridge), 22h. (Wellington (2), near Granada, Malaga, and San Fernando), 23h. (Tortosa).

May 10d. Readings at 0h. (2) and 1h. (near Tyosi), 6h. (near Granada), 8h. (near Triest), 17h. (near Andijan), 18h. (near Wellington), 20h. (Honolulu, Mount Wilson, and Pasadena).

May 11d. 17h. 13m. 14s. Epicentre 19°·5S. 71°·0W. N.2.

A = +·307, B = −·891, C = −·334 ; D = −·946, E = −·326 ;
G = −·109, H = +·316, K = −·943.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Montezuma	3·7	148	e 0 50	− 3	—	—	i 1·2	—
La Paz	4·1	43	i 1 5k	+ 7	i 1 54	+ 9	2·2	2·4
Sucre	5·4	85	1 12	− 5	i 2 12	− 6	2·4	—
Huancayo	8·5	330	e 2 6	+ 6	—	—	i 4·3	—
La Plata	19·2	145	—	—	7 58	+ 8	10·0	11·1

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
San Juan	38·2	8	e 7 13	− 4	e 12 56	−13	e 20·0	—
Oak Ridge	62·0	0	i 10 16	− 2	—	—	—	—
Ottawa	65·0	357	e 10 37	− 2	e 19 16	− 4	e 32·8	—
La Jolla	68·6	319	i 11 2	0	—	—	—	—
Riverside	69·4	320	i 11 7	0	—	—	—	—
Mount Wilson	69·9	320	i 11 11	+ 1	—	—	—	—
Pasadena	69·9	320	i 11 10a	0	—	—	—	—
Haiwee	71·2	321	i 11 18a	0	—	—	—	—
Santa Barbara	71·2	319	i 11 18	0	—	—	—	—
Tinemaha	72·0	321	i 11 24	+ 1	—	—	—	—
Triest	100·3	45	—	—	e 31 52	?	e 50·8	—
Sverdlovsk	128·5	32	—	—	e 38 39	SS	66·8	—
Vladivostok	149·6	326	e 19 46?	[+ 5]	e 23 26	PKS	45·1	—

Additional readings :—
La Paz iSZ = +1m.57s. = S* − 3s.
Huancayo i = +2m.27s., +2m.45s., +3m.16s., and +3m.51s.
San Juan e = +9m.3s., eSS = +16m.16s.
Oak Ridge i = +10m.27s. and +10m.32s.
Ottawa eN = +15m.31s.
Pasadena eZ = +13m.48s.
Triest e = +37m.14s.
Long waves were also recorded at Baku, Tashkent, Kew, and other European stations.

May 11d. 18h. 42m. 36s. Epicentre 36°·0N. 136°·0E. N.3.

A = −·582, B = +·562, C = +·588.

		Δ	Az.	P.	O−C.	S.	O−C.	M.
		°	°	m. s.	s.	m. s.	s.	m.
Nagoya		1·1	137	0 16	0	0 29	+ 1	—
Toyooka		1·1	244	0 16	0	0 30	+ 2	0·5
Osaka		1·4	195	0 21	+ 1	0 37	+ 1	0·6
Kobe		1·5	207	0 22	+ 1	i 0 39	0	0·7
	z.	1·5	207	0 15	− 6	e 0 37	− 2	0·6
Sumoto		1·9	209	e 0 40	+12	0 45	− 4	0·8

Kobe gives eN = +0m.38s.

May 11d. 21h. Shock from an epicentre in the South of France.
Neuchatel eP = 21h.5m.10s., e = 5m.23s., eS_g = 6m.3s.
Basle eP = 21h.5m.26s., eS_g = 6m.27s.
Zurich eP = 21h.5m.36s.
Chur eP = 21h.5m.37s.
Puy de Dôme P_g = 21h.6m.0s., S_g = 6m.24s., M = 6m.36s.
Strasbourg e = 21h.6m., iS? = 7m.5s., iSSS = 7m.29s.
Piacenza P = 21h.6m.21s.
Tortosa SN = 21h.6m.57s.
Ravensburg e = 21h.7m.0s.
Stuttgart e = 21h.7m.0s. and 7m.37s.
Uccle eE = 21h.7m.33s., eN = 7m.50s., e = 8m.6s.
Kew e = 21h.8m.12s.

May 11d. Readings also at 0h. (Sydney, Vladivostok, Kobe, Sumoto, Koti, Tyosi, Chiufeng, and near Hukuoka), 1h. (Kucino, Sverdlovsk, and Tashkent), 3h. (Berkeley, Branner, Lick, Baku, and Sverdlovsk), 9h. (Manila, Chiufeng, Tashkent, Sverdlovsk, and Vladivostok), 10h. (Tyosi), 12h. (Neuchatel, Puy de Dôme and near Montezuma), 13h. (Tiflis, and near Algiers (2)), 14h. (Ksara, Amboina, and near Malabar), 17h. (Tiflis (2)), 18h. (Adelaide, Melbourne, Riverview, Manila, Bombay, Agra, Andijan, Almata, Samarkand, Chiufeng, Tashkent, Vladivostok, Mount Wilson, Pasadena, Riverside, and Oak Ridge), 19h. (Nagoya, Tyosi, Sverdlovsk, and Perth), 20h. (Basle, Neuchatel, Zurich, Puy de Dôme, and Strasbourg), 21h. (Basle, Neuchatel (2), Puy de Dôme (2), Paris, and Tyosi), 23h. (Sumoto (2)).

May 12d. 3h. 50m. 46s. (I) } Epicentre 34°·2N. 135°·2E. X.
4h. 15m. 55s. (II) } (as on 1933 Dec. 3d.).

A = −·587, B = +·583, C = +·562; D = +·705, E = +·710;
G = −·399, H = +·396, K = −·827.

	Δ	Az.	P.	O−C.	S.	O−C.	M.
	°	°	m. s.	s.	m. s.	s.	m.
I Sumoto	0·3	300	0 6	+ 2	0 10	+ 2	0·2
II	0·3	300	0 6	+ 2	0 8	0	0·2
I Kobe	0·5	358	i 0 6	− 1	i 0 10	− 3	0·2
II	0·5	358	i 0 5	− 2	0 8	− 5	0·2
I Osaka	0·6	32	0 8	− 1	0 17	+ 2	0·3
II	0·6	32	0 11	+ 2	0 17	+ 2	0·3
I Toyooka	1·4	347	0 20	0	0 33	− 3	0·5
I Nagoya	1·7	56	e 0 34	P_g	e 0 57	S_g	—

Kobe iZ = +9s.
Osaka i = +12s.

May 12d. 7h. Shock in Central Europe.
Puy de Dôme eP = 7h.20m.53s., e = 21m.17s., eS_g = 21m.20s., M = 21m.31s.
Neuchatel eP = 7h.22m.10s., i = 22m.15s., eS_g = 22m.57s.
Basle eP = 7h.22m.27s., eS_g = 23m.23s.
Zurich eP = 7h.22m.30s.
Chur eP = 7h.22m.38s.
Strasbourg e = 7h.23m.32s., SS? = 23m.59s., SSS? = 24m.10s.
Paris eP = 7h.23m.41s.
Prato eP = 7h.23m.43s.
Stuttgart e = 7h.23m.54s.
Ravensburg e = 7h.24m.0s.
Uccle eN = 7h.24m.12s. and 24m.44s.

May 12d. 20h. 26m. 36s. Epicentre 4°·8N. 96°·8E. (as on 1928 Jan. 15d.). R.3.

A = −·118, B = +·989, C = +·084; D = +·993, E = +·118;
G = −·010, H = +·083, K = −·996.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Batavia	14·9	138	i 3 22	− 5	—	—	—	—
Phu-Lien	18·6	30	4 24?	+10	—	—	—	—
Kodaikanal	19·9	287	4 30	+ 1	8 11	+ 7	9·9	—
Hong Kong	24·3	42	6 15	+62	9 44	+16	—	15·8
Manila	25·7	66	e 5 34	+ 8	10 52	SS	15·4	17·4
Bombay	27·3	303	e 5 56	+15	i 10 23	+ 3	e 13·4	15·7
Agra	28·6	323	—	—	e 10 42	0	—	—
Chiufeng	39·3	24	e 7 33	+ 7	e 13 44	+18	—	—
Andijan	42·1	331	e 7 54	+ 5	e 14 10	+ 2	—	—
Frunse	42·9	335	e 9 50	(− 1)	—	—	—	—
Samarkand	44·0	326	e 8 4	− 1	e 14 38	+ 2	—	—
Irkutsk	47·5	6	—	—	e 16 30	+64	25·4	—
Vladivostok	49·3	35	—	—	e 16 5	+14	32·4	—
Tiflis	59·1	316	e 9 58	0	e 18 3	− 1	e 30·4	—
Theodosia	66·6	318	10 49	0	19 37	− 3	—	—
Yalta	67·3	316	e 10 52	− 2	e 19 40	− 8	—	—
Simferopol	67·4	317	e 10 53	− 1	e 19 44	− 6	—	—
Sebastopol	67·8	316	—	—	e 19 48	− 6	—	—
Kucino	68·9	330	—	—	e 20 0	− 8	e 34·4	44·6
Pulkovo	74·2	332	e 11 35	− 1	—	—	45·4	—
Chur	84·6	317	e 13 13	+42	e 22 53	−11	—	—

Additional readings:—
Batavia i = +4m.12s.
Manila iZ = +6m.24s.
Bombay PPP = +6m.40s., SS = +11m.40s.
Irkutsk e = +19m.40s.
Tiflis eZ = +10m.13s., PSN = +18m.29s.
Kucino e = +25m.18s.
Long waves were also recorded at Granada and Baku.

May 12d. Readings also at 0h. (Basle, Neuchatel, Puy de Dôme, Strasbourg, and Zurich), 2h. (Basle, Neuchatel, Puy de Dôme, Zurich, and Bozeman), 4h. (Lick and near Sumoto (2)), 8h. (Wellington), 9h. (San Juan), 10h. (Amboina, Batavia, Manila (2), Chiufeng, Nagoya, Kobe, Koti, Vladivostok, Irkutsk, Tashkent, Agra, Baku, Tiflis, and Tucson), 11h. (Sverdlovsk, Tiflis, and Hong Kong), 13h. (near Wellington and near Frunse), 14h. (Nagoya and near Medan), 15h. (near Mizusawa and Tyosi), 16h. (near Helwan and Ksara), 20h. (Baku and Sverdlovsk), 21h. (Tiflis).

May 13d. 9h. 2m. 18s. Epicentre 5°·0S. 153°·9E. N.1.

A = −·895, B = +·438, C = −·087; D = +·440, E = +·898;
G = +·078, H = −·038, K = −·996.

A correction for focal *depth* 0·015 has been applied.

		Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Palau		−0·7	22·9	302	4 51	− 2	8 54	+ 4	—	—
Amboina		−0·8	25·7	272	i 5 21	+ 2	9 16	−23	—	—
Suva		−0·9	27·3	121	5 42	+ 9	10 42	+37	13·7	—
Riverview		−1·0	28·9	185	i 5 46	0	i 10 30	0	15·2	17·6
Sydney		−1·0	28·9	185	e 6 2	+16	i 10 30	0	14·2	15·7
Adelaide		−1·1	33·1	203	i 6 22	− 1	i 11 34	− 1	i 14·3	18·2
Melbourne		−1·1	33·8	193	6 29	0	11 48	+ 2	15·4	—
Manila		−1·3	38·1	301	i 7 5a	0	12 55	+ 7	19·1	—
Arapuni		−1·3	38·5	152	—	—	13 42	+48	17·4	—
New Plymouth		−1·3	38·7	155	6 42?	−28	—	—	—	—
Naha		−1·3	40·3	321	7 17	− 7	13 22	+ 1	—	—
Nake		−1·3	40·8	326	7 30	+ 2	13 32	+ 3	—	—
Wellington		−1·3	40·8	156	7 32	+ 4	13 27	− 2	19·7	—
Isigakizima		−1·3	41·2	317	7 30	− 1	13 37	+ 2	—	—
Christchurch		−1·3	41·9	160	i 7 36	− 1	i 13 49	+ 4	20·2r	—
Miyazaki		−1·4	42·7	331	7 39	− 4	13 31	−25	—	—
Koti		−1·4	43·1	335	e 7 42	− 4	e 13 59	− 3	—	—
Nagoya		−1·4	43·2	340	e 8 1	+14	—	—	—	—
Sumoto		−1·4	43·2	338	e 7 43	− 4	13 54	− 9	19·8	—
Osaka		−1·4	43·3	338	7 10	−38	13 31	−34	17·7	19·0
Kobe	N.	−1·4	43·4	338	e 7 46	− 3	e 13 31	−35	—	18·3
	Z.	−1·4	43·4	338	7 49	0	e 13 48	−18	—	20·3
Taihoku		−1·4	43·5	315	8 3	+14	—	—	—	—
Maebasi		−1·4	43·6	342	7 50	0	—	—	—	—
Toyooka	N.	−1·4	44·3	338	e 7 52	− 4	—	—	—	—
Perth		−1·4	44·6	228	e 8 2	+ 4	—	—	i 18·1	22·1
Mizusawa		−1·4	45·7	346	e 8 4	− 3	e 8 32	?	—	—
Malabar		−1·4	46·1	264	i 8 14	+ 4	i 14 51	+ 5	—	—
Husan		−1·4	46·4	332	e 7 55	−18	e 14 51	+ 1	—	—
Akita		−1·4	46·5	346	8 14	0	—	—	—	—
Batavia		−1·4	46·8	266	i 8 15a	− 1	i 14 42	−14	—	—
Hong Kong		−1·4	47·5	306	8 22	+ 1	15 3	− 3	20·8	23·0
Zi-ka-wei	Z.	−1·5	47·6	322	i 8 22a	+ 1	15 12	+ 6	i 22·6	24·4
Keizyo		−1·5	49·4	332	8 34	− 1	—	—	20·0	—
Zinsen	E.	−1·5	49·5	331	e 8 31	− 5	i 15 33	0	—	—
Nanking		−1·5	49·9	320	7 43?a	−56	i 14 49	−49	19·7	25·6
Vladivostok		−1·6	52·0	340	i 8 57	+ 3	i 16 9	+ 3	22·0	26·4
Phu-Lien		−1·6	53·1	301	9 4	+ 1	16 28	+ 6	22·7	—
Honolulu		−1·7	54·1	59	e 9 12	+ 3	i 16 48	+15	24·4	—
Medan		−1·7	55·9	278	9 24	+ 1	i 17 5	+ 7	—	—
Chiufeng		−1·7	56·9	326	i 8 30a	−60	i 16 14	−58	23·5	28·3
Calcutta		−2·0	69·7	296	11 3	+ 7	20 7	+14	33·0	—
Colombo		−2·0	74·9	278	11 30	+ 2	—	—	—	40·7
Kodaikanal		−2·1	77·6	282	11 42	− 1	21 28	+ 2	47·8	—
Hyderabad		−2·1	77·7	289	11 57	+13	21 25	− 2	35·4	48·9

Continued on next page.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Agra	−2·1	79·8	299	i 11 51	− 5	i 21 45	− 6	37·1	43·3
Dehra Dun	−2·1	80·5	302	11 32	−27	(21 22)	−36	21·4	21·7
Bombay	−2·1	83·3	290	i 12 12	− 2	i 22 22	− 6	—	—
Sitka	−2·1	83·9	31	i 12 15	− 2	i 22 24	−11	e 34·2	—
Almata	−2·1	84·0	315	12 19	+ 1	e 22 30	− 6	—	—
Frunse	−2·1	85·7	314	14 4	?	24 29	?	—	—
Andijan	−2·1	86·9	311	12 32	0	23 3	− 3	—	—
Ukiah	−2·1	87·6	51	e 12 52	+16	e 22 57	−16	40·0	—
Berkeley	−2·1	88·2	52	e 12 36	− 3	i 23 0	−18	—	—
Victoria	−2·1	88·9	41	12 51	+ 9	22 53	−32	40·9	41·0
Tashkent	−2·1	89·3	312	i 12 43	− 1	i 23 21	− 8	35·8	48·1
Seattle	−2·1	89·5	42	—	—	e 23 8	−23	e 40·8	—
Samarkand	−2·1	90·8	309	e 12 51	0	23 37	− 7	—	—
Pasadena	−2·1	91·1	56	i 12 51k	− 2	e 23 36	−10	e 41·8	—
Mount Wilson	−2·1	91·2	56	e 12 53	0	—	—	—	—
Tinemaha	−2·1	91·3	53	i 12 52	− 2	—	—	—	—
La Jolla	−2·1	91·7	57	e 12 58	+ 2	—	—	—	—
Riverside	−2·1	91·7	56	i 12 54	− 2	—	—	—	—
Sverdlovsk	−2·2	96·0	327	i 13 2	−13	i 24 6	{−17}	46·4r	—
Bozeman	−2·2	97·1	45	e 17 18	PP	e 24 42	+ 1	e 44·7	—
Tucson	−2·2	97·1	58	e 13 4	−16	e 23 51	[−21]	e 40·9	—
Baku	—	103·9	311	e 13 48	−13	24 27	[−18]	45·7	54·8
Tiflis	—	107·6	313	e 14 3	−16	25 59	{+10}	e 52·7	—
Kucino	—	108·5	328	18 41	PP	25 29	{−27}	48·7	59·8
Pulkovo	—	110·7	333	18 36	PP	25 40	{−31}	52·2	60·2
Little Rock	—	112·3	55	21 42?	PPP	—	—	—	—
Helsingfors	—	112·8	336	—	—	e 26 40	{+13}	e 49·7	—
Florissant	—	113·0	50	e 19 14	PP	e 25 0	[−26]	—	—
St. Louis	—	113·2	50	e 19 14	PP	e 24 57	[−30]	e 51·7	55·7
Theodosia	—	113·4	317	e 18 54	PP	—	—	—	—
Chicago	—	114·3	46	—	—	e 28 48	PS	e 52·8	—
Simferopol	—	114·3	318	e 19 19	PP	—	—	—	—
Yalta	—	114·4	317	e 18 56	PP	—	—	—	—
Scoresby Sund	—	114·5	358	19 16	PP	25 6	[−26]	52·7	—
Ksara	—	115·9	305	e 18 31	[− 4]	29 18	PS	—	—
Helwan	—	120·6	302	i 20 5	PP	i 29 50	PS	—	67·0
Copenhagen	—	120·7	336	19 57	PP	29 54	PS	51·7	—
Ottawa	—	121·0	39	e 20 8	PP	e 25 26	[−27]	e 50·7	—
Ivigtut	—	121·4	12	—	—	30 0	PS	57·7	—
Columbia	—	121·5	52	—	—	e 25 33	[−22]	e 56·7	—
Charlottesville	—	122·2	48	—	—	e 27 7	{−24}	e 54·7	—
Budapest	—	122·6	325	e 20 12	PP	—	—	e 54·7	—
Cape Town	—	122·7	224	32 17	?	37 45	SS	58·7	—
Georgetown	—	122·8	46	e 19 7	PP	i 27 12	{−23}	e 56·7	—
Hamburg	—	123·3	336	e 20 0	PP	—	—	e 54·7	—
Vienna	—	123·7	327	e 19 10	[+16]	—	—	—	—
Fordham	—	124·2	43	e 20 30	PP	e 25 39	[−24]	e 57·7	—
Cheb	—	124·5	331	—	—	e 30 42?	PS	e 60·7	62·7
Graz	—	124·8	326	e 17 50	[−67]	e 28 26	{+38}	e 57·7	—
Oak Ridge	—	125·0	40	i 18 47	[−10]	—	—	e 57·2	—
Zagreb	—	125·3	325	e 18 28	[−30]	e 28 31	{+40}	e 56·7	—
Edinburgh	—	125·9	344	e 20 42?	PP	—	—	e 61·7	—
De Bilt	—	126·3	336	i 18 49	[−11]	—	—	e 53·7	62·3
Triest	—	126·7	326	e 18 50	[−10]	e 28 33	{+33}	e 55·2	63·7
Stuttgart	—	127·0	331	e 18 48	[−13]	e 30 27	PS	e 55·7	78·7
Treviso	—	127·5	327	e 18 42	[−20]	e 28 42	{+36}	65·7	—
Uccle	—	127·6	336	18 51	[−11]	e 30 54	PS	54·7	—
Strasbourg	—	127·8	332	e 18 49	[−14]	e 28 42	{+34}	e 67·7	—
Bidston	—	128·1	343	e 20 57	PP	—	—	e 56·7	—
Chur	—	128·1	330	e 18 52	[−11]	—	—	—	—

Continued on next page.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Huancayo	—	128·2	110	—	—	e 38 33	SS	e 51·9	—
Zurich	—	128·3	331	e 19 42	[+38]	—	—	—	—
Basle	—	128·6	331	e 19 12	[+ 8]	—	—	—	—
Kew	—	128·8	339	e 21 3	PP	—	—	e 55·7	68·7
Florence	—	129·2	325	18 55	[−10]	29 12	?	56·7	—
Prato	—	129·2	325	e 18 54	[−11]	e 21 18	PP	—	—
Piacenza	—	129·2	328	e 11 42	?	22 18	?	—	71·6
Neuchatel	—	129·3	331	e 18 54	[−11]	—	—	—	—
Paris	—	129·9	336	e 18 57	[− 9]	—	—	58·7	60·7
La Paz	—	133·2	119	19 42	[+30]	—	—	64·0	—
Algiers	—	138·5	324	e 17 42?	?	—	—	—	—
San Juan	—	138·7	68	e 19 2	[−18]	—	—	e 64·4	—
Alicante	—	139·3	329	e 22 54	PKS	—	—	—	—
Toledo	—	139·9	333	e 22 52	PKS	—	—	—	—
Almeria	—	141·4	329	e 19 13	[−10]	—	—	—	—
Granada	—	141·8	331	19 18	[− 5]	26 24	SKS	e 67·0	—

Additional readings :—
Suva P_cS? = +11m.42s.?
Riverview PPN = +6m.17s., iE = +12m.21s.
Adelaide i = +6m.49s., +8m.6s., +9m.58s., +12m.4s., and +12m.47s., iSSS = +13m.42s.
Wellington PP = +9m.12s., PPP = +9m.35s., i = +14m.2s., and +14m.47s., SS = +16m.46s.
Christchurch ipPZ = +8m.25s., iP_cPZ = +9m.15s., P_cS = +13m.18s., isSN = +15m.13s., iS_cS = +17m.17s., L_q = +17m.42s.
Koti e = +17m.39s.
Sumoto SN = +13m.57s.
Osaka i = +9m.15s. = PP − 4s.
Kobe eNZ = +9m.27s., eE = +15m.40s.
Husan ePP = +9m.52s., SS = +18m.1s.
Batavia i = +10m.37s., iE = +13m.42s.
Hong Kong PP = +10m.28s., SS = +18m.4s.
Zi-ka-wei PPZ = +10m.14s., iZ = +19m.31s., and +22m.36s.
Nanking iPP = +8m.7s.
Honolulu e = +12m.18s., +17m.12s., +19m.10s., and +22m.12s.
Chiufeng iEN = +18m.10s.
Agra PP = +14m.49s., PPP = +16m.31s., PS = +22m.23s., SS = +26m.55s., SSS = +30m.3s.
Bombay PP = +15m.25s., PPPN = +17m.21s., PS = +23m.6s., SS = +27m.56s.
Sitka eSS = +27m.2s.
Almata i = +13m.6s.
Andijan e = +12m.48s., i = +13m.10s.
Berkeley iPZ = +12m.40s., eEZ = +16m.18s., iZ = +16m.28s., iN = +23m.12s., eSZ = +23m.22s., iZ = +24m.15s. = PS − 15s., eE = +37m.12s.
Victoria SN = +23m.5s. ; To = 9h.3m.8s.
Tashkent PP = +16m.14s., SKS = +23m.8s.
Seattle eSS = +29m.16s.
Samarkand e = +13m.4s.
Pasadena iZ = +24m.51s. = PS − 13s.
Sverdlovsk PP = +16m.56s., SKS = +23m.28s., SS = +30m.36s., L_q = +41m.36s.
Bozeman SKS = +23m.50s., e = +29m.18s., eSSS = +35m.0s.
Tucson ePS = +25m.32s., eSS = +29m.54s., eSSS = +34m.58s.
Baku PP = +18m.3s.
Tiflis eE = +14m.32s., eZ = +18m.18s., PP = +18m.31s., eE = +27m.37s. = PS − 27s.
Kucino SS = +34m.36s., SSS = +39m.24s.
Pulkovo S = +26m.18s., PS = +28m.14s., SS = +34m.12s., SSS = +39m.6s., L_q = +48m.42s.?
Helsingfors ePSN = +28m.41s., eSSEN = +34m.43s., eSSSN = +39m.18s.
Florissant eSKKS = +26m.10s., eS = +26m.50s., iSS = +34m.51s.
St. Louis eSKKSEN = +26m.7s., eE = +26m.52s., ePSE = +28m.37s., iE = +28m.53s., ePPSE? = +29m.20s., eE = +31m.17s., eSSE = +34m.45s., iSSEN = +34m.54s.
Chicago eSS = +34m.39s., eSSS = +39m.49s.
Scoresby Sund eZ = +19m.25s., SKKS = +26m.16s., iS = +27m.1s., iPS = +29m.1s., SS = +35m.6s., +35m.17s., SSS = +39m.30s. and +40m.29s.
Ksara PP = +19m.36s., SS = +35m.46s.
Copenhagen e = +35m.42s.
Ottawa e = +27m.0s. = SKKS − 23s. and +36m.37s. = SS − 8s.
Columbia ePS = +29m.58s., eSS = +35m.33s.
Georgetown ePP = +20m.18s., ePS = +30m.0s., iSS = +36m.57s.

Continued on next page.

Vienna iZ = +19m.46s.
Fordham eSKKSNE = +27m.20s., eSS = +37m.17s.
Oak Ridge iPP = +20m.36s., i = +20m.56s., eSSNE = +37m.20s., eSSNW = +37m.25s.
Zagreb e = +20m.23s. =PP − 23s.
De Bilt eEN =iZ = +20m.45s. =PP − 7s., e = +22m.8s.
Triest iP? = +20m.47s. =PP − 8s., iPP = +22m.1s., e = +30m.33s. and +30m.42s., iSS = +37m.49s., i = +40m.21s., e = +43m.30s.
Stuttgart ePKP$_2$ = +19m.16s., ePP = +20m.42s., ePKS = +22m.2s., ePPP = +23m.27s., eSS = +37m.42s., e = +40m.42s.
Treviso PP = +22m.17s.
Uccle iPP = +20m.54s., iSKP = +22m.13s., SSE = +38m.0s.
Strasbourg iPPZ = +20m.50s., PKS = +22m.12s., ePSN = +31m.1s.
Bidston i = +22m.15s. =PKS.
Kew iPKS = +22m.16s.
Florence PP = +21m.6s., SKS = +21m.42s.
Prato M = +22m.14s. =PKS.
Paris PP = +21m.11s., e = +22m.19s. =PKS.
La Paz iPP = +22m.34s. =PKS − 13s.
Algiers iSPP? = +22m.3s., i = +22m.43s. =PKS − 22s.
San Juan ePP = +22m.32s. =PKS − 35s., e = +32m.22s. =PS − 25s., eSS = +40m.42s.
Granada PP = +22m.24s., SKP = +22m.57s., PPS = +35m.22s.
Long waves were also recorded at Upsala, Prague, Bergen, and San Fernando.

May 13d. 17h. 2m. 57s. Epicentre 18°·0N. 120°·4E. (as on April 1d.). R.2.

A = −·481, B = +·820, C = +·309; D = +·863, E = +·506; G = −·156, H = +·267, K = −·951.

	Δ	Az.	P.	O − C.	S.	O − C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Manila	3·5	169	i 0 52$_a$	+ 2	1 48	S_g	—	—
Arisan	5·5	5	1 23	+ 5	2 21	+ 1	—	—
Karenko	6·1	11	1 27	0	—	—	—	—
Taihoku	7·1	9	1 46	+ 5	2 57	− 4	—	—
Phu-Lien	13·3	284	3 3?	− 3	—	—	—	—
Nanking	14·1	354	2 11	−66	e 5 18	−35	e 8·0	—
Nagasaki	17·0	28	3 51	− 3	7 4	+ 2	—	—
Sumoto	20·8	36	e 4 15	−23	e 8 24	+ 2	—	—
Wakayama	20·9	36	4 35	− 4	8 25	+ 1	—	—
Kobe	21·2	36	4 38	− 4	—	—	—	—
Osaka	21·4	36	4 44	0	8 32	− 2	—	9·0
Chiufeng	22·4	351	3 53	−62	7 54	−59	—	14·0
Nagoya	22·6	37	e 4 52	− 5	—	—	—	—
Kohu	23·9	39	5 4	− 5	—	—	—	—
Vladivostok	26·9	19	e 5 38	+ 1	e 10 8	− 6	14·9	—
Irkutsk	36·5	345	7 15	+13	12 55	+11	19·1	—
Agra	39·9	294	e 9 15	(−26)	—	—	—	—
Tashkent	49·3	310	i 8 59	+13	e 13 8	?	e 27·2	31·7
Sverdlovsk	58·6	327	i 9 45	−10	—	—	30·1	—

Additional readings:—
Nanking iSE = +5m.31s.
Sumoto ePN = +4m.20s., ePZ = +4m.32s.
Kobe eE = +6m.31s.
Tashkent e = +15m.45s. =S − 6s.
Long waves were also recorded at Hong Kong, Tiflis, Pulkovo, Kucino, Scoresby Sund, and several European stations.

May 13d. 23h. 8m. 6s. Epicentre 28°·5N. 141°·5E. (as on 1933 July 31d.). X.

A = −·688, B = +·547, C = +·477 ; D = +·622, E = +·783 ;
G = −·373, H = +·297, K = −·879.

A focal *depth* 0·070 is assumed. Considerable depth is well established for shocks in this vicinity, see 1932 Feb. 3d.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.
Tyosi	+0·1	7·2	356	i 3 25	S	(i 3 25)	+19	—
Osaka	−0·2	8·1	321	1 51	− 1	3 27	+ 6	3·8
Sumoto	−0·2	8·1	318	e 1 52	0	e 3 26	+ 5	3·5
Kobe	−0·2	8·2	320	—	—	i 3 29	+ 5	4·4
Mizusawa	−0·9	10·6	358	2 31	+14	e 4 29	+23	—
Tinemaha	−8·2	80·6	54	i 11 25	0	—	—	—
Haiwee	−8·3	81·3	55	i 11 30	+ 1	—	—	—
Pasadena	−8·3	82·1	56	i 11 33a	0	—	—	—
Riverside	−8·3	82·7	56	i 11 36a	− 1	—	—	—

Mizusawa gives also eSN = +4m.32s.

May 13d. Readings also at 0h. (Medan, Bunnythorp, near Wellington, Kobe, Toyooka, Sumoto, and near Tyosi), 1h. (Lick and near Mizusawa), 2h. (near Mizusawa), 7h. (near Santiago), 8h. (near Triest), 9h. (near Irkutsk), 11h. (Amboina), 13h. (San Francisco), 14h. (Chiufeng, Manila, Koti, Vladivostok, and near Osaka), 15h. (Sverdlovsk), 16h. (Nagoya, Amboina, near Mizusawa and Tyosi), 17h. (near Irkutsk), 19h. (Mount Wilson, Pasadena, Riverside, Seattle, Tinemaha, Sumoto, and near Osaka (3)), 20h. (Tiflis), 22h. (La Paz, Simferopol, near Sebastopol, Theodosia, Yalta, and near Wellington).

May 14d. 13h. 14m. 40s. Epicentre 29°·0N. 115°·0W. (as on 1928 Jan. 20d.). R.3.

A = −·370, B = −·793, C = +·485 ; D = −·906, E = +·423 ;
G = −·205, H = −·439, K = −·875.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
La Jolla	4·3	333	i 1 6	+ 5	i 2 2	S*	—	—
Tucson	4·9	46	i 1 8	− 2	i 1 16	P*	—	—
Riverside	5·4	339	i 1 16	− 1	i 2 26	+ 8	—	—
Pasadena	5·8	334	e 1 24	+ 2	e 2 30	+ 2	—	—
Mount Wilson	5·9	335	i 1 25	+ 1	—	—	—	—
Santa Barbara	6·8	325	—	—	i 3 26	S*	—	—
Haiwee	7·6	342	i 1 48	0	i 3 38	S*	—	—
Tinemaha	8·5	343	i 1 58	− 2	e 4 2	S*	—	—
Branner	10·3	327	e 2 41	+16	i 5 11	S*	—	—
Berkeley	10·8	327	e 2 31	− 1	i 4 33	0	—	—
Denver	13·5	35	e 5 15	?S	e 5 51	+12	e 6·2	6·8
Bozeman	17·0	9	e 3 51	− 3	e 6 42	−20	e 8·2	—
Seattle	19·5	345	e 4 50	+26	e 8 4	+ 8	10·4	—
Little Rock	20·0	67	i 4 46	PP	—	—	i 10·5	—
Victoria	20·4	344	4 33	− 1	—	—	10·5	13·3
Florissant	22·6	58	i 5 4	+ 7	i 9 2	+ 5	e 10·8	—
St. Louis	22·6	58	e 5 4	+ 7	e 9 6	+ 9	e 11·0	11·4
Ann Arbor	28·5	53	—	—	e 14 20	?	i 14·5	15·1
Toronto	31·9	53	—	—	e 12 30	+56	15·4	—
Georgetown	32·7	62	e 6 41	+12	e 11 50	+ 4	e 17·2	—
Ithaca	33·6	56	—	—	e 13 56	SS	e 16·9	17·6
Ottawa	34·9	51	—	—	e 11 50	−30	e 16·3	—
Fordham	35·4	60	—	—	e 13 8	+41	17·8	—
San Juan	45·7	92	—	—	e 15 24	+24	e 23·3	—
Triest	92·1	33	e 15 10	?	—	—	—	45·7
Tiflis	106·9	16	e 18 58	PP	—	—	e 53·3	64·0
Tashkent	109·6	357	e 21 20	PPP	—	—	—	—

For Notes see next page.

NOTES TO MAY 14d. 13h. 14m. 40s.

Additional readings :—
La Jolla iEZ = +1m.19s. = P_g −1s.
Tucson i = +1m.20s., +1m.52s., and +1m.58s. = S −7s.
Pasadena iPZ = +1m.47s. = P_g −3s., iS = +2m.37s. ; T_0 = 13h.14m.54s.
Branner iE = +5m.18s.
Berkeley eEN = +2m.41s., iN = +4m.26s., eN = +5m.6s., eE = +5m.28s.
Seattle e = +5m.28s., eSSS = +9m.20s.
St. Louis iEN = +5m.8s., epPE = +5m.14s., esSEN = +9m.20s.
Georgetown eE = +12m.5s. ; T_0 = 13h.14m.35s.
Ottawa e = +12m.32s., eE = +15m.8s.
Fordham eSN = +13m.12s.
San Juan eSS = +19m.4s.
Tashkent e = +23m.38s.
Long waves were also recorded at Honolulu, Ivigtut, Kucino, Pulkovo, Sverdlovsk, and other American and European stations.

May 14d. 22h. 12m. 53s. Epicentre 58°·2N. 152°·4W. N.1.

A = −·467, B = −·244, C = +·850 ; D = −·463, E = +·886 ;
G = −·753, H = −·394, K = −·527.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Sitka	9·2	90	i 2 3	− 7	i 3 40	−14	i 5·2	—
Victoria	19·7	107	4 25	− 1	—	—	8·1	8·5
Saskatoon	26·3	83	e 5 30	− 2	i 10 15	+12	—	—
Ukiah	26·7	123	e 5 43	+ 8	e 10 7	− 3	12·5	—
Bozeman	27·9	99	e 5 47	+ 1	e 10 33	+ 3	e 14·6	—
Berkeley	28·1	123	i 5 49	+ 1	i 10 37	+ 3	—	—
Branner	28·6	123	e 5 48	− 5	—	—	—	—
Tinemaha	30·6	118	i 6 13k	+ 3	—	—	—	—
Haiwee	31·5	118	i 6 21	+ 3	—	—	—	—
Santa Barbara	32·1	123	i 6 26k	+ 2	—	—	—	—
Mount Wilson	33·1	121	i 6 34k	+ 1	—	—	—	—
Pasadena	33·1	121	i 6 33k	0	e 11 41	−11	i 16·0	—
Riverside	33·6	121	i 6 37	0	i 11 59	− 1	—	—
La Jolla	34·6	121	i 6 47	+ 1	—	—	—	—
Honolulu	37·1	188	e 6 52	−15	e 12 50	− 3	e 15·6	—
Tucson	38·1	114	e 7 17	+ 1	e 13 4	− 4	e 18·6	—
Chicago	42·7	84	e 7 55	+ 1	e 14 15	− 1	—	—
Florissant	43·5	88	i 8 0	− 1	e 14 25	− 3	—	—
St. Louis	43·8	88	i 8 3	0	i 14 30	− 3	i 17·8	—
Ann Arbor	44·5	80	e 8 7	− 2	e 14 43	0	e 24·0	24·5
Little Rock	45·5	94	e 8 22	+ 5	i 15 5	+ 8	e 20·6	—
Mizusawa	45·6	275	(8 18)	0	8 18	P	—	—
Toronto	45·7	75	i 8 24	+ 6	i 15 9	+ 9	22·0	25·8
Ottawa	46·3	71	i 8 22	− 1	i 15 7	− 2	22·1	—
Scoresby Sund	46·6	21	8 26	+ 1	i 15 14	+ 1	21·1	—
Ivigtut	47·0	40	i 8 30	+ 1	i 15 19	0	22·1	—
Vladivostok	47·5	286	i 8 32	0	15 26	0	22·1	29·1
Ithaca	48·0	74	e 8 37	+ 1	i 15 31	− 2	e 19·6	25·1
Mito	48·0	274	8 38	+ 2	15 27	− 6	—	—
Maebasi	48·7	275	8 41	0	15 44	+ 1	—	—
Otwake	49·0	275	8 34	−10	15 35	−12	—	—
Kohu	49·6	274	8 42	− 6	15 45	−10	—	—
Misima	49·8	274	8 48	− 2	15 58	0	—	—
Charlottesville	50·3	80	—	—	e 16 7	+ 2	e 24·1	—
Georgetown	50·4	77	i 8 55k	+ 1	i 16 5	− 1	—	—
Oak Ridge	50·5	71	i 8 51	− 4	i 16 7	− 1	e 26·5	—
Fordham	50·6	74	i 8 56	0	i 16 9	0	—	—
Osaka	51·9	276	8 56	−10	16 30	+ 3	—	—
Osaka B	51·9	276	9 8	+ 2	16 32	+ 5	—	—
Columbia	52·1	85	e 15 33	?	e 16 27	− 3	e 25·9	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Kobe	E.	52·1	276	i 9 8	+ 1	e 16 30	0	—	—
	N.	52·1	276	e 8 57	−10	i 16 33	+ 3	—	—
	Z.	52·1	276	9 7	0	16 32	+ 2	—	30·4
Wakayama		52·4	276	9 10	+ 1	16 34	0	—	—
Sumoto		52·5	276	9 10	0	16 38	+ 3	e 24·1	—
Irkutsk		53·3	311	9 15	− 1	16 42	− 4	—	—
Koti		53·8	276	9 20	0	i 16 57	+ 4	—	—
Keizyo		54·1	285	9 24	+ 2	17 0	+ 3	—	—
Miyazaki		56·2	287	9 38	+ 1	17 32	+ 7	—	—
Nagasaki		56·4	279	9 39	0	17 30	+ 2	—	—
Chiufeng		57·5	295	i 9 47a	0	17 39	− 4	e 24·7	31·0
Helsingfors		61·6	2	i 10 17	+ 1	i 18 36	− 1	e 25·1	—
Upsala		61·7	7	i 10 16	0	i 18 36	− 2	e 27·1	—
Zi-ka-wei		61·9	285	i 10 19a	+ 1	18 41	0	33·8	54·2
Pulkovo		62·0	358	i 10 17	− 1	18 41	− 1	25·6	35·6
Nanking		62·6	287	i 10 16	− 6	i 18 42	− 8	e 29·1	34·0
Edinburgh		63·3	19	—	—	i 18 57	− 2	e 30·1	—
Copenhagen		65·5	10	i 10 41	− 1	i 19 27	+ 1	29·1	—
Bidston		65·6	20	e 10 57	+15	e 19 27	0	e 27·1	—
Kucino		65·8	354	i 10 46	+ 2	19 33	+ 3	36·9	39·2
Königsberg		66·9	5	i 10 50	− 1	i 19 42	− 1	e 29·6	36·8
Hamburg		67·3	12	i 10 54a	0	i 19 52	+ 4	e 34·1	—
Oxford		67·5	19	—	—	19 54	+ 3	—	—
Kew		68·0	19	e 11 0	+ 2	i 19 57	0	e 27·1	33·3
De Bilt		68·2	15	e 11 0	+ 1	20 2	+ 3	27·1	35·6
Göttingen		69·3	12	i 11 6	0	i 20 12	− 1	—	45·1
Uccle		69·3	16	i 11 6a	0	i 20 13	0	e 30·1	—
Almata		70·6	324	11 18	+ 4	e 20 32	+ 4	—	—
Cheb		71·0	10	e 11 15	− 2	e 20 31	− 2	—	41·1
Paris		71·0	18	i 11 35	+18	e 21 30	PS	38·1	42·1
Frunse		71·6	326	12 41	?	e 22 1	?	—	—
Strasbourg		72·0	14	i 11 23a	0	i 20 46	+ 1	e 27·1	—
Stuttgart		72·0	13	11 23	0	20 44	− 1	e 31·1	—
San Juan		72·5	83	e 11 23	− 3	e 20 44	− 7	e 37·1	—
Hong Kong		72·9	285	11 26	− 2	20 55	− 1	34·3	39·8
Basle		73·0	15	e 11 27	− 2	e 20 53	− 4	—	—
Vienna		73·2	8	i 11 27	− 3	i 20 58	− 1	—	—
Zurich		73·3	14	e 11 29	− 2	e 21 0	0	—	—
Neuchatel		73·4	15	e 11 30	− 1	e 20 56	− 5	—	—
Chur		73·8	13	e 11 34	+ 1	e 20 41	−25	—	—
Budapest		74·1	7	12 19	+44	i 21 58	+48	e 32·1	—
Andijan		74·2	326	e 11 35	− 1	e 21 9	− 2	e 37·9	—
Graz		74·3	9	i 11 35	− 1	i 21 9	− 3	e 48·1	—
Tashkent		74·6	329	i 11 36	− 2	i 21 9	− 6	e 35·1	48·8
Triest		75·5	11	i 11 42a	− 1	i 21 20	− 6	e 31·8	45·2
Zagreb		75·5	9	e 11 42	− 1	e 21 20	− 6	—	—
Padova		75·6	11	e 11 44	0	i 21 24	− 3	—	—
Piacenza		75·7	14	12 11	+27	21 27	− 1	—	49·1
Manila		75·9	275	i 11 42a	− 3	i 21 25	− 5	36·6	—
Theodosia		76·6	355	11 49	0	21 33	− 5	e 49·1	—
Simferopol		76·7	356	11 50	0	21 35	− 4	e 37·1	—
Prato		77·0	12	i 11 52	0	i 21 40	− 3	—	—
Florence		77·1	12	i 11 51	− 2	i 21 39	− 5	27·1	45·1
Sebastopol		77·1	356	e 11 52	− 1	e 21 37	− 7	—	—
Yalta		77·1	356	11 53	0	21 39	− 5	—	—
Grozny		77·4	346	11 57	+ 3	i 21 45	− 2	—	—
Siena		77·5	12	11 47	− 8	(21 7)	−41	—	21·1
Sotchi		77·7	351	e 12 59	+63	—	—	—	—
Phu-Lien		78·0	290	—	—	e 21 48	− 6	—	—
Toledo		78·4	25	e 11 58	− 1	i 21 55	− 3	e 35·1	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tortosa	N.	78·4	21	e 13 0	?	e 23 24	?	e 35·1	46·8
Tiflis		79·1	347	12 2	− 1	i 22 1	− 5	36·1	51·1
Alicante		80·6	23	e 12 15	+ 4	e 22 29	+ 7	e 36·2	—
Erevan		80·6	347	12 13	+ 2	e 22 18	− 4	—	—
Granada		81·1	25	i 12 14	0	i 22 24	− 3	—	—
San Fernando		81·2	28	12 21	+ 7	22 13	−14	36·1	50·6
Malaga		81·4	26	i 12 17	+ 2	i 22 27	− 4	34·8	—
Almeria		81·7	25	e 12 21	+ 4	e 22 27	− 7	e 36·0	—
Calcutta		84·9	306	12 44	+11	23 2	− 5	40·5	—
Amboina		87·6	259	12 32	−14	23 10	−23	—	—
Ksara		87·7	353	e 12 46	0	23 28	− 6	43·1	—
Huancayo		93·6	107	—	—	e 23 29	[−24]	e 40·1	—
Hyderabad		93·6	312	13 18	+ 4	23 42	[−11]	42·1	55·1
Bombay		94·4	317	e 13 18	0	24 33	− 4	—	50·9
Kodaikanal		100·6	310	13 47	+ 1	—	—	—	—
La Paz		101·0	103	e 23 58	?	i 24 42	[+11]	49·7	57·0

Additional readings :—

Victoria PN = +4m.28s.
Ukiah iPP = +5m.54s., e = +7m.24s.
Bozeman e = +12m.46s.
Berkeley iEN = +6m.2s., iZ = +6m.5s.
Branner eE = +6m.0s.
Honolulu iP = +7m.37s., iS = +13m.11s.
Tucson i = +7m.28s., ePP = +8m.51s., eSS = +15m.0s.
Chicago ePP = +9m.35s., iS = +14m.36s., SS = +17m.15s.
Florissant ipPZ = +8m.16s., esS = +14m.54s. ; T_o = 22h.13m.2s.
St. Louis ipPEN = +8m.18s., iEN = +14m.50s., isSN = +14m.57s., isSE = +14m.59s. ; T_o = 22h.13m.2s.
Ann Arbor ePP = +9m.55s., i = +18m.1s. = S_cS − 8s., eL?E = +18m.25s., iN = +18m.31s., e = +20m.55s. ; T_o = 22h.12m.36s.
Toronto PP = +10m.11s., iSS = +18m.39s.
Ottawa eN = +9m.52s., PP = +10m.11s., S_cS = +18m.12s., SS = +18m.33s., eN = +20m.7s., SSSSE = +20m.35s. ; T_o = 22h.13m.0s.
Scoresby Sund pP = +8m.38s., i = +10m.30s., sS = +15m.41s., SS = +18m.18s., +18m.49s.
Ivigtut +8m.41s. and +10m.20s.
Ithaca ePP = +10m.31s., eSS = +18m.49s. ; T_o = 22h.12·9m.
Charlottesville eSS = +20m.1s.
Oak Ridge iPNW = +8m.55s., ipP = +9m.8s., isS = +16m.28s., eSS = +19m.37s.
Fordham iZ = +9m.12s., iE = +16m.30s., iN = +18m.43s. = S_cS − 5s.
Osaka i = +9m.10s. = PP − 13s., +11m.4s., +12m.44s., +16m.52s., and +17m.16s.
Columbia eSS = +20m.17s., e = +23m.27s.
Chiufeng iE = +19m.35s. = S_cS + 0s.
Helsingfors ePcPNZ = +10m.51s., ePcSN = +14m.41s., iPSE = +19m.1s., eScSN = +19m.29s., eSKSN = +19m.59s., eSSN = +23m.37s.
Zi-ka-wei iZ = +10m.37s., PP = +12m.39s., PPP = +14m.17s.
Pulkovo LR = +29m.7s.
Nanking iE = +20m.6s. = S_cS − 5s.
Edinburgh i = +26m.17s. = SSSS + 0s.
Copenhagen +10m.56s. and +19m.45s., e = +20m.44s. = S_cS +12s.
Königsberg ePcPN = +11m.10s.
De Bilt ePPZ = +13m.40s.
Uccle i = +11m.24s. = PcP − 6s., iPP = +13m.40s., i = +13m.59s., e = +16m.59s., eE = +27m.7s.? = SSS − 13s.
Cheb eSS = +24m.57s.
Strasbourg ipP = +11m.41s., iPP = +14m.3s., ipPP = +14m.19s., iPS = +21m.15s.
Stuttgart epP = +11m.37s., e = +14m.3s. = PP + 7s., ePP = +14m.17s., eN = +21m.48s., eSS = +25m.17s.
San Juan ePP = +14m.36s., eSS = +25m.34s., eSSS = +28m.53s.
Vienna PcP = +12m.1s., PP = +14m.41s., PS = +21m.25s., S_cS = +21m.39s.
Graz iPS = +21m.32s.
Triest iPcP = +11m.59s., PP = +14m.28s., iPS = +21m.48s., iSS = +26m.17s.
Zagreb ePcPNE = +11m.48s.
Florence i = +15m.7s., PS = +22m.7s., i = +26m.37s. = SS + 8s.
Toledo iP = +12m.5s.
Tiflis ePcPN = +12m.19s., SKSN = +22m.16s., SSE = +27m.10s., eSSSE = +31m.7s.
Granada PcP = +12m.30s., PP = +15m.45s., S_cS = +23m.4s.

Continued on next page.

San Fernando PE = +12m.29s.
Malaga i = +13m.9s., PP = +15m.21s., PPP = +17m.8s., iPS = +23m.7s., SSS = +31m.9s.
Huancayo ePS = +25m.26s., iSS = +30m.57s.
Bombay PP = +17m.6s., SKS = +23m.48s., SKKS = +24m.25s., PS = +25m.49s., SS = +31m.3s.
La Paz iPN = +24m.19s.

May 14d. Readings also at 4h. (Wellington), 8h. (Hong Kong and Phu-Lien), 9h. (Ksara, Sebastopol, Simferopol, Theodosia, Yalta, and Tiflis), 10h. (near Manila), 14h. (near La Paz and Sucre), 15h. (Haiwee, Mount Wilson, Pasadena, Riverside, Tinemaha, and Nanking), 20h. (Haiwee, La Jolla, Mount Wilson, Pasadena, Riverside, Santa Barbara, and Tinemaha), 21h. (Basle and Neuchatel), 22h. (near Wellington).

May 15d. 15h. 18m. 39s. Epicentre 27°·5N. 108°·0W. N.3.

A = − ·274, B = − ·844, C = + ·462 ; D = − ·951, E = + ·309 ; G = − ·143, H = − ·439, K = − ·887.

		Δ	Az.	P.	O − C.	S.	O − C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tucson		5·4	333	e 1 47	P_g	i 2 52	S_g	—	—
La Jolla		9·6	308	i 2 23	+ 7	i 3 46	−17	—	—
Riverside		10·3	311	i 2 25	0	i 4 39	+18	—	—
Mount Wilson		10·9	311	i 2 29	− 4	i 4 28	− 8	—	—
Pasadena		11·0	310	e 2 29	− 6	i 4 31	− 7	e 5·1	—
Haiwee		12·1	318	i 2 52	+ 2	i 5 34	+29	—	—
Tinemaha	z.	12·9	321	e 2 57	− 4	i 6 0	+35	—	—
Ukiah		17·2	316	—	—	e 7 39	+33	—	—
Florissant		18·5	49	i 4 16	+ 3	e 8 19	+43	i 11·6	—
St. Louis		18·5	49	e 5 13	+60	e 9 14	?	e 11·1	12·5
Georgetown		28·1	58	e 8 27	?	e 13 32	?	e 16·4	—
Toronto		28·1	48	i 5 6	−42	—	—	15·9	—

Additional readings :—
Tucson e = +1m.57s., i = +2m.27s. and +2m.40s.
Long waves were also recorded at Paris, Stuttgart, Baku, Tashkent, and at other American stations.

May 15d. Readings also at 0h. (Branner, Tiflis, Paris, and Uccle), 1h. (Batavia), 2h. (near St. Louis), 5h. (Scoresby Sund), 6h. (Samarkand, New Plymouth, and near Wellington), 7h. (Seattle), 8h. (Arapuni, near Hastings, New Plymouth, and Wellington), 12h. (Copenhagen), 13h. (Columbia), 14h. (Little Rock), 16h. (near Oak Ridge), 20h. (near Tiflis and Grozny), 22h. (Scoresby Sund), 23h. (Oak Ridge, La Jolla, Mount Wilson, Pasadena, Riverside, Tucson, and Wellington (2)).

May 16d. 2h. and 3h. Two shocks from origin in the South of France.

Shock I.
Puy de Dôme eP_g = 2h.52m.49s., S_g = 53m.11s., M = 53m.21s.
Neuchatel eP = 2h.52m.58s. i = 53m.1s., eS_g = 53m.52s.
Basle eP = 2h.53m.17s., eS = 54m.11s.
Chur eP = 2h.53m.21s.
Zurich eP = 2h.53m.24s.
Florence e = 2h.53m.30s., M = 55m.28s.
Strasbourg PPP = 2h.53m.53s., eS_g? = 54m.44s., SSS? = 55m.2s.
Piacenza e = 2h.54m.2s., P = 54m.17s., ME = 78m.4s.
Stuttgart e = 2h.54m.12s. and 55m.3s., iS_g = 55m.26s.
Prato eP = 2h.54m.20s., S? = 54m.41s.
Ravensburg e = 2h.54m.24s.
Triest e = 2h.54m.30s., i = 56m.15s.
Paris e = 2h.54m.40s.
Tortosa S = 2h.54m.48s.
Karlsruhe eP? = 2h.55m.9s.
Uccle eN = 2h.55m.9s., eE = 55m.38s.
Long waves were also recorded at Pulkovo and Sverdlovsk.

Continued on next page.

Shock II.
Puy de Dôme eP_g = 3h.31m.22s., eS = 31m.46s.
Strasbourg PPP? = 3h.32m.42s., eS_g? = 33m.28s.
Stuttgart e = 3h.33m.24s.
Ravensburg e = 3h.33m.30s.
Uccle eN = 3h.33m.32s., e = 34m.12s.

May 16d. Readings also at 0h. (Sumoto and Tiflis), 3h. (Riverview, Hong Kong, near Amboina, and near Manila), 5h. and 7h. (near Wellington), 8h. (Riverview, Sydney, Sebastopol, Simferopol, Theodosia (2), and Yalta), 9h. (Kodaikanal, Baku, and Sverdlovsk), 10h. (near Tyosi), 14h. (near Oak Ridge), 16h. (near Branner and Lick), 17h. (near Sumoto), 23h. (Tashkent, Sverdlovsk, Hong Kong, and near Manila).

May 17d. 11h. 53m. 41s. Epicentre 35°·5N. 140°·0E. (as on April 11d.). R.3.

A = − ·624, B = + ·523, C = + ·581.

	Δ	Az.	P.	O − C.	S.	O − C.	M.
	°	°	m. s.	s.	m. s.	s.	m.
Tokyo	0·3	312	0 7	+ 3	0 16	+ 8	—
Tyosi	0·7	72	i 0 10	0	0 23	+ 5	0·4
Susaki	1·2	225	0 18	+ 1	0 33	+ 2	—
Nagoya	2·5	262	0 36	0	1 10	S*	1·3
Mizusawa	3·7	14	e 0 53	0	e 1 32	− 3	—
Osaka	3·8	259	0 48	− 6	1 46	S*	2·9
Sumoto	4·4	256	e 1 1	− 2	e 2 12	S*	2·4

Sumoto gives also eSN = +2m.20s. = S_g + 1s.

May 17d. Readings also at 0h. (near Sumoto (2) and near Tananarive), 2h. (Huancayo, La Paz, and Sucre), 5h. (near Sumoto and near La Paz), 9h. (near Manila), 10h. (Bombay, Hong Kong, Vladivostok, Phu-Lien, Nanking, Irkutsk, Sverdlovsk, Almata, Tashkent, near Frunse, and near Chiufeng), 11h. (near Tyosi), 13h. (Sumoto), 15h. (near Tiflis), 19h. (Wellington), 21h. (near Mizusawa), 22h. (Batavia, Adelaide, Melbourne, Riverview, Perth, Amboina, Manila, Bombay, Tashkent, Tiflis, and Sverdlovsk).

May 18d. Readings at 0h. (near Tiflis), 1h. (Nanking, near Tiflis, near Batavia, and Malabar), 2h. (near Santiago), 7h. (Florence, Stuttgart, Triest, and Tiflis), 11h. (Sumoto, near Hukuoka, and Hukuoka B), 13h. (near Karenko), 15h. (Alicante, Triest, De Bilt, Simferopol, Theodosia, and Yalta), 18h. (near Nagoya), 21h. (near Mizusawa, near Erevan, and Tiflis), 22h. (Wellington, Tyosi, Vladivostok, Chiufeng, Tashkent, and Ksara), 23h. (near Apia).

May 19d. 1h. 15m. 44s. Epicentre 15°·0S. 13°·5W. N.3.

A = + ·939, B = − ·225, C = − ·259; D = − ·233, E = − ·972;
G = − ·252, H = + ·060, K = − ·966.

	Δ	Az.	P.	O − C.	S.	O − C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Cape Town	34·5	130	—	—	15 16?	?	—	—
Entebbe	47·8	76	e 8 39	+ 4	e 15 36	+ 6	e 23·3	27·8
La Paz	52·4	261	i 9 10$_s$	+ 1	i 16 34	0	25·3	29·4
Almeria	52·9	11	e 9 8	− 5	—	—	e 26·2	—
Alicante	54·7	13	e 8 19	−67	—	—	e 27·3	—
Huancayo	60·0	265	e 10 53	(0)	e 18 5	−11	e 28·6	—
Florence	63·0	21	e 10 21	− 4	18 56	+ 1	32·1	34·3
Neuchatel	64·7	16	e 10 30	− 7	e 15 41	?	—	—
Basle	65·4	16	e 10 38	− 3	—	—	—	—
Triest	65·4	21	i 10 41$_k$	0	e 20 0	+35	e 33·1	36·6

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Paris		65·4	12	e 10 50	+ 9	—	—	32·3	33·3
Strasbourg		66·4	16	i 10 44a	− 4	—	—	e 33·3	—
Stuttgart		66·9	17	e 10 48	− 3	e 19 52	+ 9	e 31·3	39·9
Kew		67·4	9	—	—	e 24 0	SS	e 30·3	—
Uccle		67·6	12	e 10 53	− 3	e 19 50	− 2	e 29·3	—
Ksara		67·8	44	e 11 2	+ 5	e 20 4	PS	—	—
De Bilt		69·0	13	i 11 8	+ 3	e 20 4	−,5	e 30·3	38·8
Tiflis		78·0	41	12 0	+ 3	22 6	+12	38·3	—
Piatigorsk		78·3	38	e 12 58	+59	e 22 45	PS	—	—
Baku		80·7	44	12 30	+18	22 28	+ 5	38·8	44·9
Kodaikanal		93·5	80	24 1	S	(24 1)	−27	—	—
Sverdlovsk		94·2	33	—	—	e 25 28	PS	42·3	—
Chiufeng		129·6	50	e 19 11	[+ 5]	e 22 35	PKS	—	—
Kobe	E.	145·7	49	e 19 24	[−11]	—	—	—	—
Osaka		145·9	49	19 47	[+12]	29 34	{−25}	—	—

Additional readings :—
La Paz pPE = +10m.14s., PPE = +11m.34s., sS = +17m.40s., SS = +20m.40s.
Huancayo e = +13m.28s. =PPP −1s., +21m.55s., and +24m.45s.
Triest e = +26m.43s.
Uccle eSS = +24m.0s., eSSSE = +27m.16s.
De Bilt eEN = +24m.28s. =SS +1s.
Tiflis P_cPN = +12m.28s., PPPN = +17m.15s.
Sverdlovsk e = +30m.39s. =SS +0s.
Kobe iZ = +19m.41s., eEN = +20m.4s.
Osaka i = +22m.57s. =PP +0s.
Long waves were also recorded at Tananarive, Bombay, Tashkent, Kucino, Pulkovo, Edinburgh, Cheb, San Fernando, and Algiers.

May 19d. 10h. 44m. 15s. Epicentre 29°·2N. 144°·0E. (as on 1933 Aug. 15d.). X

A = −·706, B = +·513, C = +·488 ; D = +·588, E = +·809 ;
G = −·395, H = +·287, K = −·873.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Nagoya		8·4	320	e 2 14	P*	—	—	—	—
Osaka		9·0	310	2 2	− 5	3 44	− 5	—	7·0
Sumoto		9·3	306	e 2 17	+ 6	e 6 7	?	—	—
Kobe	N.	9·3	309	—	—	e 4 3	+13	—	7·2
Vladivostok		16·9	329	e 3 33	−20	e 6 23	−36	7·9	9·3
Nanking		21·8	284	i 4 48	− 1	e 8 34	− 8	—	—
Chiufeng		25·1	303	e 5 24	+ 3	e 9 34	− 9	—	—
Manila		25·8	240	5 23	− 4	9 39	−16	—	—
Bombay		64·8	278	e 10 45?	+ 8	—	—	—	—

Additional readings :—
Kobe eN = +4m.50s. =S_g −8s.
Bombay eEN = +8m.45s.?
Long waves were also recorded at Koti and Hong Kong.

May 19d. 10h. 47m. 37s. Epicentre 14°·7N. 91°·3W. N.2.

A = −·022, B = −·967, C = +·254 ; D = −1·000, E = +·023 ;
G = −·006, H = −·254, K = −·967.

Probably deep focus.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Port au Prince	18·6	75	i 4 24	+10	i 7 54	+16	e 9·8	11·1
Little Rock	20·0	357	4 26	− 4	8 3	− 3	—	—
Columbia	21·4	24	e 4 46	+ 2	i 8 43	+ 9	—	—
St. Louis	23·9	2	i 5 10	+ 1	e 9 21	0	—	—
Florissant	24·1	2	i 5 11	0	e 9 21	− 4	—	—

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
San Juan	24·4	76	i 5 12	− 2	i 10 3	SS	i 11·0	—
Tucson	25·0	319	e 5 23	+ 3	e 9 37	− 4	e 13·1	—
Georgetown	27·2	24	i 5 41a	+ 1	i 10 15	− 3	—	—
Chicago	27·4	6	e 4 24	−78	e 8 52	PcP	e 12·5	—
Ann Arbor	28·4	12	e 5 53	+ 2	e 11 11	+33	e 19·8	—
Fordham	30·2	27	i 6 7	0	i 11 0	− 7	—	—
Riverside	30·4	317	i 6 9	0	i 11 7	− 3	—	—
Ithaca	30·5	22	i 6 11	+ 2	i 11 5	− 7	—	—
Toronto	30·6	17	6 11	+ 1	i 11 4	−10	14·2	—
Huancayo	31·0	149	i 6 15	+ 1	i 11 17	− 3	i 16·7	—
Mount Wilson	31·0	316	i 6 14a	0	—	—	—	—
Pasadena	31·1	316	i 6 15a	0	i 11 16	− 5	—	—
Haiwee	32·0	319	i 6 22	− 1	—	—	—	—
Santa Barbara	32·3	314	i 6 34	+ 9	—	—	—	—
Oak Ridge	32·6	29	i 6 27	− 1	e 11 31	−14	e 14·4	—
Tinemaha	32·8	320	i 6 30a	0	—	—	—	—
Ottawa	33·4	20	i 6 35	0	i 11 51	− 6	16·4	—
Bozeman	35·1	336	e 8 14	PPP	e 13 0	+37	e 15·8	—
Lick	35·1	318	e 6 51	+ 1	—	—	—	—
Branner	35·6	318	e 6 55	+ 1	e 12 27	− 3	—	—
Berkeley	35·8	318	i 6 56	0	i 12 29	− 4	—	—
Ukiah	37·1	317	—	—	e 12 53	0	—	—
La Paz	38·7	143	7 19	− 2	i 13 7	−10	18·2	19·8
Sitka	53·8	333	—	—	e 16 43	−10	—	—
Scoresby Sund	69·3	20	15 47	?	20 39	PS	36·4	—
Paris	81·5	41	e 12 13	− 3	e 22 23?	− 9	37·4	—
Uccle	82·1	40	e 12 13	− 6	e 22 15?	−23	38·4	—
De Bilt	82·4	38	e 12 15	− 5	e 22 23	−18	e 38·4	—
Neuchatel	84·8	43	e 12 27	− 5	—	—	—	—
Strasbourg	84·9	41	i 12 28	− 5	e 22 23?	[−35]	e 37·4	—
Basle	85·1	43	e 12 29	− 5	—	—	—	—
Copenhagen	85·3	33	—	—	22 53	[− 8]	—	—
Stuttgart	85·7	40	e 12 32	− 5	e 22 59	[− 5]	e 42·4	—
Zurich	85·7	43	e 11 35	−62	—	—	—	—
Triest	89·7	42	i 12 51k	− 5	i 23 32	[+ 1]	e 42·4	—
Kucino	97·7	26	—	—	e 23 59	[−16]	e 46·4	—
Sverdlovsk	104·7	15	—	—	e 24 16	[−32]	42·4	—
Ksara	110·1	46	e 19 5	PP	28 35	PS	—	—
Tiflis	110·6	34	19 3	PP	28 25	PS	42·4	—
Baku	114·2	31	e 20 21	?	e 29 22	PS	52·4	68·3
Tashkent	120·8	17	—	—	e 30 11	PS	e 56·6	72·8

Additional readings :—
Port au Prince PP = +4m.40s., PPP = +4m.48s., SS = +8m.33s.
Little Rock pPN = +4m.46s., sSN = +8m.44s.
Columbia ePP = +5m.13s.
St. Louis ipP = +5m.31s., iEN = +7m.8s., iSE = +9m.24s., iE = +9m.45s., isSE = +10m.12s. ; T_0 = 10h.47m.28s.
Florissant ipP = +5m.33s., iS = +9m.27s., isS = +10m.16s. ; T_0 = 10h.47m.28s.
San Juan ePP = +5m.38s., i = +7m.3s., e = +7m.41s., eS = +10m.8s. = SS − 7s.
Tucson ePP = +5m.49s.
Chicago e = +8m.11s.
Ann Arbor eE = +6m.17s., eP = +6m.29s., iN = +11m.29s., iSS = +12m.47s.
Fordham iSSE = +12m.20s.
Riverside iP_cP = +9m.5s., iP_cS = +12m.40s., iS_cS = +16m.36s.
Ithaca iPP = +6m.59s., eSS = +12m.35s. ; T_0 = 10h.47·8m.
Toronto PPN = +6m.53s., iSSN = +11m.58s.
Huancayo iPP = +6m.40s., i = +11m.59s., eSS = +13m.25s.
Mount Wilson iP_cP = +9m.7s.
Pasadena iP_cP = +9m.7s., iP_cSNZ = +12m.41s., iS_cS = +16m.37s., eZ = +37m.56s.
Haiwee iP_cP = +9m.11s., eP_cS = +12m.48s., eS_cS = +16m.42s.
Santa Barbara iP_cP = +9m.20s.
Oak Ridge ipP = +6m.50s., isP = +7m.1s., ePPP = +7m.39s., e = +7m.43s., iSEN = +11m.39s., esS = +12m.19s.
Tinemaha iP_cP = +9m.12s., iP_cS = +12m.48s., iS_cS = +16m.50s.
Ottawa iPPP = +7m.55s., iN = +12m.44s., SSS = +14m.0s. ; T_0 = 10h.47m.48s.

Continued on next page.

Lick eN = +9m.17s., eE = +9m.25s., eEN = +17m.3s.
Branner eN = +12m.35s.
Berkeley iPZ = +7m.16s., iZ = +9m.23s. = P_cP − 5s.
La Paz sP = +8m.32s., PP = +8m.35s., sS = +13m.55s., SS = +16m.10s., iN = +17m.19s.
Uccle i = +12m.43s.
De Bilt iZ = +12m.44s.
Strasbourg ipPZ = +12m.58s.
Stuttgart e = +13m.1s. and +23m.29s. = S +14s.
Triest e = +23m.19s., iPS = +24m.25s., i = +25m.5s.
Kucino e = +31m.15s. = SS − 15s.
Sverdlovsk e = +27m.4s.
Tiflis eN = +20m.21s.
Baku e = +35m.33s. = SS +18s.

May 19d. Readings also at 0h. (Wellington), 3h. (near Santiago), 6h. (near Amboina (2)), 7h. (near Toyooka and near Santiago), 8h. (La Paz and Manila), 9h. (Hong Kong), 10h. (near Mizusawa), 11h. (Tyosi), 15h. (Sverdlovsk, Irkutsk. Almata, Andijan, Frunse, Grozny, Tashkent, and near Samarkand), 17h. (near Alicante), 18h. (Chiufeng, Tashkent, Sverdlovsk, and near Irkutsk), 23h. (San Juan).

May 20d. 7h. 2m. 2s. Epicentre 39°·2N. 144°·0E. R.2.
Given by the Japanese stations. (as on 1933 April 9d.).

A = − ·627, B = + ·456, C = + ·632 ; D = + ·588, E = + ·809 ;
G = − ·511, H = + ·371, K = − ·775.

	Δ	Az.	P.	O − C.	S.	O − C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Mizusawa	2·2	268	i 0 35	+ 4	i 1 4	S*	—	—
Sendai	2·6	249	0 38	+ 1	1 11	+ 4	—	—
Aomori	3·0	303	0 44	+ 1	1 21	+ 4	—	—
Akita	3·1	279	0 44	0	1 24	+ 4	—	—
Hukusima	3·1	242	0 46	+ 2	1 24	+ 4	—	—
Urakawa	3·1	343	0 43	− 1	1 19	− 1	—	—
Onahama	3·3	227	0 40	− 7	1 18	− 7	—	—
Aidu	3·4	242	0 57	P*	1 40	S*	—	—
Hakodate	3·6	317	0 55	+ 4	1 40	S*	—	—
Kusiro	3·8	5	0 51	− 3	1 32	− 5	—	—
Obihiro	3·8	351	0 54	0	1 41	+ 4	—	—
Mito	3·9	235	0 55	− 1	1 41	+ 1	—	—
Tyosi	4·2	216	0 58	− 2	1 46	− 2	—	1·9
Utunomiya	4·2	233	1 1	+ 1	1 49	+ 1	—	—
Kakioka	4·2	226	0 57	− 3	1 45	− 3	—	—
Tukubasan	4·3	228	0 59	− 2	1 47	− 3	—	—
Nemuro	4·3	15	0 53	− 8	1 37	−13	—	—
Sapporo	4·4	334	1 0	− 3	1 50	− 3	—	—
Kumagaya	4·8	232	1 8	0	2 1	− 2	—	—
Maebasi	4·8	235	1 8	0	2 6	+ 3	—	—
Tokyo	4·9	225	1 9	− 1	2 5	0	—	—
Yokohama	5·1	224	1 12	− 1	2 9	− 1	—	—
Nagano	5·2	243	1 17	+ 3	2 20	+ 7	—	—
Hunatu	5·6	231	1 16	− 4	2 22	− 1	—	—
Kohu	5·6	233	1 19	− 1	2 25	+ 2	—	—
Misima	5·7	226	1 20	− 1	2 22	− 3	—	—
Numadu	5·8	227	1 32	P*	2 35	+ 7	—	—
Wazima	5·8	254	1 26	+ 4	2 33	+ 5	—	—
Toyama	5·9	247	1 25	+ 1	2 39	+ 8	—	—
Omaesaki	6·5	227	1 39	+ 7	2 47	+ 1	—	—
Hamamatu	6·7	230	1 35	0	2 47	− 4	—	—
Gihu	6·8	239	1 38	+ 1	2 55	+ 2	—	—
Nagoya	6·8	237	1 42	+ 5	2 54	+ 1	—	3·6
Hatidyozima	6·9	210	1 36	− 2	2 49	− 7	—	—
Hikone	7·3	240	1 51	+ 7	3 13	+ 7	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Kameyama		7·4	236	1 52	+ 7	3 22	S*	—	—
Osaka		8·1	239	1 50	− 5	3 26	—	—	5·2
Osaka B		8·1	239	1 57	+ 2	3 19	− 7	—	—
Toyooka	N.	8·1	246	e 2 11	P*	—	—	—	—
Kobe	Z.	8·4	241	—	—	e 3 57	S*	—	—
Wakayama		8·6	238	2 7	+ 5	3 59	S*	—	—
Vladivostok		9·9	297	i 2 27	+ 8	e 4 31	+20	5·7	7·0
Sverdlovsk		54·7	318	e 9 25	− 1	e 17 5	0	27·0	—
Tashkent		55·2	298	—	—	e 20 24	?	e 29·0	35·0
Tinemaha		72·7	56	i 11 17	−10	—	—	—	—
Mount Wilson		74·5	58	i 11 27k	−10	—	—	—	—
Pasadena		74·5	58	i 11 27k	−10	—	—	—	—
Riverside		75·1	58	i 11 29	−12	—	—	—	—

Additional readings :—
Mizusawa iSE = +1m.7s. = S_g +0s.
Kobe eE = +4m.0s., eN = +4m.15s.
Tinemaha iZ = +11m.44s.
Long waves were also recorded at Baku and Kucino.

May 20d. 19h. 4m. 30s. Epicentre 64°·7N. 2°·1W. N.2.

A = +·427, B = −·016, C = +·904 ; D = −·037, E = −·999 ;
G = +·904, H = −·033, K = −·427.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Bergen		5·5	138	—	—	e 2 30?	+10	—	—
Edinburgh		8·8	183	—	—	e 3 32	−12	—	—
Scoresby Sund		9·4	316	2 15	+ 2	—	—	4·5	—
Upsala		10·3	109	—	—	e 4 30?	+ 9	—	—
Bidston		11·3	183	—	—	e 4 52	+ 7	e 6·3	—
Copenhagen		11·5	135	—	—	4 30?	−20	—	—
Hamburg		12·7	148	e 2 56	− 2	—	—	—	13·5
De Bilt		13·2	160	e 3 0	− 5	—	—	e 6·5	7·6
Helsingfors		13·2	96	e 3 10	+ 5	e 5 48	+16	e 6·5	—
Kew		13·3	175	—	—	e 5 19	−15	e 6·5	7·3
Uccle		14·3	163	e 3 13	− 6	e 5 46	−12	6·5	—
Göttingen		14·6	149	e 3 17	− 6	e 5 49	−16	—	—
Königsberg		15·0	121	e 1 51	?	e 7 4	+49	e 7·6	15·5
Pulkovo		15·7	94	3 33	− 5	i 6 34	+ 3	9·5	10·8
Paris		16·1	169	e 3 53	+10	—	—	8·5	10·5
Karlsruhe		16·7	155	i 3 54	+ 4	e 6 56	+ 1	—	—
Strasbourg	Z.	17·0	157	e 3 54	0	e 7 15	+13	e 8·5	—
Stuttgart		17·0	154	e 3 54	0	e 7 10	+ 8	e 9·5	—
Basle		17·9	159	e 4 3	− 2	—	—	—	—
Zurich		18·3	156	e 4 6	− 4	—	—	—	—
Neuchatel		18·4	160	e 4 8	− 3	—	—	—	—
Chur		18·9	155	e 4 16	− 1	—	—	—	—
Vienna		19·2	140	e 4 18	− 3	—	—	—	—
Graz		20·0	143	e 4 3	−27	—	—	—	4·4
Ivigtut		20·7	282	i 4 43	+ 6	—	—	10·5	—
Piacenza		20·7	156	4 39	+ 2	—	—	—	18·6
Padova		20·8	152	e 4 41	+ 3	—	—	—	—
Venice		20·9	151	4 44	+ 5	e 8 33	+ 9	—	—
Triest		21·0	148	i 4 38a	− 2	8 32	+ 6	e 12·5	15·3
Prato		22·1	154	i 4 52	0	10 9	?	—	—
Florence		22·2	154	4 51	− 2	9 0	+10	—	13·5
Siena		22·7	154	6 0	?	10 0	?	—	—
Simferopol		28·0	117	e 6 37	PP	—	—	—	—
Sebastopol		28·2	118	e 6 4	+15	—	—	—	—
Yalta		28·4	118	e 5 49	− 2	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Theodosia		28·5	116	e 5 53	+ 1	e 11 53	SS	—	—
Sverdlovsk		30·3	75	5 55	−13	e 10 54	−15	18·5	—
Grozny		34·0	105	e 6 45	+ 5	—	—	—	—
Tiflis		35·0	108	6 49	0	e 12 36	+15	21·0	—
Tashkent		45·7	85	i 8 18	0	—	—	e 22·7	29·5
Tinemaha		66·7	309	i 10 49	− 1	—	—	—	—
Mount Wilson	z.	69·2	307	i 11 4a	− 2	—	—	—	—
Riverside	z.	69·2	307	i 11 3	− 3	—	—	—	—
Pasadena		69·4	307	i 11 4a	− 3	—	—	—	—

Additional readings :—
Edinburgh i = +4m.19s. = S* −1s., +5m.29s., +5m.42s., and +5m.56s.
Helsingfors e?ENZ = +5m.18s. and e?EZ = +6m.17s. ; T_0 = 19h.4m.19s.
Königsberg eN = +7m.20s.
Pulkovo i = +6m.13s., e = +7m.33s. and +9m.10s.
Stuttgart eE = +6m.10s.
Vienna iZ = +4m.44s. and +5m.41s.
Triest i = +4m.48s. and +5m.35s.
Sverdlovsk L_g = +15·7m.
Tiflis eN = +13m.50s.
Tashkent e = +8m.27s. and +8m.36s., i = +10m.2s. = P_cP +1s. and +10m.48s., e = +18m.18s. = S_cS +1s.
Long waves were also recorded at Almeria, Alicante, San Fernando, and Baku.

May 20d. Readings also at 4h. (La Jolla, Mount Wilson, Riverside, and Tucson), 6h. (Chiufeng), 7h. (Almata, near Andijan, Samarkand, and Tashkent), 11h. (Wellington and near Hastings), 12h. (Tyosi, La Paz, Erevan, and near Tiflis), 14h. (La Paz), 15h. (Sumoto, near Nagoya (2), and Toyooka), 23h. (near Amboina).

May 21d. 4h. 36m. 48s. Epicentre 25°·0N. 118°·2E. N.3.

The epicentre is given in the Quarterly Report of Taihoku Meteorological Observatory.

A = −·428, B = +·799, C = +·423 ; D = +·881, E = +·473 ;
G = −·200, H = +·372, K = −·906.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Taityu		2·5	111	e 0 23	−13	0 52	P_g	—	—
Arisan		2·8	121	(e 0 40)	0	0 40	P	—	—
Takao		3·0	142	1 0	P_g	1 48	S_g	—	—
Taihoku		3·1	89	(1 1)	P_g	(1 42)	S_g	—	—
Karenko		3·3	108	(0 51)	+ 4	(1 40)	S*	—	—
Taito		3·5	130	0 34	−16	1 48	S_g	—	—
Kosyun		3·8	146	e 1 47	S*	2 25	?	—	—
Hong Kong		4·5	234	1 1	− 3	3 52	?	4·4	5·6
Zi-ka-wei	z.	6·8	24	e 1 37	0	3 12	S_g	4·2	4·8
Nanking		7·1	4	e 2 12	P_g	e 4 1	S_g	i 5·6	—
Manila		10·9	166	2 34	+ 1	6 12	S_g	7·9	—
Taikyu		13·5	39	2 59	−10	6 37	S*	8·4	—
Hukuoka B		13·7	48	e 3 28	+17	—	—	—	—
Husan		13·7	40	e 1 32	?	e 7 56	?	—	—
Zinsen		14·4	28	e 1 54	?	e 7 44	?	—	—
Keizyo		14·6	29	3 18	− 5	7 29	?	9·3	—
Chiufeng		15·2	354	3 44	+13	e 7 14	?	e 9·1	12·1
Vladivostok		21·3	28	e 4 26	−17	8 22	−10	10·6	15·2
Irkutsk		29·2	342	7 13	?	—	—	26·2	29·8
Tashkent		43·4	305	e 8 24	+24	15 19	?	e 24·0	29·6
Sverdlovsk		51·7	324	9 10	+ 6	16 55	+31	33·6r	—
Baku		58·1	303	—	—	18 55	+64	35·2	39·4
Tiflis		61·7	306	e 11 1	+45	e 19 37	+59	e 30·9	—
Pulkovo		67·5	327	—	—	e 20 23	PS	36·2	42·6

For Notes see next page.

NOTES TO MAY 21d. 4h. 36m. 48s.

Additional readings and notes :—
Arisan eP = +0m.1s.
Taihoku and Karenko readings have been *increased* by 1m.
Irkutsk e = +7m.57s. and +13m.42s.
Sverdlovsk iL_g = +28·2m.
Baku e = +26m.23s.
Tiflis eSSEN = +24m.36s.
Long waves were also recorded at Heizyo, Koti, Toyooka, Phu-Lien, Bombay, Scoresby Sund, and several European stations.

May 21d. 10h. 7m. 25s. Epicentre 72°·0N. 2°·8W. (as on 1932 June 23d.). R.2.

A = +·309, B = −·015, C = +·951 ; D = −·049, E = −·999 ;
G = +·950, H = −·046, K = −·309.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Scoresby Sund	6·2	266	1 40	P*	(2 35?)	− 3	2·6	—
Upsala	14·6	136	e 3 11	−12	6 21	+16	e 7·2	8·5
Helsingfors	16·0	123	i 3 32	− 9	i 6 36	− 2	e 7·6	—
Edinburgh	16·1	184	—	—	i 6 53	+12	i 8·6	—
Copenhagen	17·5	149	3 55	− 5	—	—	7·6	—
Pulkovo	17·8	118	3 55	− 9	e 7 14	− 6	9·6	9·8
Bidston	18·6	180	e 4 29	+15	e 8 19	+41	9·6	11·2
Hamburg	19·2	156	i 4 17a	− 4	—	—	e 10·1	10·6
Königsberg	19·8	138	e 4 24	− 3	e 9 13	+71	e 13·4	15·5
De Bilt	20·2	166	4 28	− 4	8 14	+ 4	e 9·6	12·9
Ivigtut	20·3	261	4 34	+ 1	8 40	SS	9·6	—
Kew	20·6	180	e 4 34	− 2	e 8 22	+ 4	9·6	11·3
Göttingen	21·2	158	i 4 39	− 3	—	—	e 10·6	14·7
Uccle	21·4	169	4 42a	− 2	—	—	10·6	—
Cheb	23·0	154	e 4 50	−11	e 9 20	+15	e 11·6	13·6
Prague	23·3	151	—	—	e 7 35?	?	—	14·6
Paris	23·3	174	e 5 3	− 1	—	—	11·6	16·6
Kucino	23·4	116	e 4 53	−12	e 9 5	− 7	e 11·6	13·5
Karlsruhe	23·5	161	i 5 5	0	—	—	—	—
Strasbourg	23·9	163	i 5 7	− 2	e 9 32	+11	e 10·6	—
Stuttgart	23·9	160	e 5 7	− 2	e 9 31	+10	e 12·1	16·7
Basle	24·9	163	e 5 18	− 1	—	—	—	—
Zurich	25·2	162	e 5 22	0	—	—	—	—
Vienna	25·3	149	e 5 21	− 2	e 14 55	?	—	—
Neuchatel	25·4	165	e 5 21	− 3	—	—	—	—
Chur	25·7	160	e 5 33	+ 7	—	—	—	—
Graz	26·3	151	e 5 35	+ 3	e 10 18	+15	e 15·1	17·1
Budapest	26·5	146	e 5 41	+ 7	—	—	e 15·1	17·1
Triest	27·5	154	5 45	+ 2	i 10 20	− 4	e 12·5	15·0
Zagreb	27·6	151	e 5 42	− 2	—	—	e 17·2	—
Florence	29·0	159	e 4 5	?	(10 35)	−13	10·6	12·6
Sverdlovsk	29·4	87	i 5 44	−16	10 37	−18	16·7R	16·8
Theodosia	31·8	127	e 6 35	+14	—	—	—	—
Simferopol	32·1	128	e 6 25	+ 1	—	—	—	—
Sebastopol	32·3	128	e 6 58	+33	—	—	—	—
Yalta	32·6	127	e 6 25	− 3	—	—	e 18·9	—
Tiflis	38·0	120	7 11	− 4	13 4	− 2	19·2	23·2
Baku	40·7	111	e 7 40	+ 2	13 54	+ 7	20·2	25·2
Ottawa	42·2	272	—	—	e 14 23	+14	e 17·6	—
Ksara	43·1	131	e 7 59	+ 1	14 27	+ 5	—	—
Oak Ridge	43·5	266	i 8 3	+ 2	e 14 44	+16	e 22·6	—
Tashkent	45·7	91	e 8 35	+17	—	—	e 22·4	26·5
Almata	45·8	83	e 8 26	+ 7	—	—	—	—
Irkutsk	45·9	56	e 8 18	− 2	—	—	e 25·6	—
Samarkand	46·5	95	8 21	− 4	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Andijan		47·3	89	e 8 25	− 6	—	—	—	—
Georgetown		48·5	270	e 8 43	+ 3	e 15 53	+13	e 22·6	—
Chiufeng		60·1	49	e 10 3	− 2	—	—	e 37·9	—
Tinemaha		62·2	305	i 10 22	+ 2	—	—	—	—
Mount Wilson	z.	64·8	304	i 10 39	+ 2	—	—	—	—
Pasadena		64·9	304	i 10 40	+ 2	—	—	e 39·7	—
Riverside	z.	64·9	304	i 10 38	0	—	—	—	—

Additional readings :—
Helsingfors ePEN = +3m.59s., eSSEZ = +6m.51s., eSSSEZ = +7m.17s.
Pulkovo L_Q = +8·6m.
Uccle i = +4m.49s.
Kucino e = −1s.
Cheb e = +5m.41s. and +6m.56s.
Sverdlovsk L_Q = +13·6m.
Tiflis PPPN = +11m.3s., SSE = +15m.44s.
Ksara PP = +9m.33s.
Oak Ridge i = +8m.10s.
Irkutsk e = +10m.18s.
Long waves were also recorded at Sitka, Bozeman, Tucson, Piacenza, and San Fernando.

May 21d. Readings also at 6h. (Mizusawa, near Nagoya and Tyosi), 7h. (near Grozny), 10h. (Tiflis), 11h. (La Paz), 13h. (Karlsruhe, Montezuma, La Paz, and Sucre), 15h. (Tiflis), 16h. (Samarkand), 17h. (near Tyosi), 19h. (near Prato, Siena, and Triest), 21h. (near Almata, Tiflis, and Tashkent), 22h. (near Malabar), 23h. (Samarkand).

May 22d. 1h. 21m. 47s. Epicentre 8°·0N. 94°·0E. (as on 1931 Aug. 8d.). X.

A = −·069, B = +·988, C = +·139 ; D = +·998, E = +·070 ;
G = −·010, H = +·139, K = −·990.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Medan	6·4	132	1 48	P*	i 2 42	− 1	—	—
Colombo	14·1	266	3 17	0	10 55	?	24·8	29·1
Kodaikanal	16·5	279	3 45	− 3	—	—	—	28·7
Phu-Lien	17·7	42	e 4 29	+26	—	—	10·2	—
Hyderabad	17·9	303	4 13	+ 8	7 30	+ 8	8·6	12·1
Batavia	19·1	138	6 39	?	—	—	—	—
Bombay	23·3	300	e 5 18	+14	i 9 33	+23	e 12·2	—
Hong Kong	24·1	51	6 1	+50	10 13	+48	—	15·2
Agra	24·4	324	5 30	+16	i 9 55	+25	12·6	21·3
Manila	27·2	74	6 56	+76	11 30	+72	14·6	16·3
Nanking	33·3	38	e 8 6	?	—	—	e 18·5	19·8
Chiufeng	37·7	26	e 7 52	+40	e 13 33	+31	—	22·2
Tashkent	39·9	331	i 7 30	− 1	i 13 43	+ 8	e 18·9	27·4
Irkutsk	45·1	9	e 9 46	(−13)	e 14 22	−30	e 24·2	28·2
Tiflis	54·9	318	9 31	+ 3	17 21	+13	29·2	38·9
Sverdlovsk	55·3	340	9 32	+ 1	17 16	+ 3	33·7R	34·3
Kucino	64·8	330	—	—	e 20 49	(+22)	e 33·0	35·1
Pulkovo	70·1	332	e 14 16	?	e 20 26	+ 4	36·2	43·8
Triest	77·5	315	—	—	e 23 47	?	—	47·6

Additional readings and notes :—
Medan iE = +3m.11s. =S* +2s., iN = +3m.33s. =S_g +8s.
Phu-Lien readings have been *diminished* by 20m.
Bombay SS = +10m.25s.
Agra eN = +5m.47s. =PP +5s., PP = +6m.0s., SS = +11m.0s.
Tiflis eE = +9m.47s., P_cPNZ = +10m.44s., PPN = +11m.43s., SKSN = +19m.27s.
Sverdlovsk L_g = +28m.19s.
Kucino e = +22m.55s.
Pulkovo e = +19m.1s.
Triest e = +34m.2s.
Long waves were also recorded at Keizyo, Koti, Vladivostok, Adelaide, Perth, La Paz, Scoresby Sund, Kew, and at other European stations.

May 22d. 11h. 1m. 47s. Epicentre 1°·3N. 30°·3W. N.2.

A = +·863, B = −·504, C = +·023 ; D = −·505, E = −·863 ;
G = +·020, H = −·011, K = −1·000.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
San Juan		39·1	299	e 7 23	− 1	e 13 23	+ 1	16·3	—
La Paz		41·4	243	i 7 43	− 1	i 13 59	+ 2	20·4	23·4
Malaga		42·7	32	7 57	+ 3	14 41	+25	21·5	—
Granada		43·5	32	e 7 59	− 2	i 14 40	+12	20·8	22·2
Almeria		43·8	33	e 7 49	−14	e 14 27	− 6	e 21·6	—
Toledo		45·3	29	e 8 16	+ 1	i 15 2	+ 7	e 22·2	—
Alicante		46·0	33	e 8 25	+ 4	e 15 11	+ 7	e 22·5	—
Huancayo		46·7	252	i 8 24	− 2	i 15 7	− 7	23·5	—
Paris		55·2	26	e 9 13?	−17	e 17 25	+13	25·2	29·2
Oak Ridge		55·3	324	i 9 32	+ 1	e 17 22	+ 9	e 22·7	—
Fordham		55·8	321	e 9 35	+ 1	e 17 28	+ 8	—	26·2
Neuchatel		56·0	30	e 9 35	− 1	—	—	—	—
Oxford		56·0	22	—	—	17 28	+ 5	e 23·8	29·6
Kew		56·1	22	—	—	e 17 44	+20	26·2	27·2
Florence		56·2	36	9 36	− 1	17 44	+19	28·5	31·7
Prato		56·2	36	e 9 41	+ 4	—	—	—	—
Piacenza		56·2	33	e 8 24	−73	17 37	+12	—	35·6
Basle		56·7	30	e 9 39	− 2	—	—	—	—
Bidston		56·8	19	—	—	e 17 47	+13	26·2	—
Georgetown		56·9	318	i 9 42	0	i 17 43	+ 8	e 26·0	—
Chur		57·2	32	e 9 44	− 1	—	—	—	—
Strasbourg		57·4	29	e 9 45	− 1	i 17 50	+ 8	e 27·2	—
Uccle		57·5	25	e 9 46	− 1	i 17 53	+10	24·2	—
Venice		57·8	33	9 13?	−36	—	—	—	—
Stuttgart		58·3	30	e 9 51	− 1	e 18 3	+10	e 26·2	31·2
Triest		58·7	35	9 54a	− 1	i 18 7	+ 8	e 28·4	33·1
De Bilt		58·8	25	—	—	e 18 8	+ 8	e 25·2	30·0
Edinburgh		58·8	18	—	—	e 19 13?	+73	e 25·2	—
Ottawa		59·4	325	e 10 37	(−14)	e 18 13	+ 5	e 25·2	—
Zagreb		60·1	36	e 10 7	+ 2	e 18 30	+13	—	—
Cheb		60·7	30	—	—	e 21 13?	?	e 28·2	31·2
Ivigtut		61·4	351	—	—	18 37	+ 3	25·2	—
Vienna		61·7	34	i 10 18	+ 2	—	—	—	—
Hamburg		61·9	25	—	—	e 18 13?	−28	—	31·2
Copenhagen		64·4	25	—	—	19 33	+21	28·2	—
St. Louis	E.	66·1	313	e 10 44	− 2	i 19 36	+ 2	e 31·4	—
Little Rock		66·6	308	14 13?	?	—	—	—	—
Scoresby Sund		69·4	3	—	—	20 13?	− 1	—	—
Ksara		69·6	55	e 11 13	+ 5	e 20 20	+ 4	—	—
Yalta		71·1	44	e 11 15	− 2	—	—	—	—
Simferopol		71·2	43	e 11 43	+25	—	—	—	—
Theodosia		72·1	43	e 11 8	−15	—	—	—	—
Pulkovo		74·5	28	e 11 55	+18	e 21 15	+ 1	32·2	40·5
Tiflis		78·0	48	11 55	− 2	e 21 55	+ 1	e 38·2	50·6
Baku		81·7	50	e 12 43	+26	22 42	+ 8	39·7	47·8
La Jolla		86·7	303	i 12 52	+10	—	—	—	—
Riverside		86·8	304	e 12 45	+ 3	—	—	—	—
Mount Wilson		87·4	304	i 12 54	+ 9	—	—	—	—
Pasadena		87·5	304	e 12 47	+ 2	—	—	—	—
Tinemaha		87·6	307	e 12 46	0	—	—	—	—
Sverdlovsk		89·4	34	i 12 42	−13	e 23 16	[−13]	40·2	49·0
Tashkent		96·3	49	—	—	e 24 44	−10	e 49·4	60·4
Agra	E.	105·6	62	—	—	e 27 34	PS	—	—

Additional readings :—
San Juan ePP = +8m.53s.
La Paz pP = +8m.39s., sP = +8m.53s., iPPE = +9m.20s., iSN = +14m.1s., PS = +14m.35s., SS = +17m.1s., SSS = +17m.39s.
Malaga e = +8m.54s. and +9m.7s., PP = +9m.41s., e = +10m.7s. and +13m.46s., SSS? = +18m.34s.

Continued on next page.

Granada iPP = +9m.53s., PPP = +10m.10s., P_cS = +13m.28s., S_cS = +17m.40s.
Huancayo ePP = +10m.15s., iS = +15m.13s., eSS = +18m.22s.
Oak Ridge i = +9m.40s.
Fordham e = +23m.23s.
Kew eEN = +23m.47s.
Florence i = +21m.24s.
Bidston i = +23m.52s., e = +24m.38s.
Uccle e = +11m.13s.?, eSSN = +21m.50s.
Triest PP = +12m.2s., i = +13m.37s., eSS = +22m.1s.
Zagreb ePP = +12m.2s.
Tiflis eE = +12m.39s., ePPPNZ = +16m.52s., eSSE = +26m.49s.
Riverside iZ = +12m.51s.
Tinemaha iZ = +12m.55s.
Sverdlovsk e = +24m.40s. =PS −4s. and +29m.16s. =SS −16s.
Tashkent e = +27m.13s. and +31m.25s. =SS +15s.
Long waves were also recorded at San Fernando, Durham, Helsingfors, Sitka, and Irkutsk.

May 22d. Readings also at 1h. (Batavia), 4h. (Malabar), 5h. (near Santiago, near La Paz, Sucre, near Batavia, Malabar, Soengei Langka, near Christchurch, Hastings, New Plymouth, and Wellington; suggested epicentre 38°·8S. 176°·5E.), 6h. (Prato), 10h. (Baku, Erevan, Grozny, Sotchi, Sverdlovsk, Ksara, and Tiflis), 12h. (La Paz), 14h. (near Oak Ridge), 17h. (Tyosi and near Tiflis), 18h. (Ithaca), 21h. (Grozny), 22h. (Branner and near Lick), 23h. (Almata, Samarkand, near Frunse, Tashkent, near Tiflis, near Apia, and near Sumoto).

May 23d. 23h. 8m. 43s. Epicentre 2°·5S. 101°·1E. N.3.

See Berlage: "Gerl. Beit. zur Geophysik" Vol. 50, pp. 7-17, 1937.

A = −·192, B = +·980, C = −·044; D = +·981, E = +·193;
G = +·008, H = −·043, K = −·999.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Medan		6·6	339	1 44	P*	i 3 8	S*	—	—
Batavia		6·8	123	1 42	+ 5	2 56	+ 3	—	—
Phu-Lien		23·9	13	—	—	9 17?	− 4	—	—
Kodaikanal		26·8	299	10 13	S	(10 13)	+ 1	—	—
Bombay		35·1	309	—	—	i 12 20	− 3	e 15·3	—
Andijan		50·6	332	e 9 16	+20	16 9	0	—	—
Almata		50·7	338	e 9 4	+ 7	e 16 13	+ 2	—	—
Frunse		51·4	335	e 9 1	− 1	e 16 10	−10	—	—
Samarkand		52·5	327	9 1	− 9	16 27	− 8	—	—
Tashkent		52·5	330	i 8 55	−15	i 16 19	−16	e 24·3	33·8
Irkutsk		54·9	3	e 9 26	− 2	e 17 4	− 4	29·3	—
Baku		63·4	319	10 27	− 1	18 58	− 2	31·3	43·1
Tiflis	N.	67·4	318	10 49	− 5	19 42	− 8	—	—
Grozny		67·5	320	e 10 55	0	—	—	—	—
Sverdlovsk		67·7	338	i 10 40	−16	i 19 32	−21	31·3	—
Theodosia		75·0	318	e 11 58	+18	—	—	—	—
Yalta		75·6	317	e 11 56	+12	e 21 12	−15	—	—
Kucino		77·4	329	—	—	e 21 33	−14	e 41·8	49·7
Pulkovo		82·6	332	12 19	− 2	22 32	−11	42·3	—
Tinemaha		130·0	41	i 22 24	PKS	—	—	—	—
Mount Wilson		131·7	44	e 19 7	[− 3]	—	—	—	—
Pasadena		131·7	44	i 19 9a	[− 1]	—	—	—	—
Riverside		132·3	44	i 19 9	[− 2]	—	—	—	—

Additional readings:—
Medan i = +4m.7s.
Kucino e = +26m.38s. =SS +4s.
Mount Wilson iZ = +19m.22s. and +22m.30s. =PKS −11s.
Pasadena iNZ = +22m.32s. =PKS −9s.
Riverside eZ = +22m.31s. +PKS −12s.
Long waves were also recorded at Hong Kong, De Bilt, Paris, and Scoresby Sund.

May 23d. Readings also at 1h. (Grozny), 2h. (Apia, Hong Kong, and Nanking), 9h. (Mount Wilson, Pasadena, Riverside, Tinemaha, Sucre, and near La Paz), 10h. (Wellington), 13h. (Ithaca, Mount Wilson, Pasadena, Riverside, Tinemaha, Christchurch, and near Wellington), 15h. (near Manila), 18h. (near Malabar), 22h. (Scoresby Sund).

May 24d. 11h. 46m. 32s. Epicentre 0°·5S. 78°·1W. N.3.

A = +·206, B = −·978, C = −·009; D = −·979, E = −·206;
G = −·002, H = +·009, K = −1·000.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Huancayo	11·9	166	i 2 41	− 6	i 3 50	?	i 4·5	—
La Paz	18·7	149	i 4 16	+ 1	i 7 21	−19	9·5	10·4
San Juan	22·3	31	e 4 57	+ 3	8 59	+ 7	9·9	—
Sucre	22·4	146	4 30	−25	i 8 15	−38	—	—
Ottawa	45·9	2	—	—	e 14 56	− 7	e 18·5	—
La Jolla	49·7	316	i 8 51	+ 2	—	—	—	—
Riverside	50·4	317	i 8 56	+ 2	—	—	—	—
Mount Wilson	51·0	317	i 9 1k	+ 2	—	—	—	—
Pasadena	51·1	317	i 9 1k	+ 1	—	—	—	—
Santa Barbara	52·3	316	i 9 3	− 6	—	—	—	—
Tinemaha	52·8	320	i 9 14k	+ 2	—	—	—	—

Additional readings:—
Huancayo iP* = +3m.3s.
San Juan e = +6m.12s.
Ottawa eE? = +17m.52s. = SS − 15s.

May 24d. Readings also at 8h. (Baku and Ksara), 9h. (Sverdlovsk), 14h. (near Amboina), 18h. (near Tyosi), 21h. (Almata, Andijan, Frunse, near Christchurch, and Wellington), 22h. (near Algiers).

May 25d. 11h. Readings for which no determination has been made.

Mineo P = 2m.8s.
Messina P = 3m.17s.
Trenta i = 3m.30s., S = 3m.58s.
Tunis e = 4m.20s.
Prato iP = 4m.40s.
Florence e = 4m.45s., S = 6m.40s.
Triest P = 4m.54s., e = 7m.3s., S = 7m.38s., SSS = 8m.22s.
Ksara e = 7m.20s.
Tiflis eE = 8m.15s., eE = 10m.13s., LN = 12m.24s.
Long waves were also recorded at Paris, De Bilt, Helsingfors, Stuttgart, and Strasbourg.

May 25d. 16h. 19m. 8s. Epicentre 28°·0N. 139°·5E. (as on 1932 April 29d.). R.3.

A = −·671, B = +·573, C = +·469; D = +·649, E = +·760;
G = −·357, H = +·305, K = −·883.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Sumoto		7·4	329	1 45	0	3 9	0	—	3·2
Nagoya		7·5	343	1 47	+ 1	2 12	P*	—	3·3
Osaka		7·5	334	1 47	+ 1	3 5	− 6	—	3·7
Kobe		7·6	332	1 48	0	3 13	− 1	—	3·3
Tyosi		7·8	9	e 1 54	+ 3	3 22	+ 3	—	3·5
Toyooka	E.	8·5	333	1 58	− 2	e 3 30	− 6	—	—
	N.	8·5	333	1 58	− 2	e 3 27	− 9	—	3·6
	Z.	8·5	333	1 56	− 4	e 3 35	− 1	—	—
Hukuoka B		9·6	308	2 8	− 8	—	—	3·8	—
Mizusawa		11·2	6	e 2 28	− 9	i 4 25	−18	—	—

Continued on next page.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Vladivostok	16·3	340	3 59	PP	6 38	− 7	7·2	—
Tashkent	57·7	303	e 11 32	PP	i 16 4	?	—	35·6
Sverdlovsk	60·9	322	9 2	−69	16 33	?	24·2	—
Tiflis	75·0	310	—	—	(e 19 16)	?	e 19·3	—

Additional readings :
Sumoto PNZ = +1m.48s.
Osaka i = +2m.21s. = P_g − 5s. and +3m.14s.
Vladivostok iP = +4m.3s., iS = +6m.44s.

May 25d. Readings also at 3h. (near Tashkent), 6h. (Kobe), 10h. (near Branner and Lick), 12h. (near Mizusawa), 13h. (Ithaca and near Santiago), 14h. (Sverdlovsk, Ksara, Tiflis, near Baku, Erevan, and Grozny (2)), 19h. (Sverdlovsk, Tashkent, and Melbourne), 21h. (New Plymouth).

May 26d. 3h. 57m. 45s. Epicentre 35°·3N. 3°·7W. (as on 1927 Sept. 8d.). X.

A = +·814, B = −·053, C = +·578.

	△	Az.	P.	O−C.	S.	O−C.
	°	°	m. s.	s.	m. s.	s.
Malaga	1·5	337	0 19	− 2	0 47	+ 8
Granada	1·9	2	e 0 30	+ 2	1 8	?
Almeria	1·9	32	0 51	S	(0 51)	+ 2
San Fernando	2·3	291	0 44	P_g	1 34	?
Alicante	4·0	39	1 22	P_g	—	—
Toledo	4·6	358	1 4	− 2	e 2 26	S_g

Additional readings :—
Malaga PP = +28s., PPP = +33s., iSS = +49s., e = +1m.42s.
Granada P_g = +35s., PP = +40s., iPS = +58s., SS = +1m.17s., SSS = +1m.36s.
Almeria P_g = +53s., iPS = +1m.10s., S_g = +1m.21s., SS = +1m.32s.
Toledo P_g = +1m.20s.
Long waves were also recorded at De Bilt, Uccle, Paris, Strasbourg, and Stuttgart.

May 26d. Readings also at 0h. (near Batavia), 8h. (near Husan), 9h. (Florence), 11h. (Batavia and near Soengei Langka), 12h. (Wellington), 17h. (near Grozny), 18h. (near Tyosi), 19h. (Tucson), 20h. (near St. Louis), 21h. (La Jolla (2), Mount Wilson (2)), Pasadena (2), and Riverside), 22h. (Sverdlovsk, Scoresby Sund and Sitka), 23h. (Stuttgart and Tashkent).

May 27d. 13h. 26m. 53s. Epicentre 8°·5S. 67°·0E. (as on 1930 Aug. 30d.). X.

A = +·386, B = +·910, C = −·148 ; D = +·920, E = −·391 ;
G = −·058, H = −·136, K = −·989.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Colombo	20·0	40	4 27	− 3	—	—	—	12·6
Kodaikanal	21·4	29	4 43	− 1	8 48	+14	9·5	11·6
Tananarive	21·6	239	4 12	−34	8 43	+ 5	—	10·9
Bombay	28·0	12	e 5 47	0	e 10 41	+ 9	—	16·5
Hyderabad	28·3	23	—	—	10 35	− 2	13·6	15·1
Agra	37·3	17	—	—	e 12 52	− 4	—	20·1
Baku	51·4	345	e 10 34	(+13)	e 16 43	+23	21·1	28·9
Tiflis	54·2	343	e 9 26	+ 3	e 16 49	− 9	22·8	28·7
Sverdlovsk	65·5	356	10 27	−15	i 19 7	−19	26·2	—
Kucino	68·7	344	—	—	e 20 5	0	e 34·7	36·2
Pulkovo	74·2	343	—	—	e 20 49	−22	30·1	—

Additional readings :—
Tananarive E = +8m.53s.
Bombay SS = +12m.3s.
Tiflis eZ = +13m.16s. and +15m.24s.
Kucino e = +24m.27s. = SS +4s. and +28m.8s. = SSSS − 15s.
Maximum of long waves was recorded at Hong Kong.

May 27d. Readings also at 1h. (near Mizusawa and Tyosi), 2h. (Tyosi and near Mizusawa), 3h. (Christchurch, New Plymouth, and Wellington), 5h. (Husan and Perth), 6h. (near Manila), 7h. (Hong Kong and Phu-Lien), 8h. (Neuchatel), 9h. (Tiflis, Pulkovo, Copenhagen, Hamburg, Edinburgh, Strasbourg, Stuttgart, De Bilt, Uccle, Trenta, Paris, Florence, Zagreb, and near Apia), 10h. (Baku and Sverdlovsk), 11h. (Perth and near Oak Ridge), 13h. (Malaga), 18h. (De Bilt, Paris, Strasbourg, Stuttgart, Little Rock, St. Louis, Tucson, La Jolla, Mount Wilson, Pasadena, Riverside, and Tinemaha), 19h. (Scoresby Sund, Sverdlovsk, Tashkent, and Tiflis), 20h. (Manila), 22h. (Treviso), 23h. (Medan).

May 28d. 5h. 32m. 40s. Epicentre 46°·3N. 149°·9E. N.2.

A = −·598, B = +·346, C = +·723; D = +·502, E = +·865; G = −·625, H = +·363, K = −·691.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Mizusawa		9·7	225	e 2 18	+ 1	i 3 52	−14	—	—
Vladivostok		13·2	262	e 3 19	+14	—	—	—	—
Nagoya		14·8	226	e 3 26	0	6 16	+ 6	—	—
Osaka		16·0	228	3 54	+13	6 32	− 6	—	7·2
Kobe		16·1	229	e 3 42	− 1	6 41	0	—	6·7
Sumoto		16·5	229	—	—	e 6 48	− 2	—	7·0
Chiufeng		25·2	268	6 24a	+62	e 10 38	+54	—	—
Nanking		27·8	250	e 5 42	− 3	e 10 28	0	—	—
Frunse		51·7	296	e 8 22	−42	—	—	—	—
Sverdlovsk		52·4	317	i 9 0	− 9	16 14	−20	24·4	—
Andijan		54·2	294	e 9 27	+ 4	e 16 53	− 5	—	—
Tashkent		55·8	297	9 34	0	i 17 12	− 8	—	29·4
Pulkovo		63·1	331	10 24	− 2	—	—	25·3	—
Scoresby Sund		63·1	358	10 28	+ 2	18 50	− 6	—	—
Tinemaha		65·2	62	i 10 42	+ 2	—	—	—	—
Pasadena	z.	67·2	64	e 10 53	0	—	—	—	—
Mount Wilson	z.	67·3	64	i 10 54	0	—	—	—	—
Riverside	z.	67·8	64	e 10 56	− 1	—	—	—	—
Baku		67·9	306	10 51	− 7	e 21 21	(−32)	40·3	48·6
Erevan		71·0	309	e 11 27	+10	—	—	—	—
Sotchi		71·0	314	e 11 36	+19	—	—	—	—
Theodosia		72·0	318	e 11 23	0	—	—	—	—
Simferopol		72·7	319	e 11 27	0	—	—	—	—
Yalta		73·0	318	e 11 29	0	—	—	—	—
De Bilt		77·1	339	i 11 52	− 1	—	—	e 39·3	—
Vienna		77·2	331	i 11 53	0	—	—	—	—
Uccle		78·5	340	i 11 59	− 1	—	—	e 38·3	—
Stuttgart		79·0	335	i 12 1	− 2	—	—	e 37·3	—
Strasbourg		79·6	336	12 5	− 1	—	—	e 39·3	—
Ksara		80·3	309	e 12 8	− 1	e 22 9	−10	—	—
Basle		80·5	336	e 12 11	+ 1	—	—	—	—
Chur		80·6	336	e 12 11	0	—	—	—	—
Paris		80·7	339	i 12 13	+ 1	—	—	—	—
Neuchatel		81·3	336	e 12 13	− 2	—	—	—	—
Prato		82·7	331	i 12 20	− 2	—	—	—	—

Additional readings:—
Vladivostok i = +3m.57s.
Chiufeng i = +11m.35s.
Tinemaha e = +11m.16s. = P_cP +2s.
Pasadena iZ = +11m.28s. = P_cP +6s.
Vienna iN = +12m.52s.
Long waves were also recorded at Tiflis and Copenhagen.

May 28d. 21h. 9m. 23s. Epicentre 43°·8N. 11°·7E. N.3.

A = +·707, B = +·146, C = +·692; D = +·203, E = −·979; G = +·678, H = +·140, K = −·722.

	Δ	Az.	P.	O−C.	S.	O−C.	M.
	°	°	m. s.	s.	m. s.	s.	m.
Florence	0·3	267	i 0 3	− 1	0 10	+ 2	—
Prato	0·4	281	i 0 5	− 1	i 0 13	+ 3	—
Siena	0·5	215	0 7	0	0 27	+14	—
Padova	1·6	2	e 0 23	0	0 37	− 4	—
Pavia	1·7	322	e 0 47	S	(e 0 47)	+ 3	—
Venice	1·7	15	e 0 28	+ 4	0 47	+ 3	—
Treviso	1·9	8	e 0 27	− 1	0 46	− 3	—
Piacenza	1·9	311	e 0 18	−10	0 37	P_g	1·0
Rome	2·0	162	e 1 27	?	—	—	—
Triest	2·4	38	0 35	+ 1	i 1 8	S*	—
Chur	3·4	333	e 0 45	− 4	e 1 20	− 7	—
Zurich	4·2	330	e 0 56	− 4	—	—	—
Ravensburg	4·3	340	e 1 36	S	(e 1 36)	−14	—
Basle	4·7	324	e 1 4	− 3	—	—	—
Stuttgart	5·3	341	—	—	e 2 25	+10	—
Vienna	5·5	35	—	—	e 2 55	S_g	—

Additional readings :—
Treviso SS = +1m.1s.
Triest P_g = +38s. = P* +0s., i = +42s. = P_g +0s., and +1m.4s. = S +2s., e = +3m.52s.
Chur eS_g = +1m.27s.

May 28d. 22h. Formosa Earthquake.

Takao eP = 22h.0m.10s., S = 0m.18s.
Taityu eP = 22h.0m.42s.
Taito iP = 22h.0m.49s., S = 1m.8s.
Arisan iP = 22h.0m..54s., S = 1m.4s.
Karenko eP = 22h.1m.1s., S = 1m.13s.
Taihoku eP = 22h.1m.20s., S = 1m.42s.
Tainan eP = 22h.1m.20s., S = 1m.39s.

May 28d. Readings also at 3h. (near Ksara), 5h. (Strasbourg, Andijan, Frunse, and Tashkent), 6h. (near Tyosi), 7h. (near Almata), 10h. (near Triest), 12h. (Tiflis), 14h. (La Paz), 19h. (near Oak Ridge), 23h. (Scoresby Sund, Oak Ridge, Chicago, Seattle, Ukiah, La Jolla (2), Pasadena (2), Riverside, and near Tucson (2)).

May 29d. Readings at 0h. (Hukuoka B), 1h. (Tashkent, Nanking, Phu-Lien, Vladivostok, near Chiufeng, and near Prato), 6h. (Baku, Tashkent, and Ksara), 8h. (La Paz), 10h. (Hukuoka B), 16h. (near Tashkent), 17h. (Andijan and Frunse), 18h. (Wellington, La Jolla, Mount Wilson, Pasadena, Riverside, Tinemaha, and near Oak Ridge), 21h. (Mizusawa), 23h. (Tucson).

May 30d. 23h. 4m. 0s. Epicentre 36°·3N. 140°·5E. N.1.
(as given by all the Japanese stations).

A = −·622, B = +·513, C = +·592; D = +·636, E = +·772;
G = −·457, H = +·377, K = −·806.

A *depth* of focus 0·015 has been assumed.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Mito	+0·3	0·1	342	0 6	0	0 13	+ 3	—	—
Tukubasan	+0·3	0·3	255	0 8	− 1	0 16	+ 1	—	—
Kakioka	+0·3	0·3	255	0 7	− 2	0 15	0	—	—
Utunomiya	+0·3	0·6	298	0 5	− 8	0 14	− 9	—	—
Tyosi	+0·3	0·6	152	i 0 10	− 3	0 19	− 4	—	0·4
Onahama	+0·3	0·7	27	0 14	0	0 24	− 2	—	—
Kumagaya	+0·3	0·9	261	0 15	− 2	0 30	− 1	—	—
Tokyo	+0·3	0·9	224	0 15	− 2	0 28	− 3	—	0·6
Yokohama	+0·3	1·1	218	0 19	− 1	0 37	+ 1	—	—
Maebasi	+0·3	1·1	275	0 18	− 2	0 34	− 2	—	—
Yokosuka	+0·3	1·2	215	0 21	0	0 41	+ 2	—	—
Aidu	+0·3	1·3	347	0 16	− 7	0 31	−10	—	—
Hukusima	+0·2	1·5	359	0 25	+ 1	0 42	− 2	—	—
Mera	+0·2	1·5	201	0 23	− 1	0 54	+10	—	—
Oiwake	+0·2	1·5	271	0 24	0	0 46	+ 2	—	—
Hunatu	+0·2	1·6	240	0 26	0	0 49	+ 3	—	—
Kohu	+0·2	1·7	247	0 27	− 1	0 51	+ 2	—	—
Misima	+0·2	1·7	227	0 24	− 4	0 52	+ 3	—	—
Ito	+0·2	1·8	220	0 26	− 3	0 49	− 2	—	—
Numadu	+0·2	1·8	228	0 28	− 1	0 58	+ 7	—	—
Nagano	+0·2	1·9	281	0 29	− 1	0 54	0	—	—
Takada	+0·2	2·0	294	0 28	− 3	0 47	−10	—	—
Susaki	+0·2	2·0	217	0 29	− 2	0 56	− 1	—	—
Matumoto	+0·2	2·0	268	0 38	+ 7	1 8	+11	—	—
Sendai	+0·2	2·0	9	0 27	− 4	0 44	−13	—	—
Yamagata	+0·2	2·0	357	0 25	− 6	0 48	− 9	—	—
Iida	+0·2	2·3	250	0 39	+ 3	1 8	+ 4	—	—
Omaesaki	+0·2	2·5	228	0 37	− 2	1 11	+ 2	—	—
Takayama	+0·2	2·6	267	0 38	− 2	1 28	+16	—	—
Toyama	+0·2	2·7	278	0 40	− 1	1 15	+ 1	—	—
Hamamatu	+0·2	2·7	235	0 44	+ 3	1 19	+ 5	—	—
Mizusawa	+0·1	2·9	10	i 0 40	− 3	i 1 11	− 6	—	—
Gihu	+0·1	3·1	254	0 46	0	1 23	+ 1	—	—
Wazima	+0·1	3·1	291	0 45	− 1	1 31	+ 9	—	—
Nagoya	+0·1	3·1	249	0 46	0	1 23	+ 1	—	1·9
Hatidyozima	+0·1	3·2	190	0 46	− 1	1 23	− 2	—	—
Ibukisan	+0·1	3·4	255	0 52	+ 2	1 32	+ 2	—	—
Morioka	+0·1	3·5	8	0 49	− 2	1 26	− 6	—	—
Kameyama	+0·1	3·6	247	0 52	− 1	1 49	+14	—	—
Hikone	+0·1	3·6	254	0 54	+ 1	1 44	+ 9	—	—
Kyoto	+0·1	4·1	253	0 58	− 2	1 58	+10	—	—
Osaka	+0·1	4·3	249	1 3	0	2 11	+18	—	3·1
Osaka B	+0·1	4·3	249	1 17	+14	2 11	+18	—	—
Kobe	0·0	4·6	252	e 1 0	− 6	2 13	+15	—	3·8
Toyooka	0·0	4·6	262	e 1 8	+ 2	2 4	+ 6	—	2·7
Wakayama	0·0	4·8	246	1 9	+ 1	2 16	+13	—	—
Siomisaki	0·0	4·8	235	1 9	+ 1	2 3	0	—	—
Sumoto	0·0	5·0	248	1 10	− 1	2 21	+13	—	2·6
Koti	0·0	6·3	247	1 32	+ 2	2 43	+ 2	—	3·7
Matuyama	0·0	6·8	251	1 35	− 2	3 36	?	—	—
Sapporo	0·0	6·8	6	1 45	+ 8	3 6	+13	—	—
Simidu	−0·1	7·1	242	1 42	+ 3	2 41	−18	—	—
Nemuro	−0·1	8·0	28	1 42	−10	3 10	−11	—	—
Miyazaki	−0·1	8·6	242	2 3	+ 3	3 43	+ 7	—	—
Hukuoka	−0·1	8·7	255	2 4	+ 2	4 9	+30	—	—

Continued on next page.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Hukuoka B	−0·1	8·7	255	2 4	+ 2	—	—	4·6	—
Kumamoto	−0·1	8·8	250	2 5	+ 2	3 31	−10	—	—
Unzendake	−0·1	9·1	250	2 13	+ 6	4 19	+30	—	—
Titizima	−0·1	9·3	171	2 3	− 7	3 16	−38	—	—
Husan	−0·1	9·4	265	i 2 15	+ 4	4 12	+16	—	—
Nagasaki	−0·1	9·5	251	2 12	− 1	4 21	+22	—	—
Vladivostok	−0·1	9·5	323	i 2 28	+15	i 4 18	+19	—	7·8
Kagosima	−0·1	9·5	242	2 17	+ 4	—	—	—	—
Taikyu	−0·1	9·6	272	2 19	+ 5	e 4 23	?	—	—
Nanking	−0·4	18·4	263	e 4 6	− 1	—	—	—	—
Chiufeng	−0·5	19·5	289	e 4 16	− 3	7 51	+ 5	—	—
Irkutsk	−0·8	30·0	314	e 7 4	+66	e 10 52	+ 1	13·0	19·0
Phu-Lien	−0·9	33·3	252	7 0?	+34	—	—	—	—
Calcutta	−1·2	46·8	268	4 18	?	7 28	?	9·8	11·5
Frunse	−1·2	49·9	299	5 50	?	—	—	—	—
Andijan	−1·3	52·1	297	e 7 9	?	—	—	—	—
Agra	−1·3	53·0	279	8 53	−11	—	—	—	—
Tashkent	−1·4	54·2	299	e 9 11	− 1	i 16 47	+ 8	—	33·4
Sverdlovsk	−1·4	55·0	319	i 8 57	−21	i 16 49	− 1	26·2	—
Bombay	−1·5	61·3	273	i 11 7	+64	—	—	—	—
Kucino	−1·6	67·0	323	—	—	e 19 31	+ 6	e 32·8	40·2
Pulkovo	−1·6	68·2	329	—	—	e 19 45	+ 5	40·0	—
Tiflis	−1·7	70·5	308	e 9 58	?	e 20 59	?	e 38·0	45·3
Tinemaha	−1·7	76·6	54	i 11 42	+ 2	—	—	—	—
Copenhagen	−1·7	77·9	333	—	—	21 37	+ 3	44·0	—
Pasadena	−1·7	78·4	56	i 11 51a	+ 1	—	—	—	—
Mount Wilson	−1·7	78·5	56	i 11 52	+ 2	—	—	—	—
De Bilt	−1·7	83·4	334	—	—	e 22 36	+ 2	e 40·0	—
Stuttgart	−1·7	84·6	330	—	—	e 22 40	− 6	e 46·0	—

Additional readings :—
Kobe eEN = +1m.8s., iEZ = +1m.24s.
Toyooka SN = +2m.15s.
Tashkent i = +9m.32s. and +12m.12s.
Sverdlovsk i = +9m.27s.
Bombay eN = +11m.37s.
Kucino e = +23m.43s. = SS +11s. and +27m.0s.? = SSSS − 6s.
Pulkovo e = +24m.7s. and +27m.41s.
Tiflis eE = +10m.33s., eN = +11m.16s. and +26m.17s., eE = +29m.1s., eN = +32m.19s.
Long waves were also recorded at Paris and Strasbourg.

May 30d. Readings also at 1h. (Sumoto, Almata, and near Andijan), 4h. (La Paz), 5h. (Nagoya), 6h. (Nagoya and Tyosi), 7h. (Nagoya and near Hukuoka), 8h. (La Paz and near Malabar), 9h. (Tiflis, Christchurch, Wellington, near New Plymouth, near Batavia, and Malabar), 10h. (Malabar (2)), 12h. (San Juan, Oak Ridge, Scoresby Sund, Edinburgh, Kew, De Bilt, Paris, Strasbourg, Stuttgart, Copenhagen, Sverdlovsk, Tashkent, near Arisan, Karenko, and Tainan), 13h. (Edinburgh, Tiflis, Berkeley (2), Branner (2), and Lick (2)), 14h. (Tiflis (3) and La Paz), 15h. (Baku, Sverdlovsk, Tashkent, and Tiflis), 16h. (Tiflis, La Paz (2), La Plata, and near Santiago), 17h. (La Plata and near Santiago), 18h. (Kobe, Sumoto, and Tiflis), 19h. (Tiflis), 20h. (Tiflis, Mount Wilson, Pasadena, Riverside, and Tinemaha).

May 31d. 13h. 22m. 35s. Epicentre 34°·5N. 5°·5W. N.3.

A = +·820, B = −·079, C = +·566 ; D = −·096, E = −·995 ;
G = +·564, H = −·054, K = −·824.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
San Fernando	E.	2·0	344	0 29	0	1 25	?	—	1·5
	N.	2·0	344	0 31	+ 2	1 18	?	—	2·1
Granada		3·1	30	e 0 44	0	1 22	+ 2	—	—
Almeria		3·4	46	0 49	0	1 29	+ 2	—	—
Toledo		5·5	12	e 1 25	+ 7	2 55	S_g	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Alicante		5·6	44	1 46	P_g	3 10	S_g	—	—
Algiers		7·3	70	e 3 22	S*	—	—	—	—
Tortosa	N.	7·9	36	e 3 5	S	(e 3 5)	−16	4·9	5·4
Zurich		16·6	35	e 3 48	− 1	—	—	—	—
Strasbourg		17·2	31	e 3 25?	−32	e 8 35?	?	e 10·4	—
Kew		17·4	11	—	—	e 7 25?	+14	—	—
Uccle		17·8	21	e 4 2	− 2	—	—	e 8·4	—
Stuttgart		17·9	33	(e 4 1)	− 4	e 4 1	P	e 10·4	—
De Bilt		19·2	20	e 4 31	+10	e 8 7	+17	e 9·4	13·5
Edinburgh		21·4	4	—	—	e 8 25?	− 9	—	—
Hamburg		22·0	25	—	—	e 9 25?	SS	—	—
Copenhagen		24·6	25	—	—	9 49	+15	13·4	—
Sverdlovsk		49·0	42	e 8 31	−13	—	—	22·6	—

Additional readings :—
San Fernando PEN = +37s. = P_g +3s., PPN = +50s. = S − 1s.
Granada iP$_g$ = +48s. = P* − 3s., iS$_g$ = +1m.27s. = S* − 4s., SS = +1m.35s. = S_g +2s., iSSS = +1m.44s.
Almeria P_g = +53s. = P* − 2s., iPP = +1m.3s. = S* − 1s., SS = +1m.39s.
Toledo P_g = +1m.38s., iPS = +2m.25s. = S +5s., SS = +2m.58s.
Alicante P_g = +2m.16s. = S − 7s., iPS = +2m.56s.
Algiers i = +4m.21s., SS = +5m.7s.
Tortosa SN = +4m.10s. = S_g − 5s.
Long waves were also recorded at Paris, Kucino, and Pulkovo.

May 31d. Readings also at 1h. (Sverdlovsk, Tashkent, Triest, Pasadena, Tinemaha, and near San Juan), 2h. (Mizusawa and Port au Prince), 3h. (near Tyosi), 5h. (near Manila), 6h. (Kodaikanal and Mizusawa), 8h. (near Karenko and near Mizusawa), 9h. (Wellington and New Plymouth), 11h. (Tiflis and near Berkeley), 12h. (Edinburgh, Prato, and New Plymouth), 15h. (De Bilt, Paris, Strasbourg, Stuttgart, Uccle, Triest, Edinburgh, Kew, Granada, Sverdlovsk, Kucino, and Scoresby Sund), 17h. (San Fernando, Sumoto, and near Granada), 18h. (near Algiers (2)), 19h. (Almata, Andiian, and Frunse).

June 1d. 1h. 35m. 44s. Epicentre 34°·5N. 140°·0E. (as on 1934 April 26d.). X.

Nagoya gives epicentre 34°·2N. 139°·9E.
Susaki gives 34°·31N. 140°·08E.

A = − ·631, B = + ·530, C = + ·566 ; D = + ·643, E = + ·766 ;
G = − ·434, H = + ·364, K = − ·824.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Susaki		0·8	281	0 14	+ 3	0 28	S*	—	—
Tyosi		1·5	30	0 18	− 3	0 39	0	—	0·8
Nagoya		2·6	285	e 0 37	0	1 33	?	—	1·8
Osaka		3·7	274	0 54	+ 1	1 52	S_g	—	3·0
Kobe	E.	4·0	274	e 0 49	− 8	e 1 44	+ 2	—	2·5
	Z.	4·0	274	e 0 58	+ 1	e 1 51	S*	—	2·4
Sumoto	E.	4·2	269	1 5	P*	1 57	S*	—	2·1
	Z.	4·2	269	1 4	+ 4	2 0	S*	—	2·1
Toyooka	N.	4·3	285	e 1 9	P*	2 12	S_g	—	2·4
Mizusawa		4·8	11	e 1 3	− 5	1 58	− 5	—	—
Koti		5·4	262	e 1 19	+ 2	—	—	—	—
Sverdlovsk		56·1	320	9 21	−16	17 9	−15	26·3	—

Additional readings :—
Osaka i = +2m.6s.
Toyooka ePE = +1m.4s.
Mizusawa iPE = +1m.6s.
Long waves were also recorded at Kucino and Tashkent.

June 1d. Readings also at 2h. (Ferndale), 3h. (New Plymouth (2) and near Wellington (2)), 5h. (Berkeley and Branner), 6h. (Tashkent, Sverdlovsk, and Osaka), 7h. (Christchurch and near Wellington), 9h. (Triest, Trenta, and Zagreb), 12h. (Mizusawa), 13h. (near Amboina), 14h. (La Paz), 15h. (near Oak Ridge), 16h. (St. Louis and Little Rock), 19h. (Bombay, near Agra, and Calcutta).

June 2d. 5h. 54m. 27s. Epicentre 25°·1N. 94°·7E. N.2.

A = −·074, B = +·902, C = +·424; D = +·997, E = +·082; G = −·035, H = +·423, K = −·906.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Calcutta		6·3	246	e 1 26	− 4	e 2 33	− 8	e 3·0	—
Phu-Lien		11·8	109	e 2 45	− 1	e 4 54	− 4	5·6	—
Agra	E.	15·1	282	3 37	+ 7	6 19	+ 2	—	—
Dehra Dun		15·6	293	6 13	?	(6 33)	+ 4	—	6·5
Hyderabad		16·9	246	3 57	+ 4	7 27	SS	8·7	12·0
Hong Kong		18·0	94	4 4	− 3	6 14	?	—	11·3
Bombay		21·2	257	i 4 48	+ 6	i 8 39	+ 9	10·4	12·4
Medan		21·8	169	i 4 44	− 5	i 8 32	−10	—	—
Kodaikanal		22·1	231	4 46	− 6	8 33	−15	—	—
Nanking		22·3	65	? 4 50	− 4	i 8 45	− 7	e 11·8	14·2
Colombo		23·2	220	5 3	0	9 6	− 2	—	13·8
Chiufeng		23·4	45	i 5 3k	− 2	i 9 6	− 6	—	—
Takao		23·6	91	5 18	+12	9 8	− 8	—	—
Tashkent		26·6	314	i 5 40	+ 5	i 10 7	− 2	e 14·9	17·7
Manila		26·8	108	5 35	− 1	10 48	SS	14·8	—
Irkutsk		28·2	13	5 52	+ 3	i 10 31	− 4	11·5	—
Batavia		33·5	158	i 6 28	− 8	—	—	—	—
Koti		34·7	67	—	—	e 11 33?	−44	—	—
Vladivostok		35·4	51	6 49	− 4	i 12 15	−12	e 13·8	—
Nagoya		37·7	64	7 8	− 4	(12 48)	−14	12·8	—
Nagano		38·7	62	7 17	− 4	12 59	−18	—	—
Kohu		39·0	64	7 33	+ 9	13 19	− 2	—	—
Sverdlovsk		40·1	332	i 7 26	− 7	i 13 26	−12	i 21·5	26·0
Baku		40·2	304	e 7 57	+23	i 13 44	+ 5	16·5	—
Sendai		41·1	60	7 44	+ 3	13 34	−19	—	—
Mizusawa		41·3	58	7 43	0	13 39	−17	—	—
Sapporo		42·0	52	8 53	+64	—	—	—	—
Amboina		43·4	126	7 49	−11	e 15 0	+33	—	—
Grozny		43·7	307	8 9	+ 7	14 21	−10	—	—
Erevan		44·3	303	8 10	+ 3	—	—	—	—
Kucino		51·0	322	e 9 28	+29	16 12	− 3	e 25·2	30·8
Theodosia		51·2	308	9 5	+ 5	16 13	− 5	—	—
Ksara		51·3	294	9 4	+ 3	i 16 19	0	—	—
Yalta		52·0	308	9 7	+ 1	16 24	− 4	—	—
Simferopol		52·1	309	e 9 10	+ 3	16 26	− 4	—	—
Pulkovo		55·7	327	9 33	− 1	i 17 12	− 7	28·5	34·7
Helsingfors		58·4	328	—	—	i 17 48	− 7	e 27·5	—
Upsala		62·1	327	e 10 51	(−11)	19·56	(−11)	—	—
Vienna		64·0	313	e 10 56	+24	e 19 1	− 6	—	—
Copenhagen		65·2	323	10 39	− 1	i 19 17	− 5	—	—
Triest		66·3	312	i 10 45k	− 2	i 19 23	−13	—	—
Hamburg		67·0	311	i 10 52	0	i 19 39	− 4	—	—
Padova		67·6	311	e 10 40	−16	19 33	−19	—	—
Florence		68·4	310	i 11 0k	− 1	19 51	−11	27·5	—
Prato		68·5	310	e 11 3	+ 2	19 54	− 9	—	—
Stuttgart		68·6	315	e 11 0	− 2	e 19 53	−11	e 38·6	—
Chur		68·6	314	e 11 0	− 2	e 19 54	−10	—	—
Piacenza		69·1	312	11 3	− 2	21 5	(+ 6)	—	—
Strasbourg		69·5	316	i 11 6a	− 2	i 20 6	− 9	e 26·6	—
De Bilt		70·1	320	e 11 11	0	20.16	− 6	—	46·0
Uccle		71·0	320	11 16	− 1	i 20 24	− 9	35·6	—
Paris		72·7	319	i 11 26	− 1	i 20 43	−10	27·6	31·6
Kew		73·6	320	e 11 31	− 1	e 20 53	−11	e 38·5	48·6
Edinburgh		73·6	325	e 12 6	+34	i 20 51	−13	e 41·5	—
Oxford		74·0	320	—	—	i 20 54	−14	—	—

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Bidston	74·5	322	—	—	i 21 1	−13	e 37·5	—
Scoresby Sund	74·7	342	11 39	0	21 7	−10	—	—
Algiers	76·5	304	e 10 56	−53	i 21 24	−13	40·6	—
Alicante	78·5	307	—	—	e 21 36	−23	e 81·0	—
Toledo	80·4	310	e 12 8	− 2	e 22 7	−13	—	—
Almeria	80·5	306	—	—	e 21 40	−41	—	—
Granada	81·2	307	e 12 7	− 7	i 22 7	−21	36·4	—
Malaga	82·0	307	e 12 50	+32	e 22 24	−13	—	—
San Fernando	83·4	307	12 36	+11	22 36	−15	—	—
Sitka	87·7	25	—	—	e 22 55	[−23]	—	—
Georgetown	115·5	353	—	—	i 25 12	[−23]	e 49·5	—
San Juan	132·6	334	e 22 3	PP	—	—	—	—
La Paz	161·8	295	e 19 58	[+ 3]	—	—	—	—

Additional readings :—
Calcutta e = +2m.36s.
Agra eN = +3m.35s. = PP +5s.
Bombay SS = +9m.24s.
Medan i = +8m.23s.
Nanking eE = +13m.30s.
Colombo PP = +5m.45s.
Chiufeng PPEZ = +5m.32s.
Amboina i = +8m.13s.
Grozny i = +17m.49s.
Kucino e = +18m.33s. = S_cS −18s.
Ksara PS = +16m.51s.
Pulkovo LR = +35·5m.
Helsingfors ePSNE = +18m.45s., eSSN = +21m.55s., eSSSNE = +23m.55s.
Upsala ePPE = +13m.35s., eE = +18m.35s. = S −8s.
Vienna PP = +13m.46s., iPPP = +15m.6s., iPS = +20m.15s. = S_cS −6s.
Copenhagen +11m.12s. = P_cP −2s., +20m.16s. = S_cS −13s., e = +23m.33s. = SS +4s.
Triest iP_cP = +11m.17s., i = +20m.27s. = S_cS −10s.
Hamburg e = +11m.18s. = P_cP −3s. and +41m.33s.?
Stuttgart epPEZ = +11m.31s., ePPZ = +14m.5s., esSNE = +20m.49s.
Strasbourg ipP = +11m.39s., ipPP = +14m.16s.
De Bilt iZ = +11m.46s., iPPZ = +14m.21s.
Uccle iP_cP = +11m.49s., iPP = +14m.27s.
Paris PKP = +12m.0s.
Kew eP_cP = +12m.6s., eE = +29m.44s.
Bidston i = +22m.6s.
Scoresby Sund pP = +12m.7s., PP = +15m.0s., eN = +21m.35s. = PS −5s., +22m.9s.
Algiers i = +11m.49s.
Granada P_cP = +12m.49s., PP = +15m.25s.
Georgetown iPS = +29m.7s., eSS = +35m.28s. ; T_o = 5h.54m.0s.
San Juan e = +22m.24s. and +23m.3s. = PKS +18s.

June 2d. 13h. 42m. 45s. Epicentre 66°·0N. 18°·5W. (given by Reykjavik). N.1.

A = +·386, B = −·129, C = +·914 ; D = −·317, E = −·948 ;
G = +·866, H = −·290, K = −·407.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Reykjavik	2·3	222	e 0 27	− 6	1 7	S*	—	—
Scoresby Sund	4·7	346	i 1 4	− 3	—	—	—	—
Bergen	12·0	106	e 3 50	+62	—	—	—	9·3
Edinburgh	12·5	137	3 52	+58	i 5 30	+15	—	8·6
Durham	13·9	136	3 13	− 1	e 6 19	+30	—	9·9
Ivigtut	13·9	264	3 15	+ 1	(5 45)	− 4	5·8	8·3
Bidston	14·7	142	i 3 23	− 2	i 6 30	+22	7·2	10·6
Oxford	16·6	140	i 2 49	−60	i 7 8	+16	7·8	13·8
Kew	17·2	139	i 3 55	− 2	i 7 23	+17	8·0	9·6
Upsala	17·3	94	i 3 54	− 4	i 7 17	+ 8	—	11·1
Copenhagen	18·0	110	4 5	− 2	e 7 27	+ 2	8·2	—
De Bilt	18·3	128	i 4 8k	− 2	7 41	+10	8·2?	10·2
Hamburg	18·7	118	i 4 11k	− 4	i 7 51	+11	e 10·2	11·3
Uccle	19·1	132	i 4 17k	− 3	7 51	+ 3	8·7	9·8
Helsingfors	20·0	86	e 4 29	− 1	i 8 17	+11	e 9·3	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Göttingen		20·2	122	i 4 32	0	8 22	+12	e 8·8	12·2
Paris		20·4	137	i 4 32	− 2	i 8 26	+12	9·2	11·2
Jena		21·3	120	e 4 42	− 1	e 8 42	+10	e 10·3	10·8
Leipzig		21·3	118	i 4 35	− 8	i 8 41	+ 9	9·8	13·3
Könisberg		21·7	103	i 4 54	+ 6	i 8 52	+12	e 9·6	11·7
Karlsruhe		21·8	127	i 4 55	+ 6	e 8 59	+17	e 11·7	—
Strasbourg		22·0	129	i 4 51a	0	i 9 0	+14	12·2	18·0
Cheb		22·3	120	e 4 55	+ 1	e 9 4	+12	e 9·3	17·8
Pulkovo		22·4	83	e 4 52	− 3	e 9 0	+ 7	11·4	14·4
Stuttgart		22·6	126	i 4 54	− 3	e 8 30	−27	10·2	12·4
Basle		22·9	131	e 4 59	− 1	e 9 22	+19	—	—
Prague		23·0	117	i 5 8	+ 7	e 9 21	+16	e 10·2	12·2
Puy de Dôme		23·0	140	i 5 2	+ 1	—	—	12·2	—
Zurich		23·3	129	e 5 5	+ 1	e 9 29	+19	—	—
Neuchatel		23·3	133	e 5 3	− 1	e 9 27	+17	—	—
Chur		24·2	128	e 5 10	− 2	e 9 34	+ 7	—	—
Vienna		25·3	117	i 5 24	+ 1	e 10 19	+33	i 11·4	17·8
Serra do Pilar		25·4	163	e 5 23	− 1	e 9 52	+ 4	12·3	—
Pavia		25·6	131	e 5 26	+ 1	—	—	—	—
Piacenza		25·8	130	e 5 30	+ 3	i 11 3	SSS	14·9	23·2
Graz		26·0	120	e 5 29	0	e 10 20	+22	e 12·3	20·4
Treviso		26·1	126	e 5 6	−24	e 10 16	+16	—	20·5
Padova		26·2	127	e 5 39	+ 8	14 3	L	(14·1)	—
Venice		26·4	126	e 5 34	+ 1	13 15	?	19·3	20·4
Laibach		26·5	122	—	—	e 10 30	+23	e 14·5	—
Triest		26·6	124	i 5 33k	− 2	i 10 21	+12	i 11·7	i 13·7
Budapest		26·9	115	5 43	+ 6	10 25	+11	13·7	16·2
Barcelona		27·1	145	5 44	+ 5	e 10 30	+13	e 11·7	18·6
Tortosa		27·2	147	5 41	+ 1	10 34	+16	13·2	15·7
Zagreb		27·2	121	5 39	− 1	e 10 48	+30	—	20·7
Prato		27·3	129	i 5 41	0	i 10 35	+15	14·2	21·6
Toledo		27·3	155	e 5 39	− 2	8 23	?	e 10·5	15·5
Florence		27·4	129	5 43	+ 1	10 35	+13	13·6	16·3
Livorno		27·4	131	5 50	+ 8	—	—	—	—
Kucino		28·0	84	6 0	+13	10 40	+ 8	e 12·5	16·3
Alicante		29·5	151	e 6 26	+25	e 11 34	+38	e 14·6	17·7
Rome		29·6	129	6 7	+ 6	—	—	—	—
Belgrade		29·6	116	—	—	e 11 29	+31	e 23·6	—
Granada		30·0	156	e 5 55	−10	e 11 1	− 3	14·3	16·8
Malaga		30·3	158	6 12	+ 4	11 15	+ 6	14·7	—
San Fernando		30·4	161	6 8	− 1	11 23	+13	14·7	—
Almeria		30·5	155	e 6 12	+ 3	e 11 22	+10	e 14·4	17·4
Naples		31·1	126	−4 43	?	—	—	15·3	20·3
Algiers		31·7	146	i 6 27	+ 7	e 11 43	+12	i 16·8	18·8
Trenta		33·2	126	e 6 15	−19	—	—	17·0	—
Tunis		33·5	135	e 6 41	+ 5	—	—	17·2	—
Catania		34·4	129	6 51	+ 7	—	—	e 17·1	25·0
Simferopol		34·8	101	6 54	+ 7	e 12 29	+11	17·9	—
Yalta		35·2	101	6 57	+ 6	e 12 33	+ 9	19·3	—
Theodosia		35·3	100	6 58	+ 6	12 35	+ 9	18·2	—
Sverdlovsk		36·2	66	i 6 50	−10	12 35	− 4	16·4	—
Ottawa		36·4	265	e 7 3	+ 2	e 12 47	+ 5	e 16·3	—
Oak Ridge		37·1	257	i 6 54	−13	e 12 49	− 4	e 16 8	—
Toronto	N.	39·3	267	—	—	i 13 33?	+ 7	17·9	—
Fordham		39·4	259	e 7 29	+ 2	e 13 30	+ 3	19·3	22·8
Grozny		40·9	91	e 7 46	+ 6	e 17 4	(−43)	e 21·8	—
Pittsburgh		42·2	265	e 7 54	+ 4	e 14 10	+ 1	e 19·6	—
Ann Arbor		42·2	270	e 9 39	(−10)	e 14 15	+ 6	22·2	23·2
Georgetown		42·4	260	i 7 51	− 1	i 14 15	+ 4	e 20·7	—
Erevan		43·0	95	e 8 2	+ 5	—	—	—	—

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Charlottesville	43·7	261	—	—	e 14 39	+ 8	e 23·9	—
Chicago	44·1	274	e 8 19	+13	e 14 39	+ 2	e 20·8	—
Baku	45·0	88	e 8 19	+ 6	i 15 12	+22	23·3	—
Ksara	45·1	108	8 17	+ 3	i 15 1	+ 9	22·8	27·1
Helwan	46·9	115	e 8 32	+ 4	i 15 28	+11	—	—
Florissant	47·8	273	i 8 36	+ 1	e 15 37	+ 7	—	—
St. Louis	47·9	273	e 8 37	+ 2	e 15 38	+ 7	e 23·4	25·5
Sitka	48·2	320	e 9 5	+27	e 15 45	+ 9	i 26·2	—
Columbia	48·2	261	e 9 26	+48	e 15 26	−10	e 26·7	—
Bozeman	50·2	295	—	—	e 16 7	+ 3	e 23·2	—
Tashkent	52·0	72	i 9 6	0	i 16 33	+ 5	e 23·3	34·1
Victoria	52·1	306	9 11	+ 4	16 21	− 9	26·2	—
Little Rock	52·2	272	(9 7)	− 1	(16 37)	+ 6	e 27·8	—
Seattle	52·4	305	—	—	e 24 37	?	e 27·7	—
Samarkand	52·6	76	e 9 45	+34	—	—	—	—
Frunse	52·7	67	e 7 47	?	—	—	e 26·3	—
Denver	52·9	286	—	—	e 16 55	+14	e 25·9	28·3
Andijan	53·7	71	10 22	(− 8)	e 17 8	+16	28·3	—
Irkutsk	54·0	41	e 9 22	+ 1	17 4	+ 8	27·3	—
San Juan	56·7	238	e 9 41	0	e 17 29	− 3	26·5	—
Ukiah	60·2	300	—	—	e 18 27	+ 8	e 31·4	—
Tinemaha	60·3	295	e 10 8	+ 1	—	—	—	—
Berkeley	61·0	299	—	—	e 18 36	+ 7	e 30·9	—
Tucson	61·7	287	e 10 23	+ 7	e 18 45	+ 7	e 30·2	—
Riverside	62·7	294	e 10 25	+ 2	—	—	—	—
Mount Wilson	62·8	294	e 10 26	+ 2	—	—	—	—
Pasadena	62·9	294	e 10 21	− 4	—	—	e 31·7	—
Dehra Dun	65·1	71	19 15	S	(19 15)	− 6	—	38·3
Agra	67·9	73	—	—	e 19 36	−20	—	—
Chiufeng	68·3	37	11 1k	+ 1	20 10	+ 9	34·3	42·9
Vladivostok	68·5	24	i 11 8	+ 7	e 20 15	+12	e 28·6	36·4
Bombay	73·3	82	11 36	+ 5	21 1	+ 1	—	44·9
Entebbe	75·2	126	—	—	21 18	− 4	e 32·2	44·8
Calcutta	76·1	66	22 31	?	30 17	?	42·3	45·0
Nanking	76·6	37	e 11 50	+ 1	—	—	e 48·3	—
Hyderabad	76·9	77	21 45	S	(21 45)	+ 3	—	47·3
Sumoto	77·6	23	—	—	14 43	PP	—	—
Kodaikanal	83·0	81	—	—	e 22 47	0	—	—
Hong Kong	84·7	44	15 48	PP	23 5	0	—	46·4
Colombo	87·1	80	23 19	SKS	(23 19)	[+ 5]	—	56·1
Huancayo	88·5	235	e 12 47	− 3	e 23 27	[+ 4]	e 41·7	—
La Paz	90·4	227	e 13 33	+34	e 23 42	[+ 7]	46·3	51·1
Manila	94·0	40	13 17	+ 1	23 50	[− 5]	45·2	53·2

Additional readings and notes :—
Reykjavik i = +50s. = S − 9s.
Edinburgh i = +5m.58s., +6m.29s., +6m.39s., +6m.45s. = S_g − 2s., and +6m.58s.
Bidston iPP = +3m.30s.
Kew i = +4m.4s. = PP +1s.
Upsala SSN = +8m.28s.
Copenhagen eN = +7m.32s. = SS − 5s., +7m.38s., eZ = +7m.52s.
Uccle PLN = +5m.24s., i = +16m.55s. and +17m.0s.
Helsingfors ePPZ = +4m.42s., ePPPZ = +5m.1s., eSSNEZ = +8m.39s., eSSSN = +8m.57s.; T_o = 13h.42m.25s.
Göttingen iZ = +4m.36s.
Jena iPN = +4m.46s., iPE = +4m.48s., iPZ = +4m.51s., eS = +8m.48s.
Leipzig iP = +4m.38s., e = +8m.38s.
Königsberg eNZ = +5m.54s.
Strasbourg i = +5m.49s. and +9m.21s.
Stuttgart iP = +5m.0s., e = +5m.14s. = PP − 4s., +5m.30s., +5m.46s., and +6m.39s., iSEN = +9m.4s.
Vienna eN = +5m.54s. = PP +0s., iPPP = +6m.35s., ePcP = +8m.19s., PSS (PcS) = +12m.5s., eSSS = +12m.34s.
Graz iP = +5m.33s., iPP = +6m.14s.
Treviso PP = +5m.35s., SS = +11m.50s.

Continued on next page.

Triest iZ = +5m.42s., iPP = +6m.12s., iPPP = +6m.24s., iSS = +11m.9s.
Zagreb e = +5m.44s., iNW = +5m.51s., e = +11m.23s. = SS +0s., +13m.11s., +14m.43s., and +16m.36s. = S_cS +8s., eZ = +18m.27s., +19m.51s., and +20m.37s.
Toledo PP = +5m.58s.
Florence SS = +12m.17s.
Granada iP = +6m.4s., PP = +6m.34s., PPP = +6m.58s., i = +9m.46s.
Malaga PP = +6m.57s., SS = +12m.21s.
San Fernando PP = +6m.43s., S = +11m.26s.
Sverdlovsk LR = +18·7m.
Ottawa PPP = +8m.33s., SSS = +15m.15s.; T_o = 13h.42m.48s.
Oak Ridge i = +7m.1s., +7m.13s., +7m.19s., and +7m.26s., ePPP = +8m.21s., eSNW = +12m.45s.; T_o = 13h.42m.32s.
Fordham i = +7m.32s., ePP = +9m.1s., eS = +13m.41s., eSS = +16m.27s., i = +18m.34s., +18m.39s.
Pittsburgh ePP = +9m.41s. = P_cP − 8s., iSS = +17m.27s., eSSS = +18m.53s.
Ann Arbor eN = +11m.9s., e = +18m.51s. and +19m.45s.
Charlottesville eSS = +18m.13s., = S_cS +9s., eSSS = +19m.55s., e = +20m.15s.
Chicago ePP = +10m.1s., eSS = +18m.6s.
Florissant iPP = +10m.29s.; T_o = 13h.42m.46s.
St. Louis iPPN = +10m.35s., iSN = +15m.44s., iSSE = +19m.5s., iSSSE = +20m.28s.; T_o = 13h.42m.46s.
Sitka ePP = +10m.30s., eSS = +19m.21s., e = +23m.15s.
Columbia eSS = +19m.15s.
Bozeman eSS = +19m.37s., eSSS = +21m.57s., e = +23m.7s.; T_o = 13h.42m.34s.
Tashkent i = +8m.55s., e = +11m.9s. = PP +11s., i = +20m.16s. = SS +19s.
Victoria SN = +16m.39s.; T_o = 13h.42m.48s.
Little Rock ePPEN = (+11m.10s.); all readings have been *diminished* by 2m.
San Juan e = +19m.51s. = S_cS +22s. and +23m.35s. = SSSS − 6s.
Ukiah e = +25m.35s. = SSSS +31s.
Tinemaha iZ = +12m.22s. = PP +9s.
Berkeley eN = +18m.39s. = PS +3s.
Tucson eSS = +22m.45s., eSSS = +25m.24s.
Pasadena iZ = +12m.45s.; T_o = 13h.42m.46s.
Chiufeng ePPNZ = +13m.30s.
Bombay PPP = +16m.2s., PS = +21m.49s., SS = +25m.53s.
Hong Kong SS? = +28m.43s.
Huancayo ePS = +24m.15s., e = +28m.5s., eSS = +29m.22s.
Manila PPP = +17m.7s. = PP +10s.
Long waves were also recorded at Ithaca, Honolulu, Wellington, Phu-Lien, Almata, and Sucre.

June 2d. 16h. 45m. 35s. Epicentre 61°·5N. 147°·0W. N.2.

A = −·400, B = −·260, C = +·879; D = −·545, E = +·839; G = −·737, H = −·479, K = −·477.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Sitka	7·4	122	i 1 45	0	i 3 37	S*	i 4·1	—
Victoria	18·7	124	4 16	+ 1	7 53	+13	9·9	—
Seattle	19·7	123	e 4 56	+30	e 8 36	+36	—	—
Bozeman	26·0	111	e 5 37	+ 8	e 9 57	− 1	e 14·0	—
Ukiah	26·7	136	e 5 45	+10	e 10 33	+23	—	—
Berkeley	28·2	135	e 5 45	− 4	—	—	—	—
Tinemaha	30·2	131	e 6 7	0	—	—	—	—
Santa Barbara	32·1	134	e 6 22	− 2	—	—	—	—
Pasadena	32·9	132	i 6 27	− 4	—	—	e 16·2	—
Mount Wilson	32·9	132	i 6 29	− 2	—	—	—	—
Riverside	33·4	132	i 6 30	− 5	—	—	—	—
La Jolla	34·4	132	i 6 41	− 3	—	—	—	—
Tucson	37·3	124	e 7 9	0	e 12 59	+ 3	e 20·3	—
Chicago	39·8	92	—	—	e 13 37	+ 4	e 30·8	—
St. Louis	41·2	96	i 7 38	− 4	e 14 5	+11	e 20·8	22·2
Ann Arbor	41·4	87	—	—	e 14 7	+10	20·4	—
Toronto	42·4	82	9 49	(− 1)	—	—	e 14·0	—
Scoresby Sund	42·5	24	8 0	+ 7	14 15	+ 2	—	—
Ottawa	42·8	78	e 4 49	?	e 9 49	PP	e 13·4	—
Little Rock	43·3	102	—	—	11 25?	?	—	—

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Oak Ridge	46·9	77	e 8 14	−14	e 15 6	−11	e 24·4	—
Fordham	47·2	80	e 8 26	− 4	e 15 24	+ 3	23·4	25·1
Georgetown	47·2	84	i 8 28	− 2	15 41	+20	e 22·4	—
Vladivostok	49·1	287	8 47	+ 3	15 42	− 6	25·9	—
Columbia	49·3	92	—	—	e 13 46	?	e 25·2	—
Irkutsk	53·0	313	—	—	e 16 28	−14	29·4	—
Chiufeng	58·5	297	e 9 57	+ 3	e 17 42	−14	—	36·7
Pulkovo	58·7	1	e 9 58	+ 3	e 17 50	− 9	28·4	36·0
Edinburgh	59·2	23	—	—	i 18 7	+ 2	—	—
Sverdlovsk	59·7	343	i 9 57	− 5	i 17 57	−15	28·4	37·1
Bidston	61·6	24	—	—	e 18 25	−12	—	—
Copenhagen	61·7	13	10 20	+ 4	18 31	− 7	32·4	—
Kew	64·0	22	e 10 37	+ 5	—	—	32·4	—
De Bilt	64·3	18	10 39	+ 5	19 12	+ 1	e 34·4	—
Uccle	65·4	20	10 45	+ 4	19 22	− 3	32·4	—
Paris	67·0	22	i 10 56	+ 4	—	—	31·4	—
Strasbourg	68·1	18	e 10 55	− 4	e 19 46	−12	e 24·4	—
Stuttgart	68·2	17	e 11 3	+ 4	e 19 55	− 4	e 35·4	—
San Juan	69·5	88	e 14 25	?	—	—	e 33·7	—
Frunse	70·3	329	(11 42)	+29	(e 20 47)	+22	—	—
Venice	71·8	15	e 10 31	−51	20 48	+ 5	32·0	—
Piacenza	71·9	17	—	—	19 25?	−79	—	—
Andijan	72·9	330	e 11 29	+ 1	e 20 37	−19	—	—
Florence	73·2	16	e 10 35	−55	e 20 55	− 4	—	—
Prato	73·2	13	e 11 37	+ 7	—	—	—	—
Tashkent	73·5	332	i 11 33	+ 1	i 20 47	−16	e 34·4	48·4
Theodosia	73·5	358	e 11 39	+ 7	—	—	—	—
Simferopol	73·5	0	e 11 34	+ 2	—	—	—	—
Yalta	74·0	359	e 11 35	0	—	—	—	—
Toledo	74·3	29	e 11 32	− 4	21 8	− 4	—	—
Grozny	74·7	350	e 11 38	− 1	—	—	—	—
Tiflis	76·4	351	11 52	+ 4	e 21 26	−10	41·4	47·7
Alicante	76·5	27	(e 15 47)	?	—	—	e 15·8	—
Granada	76·9	30	e 11 53	+ 2	i 21 39	− 3	39·6	—
Malaga	77·2	29	e 11 47	− 6	e 21 37	− 8	—	—
Ksara	84·6	357	e 12 19	−12	e 22 55	[0]	—	—
Bombay	93·6	322	—	—	i 23 39	[−14]	—	59·0

Additional readings and notes :—
Berkeley eE = +5m.47s., iZ = +5m.58s.
Chicago eSS = +16m.55s. ; T_o = 16h.45m.9s.
St. Louis ePPEN = +9m.29s. = PPP + 6s., eSSE = +17m.2s. = SSS − 12s.
Ann Arbor e?E = +18m.55s., e = +20m.7s.
Oak Ridge iPP = +9m.42s. ; T_o = 16h.45m.23s.
Fordham ePP? = +9m.54s.
Columbia e = +18m.31s. = S_cS − 9s.
Irkutsk e = +18m.54s. = S_cS − 10s.
Chiufeng eN = +31m.43s.
Bidston e = +18m.55s. = PS + 11s.
Strasbourg iN = +11m.2s.
Frunse readings have been *increased* by 2m.
Toledo iP = +11m.39s.
Tiflis eN = +30m.31s.
Granada P_cP = +11m.58s., PP = +14m.53s., PPP = +16m.39s.
Bombay i = +24m.13s. = SKKS + 9s., e = +34m.32s.
Long waves were also recorded at Honolulu, Hong Kong, Phu-Lien, and Ivigtut.

June 2d. 20h. 56m. 29s. Epicentre 54°·8N. 161°·7E. (as on 1933 March 18d.). R.2.

A = −·547, B = +·181, C = +·817 ; D = +·314, E = +·949 ;
G = −·776, H = +·257, K = −·576.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Mizusawa	20·9	230	—	—	e 5 1	PP	—	—
Vladivostok	22·5	251	e 5 33	+37	e 9 41	+46	e 10·8	14·1
Nagoya	26·0	231	e 6 35	?	—	—	—	—
Irkutsk	33·2	291	e 6 31	− 3	e 11 43	−11	17·5	21·1
Chiufeng	33·4	264	e 8 5	PP	e 12 13	+16	17·0	22·5
Sitka	34·1	60	—	—	e 12 9	+ 1	e 17·2	—
Honolulu	45·2	121	—	—	e 14 37	−17	e 18·5	—
Manila	51·1	234	i 9 1k	+ 1	16 14	− 2	—	—
Sverdlovsk	51·4	317	e 8 54	− 8	e 16 12	− 8	25·8	63·2
Scoresby Sund	54·7	2	i 9 31	+ 5	17 16	+11	27·5	—
Tinemaha	55·1	74	e 9 31	+ 1	—	—	—	—
Pasadena	57·3	76	i 9 45a	0	—	—	e 28·0	—
Riverside	57·9	76	e 9 49	− 1	—	—	—	—
Tashkent	58·6	298	e 9 53	− 2	e 17 39	−18	—	37·3
Pulkovo	59·1	334	e 9 59	+ 1	e 18 0	− 4	32·5	35·5
Helsingfors	60·0	337	—	—	e 18 9	− 7	e 31·5	—
Copenhagen	66·7	342	10 51	+ 1	19 37	− 4	33·5	—
Grozny	67·8	315	e 11 2	+ 5	—	—	29·8	—
Baku	68·5	311	e 16 6	?	e 20 8	+ 5	36·5	43·1
Edinburgh	68·6	351	—	—	e 20 11	+ 7	—	—
Ottawa	68·7	39	—	—	e 19 55	−10	e 32·5	—
Tiflis	69·6	315	11 9	+ 1	e 20 18	+ 2	e 38·5	47·1
Simferopol	70·8	324	e 11 20	+ 4	—	—	—	—
De Bilt	71·3	345	11 20	+ 1	—	—	e 39·5	42·3
Cheb	72·0	339	e 13 31	PP	—	—	—	45·5
Uccle	72·7	346	e 11 28	+ 1	—	—	35·5	—
Stuttgart	73·9	342	e 11 33	− 1	e 21 1	− 6	e 38·5	—
Strasbourg	74·3	343	e 11 38	+ 2	e 21 31?	PS	e 30·5	—
Paris	74·9	346	i 11 41	+ 1	—	—	40·5	56·5
Triest	75·9	338	i 11 45k	0	e 21 29	− 1	e 39·3	47·7
Piacenza	77·3	340	e 11 55	+ 1	22 2	PS	—	52·7
Prato	78·2	338	e 12 0	+ 2	—	—	—	—
Florence	78·3	338	e 10 33	?	22 1	+ 4	—	38·5
Ksara	79·9	316	e 12 19	+12	e 22 25	+10	—	—
Toledo	84·6	350	12 28	− 3	—	—	—	—
San Juan	96·3	45	—	—	e 24 3	[− 5]	—	—

Additional readings :—
Baku e = +25m.49s. and +29m.26s.
Ottawa e = +27m.49s.
Tiflis PPPE = +15m.38s., PSNE = +20m.32s., eSKSN = +20m.54s. = S_cS − 8s.,
eN = +21m.37s., eSSSN = +28m.37s.
Triest eSL? = +26m.54s.
Ksara ePS = +23m.13s.
San Juan e = +28m.55s. and +41m.31s.
Long waves were also recorded at Bidston, Kew, Phu-Lien, and Hong Kong.

June 2d. 21h. 29m. 6s. Epicentre 31°·4N. 131°·1E. (as on 1932 May 2d.). X.

A = −·561, B = +·643, C = +·521 ; D = +·754, E = +·657 ;
G = −·342, H = +·393, K = −·854.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Hukuoka	2·3	345	0 32	− 1	1 4	S*	—	1·2
Hukuoka B	2·3	345	e 0 33	0	1 0	+ 1	—	1·3
Koti	3·0	44	e 0 42	− 1	i 1 13	− 4	—	1·5
Husan	4·1	336	i 1 11	P*	i 2 8	S_g	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Sumoto	E.	4·3	46	1 8	P*	1 50	0	—	2·2
	N.	4·3	46	1 6	+ 5	1 56	+ 6	—	2·2
	Z.	4·3	46	1 4	+ 3	1 58	+ 8	—	2·2
Kobe	N.	4·7	45	e 1 27	P_g	e 2 18	S*	—	2·5
	Z.	4·7	45	1 25	P_g	e 2 24	S_g	—	2·7
Taikyu		4·9	336	1 19	P*	2 34	S_g	—	—
Osaka		5·0	48	1 27	P*	2 31	S*	—	3·3
Toyooka	E.	5·2	36	1 19	+ 5	2 24	S*	—	2·9
	N.	5·2	36	1 17	+ 3	—	—	—	2·7
	Z.	5·2	36	e 1 14	0	2 25	S*	—	2·6
Nagoya		6·2	51	1 24	− 4	3 57	?	—	4·6
Keizyo		7·0	332	e 3 3	S	(e 3 3)	+ 4	—	—
Zinsen		7·2	330	e 2 21	P_g	e 3 37	S*	—	—
Heizyo		8·8	332	e 3 51	S	4 34	S_g	—	—
Chiufeng		14·9	310	e 3 37	+10	—	—	e 8·4	10·3
Manila		19·2	211	e 4 36	+15	8 23	L	(8·4)	—

Additional readings :—
Koti iP* = +50s., iP_g = +57s., iS_g = +1m.27s. =S* − 1s.
Kobe eE = +1m.52s.
Osaka i = +2m.38s. =S_g − 1s.
Nagoya PP = +2m.21s.
Long waves were also recorded at De Bilt and Cheb.

June 2d. Readings also at 0h. (Bozeman), 2h. (Sverdlovsk, Tashkent, and La Paz), 5h. (Lick, Simferopol, Yalta, Tyosi, near Theodosia, and near Mizusawa), 8h. (Amboina), 9h. (Florence, near Prato, and Triest), 10h. (Vienna), 14h. (near Reykjavík), 15h. (Christchurch and Wellington), 18h. (Scoresby Sund), 20h. (near Sumoto), 21h. (Bombay and Sverdlovsk).

June 3d. 7h. 17m. 17s. Epicentre 35°·9N. 140°·5E. N.2.

Epicentre given by the Japanese stations.

A = −·625, B = +·515, C = +·586 ; D = +·636, E = +·772 ;
G = −·452, H = +·373, K = −·810.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tyosi		0·4	119	i 0 2	− 4	0 8	− 2	—	0·3
Tokyo		0·7	250	0 9	− 1	0 18	0	—	0·3
Susaki		1·7	225	0 24	0	0 41	− 3	—	—
Nagoya		3·0	256	0 46	+ 3	1 37	S_g	—	2·0
Mizusawa		3·3	8	e 0 48	+ 1	e 1 24	− 1	—	—
Osaka		4·2	254	1 13	P_g	2 13	S_g	—	2·7
Kobe		4·5	256	1 21	P_g	e 2 20	S_g	—	2·5
Toyooka	E.	4·6	267	1 18	P*	2 26	S_g	—	2·5
	Z.	4·6	267	1 15	P*	2 11	S*	—	2·6
Sumoto		4·8	253	e 1 10	+ 1	2 28	S_g	—	2·7
	Z.	4·8	253	e 1 13	+ 4	2 31	S_g	—	2·7
Koti		6·2	250	e 2 43?	S	3 18	S_g	—	3·2
Vladivostok		9·8	321	i 2 18	0	—	—	5·3	—

Additional readings :—
Kobe eE = +2m.12s. =S_g +0s., iSE = +2m.22s.
Sumoto eE = +2m.13s. =S* −8s.
Long waves were also recorded at Sverdlovsk and Tashkent.

June 3d. 16h. 15m. 35s. Epicentre 15°·2S. 168°·8E. N.3.

A = −·946, B = +·187, C = −·262; D = +·194, E = +·981;
G = +·257, H = −·051, K = −·965.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Suva		9·6	109	i 2 55	+39	i 4 49	S*	—	—
New Plymouth		24·4	170	4 25?	−49	—	—	—	—
Riverview		24·5	217	i 5 10	− 5	i 9 16	−16	e 13·2	—
Sydney		24·5	217	e 5 25	+10	(9 40)	+ 8	9·7	11·1
Wellington		26·7	170	—	—	(9 25?)	−45	(14·4)	—
Christchurch		28·6	174	i 5 51	− 2	10 30	−12	e 13·1	—
Melbourne		31·0	219	e 7 55	+101	i 12 10	+50	14·4	—
Amboina		41·6	282	e 7 55	+10	e 13 26	−34	—	—
Perth		50·8	241	e 19 25	SS	—	—	—	—
Manila		55·9	300	e 9 27	− 8	i 16 59	−22	—	—
Nagoya		58·8	330	e 9 48	− 8	—	—	—	—
Batavia		61·4	271	e 10 25	+11	e 18 52	PS	—	—
Hong Kong		65·4	303	—	—	(19 0)	−25	—	19·0
Vladivostok		67·4	331	—	—	i 19 25	−15	—	—
Chiufeng		73·8	320	i 11 24a	− 9	20 41	−25	—	—
Pasadena		85·0	53	i 12 35	+ 2	—	—	—	—
La Jolla		85·3	54	e 12 32	− 3	—	—	—	—
Riverside		85·6	53	i 12 37	+ 1	—	—	—	—
Tinemaha		86·1	50	i 12 41	+ 2	—	—	—	—
Irkutsk		87·3	326	e 12 39	− 6	e 16 25?	PP	22·4	—
Agra	E.	97·5	296	—	—	i 23 44	[−30]	—	—
Bombay		100·4	287	—	—	i 24 10	[−18]	—	—
Tashkent		107·1	309	e 18 33	PP	i 24 35	[−25]	—	52·8
Sverdlovsk		112·6	326	18 19	[− 7]	27 34	?	44·4	—
Grozny		124·3	312	e 18 54	[− 1]	—	—	—	—
Scoresby Sund		124·3	5	21 25?	?	—	—	—	—
Tiflis	N.	125·3	311	e 18 50	[− 8]	—	—	—	—
Pulkovo		126·2	336	i 18 54	[− 5]	—	—	—	—
Theodosia		130·8	317	19 1	[− 7]	—	—	—	—
Simferopol		131·7	318	e 19 5	[− 5]	22 32	PKS	—	—
Yalta		131·8	317	e 19 15	[+ 5]	—	—	—	—
Ksara		133·8	302	e 18 32	[−41]	e 21 43	PP	—	—
De Bilt		140·8	345	e 20 0	[+38]	—	—	—	—
Zagreb		141·8	329	e 19 25?	[+ 2]	e 22 25?	PP	—	—
Uccle		142·2	345	19 21	[− 3]	e 22 53	PP	—	—
Stuttgart		142·4	338	e 19 22	[− 3]	—	—	—	—
Kew		142·6	349	e 19 24	[− 2]	—	—	—	—
Triest		143·0	331	i 19 23k	[− 4]	i 23 6	PKS	—	—
Strasbourg		143·2	339	i 19 22a	[− 6]	—	—	e 36·4	—
Zurich		143·9	338	e 19 25	[− 6]	—	—	—	—
Padova		144·1	332	19 31	[− 1]	20 32	?	—	—
Paris		144·5	345	i 19 29a	[− 4]	—	—	34·4	—
Neuchatel		144·7	339	e 19 29	[− 4]	—	—	—	—
Piacenza		145·3	335	(19 30)	[− 4]	—	—	—	19·5
Prato		145·5	331	i 19 37	[+ 3]	—	—	—	—
Trenta		146·0	320	i 19 25	[−11]	—	—	—	—
Rome		146·4	327	i 19 35	[− 1]	—	—	—	—
Tortosa	N.	152·4	341	19 42	[− 3]	—	—	—	—
Algiers		155·0	332	e 19 48	[0]	—	—	—	—

Additional readings and notes:—
Wellington readings have been *increased* by 10m.
Christchurch iZ = +6m.36s. =PP − 2s., iN = +11m.16s.
Melbourne i = +12m.29s.
Batavia eN = +14m.47s., iE = +18m.6s.
Vladivostok e = +20m.25s.?
Chiufeng iEN = +21m.21s. =PS − 8s.
Pasadena iZ = +15m.56s. =PP +11s.
Riverside iEZ = +16m.1s. =PP +11s.
Tinemaha eZ = +16m.5s. =PP +11s.
Tashkent e = +27m.39s., i = +28m.43s., e = +33m.49s., and +38m.7s.
De Bilt eZ = +22m.52s. =PKS − 19s., eN = +42m.45s.
Stuttgart ePP = +22m.33s., eSS = +41m.25s.?
Strasbourg ePPZ = +22m.38s.
Algiers e = +21m.37s.
Long waves at Honolulu.

June 3d. 21h. 1m. 39s. Epicentre 2°·5S. 142°·0E. N.3.

A = −·787, B = +·615, C = −·044 ; D = +·616, E = +·788 ;
G = +·034, H = −·027, K = −·999.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Amboina		13·9	265	e 3 6	− 8	e 7 21	?	—	—
Manila		27·0	310	e 5 43	+ 5	10 27	+12	13·8	—
Riverview		32·4	167	—	—	e 11 39	− 2	e 16·4	18·5
Sydney		32·4	167	e 13 39	SS	i 17 59	L	20·4	21·1
Adelaide		32·6	185	e 8 53	(−25)	e 12 49	+64	e 16·6	18·5
Melbourne		35·4	176	—	—	e 11 53	−34	19·0	20·0
Hong Kong		36·8	314	7 9	+ 4	13 3	+15	—	28·5
Perth		38·3	217	e 13 6	S	(e 13 6)	− 5	20·3	21·8
Phu-Lien		41·8	306	7 21?	−26	—	—	—	—
Vladivostok		46·5	350	e 8 12	−13	e 15 4	− 8	—	—
Chiufeng		48·7	334	8 41k	0	15 51	+ 8	e 23·2	29·5
Christchurch		49·2	151	e 8 47	+ 2	e 15 55	+ 5	24·0	—
Irkutsk		63·3	335	e 10 24	− 3	e 18 58	− 1	30·3	—
Agra		68·2	301	e 10 55	− 4	20 5	+ 6	—	—
Bombay		71·3	291	e 11 21?	+ 2	—	—	—	—
Frunse		75·5	316	e 10 4	?	e 19 55	?	—	—
Andijan		76·4	313	e 11 52	+ 4	—	—	—	—
Tashkent		78·8	313	e 11 59	− 2	e 21 54	− 9	e 40·8	47·2
Baku		93·2	310	17 3	PP	23 38	[−13]	48·3	—
Tiflis	N.	97·1	312	e 15 51	?	e 24 20	[+ 8]	e 48·3	—
Kucino		100·0	326	—	—	e 25 13	−13	e 49·5	54·5
Pulkovo		103·0	331	18 17	PP	24 31	[− 9]	56·3	60·2
Ksara		104·8	304	e 17 51	PP	—	—	—	—
Scoresby Sund		111·2	355	—	—	26 45	{+30}	58·3	—
Copenhagen		113·2	332	—	—	35 21?	SS	58·3	—
Cheb		116·3	326	—	—	46 21?	?	e 58·3	61·3
Triest		117·6	322	e 20 3	PP	e 29 44	PS	e 59·2	66·7
Stuttgart		118·7	327	e 20 3	PP	—	—	e 60·3	—
De Bilt		118·8	332	e 20 9	PP	—	—	e 59·3	74·7
Strasbourg		119·6	327	—	—	(e 29 21?)	PS	e 29·3	—
Paris		122·2	330	e 20 30	PP	—	—	62·3	75·3

Additional readings :—
Melbourne i = +14m.31s. =SS −4s. and +18m.21s.
Hong Kong PP = +8m.41s.
Perth iS = +17m.21s. =S_cS −11s.
Chiufeng S = +15m.57s.
Christchurch eE = +13m.11s. and +19m.11s. =SS +3s., eL_qE = +20·7m., eL_qN = +21·2m.
Bombay i = +11m.31s. and +14m.9s.
Baku PS = +25m.40s., SS = +31m.3s.
Tiflis ePPPN = +18m.28s., eN = +26m.34s., and +31m.45s.
Kucino eSS = +32m.37s.
Pulkovo PS = +27m.21s., SS = +33m.9s., L_q = +49·3m.
Long waves were also recorded at Wellington, Sverdlovsk, Edinburgh, and other European stations.

June 3d. Readings also at 0h. (Pulkovo), 1h. (near Susaki and Tyosi), 2h. (near Nagoya), 3h. (Glenmuick, near New Plymouth, Christchurch, and Wellington), 8h. (Nanking), 12h. (Nagoya and Tyosi), 14h. (near Tananarive), 16h. (Berkeley), 17h. (near Tananarive), 20h. (Sverdlovsk, De Bilt, Paris, Strasbourg, Stuttgart, Bidston, Edinburgh, Pulkovo, Helsingfors, Scoresby Sund, and near Reykjavik), 21h. (Tashkent and Mizusawa), 22h. (San Fernando).

June 4d. 5h. Shock attributed by Wellington to the epicentre 41°·8S. 177°·8E.
Bunnythorp P = 5h.42m.0s., S = 42m.25s.
New Plymouth P = 5h.42m.15s., P_g? = 42m.35s.
Wellington P = 5h.42m.38s., i = 42m.43s. and 42m.50s., S = 43m.5s.
Glenmuick 5h.42m.42s.
Christchurch P = 5h.43m.5s., S = 43m.52s.
Hastings P = 5h.44m.0s., S = 44m.12s.

June 4d. 5h. 55m. 51s. Epicentre 38°·6N. 71°·9E. N.3.
(given by the Russian stations).

$A = +\cdot243$, $B = +\cdot743$, $C = +\cdot624$; $D = +\cdot951$, $E = -\cdot311$; $G = +\cdot194$, $H = +\cdot593$, $K = -\cdot782$.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Andijan	2·2	9	i 0 43	P_g	(i 1 15)	S_g	i 1·2	1·3
Tashkent	3·4	325	i 1 1	P_g	—	—	i 1·8	2·2
Samarkand	3·9	287	0 21	−35	—	—	—	—
Frunse	4·8	25	(i 1 28)	P_g	(i 2 24)	S*	—	(3·1)
Almata	6·0	38	1 27	+ 2	2 34	+ 1	2·9	—
Dehra Dun	9·7	147	3 39	S	(3 39)	−27	—	4·2
Agra	12·5	154	i 2 37	−18	e 4 38	−37	—	—
Baku	17·1	284	e 4 5	+10	(7 21)	+17	7·3	—
Bombay	19·7	177	4 18	− 8	i 7 34	−26	8·7	—
Sverdlovsk	19·7	344	i 4 17	− 9	i 7 55	− 5	11·7	—
Grozny	20·2	292	i 4 39	+ 7	i 8 57	?	—	—
Erevan	21·2	283	e 4 46	+ 4	—	—	—	—
Calcutta	21·4	134	—	—	5 5	PP	8·0	9·3
Hyderabad	21·9	163	8 13	(S)	(8 13)	−31	10·2	10·6
Irkutsk	26·3	48	e 4 46	−46	8 18	?	11·2	—
Theodosia	27·7	295	e 6 3	PP	—	—	—	—
Kucino	28·3	319	—	—	e 10 32	− 5	—	—
Simferopol	28·6	295	i 5 53	0	—	—	—	—
Yalta	28·6	294	e 5 53	0	—	—	—	—
Kodaikanal	28·8	168	—	—	i 10 51	+ 6	—	—
Pulkovo	33·6	323	i 6 36	− 1	i 11 52	− 8	13·6	—
Chiufeng	33·9	73	—	—	e 12 51	+47	—	—

Additional readings and notes :—
Frunse readings have been *increased* by 2m.
Agra eN = +2m.26s.
Bombay SS = +8m.16s.
Sverdlovsk L_g = +9·9m.
Calcutta eP = 5h.56m.32s.
Hyderabad S = +9m.9s. = SS − 5s.
Yalta e = +6m.33s. = PP − 5s.
Pulkovo i = +7m.50s. = PP + 7s.
Chiufeng eEZ = +14m.45s.

June 4d. Readings also at 2h. (Mizusawa, Nagoya, and near Tyosi), 3h. (Tucson, Huancayo, Phu-Lien, and near Medan), 9h. (Piatigorsk), 11h. (Mizusawa), 15h. (Balboa Heights and Tiflis), 16h. (near Nagasaki), 22h. (near Andijan), 23h. (Andijan, Samarkand, and near Santiago).

June 5d. No determination has been made for the following readings :—
Dehra Dun P = 11h.30m.30s., M = 31m.
Pasadena iPNEZ = 11h.31m.19s.
Mount Wilson iPZ = 11h.31m.20s.
Riverside iPZ = 11h.31m.22s.
Agra iE = 11h.31m.29s., iSE = 11h.32m.36s.
Tinemaha eZ = 11h.31m.30s.
Frunse e = 11h.32m.20s.
Samarkand e = 11h.34m.13s.
Almata e = 11h.34m.36s.
Bombay iE = 11h.36m.46s. and 37m.41s., M = 38m.20s.
Kodaikanal e = 11h.41m.0s.

June 5d. No determination has been made for the following readings, which may refer to more than one quake :—
Irkutsk eP = 13h.8m.4s., L = 14m.
Calcutta P = 13h.8m.10s., S = 11m.0s., L = 12m.20s., M = 13m.55s.
Agra eE = 13h.10m.47s.
Frunse eL = 13h.11m.12s.

Continued on next page.

Chiufeng eNZ = 13h.12m.7s., i = 15m.58s.
Nanking e = 13h.12m.45s., L = 16m.13s., MN = 16m.31s., ME = 17m.17s.
Phu-Lien 13h.13m.
Sverdlovsk e = 13h.15m.25s., L = 19m.
Andijan eL = 13h.16m.12s.
Kodaikanal e = 13h.16m.37s.
Vladivostok L = 13h.21m.18s.
Tiflis eN = 13h.23m.1s., eLN = 28m.48s.
Pulkovo e = 13h.23m.55s., e = 26m.5s., L_q = 29m.30s., LR = 33m., M = 34m.12s.
Baku eL = 13h.24m.
Kucino e = 13h.26m.12s., M = 28m.42s.
Helsingfors eL = 13h.29m.
Strasbourg eL = 13h.30m.
Bombay e = 13h.16m.1s., M = 17m.57s.
Copenhagen L = 13h.36s.
Stuttgart eL = 13h.37s.
De Bilt eL = 13h.38s.
Paris 13h.39m.

June 5d. 18h. 45m. 24s. Epicentre 37°·5N. 140°·0E. (as on 1930 May 27d.). X.

A = −·608, B = +·510, C = +·609.

		Δ	Az.	P.	O−C.	S.	O−C.	M.
		°	°	m. s.	s.	m. s.	s.	m.
Mizusawa		1·9	28	e 0 27	− 1	i 1 12	+23	—
Tyosi		1·9	159	e 0 28	0	0 46	− 3	0·9
Susaki		3·0	196	0 42	− 1	1 16	− 1	—
Nagoya		3·4	227	0 51	+ 2	1 36	S*	2·2
Osaka		4·6	233	1 14	P*	2 28	S_g	3·4
Kobe		4·8	235	—	—	e 2 29	S_g	—
Sumoto	E.	5·2	234	e 1 22	P*	2 25	+12	2·6
	N.	5·2	234	e 1 15	+ 1	2 20	+ 7	2·8

Tyosi gives also S_g = +56s.

June 5d. 23h. 40m. 9s. Epicentre 34°·5N. 7°·0E. X.
(Epicentre given by Malaga, and as on 1928 Dec. 3d.).

A = +·818, B = +·100, C = +·566; D = +·122, E = −·993;
G = +·562, H = +·069, K = −·824.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tunis		3·4	47	e 0 53	+ 4	—	—	—	2·4
Algiers		3·9	307	e 0 57	+ 1	1 51	S*	—	—
Tortosa	N.	8·1	323	e 2 46	P_g	—	—	e 4·0	5·6
Granada		9·0	290	e 1 42	−25	3 4	−45	4·7	5·2
Malaga		9·5	287	—	—	4 34	S*	—	—
Florence		9·9	18	—	—	(4 51)	S*	4·8	6·4
Toledo		10·3	305	e 2 41	+16	e 4 41	+20	e 5·1	6·9
San Fernando	N.	10·9	284	—	—	5 26	S*	—	—
Strasbourg		14·1	2	e 3 24	+ 7	e 6 5	+12	e 6·8	—
Stuttgart		14·3	6	e 3 19	0	—	—	e 7·9	—
Paris		14·7	348	e 3 51?	+26	—	—	6·8	7·8
Cheb		16·1	13	—	—	e 6 51?	+10	—	—
Uccle		16·4	354	e 3 41	− 5	—	—	e 7·9	—
De Bilt		17·7	356	—	—	e 7 21	+ 4	e 8·9	11·2
Kew		17·8	345	e 4 51?	+47	—	—	e 8·8	—
Edinburgh		22·5	345	—	—	e 8 51?	− 4	—	—

Additional readings :—
Algiers iP_g = +1m.5s. = P* +1s., PP = +1m.23s., SS = +2m.44s.
Granada PP = +2m.10s., SS = +3m.46s.
Malaga SS? = +4m.43s. and +5m.27s., e = +6m.6s. and +8m.11s.
Florence P = 23h.39m.0s.
San Fernando SE = +5m.31s.
Long waves were also recorded at Almeria, Alicante, Piacenza, Triest, Bidston, Copenhagen, Kucino, Pulkovo, and Sverdlovsk.

June 5d. Readings also at 0h. (Sumoto), 2h. (New Plymouth and Wellington), 4h. (near La Paz), 12h. (Glenmuick, Mizusawa, Sumoto, Tyosi, near Nagoya, and Osaka), 13h. (Christchurch, New Plymouth, and Wellington), 14h. (near Berkeley, Branner, Lick, near Frunse, Almata, Andijan, Samarkand, Tashkent, Sumoto, and near Koti), 16h. (near Tyosi), 17h. (Branner), 18h. (Vladivostok, Nagoya, and near Tyosi), 19h. (Baku, Sverdlovsk, Kucino, near Tyosi (4) and near Nagoya), 20h. (near Oak Ridge), 21h. (Bozeman, Branner, Tucson, San Francisco, Ukiah, near Berkeley, Lick, Nagoya, and near Tyosi (2)), 22h. (Sverdlovsk, Kucino, Tashkent, De Bilt, Stuttgart, Scoresby Sund, Branner, near Berkeley, and Lick), 23h. (near Hukuoka B and Nagasaki).

June 6d. 3h. Shock for which no epicentre has been determined.
Wellington i = 3h.21m.10s.? and 30m.36s., L? = 32m.40s., i = 35m.28s. and 37m.40s.
Christchurch iP = 3h.25m.9s., iS = 30m.32s., L_q = 32m.12s., eL_r = 33m.38s.
La Paz iPZ = 3h.29m.22s.k, iSE = 38m.12s., iSN = 38m.16s., iLE = 50m.42s., M = 51m.30s.
Huancayo e = 3h.30m.8s., eS = 38m.11s., eL = 49m.35s.
Chatham Is. eP = 3h.30m.21s., iS = 31m.18s.
Riverview eN = 3h.31m.12s., eSN = 35m.1s., eLN = 40m.12s., MN = 43m.35s.
Arapuni e = 3h.34m.
Sydney e = 3h.34m.30s., L = 45m.5s., M = 46m.30s.
Melbourne i = 3h.35m.7s., e = 40m.44s.
Adelaide e = 3h.36m.12s., L = 43m.12s., M = 50m.1s.
Tashkent e = 3h.38m.21s., 39m.0s., 40m.9s., 42m.26s., 46m.54s., 4h.3m.0s., 11m.34s., eL = 21m., M = 51m.18s.
Uccle eP = 3h.38m.28s., e = 42m.42s.
Stuttgart eZ = 3h.38m.29s. and 44m.6s., eL = 4h.40m.
Strasbourg ePZ = 3h.38m.30s., eZ = 42m.45s., eLNZ = 4h.2m.
Tiflis eN = 3h.38m.41s. and 45m.0s., eE = 54m.9s., 4h.3m.51s., and 7m.45s., eLE = 38m., M = 51m.30s.
Mizusawa eS = 3h.38m.46s.
Paris iPZ = 3h.38m.53s., L = 4h.35m.
De Bilt eZ = 3h.39m.5s. and 42m.49s., eEN = 4h.2m.36s., eL = 35m.. M = 54m.40s.
Sverdlovsk e = 3h.39m.19s., 50m.32s., 53m.39s., 4h.10m.50s., 15m.50s., L = 26m., M = 48m.6s.
San Juan e = 3h.42m.40s.
Pulkovo e = 3h.42m.57s. and 49m.45s., L = 42m., M = 52m.42s.
Baku e = 3h.47m.38s., L = 59m.30s.
Perth eP = 3h.50m.0s.
Scoresby Sund 4h.1m.24s., L = 24m.
Copenhagen 4h.3m., L = 42m.
Ukiah e = 4h.3m.12s.
Edinburgh e = 4h.4m., e(L) = 39m.
Kucino e = 4h.5m.36s. and 8m., eL = 36m., M = 55m.42s.
Long waves were also recorded at Agra, Bombay, Helsingfors, Cheb, Kew, Triest, Ivigtut, Pasadena, and Sitka.

June 6d. 6h. 23m. 54s. Epicentre 43°·0N. 146°·5E. N.3.

A = −·610, B = +·404, C = +·682; D = +·552, E = +·834; G = −·569, H = +·376, K = −·731.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Mizusawa	5·6	227	e 1 23	+ 3	e 2 28	+ 5	—	—
Tyosi	8·4	213	e 3 31	S	(e 3 31)	− 3	—	—
Vladivostok	10·6	275	i 2 38	+ 9	5 4	S*	5·4	7·3
Nagoya	10·8	226	e 3 10	?	—	—	—	—
Kobe	12·1	230	—	—	e 6 36	S_g	e 8·6	9·2
Sumoto	12·5	230	—	—	e 5 6?	− 9	e 7·1	9·6
Chiufeng	22·8	274	4 58a	− 1	9 17	+16	e 11·1	15·5
Zi-ka-wei	23·1	248	(e 5 6)	+ 4	e 5 6	P	13·6	15·3
Nanking	24·4	253	i 5 20	+ 6	e 9 44	+14	i 13·0	16·4
Irkutsk	29·4	303	e 5 35	−25	e 10 36	−19	16·1	18·9
Hong Kong	33·8	243	—	—	12 19	+16	—	20·6
Sverdlovsk	53·1	317	9 8	− 7	16 40	− 3	29·2	35·0
Tashkent	55·2	297	i 9 30	0	17 15	+ 3	e 29·1	35·9
Agra	56·7	277	—	—	e 17 39	+ 7	—	—
Kucino	64·4	324	—	—	e 19 6?	− 6	e 35·1	40·8

Continued on next page.

	Δ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
Pulkovo	64·8	330	10 35	− 2	19 16	− 1	33·1	43·5
Scoresby Sund	66·2	355	—	—	19 42	PS	30·1	—
Helsingfors	66·4	332	e 17 18	?	—	—	e 28·1	—
Tiflis	70·0	309	e 11 11	0	e 20 27	+ 6	37·7	47·3
Copenhagen	73·9	335	11 35	+ 1	21 6	− 1	38·1	—
De Bilt	79·2	337	e 12 6	+ 2	e 22 6	− 1	e 28·1	44·4
Ksara	80·5	308	e 12 2	− 8	e 22 24	+ 3	—	—
Uccle	80·6	337	e 12 6?	− 5	—	—	e 38·1	—
Stuttgart	80·9	333	e 12 11	− 2	e 33 6	?	e 42·1	—
Strasbourg	81·6	334	e 12 36	+20	—	—	e 30·1	—
Chicago	82·3	38	e 20 18	?	e 22 8	−32	e 25·2	—
Paris	82·9	337	e 12 24	+ 1	—	—	42·1	54·1
Florence	84·4	329	—	—	e 35 6	?	53·1	57·1

Additional readings :—
Mizusawa ePE = +1m.27s.
Kobe eN = +6m.58s.
Sverdlovsk L_r = +33·8m.
Chicago e = +25m.5s.
Long waves were also recorded at Koti, Sitka, Phu-Lien, Bombay, Grozny, Ivigtut, Edinburgh, and at other European stations.

June 6d. 11h. 42m. 6s. (I) } Epicentre 42°·5N. 149°·0E. X.
16h. 35m. 8s. (II) } (as on 1925 Jan. 31d.). X.

A = −·632, B = +·380, C = +·676 ; D = +·515, E = +·857 ;
G = −·579, H = +·348, K = −·737.

	Δ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
I Mizusawa	6·8	243	e 1 42	+ 5	i 2 43	−10	—	—
II	6·8	243	e 1 40	+ 3	e 2 40	−13	—	—
I Tyosi	9·4	226	e 3 47	S	(e 3 47)	−12	—	—
I Vladivostok	12·5	278	2 55	0	e 5 21	+ 6	6·0	7·1
II	12·5	278	e 2 55	0	e 5 15	0	6·2	7·2
I Chiufeng	24·7	276	e 5 14	− 3	—	—	—	15·6
II	24·7	276	e 5 10	− 7	e 9 38	+ 2	—	15·6
II Nanking	26·0	256	e 5 32	+ 3	e 10 25	+27	i 13·9	15·7
I Sverdlovsk	54·7	318	9 25	− 1	e 19 17	(+ 2)	28·9	—
II	54·7	318	—	—	e 21 16	?	25·9	33·6
I Tashkent	57·0	298	—	—	e 29 25	?	e 31·1	36·2
II	57·0	298	—	—	e 16 52	?	e 31·3	36·4
I Edinburgh	78·8	345	e 12 54	+53	—	—	—	—

Additional readings :—
Mizusawa I iS = +2m.45s., II eSE = +2m.43s.
Tashkent II e = +29m.28s.
Long waves were also recorded for shock I at Kucino, Copenhagen, De Bilt, Uccle, Stuttgart, Strasbourg, and Scoresby Sund ; for shock II at Irkutsk, Scoresby Sund, Copenhagen, Kucino, De Bilt, Paris, Strasbourg, and Stuttgart.

June 6d. 18h. Japanese stations suggest N.N.W. of Hatijyo Island (33°N. 140°E.) Records were only made at 5 Japanese stations and do not determine a very definite epicentre.

Susaki P = 18h.47m.47s., S = 48m.11s.
Tyosi P = 18h.47m.59s., S = 48m.26s.
Nagoya P = 18h.48m.12s., eS = 49m.15s.
Sumoto P = 18h.48m.29s., SEN = 49m.19s., M = 49m.21s.
Mizusawa eP = 18h.48m.53s., eS = 49m.40s.

June 6d. Readings also at 0h. (Scoresby Sund and near Tyosi (2)), 2h. (Andijan, Tashkent, and near Tyosi (2)), 3h. (near Tyosi), 8h. (Mount Wilson, Pasadena, Riverside, Tinemaha, Oak Ridge, Christchurch, and Wellington), 9h. (Manila), 10h. (Adelaide, Riverview, Christchurch, Perth, Sverdlovsk, Tashkent, Manila, Grozny (3), Mount Wilson, Pasadena, Riverside, and Tinemaha), 11h. (Irkutsk, Kucino, Copenhagen, De Bilt, Paris, Strasbourg, Stuttgart, and Scoresby Sund), 13h. (near Sumoto), 17h. (Christchurch, near Mizusawa (2), and near Tyosi), 19h. (near Bunnythorp and near Tiflis), 21h. (Oak Ridge, Tucson, San Juan, and Scoresby Sund), 22h. (Strasbourg, Stuttgart, Copenhagen, Tucson, Branner (2), Ukiah, near Berkeley (2), Lick (2), and near Tyosi), 23h. (Chatham Ils.).

June 7d. 16h. Undetermined shock.

Tiflis ePN =16h.13m.59s., eLEN =50m.1s., ME =55m.24s.
Chiufeng e =16h.16m.24s., eL =24m.57s., M =28m.33s.
Vladivostok eP =16h.17m.5s., eL =19m.6s., M =22m.12s.
Tashkent e =16h.18m.20s., 22m.0s., 26m.53s., 33m.13s., and 37m.52s., L = 38m.18s., M =45m.42s.
Tinemaha ePZ =16h.18m.26s.
Scoresby Sund 16h.18m.30s., L =36m.
Pasadena ePENZ =16h.18m.40s.
Mount Wilson iPZ =16h.18m.40s.
Pulkovo e =16h.18m.45s., L =42m., M =48m.30s.
Copenhagen 16h.19m.39s., 29m., L =48m.
Sverdlovsk e =16h.20m.0s. and 25m.0s., L =34m., M =43m.
De Bilt ePZ =16h.20m.9s., eL =47m.
Uccle eP =16h.20m.16s., eL =48m.
Strasbourg ePZ =16h.20m.21s., eLNZ =34m.
Stuttgart ePZ =16h.20m.21s., eL =51m.
Long waves were also recorded at Baku, Bombay, Kucino, Helsingfors, and Paris.

June 7d. 20h. 17m. 54s. Epicentre 7°·4S. 126°·6E. (as on 1931 Jan. 19d.). X.

A = −·591, B = +·796, C = −·129 ; D = +·803, E = +·596 ;
G = +·077, H = −·103, K = −·992.

Manila suggests " deep focus " but the observations are too scanty to make it worth while attempting to follow up the suggestion.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Amboina		4·1	24	i 0 59	+ 1	i 1 48	+ 3	—	—
Manila		22·7	346	i 4 58a	0	i 8 59	0	—	—
Adelaide		29·7	160	e 5 24	−38	—	—	—	14·9
Riverview		34·8	142	—	—	e 13 40	+82	—	18·2
Tashkent		71·5	319	i 11 19	− 1	20 28	−11	—	38·7
Sverdlovsk		83·5	330	i 12 14	−12	i 22 22	−30	39·1	—
Tiflis	N.	88·8	312	12 53	+ 1	e 23 38	− 7	—	—

Adelaide gives also e = +6m.46s. =PP −7s. and +8m.48s., i = +11m.27s., e = +12m.54s.

June 7d. Readings also at 3h. (Baku, near Erevan, Grozny, Tiflis, and near Santiago), 4h. (Mizusawa), 6h. (near Platigorsk), 8h. (Granada, near Batavia, and Malabar), 9h. (Tyosi), 11h. (Triest and Granada), 12h. (Wellington), 13h. (Nagasaki and near Hukuoka B), 14h. (Wellington), 15h. (Andijan), 17h. (near Sumoto and near Tiflis), 18h. (near Tiflis (2)), 21h. (Mizusawa), 23h. (Triest).

June 8d. 2h. 2m. 3s. Epicentre 39°·0N. 48°·5E. (as on 1933 April 16d.). X.

A = +·515, B = +·582, C = +·629; D = +·748, E = −·663; G = +·417, H = +·471, K = −·777.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Baku	1·8	38	i 0 25	− 1	(i 0 33)	P_g	i 0·5	1·0
Erevan	3·3	291	e 1 1	P_g	1 43	S_g	—	2·3
Tiflis	3·9	315	e 0 57	+ 1	i 1 38	− 2	i 1·7	—
Grozny	4·8	335	e 1 8	0	1 55	− 8	—	2·5
Ksara	11·4	247	e 2 27	−13	e 5 27	S*	—	7·4
Theodosia	11·4	306	e 5 6	S	(e 5 6)	+18	—	—
Tashkent	16·0	75	i 3 42	+ 1	i 6 37	+ 1	e 9·9	11·3
Kucino	18·2	341	—	—	e 7 33	+ 4	e 9·3	11·7
Andijan	18·3	77	e 4 11	+ 1	—	—	—	—
Sverdlovsk	19·6	20	4 4	−21	e 7 22	−36	11·1	—
Pulkovo	23·7	337	i 5 2	− 5	9 10	− 8	12·9	—

Additional readings:—
Erevan P_g = +1m.9s., i = +1m.24s. = S − 1s.
Tiflis iN = +1m.2s. = P* − 2s., eZ = +1m.54s. = S* + 0s.
Grozny P* = +1m.14s., PP = +1m.22s. = P* + 1s., S_g = +2m.8s.
Sverdlovsk L_Q = +9·8m.
Long waves were also recorded at Irkutsk, De Bilt, Copenhagen, Hamburg, and Scoresby Sund.

June 8d. 3h. 17m. 9s. Epicentre 46°·3N. 12°·5E. (as on 1929 Dec. 25d.). R.2.

A = +·675, B = +·150, C = +·723; D = +·216, E = −·976; G = +·706, H = +·156, K = −·691.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Treviso	0·7	199	i 0 9	− 1	i 0 20	+ 2	—	0·4
Padova	1·0	206	i 0 13	− 1	i 0 27	+ 1	—	—
Triest	1·1	125	i 0 11	− 5	i 0 27	− 1	—	—
Chur	2·1	285	e 0 33	+ 3	i 1 4	S_g	—	—
Piacenza	2·3	237	e 0 38	P*	1 12	S_g	—	2·0
Zagreb	2·4	101	e 0 32	− 2	e 1 2	0	—	1·4
Ravensburg	2·5	307	e 0 32	− 4	e 1 10	S*	—	—
Florence	2·6	200	0 43	P*	1 17	S*	—	2·0
Pavia	2·6	245	i 0 41	P*	—	—	—	—
Prato	2·6	203	i 0 43	P*	i 1 13	S*	—	—
Zurich	2·9	292	e 0 42	+ 1	i 1 25	S*	—	—
Siena	3·1	196	0 58	P_g	1 51	?	—	—
Vienna	3·3	52	e 0 49	+ 2	1 19	− 6	—	—
Stuttgart	3·3	318	e 0 47	0	i 1 27	+ 2	—	2·2
Basle	3·6	292	e 0 52	+ 1	e 2 37	+65	—	—
Cheb	3·8	351	(e 0 40)	−14	e 1 38	+ 1	—	2·0
Karlsruhe	3·8	315	−0 2	−56	1 43	S*	e 2·2	—
Neuchatel	3·8	282	e 0 52	− 2	2 1	S_g	—	—
Prague	4·0	18	e 1 7	P*	i 1 58	S*	i 2·2	2·8
Strasbourg	4·0	307	e 0 57	0	1 44	+ 2	—	—
Rome	4·4	186	e 1 23	P_g	e 2 25	S_g	e 3·1	—
Jena	4·7	353	e 1 5	− 2	i 2 2	+ 2	e 2·2	2·6
Budapest	4·7	73	1 51?	S	(1 51?)	− 9	—	—
Göttingen	5·5	344	i 1 17	− 1	e 2 49	S*	—	3·4
Puy de Dôme	6·6	269	e 2 8	P_g	3 26	S_g	—	—
Uccle	7·0	313	e 1 57	P*	e 2 55	− 4	—	—
Paris	7·2	294	—	—	e 3 18	+14	3·8	4·8
Hamburg	7·4	349	—	—	e 3 15	+ 6	—	4·8
De Bilt	7·6	324	—	—	e 3 21	+ 7	—	5·4
Kew	9·9	306	—	—	e 4 26	+15	6·1	6·6
Königsberg	9·9	28	—	—	e 5 20	S_g	—	—
Oxford	10·5	307	—	—	e 5 5	S*	—	—
Edinburgh	14·0	320	—	—	e 5 51?	0	—	—
Pulkovo	17·1	32	—	—	i 8 4	+60	10·6	—

For Notes see next page.

NOTES TO JUNE 8d. 3h. 17m. 9s.

Additional readings and notes :—
Triest iZ = +38s.
Chur iP$_g$ = +38s.
Zagreb e = +37s. =P* −1s., i = +40s. =P$_g$ −2s., +42s., +47s., and +56s., eZ = +1m.4s., i = +1m.10s. =S* +0s. and +1m.16s. =S$_g$ +3s., iNE = +1m.21s., eZ = +1m.38s.
Ravensburg iP$_g$ = +37s., e = +1m.5s. =S +1s.
Zurich iP$_g$ = +49s.
Vienna iPP = +59s., iE = +1m.25s., S* = +1m.27s., S =iL = +1m.32s., SS = +1m.43s. =S$_g$ +3s.
Stuttgart iP$_g$ = +59s., i = +1m.2s., i = +1m.44s. =S$_g$ +1s., iS$_g$EN = +1m.45s., iE = +2m.5s.
Cheb P reading has been *increased* by 1m.
Strasbourg ePP = +1m.0s., PPP = +1m.11s., PS = +1m.32s., SS = +2m.0s. = S* +3s.
Jena iE = +1m.9s., eN = +1m.19s. =P* +2s., iE = +1m.25s. =P$_g$ −3s., +1m.36s. iEN = +1m.41s., iE = +1m.48s.
Göttingen iP$_g$ = +1m.40s., eENZ = +2m.15s.
Uccle eN = +3m.31s.
Kew eE = +4m.50s., eN = +4m.56s. =S* +6s., e = +5m.10s. =S$_g$ +8s., +5m.38s., and +5m.49s.
Königsberg eN = +8m.57s.
Oxford i = +5m.40s.
Pulkovo i = +9m.3s.
Long waves were also recorded at Kucino, Scoresby Sund, Bidston, and other European stations.

June 8d. 4h. 30m. 26s. Epicentre 35°·9N. 120°·5W. X.
(as adopted for the following shock at 4h.47m.).

A = −·411, B = −·698, C = +·586 ; D = −·862, E = +·508 ;
G = −·298, H = −·505, K = −·810.

		△ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.
Lick		1·7	327	i 0 24	0	i 0 46	+ 2	—
Branner		2·0	318	i 0 29	0	i 1 4	S$_g$	—
San Francisco	N.	2·4	320	i 0 34?	0	—	—	—
Berkeley		2·4	324	i 0 34	0	i 1 10	S$_g$	—
Ukiah		3·9	328	e 1 18	P$_g$	—	—	—
Tucson		8·8	112	2 22	P*	3 42	− 2	4·5
Sitka		23·4	339	—	—	e 9 34	+22	—
Scoresby Sund		59·2	23	—	—	27 34	?	30·6

Additional readings :—
Lick iEN = +27s., iN = +33s., iEN = +37s. and +56s. =S$_g$ +6s.
Branner iEN = +33s. =P* +2s. and +36s. =P$_g$ +2s.
Berkeley iPE = +38s. =P* +0s., iE = +1m.14s. =S$_g$ +1s. and +1m.17s.
Long waves were also recorded at other American stations.

June 8d. 4h. 47m. 53s. Epicentre 35°·9N. 120°·5W. (see 4h.30m.) N.2.

See Bull. Seism. Soc. Amer. XXV, No. 3, p. 223, "The Central Californian Earthquakes," Byerley and Wilson. The time of this earthquake is given as 7d. 8h. 48m. P.S.T., the author's epicentre has been adopted.

A = −·411, B = −·698, C = +·586 ; D = −·862, E = +·508 ;
G = −·298, H = −·505, K = −·810.

	△ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
Santa Barbara	1·5	156	i 0 21	0	—	—	—	—
Lick	1·7	328	i 0 23	− 1	i 0 45	+ 1	—	—
Haiwee	2·0	84	i 0 29	0	—	—	—	—
Branner	2·0	318	i 0 27	− 2	i 0 55	+ 4	—	—
Tinemaha	2·1	56	i 0 31	+ 1	—	—	—	—
San Francisco	2·4	320	e 0 7?	−27	—	—	—	—
Berkeley	2·4	324	e 0 32	− 2	1 2	0	—	—
Pasadena	2·6	132	i 0 35	− 2	—	—	—	—
Mount Wilson	2·6	130	i 0 36	− 1	—	—	—	—
Riverside	3·2	127	i 0 43	− 3	—	—	—	—

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Ukiah	3·9	328	e 0 57	+ 1	—	—	—	—
La Jolla	4·0	136	i 0 54	− 3	—	—	—	—
Tucson	8·8	112	e 1 47	−18	i 3 11	−33	4·0	—
Seattle	11·8	355	—	—	e 6 17	S_g	—	—
Denver	12·8	69	e 2 58	− 1	—	—	e 6·3	6·9
Sitka	23·4	339	i 5 12	+ 7	e 9 26	+14	e 14·3	—
St. Louis	24·1	74	e 5 12	+ 1	e 9 35	+10	i 12·7	15·0
Chicago	26·1	67	—	—	e 9 52	− 8	e 12·6	—
Ann Arbor	29·1	66	e 10 7	?	e 12 7	SS	e 15·2	16·7
Columbia	32·2	81	e 11 21	S	e 12 7	?	e 16·2	—
Toronto	32·2	62	—	—	e 14 42	?	17·3	—
Charlottesville	33·3	73	—	—	e 13 0	?	e 17·7	—
Ithaca	34·3	64	—	—	e 12 37	+26	—	—
Georgetown	34·4	71	—	—	i 12 32	+20	—	—
Ottawa	34·8	60	e 9 25	(0)	e 15 25	?	e 17·1	—
Oak Ridge	37·9	64	—	—	e 15 37	SS	e 18·1	—
San Juan	50·7	94	e 9 15	+18	e 16 34	+23	e 25·9	—
Ivigtut	50·8	37	—	—	16 7	− 5	25·1	—
Scoresby Sund	59·2	23	—	—	18 7	+ 2	30·1	—
Huancayo	64·2	129	—	—	e 27 7	?	e 31·1	—
La Paz	72·1	126	e 11 27	+ 4	—	—	36·1	41·7
Edinburgh	73·9	31	—	—	e 21 43	PS	e 36·1	44·4
Bidston	75·6	33	—	—	e 21 27	0	e 34·1	—
Oxford	77·6	33	—	—	e 21 41	− 8	e 34·1	43·3
Kew	78·2	33	—	—	e 21 53	− 3	e 32·1	45·1
Copenhagen	80·0	26	—	—	22 7	− 9	36·1	—
De Bilt	80·0	30	e 12 13	+ 5	e 22 19	+ 3	e 39·1	45·9
Uccle	80·7	32	e 12 19	+ 7	e 22 21	− 2	36·1	—
Hamburg	80·8	27	—	—	e 22 7?	−17	—	42·1
Paris	81·3	34	—	—	e 24 7?	?	38·1	47·1
Pulkovo	81·4	14	—	—	e 22 28	− 3	40·1	48·4
Irkutsk	83·6	334	e 11 30	−56	e 20 48	−125	e 38·1	48·8
Strasbourg	83·8	31	e 12 7?	−20	e 22 7?	−48	e 35·1	—
Toledo	84·3	44	e 12 43	+13	—	—	—	—
Stuttgart	84·3	30	e 12 37	+ 7	e 23 7?	+ 6	e 39·1	49·6
Granada	86·4	45	e 13 14	+34	e 23 24	+ 3	39·9	46·6
Sverdlovsk	87·2	359	e 12 39	− 5	e 23 19	[+ 4]	40·1	51·7
Piacenza	87·4	33	e 13 32	+47	—	—	—	48·6
Chiufeng	87·8	320	e 12 49	+ 2	e 23 19	[0]	e 38·7	—
Triest	88·6	30	e 13 32	?	e 23 43	0	e 37·9	46·4
Florence	89·1	33	e 17 7?	?	e 23 41	− 6	—	45·1
Zagreb	89·4	29	—	—	e 24 7?	+17	e 44·1	46·1
Tashkent	102·3	352	—	—	e 23 7	?	e 47·1	65·0

Additional readings :—
Lick iE = +27s. = P* +1s., iN = +29s. = P_g +1s., iE = +35s. and +47s. = S* −2s., iN = +55s. = S_g +5s., iE = +1m.6s., iN = +1m.7s.
Branner iE = +29s. and +31s. = P* +0s., iN = +32s. and +37s. = P_g +1s., iE = +39s., iN = +48s. and +1m.1s. = S_g +1s.
Berkeley iE = +1m.24s., iEZ = +3m.5s.
Denver iPP = +3m.9s., eSS = +5m.55s.
St. Louis eE = +5m.19s. ; T_o = 4h.47m.53s.
Chicago e = +13m.42s.
Ann Arbor eN = +14m.25s., eE = +15m.13s.
Charlottesville eSS = +15m.7s. ; T_o = 4h.47m.48s.
Ithaca e = +18m.19s. and +20m.49s.
Georgetown i = +3m.49s. and +15m.31s., e = +15m.54s., i = +18m.1s.
San Juan eSS = +20m.21s., e = +23m.41s.
La Paz PN = +12m.18s.
Bidston e = +21m.57s. = PS +5s.
Granada P_cP = +13m.48s.
Tashkent e = +27m.7s. = PS −3s. and +40m.7s.
Long waves were also recorded at Durham, Fordham, Vladivostok, Hong Kong, Honolulu, Bombay, Yalta, Kucino, and other European stations.

June 8d. Readings also at 1h. (Glenmuick, Hastings, Christchurch, near New Plymouth, and Wellington), 3h. (De Bilt, Paris, and Jena), 4h. (Ksara, Tashkent, Sverdlovsk, and Tiflis), 5h. (Piatigorsk, Berkeley, Branner, and Lick), 6h. (near Tyosi), 7h. (Grozny, and near Triest), 9h. (Berkeley, Branner, and Lick), 10h. (near Irkutsk), 14h. (near Erevan and near Oak Ridge), 15h. (Edinburgh, Berkeley, Branner, Lick, and near Erevan), 16h. (Edinburgh, De Bilt, Paris, Strasbourg, Stuttgart, Kew, Uccle, and Scoresby Sund), 17h. (Alicante), 18h. (Manila, Stuttgart, Paris, Strasbourg, La Jolla, Haiwee, Mount Wilson, Pasadena, Riverside, Tinemaha, and near Apia), 19h. (De Bilt, Uccle, Sverdlovsk, Kucino, and Scoresby Sund), 20h. (Sverdlovsk and Tashkent), 21h. (Christ Church, Wellington, Sumoto, Sverdlovsk, Irkutsk, Hong Kong, Phu-Lien, Nanking, and near Chiufeng), 23h. (Berkeley, Branner, and Lick).

June 9d. Readings for which no determination is made :—

Manila P = 2h.27m.45s., S = 28m.41s.
Phu-Lien 2h.30m., L = 36m.
Tashkent e = 2h.30m.53s., e = 35m.40s., e = 40m.0s., e = 46m.30s., L = 52m.30s., M = 56m.0s.
Chiufeng eP = 2h.31m.37s., eS? = 35m.33s.
Nagoya e = 2h.31m.40s.
Hong Kong M = 2h.33m.0s.
Nanking (e) = 2h.33m.55s., iL = 35m.14s., ME = 36m.30s.
Irkutsk e = 2h.39m.31s., eL = 46m.
Scoresby Sund 2h.50m.6s., L = 3h.18m.
Sverdlovsk L = 2h.57m.
Pulkovo e = 3h.10m.21s., L = 14m.
Copenhagen L = 3h.12m.
Strasbourg eL = 3h.14m.
De Bilt eL = 3h.15m.
Uccle eL = 3h.15m.
Edinburgh e = 3h.16m.
Stuttgart eL = 3h.20m.

June 9d. 3h. Formosa.
The Japanese stations suggest epicentre 22°·6N. 121°·4E.

Taito eP = 3h.28m.15s., S = 28m.19s.
Kosyun eP = 3h.28m.39s.
Arisan P = 3h.28m.49s., S = 29m.5s.
Karenko eP = 3h.28m.57s., S = 29m.17s.
Tainan eP = 3h.28m.58s., S = 29m.17s.
Takao P = 3h.29m.1s., S = 29m.15s.
Taihoku eP = 3h.29m.33s., eS = 29m.44s.

June 9d. 12h. 58m. 51s. Epicentre 6°·0S. 147°·5E. N.1.

$A = -\cdot839$, $B = +\cdot534$, $C = -\cdot105$; $D = +\cdot537$, $E = +\cdot843$; $G = +\cdot088$, $H = -\cdot056$, $K = -\cdot995$.

A depth of focus 0·020 has been assumed.

	Corr. for Focus	Δ	Az.	P.	O–C.	S.	O–C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Palau	−0·7	18·7	315	4 3	− 4	7 13	−12	—	—
Amboina	−0·8	19·4	276	i 4 10	− 4	i 7 41	+ 3	—	—
Riverview	−1·3	28·0	174	e 5 39	+ 4	10 16	+ 6	15·0	16·2
Sydney	−1·3	28·0	174	5 33	− 2	i 13 17	?	14·6	16·9
Adelaide	−1·4	30·1	195	i 5 56	+ 3	i 10 48	+ 5	i 13·3	17·1
Melbourne	−1·5	31·9	183	e 6 39	+30	11 18	+ 8	15·8	20·3
Suva	−1·5	32·5	115	7 33	+79	12 36	+76	—	—
Manila	−1·5	33·4	308	6 22k	0	11 30	− 4	—	—
Titizima	−1·5	33·5	352	6 22	− 1	11 30	− 5	—	—
Isigakizima	−1·7	38·0	325	7 0	0	12 41	0	—	—

Continued on next page.

	Corr. for Focus	Δ	Az.	P.	O–C.	S.	O–C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Nake	−1·7	38·5	334	7 8	+ 3	12 49	+ 1	—	—
Karenko	−1·7	39·2	321	e 7 13	+ 2	13 1	+ 2	—	—
Takao	−1·7	39·2	318	e 7 15	+ 4	12 54	− 5	—	—
Perth	−1·7	39·3	225	13 9	S	(13 9)	+ 9	19·7	—
Hatidyozima	−1·7	39·6	350	7 16	+ 2	13 4	− 1	—	—
Malabar	−1·7	39·7	266	i 7 18	+ 3	13 4	− 2	—	—
Taihoku	−1·7	40·0	322	(7 36)	+18	(13 22)	+11	—	—
Batavia	−1·7	40·5	268	i 7 22	0	13 3	−15	—	—
New Plymouth	−1·7	40·9	148	6 9?	−76	—	—	—	—
Arapuni	−1·7	41·0	145	i 8 39	PP	—	—	—	—
Siomisaki	−1·7	41·0	345	7 26	0	13 26	0	—	—
Mera	−1·8	41·5	351	7 30	+ 1	13 38	+ 6	—	—
Susaki	−1·8	41·5	350	7 25	− 4	13 32	0	—	—
Omaesaki	−1·8	41·6	349	7 29	− 1	13 33	0	—	—
Hamamatu	−1·8	41·8	348	7 32	0	13 36	0	—	—
Ito	−1·8	41·8	350	7 32	0	13 36	0	—	—
Koti	−1·8	41·8	343	7 32	0	i 13 37	+ 1	—	—
Misima	−1·8	41·9	350	7 32	− 1	13 33	− 5	—	—
Tokyo	−1·8	41·9	350	7 37	+ 4	13 45	+ 7	—	—
Wakayama	−1·8	42·0	345	7 33	− 1	13 38	− 1	—	—
Sumoto	−1·8	42·1	345	7 34	− 1	13 40	− 1	16·9	19·4
Yokohama	−1·8	42·1	350	7 36	+ 1	13 43	+ 2	—	—
Kameyama	−1·8	42·2	347	7 37	+ 2	13 44	+ 2	—	—
Tyosi	−1·8	42·2	352	7 39	+ 4	13 44	+ 2	—	14·0
Nagasaki	−1·8	42·3	338	i 7 35	− 1	13 43	− 1	—	—
Osaka	−1·8	42·3	345	7 24	−12	13 37	− 7	—	—
Osaka B	−1·8	42·3	345	7 38	+ 2	13 46	+ 2	—	—
Hunatu	−1·8	42·4	350	7 37	0	13 44	− 1	—	—
Kobe	−1·8	42·4	345	7 37	0	13 45	0	—	18·6
Nagoya	−1·8	42·4	348	7 29	− 8	12 46	−59	15·8	—
Kohu	−1·8	42·5	350	7 38	0	13 49	+ 2	—	—
Hikone	−1·8	42·6	347	7 41	+ 2	13 51	+ 3	—	—
Hukuoka	−1·8	42·8	338	7 30	−10	13 52	+ 1	—	—
Hukuoka B	−1·8	42·8	338	e 7 38	− 2	13 53	+ 2	—	—
Kakioka	−1·8	42·8	351	7 39	− 1	13 46	− 5	—	—
Wellington	−1·8	42·8	150	7 45	+ 5	14 44	+53	—	—
Tukubasan	−1·8	42·8	351	7 40	0	13 46	− 5	—	—
Kumagaya	−1·8	42·9	350	7 41	0	13 53	0	—	—
Maebasi	−1·8	43·1	350	7 43	0	13 55	− 1	—	—
Hong Kong	−1·8	43·2	312	7 58	+14	13 59	+ 2	—	—
Oiwake	−1·8	43·2	350	7 44	0	13 58	+ 1	—	—
Toyooka	−1·8	43·2	345	7 45	+ 1	13 57	0	—	—
Hamada	−1·8	43·4	342	7 46	+ 1	14 2	+ 2	—	—
Christchurch	−1·8	43·5	154	e 7 49	+ 3	i 14 14	+12	e 19·4	—
Nagano	−1·8	43·6	349	7 47	0	14 5	+ 2	—	—
Toyama	−1·9	43·8	349	7 47	− 1	14 8	+ 3	—	—
Takada	−1·9	44·0	349	7 52	+ 3	14 8	0	—	—
Hukusima	−1·9	44·3	352	7 52	0	14 15	+ 4	—	—
Wazima	−1·9	44·5	349	7 56	+ 3	14 17	+ 2	—	—
Husan	−1·9	44·7	339	7 44	−11	14 21	+ 3	17·7	—
Zi-ka-wei	−1·9	44·8	328	7 56	0	14 19	0	—	29·6
Yamagata	−1·9	44·8	352	7 56	0	14 19	0	—	—
Mizusawa	−1·9	45·5	353	i 8 5	+ 3	i 14 34	+ 4	—	—
Taikyu	−1·9	45·5	339	8 2	0	—	—	—	—
Akita	−2·0	46·3	353	8 11	+ 4	14 50	+10	—	—
Nanking	−2·0	46·9	326	i 8 12	0	i 14 53	+ 4	e 20·1	—
Keizyo	−2·0	47·6	338	8 4	−14	15 4	+ 5	21·7	—
Zinsen	−2·0	47·7	337	e 8 20	+ 2	e 15 4	+ 4	—	—
Phu-Lien	−2·0	48·0	305	e 8 31	+10	15 16	+12	—	—
Heizyo	−2·1	49·4	337	e 8 29	− 2	e 15 19	− 4	—	—

Continued on next page.

	Corr. for Focus	Δ	Az.	P.	O–C.	S.	O–C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Sapporo	−2·1	49·4	355	8 34	+ 3	15 29	+ 6	—	—
Medan	−2·1	49·7	280	e 8 40	+ 7	i 15 35	+ 8	—	—
Vladivostok	−2·1	51·1	346	i 8 49	+ 5	i 15 56	+ 9	21·1	—
Chiufeng	−2·3	54·4	331	i 9 9a	+ 2	i 16 35	+ 5	22·4	26·8
Calcutta	−2·5	64·5	299	11 0	(−11)	16 0	?	19·1	20·2
Irkutsk	−2·6	69·2	333	i 10 47	− 2	i 19 39	− 1	31·1	—
Kodaikanal	−2·6	71·7	283	11 9	+ 4	i 20 9	− 1	—	—
Hyderabad	−2·6	72·1	291	11 32	+24	20 2	−13	30·7	44·8
Agra	−2·6	74·8	301	11 18	− 6	20 43	− 4	—	—
Bombay	−2·7	77·6	291	11 39	− 1	i 21 17	− 2	—	—
Andijan	−2·7	82·9	312	e 12 31	+22	22 14	− 4	—	—
Tashkent	−2·7	85·3	313	i 12 16	− 5	i 22 20	−23	—	48·7
Sitka	−2·8	88·1	32	e 12 33	− 2	e 23 49	PS	e 39·6	—
Ukiah	−2·8	93·2	51	—	—	e 23 21	[−30]	—	—
Sverdlovsk	−2·8	93·3	327	i 12 48	−12	i 23 40	[−12]	i 41·1	47·7
Berkeley	−2·8	93·8	53	i 13 3	+ 1	—	—	—	—
Victoria	−2·8	93·9	42	13 14	+11	25 36	PS	43·0	45·2
Seattle	−2·8	94·6	43	—	—	e 23 39	[−20]	—	—
Santa Barbara	−2·8	95·6	56	e 13 11	+ 1	—	—	—	—
Mount Wilson	−2·8	97·0	56	e 13 18	+ 1	—	—	—	—
Pasadena	−2·8	97·0	56	i 13 16a	− 1	e 25 57	PS	e 43·9	—
Tinemaha	−2·8	97·0	53	e 13 11	− 6	—	—	—	—
Tananarive	−2·8	97·4	250	—	—	24 34	− 4	49·4	58·6
La Jolla	−2·9	97·6	58	i 13 19	0	—	—	—	—
Riverside	−2·9	97·6	57	e 13 19	0	—	—	—	—
Baku	−2·9	99·7	310	e 17 21	PP	e 28 9	?	46·1	—
Bozeman	−2·9	102·3	44	—	—	e 26 51	PS	e 43·0	—
Grozny	−2·9	102·7	313	e 14 23	+40	e 24 9	[−30]	—	—
Tucson	−2·9	103·0	58	e 17 55	PP	e 26 59	PS	42·8	—
Tiflis	−2·9	103·5	311	e 18 28	PP	i 24 10	[−33]	e 51·1	—
Kucino	−2·9	105·9	326	e 17 46	PP	24 20	[−34]	44·4	59·3
Pulkovo	−3·0	108·5	332	e 14 4	− 5	25 53	S	48·1	58·0
Theodosia	−3·0	109·8	316	e 19 2	PP	—	—	—	—
Simferopol	—	110·7	316	e 19 25	PP	—	—	—	—
Yalta	—	110·8	315	e 19 4	PP	—	—	—	—
Helsingfors	—	110·9	334	—	—	e 25 43	{−30}	e 44·1	—
Sebastopol	—	111·2	316	e 19 22	PP	—	—	—	—
Ksara	—	111·3	303	e 19 19	PP	e 28 53	PS	—	—
Entebbe	—	114·9	266	19 14	PP	24 53	[−40]	—	—
Scoresby Sund	—	115·2	356	18 15	[−18]	25 4	[−30]	55·1	—
Königsberg	—	115·5	329	e 17 16	[−78]	e 26 16	{−30}	e 30·4	56·4
Cape Town	—	117·5	227	25 22	SKS	(25 22)	[−20]	56·9	63·9
Bergen	—	118·6	340	—	—	31 9?	?	—	—
St. Louis	—	118·7	49	i 19 46	PP	i 29 31	PS	e 55·5	—
Copenhagen	—	118·9	333	19 53	PP	25 15	[−32]	55·1	—
Chicago	—	119·6	45	e 19 43	PP	e 29 33	PS	e 56·0	—
Budapest	—	119·7	322	e 20 19	PP	e 27 9?	{− 5}	e 56·1	62·1
Vienna	—	120·9	324	e 20 26	PP	i 25 23	[−30]	e 35·3	—
Prague	—	121·1	327	e 20 45	PP	e 36 33	SS	e 34·6	60·1
Hamburg	—	121·4	332	e 20 7a	PP	i 36 37	SS	e 57·1	61·1
Leipzig	—	121·5	328	—	—	e 33 9?	?	e 56·1	62·1
Cheb	—	122·2	327	e 20 39	PP	e 26 57	{−34}	e 55·1	62·6
Zagreb	—	122·3	322	e 18 40	[−11]	—	—	e 59·1	62·1
Göttingen	—	122·6	331	e 20 20	PP	e 36 45	SS	—	62·1
Ivigtut	—	123·6	9	—	—	27 15	{−25}	61·1	—
Triest	—	123·8	322	18 39k	[−15]	i 27 8	{−34}	e 52·8	60·9
Toronto	—	124·3	40	i 18 54	[− 1]	e 30 24	PS	54·1	—
De Bilt	—	124·5	333	i 18 42	[−14]	e 37 19	SS	e 58·1	62·5
Stuttgart	—	124·7	327	e 18 42	[−14]	e 27 15	{−32}	e 56·1	63·1
Venice	—	124·7	323	19 36	?	27 18	{−29}	—	—

Continued on next page,

		Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Karlsruhe		—	124·9	328	e 18 9?	[−47]	—	—	e 60·1	—
Edinburgh		—	125·0	340	e 20 39	PP	e 37 9?	SS	e 56·1	—
Padova		—	125·1	323	e 19 40	[+43]	e 27 16	[+71]	—	—
Durham		—	125·3	338	20 36	PP	—	—	—	65·1
Strasbourg		—	125·6	328	e 18 43	[−15]	e 37 27	SS	51·1	62·9
Ottawa		—	125·7	36	i 20 37	PP	e 30 37	PS	e 55·1	—
Uccle		—	125·8	332	e 18 44	[−15]	i 37 27	SS	54·1	64·2
Zurich		—	125·8	327	e 18 45	[−14]	—	—	—	—
Florence		—	126·3	321	i 18 43	[−17]	—	—	—	66·1
Prato		—	126·3	321	e 18 45	[−15]	21 48	?	—	—
Piacenza		—	126·5	325	e 18 47	[−13]	—	—	—	65·6
Bidston		—	126·9	338	e 21 38	PP	i 38 39	SS	—	—
Kew		—	127·3	336	i 18 46	[−16]	e 37 36	?	e 51·1	66·3
Oxford		—	127·5	336	i 20 42	PP	i 36 52	?	e 56·1	66·5
Paris		—	128·0	331	e 18 49	[−14]	e 38 3	SS	63·1	67·1
Georgetown		—	128·1	44	i 18 49a	[−14]	i 31 27	PS	e 62·1	—
Fordham		—	129·2	40	e 20 57	PP	—	—	e 55·1	—
Oak Ridge		—	129·8	37	i 18 53	[−13]	e 30 51	SKSP	e 59·1	—
La Plata	E.	—	132·6	151	21 21	PP	35 39	?	—	—
	N.	—	132·6	151	19 3	[− 8]	—	—	—	—
	Z.	—	132·6	151	19 2	[− 9]	—	—	—	—
Huancayo		—	133·7	113	e 18 49	[−24]	e 32 9	PS	—	—
Algiers		—	135·4	318	e 19 9?	[− 6]	e 22 20	PKS	—	—
Alicante		—	136·6	323	e 20 1	?	—	—	e 63·6	—
Toledo		—	137·6	327	e 21 54	PP	—	—	e 52·6	—
La Paz		—	138·2	123	19 7	[−12]	25 44	SKS	—	—
Almeria		—	138·7	322	23 12	PKS	—	—	e 64·8	—
Granada		—	139·2	324	e 19 10	[−10]	—	—	62·9	67·0
Malaga		—	140·0	324	e 15 31	?	e 32 37	PS	67·1	—
San Fernando		—	141·3	325	19 21	[− 2]	33 51	?	71·1	—
San Juan		—	145·0	66	i 19 21	[−13]	e 32 27	SKSP	e 68·6	—

Additional readings and notes :—

Riverview SS?N = +10m.45s., iZ = +12m.25s.
Sydney eP = +9m.37s.
Adelaide i = +6m.19s., +7m.13s., +8m.33s., +11m.29s., and +12m.15s. = SSS +7s.
Melbourne i = +12m.7s. and +14m.2s.
Suva P_cP = +8m.54s., SS = +14m.9s.?
Perth S = +17m.24s. = S_cS −13s., SS = +18m.54s.
Taihoku readings have been *diminished* by 3m.
Batavia iE = +9m.3s.
Koti eZ = +8m.1s., PP = +9m.33s., SS = +16m.45s.
Sumoto SN = +13m.42s., SZ = +13m.44s.
Osaka i = +8m.35s., +9m.56s., and +16m.45s.
Kobe eEN = +14m.39s., eZ = +15m.2s., iE = +17m.0s., eZ = +18m.13s.
Wellington pP = +8m.14s., P_cP = +9m.0s., PP = +10m.18s., P_cS? = +13m.15s., i = +13m.59s., SS? = +18m.9s., SSS = +19m.42s.
Hong Kong ? = +8m.12s., PP = +9m.49s., ? = +14m.48s., SS = +17m.21s., ? = +18m.19s.
Christchurch iP = +7m.51s., ipPZ = +8m.17s., iEZ = +8m.31s., iZ = +10m.4s., iEZ = +13m.30s., isS = +14m.58s., iEN = +15m.26s., SS = +17m.7s., iS_cSN = +18m.4s., i = +18m.33s., eLRZ = +21·2m., LZ = +22·7m.
Husan PP = +9m.19s.
Zi-ka-wei iZ = +8m.27s., +8m.40s., and +15m.20s., iE = +17m.41s., iZ = +19m.15s.
Nanking iPPEZ = +8m,40s., eSZ = +14m.9s.
Medan iE = +13m.28s.
Chiufeng pP? = +9m.40s.
Agra P_cPE = +11m.56s., PP = +13m.58s., PS = +21m.19s.
Bombay PS = +21m.53s., SS = +26m.14s., SS = +29m.1s.
Sitka ePP = +15m.59s., eSKS = +22m.46s., ePS = +24m.53s., eSS = +30m.16s.
Ukiah ePP = +16m.43s., ePS = +25m.33s.
Sverdlovsk iPP = +16m.45s., iSKS = +23m.9s., iSS = +29m.45s.
Berkeley iZ = +16m.49s. = PP +16s.
Victoria SN = +25m.2s.
Seattle ePP = +17m.21s., ePS = +25m.17s.
Tananarive PPE = +17m.43s., SKS = +23m.45s., PS = +25m.58s., e = +27m.16s.

Continued on next page.

Baku e = +18m.9s., +33m.20s., and +40m.31s.
Bozeman ePP = +17m.54s., eSKS = +24m.11s.
Tucson e = +33m.21s.
Tiflis eE = +22m.22s., ePSN = +26m.51s., ePKKPE = +29m.44s., eE = +31m.17s. and +33m.42s.
Kucino PPS = +28m.8s.
Pulkovo PP = +18m.32s., SKS = +24m.31s., PS = +27m.44s., SS = +33m.33s.
Helsingfors ePPNZ = +19m.19s., eSKKSN = +26m.20s., ePSNE = +28m.3s., eSSNE = +34m.23s., eSSSNE = +38m.9s.; T_0 = 12h.59·8m.
Entebbe i = +28m.51s. = PS − 24s. and +35m.2s. = SS − 22s.
Scoresby Sund PP = +19m.20s., e = +20m.9s., PS = +29m.21s., SS = +35m.15s.
Königsberg ePP?E = +19m.41s., ePPP?N = +20m.1s., eSSS?N = +27m.10s.
Cape Town PP = +29m.24s. = PS − 15s., PPP = +31m.30s., SKS = +36m.18s. = SS − 41s., PS = +37m.47s., SSS = +46m.30s.
St. Louis ePPPE = +22m.19s.
Copenhagen e = +20m.20s., +20m.37s., +26m.37s., +27m.27s., +28m.27s., eZ = +29m.27s. = PS − 26s., SS = +35m.57s.
Chicago eSS = +36m.18s.
Vienna iPN = +20m.40s., eP_cP = +21m.40s., ePP = +22m.48s., ePPP = +24m.17s.
Leipzig eN = +36m.27s. = SS − 25s.
Cheb e = +36m.49s. = SS − 12s.
Zagreb ePP = +20m.52s.
Ivigtut +30m.15s. = PS − 20s.
Triest i = +28m.9s., SKKS? = +29m.40s., i = +30m.58s., iSS = +37m.0s.
Toronto iN = +31m.49s.
De Bilt e = +20m.27s. = PP − 13s. and +21m.14s., eZ = +23m.52s.
Stuttgart $ePKP_2Z$ = +19m.20s., ePP = +20m.30s., e = +21m.14s., ePPP = +23m.50s., e(S) = +28m.19s., e = +33m.31s., eSSNE = +37m.9s.
Strasbourg iPP = +20m.36s.
Ottawa e = +38m.11s.
Uccle i = +20m.40s. = PP − 6s. and +21m.7s., eN = +42m.5s. and +45m.4s.
Florence i = +21m.26s.
Piacenza P = +21m.9s.
Bidston i = +21m.48s.
Kew i = +20m.50s. = PP − 9s., +21m.32s., +22m.7s., e = +24m.4s.
Paris e = +20m.46s. = PP − 18s. and +21m.55s.
Georgetown iPP = +20m.52s.; T_0 = 12h.58m.25s.
Fordham ePP = +22m.12s., e = +29m.56s., +32m.52s., and +34m.3s., eSS = +38m.49s.
Oak Ridge i = +19m.3s., iP_cP = +19m.44s., e = +21m.1s., i = +21m.4s., +21m.12s., +21m.40s., ePP = +22m.1s., iPPZ = +22m.6s., ePP = +22m.15s., i = +22m.59s., e = +24m.45s. and +26m.17s. = SKS − 2s., eS_cS = +31m.43s., iPS = +32m.17s., eNW = +32m.37s. and +33m.31s., eNE = +34m.15s., i = +35m.51s., eNW = +38m.15s., eSSNW = +38m.57s., eSSSNW = +43m.37s., eNW = +45m.25s.
La Plata PKSZ = +22m.22s., SKPE = +22m.23s., pSKP = +23m.0s., sSKP = +23m.21s., SSE = +39m.3s., SSN = +39m.9s. ?, PSSE? = +39m.57s.
Huancayo iPP = +22m.34s. = PKS − 15s., eSS = +39m.32s., e = +41m.59s., eSSS = +44m.13s.
Toledo i = +22m.27s., PP = +22m.39s. = PKS − 23s., SS = +39m.56s.
La Paz iSKPZ = +22m.2s. = PP − 8s., iPP = +22m.50s. = PKS − 14s., SS = +42m.50s.
Granada P = +19m.19s., PKP = +22m.28s., i = +23m.46s.
Malaga ePKP = +18m.57s., PP = +20m.35s., e = +23m.29s. and +34m.49s., SS? = +37m.42s., e = +48m.9s.
San Fernando SSE = +40m.51s.
San Juan e = +21m.9s., ePS = +33m.45s.

June 9d. Readings also at 4h. (Sotchi, Yalta, near Sebastopol, Simferopol, and Theodosia), 5h. (De Bilt and Stuttgart), 7h. (Mizusawa), 8h. (Simferopol and near Theodosia), 9h. (La Jolla, Pasadena, Riverside, Tinemaha, La Paz, La Plata, Sucre, and near Santiago), 11h. (La Plata and near Santiago), 13h. (Vladivostok and Sverdlovsk), 14h. (La Paz), 15h. (Sitka), 16h. and 17h. (near Mizusawa), 19h. (Wellington and near Lick), 20h. (near Tyosi), 22h. (Apia and Scoresby Sund).

June 10d. Readings for which no determination is made :—
Suva eP? =19h.41m.12s., eS =45m.0s.
Wellington 19h.48m.
Pasadena iZ =19h.52m.16s.
Mount Wilson iZ =19h.52m.17s.
Riverside eZ =19h.52m.18s.
Tinemaha eEZ =19h.52m.25s.
Tiflis eZ =19h.59m.35s., eE =20h.0m.9s., eE =3m.19s., eE =12m.51s., LEZ =54m.
Copenhagen 19h.59m.47s., L =20h.54m.
Stuttgart ePZ =19h.59m.55s., e =20h.13m., eL =21h.5m.
Paris e =19h.59m.56s., L =21h.4m.
Tashkent e =20h.0m.0s., e =1m.8s., e =22m.0s., e =42m., eL =46m., M =51m.54s.
De Bilt eZ =20h.0m.0s., eL =59m.
Strasbourg eP? =20h.0m.0s., eLN =54m.
Uccle eP =20h.0m.0s.
Sverdlovsk e =20h.1m.1s., e =12m.35s., L =36m.
Scoresby Sund 20h.2m.48s., L =42m.
Pulkovo e =20h.3m.10s., L =50m.
Irkutsk eL =20h.35m.
Edinburgh e =20h.40m.

June 10d. Readings at 0h. (near Branner), 1h. (Wellington), 2h. (Andijan), 3h. (Haiwee, Mount Wilson, Pasadena, Riverside, Tinemaha, and Tiflis), 5h. (Wellington, Triest, and near Zagreb), 6h. (Scoresby Sund and Sverdlovsk), 7h. (Tashkent), 8h. (Agra, San Juan, near Berkeley, Branner, Lick, Hastings, near New Plymouth, and Wellington), 9h. (Scoresby Sund), 11h. (near Tyosi), 12h. (near Medan), 14h. (Ksara, Baku, Sverdlovsk, and near Medan), 15h. (near Santiago), 16h. (Scoresby Sund), 17h. (Triest), 19h. (La Plata and near Santiago), 21h. (Tiflis), 22h. (Scoresby Sund), 23h. (Wellington, Tashkent, near Andijan, and Samarkand).

June 11d. 3h. 7m. 9s. (I) } Epicentre 33°·3S. 64°·4W. N.3.
6h. 0m. 33s. (II) } (as given by La Plata for shock I). X.

$A = +\cdot361$, $B = -\cdot754$, $C = -\cdot549$; $D = -\cdot902$, $E = \cdot432$; $G = -\cdot237$, $H = +\cdot495$, $K = -\cdot836$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
I	Santiago	5·2	267	1 15	+ 1	2 17	+ 4	—	—
II		5·2	267	1 16	+ 2	2 19	+ 6	—	—
I	La Plata E.	5·6	107	i 1 18k	− 2	e 2 4	−19	2·8	3·2
I	N.	5·6	107	1 21	+ 1	2 25	+ 2	2·8	3·3
I	Z.	5·6	107	i 1 19	− 1	2 21	− 2	2·7	2·9
II		5·6	107	i 1 19k	− 1	2 25	+ 2	2·8	3·1
I	Sucre	14·3	358	2 44	−35	—	—	6·7	—
II		14·3	358	2 40	−39	—	—	6·7	—
I	La Paz	17·1	348	i 3 58a	+ 3	i 7 14	+10	9·5	10·2
II		17·1	348	i 3 56k	+ 1	i 7 14	+10	9·6	9·9
I	Huancayo	23·5	332	i 5 6	+ 1	e 9 19	+ 5	e 13·1	—
II		23·5	332	i 5 7	+ 2	e 9 19	+ 5	e 12·9	—
I	Oak Ridge	76·1	354	i 11 41	− 6	—	—	—	—
II		76·1	354	i 11 40	− 7	—	—	—	—

Additional readings :—
La Plata I $P_gE = +1m.38s. = P^* + 5s.$, $P_gN = +1m.41s.$; II $P_gZ = +1m.32s. = P^* - 1s.$, $P_gE = +1m.37s. = P^* + 4s.$
Long waves were also recorded at San Juan for both shocks.

June 11d. Readings also at 6h. (Pasadena, Mount Wilson, Riverside, Haiwee), 8h. and 9h. (La Plata), 11h. (Tiflis), 13h. (Bombay), 22h. (Oak Ridge, Tiflis, near Wellington, New Plymouth, and Takaka (2)).

June 12d. 9h. 32m. 26s. Epicentre 14°·7N. 95°·8W. **N.2.**

A = −·098, B = −·962, C = +·254 ; D = −·995, E = +·101 ;
G = −·026, H = −·252, K = −·967.

		△	Az.	P.	O−C.	S.	O−C.	L.
		°	°	m. s.	s.	m. s.	s.	m.
Tucson		22·3	325	i 4 55	+ 1	e 9 2	+10	e 11·6
Columbia		23·4	32	e 5 6	+ 1	e 9 21	+ 9	e 13·4
St. Louis		24·4	11	i 5 17	+ 3	i 9 38	+ 8	—
Florissant		24·6	10	i 5 14	− 2	e 9 39	+ 5	—
La Jolla		26·6	317	i 5 35	0	—	—	—
Riverside		27·4	319	i 5 43	+ 1	—	—	—
Mount Wilson		27·9	318	i 5 47	+ 1	—	—	—
Pasadena		28·0	318	i 5 48	+ 1	i 9 2	P_cP	e 16·6
Haiwee		29·2	321	i 5 56	− 2	—	—	—
Georgetown		29·3	31	e 6 0	+ 1	e 10 51	− 2	e 14·8
Tinemaha		30·0	322	i 6 5	0	i 9 8	P_cP	—
Fordham		32·4	32	e 6 25	− 1	e 11 39	− 2	16·6
Berkeley	z.	32·9	321	i 6 30	− 1	e 17 19	L	(e 17·3)
Bozeman		33·5	341	—	—	e 12 4	+ 6	e 18·1
Oak Ridge		34·3	33	i 6 46	+ 3	e 12 6	− 5	e 18·6
Ottawa		35·0	25	e 6 49	0	e 12 22	+ 1	e 17·6
La Paz		41·5	138	e 8 6	+22	—	—	—
Ivigtut		57·5	26	9 46	− 1	17 40	− 3	—
Scoresby Sund		70·8	20	11 13	− 3	20 28	− 3	39·6
Paris		84·4	42	i 12 32	+ 2	—	—	45·6
Uccle		84·9	39	e 12 32	− 1	e 22 58	− 9	28·6
De Bilt		85·0	38	i 12 35	+ 2	e 23 6	− 2	e 42·6
Copenhagen		87·7	32	12 47	+ 1	23 22	−12	45·6
Strasbourg		87·7	40	10 34?	?	e 23 34?	0	e 29·6?
Stuttgart		88·4	40	e 12 50	0	e 23 34?	− 7	e 44·6

Additional readings :—
Tucson ePP = +5m.50s.
St. Louis iN = +5m.36s. =PP −6s., ipPEN = +5m.50s., isSEN = +10m.40s.
Florissant ipP = +5m.49s., esS = +10m.35s. ; T_o =9h.32m.20s.
Fordham ePPP = +7m.42s.
Berkeley iZ = +21m.32s.
Oak Ridge iPZ = +6m.48s., eSNW = +12m.14s.
Ottawa eSSE = +14m.46s. ; T_o =9h.32m.30s.
Strasbourg e = +12m.46s.
Stuttgart ePPZ = +16m.20s.
Long waves were also recorded at San Juan, Huancayo, Ukiah, Seattle, Sverdlovsk, Kucino, and Tashkent.

June 12d. Readings also at 0h. (La Paz, La Plata, and near Santiago), 1h. (La Paz), 2h. (Mizusawa and Scoresby Sund), 4h. (Mizusawa), 5h. (near Nagasaki), 6h. (near Lick), 7h. (near Manila and near Mizusawa), 10h. (Branner and Lick), 11h. (near Apia), 12h. (near Mizusawa), 13h. (Nagoya, Mizusawa, near Tokyo, and Tyosi), 14h. (Tucson), 16h. and 17h. (Tiflis), 18h. (La Paz), 20h. (Berkeley, Branner, Lick, and Sydney), 21h. (Branner), 23h. (near Mizusawa).

June 13d. 1h. 51m. 1s. Epicentre 44°·2N. 147°·4E. (as on 1930 July 22d.). R.1.

A = −·604, B = +·386, C = +·697 ; D = +·539, E = +·842 ;
G = −·587, H = +·376, K = −·717.

A *depth* of focus 0·0125 has been assumed.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Nemuro	+0·2	1·6	237	0 24	− 2	0 45	− 1	—	—
Kusiro	+0·2	2·5	241	0 30	− 9	1 0	− 9	—	—
Obihiro	+0·1	3·3	247	0 53	+ 4	1 56	+29	—	—
Asahigawa	+0·1	3·6	265	0 57	+ 4	1 44	+ 9	—	—
Urakawa	+0·1	3·9	240	0 56	− 1	1 47	+ 5	—	—
Ootomari	+0·1	4·1	308	1 5	+ 5	1 52	+ 4	—	—
Sapporo	0·0	4·5	257	1 7	+ 3	1 57	+ 2	—	—
Muroran	0·0	5·1	250	1 16	+ 3	2 13	+ 3	—	—
Hakodate	0·0	5·5	245	1 21	+ 3	2 23	+ 3	—	—
Aomori	0·0	5·9	238	1 26	+ 2	2 30	− 1	—	—
Mizusawa	−0·1	6·9	225	i 1 34	− 3	i 2 46	− 7	—	—
Akita	−0·1	7·1	233	1 40	+ 1	2 55	− 4	—	—
Sendai	−0·1	7·7	222	1 45	− 3	3 4	−10	—	—
Yamagata	−0·1	8·0	224	1 48	− 4	3 11	−10	—	—
Hukusima	−0·1	8·3	221	1 53	− 3	3 20	− 9	—	—
Mito	−0·1	9·4	216	2 9	− 2	3 42	−14	—	—
Kakioka	−0·1	9·7	217	2 11	− 5	3 50	−13	—	—
Tukubasan	−0·1	9·7	218	2 11	− 5	3 50	−13	—	—
Tyosi	−0·1	9·8	213	2 13	− 4	3 57	− 9	—	4·1
Maebasi	−0·2	10·0	222	2 18	0	4 2	− 6	—	—
Kumagaya	−0·2	10·1	220	2 17	− 2	4 2	− 9	—	—
Nagano	−0·2	10·3	226	2 22	0	4 9	− 7	—	—
Tokyo	−0·2	10·4	217	2 21	− 3	4 10	− 8	—	—
Wazima	−0·2	10·5	233	2 26	+ 1	4 19	− 2	—	—
Yokohama	−0·2	10·6	217	2 25	− 1	4 11	−12	—	—
Toyama	−0·2	10·8	229	2 29	0	4 23	− 5	—	—
Hunatu	−0·2	10·9	220	2 33	+ 2	4 26	− 5	—	—
Kohu	−0·2	10·9	221	2 30	− 1	4 24	− 7	—	—
Mera	−0·2	11·0	211	2 37	+ 5	4 24	− 9	—	—
Misima	−0·2	11·2	218	2 27	− 8	4 31	− 7	—	—
Numadu	−0·2	11·2	219	2 35	0	4 34	− 4	—	—
Susaki	−0·2	11·5	215	2 35	− 4	4 31	−14	—	—
Omaesaki	−0·2	11·9	219	2 43	− 1	4 58	+ 3	—	—
Hamamatu	−0·2	12·0	221	2 45	− 1	4 19	−39	—	—
Gihu	−0·2	12·0	226	2 44	− 2	4 57	− 1	—	—
Nagoya	−0·2	12·1	225	2 48	+ 1	5 2	+ 2	—	5·5
Hikone	−0·2	12·4	228	2 50	− 1	5 5	− 3	—	—
Hatidyozima	−0·2	12·6	211	2 52	− 2	4 58	−15	—	—
Kameyama	−0·2	12·6	225	2 53	− 1	5 23	+10	—	—
Toyooka	−0·2	12·9	232	2 57	− 1	5 17	− 3	e 6·7	—
Osaka	−0·2	13·2	228	3 0	− 2	5 41	+14	—	6·9
Osaka B	−0·2	13·2	228	3 2	0	5 49	+22	—	—
Kobe	−0·2	13·4	229	3 3	− 2	5 48	+16	—	7·6
Wakayama	−0·2	13·7	228	3 7	− 2	5 58	+19	—	—
Sumoto E.	−0·3	13·8	229	3 12	+ 3	5 51	+12	—	6·7
N.	−0·3	13·8	229	3 11	+ 2	5 56	+17	—	6·1
Z.	−0·3	13·8	229	e 3 13	+ 4	e 6 0	+21	—	6·3
Siomisaki	−0·3	14·0	224	3 10	− 1	6 6	+22	—	—
Hamada	−0·3	15·0	236	3 25	0	6 25	+17	—	—
Hirosima	−0·3	15·1	235	3 31	+ 5	6 31	+21	—	—
Koti	−0·3	15·1	230	3 26	0	i 6 26	+16	7·0	—
Matuyama	−0·3	15·4	233	3 24	− 6	6 33	+16	—	—
Sinkyo	−0·3	15·9	278	3 57	+21	6 51	+22	—	—
Simidu	−0·3	16·0	229	3 37	− 1	6 45	+14	—	—

Continued on next page.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Taikyu	−0·4	16·5	246	3 46	+ 3	6 52	+11	10·5	—
Keizyo	−0·4	16·7	254	3 46	+ 1	6 47	+ 2	10·0	—
Husan	−0·4	16·8	243	3 49	+ 3	7 4	+16	—	—
Hukuoka	−0·4	16·9	237	3 48	0	7 5	+15	—	—
Hukuoka B	−0·4	16·9	237	3 50	+ 2	7 4	+14	—	—
Heizyo	−0·4	16·9	260	e 3 52	+ 4	7 1	+11	—	—
Zinsen	−0·4	17·0	254	e 3 49	0	e 6 56	+ 4	—	—
Kumamoto	−0·4	17·3	235	3 56	+ 3	7 11	+12	—	—
Miyazaki	−0·4	17·5	231	3 58	+ 3	7 18	+14	—	—
Titizima	−0·4	17·6	196	3 57	0	6 54	−12	—	—
Unzendake	−0·4	17·6	235	3 59	+ 2	7 20	+14	—	—
Nagasaki	−0·4	17·8	236	4 2	+ 3	7 16	+ 5	10·2	7·5
Dairen	−0·5	19·9	264	4 24	+ 1	8 1	+ 7	—	—
Nake	−0·5	21·3	228	4 40	+ 2	8 34	+12	—	—
Chiufeng	−0·6	23·4	271	i 4 59a	0	9 6	+ 5	13·0	19·1
Naha	−0·6	24·0	228	5 8	+ 3	9 18	+ 6	—	—
Zi-ka-wei	−0·6	24·2	247	5 8	+ 2	9 2	−14	13·9	15·4
Nanking	−0·7	25·4	251	i 5 20	+ 3	9 50	+14	13·6	16·0
Irkutsk	−0·8	29·4	301	5 51	− 2	e 10 17	−25	14·0	19·0
Hong Kong	−1·0	35·0	241	5 33	−67	12 8	+ 2	19·1	23·8
Manila	−1·0	37·2	226	i 7 1k	+ 1	i 12 41	+ 2	17·4	—
Palau	−1·0	38·5	201	7 11	0	—	—	—	—
Phu-Lien	−1·1	41·0	249	6 59?	−32	12 59?	−36	—	—
Sitka	−1·2	47·8	45	i 8 25	0	i 15 19	+ 6	—	—
Almata	−1·2	49·2	296	e 8 41	+ 5	e 15 41	+ 8	e 25·0	—
Honolulu	−1·3	50·3	98	i 8 47	+ 3	e 15 44	− 3	e 22·3	—
Amboina	−1·3	50·9	205	i 8 44	− 4	16 24	+29	e 22·0	—
Sverdlovsk	−1·3	52·7	318	i 8 58	− 4	i 16 20	0	24·1	36·0
Andijan	−1·4	53·4	295	e 9 12	+ 6	16 40	+12	27·0	—
Tchimkent	−1·4	54·5	298	i 9 9	− 6	i 16 45	+ 2	29·0	—
Agra	−1·4	57·1	278	9 31	− 3	i 17 26	+ 7	26·9	36·3
Samarkand	−1·4	57·5	297	9 42	+ 5	17 28	+ 4	24·4	—
Victoria	−1·5	58·2	51	9 42	+ 1	17 30	− 2	33·2	—
Medan	−1·5	59·0	241	e 10 4	+17	i 17 51	+ 8	—	—
Batavia	−1·5	62·2	229	i 10 8	− 1	i 18 27	+ 2	—	—
Hyderabad	−1·5	63·0	271	10 42	+27	18 36	0	28·5	39·0
Ukiah	−1·5	63·5	60	e 10 19	+ 1	e 18 51	+ 9	—	—
Kucino	−1·5	63·8	324	i 10 16	− 4	e 19 6	+20	e 32·3	41·4
Pulkovo	−1·5	64·1	330	i 10 21	− 1	i 18 50	0	31·0	35·3
Berkeley	−1·5	64·8	61	i 10 25	− 2	i 19 3	+ 4	—	—
Scoresby Sund	−1·6	65·1	357	i 10 30k	+ 1	i 19 6	+ 5	—	—
Branner	−1·6	65·2	61	e 9 59?	−30	—	—	—	—
Helsingfors	−1·6	65·6	332	10 32	0	i 19 14	+ 7	e 31·0	—
Lick	−1·6	65·6	61	e 10 33	+ 1	—	—	—	—
Bombay	−1·6	66·0	274	10 35	0	19 16	+ 4	e 31·0	—
Bozeman	−1·6	66·5	49	e 10 39	+ 1	i 19 26	+ 7	e 26·8	—
Tinemaha	−1·6	67·8	60	i 10 46	− 1	i 19 42	+ 7	—	—
Grozny	−1·6	68·1	310	10 54	+ 5	i 19 50	+11	28·0	—
Upsala	−1·6	68·2	336	i 10 48	− 1	i 19 39	− 1	e 34·0	41·7
Haiwee	−1·6	68·6	60	i 10 51	− 1	i 19 49	+ 4	—	—
Kodaikanal	−1·6	68·6	264	10 59	+ 7	i 19 47	+ 2	—	—
Santa Barbara	−1·6	68·6	63	i 10 51	− 1	i 19 49	+ 4	—	—
Tiflis	−1·6	69·7	310	i 11 0	+ 1	i 20 4	+ 6	38·6	49·1
Mount Wilson	−1·6	69·8	62	i 10 59	0	i 20 3	+ 4	—	—
Pasadena	−1·6	69·8	62	i 10 57k	− 2	i 20 3	+ 4	e 32·0	—
Riverside	−1·6	70·4	62	i 11 0k	− 3	i 20 9	+ 2	—	—
Bergen	−1·6	70·9	341	11 7	+ 1	20 22	+ 9	—	—
Erevan	−1·6	70·9	308	11 11	+ 5	e 20 21	+ 8	33·0	—
Königsberg	−1·6	71·2	331	i 11 18	+10	i 20 30	+14	e 40·3	46·1
La Jolla	−1·6	71·2	63	i 11 7	− 1	e 20 18	+ 2	—	—

Continued on next page.

	Corr. for Focus	Δ	Az.	P.	O–C.	S.	O–C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Sotchi	−1·6	71·2	314	—	—	i 22 31	?	—	—
Theodosia	−1·6	72·3	318	11 16	+ 1	20 35	+ 5	30·0	—
Simferopol	−1·7	73·0	318	11 21	+ 2	i 20 43	+ 6	29·6	—
Copenhagen	−1·7	73·1	335	i 11 19a	0	20 40	+ 2	42·0	—
Yalta	−1·7	73·3	318	11 22	+ 2	20 47	+ 7	—	—
Sebastopol	−1·7	73·5	318	11 25	+ 3	20 50	+ 7	—	—
Ivigtut	−1·7	73·8	8	11 23	0	20 49	+ 3	33·0	—
Denver	−1·7	73·9	50	e 14 52	?	(e 21 22)	+35	e 21·4	26·7
Tucson	−1·7	75·6	59	e 11 34	0	i 21 11	+ 4	—	—
Hamburg	−1·7	75·7	336	i 11 35a	0	e 21 9	+ 1	e 44·0	45·0
Leipzig	−1·7	76·8	333	i 11 42	+ 1	i 21 23	+ 2	e 40·5	50·5
Edinburgh	−1·7	76·9	345	11 44	+ 3	i 21 23	+ 1	e 37·0	53·5
Prague	−1·7	77·3	332	i 11 46	+ 2	i 21 31	+ 4	e 39·0	50·0
Göttingen	−1·7	77·4	336	e 11 43	− 1	i 21 29	+ 1	—	41·0
Jena	−1·7	77·5	333	e 11 47	+ 2	i 21 31	+ 2	32·0	44·0
Cheb	−1·7	77·6	333	e 11 48	+ 3	e 21 34	+ 4	e 42·0	50·5
Durham	−1·7	77·6	343	11 47	+ 2	21 31	+ 1	—	—
Budapest	−1·7	77·7	329	11 44	− 2	i 21 33	+ 1	e 34·0	49·5
Vienna	−1·7	78·0	330	e 11 48	0	i 21 41	+ 6	—	—
Riverview	−1·7	78·1	176	i 11 45	− 3	i 21 31	− 5	e 32·7	36·9
De Bilt	−1·7	78·4	338	11 50k	0	21 40	+ 1	e 38·0	45·4
Bidston	−1·7	79·1	344	i 11 58	+ 4	i 21 50	+ 3	e 39·0	—
Belgrade	−1·7	79·3	325	11 56	+ 1	i 21 51	+ 2	e 49·0	—
Uccle	−1·7	79·7	338	i 11 56a	− 1	e 21 51	− 3	68·0	—
Karlsruhe	−1·7	80·1	334	11 59	0	21 59	+ 1	e 43·0	—
Stuttgart	−1·7	80·1	334	i 12 0	+ 1	i 21 58	0	e 43·0	52·6
Ksara	−1·7	80·2	310	11 3	−57	i 21 3	−56	—	—
Zagreb	−1·7	80·2	328	e 12 2	+ 2	e 21 59?	0	—	—
Kew	−1·7	80·3	341	i 12 2a	+ 2	i 22 1	+ 1	e 38·0	45·0
Oxford	−1·7	80·3	342	i 11 59	− 1	i 21 58	− 2	e 39·5	44·5
Strasbourg	−1·7	80·8	335	i 12 2	− 1	i 22 4	− 2	39·0	51·0
Chicago	−1·7	80·9	39	e 14 48	PP	i 21 41	−26	e 27·1	—
Triest	−1·7	81·2	330	i 12 5k	0	i 22 7	− 3	e 41·9	46·9
Perth	−1·7	81·4	207	—	—	e 21 59	−13	—	23·2
Zurich	−1·7	81·6	334	e 12 6	− 1	e 22 13	− 2	—	—
Basle	−1·7	81·7	335	e 12 7	− 1	e 22 15	− 1	—	—
Treviso	−1·7	81·8	330	i 12 8	0	i 22 13	− 4	52·0	—
Venice	−1·7	81·8	330	12 11	+ 3	i 22 14	− 3	45·0	—
Florissant	−1·7	82·0	42	i 12 7	− 2	i 22 14	− 5	—	—
Melbourne	−1·7	82·0	182	i 12 7	− 2	22 12	− 7	—	—
Paris	−1·7	82·0	339	i 12 11	+ 2	i 22 18	− 1	42·0	51·0
Padova	−1·7	82·1	330	12 8	− 2	i 22 17	− 3	e 50·0	—
Ann Arbor	−1·7	82·1	35	i 12 11	+ 1	—	—	47·3	—
St. Louis	−1·7	82·2	42	i 12 9	− 1	i 22 17	− 4	—	—
Neuchatel	−1·7	82·3	335	e 12 11	0	e 22 21	− 1	—	—
Ottawa	−1·7	82·6	29	e 12 12	− 1	i 22 17	− 8	e 39·0	—
Toronto	−1·7	82·7	32	e 12 14	+ 1	i 22 23	− 3	38·5	—
Pavia	−1·7	83·2	332	e 12 49	+33	—	—	—	—
Piacenza	−1·7	83·2	332	12 17	+ 1	i 22 29	− 3	46·0	55·6
Florence	−1·7	83·7	330	i 12 23a	+ 5	22 33	− 4	—	—
Prato	−1·7	83·7	330	e 12 21	+ 3	i 21 29	−68	e 33·7	52·2
Bari	−1·7	83·8	325	—	—	22 40	+ 2	—	—
Siena	−1·7	84·1	329	12 27	+ 7	22 22	−19	—	—
Puy de Dôme	−1·7	84·7	336	i 12 28	+ 5	e 22 41	− 6	e 52·0	—
Ithaca	−1·7	84·9	31	—	—	i 22 53	+ 4	—	—
Helwan	−1·7	85·8	310	e 12 26	− 3	i 22 44	−15	—	—
Oak Ridge	−1·7	86·8	27	i 12 32	− 2	i 22 51	−18	e 42·0	—
Fordham	−1·7	87·2	30	i 12 35	− 1	i 22 53	−20	40·0	—
Georgetown	−1·8	87·7	34	i 12 36k	− 2	i 23 5	−12	e 38·0	—
Charlottesville	−1·8	87·9	35	e 16 7	PP	23 17	− 1	—	—

Continued on next page.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Barcelona	−1·8	88·9	335	e 12 41	− 3	23 23	− 5	—	50·7
Wellington	−1·8	89·0	160	—	—	e 21 59?	?	41·0	—
Tortosa	−1·8	90·0	336	i 12 58	+ 9	i 23 18	−21	e 44·0	59·8
Columbia	−1·8	90·2	39	e 16 10	PP	i 23 37	− 4	—	—
Toledo	−1·8	92·1	339	e 12 59	0	i 23 23	[−22]	e 40·6	53·3
Alicante	−1·8	92·6	336	e 13 4	+ 3	e 23 24	[−24]	e 39·2	—
Algiers	−1·8	92·8	333	e 12 57	− 5	23 26	[−23]	—	—
Almeria	−1·8	94·4	337	e 13 33	+24	e 23 35	[−23]	e 38·3	—
Granada	−1·8	94·4	338	e 13 10	+ 1	i 23 35	[−23]	40·3	54·1
Malaga	−1·8	95·2	338	e 13 11	− 2	24 19	− 9	—	53·0
San Fernando	−1·8	95·9	339	13 13	− 3	23 42	[−23]	50·0	63·5
San Juan	—	110·3	35	e 18 55	PP	i 26 21	?	e 53·0	—
La Paz	—	139·2	59	i 19 18a	[− 2]	—	—	67·3	—

Additional readings :—
Toyooka SN = +5m.22s., SZ = +5m.23s., S_eSEN = +15m.27s.
Kobe eN = +3m.0s., eSZ = +5m.41s., SN = +5m.50s., iN = +6m.56s., S_eS = +15m.28s.
Sumoto S_eSEN = +15m.29s.
Koti S_eS? = +15m.32s.
Zi-ka-wei PPZ = +5m.29s., iZ = +9m.30s., SSS = +10m.14s.
Irkutsk PPP = +6m.51s., SS = +11m.41s.
Hong Kong PP = +6m.39s., SS = +15m.51s.
Sitka ePP = +10m.19s., eSS = +18m.4s., e = +19m.1s.
Honolulu ePP = +11m.3s. = PPP − 14s., iS = +15m.54s., eSS = +18m.19s., eSSS = +20m.42s.
Agra PP = +11m.45s., PPP = +12m.43s., PS = +18m.4s., SSS = +22m.56s.
Victoria SN = +17m.40s. ; T_0 = 1h.51m.14s.
Batavia iP = +10m.11s.
Kucino e = +13m.15s. and +20m.17s. = S_eS − 3s., SS = +23m.29s.
Berkeley iE = eE = +10m.27s., eN = iZ = +10m.28s., iZ = +10m.50s., eE = +19m.1s., iSE = +19m.8s., iZ = +19m.17s.
Scoresby Sund PPP = +20m.11s. = S_eS − 18s., eSE = +24m.29s., iSN = +24m.34s., iS_eS = +25m.41s.
Helsingfors eP_ePN = +11m.32s., ePPN = +13m.59s., ePSN = +20m.16s., eSSN = +23m.59s., eSSSN = +28m.55s. ; T_0 = 1h.50m.52s.
Bombay PP = +13m.4s., PS = +19m.39s., SS = +23m.37s., SSS = +25m.40s.
Tinemaha iNE = +20m.25s. = S_eS − 24s.
Upsala PS = +20m.34s.
Tiflis eNZ = +15m.26s., eNE = +16m.6s., eN = +20m.56s. = S_eS − 7s., eEZ = +24m.34s., eN = +28m.41s. and +34m.53s.
Königsberg eP_ePZ = +11m.54s., ePSEN = +21m.11s., eN = +35m.10s.
Copenhagen i = +11m.23s., e = +21m.11s. = PS − 8s., +21m.53s.
Ivigtut +21m.27s., and +21m.59s.
Denver eN = +15m.49s., eE = +17m.42s.
Tucson i = +21m.41s. = PS − 10s., eSS = +26m.5s.
Hamburg i = +21m.14s., e = +37m.59s.? and +42m.23s.
Göttingen iP = +11m.47s.
Jena e = +21m.47s., eE = +21m.50s., eN = +21m.53s.
Vienna iPN = +11m.50s., iP_eP = +12m.20s., ePP = +14m.51s., iN = +15m.50s., iPS = +22m.30s.
Riverview iN = +21m.52s. and +22m.11s.
Uccle ePP = +14m.57s., iSE = +21m.53s.
Stuttgart eP_eP = +12m.21s., ePP = +14m.59s., e = +18m.29s., eS_eS = +22m.21s., ePSE = +22m.47s., eN = +23m.11s., e = +31m.59s.
Zagreb e = +22m.30s., +39m.29s., and +43m.29s.
Strasbourg ipP = +12m.36s., ePP = +15m.9s., ePPPP = +18m.29s., iPS = +22m.44s.
Triest i = +12m.8s., iP_ePZ = +12m.25s., iPS = +22m.54s., e = +32m.9s., i = +37m.50s.
Basle e = +12m.10s.
Florissant ipP = +12m.31s., isS = +22m.55s. ; T_0 = 1h.51m.9s.
St. Louis ipPN = +12m.33s., isSE = +22m.54s. ; T_0 = 1h.51m.9s.
Melbourne i = +22m.56s. = PS − 18s. and +27m.27s. = SS + 10s.
Ann Arbor eN = +27m.41s. = SS − 3s.
Ottawa SSSN = +32m.5s. ; T_0 = 1h.51m.6s.
Toronto PPN = +15m.23s. ; T_0 = 1h.51m.5s.
Ithaca e = +23m.55s. = PS + 5s.
Oak Ridge iZ = +12m.37s., +12m.40s., +12m.54s., +12m.57s., and +24m.0s.
Fordham e = +12m.55s., i = +23m.3s. = SKS − 12s., +23m.19s., and +23m.47s. = PS − 21s., e = +24m.4s.
Charlottesville e = +22m.59s.

Continued on next page.

Tortosa SE = +23m.19s., SMN = +23m.44s.
Columbia e = +18m.29s. =PPP +12s., eSKS = +23m.16s., e = +29m.54s.
Granada P_cP = +13m.28s., PP = +16m.30s., SKS = +23m.14s.
Malaga e = +17m.0s., SKS = +23m.37s., PS = +25m.21s., PPS = +25m.50s., SS = +30m.47s., SSS = +34m.36s.
San Fernando SN = +23m.46s., SE = +23m.48s.
San Juan eSKS = +24m.41s., ePS = +28m.15s., iSS = +34m.17s., e = +37m.53s.
La Paz iPP = +22m.52s.

June 13d. 9h. 6m. 26s. Epicentre 44°·3N. 10°·0E. N.3.

A = +·705, B = +·124, C = +·698 ; D = +·174, E = −·985 ;
G = +·688, H = +·121, K = −·716.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Livorno		0·8	161	0 16	+ 5	0 29	+ 8	—	—
Piacenza		0·8	343	0 11	0	(0 24)	+ 3	i 0·4	0·7
Prato		0·9	118	i 0 13	0	i 0 26	+ 3	—	—
Pavia		1·0	12	i 0 26	S	(i 0 26)	0	—	0·9
Florence		1·0	119	i 0 13	− 1	—	—	—	—
Siena		1·4	133	0 20	0	—	—	—	0·7
Padova		1·8	52	0 26	0	0 48	+ 2	—	—
Venice		2·0	56	0 33	+ 4	i 0 53	+ 2	2·6	3·6
Treviso		2·1	49	i 0 31	+ 1	—	—	—	1·5
Chur		2·6	353	e 0 40	+ 3	e 1 9	+ 2	—	—
Triest		3·0	63	0 45	+ 2	i 1 21	+ 4	—	—
Rome		3·0	141	0 46	+ 3	e 1 33	S_g	e 1·9	2·2
Zurich		3·2	342	e 0 46	0	e 1 25	+ 3	—	—
Basle		3·4	334	e 0 53	+ 4	e 1 35	S*	—	—
Neuchatel		3·4	323	e 0 50	+ 1	e 1 26	− 1	—	—
Ravensburg		3·5	355	e 0 58	P*	i 1 49	S_g	—	—
Stuttgart		4·4	352	e 1 9	P*	i 1 58	+ 5	—	3·0
Zagreb		4·5	68	e 1 3	− 1	e 1 55	0	—	2·5
Naples		4·6	136	e 2 37	S_g	e 3 42	?	—	—
Strasbourg		4·6	341	e 1 4	− 2	1 54	− 4	—	—
Karlsruhe		4·9	348	1 29	P_g	2 13	+ 8	e 2·6	—
Puy de Dôme		5·2	289	e 1 31	P*	2 16	+ 3	—	—
Vienna		5·9	46	e 1 22	− 2	2 29	− 2	—	3·4
Cheb		6·0	15	—	—	e 2 15	−18	—	4·6
Prague		6·5	26	e 2 24	?	i 3 45	?	—	5·1
Jena		6·7	9	e 1 54	P*	e 2 47	− 4	e 3·0	5·1
Paris		6·8	314	e 1 51	P*	e 2 53	0	3·6	5·6
Göttingen		7·2	0	e 1 52	+10	e 3 52	S_g	—	4·6
Leipzig		7·2	12	—	—	e 3 16	?	e 4·6	5·3
Belgrade		7·5	82	—	—	e 3 7	− 4	—	—
Uccle		7·5	332	e 2 4	P*	—	—	—	—
Tortosa	N.	7·8	247	e 3 13	S	(e 3 13)	− 6	—	—
Hamburg		9·3	0	—	—	e 4 20	?	—	6·0
Alicante		9·8	236	e 5 9	S_g	—	—	—	—
Kew		9·9	324	e 3 14	?	i 4 17	+ 6	6·6	—
Toledo	Z.	11·3	252	e 6 10	S_g	—	—	—	—
Copenhagen		11·5	8	—	—	5 22	+32	—	—
Almeria		12·0	236	e 5 40	S*	—	—	—	—
Granada		12·5	240	e 3 5	+10	e 5 57	S*	8·9	10·7
Bidston		12·5	321	—	—	i 6 4	S*	e 7·1	—
Königsberg		12·5	29	—	—	e 5 20	+ 5	—	9·2
Edinburgh		14·3	329	e 2 34?	?	e 8 4	?	—	—
San Fernando		14·6	243	—	—	9 4	?	—	—
Helsingfors		18·3	24	e 6 41	?	e 9 49	?	e 10·1	—
Pulkovo		19·7	31	4 32	+ 6	—	—	10·6	13·6
Kucino		21·1	47	—	—	e 8 52	+24	—	—

For Notes see next page.

NOTES TO JUNE 13d. 9h. 6m. 26s.

Additional readings :—
Piacenza $P_g = +14s.$
Venice $P = +36s. = P_g + 2s.$
Treviso $PPS = +59s.$, $SS = +1m.16s.$, $SSS = +1m.22s.$
Triest $iP_g = +55s.$, $iPP = +1m.0s.$, $iNW = +1m.16s.$ and $+1m.28s. = S^* + 0s.$, $iS_g = +1m.36s.$, $iSS = +1m.46s.$, $iNW = +1m.51s.$, $i = +2m.0s.$, $iSSS = +2m.3s.$, $i = +2m.15s.$, $+3m.16s.$, and $+3m.39s.$
Rome $P_g = +56s.$
Ravensburg $eP_g = +1m.6s.$, $e = +1m.28s. = S - 2s.$
Stuttgart $eP_gNZ = +1m.26s.$, $i = +2m.11s. = S^* + 2s.$, $iS_gE = +2m.24s.$, $i = +2m.37s.$
Zagreb $eZ = +1m.8s.$ and $+1m.25s. = P_g + 1s.$, $e = +1m.45s.$ and $+2m.8s. = S^* + 4s.$
Strasbourg $P_g = +1m.10s.$, $PP = +1m.14s. = P^* - 2s.$, $SS = +2m.1s.$, $SSS = +2m.18s. = S^* + 3s.$
Vienna $iPN = +1m.26s.$, $i = +2m.13s.$, $PPS = +2m.26s.$, $S^* = +2m.53s.$, $S = +3m.2s.$, $S_g = +3m.7s.$, $SS = +3m.11s.$
Cheb $e = +3m.9s. = S_g - 3s.$
Jena $eE = +2m.4s. = -4s.$ and $+2m.14s.$, $eNE = +2m.9s.$, $eN = +2m.17s.$
Göttingen $eP_g = +2m.14s.$
Leipzig $eE = +3m.38s. = S^* + 6s.$, $iN = +3m.54s. = S_g + 2s.$, $iE = +3m.58s.$
Belgrade $e = +4m.9s. = S_g + 7s.$, $+4m.42s.$, and $+5m.32s.$
Tortosa $SN = +4m.34s.$, $SE = +4m.54s.$
Hamburg $e = +5m.9s. = S_g + 8s.$
Kew $e = +3m.33s.$, $iE = +5m.9s.$
Granada $e = +6m.39s.$
Bidston $i = +6m.24s.$
Königsberg $eE = +6m.23s.$, $eN = +7m.5s.$
Long waves were also recorded at Sverdlovsk, De Bilt, Scoresby Sund, and Ivigtut.

June 13d. 22h. 10m. 24s. Epicentre 27°·5N. 62°·6E. N.1.

$A = +\cdot408$, $B = +\cdot787$, $C = +\cdot462$; $D = +\cdot888$, $E = -\cdot460$; $G = +\cdot212$, $H = +\cdot410$, $K = -\cdot887$.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Samarkand	12·6	16	3 9	+13	i 5 24	+ 7	—	—
Bombay	12·7	130	i 3 0	+ 2	i 5 35	+15	6·7	8·1
Agra	13·8	88	i 3 9	− 4	5 30	−16	6·2	—
Dehra Dun	13·8	75	3 6	− 7	5 26	−20	7·6	8·6
Andijan	15·5	29	3 31	− 4	—	—	e 8·6	—
Tchimkent	15·8	19	3 44	+ 5	i 6 15	−19	—	—
Baku	16·6	324	i 3 50	+ 1	—	—	—	—
Hyderabad	17·8	121	4 7	+ 3	7 22	+ 2	8·7	12·0
Almata	19·6	33	i 4 24	− 1	i 8 26	+28	e 9·3	—
Erevan	19·6	315	e 4 28	+ 3	i 8 4	+ 6	—	—
Tiflis	20·3	319	i 4 31	− 2	i 8 21	+ 9	e 10·0	—
Grozny	20·8	324	i 4 41	+ 3	8 19	− 3	19·6	—
Ksara	23·8	292	i 5 12	+ 4	i 9 25	+ 6	—	—
Calcutta	23·9	97	5 4	− 5	9 38	+17	12·8	15·3
Sotchi	24·5	317	e 5 16	+ 1	e 9 42	+10	e 14·6	—
Colombo	26·4	138	5 24	− 9	10 30	+25	10·7	21·3
Helwan	27·5	282	5 43	0	10 17	− 7	—	20·1
Theodosia	27·9	316	5 44	− 2	10 21	− 9	11·6	—
Yalta	28·3	314	5 50	0	10 31	− 6	e 10·9	—
Simferopol	28·6	315	5 52	− 1	i 10 32	−10	14·0	—
Sebastopol	28·9	314	e 5 53	− 2	—	—	—	—
Sverdlovsk	29·4	358	4 36	−84	e 9 13	−102	—	—
Kucino	33·3	334	6 40	+ 6	11 53	− 2	e 16·2	18·5
Lemberg	36·8	318	e 7 16	+11	e 12 42	− 6	e 18·3	31·1
Belgrade	37·6	308	i 7 12	0	i 12 58	− 2	e 22·8	—

Continued on next page.

	Δ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
Pulkovo	39·1	335	i 7 19	− 5	e 13 6	−16	19·6	21·8
Budapest	39·2	313	i 7 23	− 2	i 13 14	−10	16·6	26·6
Irkutsk	39·6	40	7 26	− 3	e 13 0	−30	17·6	25·0
Trenta	39·9	299	7 36	+ 5	e 13 16	−19	—	—
Entebbe	39·9	232	i 7 25	− 6	i 13 59	+24	—	—
Phu-Lien	40·5	90	e 7 36	0	e 13 32	−12	17·6	—
Catania	40·8	293	7 39	0	13 36	−12	22·8	—
Königsberg	40·8	324	7 49	+10	i 13 55	+ 7	e 22·0	31·9
Zagreb	40·9	310	e 7 39	− 1	e 13 45	− 5	e 23·6	26·6
Vienna	41·1	313	i 7 42	+ 1	i 13 51	− 2	—	14·0
Helsingfors	41·4	334	e 7 39	− 5	i 13 46	−11	e 18·6	—
Medan	41·9	118	i 7 52	+ 4	15 5	+60	—	—
Triest	42·4	309	i 7 52a	0	i 14 4	− 7	i 22·1	24·6
Prague	42·8	316	e 7 53	− 2	i 14 17	− 1	e 23·6	—
Rome	42·9	303	8 0	+ 4	14 54	+35	—	—
Treviso	43·5	309	i 8 1	0	i 14 28	0	—	18·6
Padova	43·7	308	8 4	+ 2	14 29	− 2	—	—
Siena	43·9	305	9 6	+62	14 36	+ 2	28·6	—
Cheb	44·0	315	i 8 4	− 1	e 13 31	−65	e 24·6	30·6
Florence	44·0	306	8 4a	− 1	14 8	−28	—	—
Prato	44·1	306	i 8 6	0	i 14 36	− 1	e 23·2	37·6
Leipzig	44·3	316	i 8 8	+ 1	i 14 40	0	e 25·6	31·6
Upsala	44·4	330	i 8 4	− 4	i 14 30	−11	—	32·5
Jena	44·7	316	i 8 8	− 2	e 14 36	−10	e 22·6	36·8
Livorno	44·8	305	8 1	−10	14 31	−16	—	—
Tunis	44·8	296	8 12	+ 1	14 48	+ 1	21·6	—
Piacenza	45·2	308	8 16	+ 2	i 14 48	− 6	25·6	34·3
Copenhagen	45·4	323	i 8 14a	− 2	i 14 51	− 5	22·6	—
Chiufeng	45·5	59	8 16	− 1	i 14 55	− 2	—	27·2
Chur	45·5	311	e 8 15	− 2	e 14 48	− 9	—	—
Pavia	45·6	307	i 8 26	+ 8	—	—	—	—
Göttingen	45·8	317	i 8 18	− 1	i 14 55	− 7	—	30·6
Stuttgart	46·0	313	8 17	− 4	i 14 56	− 8	e 20·6	30·6
Zurich	46·1	311	e 8 20	− 1	e 14 57	− 9	—	—
Hamburg	46·2	320	e 8 20a	− 2	i 15 4	− 3	e 22·8	29·6
Karlsruhe	46·4	314	i 8 24	0	15 4	− 6	e 23·6	36·1
Hong Kong	46·7	84	8 26	0	15 16	+ 2	—	30·8
Basle	46·8	311	e 8 25	− 2	e 15 8	− 8	—	—
Strasbourg	46·8	313	i 8 25	− 2	i 15 7	− 9	e 22·6	29·3
Neuchatel	47·2	311	e 8 29	− 1	e 15 13	− 8	—	—
Nanking	48·4	70	i 8 42	+ 3	i 15 46	+ 8	—	30·8
Tananarive	48·7	199	i 8 46	+ 5	15 44	+ 1	22·4	27·1
De Bilt	48·9	318	i 8 44k	+ 1	i 15 39	− 6	e 23·6	28·9
Uccle	49·2	315	i 8 46a	+ 1	i 15 46	− 4	22·6	27·1
Puy de Dôme	49·9	308	e 8 53	+ 2	15 52	− 7	—	—
Bergen	50·3	328	8 48	− 6	i 15 52	−13	—	—
Paris	50·3	312	i 8 53	− 1	i 15 57	− 8	25·6	33·6
Algiers	50·5	296	i 8 55	0	i 15 43	−25	i 23·2	29·6
Barcelona	50·7	303	e 8 46	−11	i 16 0	−11	e 19·0	31·1
Zi-ka-wei	50·8	71	i 8 58k	+ 1	16 5	− 7	i 26·3	33·2
Tortosa	51·9	302	9 13	+ 7	16 27	0	21·4	22·2
Takao	52·0	81	9 56	+50	16 56	+28	—	—
Kew	52·2	316	e 9 6	− 2	i 16 25	− 6	e 23·6	35·0
Taihoku	52·4	78	9 28	+19	16 52	+18	—	—
Karenko	52·8	80	e 9 19	+ 7	—	—	—	—
Oxford	52·8	316	9 13	+ 1	i 16 29	−10	e 23·2	42·4
Taito	52·8	81	8 56	−16	—	—	—	—
Heizyo	53·0	60	i 9 21	+ 7	16 29	−13	—	—
Alicante	53·1	299	i 9 21	+ 6	i 16 43	0	e 22·3	—
Durham	53·1	319	9 16	+ 1	16 35	− 8	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Bidston		53·9	318	i 9 26	+ 5	i 16 46	− 8	23·6	35·4
Zinsen	Z.	53·9	62	i 9 20	− 1	—	—	—	—
Edinburgh		54·1	321	9 22	0	i 16 50	− 7	e 27·6	38·0
Keizyo		54·2	62	9 22	− 1	16 51	− 7	21·3	—
Batavia		54·4	121	i 9 24	0	i 17 52	+51	31·6	—
Almeria		54·7	297	i 9 24	− 2	i 17 0	− 5	e 28·2	—
Manila		55·5	91	i 9 35k	+ 3	17 20	+ 4	27·1	31·1
Toledo		55·5	301	i 9 29	− 3	i 17 10	− 6	e 25·6	30·7
Granada		55·6	298	i 9 32	− 1	i 17 14	− 3	26·3	30·5
Taikyu		55·8	64	9 33	− 1	17 14	− 6	31·4	—
Husan		56·2	65	9 42	+ 5	17 24	− 1	—	—
Malaga		56·4	298	i 9 38	− 1	17 21	− 7	26·2	—
Nagasaki		57·4	67	9 45	− 1	17 39	− 3	24·2	—
Hukuoka		57·7	66	9 50	+ 2	17 53	+ 7	—	—
Hukuoka B		57·7	66	9 48	0	(17 48)	+ 2	17·8	—
San Fernando		57·8	298	9 49	0	17 40	− 7	25·6	—
Serra do Pilar		58·7	304	i 9 56	+ 1	i 17 55	− 4	—	—
Miyazaki		59·0	68	9 56	− 1	18 9	+ 6	—	—
Koti		60·2	65	10 4	− 2	i 18 15	− 4	—	—
Toyooka		60·8	62	(i 10 8)	− 2	(18 23)	− 3	—	—
Sumoto		61·1	63	10 11	− 1	18 28	− 2	33·9	35·0
Kobe		61·2	63	e 10 14	+ 1	i 18 30	− 2	—	39·6
Wakayama		61·3	63	10 13	− 1	18 29	− 4	—	—
Osaka		61·5	63	10 10	− 5	18 32	− 4	34·9	—
Osaka B		61·5	63	10 14	− 1	18 31	− 5	—	—
Gihu		62·3	62	10 20	0	18 40	− 6	—	—
Toyama		62·3	61	10 18	− 2	18 42	− 4	—	—
Scoresby Sund		62·4	339	i 10 20k	− 1	e 18 36	−11	30·6	—
Nagoya		62·5	62	10 20	− 2	(18 42)	− 6	18·7	—
Nagano		63·1	61	10 25	− 1	18 51	− 5	—	—
Hamamatu		63·2	63	10 23	− 4	18 51	− 6	—	—
Johannesburg		63·2	215	10 30	+ 3	19 0	+ 3	33·6	—
Oiwake		63·4	61	10 27	− 1	18 57	− 3	—	—
Akita		63·7	57	10 29	− 1	18 58	− 6	—	—
Maebasi		63·9	61	10 33	+ 2	18 53	−13	—	—
Yokohama		64·5	62	10 45	+10	19 11	− 3	—	—
Mizusawa	E.	64·6	57	i 10 35	− 1	i 19 12	− 3	—	—
	N.	64·6	57	i 10 38	+ 2	i 19 7	− 8	—	—
Tokyo		64·6	61	10 37	+ 1	19 3	−12	—	—
Mera		64·9	62	11 2	+24	—	—	—	—
Mito		64·9	61	10 32	− 6	19 9	−10	—	—
Tyosi		65·4	61	10 40	− 1	19 19	− 6	—	—
Amboina		70·3	105	11 8	− 5	20 10	−15	—	—
Palau		70·6	92	11 16	+ 2	—	—	—	—
Cape Town		74·3	217	11 33	− 3	21 13	+ 1	37·1	42·1
Ivigtut		75·3	333	i 11 39k	− 3	21 12	−12	37·6	—
Perth		78·1	135	(11 51)	− 7	(21 51)	− 4	(21·8)	—
Sitka		94·1	10	e 13 16	0	e 24 18	−16	e 47·6	—
Adelaide		95·1	128	e 13 16	− 5	e 24 21	−22	e 36·1?	57·0
Ottawa		97·8	332	e 13 38	+ 5	i 24 1	[−14]	e 47·6	—
Oak Ridge		98·2	328	i 13 34	− 1	i 24 3	[−14]	—	—
Ithaca		100·5	332	—	—	i 24 30	[+ 2]	—	—
Fordham		100·6	329	e 13 37	− 9	i 24 18	[−11]	47·6	59·6
Toronto		100·7	334	e 13 48	+ 1	i 25 26	− 7	48·6	—
Melbourne		100·9	127	e 13 42	− 6	i 25 49	+15	51·6	53·9
Ann Arbor		103·6	336	—	—	i 24 30	[−13]	e 51·8	63·5
Georgetown		103·6	330	—	—	i 32 42	SS	—	—
Riverview		103·9	122	e 15 30	+89	e 27 48	PS	e 47·6	60·3
Sydney		103·9	122	—	—	e 24 41	[− 4]	56·0	61·6
Victoria		103·9	4	14 0	− 1	24 28	[−17]	44·2	60·0

Continued on next page.

	Δ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
Charlottesville	105·0	330	—	—	e 24 44	[− 6]	e 51·6	—
Chicago	105·3	338	e 18 14	PP	i 24 14	[−37]	e 48·2	—
Bozeman	106·6	355	e 18 36	PP	e 24 48	[− 9]	e 53·6	—
Florissant	109·0	338	i 14 16	−10	i 24 52	[−17]	—	—
San Juan	112·4	307	e 14 54	+12	26 6	{−18}	e 55·2	—
Ukiah	113·1	5	e 19 28	PP	e 26 20	{− 9}	e 52·6	—
Berkeley	114·4	4	e 19 13	PP	i 25 23	[− 8]	—	—
Tinemaha	115·4	1	i 18 39	[+ 5]	—	—	—	—
Mount Wilson z.	118·3	1	i 18 46	[+ 5]	—	—	—	—
Pasadena	118·4	1	i 18 46	[+ 4]	i 25 40	[− 5]	e 57·2	—
La Jolla	119·6	0	i 18 48	[+ 4]	—	—	—	—
Tucson	119·9	354	e 18 48	[+ 3]	e 27 8	{− 8}	e 54·5	—
La Paz	133·3	273	i 19 15k	[+ 3]	i 25 50	[−39]	69·5	78·3
Huancayo	137·7	283	(i 19 27)	[+ 8]	—	—	e 59·6	—

Additional readings and note :—

Bombay ePP = +3m.13s., P*? = +3m.48s., ePP_g = +4m.22s., eSS = +6m.1s.
Agra SS = +5m.45s.
Erevan i = +4m.46s.
Tiflis eE = +5m.47s., iN = +8m.42s., eE = +11m.35s.
Ksara PP = +5m.40s., SS = +10m.21s.
Belgrade i = +7m.29s., iPP = +8m.51s., i = +17m.35s. = S_cS +8s.
Irkutsk ePP = +8m.58s., SS = +16m.12s.
Entebbe i = +9m.8s.
Königsberg iPPE = +9m.20s., ePPPZ = +9m.45s., ePSZ = +15m.23s., eSSZ = +17m.20s.. iSSSN = +17m.48s. = S_cS + 2s., eN = +18m.25s.
Zagreb i = +8m.5s., e = +9m.8s. = PP − 1s., ePP = +9m.40s. = P_cP − 5s., e = +14m.11s., +14m.24s., and +15m.22s., eSS = +17m.5s., e = +17m.29s.
Vienna P_cP = PPP = +9m.43s., S_cS = SSS = +17m.37s.
Helsingfors e?EN = +7m.56s., iPP = +9m.22s., iPPP = +9m.42s., iP_cS = +13m.25s., iSSEN = +17m.7s., iSSSEN = +18m.0s. T_o = 22h.10m.9s.
Medan iE = +8m.50s., iN = +9m.47s. = P_cP − 1s.
Triest i = +9m.6s. and +9m.34s., iPPP = +9m.44s., iP_cP = +10m.2s., i = +14m.1s., +14m.50s., +15m.40s., +16m.14s., +16m.36s. and +17m.26s.
Prague ePPP = +9m.45s.
Treviso SS = +18m.2s. = S_cS − 1s.
Cheb ePPP? = +9m.53s. = P_cP − 2s., eSSS? = +16m.59s.
Leipzig eN = +17m.54s., eE = +18m.18s., e = +23m.48s.
Upsala PP = +9m.50s., iSSE = +17m.54s.
Jena iP = +8m.11s., eE = +9m.57s. = P_cP +0s., e = +10m.23s., iS = +14m.40s., eE = +15m.4s. and +18m.6s. = S_cS − 4s.
Copenhagen eZ = +8m.32s., PP = +10m.1s. = P_cP +1s., PKS = +13m.45s., PS = +15m.10s., SS = +18m.5s. = S_cS +0s., +18m.36s.
Chiufeng iE = +10m.35s., iN = +18m.9s.
Göttingen e = +10m.12s. = P_cP +11s. and +18m.12s. = S_cS − 5s.
Stuttgart P = +8m.20s., i = +8m.34s., e = +9m.7s., ePP = +10m.9s., ePPP = +10m.43s., eZ = +13m.41s., eS = +14m.38s., i = +15m.24s. = S_cS +6s., eSS = +18m.36s.
Hamburg iP = +8m.24s., ePP = +10m.11s., iPKS = +13m.49s., iPS = +15m.24s., iSS = +18m.17s., iE = +20m.46s.
Hong Kong PP = +10m.19s., SS = +18m.30s.
Strasbourg PP = +10m.20s., PPP = +10m.54s., i = +12m.3s., +12m.51s., and +13m.52s., SS = +18m.13s.
Nanking iEZ = +9m.1s., iZ = +13m.58s.
Tananarive PPE = +10m.52s., PPN = +11m.1s., EN = +16m.13s., SSN = +18m.49s., SSSE = +20m.7s.
De Bilt ePP = +10m.40s.
Uccle iPP = +10m.42s., iSSS = +20m.11s.
Algiers PP = +9m.56s.
Zi-ka-wei iZ = +9m.17s. and +10m.18s. = P_cP − 1s., PP = +11m.0s., PPP = +11m.38s., PSZ = +16m.16s., iZ = +16m.43s., SS = +19m.58s., iZ = +20m.31s., SSS = +21m.11s., SSSS = +22m.0s., iZ = +23m.20s., iZ = +26m.18s.
Tortosa SN = +16m.31s.
Kew iP = +9m.8s., i = +9m.25s., iPP = +11m.12s., i = +16m.27s., iSP = +16m.31s., iS_cS = +18m.50s., i = +21m.10s.
Heizyo i = +13m.21s.
Alicante PP = +11m.43s.
Bidston iPPP = +11m.51s., iPS = +16m.54s., i = +18m.51s. = S_cS − 19s.
Edinburgh i = +9m.39s., +10m.36s. = P_cP +5s., +12m.42s., +16m.42s., +16m.58s. = PS − 2s. and +17m.16s.
Batavia iSE = +19m.9s. = S_cS − 4s.

Continued on next page.

Almeria PPP = +12m.24s., SS = +20m.24s.
Manila PP = +12m.0s.
Granada iP_cP = +10m.20s., S_cS = +19m.24s.
Malaga PP = +11m.44s., e = +18m.13s., SS = +21m.8s., e = +23m.34s.
Koti i = +10m.23s.
Toyooka iEZ = (+10m.27s.) readings have been *diminished* by 10m.
Kobe iEZ = +10m.31s., eEZ = +19m.8s.
Scoresby Sund i = +10m.36s., PPP = +14m.11s., +14m.31s., iSE = +18m.42s., eNZ = +18m.46s. = PS −9s., iS_cSE = +20m.12s., SS = +23m.12s., SSS = +25m.11s.
Osaka i = +10m.21s., +12m.45s., and +22m.39s. = SS +7s.
Cape Town PP = +14m.24s., PPP = +16m.14s., PS = +21m.56s., SS? = +25m.50s., SSS = +28m.57s.
Ivigtut +14m.12s. = PP −12s., eE = +21m.36s., eN = +21m.47s. = PS −1s., eE = +22m.29s., SS = +25m.42s., e = +30m.12s.
Perth S = (+11m.36s.), SS = (+15m.51s.), SSS = (+18m.11s.), SSSS = (+18m.51s.); all readings have been *increased* by 2m.
Sitka ePP = +16m.56s., iSKS = +23m.46s., ePS = +25m.26s., e = +37m.36s.
Ottawa e = +17m.24s. = PP −2s., +24m.56s. = S −11s., and +26m.4s. = −7s., eN = +30m.48s.
Oak Ridge ePP = +17m.33s., eSKSNW = +24m.7s., iSKKS = +24m.33s., iPS = +26m.17s.
Ithaca i = +27m.56s.
Fordham iPKP = +17m.23s., iPS = +26m.37s.
Toronto iPP = +17m.52s., iSKS = +24m.13s., iPSN = +26m.58s., iPPS = +27m.43s., iSSN = +32m.18s.; T_0 = 22h.10m.26s.
Melbourne e = +18m.1s., i = +28m.28s., +34m.58s., e = +38m.40s.
Ann Arbor e = +28m.6s.
Riverview eEN = +18m.18s. = PP +6s.
Victoria PE = +14m.23s.; T_0 = 22h.12m.42s.
Charlottesville e = +26m.36s., ePS = +27m.36s.
Chicago ePS = +27m.4s., eSS = +36m.36s.
Bozeman ePS = +27m.46s., eSS = +33m.36s.; T_0 = 22h.10m.22s.
Florissant iPP = +18m.52s., iPPP = +21m.10s., iSKKS = +25m.48s., iS = +26m.26s., iPS = +28m.23s., iPPS = +29m.22s.
San Juan e = +15m.6s., ePP = +19m.7s., SKS = +25m.9s., iPS = +28m.45s., e = +32m.56s., SS = +35m.16s.
Ukiah eSKS = +25m.18s., ePS = +28m.56s., eSS = +35m.36s.
Berkeley eN = +19m.33s. = PP +4s., eE = +19m.51s., iEN = +26m.29s. = SKKS −9s., eZ = +28m.49s.
Tinemaha iPPZ = +19m.37s., ePSEN = +29m.12s., ePKKPZ = +29m.14s.
Mount Wilson iPKKPZ = +29m.4s.
Pasadena iPPZ = +20m.0s., iPKKPZ = +29m.5s., iPSZ = +29m.36s.
Tucson ePP = +20m.9s., e = +25m.26s., eSKS = +25m.40s., PS = +29m.45s., e = +31m.28s. and +32m.4s., eSS = +35m.50s., e = +38m.44s.
La Paz iPPZ = +22m.2s., iZ = +22m.44s. = PKS −3s., iN = +22m.50s., iSKKS = +28m.34s., SSN = +39m.16s., iSSS = +44m.54s., L_qN = +65m.6s.
Huancayo i = +23m.4s. = PKS +1s. and +23m.26s., e = +39m.6s., +40m.43s., and +45m.56s.
Long waves were also recorded at Arapuni and Wellington.

June 13d. Readings also at 1h. (near Mizusawa), 2h. (Kobe, near Sumoto (2), Osaka, and Nagoya), 3h. (Samarkand, near Andijan, Grozny, and near Batavia), 5h. (Tchimkent, Samarkand, and near Andijan), 7h. (Nagoya), 9h. (near Santiago), 10h. (near Prato), 16h. (Florence and near Prato), 17h. (Melbourne and Riverview), 18h. (Stuttgart), 21h. (Casamicciola, Hong Kong, and Phu-Lien), 22h. (Andijan).

June 14d. 0h. Formosa.

Taito eP = 0h.50m.48s., S = 50m.56s.
Arisan iP = 0h.51m.0s., S = 51m.10s.
Karenko eP = 0h.51m.6s., S = 51m.25s.
Tainan eP = 0h.51m.11s., eS = 51m.34s.
Taihoku P = 0h.51m.21s., S = 51m.46s.
Takao eP = 0h.51m.37s., S = 51m.49s.

June 14d. 19h. 8m. 46s. Epicentre 2°·4N. 121°·0E. (as on 1932 Dec. 4d.). X.

A = −·515, B = +·856, C = +·042; D = +·857, E = +·515: G = −·022, H = +·036, K = −·999.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Amboina	9·4	130	2 0	−13	3 30	−29	—	—
Manila	12·2	0	2 57	+ 6	5 34	?	—	—
Batavia	16·6	239	e 3 53	+ 4	7 14	?	—	—
Hong Kong	21·0	342	4 44	+ 4	8 45	SS	—	—
Medan	22·3	274	i 4 53	− 1	9 19	SS	—	—
Phu-Lien	23·2	324	—	—	8 14?	−54	—	—
Vladivostok	41·8	12	e 7 54	+ 7	—	—	—	—
Tashkent	60·5	318	e 10 4	− 4	e 18 28	+ 5	e 29 2	42·6
Sverdlovsk	72·2	330	i 11 18	− 6	i 20 59	+12	34·2	—
Baku	74·2	312	—	—	e 27 39	?	36·2	—
Pulkovo	88·3	330	—	—	e 23 27	[+ 5]	42·2	—
Ukiah	108·1	47	e 19 56	?	—	—	—	—
Berkeley	109·2	48	e 18 12	[− 3]	—	—	—	—
Branner	109·4	48	e 18 7	[− 9]	—	—	—	—
Lick	109·8	48	e 18 2	[−15]	—	—	—	—
Tucson	119·9	50	e 22 18	PPP	—	—	—	—

Additional readings:—
Medan iN = +5m.35s.
Vladivostok e = +8m.16s.
Berkeley iZ = +18m.23s. and +18m.26s., iE = +18m.43s. =PP−8s., iZ = +18m.54s., iN = +19m.6s.
Branner iN = +18m.24s., iEN = +18m.31s., iE = +18m.36s., iN = +18m.39s., iEN = +18m.44s., iE = +18m.47s., iEN = +18m.49s.
Lick iN = +18m.15s., iEN = +18m.22s. and +18m.28s., iN = +18m.36s., iE = +18m.39s.
Long waves were also recorded at Riverview, Wellington, Copenhagen, Kucino, and De Bilt.

June 14d. Readings also at 7h. (Upsala), 8h. (near Nagasaki), 10h. (near Hukuoka B.), 11h. (near Tiflis), 12h. (Hastings and Samarkand), 13h. (Zagreb), 14h. (Branner and Lick), 15h. (Branner and Lick), 16h. (Oak Ridge (2)), 17h. (Toledo and near Tyosi), 19h. (Nagoya, near Mizusawa, near Tyosi, near Tiflis, near Batavia, Malabar, and Soengei Langka), 21h. (Adelaide, Christchurch, Haiwee, La Jolla, Mount Wilson, Pasadena, Riverside. Tinemaha, Tucson, and Triest), 22h. (Bozeman, Columbia, Scoresby Sund, Kew, De Bilt, Sverdlovsk, Tashkent, and Kodaikanal), 23h. (Branner and Lick).

June 15d. 2h. 52m. 3s. Epicentre 6°·4S. 148°·0E. N.3.

A = −·843, B = +·527, C = −·111; D = +·530, E = +·848; G = +·095, H = −·059, K = −·994.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Palau	19·2	315	4 22	+ 1	—	—	—	—
Amboina	19·9	277	4 28	− 1	8 4	0	—	—
Riverview	27·5	174	e 5 49	+ 6	e 10 45	+21	e 15·5	19·2
Adelaide	29·8	196	e 6 1	− 2	i 11 8	+ 7	e 15·3	20·5
Melbourne	31·5	184	e 8 19	?	i 11 32	+ 4	14·3	21·6
Manila	34·0	308	6 59a	+19	11 46	−20	15·4	—
Perth	39·3	225	—	—	i 13 32	+ 6	—	21·9
Nagoya	42·8	346	e 7 58	+ 3	—	—	—	—
Oiwake	43·6	350	8 1	− 1	14 22	− 8	—	—
Hong Kong	43·8	312	8 9	+ 6	14 40	+ 7	—	—
Nagano	44·0	350	8 4	− 1	14 31	− 5	—	—
Hukusima	44·7	352	8 10	0	—	—	—	—
Mizusawa	45·9	353	(e 8 52)	+32	e 8 52	P	—	—
Vladivostok	51·6	345	e 9 7	+ 4	e 16 23	0	—	—
Chiufeng	54·9	331	e 9 30	+ 2	e 17 2	− 6	e 22·6	31·3

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Irkutsk		69·4	333	e 10 57?	−10	—	—	34·0	38·8
Tashkent		85·8	312	e 12 39	+ 2	e 22 57	[− 8]	36·0	49·0
Sverdlovsk		93·9	327	e 17 1	PP	e 24 11	{+ 5}	39·0	50·4
Pasadena	z.	96·8	56	e 13 28	− 1	—	—	—	—
Mount Wilson	z.	96·8	56	i 13 30	+ 1	—	—	—	—
Baku		100·2	310	—	—	e 26 57	PS	45·0	—
Tiflis		104·1	311	—	—	e 29 12	?	e 52·9	60·4
Pulkovo		109·2	331	e 18 53	PP	e 28 21	PS	50·0	60·2
Scoresby Sund		115·6	356	—	—	31 57?	?	50·0	—
Copenhagen		119·4	333	20 21	PP	29 57	PS	56·0	—
Triest		124·4	323	e 17 27	?	e 31 37	PS	e 56·9	62·6
De Bilt		125·1	333	e 20 57	PP	e 32 21	?	e 58·9	—
Stuttgart		125·2	327	e 20 57?	PP	e 31 57?	?	e 58·9	—
Strasbourg		126·1	328	e 20 57?	PP	e 31 57?	?	e 54·0	—
Paris		128·5	331	—	—	e 23 57?	PPP	69·0	76·0

Additional readings :—
Adelaide i = +13m.28s. and +14m.31s.
Hong Kong PP = +10m.2s., SS = +18m.5s. = S_cS +0s.
Tashkent e = +16m.6s. and +24m.15s. = PS +14s.
Sverdlovsk e = +25m.35s.
Baku e = +35m.29s.
Long waves were also recorded at Helsingfors, Kew, Uccle, and Kucino.

June 15d. 5h. 31m. 42s. Epicentre 36°·2N. 139°·6E. (as on 1932 Nov. 23d.). R.3.

Near the position 36°·3N. 139°·8E. given by the Japanese stations.

A = −·615, B = +·523, C = +·591.

		Δ	Az.	P.	O−C.	S.	O−C.	M.
		°	°	m. s.	s.	m. s.	s.	m.
Tokyo		0·6	166	0 7a	− 2	0 16	+ 1	0·3
Tyosi		1·1	115	i 0 12	− 4	0 24	− 4	0·8
Susaki		1·6	206	0 21	− 2	0 39	− 2	—
Nagoya		2·4	244	0 36	+ 2	1 14	S_g	1·4
Mizusawa		3·1	23	e 0 46	+ 2	i 1 20	0	—
Osaka		3·7	245	0 54	+ 1	1 53	S_g	2·0
Toyooka		3·9	261	0 58	+ 2	3 5	?	3·2
Kobe		4·0	249	e 1 4	P*	2 1	S_g	2·1
	z.	4·0	249	e 0 56	− 1	1 57	S*	—
Sumoto		4·3	246	e 1 8	P*	2 7	S*	2·3

Additional readings :—
Nagoya P_g = +45s.
Osaka i = +1m.9s. = P_g +1s., and +1m.19s.
Toyooka PE = +1m.0s. = P* −4s., PZ = +1m.3s.
Kobe iN = +1m.13s. = P_g −1s.
Long waves were also recorded at Koti.

June 15d. 6h. 34m. 32s. Epicentre 61°·4N. 59°·1W. N.2.

A = +·246, B = −·411, C = +·878 ; D = −·858, E = −·514 ;
G = +·451, H = −·753, K = −·479.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Ivigtut	5·2	87	i 1 13	− 1	i 2 7	− 6	2·5	—
Scoresby Sund	17·3	43	3 58	0	7 34	+25	9·5	—
Ottawa	18·7	219	e 4 10	− 5	e 7 40	0	e 8·5	—
Oak Ridge	20·3	207	e 4 35	+ 2	e 8 18	+ 6	e 12·0	—
Fordham	22·4	210	e 4 53	− 2	e 8 59	+ 6	10·5	13·5

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Georgetown		25·1	215	e 5 24	+ 3	e 9 49	+ 6	e 11·8	—
Columbia		30·8	217	—	—	e 15 34	?	e 17·4	—
De Bilt		34·8	76	—	—	e 12 28?	+10	e 16·5	—
Copenhagen		35·9	66	—	—	12 28?	− 7	19·5	—
Strasbourg		38·4	78	e 6 28?	−50	(e 13 28?)	+16	e 13·5	—
Stuttgart		39·1	77	e 7 28?	+ 4	—	—	e 19·5	—
Pulkovo		40·4	52	e 7 39	+ 4	e 13 53	+11	22·5	24·8
Triest		43·4	77	e 7 56	− 4	—	—	—	—
Tinemaha	z.	43·5	264	i 8 1	0	—	—	—	—
Haiwee		44·1	263	i 8 7	+ 1	—	—	—	—
Riverside	z.	45·6	261	i 8 16	− 2	—	—	—	—
Mount Wilson	z.	45·8	262	i 8 18	− 1	—	—	—	—
Pasadena	z.	45·9	262	i 8 19	− 1	—	—	—	—

Additional readings :—
Ottawa eE = +7m.16s.
Strasbourg eEZ = +8m.28s. ?
Triest i = +8m.4s.
Tinemaha eZ = +9m.40s. =PP +4s.
Pasadena eZ = +10m.6s. =PP +6s.
Long waves were also recorded at Sverdlovsk and other American and European stations.

June 15d. 21h. 32m. 43s. Epicentre 27°·6N. 127°·9E. (as on 1931 Aug. 17d.). X.

A = −·544, B = +·699, C = +·463 ; D = +·789, E = +·614 ;
G = −·285, H = +·366, K = −·886.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Nagasaki		5·4	18	e 1 15	− 2	2 14	− 4	2·9	14·3
Hukuoka	E.	6·4	19	e 1 41	P*	3 0	S*	e 3·3	—
	N.	6·4	19	e 1 33	+ 2	e 3 10	S*	—	—
Husan		7·5	7	2 1	P*	3 42	S*	—	—
Taikyu		8·5	4	—	—	e 3 45	+ 9	—	—
Nanking		9·1	301	e 4 27	S*	—	—	—	—
Osaka		9·6	41	1 27	−49	3 27	−36	—	7·0
Zinsen		9·9	354	—	—	e 4 48	S*	—	—
Nagoya		10·8	44	e 2 33	+ 1	—	—	—	—
Manila		14·5	208	4 8	+46	6 46	+41	—	—
Chiufeng		15·8	325	e 3 39	0	—	—	e 8·7	11·6
Sverdlovsk		54·8	322	9 27	0	—	—	26·3	32·9

Long waves were also recorded at Koti, Vladivostok, Hong Kong, Phu-Lien, and other Russian and European stations.

June 15d. Readings also at 0h. (Tiflis), 3h. (near Arisan, Karenko, and Taihoku), 9h. (near Medan), 12h. (Samarkand), 13h. (Copenhagen, De Bilt, Paris, Strasbourg, and Stuttgart), 14h. and 16h. (Tiflis), 19h. (Haiwee, La Jolla, Pasadena, Riverside, Tinemaha, and Tucson), 23h. (Mount Wilson, Pasadena, Riverside, Tinemaha, Sverdlovsk, Vladivostok, Nanking, and near Karenko).

June 16d. Readings for which no determination is made :—
Triest i = 3h.50m.47s., e = 53m.36s.
Riverside iPZ = 3h.51m.29s.
Mount Wilson iPZ = 3h.51m.39s.
Pasadena iPZ = 3h.51m.39s., iZ = 52m.5s.
Tinemaha iPNEZ = 3h.51m.51s., eZ = 52m.34s.
Strasbourg e = 3h.56m.
Stuttgart e = 3h.56m.
Tiflis LN = 3h.57m.24s.
De Bilt e = 3h.58m.30s.
Copenhagen L = 3h.58m.

June 16d. 5h. 11m. 24s. Epicentre 49°·4N. 157°·7E. N.2.

A = −·602, B = +·247, C = +·759 ; D = +·379, E = +·925 ;
G = −·702, H = +·288, K = −·651.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Mizusawa		15·6	235	e 3 37	+ 1	e 5 59	−30	—	—
Vladivostok		18·8	260	4 24	+ 8	i 7 58	+16	10·6	—
Chiufeng		30·5	269	e 6 8	− 1	e 11 7	− 5	e 17·2	—
Irkutsk		33·1	296	e 6 30	− 3	—	—	17·6	21·5
Nanking		33·7	254	—	—	i 11 52	− 9	e 19·9	—
Sverdlovsk		53·7	318	9 14	− 5	16 47	− 5	25·6	—
Andijan		57·6	296	e 8 53	−54	e 16 50	−54	—	—
Tchimkent		58·2	299	9 54	+ 2	e 17 57	+ 5	—	—
Tashkent		59·0	298	e 9 56	− 1	i 18 2	− 1	e 29·6	36·8
Tinemaha	z.	59·2	68	e 10 0	+ 1	—	—	—	—
Scoresby Sund		60·1	0	10 9	+ 4	18 24	+ 7	30·6	—
Mount Wilson	z.	61·3	70	i 10 14	0	—	—	—	—
Pasadena	z.	61·3	70	i 10 13	− 1	—	—	—	—
Riverside	z.	61·8	70	i 10 11	− 6	—	—	—	—
Pulkovo		62·8	333	e 10 21	− 3	—	—	34·7	39·7
Baku		70·1	310	11 13	+ 2	20 32	+10	35·1	43·4
Copenhagen		71·0	340	11 16	− 1	20 36	+ 3	36·6	—
De Bilt		75·9	343	11 44	− 1	21 32	+ 2	e 37·6	—
Uccle		77·2	344	e 11 53	0	e 21 48	+ 3	e 38·6	—
Stuttgart		78·3	340	—	—	e 21 36?	−21	e 41·6	—
Oak Ridge		78·5	35	i 11 58	− 2	—	—	—	—
Strasbourg		78·7	340	e 12 8	+ 7	e 21 36?	−26	e 39·6	—
Paris		79·5	344	e 13 6	+61	—	—	43·6	53·6
Prato		82·2	336	e 12 21	+ 2	12 28	?	—	—
Florence		82·3	339	e 11 47	−33	(12 21)	?	—	12·4

Additional readings :—
Irkutsk e = +7m.44s. = PPP − 2s., +11m.36s.?, and +14m.36s.?
Oak Ridge i = +12m.19s.
Strasbourg ePS?Z = +22m.36s.
Long waves were also recorded at Helsingfors and Kew.

June 16d. Readings for which no determination is made :—

Chiufeng eP = 18h.41m.46s., eN = 46m.32s., eE = 46m.41s., eLN = 50m.47s.
Sverdlovsk eP = 18h.45m.16s., L = 19h.2m.
Vladivostok L = 18h.46m.
Tiflis eP = 18h.46m.39s., eL = 47m.18s.
Stuttgart eZ = 18h.48m., eL = 19h.30m.
Tashkent e = 18h.51m.0s. and 54m.0s., eL = 19h.6m., M = 10m.24s.
Hong Kong M = 18h.56m.15s.
Baku e = 18h.56m.28s., L = 19h.12m., M = 17m.24s.
La Jolla ePZ = 19h.5m.58s.
Riverside iPNEZ = 19h.6m.11s.
Mount Wilson ePNEZ = 19h.6m.17s.
Pasadena iPNEZ = 19h.6m.17s., eLZ = 12m.
Santa Barbara ePZ = 19h.6m.29s.
Haiwee iPNE = 19h.6m.38s.
Tinemaha ePNZ = 19h.6m.47s.
Pulkovo eL = 19h.14m.
Copenhagen L = 19h.18m.
Strasbourg eLN = 19h.21m.
De Bilt eL = 19h.23m.
Honolulu eL = 19h.23m.0s.
Uccle eL = 19h.24m.
Paris 19h.30m.
Scoresby Sund L = 19h.36m.

June 16d. Readings also at 0h. (Tashkent, near Batavia, and Malabar), 1h. (near Nagoya), 2h. (Montezuma and near Karenko), 3h. (Nanking, La Paz, and near Sucre), 9h. (Strasbourg), 10h. and 11h. (Edinburgh), 13h. (Andijan), 16h. (Sverdlovsk, Tashkent, Medan, Phu-Lien, Hong Kong, Chiufeng, Nanking, Vladivostok, and Irkutsk), 17h. (near Batavia), 18h. (Triest, Andijan, and near Manila), 19h. (Tucson, Sverdlovsk, and Sumoto), 20h. (Agra, Bombay, Calcutta, Sverdlovsk, Tashkent (2), and Tiflis), 22h. (near Tiflis), 23h. (near Berkeley, Branner, Lick, and San Francisco).

June 17d. 14h. Undetermined shock recorded in Europe and California.
Pasadena ePENZ = 14h.15m.34s., eLZ = 37m.6s.
La Jolla iPZ = 14h.15m.36s.
Mount Wilson iPZ = 14h.15m.37s.
Riverside ePZ = 14h.15m.38s.
Haiwee iPN = 14h.15m.44s.
Tinemaha iPENZ = 14h.15m.46s.
Strasbourg ePZ = 14h.23m.54s., eLNZ = 15h.12m.
Stuttgart e = 14h.23m.54s. and 37m.36s., eL = 15h.13m.
De Bilt eZ = 14h.24m.0s., eL = 15h.10m.
Uccle eP = 14h.24m.0s., eL = 15h.11m.
Paris eP = 14h.24m.5s., L = 15h.20m.
Sverdlovsk e = 14h.24m.33s., 30m.1s. and 41m.13s., eL = 58m.
Pulkovo e = 14h.25m.50s., 26m.50s., and 28m., L = 15h.11m., M = 14m.36s.
Copenhagen 14h.27m.18s., L = 15h.12m.
Tashkent e = 14h.28m.59s. and 32m.17s., eL = 15h.4m.30s., M = 9m.6s.
Kew eEN = 15h.7m.27s., eL = 17m.
Long waves were also recorded at Irkutsk, Baku, Triest, Edinburgh, and Scoresby Sund.

June 17d. 17h. 7m. 2s. Epicentre 46°·8N. 10°·8E. N.3.

A = +·672, B = +·128, C = +·729; D = +·187, E = −·982;
G = +·716, H = +·137, K = −·685.

	Δ	Az.	P.	O−C.	S.	O−C.	M.
	°	°	m. s.	s.	m. s.	s.	m.
Chur	0·9	273	e 0 12	− 1	e 0 24	+ 1	—
Ravensburg	1·3	321	e 0 16	− 2	i 0 30	− 3	—
Zurich	1·6	290	e 0 24	+ 1	e 0 42	+ 1	—
Ebingen	1·8	318	e 0 26	0	i 0 46	0	—
Stuttgart	2·2	331	e 0 32	+ 1	i 0 55	− 2	—
Basle	2·3	289	e 0 35	+ 2	e 1 3	+ 4	—
Triest	2·4	119	e 1 22	S_g	i 1 31	?	—
Strasbourg	2·7	311	e 0 44	P*	e 1 11	+ 2	—
Jena	4·1	7	e 1 28	P_g	—	—	2·0
Göttingen	4·7	354	e 1 21	P*	e 2 16	S*	—

Additional readings:—
Ravensburg eP_g = +18s., e = +25s.
Ebingen e = +44s.
Stuttgart e = +52s., +1m.2s. = S* − 2s., and +1m.13s. = S_g + 6s.
Long waves were recorded at Granada.

June 17d. Readings also at 1h. (near Manila), 3h. (near Mizusawa and Tyosi), 5h. (Wellington, San Juan, Tucson, Oak Ridge, Mineo, Catania, Messina, and Scoresby Sund), 9h. (Kobe), 10h. (Tchimkent and Frunse), 11h. (Ksara (2), Tiflis, and near Sumoto), 13h. (Wellington), 14h. (Wellington, Suva, and near Apia), 18h. (Haiwee, Mount Wilson, Pasadena, Riverside, Santa Barbara, Tinemaha, Sverdlovsk, Sebastopol, Simferopol, Theodosia, and Yalta), 20h. (near Apia), 22h. (Florence and Prato).

June 18d. 3h 26m. 42s. Epicentre 36°·8N. 69°·5E. (as on 1933 June 23d.). R.3.

A +·280, B = +·750, C = +·599; D = +·937, E = −·350;
G = +·210, H = +·561, K = −·801.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Samarkand	3·5	327	0 59	P*	(e 1 49)	S_g	e 1·8	1·9
Tashkent	4·5	358	i 1 5	+ 1	(i 2 2)	+ 7	i 2·0	2·2
Andijan	4·6	39	e 1 8	+ 2	(1 58)	0	2·0	—
Tchimkent	5·5	5	e 1 18	0	(e 2 24)	+ 4	e 2·4	—
Frunse	7·1	31	e 1 40	− 1	i 2 57	− 4	—	3·7
Grozny	19·3	297	e 4 16	− 6	e 7 46	− 6	—	—
Sverdlovsk	20·9	346	e 4 20	−19	i 8 7	−17	e 12·0	—

June 18d. 9h. 13m. 50s. Epicentre 60°·9N. 151°·3W. N.1.

A = −·427, B = −·234, C = +·874; D = −·480, E = +·877;
G = −·766, H = −·420, K = −·486.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Sitka		9·0	109	i 2 7	0	i 3 40	− 9	i 5·2	—
Victoria		20·2	116	4 30	− 2	(8 14)	+ 4	8·2	8·4
Seattle		21·2	116	e 4 50	+ 8	8 44	+14	—	—
Saskatoon		25·5	90	e 5 24	− 1	e 9 52	+ 2	—	—
Bozeman		27·8	105	e 5 44	− 1	e 10 26	− 2	e 14·5	—
Ukiah		27·8	129	e 5 44	− 1	e 10 30	+ 2	e 12·8	—
Berkeley		29·2	128	i 5 58	0	i 10 48	− 3	—	—
Branner		29·6	129	e 5 57	− 4	—	—	—	—
Tinemaha		31·5	123	i 6 9k	− 9	—	—	—	—
Haiwee		32·4	123	i 6 27k	+ 1	—	—	—	—
Santa Barbara		33·2	127	i 6 36k	+ 2	—	—	—	—
Mount Wilson		34·1	126	i 6 40k	− 1	—	—	—	—
Pasadena		34·1	126	i 6 40k	− 1	e 12 5	− 3	e 16·4	—
Riverside	Z.	34·6	125	i 6 44k	− 2	—	—	—	—
La Jolla		35·5	126	i 6 54k	+ 1	—	—	—	—
Tucson		38·7	118	i 7 21	0	e 13 18	+ 1	e 19·1	—
Honolulu		39·8	189	i 7 39	+ 9	e 13 20	−13	e 17·8	—
Chicago		41·9	87	e 7 22	−26	e 13 27	−38	i 21·4	—
Sapporo		42·8	278	7 56	+ 1	14 20	+ 2	—	—
Florissant		42·9	92	i 7 54	− 2	i 14 15	− 4	e 20·2	—
St. Louis		43·2	92	i 7 55	− 3	i 14 16	− 8	—	—
Ann Arbor		43·5	83	e 8 4	+ 3	e 14 28	0	e 22·2	—
Scoresby Sund		43·9	22	8 6	+ 2	i 14 37	+ 3	22·2	—
Mizusawa		44·4	274	8 19	+11	e 9 0	?	—	—
Ivigtut		44·6	42	8 10	0	14 43	− 1	—	—
Toronto	N.	44·6	78	e 8 4	− 6	i 14 33	−11	21·4	—
Ottawa		44·9	74	e 8 12	0	i 14 47	− 2	e 21·2	—
Sendai		46·7	273	8 25	− 1	15 10	− 4	—	—
Ithaca		46·8	77	—	—	e 15 22	+ 6	e 23·7	—
Vladivostok		47·3	284	8 32	+ 1	e 15 20	− 3	19·2	28·3
Oak Ridge		49·1	73	i 8 44	0	e 15 47	− 1	e 25·2	—
Charlottesville		49·3	82	—	—	e 19 10	SS	e 24·9	—
Fordham		49·3	76	i 8 49	+ 3	i 15 51	0	23·2	27·2
Georgetown		49·3	80	i 8 45	− 1	15 43	− 8	—	—
Oiwake		49·3	274	8 49	+ 3	15 51	0	—	—
Tokyo		49·4	272	8 47	0	15 50	− 2	—	—
Kohu		49·9	273	8 49	− 2	16 58	+59	—	—
Hamamatu		51·1	273	9 1	+ 1	16 16	0	—	—
Nagoya		51·1	275	(8 56)	− 4	8 56	P	—	—
Columbia		51·3	88	e 9 3	+ 2	e 16 15	− 4	e 26·4	—
Irkutsk		51·9	311	9 7	+ 1	16 25	− 2	26·2	28·0
Keizyo		53·9	284	e 9 21	0	16 55	+ 1	—	—
Zinsen		54·2	285	e 9 53	+30	e 16 58	0	—	—
Nagasaki		56·5	279	9 38	− 1	17 29	− 1	—	—
Chiufeng		56·9	295	i 9 43a	+ 1	17 32	− 3	e 24·5	33·0
Bergen		57·3	14	e 9 45	0	e 18 13	+33	—	—
Helsingfors		58·9	3	e 10 17	+20	e 18 5	+ 4	e 24·2	—
Upsala		59·0	8	10 16	+19	i 18 32	+29	—	—
Pulkovo		59·3	359	i 10 0	0	18 5	− 2	31·2	32·5
Sverdlovsk		59·6	341	i 9 58	− 4	i 18 7	− 4	36·8	37·1
Edinburgh		60·5	21	—	—	i 18 22	− 1	e 29·2	—
Durham		61·9	20	10 38	+20	18 38	− 3	—	—
Nanking		62·3	287	e 9 29	−51	i 18 41	− 5	e 29·3	36·8
Copenhagen		62·7	11	10 20	− 3	18 51	0	34·2	—
Bidston		62·9	22	i 10 48	+23	i 18 55	+ 1	e 30·2	—

Continued on next page.

	Δ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
Kucino	63·2	355	10 45	+18	—	—	28·1	43·5
Königsberg	64·1	6	i 11 11	(+ 2)	e 16 50	?	—	—
Hamburg	64·6	13	i 10 55k	+19	i 19 47	+32	—	—
Oxford	64·8	21	10 56	+19	i 19 18	+ 1	—	—
Kew	65·3	20	i 11 0	+19	i 19 23	− 1	e 31·2	35·3
De Bilt	65·5	16	e 10 41	− 1	19 27	+ 1	e 33·2	35·6
Uccle	66·6	18	e 10 49	0	i 19 40	0	32·2	—
Paris	68·3	19	e 10 58	− 2	19 58	− 3	30·2	42·2
Prague	68·4	10	e 11 12	+11	e 20 7	+ 5	—	—
Almata	68·7	325	e 11 22	+19	e 20 6	+ 1	—	—
Karlsruhe	68·9	15	i 11 25	+21	20 13	+ 5	—	—
Strasbourg	69·2	15	e 11 4	− 2	20 11	0	e 34·2	—
Stuttgart	69·3	14	e 11 5	− 1	e 20 10	− 3	e 36·2	—
Frunse	69·7	326	e 11 8	− 1	e 20 12	− 6	e 58·7	—
Basle	70·2	16	e 11 11	− 1	e 20 58	S_cS	—	—
Vienna	70·4	10	e 11 31	+18	i 20 25	− 1	—	—
Zurich	70·5	15	e 11 13	− 1	e 20 59	S_cS	—	—
Neuchatel	70·7	16	e 11 14	− 1	—	—	—	—
Chur	71·1	15	e 11 18	+ 1	e 20 33	− 1	—	—
Budapest	71·4	7	11 30	+11	(20 10?)	−28	20·2	21·2
Tchimkent	71·6	330	11 16	− 4	e 20 34	− 6	—	—
San Juan	71·6	85	e 11 12	− 8	e 20 25	−15	e 36·0	—
Tashkent	72·6	330	e 11 24	− 2	i 20 45	− 7	e 35·2	45·2
Hong Kong	72·8	285	11 43	+15	20 45	− 9	—	39·7
Padova	72·8	12	11 48	+20	21 27	PS	—	—
Zagreb	72·8	10	e 11 26	− 2	e 20 50	− 4	—	—
Triest	72·8	11	11 45	+17	i 20 48	− 6	—	—
Piacenza	72·9	15	11 50	+22	20 56	0	—	47·8
Venice	72·9	13	11 46	+18	20 57	+ 1	—	—
Simferopol	74·1	357	e 11 39	+ 4	21 6	− 4	—	—
Prato	74·3	13	e 11 40	+ 4	i 21 8	− 4	—	—
Piatigorsk	74·4	349	e 11 26	−11	20 58	−15	—	—
Sebastopol	74·4	357	e 11 41	+ 4	21 9	− 4	—	—
Yalta	74·5	356	e 11 41	+ 4	21 10	− 4	—	—
Samarkand	74·7	331	e 11 46	+ 7	21 22	+ 5	—	—
Grozny	74·9	348	e 11 42	+ 2	i 21 6	−13	—	—
Barcelona	75·4	21	—	—	21 55	PS	—	—
Toledo	75·8	26	i 12 2	+17	e 21 24	− 6	—	—
Manila	76·2	275	11 44	− 3	21 27	− 7	—	—
Tiflis	76·6	349	e 11 47	− 2	i 21 31	− 7	—	—
Baku	77·3	344	e 12 10	+16	i 21 43	− 3	38·2	48·3
Alicante	78·0	24	e 12 18	+21	e 21 56	+ 2	—	—
Erevan	78·1	349	e 11 58	0	—	—	—	—
Granada	78·4	27	i 12 1	+ 2	e 21 56	− 2	38·9	—
San Fernando E.	78·6	29	—	—	21 56	− 4	—	—
Malaga	78·7	27	i 12 2	+ 1	21 56	− 6	—	—
Almeria	79·0	26	e 12 30	+27	e 21 58	− 7	—	—
Algiers	80·1	21	12 7	− 1	e 22 12	− 5	—	—
Agra	83·3	317	—	—	i 22 37	[− 9]	—	—
Ksara	85·2	355	e 12 41	+ 7	23 22	+12	—	—
Huancayo	93·9	108	—	—	e 23 39	[−16]	e 42·6	—
La Paz	101·1	104	e 16 22	?	i 24 18	[−13]	55·2	61·5

Additional readings :—
Sitka e = +4m.0s.
Bozeman e = +7m.46s., +12m.44s., and +13m.1s. ; T_o = 9h.13m.50s.
Ukiah eSS = +11m.45s.
Berkeley iPE = +6m.8s., iZ = +6m.14s.
Branner iN = +6m.11s., iE = +6m.23s., iEN = +6m.38s.
Tinemaha iPPZ = +7m.15s., iP_cPZ = +9m.0s., iP_cSZ = +12m.36s.
Haiwee iP_cPZ = +9m.12s.
Santa Barbara iP_cPZ = +9m.16s., iP_cSZ = +12m.53s.
Mount Wilson iP_cSZ = +12m.54s., iZ = +13m.30s.
Pasadena iPPZ = +7m.42s., iP_cPZ = +9m.17s., iZ = +9m.38s., iP_cSZ = +12m.54s., iZ = +13m.31s. ; T_o = 9h.13m.44s.

Continued on next page.

Riverside iP$_c$PZ = +9m.15s., iP$_c$SZ = +12m.55s.
La Jolla iPPZ = +8m.17s., iP$_c$PZ = +9m.44s., iP$_c$SZ = +13m.1s.
Tucson ePP = +9m.0s., e = +12m.56s., eSS = +16m.20s.
Honolulu eSS = +16m.10s.
Chicago ePPP = +9m.20s., iSS = +16m.44s.
Florissant ipP = +8m.12s., isS = +14m.46s., iSS = +17m.30s. ; T_0 = 9h.13m.59s.
St. Louis isSE = +14m.43s., iSSE = +17m.22s. T_0 = 9h.13m.59s.
Ann Arbor eSS = +17m.52s., eSSS = +19m.46s. ; T_0 = 9h.13m.30s.
Scoresby Sund i = +8m.25s., PPZ = +10m.2s., i = +15m.10s., iSS = +17m.59s., i = +18m.36s.
Ivigtut eEN = iZ = +8m.29s., e = +15m.16s. and +17m.55s., +18m.45s.
Toronto iN = +8m.21s., iPPP = +10m.3s., iSSS = +17m.57s. ; T_0 = 9h.13m.59s.
Ottawa PPP = +10m.10s., SS = +17m.58s. ; T_0 = 9h.13m.54s.
Ithaca e = +24m.40s.
Oak Ridge ipP = +8m.59s., isP = +9m.3s., i = +9m.5s. and +9m.50s., iPP = +10m.25s., iZ = +10m.52s., eNW = +10m.54s., iZ = +11m.0s., eZ = +14m.21s., iSNW = +15m.45s. ; T_0 = 9h.14m.0s.
Fordham i = +9m.7s., e = +10m.44s. = PP +11s., +18m.11s., and +19m.8s. = SS − 1s.
Columbia eSS = +20m.20s.
Chiufeng iN = +28m.26s.
Helsingfors PSEN = +18m.35s., eS$_c$SEN = +19m.39s., eSKSEN = +20m.17s., eSSE = +21m.40s. ; T_0 = 9h.14m.6s.
Upsala i = +20m.13s.
Sverdlovsk L_Q = +30·9m.
Edinburgh i = +18m.58s. and +22m.58s.
Durham S = +19m.15s.
Copenhagen e = +10m.38s., +19m.25s. and +20m.10s. = S$_c$S − 2s., eE = +20m.49s.
Bidston PP = +12m.57s., iPS = +19m.33s.
Kucino PP = +13m.44s., PS = +20m.5s. = S$_c$S − 10s.
Könisberg e?Z = +11m.29s. and +11m.48s., ePPPN = +12m.43s. = PP − 3s., iSSEN = +19m.23s. = PS + 5s., iSSSE = +20m.5s., eN = +20m.35s. and +21m.2s.
Oxford i = +19m.52s. = PS + 24s.
Kew iPS = +19m.57s.
De Bilt iZ = +11m.1s. = P$_c$P − 14s., ePPZ = +13m.18s., iE = +20m.0s., eSSE = +24m.10s.
Uccle i = +11m.8s. = P$_c$P − 11s., ePP = +13m.33s., iPSE = +20m.15s., SSE = +24m.29s.
Paris PKP = +11m.18s. = P$_c$P − 8s., PP = +13m.46s., PS = +20m.32s.
Prague ePP = +13m.50s., ePPP = +15m.10s.?, ePS = +20m.40s.
Strasbourg ipP = +11m.23s., ePPZ = +13m.58s., PS = +20m.45s., eSS = +24m.37s.
Stuttgart epPNZ = +11m.23s., ePP = +13m.38s., ePS = +20m.44s.
Vienna P$_c$P = +12m.6s., PS = +21m.3s., S$_c$S = +21m.43s.
San Juan ePP = +13m.58s., eSS = +25m.0s., eSSS = +28m.26s., e = +29m.34s.
Hong Kong ? = +21m.20s. = PS + 5s.
Zagreb e = +11m.46s.
Triest iPS = +21m.20s., i = +22m.0s.
Piatigorsk i = +11m.55s.
Manila iZ = +12m.3s., iE = +23m.8s., iN = +23m.26s.
Tiflis eN = +12m.5s., SKS = +22m.9s. = PS + 4s.
Erevan e = +12m.16s.
Granada P$_c$P = +12m.17s., PP = +15m.24s., S$_c$S = +22m.20s., PS = +22m.34s.
Malaga pP? = +12m.21s., e = +15m.25s. and +18m.28s., PS = +22m.25s., e = +25m.1s.
Ksara pP = +13m.1s., SKS = +22m.55s.
Huancayo ePS = +26m.0s.
La Paz PN = +17m.22s.
Long waves were also recorded at Dehra Dun, Bombay, and Phu-Lien.

June 18d. Readings also at 1h. (De Bilt, Strasbourg, Stuttgart, Triest, Ksara, Tiflis, and near Sumoto), 2h. (De Bilt, Sverdlovsk, Kucino, Tashkent, Mount Wilson, and Pasadena), 3h. (Paris, near Batavia, and Malabar), 6h. (near Nagoya and Tyosi), 7h. (Tyosi and near Nagoya), 9h. (Lick, Sverdlovsk, Nagoya, near Hukuoka B, and near Medan), 11h. (Agra, Calcutta, Paris, Strasbourg, Stuttgart, and La Paz), 12h. (La Paz), 13h. (Nanking), 19h. (Hamburg), 20h. (San Juan), 21h. (Scoresby Sund), 23h. (near Tananarive).

June 19d. 1h. 4m. 42s. Epicentre 37°·7N. 69°·8E. X.
(given by the stations of Central Asia and as on 1933 July 20d.).

A = +·273, B = +·742, C = +·612 ; D = +·938, E = −·345 ;
G = +·211, H = +·574, K = −·791.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Samarkand	2·9	312	e 0 43	+ 2	—	—	—	—
Andijan	3·6	33	e 1 5	P_g	—	—	1·9	2·1
Tashkent	3·6	354	i 1 6	P_g	—	—	i 2·0	2·4
Frunse	6·3	33	1 35	+ 5	e 2 51	+10	—	—
Almata	7·8	42	e 1 54	+ 3	(3 30)	+11	3·5	—
Sverdlovsk	20·1	346	e 4 23	− 8	e 8 15	+ 7	—	—

Sverdlovsk gives also e = +5m.25s.

June 19d. 2h. 47m. 19s. Epicentre 22°·5N. 121°·5E. N.2.
(given by the Formosa stations).

A = −·483, B = +·788, C = +·383 ; D = +·853, E = +·522 ;
G = −·200, H = +·326, K = −·924.

	Δ	Az.	P.	O−C.	S.	O−C.	L.
	°	°	m. s.	s.	m. s.	s.	m.
Taito	0·4	308	0 0	− 6	0 7	− 1	—
Kosyun	0·9	234	e 0 27	S	(e 0 27)	+ 4	—
Arisan	1·2	327	0 20	+ 3	0 39	+ 8	—
Takao	1·2	276	0 22	+ 5	0 38	+ 7	—
Tainan	1·3	293	e 0 17	− 1	0 35	+ 2	—
Karenko	1·5	4	e 0 24	+ 3	0 44	S*	—
Hokoto	2·1	300	e 0 25	− 5	0 43	P_g	—
Taihoku	2·6	0	0 43	P*	1 11	+ 4	—
Manila	7·9	183	2 53	P_g	5 43	?	—
Nanking	9·9	347	e 3 11	+52	i 4 57	S*	—
Sverdlovsk	55·5	325	9 28	− 4	—	—	26·7

Long waves were also recorded at Hong Kong, Irkutsk, Tashkent, Pulkovo, Copenhagen, Strasbourg, and Stuttgart.

June 19d. 3h. 50m. 5s. Epicentre 19°·0N. 149°·0E. (as on 1930 Oct. 29d.). R.2.

A = −·811, B = +·487, C = +·326 ; D = +·515, E = +·857 ;
G = −·279, H = +·168, K = −·946.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Yokohama	18·4	335	4 7	− 4	7 34	+ 1	—	—
Tokyo	18·6	336	4 7	− 7	7 34	− 4	—	—
Mito	18·9	338	4 19	+ 2	7 39	− 5	—	—
Kohu	19·0	333	4 21	+ 2	7 40	− 6	—	—
Nagoya	19·4	329	e 4 8	−15	—	—	—	—
Oiwake	19·6	334	4 23	− 2	7 53	− 5	—	—
Osaka	19·7	326	4 28	+ 2	7 58	− 2	—	—
Nagano	20·0	334	4 22	− 8	7 57	− 9	—	—
Hukusima	20·2	340	4 30	− 2	8 4	− 6	—	—
Mizusawa	21·2	343	(e 4 42)	0	e 4 42	P	—	—
Hamada	21·8	320	4 47	− 2	8 57	+15	—	—
Nagasaki	22·0	313	5 0	+ 9	e 9 1	+15	—	—
Akita	22·1	342	5 11	+19	—	—	—	—
Manila	27·2	265	5 36	− 4	10 1	−17	—	—
Vladivostok	28·0	333	6 13	+26	e 11 15	+43	12·4	—

Continued on next page,

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Nanking		30·1	302	e 6 17	+11	i 11 29	+23	—	—
Chiufeng		35·2	314	e 7 5	+14	12 49	+25	—	—
Irkutsk		48·0	324	e 8 54	+18	e 14 49	−44	19·9	—
Tchimkent		69·5	309	—	—	e 19 32	−43	—	—
Tashkent		70·1	308	e 11 40	+29	i 19 28	?	e 34·9	37·6
Sverdlovsk		73·3	325	e 14 30	PP	e 21 27	PS	35·9	—
Santa Barbara	z.	80·4	57	e 12 18	+ 8	—	—	—	—
Tinemaha		80·8	54	e 12 12	0	—	—	—	—
Haiwee	z.	81·3	54	i 12 13	− 2	—	—	—	—
Pasadena	z.	81·7	56	e 12 15	− 2	—	—	—	—
Mount Wilson	z.	81·8	56	e 12 15	− 2	—	—	—	—
Baku		85·2	311	—	—	e 20 9	?	e 41·9	—
Scoresby Sund		90·3	357	—	—	22 55?	?	—	—

Additional readings :—
Osaka i = +7m.7s., +18m.16s., and +19m.46s.
Manila iZ = +5m.42s., iN = +10m.49s.
Irkutsk e = +16m.6s.
Tashkent e = +20m.55s. and +28m.34s.
Sverdlovsk e = +20m.12s., +26m.11s., and +29m.49s.
Santa Barbara eZ = +12m.56s.
Tinemaha eZ = +12m.55s.
Haiwee iZ = +13m.1s.
Pasadena iZ = +13m.4s.
Mount Wilson iZ = +13m.1s.
Long waves were also recorded at Kucino, Hong Kong, Copenhagen, Strasbourg, and Stuttgart.

June 19d. 8h. 59m. 6s. Epicentre 42°·6N. 72°·7E. N.3.
(as given by the stations of Central Asia).

A = +·219, B = +·703, C = +·677 ; D = +·955, E = −·296 ;
G = +·201, H = +·646, K = −·736.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Frunse	1·4	79	—	—	e 1 11	?	1·8	—
Andijan	1·9	185	0 49	S	(0 49)	0	1·3	1·3
Tchimkent	2·3	263	0 35	+ 2	—	—	0·8	—
Tashkent	2·9	243	i 0 37	− 4	—	—	i 1·5	1·6
Almata	3·2	78	e 1 48	+62	e 2 43	?	2·9	3·0
Samarkand	5·2	237	e 1 14	0	(2 15)	+ 2	2·2	2·9
Sverdlovsk	16·2	336	e 4 4	+20	e 6 40	− 3	i 8·5	9·7
Grozny	19·7	281	—	—	e 7 52	− 8	—	—

Additional reading :—
Andijan P_g = +51s.
Tashkent i = +41s., e = +1m.1s.
Samarkand P_g = +1m.29s. = P* +3s.
Long waves were also recorded at Irkutsk.

June 19d. 15h. 47m. 10s. Epicentre 30°·3N. 139°·4E. (as on 1933 Sept. 2d.). R.2.

A = −·656, B = +·562, C = +·505 ; D = +·651, E = +·759 ;
G = −·383, H = +·328, K = −·863.

A *depth* of focus 0·070 has been assumed.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Susaki	+1·1	4·4	356	1 19	+ 1	2 21	+ 1	—	—
Nagoya	+0·7	5·3	338	i 1 26	+ 1	2 36	+ 3	—	2·6
Osaka	+0·6	5·5	325	1 26	− 1	2 30	− 6	—	3·4
Sumoto	+0·6	5·5	318	1 25	− 2	2 34	− 2	—	2·6
Tyosi	+0·6	5·6	12	i 1 31	+ 3	2 44	+ 6	—	2·8

Continued on next page.

	Corr. for Focus	Δ	Az.	P.	O–C.	S.	O–C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Kobe	+0·6	5·6	322	e 1 27	− 1	i 2 39	+ 1	—	3·8
Koti	+0·4	6·0	304	—	—	i 2 41	− 2	—	—
Toyooka	+0·3	6·4	325	1 35	0	2 53	+ 2	—	3·0
Mizusawa	−0·5	8·9	9	i 2 7	+ 8	i 3 49	+15	—	—
Taikyu	−1·0	10·6	305	i 2 16	0	i 4 8	+ 5	—	—
Vladivostok	−1·7	14·1	336	i 3 0	+ 6	i 5 36	+23	6·6	9·2
Nanking	−2·4	17·7	281	—	—	e 6 24	+ 2	—	—
Chiufeng	−3·1	21·3	304	e 4 4	− 5	i 7 22	− 7	—	—
Manila	−3·4	23·1	231	4 16	−10	6 35	?	—	—
Irkutsk	−4·5	33·8	321	e 5 55	− 4	i 10 44	− 9	13·3	—
Frunse	−6·4	52·2	303	—	—	e 15 14	+12	—	—
Andijan	−6·6	54·3	299	e 9 47	+73	15 36	+ 7	—	—
Tchimkent	−6·7	56·0	303	—	—	i 15 51	0	—	—
Tashkent	−6·8	56·4	302	—	—	e 16 4	+ 9	—	—
Sverdlovsk	−6·9	59·0	321	i 9 8	+ 1	i 16 35	+ 5	27·8	—
Baku	−7·7	70·6	306	—	—	e 19 0	+ 6	e 37·4	—
Grozny	−7·8	72·2	310	—	—	e 19 14	+ 2	—	—
Pulkovo	−7·9	72·9	330	—	—	i 19 21	+ 1	—	—
Tiflis	−7·9	73·5	309	—	—	e 19 25	− 2	—	—
Tinemaha	−8·2	80·9	53	e 11 27	0	—	—	—	—
Haiwee	−8·2	81·6	53	i 11 31	0	—	—	—	—
Pasadena	−8·3	82·6	54	i 11 35	− 1	—	—	—	—
Copenhagen	−8·3	82·9	333	—	—	21 8	− 7	48·8	—
Riverside	−8·3	83·2	54	i 11 38	− 2	—	—	—	—
La Jolla	−8·3	83·9	55	i 11 30	−14	—	—	—	—

Additional readings :—
Chiufeng eS? = +6m.10s.
Tashkent e = +17m.11s.
Tiflis eE = +22m.25s.
Tinemaha eZ = +13m.14s., eN = +30m.48s.
Long waves were also recorded at Stuttgart and Hong Kong.

June 19d. 18h. 43m. 5s. Epicentre 36°·5N. 31°·0E. (as on 1929 Aug. 4d.). R.3.

A = +·689, B = +·414, C = +·595 ; D = +·515, E = −·857 ; G = +·510, H = +·306, K = −·804.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Ksara	4·8	122	e 1 51	P_g	3 21	?	—	—
Helwan	6·7	177	e 2 27	P_g	3 55	S_g	—	4·6
Sebastopol	8·3	12	e 1 47	−11	—	—	—	—
Yalta	8·3	16	e 1 49	− 9	(3 30)	− 1	3·5	—
Simferopol	8·7	15	e 1 54	− 9	(3 39)	− 2	3·7	—
Erevan	11·2	67	e 2 53	+16	—	—	e 6·4	—
Belgrade	11·5	319	e 2 37	− 5	e 5 4	+14	—	5·7
Tiflis	11·9	60	3 1	+14	e 5 20	+20	i 6·8	7·7
Grozny	13·2	54	e 3 11	+ 6	e 7 33	?	—	—
Benevento	13·8	295	e 5 55	SS	7 15	S_g	—	7·9
Budapest	14·1	324	e 3 15	− 2	—	—	6·9	8·9
Zagreb	14·6	314	e 3 19	− 4	e 7 19	+74	—	8·8
Rome	15·3	296	i 3 38	+ 6	6 36	+14	—	—
Baku	15·3	69	e 3 49	+17	i 6 46	+24	8·4	10·2
Graz	15·6	317	i 3 28	− 8	e 7 15	+46	—	8·5
Triest	15·8	311	i 3 35a	− 4	i 6 38	+ 4	—	—
Vienna	15·9	322	e 3 39	− 1	7 48	+72	—	—
Siena	16·5	300	3 55	+ 7	5 55?	?	9·6	—
Venice	16·6	308	4 16	+27	i 8 46	?	11·2	11·6
Florence	16·7	302	e 2 55	−55	5 55	−60	—	8·4

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Prato		16·8	302	i 3 57	+ 5	i 7 5	+ 8	—	9·2
Padova		16·9	308	5 8	?	8 41	?	—	—
Prague		18·1	324	e 4 5	− 3	e 9 30	?	e 10·4	11·0
Piacenza		18·2	305	4 19	+10	7 41	+12	9·8	12·7
Chur		19·0	309	e 4 20	+ 1	e 7 50	+ 4	—	—
Cheb		19·1	321	e 7 26	S.	(e 7 26)	−22	(e 10·2)	11·9
Königsberg		19·7	342	e 4 5	−21	e 8 2	+ 2	—	12·3
Kucino		19·8	12	3 28	−59	6 54	−68	8·9	11·3
Zurich		19·8	310	e 4 29	+ 2	e 7 58	− 4	—	—
Stuttgart		20·0	314	i 4 31	+ 1	e 8 3	− 3	e 9·9	11·4
Basle		20·5	310	e 4 36	+ 1	—	—	e 10·8	—
Neuchatel		20·6	308	e 4 39	+ 3	—	—	e 10·4	—
Karlsruhe		20·6	314	4 38	+ 2	—	—	i 11·1	—
Strasbourg		20·8	313	i 4 38	0	i 8 17	− 5	e 9·9	11·0
Göttingen		21·1	322	e 4 42	+ 1	e 8 25	− 3	—	11·9
Hamburg		22·5	326	i 4 54	− 2	i 8 48	− 7	e 12·0	13·0
Copenhagen		23·0	332	5 0	− 1	8 49	−16	11·9	—
Pulkovo		23·3	359	4 58	− 6	8 51	−19	12·4	13·9
Uccle		23·8	315	5 11a	+ 3	9 15	− 4	10·9	12·8
De Bilt		24·0	319	e 5 13	+ 3	e 9 19	− 4	e 10·9	13·1
Helsingfors		24·0	353	e 5 9	− 1	e 9 9	−14	e 10·9	—
Paris		24·1	310	i 5 15	+ 4	i 9 25	0	11·9	12·9
Tortosa	N.	24·1	290	e 5 35	+24	—	—	—	—
Upsala		24·9	344	e 5 16	− 3	9 31	− 8	e 12·9	14·8
Alicante		25·0	284	e 5 34	+14	—	—	—	—
Kew		26·7	314	e 5 39	+ 4	i 10 14	+ 4	12·9	14·5
Oxford		27·4	314	e 5 41	− 1	e 10 22	0	—	—
Granada		27·5	282	4 51	−52	e 10 7	−17	13·6	17·6
Toledo		27·6	288	5 25	−19	11 40	SS	e 15·1	—
Sverdlovsk		28·3	35	i 5 53	+ 3	i 10 39	+ 2	19·1	19·1
Durham		28·8	320	e 10 51	S	(e 10 51)	+ 6	—	16·4
Bidston		29·0	316	e 5 49	− 7	e 10 44	− 4	13·9	—
San Fernando		29·7	281	—	—	11 30	+31	—	—
Tashkent		29·9	69	e 6 0	− 4	e 11 9	+ 6	e 17·9	22·3
Edinburgh		30·1	321	e 4 55?	?	e 10 17	−49	—	20·4
Tchimkent		30·1	67	(e 6 20)	+14	e 6 20	P	—	—
Andijan		32·3	70	(e 7 13)	+48	e 7 13	P	—	—
Scoresby Sund		43·7	338	8 7	+ 5	14 25	− 6	22·9	—

Additional readings and note :—
Ksara SS = +4m.0s.
Tiflis eN = +6m.13s., eEN = +6m.34s. = S_g +7s.
Zagreb e = +6m.44s., +7m.35s., and +8m.20s.
Triest i = +4m.2s., +8m.12s., +8m.25s., +8m.31s., SSS = +8m.41s., i = +9m.9s. and +9m.14s.
Vienna PPP = +4m.19s., SS = +8m.38s., eE = +9m.17s., eN(P_cS) = +10m.49s., S_cS = +14m.53s.
Venice P = +5m.33s.
Cheb gives S as P and L as S.
Tashkent e = +6m.18s., +9m.9s. = P_cP − 1s., and +14m.23s.
Long waves were also recorded at Irkutsk, Vladivostok, and Jena.

June 19d. Readings also at 0h. (Erevan, Sverdlovsk, and near Amboina), 2h. (near Santiago and near Sumoto), 3h. (Catania and Zagreb), 6h. (Haiwee, La Jolla, Mount Wilson, Pasadena, Riverside, Tinemaha, Oak Ridge, and near Santiago), 7h. (Scoresby Sund and Wellington), 8h. (near Nagasaki), 9h. (Triest), 10h. (Mizusawa, Nagoya, and Tyosi), 13h. (Cheb), 14h. (Simferopol, near Sebastopol, and Yalta), 15h. (Edinburgh and near Zagreb), 16h. (Tyosi), 20h. (near Tiflis), 23h. (Scoresby Sund and near Triest).

June 20d. 9h. 15m. 0s. Epicentre 4°·3S. 68°·8E. N.3.

$A = +\cdot361$, $B = +\cdot930$, $C = -\cdot075$; $D = +\cdot932$, $E = -\cdot362$; $G = -\cdot027$, $H = -\cdot070$, $K = -\cdot997$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Kodaikanal		16·9	31	3 47	− 6	i 6 7	−52	—	—
Bombay		23·4	10	5 7	+ 2	9 18	+ 6	11·4	—
Hyderabad		23·7	23	5 4	− 3	9 25	+ 7	11·5	17·2
Andijan		45·2	4	e 8 21	+ 7	—	—	—	—
Tashkent		45·5	1	i 8 13	− 4	e 14 59	+ 2	e 23·0	29·1
Tchimkent		46·6	1	e 8 24	− 1	—	—	—	—
Frunse		47·5	6	e 8 31	− 1	—	—	—	—
Baku		47·9	340	e 8 48	+13	e 15 49	+18	24·0	30·1
Almata		48·1	8	e 8 40	+ 3	—	—	—	—
Tiflis		50·9	337	8 54	− 4	—	—	—	—
Grozny		52·0	339	e 9 7	+ 1	—	—	—	—
Yalta		57·8	331	e 9 49	0	—	—	—	—
Simferopol		58·1	331	e 9 49	− 2	—	—	—	—
Sebastopol		58·2	331	e 9 46	− 6	—	—	—	—
Sverdlovsk		61·5	356	i 10 7	− 8	i 18 22	−14	29·0	—
Irkutsk		64·0	23	e 10 29	− 3	e 18 56	−11	33·0	37·4
Pulkovo		70·8	341	e 11 11	− 5	e 16 8	?	e 35·0	—
Tinemaha		146·7	10	e 19 40	[+ 3]	—	—	—	—
Haiwee	z.	147·6	10	i 19 43	[+ 5]	—	—	—	—
Santa Barbara	z.	148·9	13	i 19 47	[+ 7]	—	—	—	—
Mount Wilson	z.	149·5	11	i 19 47	[+ 6]	—	—	—	—
Pasadena		149·6	11	i 19 44	[+ 3]	—	—	—	—
Riverside	z.	149·8	10	e 19 46	[+ 5]	—	—	—	—
La Jolla	z.	151·0	10	e 19 49	[+ 6]	—	—	—	—

Additional readings :—
Bombay PP = +5m.34s., SS = +10m.15s.
Tashkent e = +9m.54s. = PP − 2s., +13m.0s., and +19m.0s.
Tiflis e = +11m.54s.
Long waves were also recorded at Vladivostok and Colombo.

June 20d. Readings also at 0h. (near Apia and near Medan), 2h. (near Tyosi, near Hastings, and Wellington), 9h. (Andijan, Tchimkent, Vladivostok, and Wellington), 11h. (La Paz, La Plata, and Sucre), 13h. (near Berkeley, Branner, Lick, and San Francisco), 14h. (La Paz, Paris, Strasbourg, Stuttgart, Sverdlovsk, Baku, and Tiflis), 17h. (near Tiflis), 18h. (Pasadena, Riverside, and Tinemaha), 21h. (Grozny and near Tiflis), 23h. (near Nagoya and Tyosi).

June 21d. 23h. 51m. 2s. Epicentre 34°·0N. 134°·8E. (as on 1933 Aug. 24d.). X.

$A = -\cdot584$, $B = +\cdot588$, $C = +\cdot559$.

	Δ	Az.	P.	O−C.	S.	O−C.	M.
	°	°	m. s.	s.	m. s.	s.	m.
Sumoto	0·4	11	0 4	− 2	0 11	+ 1	0·2
Kobe	0·7	25	0 11	+ 1	i 0 22	+ 4	0·4
Osaka	0·9	38	0 12	− 1	0 22	− 1	0·4
Nagoya	2·1	57	e 0 38	P_g	e 0 59	S*	—

June 21d. Readings also at 0h. (Almata, Andijan, Frunse, Tchimkent, and Mizusawa), 1h. (Mineo), 4h. (near Apia), 5h. (Hastings, Sotchi, near Grozny (2), Erevan (2), Baku, and Tiflis (4)), 6h. (Sverdlovsk, Tiflis (2), near Prato, and Triest), 8h. (Tiflis and near Apia), 9h. (Tchimkent), 10h. (Andijan), 12h. (near Suva), 13h. (Stuttgart), 14h. (near Nagoya), 15h. (near Apia), 18h. (Apia, Nagasaki, Nanking, Chiufeng, Husan, Keizyo, Vladivostok, and Irkutsk), 19h. (Sverdlovsk, Pulkovo, Kucino, Tashkent, Copenhagen, De Bilt, Strasbourg, Stuttgart, and Paris), 20h. (Dehra Dun), 21h. (Amboina, near Tiflis, and near Branner), 23h. (Sumoto).

June 22d. 17h. 55m. 34s. Epicentre 3°·0S. 151°·5E. (as on 1928 Oct. 15d.). X.

A = −·878, B = +·477, C = −·052; D = +·477, E = +·879;
G = +·046, H = −·025, K = −·999.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Amboina		23·3	268	4 54	−10	8 41	−29	—	—
Riverview		30·9	181	e 6 14	+ 1	e 12 8	+50	e 13·7	18·5
Sydney		30·9	181	e 5 26	−47	—	—	13·5	17·4
Adelaide		34·1	199	e 6 36	− 5	—	—	14·9	19·0
Manila		35·0	300	6 44a	− 5	i 12 16	− 5	—	—
Melbourne		35·3	189	—	—	i 12 21	− 5	17·4	21·2
Kobe	N.	40·7	340	e 8 59	PP	—	—	—	—
Nagasaki		41·2	332	e 6 24	?	—	—	—	—
Perth		44·3	225	e 17 26	SS	—	—	—	27·4
Hong Kong		44·4	307	10 30	?	14 39	− 2	—	21·9
Nanking		46·8	320	i 8 29	+ 2	i 15 20	+ 4	e 20·4	—
Vladivostok		49·3	340	8 48	+ 2	16 3	+12	22·4	—
Chiufeng		53·9	326	9 21	0	e 16 53	− 1	—	—
Irkutsk		68·1	330	e 10 59	0	e 20 3	+ 5	e 31·4	—
Frunse		82·5	313	12 51	+30	—	—	—	—
Andijan		83·7	311	12 47	+20	—	—	—	—
Tchimkent		86·1	313	12 47	+ 8	23 23	+ 5	—	—
Tashkent		86·2	313	i 12 41	+ 2	23 10	− 9	e 46·1	53·0
Tinemaha		91·9	54	e 13 20	+14	—	—	—	—
Pasadena		92·0	56	e 13 18	+11	—	—	—	—
Haiwee		92·2	55	i 13 21	+13	—	—	—	—
Riverside		92·6	57	i 13 16	+ 7	—	—	—	—
Sverdlovsk		92·9	327	i 13 15	+ 4	—	—	43·4	54·7
Baku		100·7	311	e 14 25	+38	e 26 29	+56	48·9	59·8
Tiflis		104·4	312	14 32	+28	e 24 48	[+ 1]	e 52·4	66·1
Kucino		105·5	327	—	—	e 28 26?	?	—	63·4
Pulkovo		107·8	334	e 18 48	[+37]	e 28 7	PS	58·4	63·6
Scoresby Sund		112·3	357	—	—	28 26?	PS	70·4	—
Stuttgart	Z	124·1	331	e 16 26	?	e 20 44	PP	—	—
Strasbourg		124·9	330	—	—	e 25 26?	[−39]	e 61·4	—

Additional readings:—
Manila iS = +14m.46s. = SSS + 3s.
Melbourne SS = +14m.59s. = SSSS + 1s.
Kobe eN = +9m.42s. = P_cP − 2s., eE = +9m.51s. and +10m.18s., eN = +10m.30s.
Sverdlovsk PP = +16m.50s., PPS = +26m.7s., SS = +30m.32s.
Baku PKP = +17m.55s. = PP + 7s., e = +31m.37s., +35m.37s., and +40m.45s.
Tiflis eE = +14m.49s., eEN = +18m.33s. = PP + 17s., eN = +27m.8s.
Kucino e = +33m.26s.? = SS + 9s.
Pulkovo e = +29m.10s., +35m.37s., and +39m.16s.
Long waves were also recorded at Wellington, Cape Town, Copenhagen, Kew, Paris, and Ivigtut.

June 22d. 18h. 33m. 52s. Epicentre 18°·3N. 105°·6W. N.2.

A = −·255, B = −·914, C = +·314; D = −·963, E = +·269;
G = −·084, H = −·302, K = −·949.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Tucson	14·7	342	i 3 29	+ 4	e 6 20	+12	e 7·4	—
La Jolla	17·9	327	i 4 7	+ 2	—	—	—	—
Pasadena	19·4	327	i 4 23	0	e 8 24	SS	e 9·4	—
Santa Barbara	20·5	325	i 4 35	0	—	—	—	—
Haiwee	20·9	331	i 4 40	+ 1	—	—	—	—
Tinemaha	21·8	332	e 4 50	+ 1	—	—	—	—
St. Louis	24·4	30	e 5 14	0	e 9 36	+ 6	—	13·0
Florissant	24·5	30	i 5 14	− 1	i 9 44	+12	—	—
Ukiah	25·9	327	—	—	e 7 22	?	e 13·8	—
Columbia	27·0	50	—	—	e 10 26	+11	e 17·6	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Chicago		28·1	29	e 9 31	?	e 10 46	+12	e 14·5	—
Ann Arbor		30·4	32	—	—	e 13 56	?	e 16·9	—
Georgetown		32·3	44	e 6 26	+ 1	e 11 28	−12	e 15·6	—
Toronto	N.	33·6	34	e 6 25?	−12	i 11 55	− 5	e 15·9	—
Fordham		35·4	42	e 7 5	+12	e 12 31	+ 4	15·1	20·1
Ottawa		36·7	35	8 26	PP	12 52	+ 5	e 17·1	—
San Juan		37·4	82	—	—	e 12 38	−19	e 17·3	—
Oak Ridge		37·7	42	i 7 12	0	e 13 5	+ 3	e 21·0	—
Huancayo		42·6	132	—	—	e 14 8	− 5	e 21·1	—
La Paz		50·7	130	e 8 56	− 1	—	—	26·6	29·9
Stuttgart		91·5	37	e 16 44	PP	—	—	e 28·1	—
Helsingfors		92·0	22	—	—	e 24 8?	− 7	e 45·1	—

Additional readings :—
Tucson e = +3m.51s.
St. Louis eSSE? = +10m.28s. ; T_0 = 18h.33m.48s.
Florissant ipP = +5m.23s., isS = +9m.58s.
Columbia e = +15m.38s.
Ann Arbor eN = +16m.14s., eE = +16m.32s.
Toronto SSN = +13m.41s. ; T_0 = 18h.33m.34s.
Ottawa eN = +12m.36s., SSE = +15m.20s.
San Juan eSS = +15m.13s.
Oak Ridge i = +7m.20s. and +7m.37s., ePP = +8m.37s.
Huancayo eSS = +17m.20s., eSSS = +18m.20s.
Helsingfors e?E = +31m.8s.?
Long waves were also recorded at Bozeman, Honolulu, Baku, Sverdlovsk, Tashkent, Copenhagen, De Bilt, and Triest.

June 22d. Readings also at 0h. (Malabar), 1h. (near Sumoto), 3h. (Huancayo and Tucson), 7h. (Graz), 10h. (near Grozny and Tiflis), 14h. (near Tyosi), 15h. (near Tiflis), 16h. (near Mizusawa), 17h. (near Sumoto), 19h. (Pasadena and Tinemaha), 22h. (Ukiah), 23h. (near Karenko).

June 23d. 5h. 19m. 58s. Epicentre 32°·3N. 93°·0E. (as on 1930 Sept. 24d.). R.2.

A = −·044, B = +·844, C = +·534 ; D = +·999, E = +·052 ;
G = −·028, H = +·534, K = −·845 ;

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Calcutta		10·6	204	2 10	−19	4 15	−13	5·2	—
Agra		13·9	252	3 13	− 1	5 54	+ 5	—	—
Phu-Lien		16·7	130	i 3 55	+ 5	7 2?	+ 7	9·0	9·7
Almata		16·7	315	4 47	+57	—	—	—	—
Frunse		18·0	311	e 3 47	−20	—	—	e 20·6	—
Andijan		18·5	303	e 4 10	− 3	—	—	—	—
Hyderabad		19·8	224	4 34	+ 7	8 26	+24	10·2	12·7
Chiufeng		20·2	61	4 31	− 1	i 8 19	+ 9	i 10·8	—
Tashkent		20·9	302	i 4 29	−10	i 8 16	− 8	11·8	24·9
Tchimkent		21·0	305	4 39	− 1	—	—	—	—
Hong Kong		21·2	113	4 51	+ 9	8 50	+20	—	12·2
Irkutsk		21·6	19	i 4 43	− 3	8 42	+ 4	11·3	12·7
Nanking		21·8	84	4 51k	+ 2	i 8 57	+15	i 11·8	13·7
Bombay		22·5	238	e 5 2	+ 6	i 9 8	+13	i 11·2	13·2
Zi-ka-wei		24·1	85	e 5 12	+ 1	9 43	+18	—	15·9
Takao		25·9	105	e 10 25	S	(e 10 25)	+28	—	—
Taihoku		26·0	99	e 10 23	S	(e 10 23)	+25	—	—
Kodaikanal		26·3	216	—	—	i 10 15	+12	13·4	16·1
Helzyo	E.	27·4	67	e 10 11	S	(e 10 11)	−11	—	—
Zinsen	N.	28·0	70	e 9 27	(+23)	e 12 31	?	e 14·7	—

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Keizyo	28·2	70	e 6 19	PP	e 10 43	+ 8	e 14·8	—
Colombo	28·2	209	11 8	S	(11 8)	+33	25·6	31·1
Medan	29·2	168	e 7 8	PP	—	—	i 15·3	—
Husan	29·9	75	e 9 34	(+24)	e 12 36	SS	—	—
Nagasaki	30·9	79	e 5 31	?	—	—	e 13·9	—
Manila	31·0	118	6 22	+ 8	11 41	+21	16·4	17·6
Hukuoka B	31·2	78	e 14 7	?	e 17 36	L	(e 17·6)	—
Vladivostok	32·3	60	e 6 29	+ 4	e 11 41	+ 1	14·5	18·4
Sverdlovsk	33·1	328	6 29	− 4	i 11 56	+ 4	i 16·8	21·2
Sumoto	34·9	75	—	—	e 14 5	SS	e 18·7	20·5
Kobe	35·0	75	—	—	e 15 59	?	e 17·6	19·6
Osaka	35·3	75	7 6	+14	12 35	+ 9	19·8	21·1
Osaka B	35·3	75	11 41	S	(11 41)	−45	—	—
Baku	35·3	296	i 6 52.	0	i 12 25	− 1	20·5	24·5
Grozny	38·4	301	e 7 25	+ 7	e 17 51	(+19)	e 27·0	—
Tiflis	39·1	299	7 25	+ 1	e 13 25	+ 3	24·5	28·8
Mizusawa	39·2	66	—	—	18 44	(+67)	—	—
Batavia	40·7	158	e 9 10	PP	—	—	—	—
Ksara	47·2	288	e 8 31	+ 1	15 27	+ 6	—	—
Pulkovo	48·9	324	i 8 37	− 6	e 15 40	− 5	26·5	30·3
Helsingfors	51·6	325	e 8 34	−29	e 16 2	−21	e 22·0	—
Königsberg	54·3	318	—	—	e 21 39	?	e 29·3	33·3
Upsala	55·3	324	—	—	e 21 32	?	e 28·0	30·5
Budapest	56·5	309	—	—	e 21 32	SS	32·5	33·5
Copenhagen	58·7	320	—	—	17 50	− 9	28·0	—
Graz	59·0	309	e 18 3	S	(e 18 3)	0	e 25·0	33·5
Zagreb	59·0	308	e 9 49	− 8	—	—	—	—
Triest	60·5	309	10 2	− 6	18 16	− 7	—	34·2
Hamburg	60·6	318	—	—	e 18 20	− 4	e 31·0	33·0
Göttingen	61·2	316	—	—	e 28 2?	?	e 33·0	33·6
Stuttgart	62·5	313	e 10 16	− 6	e 18 42	− 6	e 33·0	—
Florence	62·8	307	e 10 26	+ 2	19 25	+33	36·0	—
Prato	62·8	307	e 10 27	+ 3	19 25	PS	26·0	37·9
Piacenza	63·4	309	e 9 2	−86	19 24	PS	—	38·7
Strasbourg	63·5	313	e 10 22	− 7	e 18 56	− 5	e 27·0	—
De Bilt	63·8	318	—	—	e 19 4	− 1	e 32·0	35·3
Uccle	64·7	317	—	—	e 19 10	− 6	32·0	—
Paris	66·6	314	e 11 43	+54	—	—	34·0	36·0
Edinburgh	67·0	323	—	—	e 19 44	− 1	e 34·0	38·0
Kew	67·2	318	—	—	e 19 42	− 5	e 30·0	36·6
Scoresby Sund	67·4	342	10 51	− 3	19 50	0	27·0	—
Oxford	67·6	319	—	—	e 19 47	− 5	32·2	38·8
San Fernando	78·0	306	24 9	?	—	—	43·5	—

Additional readings :—
Agra SSN = +6m.7s., SSE = +6m.12s.
Nanking iPN = +4m.56s.
Takao S = +14m.35s.
Taihoku S = +14m.51s.
Colombo S = +17m.41s.
Manila PP = +7m.24s., SS = +13m.46s.
Sumoto eN = +17m.19s. = S_cS +7s., eZ = +20m.4s.
Kobe eE = +18m.10s., eZ = +21m.0s.
Tiflis ePPN = +8m.30s., eE = +8m.50s. = PP +0s., eN = +16m.31s., and +17m.55s. = S_cS +19s.
Pulkovo L_q = +23·5m.
Helsingfors ePPE = +10m.44s., eSKSN = +18m.2s., eSSEN = +20m.2s.
Copenhagen +22m.2s.?
Triest i = +13m.52s., e = +23m.6s.
Hamburg e = +25m.44s.
Stuttgart e = +25m.8s. = SSS − 2s., eN = +26m.18s.
Strasbourg eZ = +20m.2s.? = S_cS −16s.
De Bilt eEN = +20m.27s. = S_cS +7s.
Long waves were also recorded at Koti, Taikyu, Toyooka, Cape Town, La Paz, San Juan, Oak Ridge, Ivigtut, Bidston, Durham, and other European stations.

June 23d. Readings also at 1h. (Dehra Dun and near Tananarive), 4h. (Apia, Christchurch, Wellington, Berkeley, Haiwee, La Jolla, Pasadena, Santa Barbara, Tinemaha, Mizusawa, and Sverdlovsk), 5h. (Vienna), 7h. (Grozny), 8h. (Hong Kong and Nanking), 9h. (Samarkand, and near Manila), 11h. (Scoresby Sund).

June 24d. 1h. 40m. 0s. Epicentre 2°·5S. 106°·5W. N.3.

$A = -\cdot284$, $B = -\cdot958$, $C = -\cdot044$; $D = -\cdot959$, $E = +\cdot284$; $G = +\cdot012$, $H = +\cdot042$, $K = -\cdot999$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Huancayo		32·3	108	i 7 3	+38	—	—	i 13·2	—
Tucson		35·0	354	e 7 6	+17	e 12 44	+23	e 15·4	—
Riverside	z.	37·9	345	i 7 11	− 3	—	—	—	—
Pasadena	z.	38·2	345	e 7 12	− 5	—	—	e 18·4	—
La Paz		40·2	112	7 35	+ 1	i 13 17	−12	i 16·1	20·2
Sucre		43·5	115	6 32	?	i 12 56	?	16·3	—
Florissant		43·9	18	e 8 7	+ 3	e 14 17	−17	—	—
Ukiah		44·4	341	—	—	e 15 4	+23	e 20·8	—
San Juan		44·9	61	e 8 8	− 4	i 14 40	− 9	e 21·7	—
Georgetown		49·5	31	e 8 48	+ 1	e 16 1	+ 7	e 25·0	—
Victoria		53·0	346	—	—	16 57	+15	23·4	—
Ottawa		55·1	26	—	—	i 17 18	+ 7	e 30·0	—
La Plata	E.	55·4	131	—	—	16 42	−33	25·9	—
De Bilt		105·1	36	—	—	e 33 0?	SS	e 53·0	—
Strasbourg		107·7	39	—	—	(e 26 0?)	{+10}	e 26·0	—
Copenhagen		108·0	31	—	—	28 0?	PS	50·0	—
Stuttgart		108·6	38	—	—	e 28 0?	PS	e 52·0	—
Triest		112·5	41	e 20 8	?	e 28 40	PS	—	54·9
Pulkovo		113·9	22	—	—	e 27 13	?	57·0	68·5
Sverdlovsk		124·7	8	e 21 1	PP	e 28 48	{+61}	52·0	67·1
Tiflis		133·1	30	e 22 21	?	—	—	e 71·0	—
Baku		136·6	26	e 25 13	?	e 39 55	SS	59·4	61·9
Tashkent		141·1	5	e 20 29	[+66]	—	—	e 74·0	85·6
Batavia		145·6	255	e 19 19	[−16]	—	—	—	—

Additional readings and note :—
Huancayo e = +9m.45s., i = +11m.12s.; T_o = 1h.40m.0s.
Georgetown readings are given for 23d.
San Juan e = +14m.30s., i = +15m.13s.
Ottawa e = +21m.0s. = SS + 11s.
Sverdlovsk e = +37m.53s. = SS + 20s.
Tiflis eN = +33m.30s., eEN = +39m.27s. = SS + 9s.
Tashkent e = +21m.49s. and +67m.0s.?
Long waves were also recorded at Cape Town, Christchurch, Scoresby Sund, Kew, and Edinburgh.

June 24d. 3h. Readings of a shock from the South Pacific. Wellington suggests epicentre 22°S. 169°E., but this position does not account for the Riverview and Sydney observations.

Sydney e = 3h.27m.40s., eP = 30m.18s., eS = 34m.10s., L = 35m.30s., M = 36m.30s.
Wellington P = 3h.29m.30s., S = 33m.5s., L = 34m.
Christchurch P = 3h.29m.41s., S = 33m.20s., L_qN = 33m.40s., eL_rZ = 35m.2s.
Riverview ePE = 3h.30m.19s., PPE = 30m.40s., iSN = 34m.10s., iSE = 34m.13s., SSEN = 34m.27s., SSSEN = 34m.34s., eLN = 35m.30s., M = 36m.35s.
Adelaide eP = 3h.35m.19s., eS = 39m.13s., L = 40m.32s., M = 43m.24s.
Melbourne i = 3h.36m.13s., L = 38m.34s., M = 43m.24s.
De Bilt eZ = 3h.45m., eL = 4h.39m.
Paris eZ = 3h.45m., L = 4h.49m.
Strasbourg eNZ = 3h.45m., eL = 4h.3m.
Stuttgart e = 3h.45m.6s., eL = 4h.13m.
Sverdlovsk e = 3h.46m.45s., L = 4h.18m.
Scoresby Sund 3h.46m.50s., L = 4h.30m.
Tiflis eE = 3h.48m.5s.
Pulkovo e = 3h.48m.6s., L = 4h.30m., M = 42m.18s.
Perth P = 3h.49m.0s., M = 52m.0s.
Long waves were also recorded at Kew.

June 24d. 5h. 59m. 28s. Epicentre 22°·3S. 68°·5W. N.1.

A = +·339, B = −·861, C = −·379; D = −·930, E = −·367; G = −·139, H = +·353, K = −·925.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Montezuma		0·5	230	i 0 25	+18	i 0 39	+26	—	—
Sucre		4·5	43	i 0 26	−38	—	—	—	—
La Paz		5·8	3	i 1 44k	+22	3 2	+34	—	3·4
Santiago		11·3	189	2 45	+ 6	4 51	+ 6	—	7·2
Huancayo		12·1	326	e 2 57	+ 7	(i 5 12)	+ 7	i 5·2	—
La Plata	E.	15·7	146	i 3 31a	− 7	6 14	−17	7·6	8·9
	N.	15·7	146	—	—	6 18	−13	7·6	9·1
	Z.	15·7	146	i 3 34	− 4	6 16	−15	7·7	8·2
San Juan		40·8	5	i 7 38	− 1	i 13 40	− 8	—	—
Port au Prince		41·0	355	i 7 42	+ 2	i 13 53	+ 2	—	—
Columbia		57·5	350	e 9 49	+ 2	i 17 42	− 1	—	—
Charlottesville		61·0	351	i 10 11	0	i 18 28	− 1	e 29·5	—
Georgetown		61·7	353	i 10 17k	+ 1	i 18 35	− 3	e 29·0	—
Fordham		63·4	356	i 10 28	0	i 18 55	− 5	29·5	34·5
St. Louis		64·2	341	i 10 31	− 3	i 19 1	− 9	—	—
Florissant		64·4	341	i 10 34	− 1	e 19 2	−10	—	—
Oak Ridge		64·9	358	i 10 38	0	e 19 16	− 3	—	—
Ithaca		65·1	354	i 10 16	−23	i 18 54	−27	—	—
Ann Arbor		66·1	348	i 10 44	− 2	i 19 26	− 8	e 31·6	—
Chicago		66·4	344	i 10 35	−13	i 19 19	−18	e 33·3	—
Toronto		66·7	352	i 11 0	+10	i 19 48	+ 7	31·5	—
Halifax		67·0	4	e 10 57	+ 5	i 19 45	0	—	—
Tucson		67·9	323	i 10 59	+ 1	i 19 58	+ 2	28·0	—
Ottawa		68·0	355	i 10 58	0	i 19 52	− 5	e 32·5	—
La Jolla		72·1	319	i 11 23k	0	i 20 44	− 2	—	—
Pasadena		73·5	320	i 11 32k	0	e 20 59	− 4	i 36·0	—
Santa Barbara		74·7	319	i 11 38k	− 1	i 21 51	PS	—	—
Haiwee		74·8	321	i 11 39k	0	i 21 19	+ 1	—	—
Cape Town		75·4	120	12 10	+27	21 11	−14	34·0	39·5
Tinemaha		75·6	321	i 11 43k	− 1	e 21 23	− 4	—	—
Lick		77·8	320	e 11 57	0	—	—	—	—
Bozeman		78·1	332	e 11 57	− 1	i 21 46	− 9	e 29·5	—
Branner		78·2	319	i 12 0	+ 2	—	—	—	—
Berkeley		78·5	320	e 11 59	− 1	i 21 51	− 8	—	—
Ukiah		79·9	321	e 12 8	+ 1	e 22 2	−13	e 34·0	—
Saskatoon		81·1	337	e 12 17	+ 3	e 22 17	−10	—	—
San Fernando		83·1	46	12 26	+ 2	22 39	− 9	38·5	—
Serra do Pilar		84·2	41	e 12 27	− 2	e 22 40	[−13]	—	—
Malaga		84·4	46	12 31	+ 1	22 51	−11	41·0	—
Seattle		84·9	327	e 13 1	+28	e 23 1	− 6	—	—
Ivigtut		85·1	10	i 12 34k	0	e 22 52	[− 8]	—	—
Granada		85·2	46	i 12 35	+ 1	i 22 51	[−10]	39·4	43·0
Almeria		85·8	47	i 12 41	+ 4	i 22 55	[−10]	e 35·4	—
Victoria	E.	86·0	327	12 37	− 1	22 59	[− 7]	36·1	—
Toledo		86·4	44	i 12 41	+ 1	i 23 2	[− 7]	e 39·7	46·0
Alicante		87·9	47	i 12 49	+ 2	i 23 17	[− 2]	e 35·8	—
Algiers		89·5	50	e 13 4	+ 9	23 42	− 9	41·0	48·0
Tortosa		89·8	45	14 5	?	i 24 28	?	—	—
Christchurch		93·6	219	i 13 9	− 5	23 58	?	e 43·0	—
Wellington		93·6	222	13 7	− 7	24 13	−16	—	—
Kew		94·1	34	i 13 18k	+ 2	i 24 21	−13	e 38·5	50·7
Oxford		94·4	34	e 13 20	+ 2	i 23 45	[−12]	33·4	50·5
Tunis		94·7	51	e 13 56	+37	—	—	50·5	—
Arapuni		94·8	225	—	—	24 29	−11	—	—
Paris		95·0	38	i 13 21	+ 1	23 48	[−13]	38·5	49·5

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Edinburgh	95·6	30	e 13 22	− 1	i 23 53	[−11]	e 47·5	51·1
Durham	95·8	32	13 26	+ 2	24 31	−18	—	—
Neuchatel	96·8	41	e 13 28	− 1	e 24 0	[−10]	—	—
Sitka	96·9	331	13 32	+ 3	e 24 45	−14	e 43·5	—
Uccle	97·0	36	i 13 28	− 2	24 45	−15	44·5	51·4
Basle	97·4	40	e 13 30	− 2	e 24 4	[− 9]	—	—
Livorno	97·6	46	13 24	− 8	17 38	PP	—	—
Piacenza	97·7	43	13 56	+23	i 24 6	[− 9]	33·5	61·0
Honolulu	98·0	291	—	—	e 24 2	[−14]	e 42·5	—
De Bilt	98·0	35	i 13 34	0	e 24 51	−18	e 44·5	50·9
Strasbourg	98·0	39	e 18 32?	?	24 6	[−10]	e 46·5	53·3
Zurich	98·0	41	e 13 35	+ 1	e 24 56	−13	—	—
Siena	98·1	46	13 47	+12	24 32?	{− 7}	—	—
Prato	98·2	46	e 13 32	− 3	24 5	[−12]	31·7	57·5
Florence	98·3	46	e 13 32	− 4	25 7	− 5	42·5	—
Scoresby Sund	98·3	13	i 13 37	+ 1	26 27	PS	—	—
Chur	98·4	41	e 13 36	0	e 24 6	[−12]	—	—
Catania	98·6	53	18 37	?	24 4	[−15]	e 49·5	60·5
Karlsruhe	98·6	39	e 14 2	+25	24 2	[−17]	e 43·5	—
Stuttgart	98·9	40	13 38	0	i 25 1	−16	e 41·5	65·5
Padova	99·3	44	13 22?	−18	25 2	−18	—	—
Benevento	99·3	49	e 18 12	?	22 2	?	—	25·0
Venice	99·6	43	e 12 56	−46	i 24 2	[−22]	—	—
Göttingen	100·5	37	e 13 45	− 1	i 24 21	[− 7]	e 52·5	55·5
Triest	100·6	44	13 46k	0	25 35	+ 3	48·6	58·6
Jena	101·2	39	e 13 17	−32	e 24 22	[−10]	e 37·5	56·5
Hamburg	101·3	35	e 13 47	− 3	i 24 25	[− 7]	e 39·5	51·5
Cheb	101·4	39	e 14 36	+46	e 24 24	[− 9]	e 50·5	62·5
Bergen	101·7	28	e 13 24	−27	i 24 24	[−10]	—	—
Leipzig	101·8	39	17 44	PP	e 24 25	[− 9]	e 50·5	55·0
Zagreb	102·1	44	e 13 54	+ 1	e 24 32	[− 4]	e 43·5	46·5
Graz	102·2	43	e 14 22	+28	i 24 27	[− 9]	e 49·5	60·4
Prague	102·6	39	e 14 27	+32	e 24 30	[− 8]	e 48·5?	53·5
Suva	103·1	243	14 32?	+34	—	—	—	—
Vienna	103·2	43	e 14 22	+24	24 24	[−17]	—	—
Copenhagen	103·4	33	e 13 59k	0	i 24 34	[− 8]	42·5	—
Budapest	104·7	43	e 18 54	?	e 26 1	− 7	32·5	47·5
Belgrade	104·8	47	e 14 31	+25	i 24 37	[−12]	e 57·0	—
Tananarive	105·2	118	13 23	−45	26 14	?	—	57·0
Upsala	107·2	31	18 46	PP	i 25 33	{−14}	e 45·5	58·9
Königsberg	107·5	36	e 19 40	PP	e 24 52	[−10]	—	50·5
Helwan	109·0	64	e 14 52	+26	28 57	PS	—	66·8
Helsingfors	110·9	30	i 19 32	PP	e 26 5	{− 8}	e 45·5	—
Melbourne	112·2	208	i 19 17	PP	e 25 50	{−33}	—	—
Riverview	112·4	215	e 19 50	PP	e 25 56	{−28}	e 46·7	52·4
Sydney	112·4	215	e 18 32	[+ 8]	e 26 17	{− 7}	35·8	36·7
Pulkovo	113·5	31	e 14 45	− 3	25 10	[−18]	52·5	55·9
Ksara	113·7	62	i 19 31	PP	25 17	[−12]	54·5	62·5
Sebastopol	113·8	49	e 19 34	PP	—	—	—	—
Simferopol	114·2	48	e 20 1	?	—	—	—	—
Yalta	114·3	49	e 19 39	PP	—	—	—	—
Adelaide	117·3	204	e 19 44	PP	i 26 12	{−46}	e 28·1	37·1
Tiflis	121·7	53	18 51	[+ 2]	e 25 47	[− 9]	e 62·1	—
Grozny	122·4	51	e 18 54	[+ 3]	—	—	—	—
Baku	125·5	54	i 19 0	[+ 2]	i 30 41	PS	51·0	71·8
Sverdlovsk	129·6	33	19 8	[+ 2]	28 6	{−13}	63·5	71·9
Samarkand	138·6	54	e 18 34	[−46]	—	—	—	—
Tchimkent	139·8	54	e 19 39	[+18]	—	—	—	—
Tashkent	139·9	51	i 19 27	[+ 6]	32 50	PS	e 64·5	82·4
Andijan	142·3	51	e 19 27	[+ 2]	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Frunse		143·1	47	e 19 30	[+ 2]	—	—	—	—
Bombay		143·7	87	19 57	[+27]	29 16	{−30}	e 68·5	81·9
Almata		144·5	44	19 37	[+ 4]	—	—	—	—
Colombo		145·8	111	19 34	[− 1]	—	—	66·9	83·2
Hyderabad		148·6	92	20 17	[+37]	33 58	SKSP	71·1	81·1
Dehra Dun		149·0	67	20 12	[+32]	—	—	33·7	89·5
Amboina		149·3	214	i 19 36	[− 5]	—	—	40·5	—
Agra		149·4	73	e 19 36	[− 5]	27 19	?	e 69·1	—
Irkutsk		149·5	8	e 19 38	[− 3]	—	—	68·5	—
Mizusawa		149·7	319	17 5	?	e 19 50	PKP	—	—
Malabar		150·3	172	i 19 53	[+11]	i 20 31	PKP_2	—	—
Tyosi		151·1	304	e 19 46	[+ 3]	—	—	—	—
Batavia		151·2	171	i 19 43k	[0]	31 17	{+43}	e 82·5	—
Tokyo		152·0	305	19 53	[+ 9]	—	—	—	—
Nagano		152·8	308	19 55	[+10]	—	—	—	—
Hunatu		152·9	305	19 48	[+ 3]	—	—	—	—
Nagoya		154·3	306	e 19 56	[+ 9]	21 16	?	—	—
Osaka		155·6	306	20 0	[+11]	—	—	—	—
Toyooka	E.	155·7	308	e 20 23	{− 2}	e 39 5	?	e 45·5	—
Kobe		155·9	306	e 19 51	[+ 2]	—	—	—	—
Sumoto		156·2	305	e 19 37	[−12]	e 24 36	?	—	—
Koti		157·6	301	19 52	[+ 1]	24 45	?	—	52·3
Medan		157·7	144	20 4	[+13]	—	—	—	—
Calcutta		158·6	84	e 20 2	[+10]	—	—	e 76·4	89·4
Husan		160·0	314	i 20 40	{− 4}	25 0	?	—	—
Nagasaki		160·7	307	e 19 53	[− 1]	e 24 22	PP	—	—
Chiufeng		161·8	349	19 59k	[+ 4]	31 16	{−12}	—	—
Zi-ka-wei	Z.	167·4	317	i 20 3k	[+ 2]	i 24 58	PP	78·3	109·5
Manila		168·2	231	i 20 3k	[+ 1]	—	—	79·5	—
Nanking		168·3	328	e 19 54	[− 8]	31 5	{−58}	—	—
Taihoku		170·4	289	21 0	{−31}	—	—	—	—
Phu-Lien		175·2	108	e 20 32?	[+26]	e 32 13	{−26}	—	—
Hong Kong		177·5	270	20 13	[+ 6]	32 23	{−27}	—	50·8

Additional readings and notes :—
Montezuma i = +29s.
Huancayo iP = +3m.4s.
La Plata E = +3m.37s., PPEN = +3m.43s., PPP?N = +3m.49s., PPP?E = +3m.52s., N = +3m.54s., PPP?Z = +3m.56s., E = +4m.16s., N = +4m.26s. and +4m.46s., Z = +5m.56s. and +6m.10s., SSS? = +7m.2s., SSSN = +7m.4s.
San Juan i = +8m.47s., iPP = +9m.20s., i = +9m.51s., +10m.22s., and +14m.16s., iSS = +16m.43s.
Port au Prince PP = +9m.8s., PPP = +9m.34s., SS = +16m.25s., SSS = +17m.6s.
Columbia e = +17m.21s., i = +18m.27s. and +19m.19s., eSS = +22m.15s.
Charlottesville i = +10m.42s. and +19m.12s., eSS = +22m.23s., e = +25m.32s.
Georgetown i = +10m.43s. = P_cP − 17s.
Fordham iPP = +12m.48s., ePPP = +13m.38s., e = +22m.19s. and +24m.27s., eSSS = +25m.13s.
St. Louis epPN = +10m.55s., iEN = +11m.7s. = P_cP − 3s., iPPEN = +12m.55s., isSN = +19m.48s., iN = +20m.15s. = S_cS − 7s. and +21m.4s., eSSN = +23m.20s. ; T_0 = 5h.59m.39s.
Florissant ipP = +10m.59s., iZ = +11m.12s. = P_cP +1s., iPP = +12m.55s., ipPP = +13m.31s., isS = +19m.42s., iEN = +20m.23s. = S_cS − 1s., iSS = +23m.0s. ; T_0 = 5h.59m.39s.
Oak Ridge pP = +11m.4s., eEN = +15m.2s., iEN = +19m.58s. and +20m.24s. = S_cS − 3s., eSSS = +26m.36s., iPKP,PKP = +39m.20s., iZ = +39m.51s.
Ann Arbor e = +11m.20s. = P_cP + 3s., i = +20m.8s. and +21m.20s., eSSS? = +27m.26s. ; T_0 = 5h.59m.6s.
Chicago i = +11m.7s. = P_cP − 12s., ePPP = +15m.0s., i = +20m.5s. and +21m.15s., eSS = +25m.19s.
Toronto iN = +11m.35s. = P_cP +15s., iSN = +19m.55s. = PS +1s., iPSN = +20m.26s. = S_cS − 15s., SSE = +24m.10s. ; T_0 = 5h.59m.45s.
Tucson i = +11m.36s. and +20m.31s., e = +21m.20s., iSS = +25m.9s.
Ottawa P_cPN = +11m.36s., iPPPS = +20m.38s., iS_cSE = +21m.34s., e = +23m.50s., SSSE = +27m.16s. ; T_0 = 5h.59m.36s.
La Jolla iENZ = +21m.33s.

Continued on next page.

Pasadena iZ = +12m.2s., +13m.12s., and +14m.51s., iSE = +21m.6s., i = +21m.39s. = PS +14s., iN = +21m.50s., ePKP,PKPZ = +39m.2s.
Haiwee eZ = +22m.0s.
Cape Town PP = +14m.47s., PS = +21m.40s., SS = +25m.45s., +31m.29s.
Bozeman e = +14m.44s., i = +22m.28s., eSS = +27m.18s.
Branner iE = +12m.5s., iN = +12m.8s., iEN = +12m.17s., iE = +12m.22s., iN = +12m.26s. and +12m.35s., iE = +12m.41s., iN = +12m.45s.
Berkeley iN = +12m.39s., iZ = +13m.29s., iSE = +21m.57s., iZ = +22m.36s. = PS +6s.
Ukiah PP = +14m.52s., eSS = +28m.2s.
San Fernando SE = +22m.42s.
Malaga ipP = +13m.1s., PP = +15m.54s., e = +20m.18s., PS = +23m.32s., SS = +28m.12s., SSS = +31m.45s.
Seattle ePP = +15m.33s., ePS = +23m.37s., e = +26m.9s. and +34m.26s.
Ivigtut i = +13m.1s., eE = +13m.29s., iSE = +22m.57s., eN = +23m.38s., eE = +24m.2s. = PS +10s., eN = +24m.40s., SS = +28m.38s.
Granada P_cP = +12m.53s., S_cS = +23m.9s.
Almeria PP = +16m.9s.
Victoria SN = +23m.7s. ; T_0 = 5h.59m.41s.
Toledo i = +13m.11s., PS = +23m.50s.
Algiers PP = +16m.20s., SKS = +23m.12s., PS = +24m.28s.
Tortosa ePE = +14m.9s.
Christchurch ipPEZ = epPN = +13m.50s., iZ = +17m.6s., PP = +17m.41s., SEN = +23m.41s. = S_cS − 12s., iENZ = +24m.13s. = S − 16s., isS = +24m.58s., L_qN = +37·0m.
Wellington PS = +25m.5s., SS = +30m.47s., SSS? = +36m.37s.
Kew i = +13m.45s., iPP = +17m.7s., iSKS = +23m.46s., iSP = +25m.42s., iSS = +30m.55s.
Paris PP = +17m.13s., S = +24m.25s.
Edinburgh e = +13m.50s. and +17m.17s. = PP +8s., i = +23m.57s., +24m.35s., +24m.46s., +31m.10s., and +31m.19s.
Durham SKS = +23m.51s.
Sitka ePP = +17m.27s., e = +19m.6s. = PPP − 10s. and +22m.27s., eSKS = +23m.57s., ePS = +26m.15s., eSS = +31m.10s.
Uccle i = +13m.59s., PPE = +17m.23s., iSKS = +24m.0s., iSSE = +31m.27s.
Basle ePP = +17m.31s.
Piacenza PP = +18m.8s.
Honolulu ePP = +18m.2s., ePS = +26m.57s.
De Bilt iZ = +14m.2s., iPPZ = +17m.33s., eEN = +24m.7s. = SKS − 9s., e = +31m.36s. = SS +2s.
Strasbourg S = +24m.50s., PS = +26m.5s., SS = +31m.35s.
Zurich ePP = +17m.32s., eSKS = +24m.5s.
Prato PP = +17m.36s.
Florence PP = +17m.37s.
Scoresby Sund i = +14m.5s.
Chur ePP = +17m.36s.
Stuttgart ipP = + 14m.6s., ePP = +17m.20s., iSKS = +24m.10s., eSS = +31m.26s.
Venice S = +24m.14s.
Göttingen e = +17m.52s. and +32m.8s. = SS − 1s.
Triest iPP = +17m.50s., PPP = +20m.9s., iSKS = +24m.18s., iSKKS = +25m.10s., iPS = +27m.0s., i = +27m.22s., iPPS = +27m.51s., i = +30m.59s., iSS = +32m.17s., SSS = +36m.32s.
Jena eE = +17m.42s., eNZ = +18m.0s., eN = +21m.19s., e = +25m.15s., +28m.44s., +33m.20s., eE = +36m.59s.
Hamburg eZ = +14m.15s., iPP = +17m.57s., PS = PPS = +26m.55s., eSSN = +32m.19s.
Cheb ePP = +17m.59s., ePS = +26m.56s., eSS = +32m.5s.
Leipzig eN = +19m.8s., eN = +25m.32s. = S − 10s., eE = +26m.59s. = PS − 5s., eN = +27m.10s., eE = +28m.3s., eN = +30m.9s., eE = +32m.24s. = SS − 3s., eN = +32m.33s.
Zagreb eE = +16m.14s., e = +18m.5s. = PP +6s., +24m.25s. = SKS − 11s. and +27m.1s. = PS − 7s.
Graz epP = +18m.7s., iPS = +25m.31s.
Prague ePP = +18m.13s.
Vienna iPP = +18m.4s. and +20m.48s., SKKS = +25m.14s., SS = +32m.43s.
Copenhagen e = +14m.23s., eEZ = +18m.15s. = PP +7s., +18m.44s., and +19m.8s., +25m.16s. = SKKS − 3s., E = +25m.43s. = S − 13s., PSZ = +27m.17s., SS = +32m.32s.
Belgrade e = +18m.32s. = PP +13s.
Tananarive SKS = +24m.41s., SKKS = +25m.26s., PS = +27m.29s., N = +28m.32s., SS = +33m.13s.
Upsala iN = +26m.10s., eN = +33m.31s. = SS − 10s.
Königsberg eN = +22m.1s., eE = +25m.46s. = SKKS − 3s., eEN = +26m.22s.
Helwan PP = +18m.56s., PPP = +24m.46s.

Continued on next page.

Helsingfors ePPPE = +22m.40s., eSKKSEN = +26m.41s., eS?EN = +28m.24s. = PS −13s., ePSE = +29m.20s., ePPSEN = +30m.2s., eSSEN = +34m.34s., ePSSEN = +35m.3s., eSSSE = +39m.2s., e?EN = +42m.2s. ; T_0 = 5h.59·5m.
Melbourne i = +20m.6s., e = +27m.35s., i = +28m.52s. = PS + 3s., +29m.25s., +35m.27s., and +43m.0s.
Riverview eN = +28m.39s. = PS − 12s.
Pulkovo PKP = +18m.39s., S = +27m.5s., PS = +28m.49s., iSS = +35m.8s., L_q = +47·5m.
Ksara e = +26m.8s., PS = +29m.8s., SS = +35m.17s.
Adelaide i = +11m.15s., e = +15m.45s. (premature).
Tiflis ePPEZ = +20m.30s., eN = +21m.7s., eN = +28m.26s., and +33m.37s., eSSEN = +36m.54s.
Sverdlovsk eP = +16m.18s., PP = +21m.45s., iSS = +39m.20s., L_q = +48·7m.
Tashkent eP = +17m.1s., iPP = +22m.23s., PS = +32m.50s., PPS = +35m.8s., SS = +41m.2s.
Bombay PP = +22m.45s., SKP = +23m.13s., PSKS = +32m.53s., PPS = +36m.45s., SSN = +41m.31s., SSE = +41m.53s., SSSE = +46m.49s.
Agra PP = +23m.18s., SKP = +23m.46s., PPP = +26m.41s., SKKS = +29m.55s., PSKS = +33m.34s., PPS = +36m.12s., SS = +42m.12s., SSS = +47m.39s.
Irkutsk P = +17m.42s., e = +22m.37s., eSKSP = +34m.4s., e = +45m.44s.
Batavia iP = +20m.29s. = PKP_2 + 25s.
Osaka i = +20m.21s. = PKP_2 − 3s., +21m.43s., +24m.4s., and +26m.50s.
Kobe PN = +19m.53s., ePE = +19m.56s., iZ = +20m.19s. = PKP_2 − 6s., eE = iZ = +21m.0s., eN = +21m.4s., eE = iZ = +24m.35s., eE = +32m.35s., eZ = +33m.24s.. eN = +33m.27s., eSSS? = +44m.29s.
Sumoto ePN = +19m.43s., iPEN = ePZ = +19m.50s.
Koti P? = +20m.24s. = PKP_2 − 9s.
Calcutta PP = +24m.19s., SS = +44m.25s.
Chiufeng iPP = +24m.30s., SKS? = +26m.53s., iE = +28m.9s., PPPNZ = +28m.15s., iEN = +35m.20s., SSEN = +44m.39s., SSSEZ = +51m.29s.
Zi-ka-wei iZ = +20m.37s., +21m.52s. and +25m.46s.
Manila iPN = +20m.6s.
Nanking iPP = +24m.54s., PPP = +27m.54s., eSS = +45m.48s.
Hong Kong PP? = +21m.54s. = PKP_2 − 10s., ? = +25m.45s. = PP + 12s., +36m.22s. = SKSP + 0s., +40m.38s., +47m.12s. = SS − 16s., and +55m.13s.

June 24d. Readings also at 2h. (Nagoya, near Tyosi and Hukuoka B), 3h. (Copenhagen, Triest, and Tashkent), 7h. (near Lick), 8h. (Susaki), 9h. (Piatigorsk), 10h. (La Plata, La Paz, Oak Ridge, Haiwee, Pasadena, Tinemaha, and Sverdlovsk), 11h. (Tiflis and La Plata), 12h. (Mizusawa), 14h. (Sverdlovsk, Edinburgh, Kew, De Bilt, Uccle, Paris, Stuttgart, Scoresby Sund, Oak Ridge, Ottawa, Pasadena, Tucson, Tinemaha, near Koti, Hukuoka, and Hukuoka B), 15h. (Sumoto and Tashkent), 17h. (Scoresby Sund and Tucson), 18h. (near Tananarive), 20h. (near Husan), 22h. (Columbia and La Paz), 23h. (near Branner and Lick).

June 25d. 15h. Readings for which no determination is made :—

Paris e = 15h.17m., L = 36m., M = 38m.
Edinburgh e = 15h.22m.
Yalta eP = 15h.26m.59s.
Simferopol eP = 15h.27m.2s.
Zagreb eP = 15h.27m.43s., eZ = 28m.32s., eS = 30m.28s., M = 31m.15s., eZ = 31m.30s.
Siena P = 15h.28m.0s.
Triest eP = 15h.28m.0s., iSS = 31m.36s., i = 31m.44s., 31m.55s., 32m.20s., and 32m.41s.
Tiflis PN = 15h.28m.38s., eEN = 28m.47s., eE = 29m.40s., eSE = 31m.53s., LE = 33m.36s., ME = 35m.18s.
Ksara e = 15h.28m.50s., eS = 31m.50s., M = 34m.20s.
Sebastopol e = 15h.28m.53s.
Grozny e = 15h.29m.0s.
Strasbourg ePZ = 15h.29m.10s., eL = 35m.
Stuttgart ePZ = 15h.29m.12s., eSN = 32m.0s., eLN = 33m.24s., MN = 34m.30s.

Continued on next page.

Uccle P =15h.29m.43s., L =35m.
De Bilt eZ =15h.29m.46s., eN =33m.30s., eL =35m.24s., M =36m.33s.
Pulkovo eP =15h.30m.4s., eS =33m.59s., L =37m., M =38m.6s.
Kew eP =15h.30m.13s., eL =36m., M =38m.13s.
Hamburg e =15h.31m., eN =35m.23s.
Vienna eP =15h.31m.25s., eN =32m.21s., iE =32m.51s., and 33m.12s., eS = 34m.11s.
Sverdlovsk eP =15h.31m.54s., e =36m.13s.
Cheb e =15h.32m., M =35m.
Florence e =15h.32m.4s.
Tashkent eP =15h.32m.8s., e =41m.50s., eL =43m.36s., M =52m.18s.
Piacenza e =15h.32m.44s., ME =15h.35m.0s.
Copenhagen 15h.33m., L =35m.
Kucino e =15h.33m. and 34m.54s.
Long waves were also recorded at Budapest, Graz, Baku, Helsingfors, Bidston, and Irkutsk.

June 25d. 16h. Readings for which no determination is made :—

Dehra Dun P =16h.5m.20s., M =6m.
Frunse eP =16h.6m.3s., eS =8m.52s., eL =14m.1s.
Tashkent e =16h.6m.52s., eL =8m.30s., M =10m.12s.
Andijan eP =16h.7m.25s.
Tchimkent eP =16h.8m.31s.
Sverdlovsk P =16h.9m.21s., S =13m.53s., L =17m.42s.
Bombay M =16h.13m.59s.
Irkutsk e =16h.17m., L =20m.
Belgrade e =16h.27m.37s., e =30m.0s., e =30m.20s.
De Bilt eL =16h.34m.

June 25d. Readings also at 1h. (Tiflis), 2h. (near Batavia), 3h. (Tashkent), 4h. (Samarkand and near Tananarive), 6h. (Perth), 8h. (Alicante, near Almeria (2), Granada, and Malaga), 10h. (La Paz), 11h. (Apia, San Juan, Edinburgh, Paris, Strasbourg, and Stuttgart), 14h. (Cheb), 15h. (Siena), 19h. (La Paz, La Plata, and Montezuma), 21h. (Tiflis), 23h. (Samarkand).

June 26d. 20h. 34m. 22s. Epicentre 33°·5N. 131°·9E. (as on 1932 Sept. 29d.). R.2.

A = −·557, B = +·621, C = +·552 ; D = +·744, E = +·668 ;
G = −·369, H = +·411, K = −·834.

	Δ	Az.	P.	O−C.	S.	O−C.	M.
	°	°	m. s.	s.	m. s.	s.	m.
Hukuoka	1·2	274	0 16	− 1	0 33	+ 2	0·6
Hukuoka B	1·2	274	0 17	0	0 18	P_g	—
Koti	1·4	88	0 20	0	0 34	− 2	0·6
Nagasaki	1·9	245	0 23	− 5	0 45	− 4	—
Sumoto	2·6	71	0 38	+ 1	1 6	− 1	1·1
Kobe	2·9	66	e 0 48	P*	1 16	+ 2	1·6
Osaka	3·2	69	0 48	+ 2	1 38	S_g	2·5
Toyooka	3·2	50	0 51	P*	1 39	S_g	1·7
Nagoya	4·5	67	1 5	+ 1	1 54	+ 1	—

Additional readings :—
Sumoto eN = +49s. = P_g +3s.
Kobe iE = +1m.6s.
Toyooka PNZ = +54s. = P* +2s.
Long waves were also recorded for either this shock or the following, at Tiflis and some European stations.

June 26d. 20h. 39m. 17s. Epicentre 36°·5N. 141°·3E. (as on 1933 Oct. 2d.). X.

A = −·627, B = +·503, C = +·595 ; D = +·625, E = +·780 ;
G = −·464, H = +·372, K = −·804.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Tyosi	0·8	205	i 0 7	− 4	0 16	− 5	—	0·3
Susaki	2·6	227	0 39	+ 2	1 4	− 3	—	—
Mizusawa	2·6	357	e 0 38	+ 1	i 1 8	+ 1	—	—
Nagoya	3·7	249	e 0 54	+ 1	e 1 38	+ 3	—	2·0
Osaka	5·0	251	1 16	+ 5	2 18	S*	—	3·2
Kobe	5·3	252	e 1 43	P_g	e 2 22	+ 7	e 2·7	3·2
Toyooka	5·3	262	—	—	e 2 21	+ 6	—	—
Sumoto	5·6	249	e 1 32	P*	2 44	S*	—	2·9
Nanking	19·0	263	4 14	− 5	e 8 2	SS	e 11·3	12·8
Tashkent	54·6	299	i 10 17	(−16)	16 58	− 6	e 28·7	33·6
Sverdlovsk	55·3	320	—	—	e 17 8	− 5	23·7	—
Pulkovo	68·3	330	—	—	e 19 42	−19	32·7	—

Additional readings :—
Mizusawa eSN = +1m.12s.
Osaka i = +1m.45s.
Kobe eNZ = +1m.46s.
Toyooka eSN = +2m.40s. =S* +4s.
Long waves at Kucino and Baku.

June 26d. Readings also at 4h. (near Lick and near Mizusawa), 7h. (Perth), 8h. (Suva), 9h. (Bombay, Frunse, and Samarkand), 11h. (Edinburgh), 12h. (Strasbourg), 14h. (Edinburgh and Strasbourg), 15h. (Sverdlovsk, Tashkent, Stuttgart, and Scoresby Sund), 16h. (Strasbourg), 17h. (Samarkand and near Tiflis), 19h. (Samarkand), 20h. (Pasadena, Riverside, Tinemaha, and Paris), 21h. (Tiflis).

June 27d. Readings at 1h. (Irkutsk, Sverdlovsk, Tashkent, and Tiflis), 3h. (Almata, Andijan, Frunse, Tashkent, Samarkand, and near Mizusawa), 4h. (Tashkent and near Tyosi), 5h. (Sverdlovsk, near Batavia, and Malabar), 8h. (near Mizusawa), 10h. (Suva and near Apia), 11h. (Perth and Samarkand (2)), 12h. (Copenhagen, De Bilt, Paris, Strasbourg, Stuttgart, Scoresby Sund and Oak Ridge), 13h. (Nanking), 17h. (Almata, Andijan, Tashkent, and Sverdlovsk), 18h. (Baku, Grozny, Ksara, and near Tiflis), 19h. (Sverdlovsk), 22h. (near Santiago).

June 28d. 0h. 56m. 18s. Epicentre 11°·0S. 165°·0E. (as on 1932 June 23d.). R.3.

A = −·948, B = +·254, C = −·191 ; D = +·259, E = +·966 ;
G = +·184, H = −·049, K = −·982.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Suva	14·8	119	i 3 27	+ 1	—	—	7·2	—
Apia	22·8	100	—	—	e 9 42?	SS	—	—
Riverview	26·1	207	e 4 54	−36	e 10 18	+18	e 12·7	16·1
Sydney	26·1	207	—	—	i 10 12	+12	12·9	13·4
Wellington	31·5	166	i 6 29	+11	—	—	14·7	—
Melbourne	32·3	210	—	—	i 11 54	+14	17·0	18·6
Christchurch	33·2	169	i 6 42	+ 8	i 12 28	+34	e 17·4	—
Adelaide	33·9	221	—	—	i 13 24	?	i 16·2	20·3
Amboina	37·2	279	6 56	−12	—	—	e 23·0	—
Honolulu	48·7	48	i 11 46	?	i 15 50	+ 7	e 20·0	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Perth		49·8	237	i 13 52	?	i 16 24	PS	—	28·7
Manila		50·6	300	i 8 59k	+ 3	16 26	PS	25·2	29·7
Koti		53·7	327	9 19	0	e 16 58	PS	—	—
Kobe		53·7	330	e 9 18	− 1	—	—	—	—
Nagasaki		55·1	324	e 7 38	?	—	—	—	—
Zi-ka-wei	z.	59·4	317	e 10 0	0	18 11	+ 3	—	36·0
Hong Kong		59·9	304	10 4	0	18 21	+ 6	28·0	34·2
Nanking		61·7	316	e 10 17	+ 1	i 18 45	+ 7	e 32·7	—
Phu-Lien		65·6	299	5 42?	?	—	—	—	—
Chiufeng		68·3	322	10 59k	− 1	20 3	+ 2	—	35·8
Sitka		83·7	28	—	—	e 22 47	− 7	e 35·9	—
Mount Wilson	z.	85·6	54	e 12 25	−11	—	—	—	—
Pasadena	z.	85·6	54	e 12 27	− 9	—	—	—	—
Riverside	z.	86·1	54	i 12 37	− 2	—	—	—	—
Tashkent		101·5	310	e 13 40	−10	—	—	e 53·7	59·6
Sverdlovsk		107·0	326	18 23	[+15]	24 59	[0]	47·7	—
Baku		116·2	310	e 19 45	PP	26 59	{+ 9}	55·7	78·4
Kucino		119·4	329	e 20 17	PP	e 27 12	{ 0}	e 54·4	72·9
Tiflis		119·7	312	20 12	PP	25 52	[+ 3]	e 61·7	75·4
Scoresby Sund		120·4	3	20 12	PP	25 54	[+ 2]	63·7	—
Pulkovo		120·9	335	20 14	PP	25 47	[− 6]	59·7	68·9
San Juan		130·2	75	e 21 54	PP	e 38 36	SS	e 63·7	—
Copenhagen		130·4	340	21 24	PP	26 12	[− 8]	63·7	—
Hamburg		133·0	341	e 21 42?	PP	—	—	e 71·7	—
De Bilt		135·8	342	e 21 58	PP	—	—	e 64·7	77·2
Stuttgart		137·2	336	e 22 6	PP	e 32 30	PS	e 70·7	—
Uccle		137·2	342	e 22 6	PP	e 29 6	{− 1}	e 65·7	—
Triest		137·6	330	e 22 5	PP	e 29 2	{− 7}	—	71·7
Kew		137·8	346	—	—	e 25 15	PPP	e 67·7	83·8
Strasbourg		137·9	337	e 19 23	[+ 4]	—	—	e 69·7	—
Paris		139·5	342	e 19 37	[+16]	e 22 25	PP	73·7	—
Florence		140·1	330	e 19 37	[+15]	23 42?	PKS	—	—
Toledo		149·6	343	e 19 48	[+ 7]	—	—	—	—
Granada		151·9	341	19 18	[−26]	27 0	SKS	—	—
San Fernando		153·4	344	20 15	{+ 1}	30 1	{−40}	—	—

Additional readings :—
Suva e = +42s.
Wellington e = +3m.42s. ?
Melbourne i = +14m.45s.
Adelaide i = +14m.14s. =SSS − 2s.
Manila iEN = +14m.12s.
Kobe eE = +8m.34s., eEN = +9m.20s.
Tashkent PP = +17m.58s., PS = +27m.2s.
Sverdlovsk PS = +28m.0s., PPS = +29m.5s., SS = +33m.54s.
Baku PS = +29m.31s.
Kucino PS = +29m.57s., SS = +36m.12s.
Tiflis PSZ = +30m.2s., PPSEN = +31m.15s.
Scoresby Sund +30m.3s. =PS − 3s.
Pulkovo PS = +29m.49s., PPS = +31m.19s.
De Bilt eN = +22m.5s., eZ = +22m.50s. =PKS − 6s. and +34m.10s.
Stuttgart ePKS = +22m.56s.
Uccle eN = +22m.58s. =PKS − 3s.
Triest iP = +22m.56s. =PKS − 7s., e = +25m.9s. =PPP +10s., eSS = +40m.9s.
Kew eN = +29m.3s.
Strasbourg ePPNZ = +22m.1s., ePKS = +23m.1s.
Granada SKP = +22m.36s.
Long waves were also recorded at Tucson, Helsingfors, Upsala, and Mizusawa.

June 28d. Readings also at 1h. (Strasbourg), 6h. (Scoresby Sund, Sverdlovsk, and Tashkent), 8h. (near Amboina, and near Tananarive), 12h. (Almata and Frunse), 15h. (near Oak Ridge), 17h. (Almata and Frunse), 18h. (Mizusawa and near Amboina), 21h. (Malabar), 23h. (Baku, Tashkent, and Sverdlovsk).

June 29d. 8h. 25m. 20s. Epicentre 6°·1S. 123°·4E. N.1.

A = − ·547, B = + ·830, C = − ·106 ; D = + ·835, E = + ·550 ;
G = + ·058, H = − ·089, K = − ·994.

The epicentre is after Berlage " The earthquake in the Flores Sea with a focal depth of nearly 700km." Hand. Zevende Ned. Ind. Natuurw Congres, Batavia, 1935, 658-664. The actual depth determined is 680km., and a correction to △ has been applied, but see the note at the end.

	Corr. for Focus	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Amboina	+1·1	5·4	64	i 1 33	+ 1	i 2 55	+ 9	—	—
Malabar	−2·2	15·7	265	i 3 7	− 2	i 5 39	0	—	—
Batavia	−2·4	16·5	269	i 3 13	− 4	i 5 39	−14	—	—
Palau	−2·7	17·4	40	3 30	+ 5	—	—	—	—
Manila	−3·6	20·8	354	i 4 1a	+ 4	7 9	+ 3	—	—
Medan	−4·6	26·5	291	i 4 47	− 3	i 6 37	?	—	—
Perth	−4·6	26·8	194	i 4 40	−13	e 8 20	−30	10·7	13·2
Takao	−4·9	28·9	354	5 2	− 8	9 6	−17	—	—
Taito	−4·9	28·9	356	e 6 33	+83	9 47	+24	—	—
Aʌisan	−5·0	29·7	355	i 5 17	0	9 30	− 6	—	—
Hong Kong	−5·0	29·8	343	5 15	− 3	9 32	− 5	—	13·0
Hokoto	−5·0	29·9	353	e 7 2	?	e 9 33	− 6	—	—
Karenko	−5·0	30·2	357	e 5 21	− 1	9 35	− 9	—	—
Isigakizima	−5·0	30·4	1	4 25	−59	8 43	−65	—	—
Taihoku	−5·1	31·2	357	5 31	+ 1	9 52	− 8	—	—
Phu-Lien	−5·1	31·6	329	i 5 33	− 1	e 7 9	?	7·2	10·1
Adelaide	−5·1	32·1	156	i 5 24	−14	i 9 46	−29	—	13·0
Nake	−5·3	35·0	9	6 3	+ 1	10 50	− 9	—	—
Zi-ka-wei	−5·5	37·3	357	i 6 23	+ 2	i 11 35	+ 3	—	24·3
Melbourne	−5·5	37·3	151	i 6 10	−11	i 11 8	−24	i 14·5	—
Riverview	−5·5	37·8	141	i 6 15	−10	i 11 19	−21	—	—
Sydney	−5·5	37·8	141	e 5 50	−35	i 11 8	−32	14·7	15·1
Titizima	−5·5	37·9	28	e 6 27	+ 1	i 11 32	− 9	—	—
Nanking	−5·6	38·4	354	i 6 30	0	i 11 38	−10	e 15·1	17·0
Miyazaki	−5·6	38·8	11	6 34	0	11 51	− 3	—	—
Nagasaki	−5·6	39·3	9	i 6 36	− 2	i 11 55	− 6	e 17·6	—
Unzendake	−5·7	39·4	9	6 37	− 1	11 53	− 8	—	—
Hukuoka	−5·7	40·3	9	6 45	− 1	12 10	− 5	—	—
Hukuoka B	−5·7	40·3	9	i 6 46	0	(11 57)	−18	11·9	12·0
Koti	−5·8	40·8	13	i 6 50	+ 1	i 12 20	− 1	—	—
Kure	−5·9	41·3	11	6 49	− 4	12 22	− 5	—	—
Siomisaki	−5·9	41·3	16	6 52	− 1	12 23	− 4	—	—
Husan	−5·9	41·5	6	i 6 57	+ 3	i 12 31	+ 1	—	—
Tadotu	−5·9	41·5	13	6 54	0	12 28	− 2	—	—
Hamada	−5·9	41·8	11	6 54	− 3	12 24	−11	—	—
Sumoto	−5·9	41·9	14	i 6 57	− 1	i 12 34	− 2	—	12·6
Wakayama	−5·9	41·9	15	6 58	0	12 34	− 2	—	—
Kobe	−6·0	42·3	14	i 7 1	+ 1	i 12 41	0	—	14·4
Taikyu	−6·0	42·3	6	7 0	0	12 16	−25	—	—
Yagi	−6·0	42·3	15	7 1	+ 1	12 37	− 4	—	—
Osaka	−6·0	42·4	15	7 2	+ 1	12 42	0	—	13·2
Kyoto	−6·0	42·7	15	7 4	0	12 45	− 2	—	—
Kameyama	−6·0	42·8	16	7 5	0	12 48	0	—	—
Omaesaki	−6·0	43·0	18	7 6	0	12 50	− 1	—	—
Toyooka	−6·0	43·0	14	7 6	0	12 45	− 6	—	12·9
Hikone	−6·1	43·1	15	7 7	+ 1	12 50	− 1	—	—
Miyadu	−6·1	43·2	14	7 3	− 4	12 51	− 2	—	—
Nagoya	−6·1	43·2	16	i 7 9	+ 2	i 12 48	− 5	—	12·9
Gihu	−6·1	43·4	16	7 10	+ 1	12 55	− 1	—	—
Numadu	−6·1	43·7	18	7 11	− 1	13 0	0	—	—

Continued on next page.

	Corr. for Focus	Δ	Az.	P.	O–C.	S.	O–C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Zinsen	−6·1	43·7	4	i 7 11	− 1	i 12 59	− 1	—	13·1
Iida	−6·2	43·8	17	7 14	+ 2	13 2	+ 2	—	—
Keizyo	−6·2	43·8	5	7 13	+ 1	13 2	+ 2	21·1	13·1
Misima	−6·2	43·8	19	7 10	− 2	12 55	− 5	—	—
Hunatu	−6·2	44·0	18	7 14	+ 1	13 3	0	—	—
Kohu	−6·2	44·1	18	7 15	+ 1	13 10	+ 5	—	—
Yokohama	−6·2	44·2	19	7 14	− 1	13 5	− 1	—	—
Tokyo	−6·2	44·5	22	7 16	− 2	13 7	− 4	—	—
Toyama	−6·3	44·7	16	7 18	0	13 14	+ 2	—	—
Kumagaya	−6·3	44·8	20	7 18	− 1	13 13	− 1	—	—
Oiwake	−6·3	44·8	18	7 19	0	13 13	− 1	—	—
Nagano	−6·3	44·9	17	7 21	+ 1	13 14	− 1	—	—
Maebasi	−6·3	45·0	18	7 19	− 2	13 14	− 3	—	—
Tyosi	−6·3	45·0	20	i 7 21	0	13 13	− 4	—	—
Kakioka	−6·3	45·1	19	7 20	− 2	13 16	− 2	—	—
Tukubasan	−6·3	45·1	19	7 20	− 2	13 15	− 3	—	—
Heizyo	−6·3	45·2	3	7 24	+ 1	13 21	+ 1	—	15·6
Wazima	−6·3	45·3	15	7 23	− 1	13 21	0	—	—
Colombo	−6·3	45·4	286	8 42	PP	16 37	?	26·3	31·4
Takada	−6·3	45·4	17	7 25	+ 1	13 21	− 1	—	—
Mito	−6·3	45·4	19	7 24	0	13 21	− 1	—	—
Chiufeng	−6·5	46·7	352	i 7 31k	− 3	i 13 33	− 6	—	—
Hukusima	−6·5	46·7	19	7 33	− 1	13 40	+ 1	—	—
Sendai	−6·6	47·3	19	7 35	− 3	13 47	0	—	—
Mizusawa	−6·7	48·1	19	i 7 46	+ 2	i 14 2	+ 5	—	—
Akita	−6·7	48·3	17	7 47	+ 2	14 5	+ 5	—	—
Kodaikanal	−6·7	48·6	290	i 9 40	PP	e 17 27?	SS	—	—
Morioka	−6·7	48·6	18	7 47	− 1	14 9	+ 4	—	—
Aomori	−6·8	49·5	17	7 55	+ 1	14 20	+ 4	—	—
Vladivostok	−6·9	49·8	8	i 7 57	+ 1	i 14 23	+ 4	18·0	20·5
Hyderabad	−6·9	50·2	299	9 57	PP	14 14	−11	18·8	21·1
Sapporo	−7·2	51·8	17	8 11	+ 1	14 50	+ 6	—	—
Suva	−7·7	55·0	106	7 52	−39	14 40	−43	—	—
Agra	−7·7	55·0	309	8 29	− 2	15 13	−10	e 21·8	—
Dehra Dun	−7·9	56·6	313	8 40	− 1	15 50	+ 7	—	—
Arapuni	−8·0	57·0	131	—	—	i 15 37	−10	—	—
Christchurch	−8·0	57·1	139	i 8 44	0	i 15 43	− 5	—	—
Bombay	−8·0	57·4	297	8 34	−13	i 15 26	−26	—	—
Wellington	−8·1	57·6	136	8 42	− 5	15 49	− 5	—	—
Irkutsk	−8·5	60·6	347	i 9 10	+ 3	i 16 41	+11	28·7	—
Almata	−9·1	64·8	324	i 9 37	+ 3	i 17 32	+13	—	—
Frunse	−9·3	66·0	323	i 9 42	+ 1	i 17 40	+ 8	—	—
Andijan	−9·3	66·1	320	(i 9 41)	− 1	i 17 41	+ 7	—	—
Tashkent	−9·7	68·4	319	i 9 56	+ 1	—	—	—	40·9
Tananarive	−10·8	74·7	252	i 10 27	− 4	18 57	− 9	—	22·4
Sverdlovsk	−11·6	80·8	330	i 11 8	+ 2	i 20 23	+12	—	—
Baku	−11·8	81·6	312	i 11 12	+ 3	i 20 34	+15	33·7	47·7
Honolulu	−11·8	81·9	63	i 11 4	− 7	—	—	—	—
Erevan	−12·5	85·3	311	e 11 31	+ 3	i 20 44	−10	—	—
Tiflis	−12·5	85·6	312	i 11 27	− 2	20 51	− 7	e 39·2	—
Grozny	−12·5	85·6	314	e 11 30	+ 1	e 21 8	+10	—	—
Sotchi	−13·3	89·6	314	e 10 58	−50	e 20 25	−50	—	—
Ksara	−13·7	91·3	304	e 11 56	+ 1	21 30	−19	—	—
Kucino	−14·0	92·5	326	i 12 28	+28	e 22 34	+35	e 32·4	—
Simferopol	−14·4	93·8	315	12 6	+ 1	i 21 38	−31	26·9	—
Sebastopol	−14·5	94·2	314	12 7	+ 1	i 21 40	−32	—	—
Yalta	−14·5	94·3	314	12 6	− 1	i 21 39	−35	—	21·7
Helwan	−14·6	94·8	300	12 10	+ 1	21 45	−33	—	—
Pulkovo	−15·2	96·8	330	i 12 18	+ 2	22 42	+ 9	32·7	55·4
Helsingfors	—	99·5	330	e 12 37	−64	e 22 7	?	e 36·7	—
Sitka	—	101·2	33	e 16 7	?	e 22 10	?	—	—
Königsberg	—	102·4	325	e 16 58	?	—	—	—	—
Upsala E.	—	103·1	330	e 16 10	?	i 25 20	−34	—	—
Budapest	—	104·1	317	14 48	?	—	—	—	—
Vienna	—	105·8	319	e 13 2	P	i 24 6	[−48]	—	—

Continued on next page.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Zagreb	—	106·4	316	e 13 2	P	e 25 53	?	—	—
Copenhagen	—	106·7	327	13 6k	P	e 23 12	?	—	—
Prague	—	106·8	320	e 17 46	PP	e 25 58	?	e 35·7	—
Leipzig	—	107·8	322	e 17 40?	PP	—	—	—	—
Cheb	—	108·0	321	e 17 55	PP	e 23 50	?	—	39·2
Triest	—	108·0	316	e 16 11	?	i 24 18	[−46]	—	—
Jena	—	108·3	322	e 13 56	P	—	—	e 30·7	—
Hamburg	—	108·7	325	e 16 49	[−85]	—	—	e 56·7	64·7
Venice	—	109·0	316	e 16 18	?	25 54	?	—	—
Göttingen	—	109·2	323	i 17 13	[−62]	—	—	—	—
Victoria	—	109·9	40	18 2	PP	—	—	30·5	33·4
Florence	—	110·1	314	17 0	[−78]	—	—	64·7	—
Prato	—	110·2	315	e 16 56	[−82]	18 51	PP	—	—
Stuttgart	—	110·4	320	e 17 15	[−64]	e 25 46	?	59·7	—
Chur	—	110·6	318	e 17 16	[−64]	—	—	—	—
Karlsruhe	—	110·8	320	21 10	PPP	—	—	—	—
Piacenza	—	110·9	316	18 18	PP	—	—	—	32·9
Zurich	—	111·1	319	e 17 16	[−65]	—	—	—	—
Strasbourg	—	111·4	320	e 17 18	[−64]	—	—	e 64·7	—
Basle	—	111·7	319	e 17 17	[−66]	—	—	—	—
De Bilt	—	111·8	324	e 17 18	[−65]	—	—	—	—
Scoresby Sund	—	111·9	348	i 17 19a	[−65]	e 24 11	[−71]	—	—
Ukiah	—	111·9	50	e 27 10	?	—	—	—	—
Neuchatel	—	112·3	319	e 17 19	[−66]	—	—	—	—
Uccle	—	112·8	323	i 17 20	[−66]	—	—	—	—
Berkeley	—	112·9	51	i 17 19	[−67]	—	—	—	—
Lick	—	113·5	51	e 17 23	[−65]	—	—	—	—
Paris	—	114·6	322	i 17 23	[−68]	i 27 9	?	56·7	70·7
Durham	—	114·6	329	20 44	?	27 10	?	—	—
Edinburgh	—	114·8	330	i 22 0	?	i 27 13	?	—	—
Kew	—	115·2	325	i 17 25	[−68]	e 25 25	{−79}	e 46·7	—
Santa Barbara	—	115·5	55	i 17 27k	[−67]	—	—	—	—
Oxford	—	115·7	326	e 20 53	?	i 25 29	{−78}	—	—
Bidston	—	115·9	328	i 20 55	?	e 25 10	{−98}	—	—
Tinemaha	—	116·1	52	i 17 29	[−66]	—	—	—	—
Haiwee	—	116·6	55	i 17 29k	[−68]	—	—	—	—
Pasadena	—	116·8	55	e 17 30	[−67]	i 23 24	?	—	—
Riverside	—	117·5	55	i 17 29	[−70]	—	—	—	—
La Jolla	—	117·8	56	i 17 31	[−69]	—	—	—	—
Algiers	—	117·8	309	i 17 30	[−70]	i 24 59	[−45]	—	—
Toledo	—	122·1	314	17 40	[−71]	—	—	—	—
Granada	—	122·7	311	i 17 38	[−74]	i 25 20	?	—	—
Tucson	—	123·2	55	e 17 43	[−70]	—	—	—	—
Ivigtut	—	124·5	355	19 45	?	21 1	?	—	—
San Fernando	—	124·9	311	17 46	[−70]	—	—	31·2	—
Chicago	—	134·9	33	e 20 44	?	25 4	?	—	—
Flori-sant z.	—	135·3	38	i 18 3	[−72]	—	—	—	—
St. Louis	—	135·5	38	e 17 54	[−82]	e 24 7	?	—	—
Ann Arbor	—	136·5	29	i 17 46	[−91]	—	—	e 38·6	—
Ottawa	—	137·3	20	e 18 7	[−71]	e 24 10	?	34·7	—
Santiago	—	138·3	162	20 36	?	26 45	?	—	—
La Plata	—	139·0	178	20 46	?	—	—	—	—
Pittsburgh	—	139·7	28	i 18 7	[−74]	—	—	—	—
Oak Ridge	—	141·2	18	i 18 11	[−72]	—	—	—	—
Fordham	—	141·9	21	i 18 12	[−71]	e 24 34	?	34·7	40·2
Georgetown	—	142·3	26	i 18 16	[−69]	i 21 29	?	—	—
Columbia	—	144·1	36	e 18 22	[−70]	—	—	—	—
Sucre	—	153·5	161	i 18 33	[−73]	i 28 13	?	—	—
Huancayo	—	154·0	134	i 18 38	[−69]	—	—	—	—
La Paz	—	154·7	153	i 18 37k	[−71]	25 9	?	—	—
Port au Prince	—	160·3	50	i 18 35	[−79]	—	—	—	—
San Juan	—	164·6	36	i 18 44	[−75]	e 30 48	{−55}	—	—

For Notes see next page.

NOTES TO JUNE 29d. 8h. 25m. 20s.

Additional readings and notes :—
Malabar i = +12m.36s.
Batavia i = +5m.21s., iSN = +5m.56s.
Perth PP = +4m.49s., P_cP = +8m.35s., SS = +8m.45s.
Hong Kong PE = +5m.20s., PP = +6m.50s., PPP = +8m.20s.
Adelaide i = +7m.2s., +9m.50s., and +11m.6s. = SS − 12s.
Zi-ka-wei iZ = +8m.7s., +8m.19s., and +9m.23s. = S_cS − 10s., iN = +11m.27s., iZ = +15m.5s. and +15m.23s.
Melbourne i = +7m.52s., i = +14m.56s. and +15m.4s.
Riverview i = +7m.59s., iZ = +11m.22s., iE = +11m.28s., i = +14m.32s., iE = +14m.53s.
Nanking PP = +8m.16s., iN = +11m.45s.
Nagasaki iPP = +8m.23s., iSS = +15m.27s.
Koti ipPZ = +8m.30s., eN = +12m.3s.
Husan i = +8m.49s.
Kobe iE = +8m.20s. = PP + 3s. and +8m.43s., iN = +8m.54s., eE = +16m.35s., ePKP, PKPN = +39m.25s.
Osaka i = +8m.51s., +9m.59s., and +11m.34s.
Toyooka iZ = +8m.37s. = PPP − 2s.
Zinsen iPPZ = +8m.40s., iN = +14m.13s.
Heizyo e = +10m.35s.
Chiufeng iPP = +8m.49s., iPPP? = +9m.26s., iNZ = +10m.27s.
Agra PP = +10m.7s., PPP = +10m.51s., SS = +17m.58s., SSS = +18m.58s.
Christchurch e = +10m.40s. = PP +9s., ipPNZ = +10m.50s., iZ = +12m.35s., eNZ = iE = +19m.13s. = S_cS − 19s., isSEZ = +19m.22s., iE = +22m.58s.
Bombay PPP = +10m.53s., SSS = +19m.19s. = SS +8s.
Wellington sS = +17m.20s., S_cS? = +19m.46s., i = +22m.55s.
Andijan P has been *increased* by 3m.
Tashkent i = +9m.59s., e = +10m.13s., iPP = +12m.8s., i = +14m.9s., and +18m.58s., e = +19m.38s., +23m.16s., +25m.2s. ,and +26m.40s.
Sverdlovsk i = +11m.31s., +13m.25s. = PP − 7s., +13m.53s., +14m.32s., +16m.19s., +17m.34s., +19m.33s., and +20m.17s., iPS = +21m.11s., i = +24m.30s. = SS +0s., +25m.15s., and +26m.13s.
Erevan i = +21m.10s.
Tiflis pP = +13m.50s., PPZ = +15m.19s., PPPE = +18m.10s., iSPENZ = +21m.10s., eE = +25m.17s. = SS − 11s., sSSN = +30m.10s.
Ksara pP = +14m.21s., PS = +22m.3s., sS = +26m.11s., SS = +27m.31s.
Pulkovo pP = +14m.45s., sP = +15m.21s., PP = +16m.33s., e = +18m.34s., i = +19m.42s., +21m.51s., and +24m.11s., pS = +25m.41s., sS = +26m.58s., i = +28m.13s., SS = +29m.40s.
Helsingfors ePP = +16m.40s., ePPP = +18m.52s., eSKKS = +23m.5s., iPS = +24m.40s., ePPS = +25m.40s., ePKKP = +29m.30s., eSS = +30m.52s., eSSSE = +34m.30s. ; T_o = 8h.24m.45s.
Sitka iPP = +17m.2s., ePPP = +19m.25s., e = +22m.10s., i = +22m.18s., e = +24m.58s., ePS = +26m.30s., eSS = +30m.47s., eSSS = +33m.40s.
Königsberg eEZ = +17m.5s., eZ = +17m.16s., eE = +19m.12s., eEN = +23m.3s., and +23m.36s., eE = +25m.0s., eEZ = +25m.13s., eZ = +30m.26s. and +31m.17s.
Vienna PP = +16m.37s., PPP = +19m.5s., SS = +29m.57s., iEN = +31m.55s.
Zagreb e = +17m.40s.?, +19m.46s., and +23m.34s.
Copenhagen PP = +17m.45s., PPP = +19m.50s., eE = SKS = +23m.12s., eE = +23m.37s., eEN = +24m.13s. = SKS − 45s., eEZ = +27m.0s. = PS − 55s., e = +30m.10s., SS? = +32m.10s., e = +36m.34s.
Cheb e = +20m.2s. and +26m.9s.
Triest i = +17m.48s., iEZ = +19m.56s., i = +23m.40s., iEZ = +26m.9s., i = +26m.18s., +27m.29s., +28m.15s., +28m.25s., +30m.17s., +32m.0s., and +32m.40s.
Jena e = +14m.53s., +16m.1s., +16m.53s., +17m.52s., +17m.59s., +20m.3s., +20m.30s., and +27m.10s.
Hamburg i = +18m.0s., +20m.3s., and +26m.14s.
Göttingen i = +18m.4s., +20m.14s., and +26m.15s., e = +27m.40s.
Florence PP = +18m.10s., PS = +26m.30s.
Stuttgart ePEZ = +13m.20s., e = +17m.50s., iPPEZ = +18m.11s., e = +20m.4s., +21m.10s., +22m.4s., +23m.50s., +26m.18s., +26m.48s., +27m.34s., and +30m.40s., iSSE = +32m.56s., eEN = +36m.40s.
Strasbourg ePZ = +13m.27s., iPPZ = +18m.12s., iPPPZ = +20m.30s., iZ = +21m.25s., iPSZ = +26m.39s., iPPSN = +27m.44s., eSSS = +37m.40s.
De Bilt eZ = +13m.28s., eEZ = +18m.22s., iZ = +20m.29s., eN = +25m.4s., iEZ = +26m.45s.
Scoresby Sund P = +13m.27s., PP = +18m.11s., e = +21m.28s., iZ = eEN = +26m.49s., e = +28m.3s. = PS − 43s., and +30m.58s.
Uccle e = +13m.32s., i = +18m.28s., +20m.10s., and +20m.32s.
Berkeley iPZ = +13m.32s., iPE = +13m.38s., iE = +18m.14s., i = +18m.24s., iE = +21m.8s. and +23m.8s.

Continued on next page.

Paris PP = +20m.23s., PPP = +21m.47s., e = +29m.17s.
Edinburgh e = +12m.0s.
Kew iPP = +18m.47s., epPP = +20m.45s., esPP = +21m.46s., i = +27m.17s., +28m.30s., and +29m.11s., e = +31m.29s., +32m.45s., and +37m.21s.
Oxford i = +27m.16s. and +28m.37s.
Bidston i = +27m.25s.
Pasadena eZ = +13m.49s., iPPZ = +18m.50s., iZ = +27m.53s.
Riverside eZ = +14m.0s.
Granada e = +16m.16s., +18m.32s., i = +20m.6s. =PP −22s.
Tucson ePP = +19m.32s., ePS = +29m.30s., e = +32m.18s.
San Fernando PN = +17m.52s., PE = +17m.59s.
Chicago ePP = +21m.34s., e = +24m.1s., and +34m.7s.
Florissant i = +18m.23s., +20m.36s., +20m.52s., +21m.37s. =PP −15s., e = +23m.25s.
St. Louis i = +18m.5s., +20m.35s., +20m.53s., and +21m.38s., eEN = +23m.26s., iE = +25m.11s.
Ann Arbor eE = +20m.22s.
Ottawa i = +20m.41s., eE = +21m.4s., i = +21m.43s. =PP −21s.
La Plata SKPZ = +20m.43s., SPKPE = +21m.44s., SPKPN = +21m.47s., E = +22m.36s., pPPN = +23m.21s., N = +24m.12s., PPPE? = +24m.52s., pPPP?EN = +26m.50s., E = +27m.17s., N = +27m.21s., E = +33m.52s.
Pittsburgh i = +20m.21s., +21m.19s., and +21m.43s., ePP = +24m.15s., e = +35m.27s., eSSS = +43m.28s.
Oak Ridge i = +18m.13s., eZ = +20m.41s., and +21m.3s., iZ = +21m.28s.
Fordham ePP = +20m.34s., ePPP = +21m.35s., iPPS$_2$ = +33m.50s.
Columbia ePP = +21m.40s.
Huancayo ePPP = +28m.22s., eSS = +41m.10s.
La Paz iPKP$_2$E = +18m.51s., iPKP$_2$N = +19m.1s., ipPKPZ = +21m.6s., iZ = +22m.5s., isPKPE = +22m.35s., isPKPZ = +22m.40s., iPPN = +22m.58s., iPPE = +23m.7s., SKSE = +25m.18s., iSKKS = +28m.23s., SSN = +41m.30s., iSSN = +42m.22s.
Port au Prince i = +20m.8s., +22m.40s., and +28m.28s., e = +29m.57s.
San Juan ePP = +23m.27s., ePPP = +27m.20s., ePS = +33m.14s.

NOTE.

The above shock originates at a focus of greater depth than that of any earthquake which has been treated in the Summary, and the usual table of corrections to be applied to the station distances can no longer be used. In view of the accuracy with which the epicentre is known, the data have been used to investigate the corrections which should be applied to distances to produce agreement in the P phase. Accordingly a diagram of $\Delta F - \Delta E$ against ΔE has been constructed, and an approximate curve drawn through the mean values. The resulting figures are :—

ΔE	$\Delta F - \Delta E$	ΔE	$\Delta F - \Delta E$	ΔE	$\Delta F - \Delta E$
°	°	°	°	°	°
5·0	+1·2	40·0	−5·7	70·0	−10·0
10·0	(−0·4)	45·0	−6·3	75·0	−10·8
15·0	−2·0	50·0	−6·9	80·0	−11·5
20·0	−3·4	55·0	−7·7	85·0	−12·4
25·0	−4·4	60·0	−8·4	90·0	−13·4
30·0	−5·0	65·0	−9·1	95·0	−14·7
35·0	−5·3	—	—	—	—

These have been applied and the agreement of the phases is an indication of the reliability of the curve of corrections.

June 29d. 12h. 34m. 44s. Epicentre 6°·1S. 123°·4E. (as at 8h.). R.2.

Presumed a repetition from the focus and epicentre of 8h.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Amboina	+1·1	5·4	64	i 1 54	+22	i 3 22	+36	—	—
Malabar	−2·2	15·7	265	3 3	− 6	i 5 19	−20	—	—
Batavia	−2·4	16·5	269	e 3 4	−13	i 5 29	−24	—	—
Manila	−3·6	20·8	354	i 3 58	+ 1	6 52	−14	—	9·9
Medan	−4·6	26·5	291	—	—	8 3	−41	—	—
Perth	−4·6	26·8	194	—	—	9 11	+21	—	—
Hong Kong	−5·0	29·8	343	5 12	− 6	9 13	−24	—	12·8
Phu-Lien	−5·1	31·6	329	e 5 25	− 9	(9 16?)	−51	9·3	—
Adelaide	−5·1	32·1	156	i 5 50	+12	i 10 22	+ 7	—	20·4
Melbourne	−5·5	37·3	151	i 6 9	−12	i 11 50	+18	23·0	—

Continued on next page.

		Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Riverview		−5·5	37·8	141	i 6 45	+20	i 12 5	+25	—	—
Nanking		−5·6	38·4	354	6 26	− 4	i 11 30	−18	—	—
Miyazaki		−5·6	38·8	11	6 35	+ 1	11 46	− 8	—	—
Nagasaki		−5·6	39·3	9	e 8 28	?	e 11 43	−18	—	—
Sumoto		−5·9	41·9	14	—	—	e 11 34	−62	—	—
Wakayama		−5·9	41·9	15	7 1	+ 3	12 25	−11	—	—
Kobe		−6·0	42·3	14	e 7 3	+ 3	i 9 36	?	—	14·3
Osaka		−6·0	42·4	15	7 6	+ 5	12 37	− 5	—	—
Kameyama		−6·0	42·8	16	7 8	+ 3	12 44	− 4	—	—
Nagoya		−6·1	43·2	16	7 2	− 5	12 51	− 2	—	—
Numadu		−6·1	43·7	18	7 16	+ 4	13 0	0	—	—
Hunatu		−6·2	44·0	18	7 18	+ 5	13 1	− 2	—	—
Oiwake		−6·3	44·8	18	7 19	0	13 11	− 3	—	—
Tyosi		−6·3	45·0	20	e 13 15	S	(e 13 15)	− 2	—	—
Wazima		−6·3	45·3	15	7 28	+ 4	13 17	− 4	—	—
Mito		−6·3	45·4	19	7 33	+ 9	13 20	− 2	—	—
Chiufeng		−6·5	46·7	352	e 7 29	− 5	i 13 21	−18	—	—
Sendai		−6·6	47·3	19	7 41	+ 3	13 44	− 3	—	—
Mizusawa		−6·7	48·1	19	e 7 52	+ 8	i 14 1	+ 4	—	—
Vladivostok		−6·9	49·8	8	e 10 3	?	i 14 17	− 2	e 17·8	—
Agra	E.	−7·7	55·0	309	—	—	e 14 12	−71	—	—
Irkutsk		−8·5	60·6	347	9 6	− 1	—	—	16·4	—
Almata		−9·1	64·8	324	e 9 39	+ 5	i 17 16	− 3	—	—
Frunse		−9·3	66·0	323	e 9 35	− 6	e 17 24	− 8	—	—
Andijan		−9·3	66·1	320	e 9 59	+17	i 17 25	− 9	—	—
Tashkent		−9·7	68·4	319	i 10 50	+55	—	—	—	—
Sverdlovsk		−11·6	80·8	330	i 11 6	0	i 20 9	− 2	29·3	—
Baku		−11·8	81·6	312	i 11 6	− 3	i 20 16	− 3	e 33·3	—
Tiflis		−12·5	85·6	312	i 11 26	− 3	i 20 46	−12	—	—
Ksara		−13·7	91·3	304	e 12 7	+12	e 21 56	+ 7	—	—
Simferopol		−14·4	93·8	315	i 21 36	S	(i 21 36)	−33	—	—
Yalta		−14·5	94·3	314	i 21 35	S	(i 21 35)	−39	—	—
Pulkovo		−15·2	96·8	330	e 15 41	PP	i 23 58	[−12]	26·3	—
Helsingfors		—	99·5	330	e 15 46	?	e 22 5	?	—	—
Zagreb		—	106·4	316	—	—	e 22 40	?	—	—
Copenhagen		—	106·7	327	—	—	22 44	?	—	—
Prague		—	106·8	320	(e 18 16?)	?	—	—	e 18·3	19·3
Stuttgart		—	110·4	320	—	—	(e 23 16?)	?	e 23·3	—
Strasbourg		—	111·4	320	(e 20 16?)	?	—	—	e 20·3	—
De Bilt	Z.	—	111·8	324	e 20 16?	?	e 26 16?	{− 4}	—	—
Paris		—	114·6	322	—	—	(e 25 16?)	[−16]	e 25·3	—
Edinburgh		—	114·8	330	—	—	e 23 16?	?	—	—
Kew		—	115·2	325	—	—	e 26 16?	{−28}	—	—
Santa Barbara	Z.	—	115·5	55	i 17 38	[−56]	—	—	—	—
Tinemaha		—	116·1	52	i 17 40	[−55]	—	—	—	—
Haiwee		—	116·6	55	i 17 41	[−56]	—	—	—	—
Pasadena		—	116·8	55	i 17 40	[−57]	—	—	—	—
Mount Wilson		—	116·9	55	i 17 41	[−57]	—	—	—	—
Riverside	Z.	—	117·5	55	i 17 41	[−58]	—	—	—	—
La Jolla	Z.	—	117·8	56	i 17 42	[−58]	—	—	—	—
Oak Ridge		—	141·2	18	i 18 19	[−64]	—	—	—	—
Georgetown		—	142·3	26	i 18 24k	[−61]	e 32 41	?	—	—
La Paz	N.	—	154·7	153	i 18 52	[−56]	—	—	—	—

Additional readings :—
Manila iN = +4m.3s.
Hong Kong PP = +6m.43s., PPP = +8m.8s.
Adelaide i = +7m.34s., +10m.30s., +13m.44s., and +16m.56s.
Melbourne i = +8m.26s. and +15m.13s.
Sumoto iENZ = +12m.28s., eNZ = +12m.30s.
Kobe iN = +8m.42s., eN = +10m.9s., iZ = +12m.36s., iN = +13m.48s.
Osaka i = +8m.47s., +9m.16s. = P_cP −14s., iN = +13m.7s., iE = +13m.10s., i = +15m.40s.
Chiufeng PPZ = +8m.55s., ePPPNZ = +9m.22s.

Continued on next page.

Vladivostok e = +11m.9s., i = +15m.41s.
Irkutsk PP = +11m.12s.
Tashkent e = +10m.54s. and +13m.1s., i = +13m.25s. and +19m.47s., e = +24m.1s.
Sverdlovsk e = +13m.34s. =PP +3s., i = +14m.22s., e = +16m.11s., iPS = +21m.1s., SS = +24m.46s.
Tiflis eZ = +13m.47s., eEN = +26m.49s.
Pulkovo i = +21m.51s. and +22m.33s. =S +0s.
Helsingfors ePSE = +24m.29s. =SKKS −20s., eSSE = +30m.0s.
Copenhagen +23m.29s., eEZ = +25m.41s.
De Bilt eZ = +24m.16s.?
Pasadena eZ = +19m.6s.
Georgetown iPP = +21m.2s., iSKP = +22m.5s. =PP −30s., eSS = +39m.16s.?

June 29d. Readings also at 0h. (near Graz and near Mizusawa), 1h. (Neuchatel), 3h. (Triest, De Bilt, Tiflis, and near Tyosi), 4h. (Haiwee, Pasadena, Riverside, and Tinemaha), 5h. (Almata, Andijan, Frunse, Tashkent, and near Santiago), 6h. (Sverdlovsk), 8h. (Edinburgh, Oak Ridge, Pasadena, Mount Wilson, Riverside, near Tyosi, near Malabar, and near Tananarive), 9h. (Sebastopol, Simferopol, Yalta, and near Apia), 10h. (near Nagoya), 12h. (Oak Ridge), 13h. (near Mizusawa), 14h. (near Almata, Andijan, Frunse, and Tashkent), 15h. (Sverdlovsk), 17h. (Chiufeng), 18h. (near Amboina), 19h. (near Santiago), 22h. (Scoresby Sund and near Mizusawa), 23h. (Triest).

June 30d. 12h. Readings which may be for two shocks.

Christchurch eP? =12h.2m.58s., SZ? =8m.16s., L =12m.2s.
Melbourne e =12h.8m.5s., S =11m.2s., L =12m.0s., M =13m.30s.
Sydney e =12h.8m.6s., L =12m.15s., M =14m.0s.
Adelaide eP =12h.8m.21s., iS =12m.32s., L =13m.59s., M =15m.18s.
Riverview eP =12h.8m.30s., eS =12m.42s., eL =14m.0s., ME =15m.18s.
Wellington i =12h.13m.6s., L =17m.

Chur eP_g =12h.12m.40s., iS =12m.48s.
Zurich eP_g =12h.12m.57s., iS =13m.15s.
Reykjavik e =12h.15m.24s.
Ivigtut L =12h.16m.
Kew eP =12h.16m.0s., eL =21m.
Copenhagen 12h.16m.50s., L =23m.
Scoresby Sund L =12h.17m.
Sverdlovsk e =12h.20m.4s. and 26m.37s., L =13h.1m.
Helsingfors eL =12h.20m.
De Bilt eS =12h.20m.39s., eL =22m.30s., MN =24m.42s.
Uccle 12h.20m.
Durham M =12h.21m.30s.
Strasbourg eLN =12h.21m.
Paris eL =12h.21m., M =27m.
Stuttgart e =12h.23m., eL =26m.
Piacenza ME =12h.29m.52s.
Baku e =12h.31m.36s., e =40m.56s., L =13h.2m., M =11m.30s.
Bombay M =12h.52m.37s.
Pulkovo eL =13h.18m.

June 30d. 17h. 7m. 2s. Epicentre 27°·5N. 142°·0E. (as on 1928 Sept. 19d.). R.3.

A = −·699, B = +·546, C = +·462; D = +·616, E = +·788; G = −·364, H = +·284, K = −·887.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Nagoya		8·8	332	e 2 16	+11	—	—	—	—
Kobe	z.	9·3	323	e 2 7	− 4	—	—	—	—
Mizusawa		11·6	357	e 3 12	+29	3 59	−54	—	—
Vladivostok		17·6	335	3 58	− 4	e 7 17	+ 2	8·9	—
Nanking		20·6	289	e 4 38	+ 2	i 8 36	+18	—	—
Manila		23·4	241	5 28	+23	11 0	?	16·1	—
Irkutsk		37·4	322	7 8	− 2	12 56	− 1	19·0	—
Tashkent		59·8	305	i 10 2	− 1	e 18 11	− 2	e 31·5	38·5
Sverdlovsk		62·6	323	10 24	+ 2	18 52	+ 2	32·0	—
Baku		74·1	309	—	—	e 21 12	+ 2	39·0	—
Pulkovo		76·5	332	—	—	e 21 28	− 9	45·0	—
Tiflis		77·1	311	e 11 52	− 1	e 21 38	− 6	e 46·6	49·4
Scoresby Sund		81·4	356	—	—	22 22	− 9	—	—

For Notes see next page.

NOTES TO JUNE 30d. 17h. 7m. 2s.

Additional readings.
Kobe eN = +3m.24s., eZ = +3m.53s. =SS − 5s., eN = +3m.58s.
Mizusawa eSE = +4m.16s.
Manila iN = +10m.9s.
Tiflis ePcPN = +12m.24s., eSKKSN = +22m.16s. =PS +4s.
Long waves were also recorded at Kucino, Copenhagen, De Bilt, Paris, Strasbourg, and Stuttgart.

June 30d. Readings also at 0h. (Scoresby Sund, Frunse, and near Almata), 1h. (near Lick), 3h. (Wellington and near Baku), 6h. (near Amboina), 7h. (Apia), 8h. (Adelaide, Melbourne, Riverview, and near Apia), 9h. (Scoresby Sund, Ivigtut, De Bilt, Paris, and Stuttgart), 10h. (Scoresby Sund, Ivigtut, De Bilt, Paris, Stuttgart, Strasbourg, Uccle, Edinburgh, Kew, Helsingfors, Oxford, Piacenza, Reykjavik, Pulkovo, and Sverdlovsk), 11h. (Perth, Baku (2), and Edinburgh), 13h. (De Bilt, Stuttgart, Paris, Edinburgh, Kew, Copenhagen, Haiwee, Santa Barbara, La Jolla, Mount Wilson, Pasadena, Riverside, Tinemaha, Tucson (2), Sitka, Oak Ridge, Ottawa, and near Santiago), 15h. (Piacenza and near Balboa Heights), 17h. (Pasadena, Tinemaha, near Apia, and near Wellington), 18h. (Tiflis), 19h. (Pasadena, Tinemaha, near Apia, near Strasbourg, near Santiago, near Tiflis, and Erevan), 20h. (Apia, Melbourne, Wellington, Honolulu, Baku, Sverdlovsk, Pulkovo, De Bilt, Uccle, Paris, Strasbourg, and Stuttgart, and Scoresby Sund), 21h. (Copenhagen and Suva), 22h. (Nanking, Kosyun, Taito, near Arisan, Karenko, and Taihoku), 23h. (near Malabar).

1934 BELATED READINGS

from **Stonyhurst** Jan. to June
and Bollettino Sesmico Anno 1934.
Microsismi Fase: I. **Rome** 1939 Jan. to March.

Jan. 2d. 20h. 55m. 45s. Epicentre 30°·0N. 57°·5E.

Stonyhurst △ = 48°·7, Az. 317°, e = +29m.15s.?, M = +34·3m.

Jan. 3d. 9h. 42m. 30s. Epicentre 53°·6N. 155°·8E.

	Corr. for Focus	△	Az.	P	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Stonyhurst	−3·8	71·0	347	e 11 3	+10	i 19 50	+ 3	—	15·8
Treviso	−3·9	76·0	335	i 11 21	− 2	e 20 30	−16	57·5	—
Padova	−3·9	76·3	336	i 11 26	+ 1	e 20 49	− 1	—	—
Trenta	−4·1	80·7	329	e 11 45	− 4	e 21 35	− 3	—	—
Catania	−4·1	82·8	330	11 57	− 4	21 38	−24	43·8	—

Jan. 3d. 14h. Readings also at (Catania).

Jan. 6d. Readings at 3h. (Camerino), 9h. (Catania).

Jan. 9d. Readings also at 2h. (Mineo), 6h. (Trenta).

Jan. 12d. 13h. 31m. 57s. Epicentre 23°·5N. 102°·5E.

	△	Az.	P.	O−C.	S.	O−C.	L.
	°	°	m. s.	s.	m. s.	s.	m.
Florence	74·8	311	e 33 21	?	e 39 51	L	43·1

Jan. 12d. 20h. Readings also at (Mineo).

Jan. 13d. Readings at 3h. (Padova and Treviso), 5h. (Trenta and Mineo).

Jan. 15d. 8h. 43m. 25s. Epicentre 26°·6N. 86°·8E.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Taranta	58·1	303	10 0	+ 9	18 20	+29	—	—
Bari	58·2	304	9 56	+ 4	17 53	+ 1	—	—
Trenta	59·0	302	i 10 20	+23	i 18 30	+27	33·6	41·1
Benevento	60·2	304	i 10 10	+ 4	18 5	−14	—	—
Catania	60·3	300	10 2	− 5	18 26	+ 6	29·9	39·3
Casamicciola	60·6	304	9 37	−32	17 43	−41	25·4	—
Mineo	60·7	300	9 10	−59	18 15	−10	—	—
Camerino	60·8	307	10 35	+25	18 35	+ 9	—	—
Casamari	60·8	305	10 13	+ 3	18 12	−14	—	—
Treviso	61·0	309	10 6	− 5	i 18 34	+ 5	35·6	32·6
Padova	61·2	309	e 9 52	−21	18 34	+ 2	—	—
Rome	61·4	305	e 10 13	− 1	i 18 22	−12	e 33·1	38·1
Livorno	62·6	308	10 23	+ 1	19 1	PS	—	—
Pavia	63·1	309	e 10 33	+ 7	—	—	—	—
Stonyhurst	68·4	320	e 11 2	+ 1	i 20 2	0	31·6	43·6

For Notes see next page.

NOTES TO JAN. 15d. 8h. 43m. 25s.

Additional readings :—
Catania i = +10m.23s., PP = +12m.37s., PPP = +13m.14s.
Treviso iP = +10m.12s., PP = +14m.19s.
Rome iP = +10m.28s.
Stonyhurst iP = +11m.10s., PP = +13m.17s., i = +13m.57s. and +15m.27s., iPPP = +15m.33s., i = +20m.7s. =PS −10s., iSS = +24m.45s., iSSS = +27m.34s.

Jan. 15d. Readings also at 9h. (Treviso), 12h. (Casamari), 15h. (Trenta and Trieste).

Jan. 20d. 17h. 56m. 15s. Epicentre 40°·7N. 108°·7E.

Stonyhurst records L and M. only.

Jan. 20d. 22h. 52m. 30s. Epicentre 25°·5N. 122°·0E.

Stonyhurst records L only.

Jan. 28d. 19h. 10m. 10s. Epicentre 16°·9N. 99°·6W.

	△	Az.	P.	O −C.	S.	O −C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Stonyhurst	80·5	36	12 6	− 4	22 28	+ 7	40·8	49·6
Padova	92·1	41	e 14 55	?	23 50	{− 2}	e 42·8	61·8
Treviso	92·3	41	13 10	+ 2	23 45	{− 8}	51·8	61·8

Stonyhurst PP = +15m.16s., e = +35m.50s.
Treviso SS = +25m.20s. =PS +1s.

Jan. 30d. 20h. 16m. 36s. Epicentre 38°·0N. 118°·5W.

Stonyhurst △ =72°·9, Az. =34°, E = +29m.24s.? and +34m. 24s., eL = +37·4m.
Treviso records L only.

Jan. 30d. Readings also at 7h. (Treviso and Padova).

Jan. 31d. 10h. 6m. 37s. Epicentre 16°·0S. 172°·0W.

Stonyhurst records L and M only.

Feb. 2d. 15h. 5m. 21s. Epicentre 4°·5S. 135°·0E.

	△	Az.	P.	O −C.	S.	O −C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Stonyhurst	119·7	333	—	—	e 52 39?	?	56·6	72·6

Feb. 3d. 14h. 33m. 13s. Epicentre 5°·6S. 151°·5E.

	△	Az.	P.	O −C.	S.	O −C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Treviso	126·7	325	—	—	e 36 47	?	69·6	74·3
Stonyhurst	127·3	341	—	—	e 30 47?	SKSP	e 60·8	71·8

Treviso gives also e = +47m.47s.?

Feb. 4d. 9h. 35m. 30s. Epicentre 41°·4N. 19°·3E.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Bari	1·8	263	−0 28	−54	—	—	—	—
Taranto	1·8	238	0 24	− 2	0 47	+ 1	—	1·4
Trenta	3·1	227	i 1 0	P_g	1 20	0	—	—
Benevento	3·8	268	i 1 2	P*	2 20	?	—	3·5
Casamicciola	4·1	263	1 16	P_g	2 52	?	3·4	3·8
Casamari	4·5	275	1 6	+ 2	—	—	—	—
Camerino	4·9	293	1 6	− 4	—	—	—	—
Catania	5·1	221	1 0	−13	2 8	− 2	3·0	3·4
Rome	5·1	278	1 21	P*	3 9	?	—	—
Padova	6·7	309	2 28	?	3 36	S_g	—	—
Treviso	6·7	311	i 1 32	− 3	i 3 18	S*	—	4·2
Pavia	8·3	301	e 1 58	0	—	—	—	—

Treviso SS = +3m.40s. =S_g +5.
Stonyhurst gives L and M only.

Feb. 4d. 13h. 27m. 20s. Epicentre 30°·5N. 51°·7E.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Taranto	29·5	299	11 17	S	17 1	?	22·3	—
Treviso	34·1	308	e 6 41	0	e 15 40?	?	—	—
Padova	34·3	307	7 21	?	12 17	+ 6	—	—
Stonyhurst	44·9	317	—	—	e 14 43	− 6	—	27·3

Treviso gives also SS = +22m.50s., SSS = +24m.0s.
Stonyhurst iS = +14m.51s.

Feb. 4d. 22h. 1m. 19s. Epicentre 5°·0S. 129°·8E.

Stonyhurst records L only.

Feb. 4d. Readings also at 10h. 11h.(3) 12h.(3) (Taranto).

Feb. 5d. Readings also at 15h. (Trenta).

Feb. 8d. Readings also at 17h. (Trenta).

Feb. 10d. Readings also at 22h. (Trenta).

Feb. 12d. 11h. 30m. 58s. Epicentre 20°·0N. 101°·5E.

Stonyhurst records L and M only.

Feb. 12d. Readings also at 13h. (Trenta, Taranto, and Casamicciola).

Feb. 13d. 9h. 51m. 53s. Epicentre 70°·5N. 14°·5W.

Stonyhurst records L and M only.

Feb. 14d. 3h. 59m. 41s. Epicentre 17°·4N. 119°·0E.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Taranto	87·3	312	12 42	− 3	23 22	− 8	34·1	63·5
Trenta	88·5	311	i 12 54	+ 4	e 23 24	[+ 1]	50·3	68·3
Treviso	88·8	318	i 12 52	0	i 23 38	− 7	48·3	58·5
Benevento	89·2	313	e 13 17	+23	24 39	PS	38·3	56·3
Padova	89·2	318	i 12 55	+ 1	i 23 24	[− 4]	—	—
Catania	90·0	310	13 0	+ 3	23 56	0	e 44·6	59·9
Rome	90·2	314	e 13 1	+ 3	23 35	[+ 1]	—	—
Siena	90·3	316	12 49	−10	22 19?	?	—	—
Livorno	90·9	317	12 59	− 3	23 9	[−29]	—	—
Stonyhurst	93·0	330	i 13 12	+ 1	i 24 17	− 7	e 35·3	65·6

Stonyhurst gives also iPP = +16m.58s., eSKS = +23m.40s., iSKKS = +23m.59s., iPS = +25m.32s.

Feb. 14d. 22h. 18m. 22s. Epicentre 19°·2N. 104°·2W.

Stonyhurst records L only.

Feb. 14d. 17h. (Stonyhurst).

Feb. 16d. Stonyhurst e = 7h.35m.

Feb. 19d. 9h. (Trenta).

Feb. 21d. 0h. 40m. 15s. Epicentre 34°·2N. 22°·4E.

	Δ	Az.	P.	O−C.	S.	O−C.	M.
	°	°	m. s.	s.	m. s.	s.	m.
Catania	6·8	302	1 36	− 1	—	—	—
Trenta	7·0	319	i 1 45	+ 6	—	—	—
Treviso	13·9	329	e 3 15	+ 1	e 8 45	?	11·8

Feb. 21d. 11h. 37m. 20s. Epicentre 34°·2 22°·4E.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Catania	6·8	302	1 36	− 1	—	—	—	—
Trenta	7·0	319	i 1 40	+ 1	—	—	—	—
Casamicciola	9·4	317	2 13	0	5 15	S_g	8·2	—
Rome	10·9	318	2 36	+ 3	—	—	—	—
Padova	13·8	328	e 3 29	+16	8 7	?	—	—
Treviso	13·9	329	e 3 15	+ 1	e 8 25	?	—	12·2

Feb. 22d. 8h. 7m. 20s. Epicentre 37°·9N. 45°·1E.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Trenta	22·4	282	e 4 50	− 5	8 55	+ 2	—	—
Treviso	25·6	298	e 5 24	− 1	e 10 9	+18	—	16·9
Padova	25·8	298	e 5 29	+ 2	11 0	?	—	—
Stonyhurst	35·9	312	—	—	e 12 33	− 2	22·7	24·2

Treviso gives also SS = +12m.0s.

Feb. 13d. 5h. (Trenta).

Feb. 24d. 0h. 49m. 10s. Epicentre 73°·3N. 70°·7W.

Stonyhurst records L only.

Feb. 24d. 6h. 23m. 47s. Epicentre 22°·8N. 143°·9E.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Stonyhurst	98·0	341	i 17 36	PP	i 24 59	−10	45·2	50·2
Treviso	98·7	328	17 41	PP	e 23 13	[−66]	49·2	56·2
Padova	99·1	328	e 13 39	0	24 22	[+ 1]	—	—
Taranto	99·6	322	18 3	PP	26 33	PS	—	—
Trenta	100·9	321	e 14 13	+25	e 24 38	[+ 8]	54·2	78·2
Catania	102·8	320	13 41	−15	25 18	{+ 4}	54·6	63·5

Stonyhurst i = +31m.46s. =SS +12s., +35m.17s. =SSS +0s. and +38m.56s.
Treviso SS = +27m.13s.
Catania PP = +17m.41s.

Feb. 26d. 16h. (Trenta).

Feb. 27d. 14h. (Casamari and Rome).

Feb. 28d. 14h. 21m. 50s. Epicentre 5°·5S. 150°·0E.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Padova	126·1	325	e 21 39	?	—	—	e 57·2	74·2
Stonyhurst	126·7	340	—	—	e 31 21	PS	e 57·2	78·2
Livorno	128·0	323	e 19 40	[+37]	—	—	—	—

Stonyhurst gives also i = +37m.31s.

Feb. 28d. 9h. (Trenta).

March 1d. 19h. 41m. 15s. Epicentre 7°·0S. 148°·0E.

Stonyhurst records L and M only.

March 1d. 21h. 45m. 31s. Epicentre 40°·0S. 72°·8W.

Focal depth 0·015.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Stonyhurst	—	111·5	37	e 19 29?	PP	e 24 54	[−26]	49·5	—

Stonyhurst gives also i = +25m.54s., +28m.29s. =PS −14s., and +38m.26s.

March 2d. 14h. (Catania and Trenta).

March 4d. 5h. 55m. 7s. Epicentre 16°·7S. 167°·8E.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Trenta	146·6	318	i 19 33	[− 4]	—	—	—	—
Livorno	147·1	329	e 20 3	[+26]	—	—	—	—
Rome	147·1	325	i 19 38	[+ 1]	—	—	—	—

March 4d. 11h. 17m. 38s. Epicentre 55°·2N. 165°·0E.

Stonyhurst records L and M only.

March 4d. 7h. (Stonyhurst).

March 5d. 11h. 46m. 19s. Epicentre 40°·4S. 175°·6E.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Trenta	164·1	273	e 20 1	[+ 3]	33 41	?	84·0	96·7
Stonyhurst	166·5	355	24 41	PP	45 24	SS	69·7	104·3
Padova	167·1	299	e 21 55	{+39}	35 20	SKSP	e 73·7	—
Rome	167·2	283	e 20 9	[+ 8]	32 3	{+ 6}	—	—
Livorno	168·7	291	e 20 1	[− 1]	—	—	—	—

March 7d. 22h. 41m. 55s. Epicentre 13°·3N. 87°·7W.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Stonyhurst	76·5	37	—	—	e 35 5?	?	e 38·1	42·1

March 8d. 2h. 56m. 53s. Epicentre 33°·0N. 25°·4E.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Trenta	9·6	314	e 2 12	− 4	—	—	—	—

March 8d. 9h. (Camerino).

March 11d. 5h. (Trenta).

March 12d. 15h. 5m. 45s. Epicentre 41°·8N. 113°·0W.

Stonyhurst records L and M only.

March 12d. 0h. (Trenta), 19h. (Catania).

March 13d. 13h. 11m. 59s. Epicentre 11°·0S. 164°·0E.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Stonyhurst	135·8	348	—	—	i 36 57	?	66·0	67·0

March 20d. 2h. 38m. 26s. Epicentre 5°·5S. 148°·7E.

Stonyhurst records L only.

March 21d. 10h. (Trenta).

March 23d. 1h. 46m. 50s. Epicentre 46°·1N. 10°·0E.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Pavia	1·1	213	i 0 9	− 7	—	—	—	—
Padova	1·5	120	e 0 7	−14	i 0 27	−12	—	—

March 24d. 12h. 4m. 34s. Epicentre 9°·9S. 161°·4E.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Stonyhurst	134·1	346	e 19 52	[+38]	i 39 47	SS	e 52·4	67·7
Trenta	137·6	319	e 19 26	[+ 8]	29 26	{+17}	83·4	122·4

March 28d. 12h. 48m. 54s. Epicentre 44°·5N. 11°·0E.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Pavia	1·5	298	e 0 23	+ 2	—	—	—	—

March 28d. 14h. (Pavia).

March 29d. 20h. 6m. 48s. Epicentre 45°·8N. 26°·5E.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Trenta	9·9	232	i 2 32	+13	3 27	?	—	—
Treviso	10·0	274	i 2 20	− 1	e 4 16	+ 3	—	—
Padova	10·2	273	i 2 28	+ 4	i 4 21	+ 3	—	—
Siena	11·0	262	3 42	?	—	—	—	—
Livorno	11·7	265	3 2	+18	3 39	?	—	—
Pavia	12·2	273	e 2 58	+ 7	—	—	—	—
Stonyhurst	20·1	304	e 4 27	− 4	i 8 10	+ 2	—	—

Treviso SS = +5m.42s. = S_g +18s.
Stonyhurst iP = +4m.30s.

April 3d. 7h. 36m. 36s. Epicentre 4°·5N. 77°·5W.

Stonyhurst records L only.

April 6d. 19h. 9m. 37s. Epicentre 37°·3N. 141°·7E.

Stonyhurst records L only.

April 9d. 15h. 29m. 29s. Epicentre 35°·5S. 99°·5W.

Stonyhurst records L only.

April 10d. 10h. 23m. 2s. Epicentre 6°·9S. 115°·9E.

Stonyhurst records L only.

April 15d. 22h. 15m. 19s. Epicentre 7°·7N. 127°·0E.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Stonyhurst	105·3	332	i 18 54	PP	i 25 3	[+12]	43·7	59·3

iPS = +27m.52s.

April 27d.

Stonyhurst L = 2h.45m.

April 24d. 17h. 36m. 22s. Epicentre 16°·0S. 172°·0W.

Stonyhurst records L only.

April 26d. 21h. 0m. 25s. Epicentre 14°·0S. 166°·5E.

Stonyhurst records L only.

April 27d. 20h. 47m. 1s. Epicentre 22°·7S. 171°·8E.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Stonyhurst	148·5	353	—	—	c 53 49	?	62·0	—

May 1d. 3h. 40m. 45s. Epicentre 26°·2N. 66°·7E.

Stonyhurst records L only.

May 1d. 7h. 5m. 2s. Epicentre 3°·5N. 97°·5E.

Focal depth +0·0225.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Stonyhurst	−3·5	93·0	324	—	—	i 23 15	[−35]	—	—

i = +23m.48s. = S − 3s.

May 3d. 1h. 31m. 15s. Epicentre 27°·5N. 142°·5E.

Stonyhurst records L only.

May 4d. 4h. 36m. 10s. Epicentre 61°·5N. 147°·5W.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Stonyhurst	61·3	23	i 10 16	+ 2	i 18 39	+ 6	26·8	35·5

May 19d. 1h. 15m. 44s. Epicentre 15°·0S. 13°·5W.

Stonyhurst records L only.

May 20d. 19h. 4m. 30s. Epicentre 64°·7N. 2°·1W.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Stonyhurst	10·8	181	4 51	S	(4 51)	+18	—	7·1

S? = +5m.58s. = S_g +7s.

May 22d. 11h. 1m. 47s. Epicentre 1°·3N. 30°·3W.

Stonyhurst records L and M only.

June 2d. 13h. 42m. 45s. Epicentre 66°·0N. 18°·5W.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Stonyhurst	14·4	138	3 23	+ 2	6 15	+14	7·4	9·7

PP = +3m.30s., i = +6m.25s. and +7m.10s.

June 5d. 23h. 40m. 9s. Epicentre 34°·5N. 7°·0E.

Stonyhurst records L only.

June 8d. 4h. 47m. 52s. Epicentre 35°·9N. 120°·5W.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Stonyhurst	75·6	33	—	—	e 21 46	PS	e 39·1	42·1

June 9d. 12h. 58m. 51s. Epicentre 6°·0S. 147°·5E.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Stonyhurst	126·2	339	e 20 40	PP	—	—	e 49·1	63·8

June 13d. 1h. 51m. 1s. Epicentre 44°·2N. 147°·4E.

Focal depth +0·0125.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Stonyhurst	−1·7	78·6	343	11 58	+ 7	i 21 44	+ 2	e 42·0	46·0

June 23d. 5h. 19m. 58s. Epicentre 32°·3N. 93°·0E.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Stonyhurst	67·4	321	—	—	e 28 2?	?	36·0	37·0

June 24d. 5h. 59m. 28s. Epicentre 22°·3S. 68°·5W.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Stonyhurst	94·9	33	e 13 20	0	24 28	{+14}	39·5	50·5

i = +13m.50s., PP = +17m.11s., iSKS = +23m.50s., SS = +31m.5s.

June 29d. 8h. 25m. 20s. Epicentre 6°·1S. 123°·4E.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Stonyhurst	115·4	328	e 21 2	?	i 29 12	PS	—	—

i = +27m.22s. and +28m.37s.

June 30d. 10h. (Stonyhurst).

Original bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and have been scanned and collected by SGA Storia Geofisica Ambiente (Bologna) thanks to funding provided by the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.