The International Seismological Summary.

1932 July, August, September.

FORMERLY THE BULLETIN OF THE BRITISH ASSOCIATION SEISMOLOGY COMMITTEE.

There are 130 epicentres in this quarter of the Summary, 55 being new and 75 repetitions of old ones. The quality of the material is as follows :—

N.1=12	R.1= 6	X.=37
N.2=19	R.2=13	
N.3=24	R.3=19	

Cases of abnormal focus are as follows :—

	Date. d.	h.	m.	s.	Epicentre. °	°	Focal Depth. (Below Normal).
July	25	8	24	42	35·2N.	135·9E.	+0·060
July	27	0	30	58	31·2N.	139·0E.	+0·050
July	29	20	58	37	0·3N.	123·7E.	+0·020
Aug.	14	4	39	39	25·8N.	95·7E.	+0·015
Aug.	14	4	40	7	25·8N.	95·7E.	+0·015
Sept.	2	12	56	32	23·0N.	142·6E.	+0·020
Sept.	23	14	22	14	44·7N.	139·0E.	+0·040
Sept.	26	19	20	42	39·8N.	23·8E.	−0·0075
Sept.	26	21	26	56	39·8N.	23·8E.	−0·0075
Sept.	29	21	44	52	39·8N.	23·8E.	−0·0075
Sept.	30	7	31	10	39·8N.	23·8E.	−0·0075

UNIVERSITY OBSERVATORY,
OXFORD.

1937 November 17.

1932 JULY, AUGUST, SEPTEMBER.

July 1d. 0h. 55m. 48s. Epicentre 44°·2N. 34°·3E. R.3.
(as on 1929 Nov. 4d. and as given by the Crimean station).

A = +·592, B = +·404, C = +·697 ; D = +·564, E = −·826 ;
G = +·576, H = +·393, K = −·717.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Yalta	0·3	342	i 0 5	+ 1	(0 9)	+ 1	0·2	0·2
Sebastopol	0·7	307	i 0 12	+ 2	(0 21)	+ 3	0·3	0·7
Theodosia	1·1	43	i 0 20	+ 4	(i 0 34)	+ 6	i 0·6	0·8
Tiflis	8·0	105	e 1 58	+ 5	—	—	e 4·6	—
Pulkovo	15·8	353	3 34	− 5	e 6 49	+15	8·2	9·9
Lund	17·6	318	—	—	7 6	− 9	9·2	—
Copenhagen	18·0	317	—	—	7 12	−13	—	—
Upsala	18·6	333	—	—	e 7 28	−10	e 9·6	—
Ekaterinburg	20·8	43	i 4 37	− 1	8 22	0	10·2	—

Long waves were also recorded at Helsingfors, De Bilt, Hamburg, Paris, Strasbourg, Stuttgart, Edinburgh, and Scoresby Sund.

July 1d. 2h. 14m. 40s. Epicentre 47°·0N. 7°·0E. N.3.

Approximate: The Swiss stations give Jura mountains (in this neighbourhood) for the epicentre.

A = +·677, B = +·083, C = +·731.

	Δ	Az.	P.	O−C.	S.	O−C.	L.
	°	°	m. s.	s.	m. s.	s.	m.
Neuchatel	0·0	—	i 0 0	0	i 0 5	+ 5	—
Besançon	0·7	290	i 0 10	0	0 19	+ 1	—
Zurich	1·1	71	e 0 12	− 4	i 0 26	− 2	—
Chur	1·7	95	0 29	+ 5	e 0 46	+ 2	—
Strasbourg	1·7	18	e 0 22	− 2	i 0 37	− 7	—
Ravensburg	2·0	66	e 0 29	0	e 0 50	− 1	—
Stuttgart	2·3	40	e 0 31	− 2	e 0 59	0	e 1·1

Additional readings :—
Strasbourg iSS = +46s.
Ravensburg e = +44s.
Stuttgart e = +57s.

July 1d. Readings also at 0h. (near Santiago), 1h. (Alicante), 2h. (Tortosa, near Neuchatel and Zurich), 4h. (Andijan), 5h. (near Santiago), 8h. (near La Paz), 10h. (La Paz, Riverview, Melbourne, Manila, Batavia, and near Amboina), 12h. (Stuttgart, Hohenheim, and near Neuchatel), 15h. (near Mizusawa, Nagoya, and Tyosi), 17h. (near La Paz and near Santiago), 18h. (Tortosa).

July 2d. 2h. 11m. 18s. Epicentre 4°·2S. 130°·8E. (given by Batavia). N.3.

A = −·652, B = +·755, C = −·073 ; D = +·757, E = +·653 ;
G = +·048, H = −·055, K = −·997.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Amboina	2·7	281	i 0 59	P_g	i 1 29	S_g	—	—
Manila	21·2	333	4 37	− 5	8 22	− 8	10·4	12·4
Batavia	24·0	264	e 5 1	− 9	i 9 15	− 8	—	—
Hong Kong	31·1	329	6 14	− 1	7 49	?	—	15·0
Adelaide	31·6	169	e 5 48?	−31	i 11 50	+21	16·2?	21·5

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Medan	33·0	284	e 7 34	+62	i 11 48	− 3	i 16·4	—
Riverview	35·2	151	i 7 8	+17	→	—	i 15·3	—
Sydney	35·2	151	e 13 0	S	(e 13 0)	+36	23·7	28·2
Melbourne	36·0	161	—	—	i 12 59	+23	e 17·8	—
Irkutsk	60·8	342	e 10 6	− 4	—	—	27·7	40·7
Bombay	61·6	294	e 18 26	S	(e 18 26)	−11	—	—
Tashkent	72·0	316	e 10 42?	−41	i 20 34	−11	e 34·7	39·4
Samarkand	73·0	313	e 11 28	− 1	—	—	—	—
Ekaterinburg	82·8	329	i 13 21	+59	i 23 29	+44	38·7	—
Baku	85·9	311	e 12 42	+ 4	e 23 24	+ 7	e 45·7	—
Pulkovo	98·9	330	e 16 4	?	e 25 12	− 5	45·7	55·9
Copenhagen	109·1	328	—	—	30 42?	?	54·7	—
Scoresby Sund	111·4	351	—	—	29 36	?	54·7	—
Florence	113·9	316	e 19 40	PP	e 29 27	PS	38·7	53·7
Ottawa	132·7	25	e 22 56	PKS	e 39 46	SS	66·7	—
La Paz z.	152·1	138	e 23 3	PP	—	—	—	—

Additional readings :—
Batavia i = +7m.13s.
Melbourne iSS? = +15m.24s.
Irkutsk e = +13m.32s. = PPP − 6s., +17m.12s., and +21m.13s.
Tashkent e = +11m.29s. = P + 6s., +12m.0s., +20m.47s., +21m.34s., and +28m.16s.
Pulkovo e = +31m.8s.
Scoresby Sund +34m.42s. = SS + 4s.
Long waves were also recorded at Wellington, Honolulu T.H., Berkeley, and at other European stations.

July 2d. Readings also at 1h. (Wellington, Ottawa, Tucson, St. Louis, Mount Wilson, Pasadena, Riverside, and Tinemaha), 2h. (Scoresby Sund), 3h. (near Batavia and Malabar), 5h. (La Paz), 10h. (Ekaterinburg, Tashkent, and Manila), 11h. (Alicante), 12h. (La Paz, Rio de Janeiro, Ottawa, Algiers, San Fernando, Kew, De Bilt, Paris, Strasbourg, Stuttgart, Florence, Baku, Copenhagen, Pulkovo, Tashkent, Ekaterinburg, and Andijan), 13h. (Wellington, Mount Wilson, Pasadena, Riverside, and Tinemaha), 14h. (Ekaterinburg, Andijan, Tashkent, Tiflis, Alicante, and near Granada), 15h. (La Paz, La Plata, and near Santiago), 16. (Ottawa and La Paz), 18h. (near Nagasaki), 19h. (Tiflis), 20h. (Belgrade), 21h. (Baku, Ekaterinburg, Tashkent, Kodaikanal, and Tananarive), 22h. (Mizusawa and near La Paz).

July 3d. 2h. 51m. 3s. Epicentre 35°·0N. 27°·5E. (as on 1930 Aug. 22d.). R.3.

A = +·727, B = +·378, C = +·574 ; D = +·462, E = −·887 ;
G = +·509, H = +·265, K = −·819.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Sebastopol	10·7	24	(e 4 20)	S	(e 4 20)	−11	—	—
Yalta	10·8	26	e 4 57	S	(e 4 57)	+24	—	—
Theodosia	11·7	28	e 4 57	S	(e 4 57)	− 1	—	—
Zagreb	13·9	324	—	—	e 6 39	+50	—	—
Triest	14·9	320	e 3 26	− 1	e 6 2	−11	e 7·8	8·2
Tiflis	15·1	59	e 3 41	+11	e 7 23	+66	e 9·0	10·0
Florence	15·3	310	e 1 57	?	e 5 57?	−25	—	9·0
Stuttgart	19·3	321	e 4 19	− 3	e 7 42	−10	e 10·2	—
Strasbourg	19·9	319	e 4 28	− 1	e 8 5	+ 1	e 11·0	—
Potsdam	20·2	334	—	—	i 8 10	0	e 12·0	—
Uccle	23·0	320	e 5 9	+ 8	—	—	e 11·0	—
De Bilt	23·3	324	—	—	e 9 13	+ 3	e 12·4	—
Pulkovo	24·8	3	5 18	0	9 48	+11	13·0	—

Sebastopol reading has been *increased* by 5m. to be in approximate agreement with the other Crimean stations.
Potsdam e = +7m.57s.
Long waves were also recorded at Baku, Tashkent, Helsingfors, Copenhagen, Lund, Belgrade, Paris, Piacenza, and Prato.

July 3d. 17h. 30m. 21s. Epicentre 15°·9S. 72°·8W. N.3.

$A = +\cdot284$, $B = -\cdot919$, $C = -\cdot274$; $D = -\cdot955$, $E = -\cdot296$; $G = -\cdot081$, $H = +\cdot262$, $K = -\cdot962$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
La Paz		4·5	97	i 1 17	+ 3	2 7	S*	2·6	2·9
Sucre		7·9	114	i 1 51	− 1	—	—	—	—
La Plata		23·2	148	4 57	− 6	(8 57)	−11	8·9	—
San Juan		35·0	11	—	—	e 12 20	− 1	e 18·3	—
St. Louis		56·9	344	e 9 43	+ 1	i 17 0	−35	—	—
Florissant		57·1	344	e 9 44	0	i 17 1	−37	—	—
Ottawa		61·3	358	—	—	e 18 51	+18	29·6	—
Riverside	N.	65·5	320	e 10 22	−20	—	—	—	—
Mount Wilson		66·0	320	e 10 47	+ 2	—	—	—	—
Pasadena		66·0	320	e 10 46	+ 1	—	—	—	—
Tinemaha	N.	68·1	322	e 11 0	+ 1	—	—	—	—
Pulkovo		110·3	31	—	—	e 28 32	PS	56·6	—

Additional readings :—
La Paz iP = +1m.13s. = P* − 1s., iPN = +1m.19s. = P_g − 5s., i = +1m.50s. = S − 5s., iSE = +2m.18s. = S_g − 5s.
San Juan e = +14m.40s. = SSSS − 1s.
Long waves were also recorded at Rio de Janeiro, De Bilt, Kew, Uccle, Copenhagen, Ekaterinburg, and Baku.

July 3d. Readings also at 1h. (Sucre and near La Paz), 2h. and 3h. (Tiflis), 4h. (Medan, Calcutta, Andijan, and Samarkand), 5h. (Andijan), 6h. (near Manila), 12h. (Andijan and Samarkand), 13h. (Andijan), 14h. (La Paz, Ekaterinburg, Tashkent, Tiflis, and near Samarkand), 16h. (Samarkand), 18h. (near Hukuoka, Matuyama, and near Medan), 19h. (near La Paz), 20h. (near Sumoto), 21h. (near Tyosi).

July 4d. Readings at 1h. (Andijan, Samarkand, and Manila), 3h. (Florence, Pulkovo, and Zagreb), 4h. (Baku, Tiflis, Copenhagen, Lund, De Bilt, Uccle, Strasbourg, and Stuttgart), 6h. (Manila), 7h. (near Nagoya and Tiflis), 8h. (near La Paz), 12h. (Riverview, Andijan, and Samarkand), 13h. (Wellington), 15h. (La Paz, near Amboina, and near Tokyo), 16h. (near Apia), 20h. (Branner, San Francisco, near Berkeley, Lick, and near Mizusawa), 21h. (Branner and Lick).

July 5d. 10h. 6m. 26s. Epicentre 17°·1N. 104°·3W. (as on 1932 June 25d.). R.3.

$A = -\cdot236$, $B = -\cdot926$, $C = +\cdot294$; $D = -\cdot969$, $E = +\cdot247$; $G = -\cdot073$, $H = -\cdot285$, $K = -\cdot956$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Riverside		20·6	328	e 4 34	− 2	—	—	—	—
Pasadena		21·0	327	e 4 40	0	—	—	i 14·1	—
Mount Wilson		21·1	327	e 4 41	0	—	—	e 11·2	—
Tinemaha	N.	23·4	331	i 5 5	0	—	—	e 12·2	—
St. Louis	N.	24·8	27	i 5 18	0	e 9 36	− 1	—	14·2
Madison		28·9	23	e 6 46	PP	—	—	—	9·6
Ekaterinburg		105·0	—	—	—	(25 34?)	{+ 3}	25·6	—

Long waves were also recorded at Tucson, Buffalo, Ottawa, Pittsburgh, Scoresby Sund, De Bilt, Kew, Strasbourg, and Pulkovo.

July 5d. 10h. 52m. 15s. Epicentre 5°·5S. 103°·5E. N.3.

Batavia gives epicentre 6°·1S. 103°·8E. from which the adopted position was deduced.

$A = -\cdot232$, $B = +\cdot968$, $C = -\cdot096$; $D = +\cdot972$, $E = +\cdot233$; $G = +\cdot022$, $H = -\cdot093$, $K = -\cdot995$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Soengei-Langka		1·7	87	i 0 59	+35	1 17	+33	—	—
Batavia		3·4	102	i 0 49	0	i 1 26	− 1	—	—
Malabar		4·4	113	1 1	− 2	2 23	S_g	—	—
Manila		26·5	41	5 38	+ 4	10 13	+ 6	14·8	18·9
Phu-Lien		26·5	7	—	—	e 10 12	+ 5	11·8	—
Colombo		26·6	297	5 51	+16	10 21	+12	13·9	20·4
Perth		28·8	158	13 10	?	—	—	—	—
Hong Kong		29·8	20	7 46	+103	11 4	+ 3	—	23·2
Calcutta		31·7	332	9 0	?	14 20	?	19·3	—
Bombay		38·9	309	8 58	*PP	13 28	+ 8	16·7	—
Agra	E.	40·9	325	—	—	e 13 16	−34	—	—
Adelaide		43·8	138	—	—	e 17 27	SS	20·9	28·0
Melbourne		49·6	137	—	—	e 15 52	− 3	24·4	31·2
Osaka		50·3	35	9 28	+34	16 3	− 2	—	17·1
Tananarive	E.	56·1	251	10 46	+69	e 17 31	+ 7	e 27·0	30·3
Irkutsk		57·8	0	e 9 49	0	17 51	+ 4	28·8	37·4
Baku		67·2	318	i 10 55	+ 2	i 19 53	+ 6	34·2	44·0
Tiflis		71·2	317	11 21	+ 3	20 38	+ 3	e 38·2	48·6
Ekaterinburg		71·4	337	i 11 19	0	20 36	− 2	34·6	38·8
Pulkovo		86·5	331	i 12 39	− 2	i 23 15	− 7	45·8	50·4
Zagreb		92·2	316	—	—	e 23 45?	[− 1]	—	—
Copenhagen		95·1	326	—	—	23 57	[− 5]	55·8	—
Stuttgart		97·0	319	—	—	e 34 45?	?	e 56·8	—
Tinemaha	N.	130·6	44	—	—	e 22 36	PKS	—	—
Pasadena	Z.	132·1	47	e 19 8	[− 2]	e 22 29	PKS	—	—
Riverside		132·7	47	—	—	e 22 44	PKS	—	—
La Paz	E.	156·5	201	e 20 6	[+16]	—	—	83·8	—

Additional readings :—
Tiflis ePP = +14m.15s.
Pulkovo eSKS = +23m.3s.
Long waves were also recorded at Kodaikanal, Scoresby Sund, Ottawa, and at other European stations.

July 5d. 18h. 33m. 6s. Epicentre 5°·5S. 103°·5E. (as at 10h. 52m.). X.

	Δ	Az.	P.	O−C.	S.	O−C.	L.
	°	°	m. s.	s.	m. s.	s.	m.
Soengei-Langka	1·7	87	i 0 54	?	1 20	?	—
Batavia	3·4	102	i 0 49	0	i 1 28	+ 1	—
Malabar	4·4	113	e 1 2	− 1	1 46	− 7	—
Andijan	54·3	331	e 12 28	+185	e 19 50	+171	—
Ekaterinburg	71·4	337	12 17	+58	i 21 36	+58	34·9
Pulkovo	86·5	331	12 50	+ 9	23 14	− 8	46·9

Long waves were also recorded at Irkutsk and Kucino.

July 5d. Readings also at 1h. (Simferopol and Tyosi), 3h. (Mizusawa, New Plymouth, and Wellington), 5h. (Mizusawa), 9h. (near Medan and near Santiago), 10h. (near Algiers), 11h. (near Batavia and Soengei-Langka (2)), 12h. (Sucre and near La Paz), 13h. (Tyosi), 14h. (near Soengei-Langka), 15h. (Scoresby Sund, De Bilt, Stuttgart, Zagreb, Copenhagen, Taranto, Trenta, near Triest, and Venice), 17h. (Medan, Andijan, and near Batavia), 19h. (Tyosi and near Nagoya), 22h. (Andijan and Camerino), 23h. (Baku, Ekaterinburg, Tiflis, and Kucino).

July 6d. 15h. 7m. 8s. Epicentre 19°·3N. 73°·4W. N.2.

A = +·270, B = −·904, C = +·331 ; D = −·958, E = −·286 ;
G = +·094, H = −·317, K = −·944.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Port au Prince		1·3	127	i 0 25	+ 7	—	—	—	2·4
San Juan.		6·9	95	i 2 1	P*	i 3 11	+15	—	—
Balboa Heights		12·0	211	i 2 47	− 1	i 4 51	−12	—	—
Fordham		21·5	359	e 4 47	+ 2	e 8 41	+ 5	e 10·4	—
Pittsburgh		21·9	346	—	—	i 8 55	+11	e 10·9	—
St. Louis		24·2	326	i 5 12	0	e 9 33	+ 6	—	12·9
Florissant		24·4	327	i 5 13	− 1	e 9 35	+ 5	—	12·9
East Machias		25·9	10	—	—	10 2	+ 5	e 12·1	—
Ottawa		26·1	356	—	—	e 9 58	− 2	e 11·9	—
La Paz		36·2	171	e 6 59	− 1	i 12 37	− 2	18·4	21·2
Riverside		41·6	299	e 7 45	0	—	—	—	—
Mount Wilson	E.	42·2	299	e 7 49	− 1	—	—	—	—
Pasadena	Z.	42·2	299	e 7 50	0	—	—	—	—
Tinemaha	N.	42·9	304	e 7 55	− 1	e 13 16	−63	—	—

Additional readings :—
San Juan i = +2m.22s.
Fordham eNZ = +4m.56s. =PP −7s., eN = +8m.49s.
La Paz PPN = +9m.2s.
Long waves were also recorded at Sitka, Madison, Granada, Stuttgart, Strasbourg, De Bilt, and Paris.

July 6d. Readings also at 3h. (near Medan), 6h. (near Mizusawa), 7h. (San Juan and Kobe), 13h. (near Malabar), 19h. (near Tyosi), 20h. (near Santiago), 22h. (Baku), 23h. (Ekaterinburg, Sebastopol, Simferopol, Theodosia, Yalta, Budapest, Triest, Vienna, and Zagreb).

July 7d. 16h. 15m. 56s. Epicentre **29°·1N. 113°·5W.** N.1.

Probable error of epicentre ±0°·23.

A = −·348, B = −·801, C = +·486 ; D = −·917, E = +·399 ;
G = −·194, H = −·446, K = −·874.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tucson		3·9	30	i 0 53	− 3	i 1 46	+ 6	—	—
Riverside		5·8	326	e 1 23	+ 1	(e 2 34)	+ 6	e 2·6	—
Pasadena		6·4	324	e 1 30	− 1	(e 2 56)	+13	e 2·9	—
Santa Barbara		7·5	317	e 1 52	+ 6	—	—	—	—
Tinemaha	N.	8·9	335	e 2 7	+ 1	—	—	e 4·1	—
Lick		10·7	323	e 2 34	+ 3	—	—	e 5·1	—
Branner	N.	11·0	321	e 2 39	+ 4	—	—	e 5·5	—
Berkeley		11·4	323	e 2 42	+ 2	i 4 45	− 3	e 5·1	6·7
Ukiah		12·8	324	3 0	+ 1	i 5 41	+19	i 6·1	—
Bozeman		16·7	6	e 3 51	+ 1	7 5	+10	i 8·2	—
Seattle		19·8	342	e 4 26	− 1	e 7 58	− 4	e 8·2	—
Victoria	E.	20·7	341	4 37	0	8 36	+16	10·8	13·4
	N.	20·7	341	4 32	− 5	8 31	+11	11·4	14·5
Florissant		21·4	57	i 4 41	− 3	i 8 43	+ 9	i 10·5	—
St. Louis		21·4	58	e 4 39	− 5	i 8 42	+ 8	i 10·4	11·5
Madison		23·8	47	i 5 10	+ 2	i 9 22	+ 3	11·5	—
Chicago		24·4	52	5 14	0	i 9 33	+ 3	i 11·5	—
Ann Arbor		27·3	53	e 5 40	− 1	i 10 28	+ 8	i 13·5	15·7
Columbia		27·9	72	e 5 44	− 2	e 10 28	− 2	14·0	—
Pittsburgh		29·6	58	i 6 4	+ 3	i 10 54	− 4	i 14·0	—
Charlottesville		30·3	63	e 6 12	+ 4	e 11 13	+ 4	e 14·7	—
Toronto		30·7	52	i 6 12	+ 1	i 11 12	− 4	14·6	16·1
Buffalo		31·0	54	i 6 14	0	i 10 50	−30	e 16·1	—
Georgetown		31·5	62	e 6 17	− 1	i 11 26	− 2	—	16·6
Sitka		31·9	337	i 6 24	+ 2	i 11 48	+14	i 14·8	—

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Ottawa	33·7	50	e 6 38	0	e 12 6	+ 5	e 17·1	—
Fordham	34·2	59	e 6 53	+11	e 12 21	+12	i 16·1	—
Harvard	36·4	57	e 7 1	0	i 12 42	0	e 14·6	—
East Machias	39·4	53	i 7 24	− 3	i 13 30	+ 3	17·9	—
Honolulu T.H.	40·6	269	i 7 44	+ 7	e 13 31	−14	i 17·1	—
San Juan	44·3	93	i 8 9	+ 2	e 14 28	−12	22·0	—
Ivigtut	53·0	33	9 14	0	16 46	+ 4	25·1	—
La Paz	63·2	129	e 10 27	0	i 18 55	− 2	31·6	35·5
Scoresby Sund	63·2	22	10 27	0	e 18 58	+ 1	—	38·1
Dyce	76·3	32	—	—	e 21 30	− 5	—	—
Edinburgh	76·5	33	e 12 12	+23	e 21 47	+10	34·1	46·2
Bergen	77·6	26	15 4	?	—	—	e 30·1	—
Bidston	77·9	35	e 14 15	PP	e 21 49	− 4	e 35·8	46·2
Durham	77·9	33	12 6	+ 9	21 51	− 2	—	41·1
Stonyhurst	78·0	34	e 12 1	+ 4	e 21 53	− 1	36·1	48·4
Oxford	79·8	36	12 16	+ 9	22 4	−10	35·1	44·1
Kew	80·4	36	e 12 14	+ 4	e 22 14	− 6	32·1	44·0
Suva	80·9	244	—	—	23 4	+39	37·6	45·1
Upsala	82·4	23	e 12 20	0	e 22 45	+ 4	e 39·1	46·3
De Bilt	82·8	33	12 24	+ 2	22 44	− 1	e 38·1	43·9
Uccle	83·1	35	12 25	+ 1	e 22 45	− 3	36·1	52·7
Paris	83·4	37	e 12 25	0	e 22 52	+ 1	34·1	42·1
Copenhagen	83·5	27	i 12 27	+ 1	22 54	+ 2	35·1	—
Lund	83·8	27	12 28	+ 1	22 53	− 2	35·1	—
Hamburg	84·0	30	e 12 29	+ 1	e 23 1	+ 3	e 37·1	54·1
Helsingfors	84·4	19	e 12 31	+ 1	e 22 57	− 5	e 34·1	—
Toledo	84·9	47	e 12 34	+ 1	22 39	[−19]	e 34·8	50·5
Rio de Janeiro	85·3	119	—	—	e 23 4	− 7	e 32·2	—
San Fernando	85·4	51	12 31	− 4	23 5	− 7	38·1	52·6
Potsdam	86·1	30	e 12 34	− 5	i 23 19	+ 1	e 39·1	47·1
Karlsruhe	86·3	34	—	—	i 22 14	−66	e 41·1	50·2
Pulkovo	86·3	17	12 40	0	i 23 12	− 8	40·1	51·0
Strasbourg	86·3	33	e 12 35	− 5	e 23 16	− 4	e 35·1	50·2
Malaga	86·4	49	e 12 44	+ 4	23 24	+ 3	38·9	47·8
Jena N.	86·5	31	—	—	e 23 4	[− 6]	e 37·1	46·1
Granada	86·7	48	i 12 45	+ 3	i 23 22	− 2	41·3	47·6
Neuchatel	86·9	36	e 12 40	− 3	e 23 3	[−10]	—	—
Stuttgart	86·9	34	e 12 44	+ 1	e 23 14	[+ 1]	e 40·6	52·7
Cheb	87·5	31	e 23 37	S	(e 23 37)	+ 5	e 39·1	45·6
Zurich	87·5	35	e 12 44	− 1	e 23 20	[+ 3]	—	—
Almeria	87·7	48	e 12 20	−26	e 22 58	[−20]	e 43·3	48·0
Barcelona	87·7	42	—	—	e 23 4	[−14]	e 36·3	61·3
Alicante	88·0	46	e 12 19	−29	e 23 17	[− 3]	e 40·3	55·0
Chur	88·2	35	e 12 51	+ 2	e 23 14	[− 7]	—	—
Prague	88·4	30	e 21 10	?	e 27 46	?	e 42·1	51·1
Innsbruck	89·0	34	—	—	23 28	[+ 2]	39·5	—
Piacenza	89·6	37	13 24	+28	23 36	[+ 6]	—	52·3
Treviso	90·5	35	e 12 4?	−56	e 23 44	[+ 8]	49·1	52·5
Vienna	90·6	31	e 13 2	+ 2	24 2	0	e 40·1	53·1
Algiers	91·3	46	e 13 10	+ 7	i 24 8	0	40·1	50·6
Florence	91·3	37	e 13 4	+ 1	24 4?	− 4	36·8	38·6
Triest	91·3	34	e 13 8	+ 5	e 23 38	[− 2]	e 39·1	49·0
Irkutsk	92·2	338	e 14 10	+62	24 54	[+68]	43·1	59·2
Zagreb	92·3	33	e 13 14	+ 6	e 23 45	[− 1]	e 37·1	—
Budapest	92·4	30	—	—	e 24 4?	−14	e 38·1	49·6
Ekaterinburg	93·9	4	e 14 17	+62	i 24 39	+ 7	i 47·7	56·7
Wellington	96·7	226	—	—	24 56	− 1	38·1	43·1
Simferopol	100·3	24	e 16 2	?	—	—	34·1	—
Yalta	100·7	24	e 17 57	PP	—	—	32·3	—
Tiflis	106·4	17	e 18 7	[+ 1]	e 26 22	+ 1	e 46·5	62·6

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Baku		108·8	13	e 18 58	PP	e 25 20	[+12]	50·1	69·1
Ksara	N.	110·7	28	e 17 4?	[−76]	—	—	56·1	—
Hong Kong		111·1	313	19 3	PP	28 53	PS	62·7	75·4
Manila		111·7	302	19 12	PP	—	—	51·8	—
Helwan		112·2	33	—	—	e 28 44	PS	54·1	64·8
Melbourne		115·9	239	—	—	i 29 39	PS	53·4	56·6
Adelaide		119·9	244	—	—	e 35 54?	SS	54·0	61·5
Bombay		131·6	352	e 21 59	PP	—	—	—	83·8
Colombo		141·8	339	46 13	SSS	—	—	—	89·7
Tananarive		159·9	64	—	—	44 11	SS	77·9	85·6

Additional readings :—
Tucson i = +1m.1s. =P* − 3s.
Riverside iN = +1m.56s. =P_g +6s.
Berkeley eEN = +2m.45s.
Bozeman iP = +3m.56s., SS = +7m.20s.
Florissant iEN = +4m.52s.
St. Louis iPE = +4m.42s., iEN = +4m.50s., iN = +8m.39s.
Chicago i = +9m.40s., e = +10m.30s.
Ann Arbor ePP = +6m.16s., eSSN = +12m.4s. ; T_0 =16h.15m.12s.
Columbia ePP = +6m.29s., eS = +10m.36s.
Pittsburgh i = +11m.4s. and +12m.32s.
Toronto eE = +10m.55s., iSSSN = +13m.40s. ; T_0 =16h.15m.36s.
Buffalo iSS = +11m.36s.
Georgetown PP = +7m.30s. ; T_0 =16h.15m.48s.
Sitka iPP = +7m.34s.
Ottawa eSSSE = +14m.49s. ; T_0 =16h.15m.42s.
Fordham eEZ = +8m.10s., iZ = +8m.36s. and +9m.14s., i = +14m.30s.
East Machias i = +16m.24s.
Honolulu T.H. i = +13m.54s.
San Juan ePP = +9m.44s., SS = +18m.6s. =S_cS − 2s.
Ivigtut +20m.34s. =SS +20s.
La Paz PPE = +13m.23s., PPPN = +14m.25s., PSE = +19m.15s., PSN = +19m.21s., SSE = +23m.53s., iSSSN = +26m.33s., L_qN = +29·1m.
Scoresby Sund PPP = +14m.16s., iSEN = +19m.5s., also +22m.58s. =SS +0s.
Edinburgh i = +21m.55s. =PS − 9s.
Bidston eSKS = +26m.42s. =SS +1s.
Oxford PP = +15m.17s., SS = +27m.15s.
Kew eSSEN = +27m.24s., eSSSEN = +31m.0s.
Suva SS = +28m.9s.
Upsala iP = +12m.25s.
Uccle eSS = +28m.7s.
Copenhagen +28m.10s. =SS +5s.
Helsingfors eE = +17m.4s., eN = +17m.31s. =PPP +6s., eE = +19m.26s., ePSEN = +23m.55s., ePPSEN = +24m.28s., eE = +26m.16s., eN = +26m.33s., eSSE = +30m.10s., eSSSE = +31m.55s., eSSSN = +32m.3s.
Toledo PS = +23m.50s., SS = +28m.46s., SSS = +32m.4s.
Pulkovo PP = +15m.58s., SS = +28m.43s.
Strasbourg eSS = +28m.56s.
Malaga P_cP = +13m.7s., PP = +16m.29s., SKS = +23m.9s., PS = +24m.7s., SS = +29m.4s.
Jena eE = +23m.28s. =S +6s.
Granada PP = +16m.25s., PPP = +18m.26s., PPS = +24m.2s., SS = +28m.17s., SSS = +31m.48s.
Stuttgart e = +14m.52s., ePP = +16m.19s., e = +17m.22s. =PPP − 25s., eZ = +22m.34s., eSS = +28m.44s., eEN = +35m.43s., and +39m.4s.
Vienna PPP = +19m.32s. =PPPP − 17s.
Algiers eSKS? = +23m.30s.
Florence i = +29m.34s. =PP − 25s.
Triest ePP = +16m.48s., iS = +23m.46s., SKKS = +23m.58s., e = +24m.19s. = S +11s., PPS = +25m.9s.
Irkutsk ePP = +18m.48s., eSS = +31m.34s.
Ekaterinburg iPP = +18m.6s., ePPP = +20m.3s., iS = +25m.31s., iPS = +26m.37s., iSS = +31m.58s., iL_q = +42·0m.
Wellington SS = +30m.19s.
Tiflis e = +24m.59s. =SKS +3s., eSS = +33m.31s., e = +34m.29s., eSSS = +37m.51s.
Baku ePPS = +29m.37s., eSS = +34m.25s.
Helwan E = +35m.0s. =SS +2s. and +39m.4s. =SSS +12s.
Melbourne i = +36m.18s.
Adelaide e = +41m.54s. and +44m.29s.
Long waves were also recorded at Port au Prince, Denver, Balboa Heights, La Plata, Reykjavik, Angra do Heroismo, Tortosa, Besançon, Göttingen, Hof, Belgrade, Laibach, Theodosia, Perth, Riverview, Sydney, Kodaikanal, and Phu-Lien.

July 7d. Readings also at 0h. (Ekaterinburg and Pulkovo), 2h. (near Sebastopol, Theodosia, Simferopol, and Yalta), 3h. (Tiflis), 4h. (Messina, Sebastopol, and Yalta), 8h. and 9h. (Messina and Samarkand), 10h. (Andijan), 13h. (Lick), 17h. (Cape Town and Serra do Pilar), 18h. (Samarkand and near Andijan), 19h. (near Tyosi), 21h. (Suva), 22h. (Andijan, Samarkand, and Tucson), 23h. (Andijan).

July 8d. 11h. 17m. 7s. Epicentre 37°·4N. 26°·1E. (as on 1928 Dec. 10d.). X.

A = +·713, B = +·349, C = +·607 ; D = +·440, E = −·898 ;
G = +·545, H = +·267, K = −·794.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Trenta	7·9	286	e 1 23	−29	—	—	—	—
Simferopol	9·6	36	e 2 40	+24	—	—	—	—
Zagreb	11·3	321	2 39	0	—	—	—	5·9
Budapest	11·3	335	—	—	e 4 53?	+ 8	—	—
Triest	12·4	316	e 3 14	+20	e 5 3	−10	—	5·9
Florence	12·9	304	1 42	−79	—	—	—	6·4
Piacenza	14·5	307	—	—	e 5 19	−44	—	10·1
Tiflis	15·0	68	e 4 25	+57	e 7 21	+66	9·5	10·6
Zurich	16·2	313	e 3 43	− 1	—	—	—	—
Stuttgart	16·7	318	—	—	e 7 32	+37	e 8·4	—
Neuchatel	17·0	310	e 3 49	− 5	e 8 51	L	(e 8·8)	—
Paris	20·5	311	—	—	(e 6 53?)	?	e 6·9	11·9
De Bilt	20·8	322	—	—	e 8 15	− 7	e 9·9	11·6
Pulkovo	22·5	6	5 1	+ 5	9 1	+ 6	11·9	13·6
Kew	23·3	315	—	—	e 8 53?	−17	—	—
Oxford	24·0	316	—	—	6 43	?	e 9·4	12·9
Edinburgh	26·9	323	e 6 53?	+76	—	—	—	—
Ekaterinburg	30·0	38	—	—	e 14 10	?	15·9	—

Triest PP = +4m.3s.
Long waves were also recorded at Baku, Copenhagen, Lund, Helsingfors, Hamburg, Uccle, Strasbourg, Granada, and Scoresby Sund.

July 8d. 21h. 36m. 28s. Epicentre 47°·4N. 9°·5E. (as on 1929 Feb. 27d.). R.3.

A = +·668, B = +·112, C = +·736.

	Δ	Az.	P.	O−C.	S.	O−C.	L.
	°	°	m. s.	s.	m. s.	s.	m.
Ravensburg	0·4	12	—	—	e 0 10	0	e 0·2
Chur	0·6	177	e 0 9	0	i 0 18	+ 3	—
Zurich	0·6	267	e 0 8	− 1	e 0 17	+ 2	—
Hohenheim	1·4	352	—	—	e 0 39	+ 3	—
Stuttgart	1·4	352	—	—	0 37	+ 1	—
Neuchatel	1·8	257	i 0 29	+ 3	—	—	—

Additional readings :—
Neuchatel eP_g = +32s., e = +1m.52s. =S* +0s., eS = +1m.55s.

July 8d. Readings also at 0h. (Baku, Ekaterinburg, Edinburgh, Scoresby Sund, and near La Paz), 1h. (Andijan), 3h. (Glenmuick), 7h. (near Triest), 9h. (Honolulu T.H.), 10h. (Edinburgh and near Nanking), 20h. (Ottawa),

July 9d. 11h. 11m. 55s. Epicentre 50°·0N. 91°·8E. (as on 1927 May 23d.). X.

A = −·020, B = +·643, C = +·766; D = +1·000, E = +·031; G = −·024, H = +·766, K = −·643.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Irkutsk	8·2	69	e 1 52	− 4	e 3 16	−13	4·0	—
Andijan	16·4	243	e 3 51	+ 5	e 10 7	?	—	—
Chiufeng	19·7	111	e 4 24	− 2	—	—	—	—
Samarkand	20·3	249	e 4 33	0	—	—	—	—
Pulkovo	35·3	312	e 7 10	+18	—	—	21·1	23·5
Helsingfors	37·8	313	e 3 5?	?	—	—	—	—

Chiufeng i = +5m.27s., iE = +6m.12s.
Long waves were also recorded at Hong Kong, Baku, Ekaterinburg, Tiflis, and European stations.

July 9d. 12h. 56m. 6s. Epicentre 14°·7S. 166°·0E. (as on 1930 April 20d.). R.3.

A = −·939, B = +·234, C = −·254; D = +·242, E = +·970; G = +·246, H = −·061, K = −·967.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Suva		12·4	108	3 9	+15	4 39	−34	5·2	5·5
Riverview		23·4	212	i 5 9	+ 4	i 9 16	+ 4	e 11·9	16·2
Sydney		23·4	212	—	—	(9 18)	+ 6	9·3	10·6
Wellington		27·7	166	5 41	− 3	10 2	−25	11·1	—
Melbourne		29·7	215	e 6 5	+ 3	10 59	0	—	—
Adelaide		31·9	227	e 6 24?	+ 2	i 11 35	+ 1	i 14·5	15·6
Amboina		38·8	284	i 7 34	+12	i 13 11	− 7	—	—
Perth		48·7	240	—	—	i 15 26	−17	—	24·4
Honolulu T.H.		50·6	46	e 8 52	− 4	i 15 53	−16	20·6	—
Manila		53·3	302	9 20	+ 4	16 55	+ 9	26·0	—
Nagoya		57·0	333	e 9 43	0	(19 30)	(− 1)	19·5	—
Oiwake		57·3	334	9 46	+ 1	17 32	− 8	—	—
Osaka		57·3	331	9 40	− 5	17 34	− 6	—	19·9
Sumoto		57·3	330	—	—	i 17 38	− 2	—	—
Kobe	E.	57·4	331	—	—	e 17 38	− 4	—	—
Nagano		57·7	334	9 48	0	17 40	− 6	—	—
Batavia		58·7	273	e 10 54?	(+ 6)	i 17 53	− 6	—	—
Hong Kong		62·9	305	15 8	?	18 54?	0	—	27·7
Phu-Lien		68·3	300	—	—	(19 54?)	− 7	19·9	—
Medan		69·1	280	—	—	e 17 17	?	—	—
Ukiah		85·0	48	e 12 29	− 4	i 22 37	[−22]	—	—
Berkeley		85·2	49	i 12 20	−14	i 22 38	[−23]	—	—
Irkutsk		85·5	328	12 33	− 3	22 39	[−24]	40·9	—
Sitka		86·5	28	—	—	i 22 51	[−19]	e 35·9	—
Pasadena		87·0	54	e 12 33	−10	i 22 48	[−25]	—	—
Mount Wilson		87·1	54	e 12 36	− 8	e 22 49	[−25]	—	—
Riverside		87·5	54	e 12 48	+ 3	e 22 52	[−25]	—	—
Tinemaha	N.	87·9	51	e 12 40	− 7	e 23 8	[−11]	—	—
Tucson		92·2	57	—	—	i 23 21	[−25]	—	—
Bombay		97·6	288	e 23 11	SKS	(e 23 11)	[−63]	—	—
Andijan		102·2	310	e 18 16	PP	25 17	−29	—	—
Tashkent		104·6	310	i 12 42	?	e 20 12	PPP	e 43·7	—
St. Louis		109·8	54	e 18 54	PP	i 24 50	[−22]	—	—
Madison		110·6	49	i 19 48	?	—	—	41·9	—
Ekaterinburg		110·6	325	—	—	i 25 56	{−15}	51·2	—
La Paz	E.	118·1	118	e 25 19	SKS	(e 25 19)	[−25]	—	—
Baku		119·2	309	e 19 36	PP	—	—	—	—
Ottawa		120·1	44	—	—	e 27 54	{+37}	53·9	—
Fordham		122·2	50	—	—	e 24 54?	?	e 50·9	—
Tiflis		122·9	311	e 20 30	PP	e 25 45	[−14]	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Scoresby Sund		124·0	3	—	—	25 44	[−18]	51·9	—
Pulkovo		124·6	335	e 18 47	[− 9]	e 25 45	[−19]	55·9	63·3
East Machias		126·0	45	—	—	e 33 54?	?	—	—
Theodosia		128·7	317	e 22 14	PKS	e 28 0	{−13}	—	—
Upsala		129·3	342	e 22 13	PKS	e 27 56	{−21}	—	—
Simferopol		129·5	318	e 22 14	PKS	—	—	—	—
Yalta		129·6	316	e 22 16	PKS	—	—	—	—
San Juan		130·0	78	e 21 24	PP	e 25 57	[−22]	—	—
Sebastopol		130·0	318	i 22 21	PKS	—	—	—	—
Ksara	E.	131·2	303	22 27	PKS	—	—	—	—
Lund		134·0	339	22 34	PKS	28 28	{−19}	57·9	—
Copenhagen		134·2	339	22 36	PKS	28 42	{− 6}	57·9	—
Potsdam		136·6	337	e 22 30	PKS	i 28 47	{−16}	—	—
Hamburg		136·8	340.	e 22 39	PKS	—	—	e 61·9	—
Edinburgh		138·0	350	—	—	e 27 54?	?	—	—
Vienna		138·2	330	i 22 44	PKS	28 58	{−15}	—	—
De Bilt		139·6	340	e 19 12	[− 9]	e 29 3	{−18}	e 59·9	67·0
Zagreb		140·0	327	e 19 20	[− 1]	—	—	—	—
Stuttgart		141·0	336	e 19 16	[− 7]	e 29 8	{−22}	e 63·9	—
Uccle		141·0	340	e 19 20	[− 3]	i 29 12	{−18}	56·9	—
Triest		141·3	328	e 19 20	[− 3]	i 29 13	{−19}	—	—
Oxford		141·5	347	e 22 23	PP	i 29 10	{−23}	—	—
Kew		141·6	346	e 19 19	[− 5]	e 29 13	{−21}	e 67·9	—
Strasbourg		141·7	336	e 19 12	[−12]	i 29 17	{−17}	e 59·9	—
Zurich		142·3	334	e 19 23	[− 2]	e 29 18	{−20}	—	—
Padova		142·4	332	e 19 30	[+ 5]	—	—	—	—
Chur		142·4	334	e 19 23	[− 2]	e 29 17	{−21}	—	—
Neuchatel		143·3	335	e 19 26	[− 2]	e 29 24	{−19}	—	—
Paris		143·3	342	e 19 24	[− 4]	e 29 24	{−19}	63·9	84·9
Piacenza		143·6	332	19 28	[− 2]	—	—	—	—
Trenta		143·8	320	e 19 24	[− 6]	—	—	—	—
Florence	Z.	143·8	328	i 19 26	[− 4]	29 56	{+ 9}	—	—
Catania		145·6	318	19 31	[− 4]	—	—	—	—
Algiers		153·2	329	e 19 45	[− 1]	30 9	{−31}	43·9	—

Additional readings :—
Riverview $iS_cS = +16$m.5s.
Wellington i = +6m.29s. =PP +3s.
Melbourne iPP = +6m.47s., i = +12m.49s., +13m.4s., and +14m.54s.
Amboina i = +17m.27s. $=S_cS - 8$s.
Perth iSS = +18m.44s.
Honolulu T.H. i = +15m.43s.
Osaka i = +19m.30s. $=S_cS - 3$s.
Sumoto $iEN = +19$m.30s. $=S_cS - 3$s. and +19m.34s.
Kobe $iSN = +19$m.30s. $=S_cS - 4$s., iE = +21m.15s. =SS −12s.
Batavia i = +19m.37s. $=S_cS - 6$s.
Medan i = +17m.59s.
Pasadena eZ = +15m.54s. =PP − 7s., eN = +36m.9s.
Tinemaha eN = +12m.52s.
St. Louis iE = +25m.45s. =SKKS −20s., iN = +26m.26s., iEN = +40m.19s.
Madison i = +20m.46s., e = +21m.24s. =PPP +8s. and +23m.24s., i = +35m.10s.
Ekaterinburg i = +26m.56s., +27m.33s., and +29m.35s., e = +35m.53s., $L_q = +46{\cdot}5$m.
Ottawa eE = +28m.58s., e = +36m.12s. =SS −21s.
Fordham e = +28m.15s. and +36m.44s. =SS −16s.
Tiriis e = +27m.22s. =SKKS −14s.
Scoresby Sund +27m.24s. =SKKS −19s.
Pulkovo e = +27m.26s. =SKKS −21s., +30m.31s. =PS −13s., and +37m.34s.
San Juan eSS = +38m.19s.
Potsdam iPZ = +22m.37s.
De Bilt e = +22m.18s. =PP − 1s., iZ = +22m.47s. =PKS −21s.
Stuttgart ePP = +22m.26s., ePKS = +22m.51s., eSSEN = +40m.42s.
Uccle e = +22m.25s. =PP − 3s., i = +22m.53s. =PKS −18s., e = +32m.46s. = SKSP +11s. and +40m.52s. =SS − 2s.
Triest iPPZ = +22m.52s., e = +30m.7s. and +30m.34s.
Kew ePP = +22m.17s.
Strasbourg iPP = +22m.31s., PKS = +22m.54s.?, eSKS = +26m.16s., ePS = +33m.0s., ePPS = +35m.1s., eSS = +41m.1s.
Neuchatel ePKP = +22m.50s. =PP +8s.
Paris PP = +22m.42s.
Long waves were also recorded at San Fernando, Ivigtut, and Helsingfors.

July 9d. 20h. 23m. 56s. Epicentre 4°·6N. 125°·2E. (given by Batavia). N.3.

A = −·575, B = +·815, C = +·080; D = +·817, E = +·576; G = −·046, H = +·066, K = −·997.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Amboina	8·8	160	i 2 8	+ 3	3 52	+ 8	—	—
Manila	10·8	338	i 2 28	− 4	i 4 32	− 1	—	—
Hong Kong	20·7	330	4 44	+ 7	8 14	− 6	—	—
Batavia	21·3	240	i 4 52	+ 9	i 10 4	+92	i 11·1	—
Medan	26·5	269	e 6 4?	PP	i 12 24	?	—	—
Irkutsk	50·8	344	e 8 43	−14	e 15 47	−25	e 25·1	—
Andijan	59·4	315	e 10 10	+10	—	—	—	—
Tashkent	61·8	315	i 9 59	−18	—	—	—	24·9
Ekaterinburg	72·5	329	—	—	e 21 23	PS	33·1	—
Baku	75·9	311	e 12 10	+25	e 20 46	−44	39·1	—
Tiflis	79·8	312	e 11 55	−12	e 21 53	−21	e 36·5	—
Pulkovo	88·6	330	12 38	−13	23 9	[−15]	41·1	—
Copenhagen	98·7	328	—	—	23 52	[−27]	48·1	—
Scoresby Sund	101·8	350	—	—	24 4	[−30]	—	—

Additional readings:—
Tashkent i = +10m.4s., e = +14m.10s.
Ekaterinburg i = +22m.5s.
Pulkovo SKS = +22m.55s., PS = +23m.53s.
Long waves were also recorded at De Bilt.

July 9d. Readings also at 0h. (Andijan), 1h. (Andijan and near Irkutsk); 4h. (near Hokoto), 5h. (La Paz), 6h. (La Paz, San Juan, Ekaterinburg, Andijan, Frunse, Tashkent, and near Samarkand), 8h. (near Amboina (2)), 10h. (Vienna), 12h. (Ekaterinburg, Irkutsk, Tashkent, Medan, Hong Kong, Phu-Lien, and near Calcutta), 13h. (De Bilt, Batavia, near Malabar, and near Calcutta), 14h. (Hong Kong, Phu-Lien, and near Calcutta), 16h. (Göttingen), 18h. (Sikka), 19h. (Matuyama and Tashkent), 20h. (Ekaterinburg), 21h. (Tyosi), 22h. (Mizusawa and Tiflis (2)), 23h. (Potsdam, Chiufeng, La Plata, and near Santiago).

July 10d. 0h. 43m. 29s. Epicentre 52°·6N. 142°·3E. N.2.

A = −·481, B = +·371, C = +·794; D = +·612, E = +·791; G = −·629, H = +·486, K = −·607.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Mizusawa	E.	13·5	184	3 7	− 2	3 51	?	—	—
Kobe	Z.	18·6	199	—	—	e 8 26	+48	—	14·8
Irkutsk		22·9	284	i 5 6	+ 6	i 9 17	+14	11·7	—
Hong Kong		37·1	226	13 17	S	(13 17)	+24	18·2	26·4
Manila		41·6	211	14 31	S	(14 31)	+31	22·3	—
Ekaterinburg		44·5	309	i 8 9	0	e 14 39	− 4	i 21·7	28·3
Andijan		47·4	284	e 8 34	+ 2	—	—	—	—
Tashkent		48·9	287	e 9 26	+43	e 16 16	+31	25·3	28·3
Agra	E.	53·3	267	e 14 17	?	21 1	?	29·1	34·0
Pulkovo		55·2	325	i 9 27	− 3	e 17 1	−11	28·5	35·7
Scoresby Sund		56·4	354	9 36	− 3	—	—	28·5	—
Baku		60·4	299	—	—	e 26 17	?	37·5	39·0
Tiflis		62·1	303	10 21	+ 2	18 45	+ 2	e 30·9	40·5
Lund		63·9	331	10 31	0	—	—	40·5	—
Simferopol		64·8	312	e 10 37	0	—	—	—	—
Ivigtut		65·9	5	10 42	− 3	—	—	28·5	—
Tinemaha	N.	66·4	59	e 10 50	+ 2	—	—	—	—
Hamburg		66·7	332	—	—	e 29 31?	?	—	39·5
Potsdam		66·8	329	—	—	e 19 31?	−11	e 34·5	—
Mount Wilson	N.	68·7	61	e 11 9	+ 6	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Pasadena	Z.	68·7	61	e 11 3	0	—	—	—	—
Riverside	N.	69·2	61	e 11 10	+ 4	—	—	—	—
Vienna		69·2	324	i 11 4	− 2	—	—	—	44·5
De Bilt		69·3	333	11 5	− 1	e 20 22	+ 9	e 38·5	44·8
Uccle		70·7	334	e 11 14	− 1	e 20 31	+ 1	e 33·5	—
Stuttgart		71·2	329	e 11 16	− 2	e 20 39	+ 4	e 38·5	45·5
Kew		71·3	336	—	—	32 31?	?	37·5	—
Zagreb		71·4	323	e 11 19	0	—	—	—	39·5
Strasbourg		71·8	330	e 11 23	+ 1	e 20 55	+12	e 36·5	—
Triest		72·4	325	11 24	− 1	e 20 50	0	42·5	—
Chur		72·7	329	e 11 26	− 1	—	—	—	—
Paris		73·0	333	e 11 27	− 2	—	—	40·5	48·5
Neuchatel		73·4	330	e 9 28	?	—	—	45·5	—
Piacenza		74·2	327	21 9	S	(21 9)	− 2	—	43·0
Florence		74·8	325	11 31	− 8	—	—	—	46·5
Ottawa		76·8	26	—	—	e 21 31	−10	47·5	—
Toronto		77·2	29	—	—	e 29 1	?	43·3	—
St. Louis		78·0	39	e 11 56	− 1	e 22 25	PS	—	43·3

Additional readings :—
Hong Kong S = +16m.12s.
Manila SEN = +19m.12s.
Tashkent i = +16m.26s., e = +17m.11s., and +20m.13s.
Baku e = +33m.6s.
Tiflis eSKKS = +20m.5s., eSSS = +25m.39s.
Stuttgart e = +15m.31s., eNZ = +28m.55s.
Triest e = +38m.51s.
Long waves were also recorded at Nanking, Sitka, East Machias, and other European stations.

July 10d. 7h. 45m. 17s. Epicentre **39°·5N. 145°·0E.** R.1.

(as on 1926 May 18d.)

Tokyo gives for epicentre 39°·6N. 145°·0E.

Probable error of epicentre ±0°·19.

A = −·632, B = +·443, C = +·636 ; D = +·574, E = +·819 ;
G = −·521, H = +·365, K = −·772.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Isinomaki	3·0	250	0 42	− 1	1 12	− 5	—	—
Mizusawa	3·0	263	0 46	+ 3	1 26	S*	—	—
Urakawa	3·1	328	0 45	+ 1	1 23	+ 3	—	—
Sendai	3·4	250	0 48	− 1	1 26	− 1	—	—
Aomori	3·5	294	0 54	+ 4	1 36	+ 6	—	—
Akita	3·8	276	0 59	+ 5	1 49	S*	—	—
Hukusima	3·9	245	0 55	− 1	1 39	− 1	—	—
Nemuro	3·9	6	0 55	− 1	1 35	− 5	—	—
Hakodate	4·0	307	1 4	+ 7	1 52	S*	—	—
Muroran	4·2	314	1 2	+ 2	1 52	+ 4	—	—
Mito	4·7	231	1 2	− 5	1 57	− 3	—	—
Niigata	4·9	254	1 16	+ 6	2 4	− 1	—	—
Kakioka	5·0	231	1 7	− 4	2 3	− 5	—	—
Tyosi	5·0	222	1 7	− 4	2 4	− 4	—	2·9
Utunomiya	5·0	236	1 9	− 2	2 9	+ 1	—	—
Tukubasan	5·1	231	1 10	− 3	2 5	− 5	—	—
Kumagaya	5·6	235	1 18	− 2	2 19	− 4	—	—
Tokyo	5·6	229	1 18	− 2	2 18	− 5	—	—
Yokohama	5·8	228	1 28	+ 6	2 27	− 1	—	—
Oiwake	5·9	240	1 25	+ 1	2 56	S*	—	—

Continued on next page.

		Δ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
Nagano		6·0	244	1 26	+ 1	2 37	+ 4	—	—
Mera		6·2	224	1 33	+ 5	2 48	+10	—	—
Kohu		6·4	235	1 26	− 5	2 56	+13	—	—
Misima		6·4	229	1 35	+ 4	2 41	− 2	—	—
Numadu		6·5	230	1 38	+ 6	2 48	+ 2	—	—
Wazima		6·6	254	1 35	+ 1	2 47	− 1	—	—
Ootomari		7·4	348	e 1 46	+ 1	—	—	e 5·4	—
Gihu		7·6	240	1 51	+ 3	3 14	0	—	—
Hatidyozima		7·6	215	1 46	− 2	3 6	− 8	—	—
Nagoya		7·7	239	1 53	+ 4	3 20	+ 4	—	—
Hikone		8·2	241	1 52	− 4	—	—	—	—
Kameyama		8·2	238	1 59	+ 3	3 44	+15	—	—
Toyooka		8·9	247	i 2 5	− 1	i 3 50	+ 4	e 4·8	—
Osaka		9·0	241	2 10	+ 3	—	—	4·1	5·2
Kobe		9·2	242	2 9	− 1	4 5	+11	e 4·2	5·1
Wakayama		9·4	239	2 14	+ 1	4 1	+ 2	—	—
Sumoto		9·6	240	2 16	0	4 25	+22	—	8·4
Sikka		9·8	353	e 1 59	−19	—	—	4·7	6·0
Koti		10·9	241	e 2 18	−15	e 4 40	+ 4	5·4	—
Hamada		11·2	250	2 38	+ 1	6 6	S_g	—	—
Hukuoka		13·2	247	e 3 4	− 1	—	—	—	—
Miyazaki		13·3	240	3 3	− 3	5 31	− 3	—	—
Nagasaki		13·9	246	3 10	− 4	—	—	7·4	—
Zi-ka-wei		20·8	254	e 3 43	−55	7 46	−36	—	11·4
Chiufeng		22·1	281	e 4 55	+ 3	e 9 7	+19	—	—
Nanking		22·4	259	4 54	− 1	i 9 11	+18	e 15·4	—
Irkutsk		30·6	308	6 14	+ 4	11 18	+ 4	16·7	20·2
Hong Kong		31·3	246	6 23	+ 6	11 26	+ 2	13·8	17·8
Manila		32·6	228	6 57	+29	12 0	+15	15·7	18·7
Phu-Lien		37·7	252	—	—	e 13 5	+ 3	20·7	—
Honolulu T.H.		51·7	93	—	—	i 16 32	+ 8	23·7	—
Andijan		53·8	296	e 9 27	+ 7	—	—	—	—
Ekaterinburg		55·0	318	e 9 30	+ 1	17 14	+ 5	30·7	36·9
Tashkent		55·8	298	e 10 21	+47	18 16	+56	29·7	37·8
Agra	E.	56·0	278	e 9 28	− 8	17 23	0	e 30·4	36·7
Kucino		66·5	324	e 10 53	+ 4	19 40	+ 1	32·9	37·5
Pulkovo		67·3	330	i 10 52	− 2	19 48	0	32·7	39·5
Baku		68·9	306	e 11 10	+ 6	e 20 21	+13	32·7	44·8
Berkeley		68·9	57	i 11 2	− 2	—	—	—	—
Helsingfors	E.	68·9	333	e 11 2	− 2	e 20 8	0	e 35·0	—
Scoresby Sund		69·6	355	11 8	0	20 19	+ 3	38·7	—
Upsala		71·7	335	e 11 20	− 1	—	—	e 35·7	40·2
Tinemaha	N.	71·9	56	i 11 22	0	—	—	—	—
Santa Barbara		72·5	59	i 11 24	− 2	—	—	—	—
Mount Wilson		73·7	58	i 11 31	− 2	—	—	—	—
Pasadena		73·8	58	i 11 29	− 4	—	—	e 31·3	—
Riverside		74·3	58	i 11 33	− 3	—	—	—	—
Simferopol		75·2	317	e 11 31	−10	—	—	e 51·7	—
Yalta		75·5	316	e 11 38	− 5	—	—	—	—
Lund		76·4	334	—	—	20 43?	−53	37·7	—
Copenhagen		76·6	334	11 49	0	21 38	0	37·7	—
Ivigtut		78·7	7	12 0	− 1	—	—	44·7	—
Potsdam		79·1	333	i 12 0	− 3	e 22 13	+ 7	e 40·7	43·7
Hamburg		79·2	335	e 12 3	− 1	—	—	e 38·7	42·7
Edinburgh		80·9	343	—	—	e 22 25	0	e 50·7	—
Jena		80·9	332	—	—	e 20 43?	?	—	—
Vienna		81·1	329	i 12 15	+ 1	e 22 27	0	e 40·7	54·7
De Bilt		82·0	336	12 18	0	22 35	− 2	e 38·7	44·3
Stonyhurst		82·5	341	—	—	e 22 43	+ 1	45·7	—
Zagreb		83·2	327	e 12 32	+ 8	—	—	e 44·7	48·3
Uccle		83·3	336	e 12 25	0	—	—	38·7	—
Stuttgart		83·4	332	12 25	0	e 22 48	− 3	e 41·2	—
Kew		84·2	340	—	—	e 21 43?	−77	e 39·7	46·8
Strasbourg		84·2	333	e 12 29	0	e 22 59	− 1	e 38·7	—
Triest		84·3	327	12 29	− 1	e 22 55	− 6	e 45·7	—

Continued on next page.

		Δ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
Paris		85·7	336	e 13 37	+60	—	—	39·7	41·7
Piacenza		86·4	330	—	—	23 19	− 2	—	52·3
Florissant		86·7	40	i 12 40	− 2	e 23 8	−16	—	43·7
Florence		86·8	328	12 43	+ 1	23 13	−12	—	—
St. Louis		87·0	40	i 12 42	− 1	e 23 9	−18	—	44·4
Ottawa		87·6	27	—	—	e 23 27	− 6	35·7	—
Toronto		87·7	30	—	—	e 23 9	−25	43·7	—
Pittsburgh		90·2	32	—	—	e 23 54	− 4	e 38·4	—
East Machias		90·8	22	—	—	e 22 43?	?	e 43·7	—
La Paz	z.	143·2	60	19 37	[+ 9]	—	—	—	—

Additional readings :—
Nagoya P = +1m.58s.
Toyooka iSEN = +3m.53s.
Osaka i = +2m.56s. and +3m.30s.
Kobe iE = +2m.23s.
Sumoto PN = +2m.19s.
Chiufeng i = +8m.57s.
Honolulu T.H. e = +16m.21s.
Tashkent e = +10m.35s. and +22m.13s.
Helsingfors ePPE = +13m.36s., eSSE = +24m.59s. ; T_0 = 7h.45m.17s.
Scoresby Sund +13m.49s. = PP +13s.
Hamburg iE = +24m.8s., iN = +24m.14s.
Triest e = +12m.58s., ePS = +23m.45s.
Long waves were also recorded at Tucson, Ukiah, Algiers, and at other European stations.

July 10d. Readings also at 0h. (Ootomari and near Andijan), 3h. (near Nagoya and Tyosi), 4h. (near Nagoya), 5h. (Triest), 7h. (near New Plymouth and Wellington), 8h. (Samarkand), 9h. (near Amboina), 12h. (Ekaterinburg, Irkutsk, near Neuchatel, Zurich, and near La Paz), 13h. (Rio de Janeiro), 14h. (near Tyosi), 16h. (Chur), 19h. (Ravensburg, near Chur (2), Neuchatel (2), Zurich (2), Stuttgart (2), Hohenheim (2), Rio de Janeiro, and near Matuyama), 20h. (Hokoto and near Mizusawa), 22h. (Balboa Heights).

July 11d. 8h. 21m. 38s. Epicentre 13°·0N. 124°·7E. (as on 1929 Nov. 7d.). R.2.

A = −·555, B = +·801, C = +·225 ; D = +·822, E = +·569 ;
G = −·128, H = +·185, K = −·974.

		Δ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
Manila		4·0	294	1 7	P*	2 12	S_g	—	—
Hong Kong		13·7	314	3 21	+10	5 42	− 2	6·5	8·7
Phu-Lien		19·0	297	e 4 22	+ 3	—	—	10·4	—
Nanking	N.	19·8	345	4 34	+ 7	e 8 26	SS	—	—
Miyazaki		19·9	17	4 29	0	8 17	SS	—	—
Sumoto	E.	23·2	22	5 4	+ 1	9 12	+ 4	—	—
	N.	23·2	22	5 1	− 2	9 21	+13	—	—
Kobe		23·6	22	5 5	− 1	9 54	SS	—	—
Osaka		23·8	22	5 8	0	9 30	+11	—	10·4
Kameyama		24·3	24	5 14	+ 1	9 40	+12	—	—
Batavia		26·2	224	i 5 28	− 3	9 59	− 3	—	—
Irkutsk		42·6	344	e 7 53	0	e 14 13	− 2	23·4	—
Tashkent		55·4	313	e 9 19	−13	e 17 20	+ 5	e 28·4	32·9
Ekaterinburg		65·1	328	i 11 37	(+24)	20 23	(− 6)	32·4	38·3
Baku		70·2	310	e 11 14	+ 2	e 20 31	+ 7	35·4	39·7
Tiflis		73·9	311	e 10 34	−60	e 20 35	−32	—	—
Kucino		77·5	325	e 11 51	− 4	e 21 51	+ 3	39·3	44·9
Pulkovo		81·0	330	e 12 10	− 3	e 22 21	− 5	45·4	47·6
Simferopol		81·3	315	e 12 12	− 3	—	—	—	—
Scoresby Sund		93·4	350	17 4	PP	—	—	50·4	—
Cape Town		110·6	237	18 22?	[+ 2]	—	—	—	—

Additional readings :—
Manila S_gEN = +2m.34s.
Kobe iE = +10m.20s.
Long waves were also recorded at several European stations.

July 11d. 8h. 38m. 57s. Epicentre 35°·5N. 141°·0E. (as on 1931 Dec. 18d.). X.

A = −·633, B = +·512, C = +·581.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tyosi		0·2	332	0 2	− 1	0 11	+ 6	—	0·2
Nagoya		3·4	265	e 0 50	+ 1	1 48	S*	—	—
Mizusawa	E.	3·6	1	1 9	P_g	1 58	S_g	—	—
Osaka		4·6	261	1 26	P*	(2 31)	S_g	2·5	3·0
Kobe		4·9	262	e 1 37	P_g	e 2 33	S_g	—	3·2
Sumoto		5·2	258	e 2 30	S*	—	—	—	—

Mizusawa gives also SN = +2m.3s.

July 11d. Readings also at 1h. (near Tortosa (2)), 5h. (Simferopol), 7h. (near Tyosi), 8h. (Edinburgh), 10h. (near Wellington), 12h. (near Tyosi (2)), 13h. (La Paz), 14h. (Rio de Janeiro, Kobe, near Osaka, and Sumoto), 16h. (Lick and Tiflis), 17h. (La Paz and Tortosa), 19h. (Scoresby Sund), 20h. (Pasadena, Tashkent, Pulkovo, Irkutsk, Neuchatel, and Zurich), 21h. (Baku, Kucino, Ekaterinburg, Copenhagen, and Scoresby Sund), 22h. (Tiflis).

July 12d. 4h. 18m. 26s. Epicentre 33°·6N. 134°·5E. (as on 1932 May 23d.). X.

A = −·584, B = +·594, C = +·553.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Sumoto	0·8	23	i 0 13	+ 2	i 0 22	+ 1	—	0·4
Kobe	1·2	28	0 18	+ 1	0 30	− 1	—	0·5
Osaka	1·4	40	0 17	− 3	(0 33)	− 3	0·5	1·1
Matuyama	1·5	279	e 0 38	S	(e 0 38)	− 1	—	—
Nagoya	2·6	52	e 0 37	0	1 8	+ 1	—	—

Osaka i = +53s.

July 12d. 13h. 52m. 9s. Epicentre 16°·0N. 103°·0W. (as on 1927 Jan. 19d.). X.

A = −·216, B = −·937, C = +·276; D = −·974, E = +·225;
G = −·062, H = −·269, K = −·961.

		△	Az.	P.	O−C.	S.	O−C.	L.
		°	°	m. s.	s.	m. s.	s.	m.
La Jolla	N.	21·2	325	e 4 43	+ 1	—	—	—
Riverside		22·2	327	e 4 59	+ 6	—	—	—
Mount Wilson		22·7	326	e 4 57	− 1	—	—	—
Pasadena		22·7	326	e 4 57	− 1	—	—	e 13·0
Tinemaha	N.	25·0	330	e 5 19	− 1	—	—	e 13·3
Florissant		25·4	23	e 5 21	− 3	e 9 41	− 7	e 14·9

Long waves were also recorded at Tucson, Madison, Ottawa, Scoresby Sund, De Bilt, and Pulkovo.

July 12d. 19h. 24m. 17s. Epicentre **26°·6N. 110°·1W.** **N.1.**

Probable error of epicentre ±0°·23.

A = −·307, B = −·840, C = +·448; D = −·939, E = +·344;
G = −·154, H = −·420, K = −·894.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tucson		5·7	354	i 1 21	0	i 2 29	+ 4	—	—
La Jolla		8·8	317	i 2 5	0	—	—	—	—
Riverside		9·7	322	e 2 17	0	—	—	—	—
Mount Wilson		10·2	320	e 2 25	+ 1	—	—	—	—
Pasadena		10·2	319	i 2 24	0	(i 4 24)	+ 6	i 4·4	—
Tinemaha	N.	12·6	329	i 2 58	+ 2	—	—	—	—
Denver		13·8	17	e 3 15	+ 2	e 5 58	+12	e 6·9	8·6
Lick	N.	14·5	321	e 3 21	− 1	—	—	e 7·0	—
Branner	N.	14·9	320	e 3 30	+ 3	—	—	—	—
Berkeley		15·2	321	e 3 31	0	i 6 32	+12	e 7·4	7·9
Ukiah		16·6	322	i 3 50	+ 1	i 7 8	+16	8·0	—
Bozeman		19·1	358	i 4 24	+ 4	8 9	+21	e 10·0	—
Florissant		20·5	48	i 4 36	+ 1	i 8 32	+16	i 10·2	11·3
St. Louis		20·5	49	i 4 35	0	i 8 31	+15	i 10·2	11·3
Seattle		23·1	339	i 5 2	0	e 9 14	+ 7	12·2	—
Madison		23·5	41	e 5 9	+ 4	e 9 27	+13	13·7	—
Chicago		23·8	45	5 9	+ 1	i 9 24	+ 5	i 11·8	—
Victoria	E.	24·1	338	5 12	+ 1	9 37	+12	12·7	15·7
	N.	24·1	338	5 12	+ 1	9 42	+17	12·9	16·5
Cincinnati		24·7	53	i 3 45	−92	i 8 9	−87	e 10·9	12·9
Columbia		26·0	66	i 5 31	+ 2	i 10 10	+12	i 12·0	—
Ann Arbor		26·6	47	e 5 37	+ 2	e 10 19	+10	e 12·7	15·0
Pittsburgh		28·5	53	i 5 54	+ 2	i 10 48	+ 8	i 14·8	—
Charlottesville		28·8	59	e 6 5	+11	e 10 53	+ 8	14·7	—
Toronto	N.	30·0	48	i 6 3	− 2	i 11 8	+ 4	15·4	—
Georgetown		30·1	58	6 11	+ 5	11 11	+ 5	—	16·9
Buffalo		30·2	49	i 6 5	− 2	i 11 9	+ 2	e 14·3	—
Fordham		31·3	55	e 6 32	+15	i 11 56	+32	15·7	—
Ottawa		33·1	47	e 6 34	+ 1	e 11 56	+ 4	e 16·7	—
Balboa Heights		33·8	115	e 6 13	−26	—	—	—	—
Harvard		35·4	53	e 6 51	− 2	i 12 35	+ 8	e 14·7	—
Sitka		35·4	337	i 6 51	− 2	i 12 35	+ 8	i 18·6	—
Port au Prince		35·7	95	i 7 2	+ 7	e 12 29	− 3	e 15·9	—
East Machias		38·6	51	i 7 17	− 3	i 13 20	+ 5	e 15·7	—
San Juan		41·2	92	i 7 38	− 4	e 13 53	− 1	21·6	—
Honolulu T.H.		43·7	274	e 8 19	+17	—	—	18·6	—
Ivigtut		53·5	32	9 23	+ 5	16 58	+ 9	24·7	—
La Paz		59·3	131	e 10 0	0	i 18 2	− 5	27·0	32·2
Scoresby Sund		64·4	22	i 10 37	+ 2	19 18	+ 6	29·7	—
Dyce		76·8	32	—	—	i 21 38	− 3	—	—
Edinburgh		77·0	33	e 11 55	+ 3	e 21 46	+ 3	e 33·7	42·8
Bidston		78·3	36	—	—	i 21 54	− 3	—	45·1
Durham		78·4	34	12 25	+26	21 59	+ 1	—	40·7
Stonyhurst		78·4	35	e 11 52	− 7	21 55	− 3	36·7	44·7
Bergen		78·5	27	e 11 43?	−17	e 25 43?	?	e 40·7	—
Oxford		80·0	36	i 12 10	+ 2	i 22 12	− 4	e 33·6	42·1
Kew		80·7	36	e 12 6	− 6	e 22 20	− 3	33·7	47·6
Rio de Janeiro		81·5	121	—	—	e 22 13	−19	e 33·9	—
Suva		82·6	246	11 3	−78	20 53	−110	38·4	46·2
De Bilt		83·2	34	12 24	0	22 49	0	e 36·7	41·7
Uccle		83·5	35	e 12 24	− 2	i 22 50	− 2	36·7	49·4
Paris		83·6	38	i 12 26	0	22 52	− 1	33·7	41·7
Upsala		83·6	24	e 12 27	+ 1	i 22 50	− 3	e 37·7	48·2
Copenhagen		84·4	28	i 12 28	− 2	22 56	− 6	35·7	—
Sapporo		84·4	316	12 30	0	—	—	—	—.

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Toledo		84·5	48	e 12 25	− 6	i 22 55	− 8	e 34·2	53·6
Hamburg		84·6	31	e 12 30	− 1	e 23 2	− 2	e 39·7	48·9
San Fernando		84·6	52	e 12 36	+ 5	i 23 6	+ 2	38·7	48·2
Lund		84·7	28	12 32	0	i 23 7	+ 2	35·7	—
Puy de Dôme		85·6	40	—	—	e 23 17	+ 3	e 41·3	—
Malaga		85·7	51	e 12 38	+ 1	i 23 14	− 1	e 35·4	42·4
Helsingfors		85·8	21	e 12 34	− 3	i 23 4	−12	e 34·7	—
Göttingen		85·9	33	e 12 31	− 7	e 23 7	−10	e 46·1	51·7
Granada		86·1	50	i 12 38	− 1	i 23 13	− 5	42·2	46·8
Besançon		86·5	38	—	—	e 23 21	− 1	e 39·7	—
Strasbourg		86·6	36	e 12 40	− 1	i 23 37	+14	e 35·7	45·7
Potsdam		86·8	31	e 12 37	− 5	i 23 16	[+ 4]	e 40·7	48·7
Tortosa	N.	86·9	45	e 13 3	+20	23 29	+ 3	e 55·8	104·6
Almeria		87·0	50	e 12 38	− 5	e 22 52	[−21]	e 44·0	—
Jena		87·1	33	—	—	e 23 28	0	e 35·7	43·7
Neuchatel		87·1	37	e 12 41	− 3	e 23 29	+ 1	—	—
Stuttgart		87·2	35	e 12 43	− 1	e 23 15	[0]	e 35·7	45·8
Alicante		87·5	48	e 12 40	− 5	e 23 36	+ 4	e 39·9	—
Barcelona		87·5	44	e 16 25	PP	e 23 32	0	e 34·8	48·1
Pulkovo		87·7	19	i 12 46	0	23 31	− 3	40·7	51·9
Cheb		88·0	33	e 16 13?	PP	e 23 37	0	e 41·7	48·7
Chur		88·6	37	e 12 50	− 1	e 23 22	[− 2]	—	—
Prague		89·0	32	—	—	e 23 37	− 9	e 40·7	46·7
Yokohama		89·6	310	12 41	−15	—	—	—	—
Piacenza		89·8	38	e 13 7	+11	23 57	+ 3	—	54·4
Oiwake		89·8	311	11 55	−61	—	—	—	—
Padova		90·7	37	e 11 14	−107	—	—	—	—
Algiers		90·8	48	e 12 53	− 8	i 23 52	−12	41·7	—
Treviso		90·8	37	e 12 34	−27	24 11	+ 7	43·7	—
Vienna		91·2	32	e 13 16	+13	23 47	[+ 7]	e 40·7	52·7
Prato		91·3	38	e 16 21	PP	23 36	[− 4]	43·0	—
Florence		91·4	38	i 11 28	?	23 53	[+12]	37·2	42·5
Triest		91·6	36	e 11 58	−67	i 23 42	[0]	e 36·7	53·0
Zagreb		92·6	34	e 13 21	+12	e 23 43?	[− 5]	e 40·7	55·7
Osaka		92·8	311	13 12	+ 2	23 56	[+ 7]	—	—
Kucino		93·3	18	e 13 14	+ 1	23 44	[− 8]	e 41·5	56·7
Irkutsk		95·6	340	e 13 24	+ 1	23 58	[− 6]	42·7	61·6
Ekaterinburg		96·2	5	i 13 27	+ 1	24 49	− 4	40·4	58·6
Wellington		97·1	227	—	—	24 43	{+12}	40·0	49·7
Yalta		101·7	25	e 18 12	PP	—	—	48·7	—
Tiflis		107·8	19	19 3	PP	e 26 33	{+42}	e 47·2	65·2
Baku		110·5	16	e 19 19	PP	—	—	49·7	67·6
Tashkent		112·1	1	—	—	e 45 31	?	e 51·5	55·6
Ksara	N.	112·2	30	e 18 43?	[+18]	—	—	55·7	—
Helwan		112·5	36	19 9	PP	—	—	35·2	67·2
Andijan		112·6	358	e 19 16	PP	—	—	—	—
Hong Kong		115·0	314	25 33	S	(25 33)	− 1	48·4	77·7
Manila		115·5	303	19 53	PP	i 29 23	PS	53·6	—
Melbourne		117·2	239	—	—	e 30 36	PS	53·4	61·3
Adelaide		121·5	243	—	—	e 36 55	SS	51·9	68·9
Bombay		134·4	356	e 39 38	SS	—	—	—	86·8
Cape Town		135·4	112	25 48	?	30 9	?	68·7	—

Additional readings :—
Tucson i = +1m.39s. = P* +5s., e = +2m.4s., iS = +3m.2s. = S_g +0s.
Berkeley eN = +3m.37s., eE = +7m.6s.
St. Louis iPEN = +4m.38s., iN = +8m.26s.
Seattle e = +5m.14s.
Chicago SS = +10m.57s.
Cincinnati ePNZ = +3m.48s., eSZ = +8m.18s., iSSEN = +9m.15s.
Columbia e = +10m.4s.
Ann Arbor ePPE = +6m.25s., eN = +8m.25s., iSN = +10m.43s., iSS?E = +11m.13s. ; T_g = 19h.23m.48s.
Pittsburgh i = +10m.54s. = S +0s., iSS = +12m.18s.

Continued on next page.

Charlottesville e = +6m.36s. =PP − 5s., eSS = +12m.27s.
Toronto PPN = +6m.59s., SSN = +12m.59s.
Fordham iZ = +6m.38s. and +7m.58s., iSS = +14m.0s.
Ottawa eSSSN? = +14m.13s. ; T_0 = 19h.24m.6s.
Sitka iPP = +8m.16s.
Port au Prince PP = +7m.50s., PPP = +8m.19s.
East Machias iPP = +8m.48s., i = +14m.39s.
San Juan iPP = +9m.18s., iSS = +17m.12s. =SSS − 2s.
Honolulu T.H. eSS = +18m.1s. =S_cS − 3s.
Ivigtut +21m.49s.
La Paz i_gP = +10m.28s., PP?N = +11m.58s., PSE = +18m.20s., SSE = +22m.32s., SSS = +24m.26s.
Scoresby Sund +23m.7s. =SS − 10s. and +26m.13s.
Bidston +26m.43s.? =SS − 4s. and +32m.13s. =SSSS + 19s.
Suva SS = +27m.23s.
Uccle e = +27m.50s. =SS − 15s., +30m.10s., and +34m.41s.
Upsala SS = +28m.16s.
Hamburg ePPZ = +15m.49s., iSKSN = +23m.5s.
Lund +22m.57s. =SKS + 0s.
Malaga PP = +16m.11s., SKS = +23m.4s., S_cS = +23m.29s., PPS = +24m.20s., SS = +28m.43s.
Helsingfors ePEN = +12m.39s., eSE = +23m.10s., eSSN = +28m.43s., iSSE = +28m.52s. ; T_0 = 19h.24m.25s.
Granada PP = +15m.53s., PPP = +18m.1s., SS = +28m.7s., SSS = +33m.4s.
Strasbourg eSKS = +23m.19s., ePS = +24m.18s.
Potsdam ePPEZ = +16m.7s., iSN = +23m.23s., eZ = +23m.43s.?, eEN = +24m.43s.?, eE = +26m.43s.?, eSSN = +28m.43s.?
Jena eE = +23m.31s.
Stuttgart eSS = +28m.49s.
Pulkovo SKS = +23m.13s., SS = +29m.13s.
Prague e = +29m.43s.?
Triest ePP = +15m.52s., i = +24m.8s., eSS = +30m.47s.
Osaka i = +14m.26s. and +17m.53s.
Kucino PP = +16m.55s., SS = +30m.43s.
Irkutsk PP = +17m.13s., SS = +31m.19s.
Ekaterinburg iPP = +17m.24s., iSKS = +23m.59s., eSS = +32m.25s.
Wellington SS = +31m.21s.
Tiflis e = +34m.10s. and +44m.29s.
Baku ePS = +29m.14s., eSSS = +39m.7s.
Hong Kong ? = +29m.24s., S = +35m.33s.
Melbourne e = +36m.33s.
Cape Town S? = +33m.9s., SS = +39m.48s., SSS = +46m.6s., +51m.3s.
Long waves were also recorded at Chiufeng, Reykjavik, Angra do Heroismo, Theodosia, Riverview, Sydney, Perth, Colombo, Hyderabad, Kodaikanal, Phu-Lien, Tananarive, and other European stations.

July 12d. Readings also at 0h. (Branner, Lick, San Francisco, and near Berkeley), 1h. (near La Paz), 3h. (Florissant), 4h. (near Koti), 6h. (Camerino, Collurania, Catania (3), Mineo (2), near Nagoya, Tyosi, and near Triest), 7h. (Balboa Heights, Andijan, and near Medan), 8h. (near Alicante and near Tyosi (2)), 9h. (near Tyosi (3) and Nagoya), 10h. (near Tyosi), 12h. (Scoresby Sund, near Reykjavik, and near La Paz), 13h. (Hastings and near Tyosi), 14h. (Ekaterinburg, Hong Kong, and Hastings), 18h. (Berkeley, Branner, and Lick).

July 13d. 4h. 5m. 50s. Epicentre 25°·5N. 110°·5W. (as on 1929 Sept. 27d.). X.

A = − ·316, B = − ·845, C = + ·431 ; D = − ·937, E = + ·350 ;
G = − ·151, H = − ·403, K = − ·903.

		Δ	Az.	P.	O − C.	S.	O − C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tucson		6·7	357	e 1 46	P*	i 2 56	+ 5	i 3·4	—
La Jolla	E.	9·4	323	e 2 13	0	—	—	—	—
Riverside	N.	10·3	326	e 2 22	− 3	—	—	—	—
Mount Wilson		10·8	324	e 2 31	− 1	—	—	—	—
Pasadena		10·8	324	e 2 30	− 2	—	—	e 4·9	—
Tinemaha	N.	13·3	332	e 3 5	− 1	—	—	—	—
Berkeley		15·9	324	e 3 39	− 1	—	—	e 7·4	—
St. Louis		21·5	47	e 4 47	+ 2	e 8 46	+10	e 11·0	—
Madison		24·6	39	e 5 20	+ 4	e 9 42	+ 8	—	14·2
Chicago		24·9	43	—	—	e 9 52	+13	e 12·8	—
Fordham		33·9	54	—	—	e 12 10	+ 6	17·2	—
Harvard		36·3	51	—	—	e 15 22	SSS	e 18·2	—
Copenhagen		85·4	28	—	—	23 10	− 2	42·2	—

For Notes see next page.

NOTES TO JULY 13d. 4h. 5m. 50s.

Additional readings :—
Berkeley e = +4m.10s.
Fordham e = +14m.10s.
Long waves were also recorded at Scoresby Sund and other American and European stations.

July 13d. Readings also at 0h. (Tucson), 1h. (Hastings), 2h. (Tucson, St. Louis, Florissant, Mount Wilson, Pasadena, Riverside, Buffalo, Madison, Ukiah, Pittsburgh, Ottawa, Harvard, and East Machias), 3h. (Scoresby Sund, Baku, Irkutsk, Ekaterinburg, Florence, Padova, near Prato, and near Neuchatel), 5h. (La Paz and near Tyosi), 7h. (East Machias, Ottawa, Pittsburgh, Chicago, Harvard, Pasadena, Riverside, Tinemaha, Berkeley, Tucson, and near Christchurch), 8h. (Scoresby Sund), 9h. (Baku, Ekaterinburg, Edinburgh, Kew, Strasbourg, Stuttgart, De Bilt, Uccle, Paris, Granada, and Tiflis), 10h. (Edinburgh), 11h. (Suva, Ekaterinburg, Irkutsk, and near Nanking), 12h. (near Prato, near Nagoya, Tokyo, and Tyosi), 13h. (Matuyama), 17h. (Strasbourg), 18h. (Branner), 19h. (Tashkent and near Taihoku), 20h. (Baku, Ekaterinburg, Irkutsk, Scoresby Sund, and Budapest).

July 14d. 8h. 53m. 17s. Epicentre 2°·6S. 154°·4E. N.2.

A = −·901, B = +·432, C = −·045 ; D = +·432, E = +·902 ;
G = +·041, H = −·020, K = −·999.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Amboina		26·2	268	6 4	+33	10 21	+19	—	—
Suva		28·2	125	6 43?	+54	—	—	—	—
Riverview		31·4	186	e 6 20	+ 3	i 10 24	−62	e 13·2	15·2
Adelaide		35·5	204	e 6 53	0	i 11 27	−62	e 13·2	20·7
Melbourne		36·3	194	—	—	i 11 40	−61	—	—
Manila		37·2	299	7 13	+ 5	11 47	−67	—	—
Wellington		42·8	158	7 26	−29	13 11	−67	19·7	—
Perth		46·2	227	15 43?	S	(15 43?)	+36	—	—
Hong Kong		46·5	305	8 28	+ 3	15 20	+ 8	—	—
Batavia		47·6	265	e 8 43?	+10	i 14 19	−68	—	—
Honolulu T.H.		52·5	61	9 16	+ 6	e 17 43	+68	28·7	—
Medan		56·0	276	e 9 31	− 5	i 17 27	+ 4	—	—
Irkutsk		68·7	330	11 8	+ 5	e 20 6	+ 1	e 33·7	—
Andijan		85·6	312	e 12 37	+ 1	23 8	− 6	—	—
Berkeley		86·4	52	e 12 39	− 1	—	—	—	—
Tashkent		88·0	312	e 12 31	−17	e 23 15	−22	—	—
Pasadena		89·4	56	i 12 54	− 1	—	—	—	—
Mount Wilson	N.	89·4	56	e 12 55	0	—	—	—	—
Tinemaha	N.	89·5	53	e 13 2	+ 7	—	—	—	—
Riverside	E.	90·0	56	e 12 55	− 2	—	—	—	—
La Jolla		90·1	58	i 12 56	− 2	—	—	—	—
Ekaterinburg		94·2	327	i 13 14	− 3	e 24 20	−15	39·7	—
Tucson		95·4	58	e 17 19	PP	—	—	e 50·7	—
Baku		102·6	311	18 13	PP	27 29	PS	41·7	—
Pulkovo		108·7	334	14 19	− 6	e 24 50	[−17]	61·7	—
St. Louis	E.	111·3	49	e 15 43	?	—	—	e 60·7	—
Scoresby Sund		112·0	359	19 28	PP	29 6	PS	54·7	—
Copenhagen		118·7	337	17 1	[−101]	—	—	60·7	—
Ottawa		118·8	38	e 20 10	PP	—	—	55·7	—
Fordham		122·2	42	e 18 44	[− 7]	—	—	56·7	—
Harvard		123·2	39	e 20 37	PP	e 30 19	PS	e 67·7	—
East Machias		124·1	35	e 20 37	PP	e 30 39	PS	e 57·7	—
De Bilt		124·2	338	e 18 52	[− 3]	i 20 51	PP	e 58·7	—
Paris		127·8	337	e 19 28	[+25]	e 21 16	PP	71·7	—
La Paz		133·9	116	e 19 4	[− 9]	i 23 33	?	—	—
Stuttgart		135·1	333	e 20 43?	?	—	—	—	—
San Juan		137·3	65	e 19 7	[−11]	e 22 3	PP	—	—
Granada		139·9	332	i 19 12	[− 9]	i 22 26	PP	—	—

For Notes see next page.

NOTES TO JULY 14d. 8h. 53m. 17s.

Additional readings :—
Riverview iE = +10m.53s., iSSN = +11m.24s. =S −2s., SSSS = +11m.59s.
Melbourne i = +14m.9s. and +16m.10s.
Hong Kong ? = +18m.10s. =SS −9s.
Medan i = +16m.51s.
Irkutsk ePS = +24m.7s.
Tashkent iPP = +17m.12s., ePS = +25m.22s., eSS = +30m.59s.
Pasadena eZ = +16m.24s. =PP +3s.
Tinemaha eN = +16m.42s. =PP +21s.
Pulkovo ePP = +18m.49s.
St. Louis eE = +19m.9s. =PP +2s., iE = +28m.54s. =PS +13s.
Ottawa eN = +31m.28s. and +37m.13s.
Fordham eZ = +20m.30s. =PP +6s., eN = +30m.28s. =PS +6s., and +37m.13s., =SS +12s.
East Machias e = +20m.44s. =PP +7s. and +22m.3s.
Long waves were also recorded at Strasbourg.

July 14d. Readings also at 1h. (Almata (3) and near Andijan), 4h. (Florence and Triest), 5h. (Simferopol, Theodosia, near Yalta, and near Tyosi), 6h. (near Hokoto), 7h. (Balboa Heights), 8h. (Florence), 9h. (near Amboina), 11h. (Apia), 12h. (near Tokyo and Tyosi), 22h. (Ponta Delgada).

July 15d. 8h. 7m. 23s. Epicentre 34°·0N. 27°·0E. (as on 1931 April 20d.). **X.**

A = +·739, B = +·376, C = +·559 ; D = +·454, E = −·891 ;
G = +·498, H = +·254, K = −·829.

	Δ	Az.	P.	O−C.	S.	O−C.	L.
	°	°	m. s.	s.	m. s.	s.	m.
Chur	18·4	319	e 4 12	+ 1	—	—	—
Baku	19·3	64	—	—	e 7 40	−12	11·1
Stuttgart	19·8	323	e 4 26	− 1	e 7 53	− 9	e 11·7
Neuchatel	19·9	316	e 4 37?	+ 8	—	—	—
Strasbourg	20·4	321	i 4 33	− 1	i 7 41	−33	e 12·7
Uccle	23·5	322	—	—	e 8 37?	−37	—
Lund	23·7	340	—	—	9 37?	+19	12·6
Copenhagen	23·9	339	—	—	9 13	− 8	12·6
De Bilt	24·2	326	—	—	e 9 37?	+10	e 12·6
Pulkovo	25·9	4	i 5 24	− 4	e 9 51	− 6	13·6

Long waves were also recorded at Tiflis, Ekaterinburg, Triest, and Edinburgh.

July 15d. 21h. 1m. 13s. Epicentre 12°·5N. 27°·0W. N.3.
(Very uncertain ; suggested by the Russian stations).

A = +·870, B = −·443, C = +·216 ; D = −·454, E = −·891 ;
G = +·193, H = −·098, K = −·976.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
San Juan	38·1	285	—	—	e 12 6	−62	—	—
Paris	43·8	29	e 11 43	?	e 14 10	−23	—	—
Chur	46·0	34	—	—	e 14 55	− 9	—	—
Strasbourg	46·1	32	e 11 47?	?	e 13 47?	?	e 27·8	—
Stuttgart	47·0	33	e 11 32	?	e 14 59	−20	—	—
De Bilt	47·3	27	e 11 42	?	e 15 17	− 6	—	—
Copenhagen	52·9	27	—	—	15 5	?	—	—
Lund	53·2	27	—	—	15 8	?	—	—
Scoresby Sund	58·1	2	12 10	PP	—	—	—	—
Pulkovo	63·1	29	e 11 27	(+22)	—	—	52·8	—
Tiflis	68·2	51	e 11 22	(− 4)	e 20 46	(− 6)	e 30·6	—
Baku	72·1	52	e 10 59	−24	e 20 20	−26	e 34·8	—
Ekaterinburg	78·3	34	e 12 0	+ 1	21 46	−11	37·8	—
Tashkent	86·4	49	e 9 59	?	e 16 35	?	e 44·8	47·8
Bombay	95·0	70	—	—	e 24 47	+ 5	—	—

Additional readings :—
Pulkovo e = +14m.47s. and +23m.29s.
Tiflis e = +26m.29s.
Tashkent e = +18m.53s.
Long waves were recorded at Granada.

July 15d. 23h. 17m. 40s. Epicentre 41°·5N. 142°·5E. (given by Tokyo). N.2.

A = −·594, B = +·456, C = +·663 ; D = +·609, E = +·793 ;
G = −·526, H = +·403, K = −·749.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Urakawa		0·7	18	0 15	+ 5	0 28	+10	—	—
Hakodate		1·3	284	0 16	− 2	0 38	+ 5	—	—
Muroran		1·4	306	0 11	− 9	0 26	−10	—	—
Aomori		1·5	242	0 19	− 2	0 35	− 4	—	—
Obihiro		1·5	20	0 37	S	(0 37)	− 2	—	—
Kusiro		2·0	43	0 30	+ 1	0 55	+ 4	—	—
Morioka		2·1	208	0 29	− 1	0 53	− 1	—	—
Asahigawa		2·3	358	0 36	+ 3	1 0	+ 1	—	—
Akita		2·6	225	0 37	0	1 8	+ 1	—	—
Mizusawa		2·6	204	0 40	+ 3	0 58	− 9	—	—
Haboro		2·9	349	0 30	−11	1 13	− 1	—	—
Nemuro		2·9	51	0 40	− 1	1 15	+ 1	—	—
Sendai		3·5	202	0 52	+ 2	1 34	+ 4	—	—
Hukusima		4·1	203	0 58	0	1 34	−11	—	—
Ootomari		5·2	2	e 1 28	P*	—	—	—	—
Kakioka		5·6	200	1 16	− 4	2 16	− 7	—	—
Maebasi		5·8	208	1 20	− 2	2 31	+ 3	—	—
Kumagaya		5·9	205	1 32	+ 8	2 43	+12	—	—
Nagano		5·9	216	1 22	− 2	2 52	+21	—	—
Tyosi		5·9	193	e 1 37	P*	2 45	+14	—	—
Wazima		6·0	229	1 26	+ 1	2 35	+ 2	—	—
Oiwake		6·0	212	1 29	+ 4	2 34	+ 1	—	—
Tokyo		6·2	201	1 38	+10	2 19	−19	—	—
Kohu		6·6	209	1 44	+10	3 13	S*	—	—
Misima		7·0	204	1 48	+ 9	3 16	+17	—	—
Gihu		7·6	217	1 47	− 1	3 17	+ 3	—	—
Nagoya		7·7	216	e 1 46	− 3	3 18	+ 2	—	—
Hikone		8·0	220	1 54	+ 1	—	—	—	—
Osaka		8·7	221	1 48	−15	—	—	4·1	5·1
Kobe		8·9	223	e 2 5	− 1	—	—	—	5·4
Sumoto		9·3	223	e 2 24	+13	e 4 37	S*	—	—
Irkutsk		27·8	306	e 5 38	− 7	10 16	−12	15·3	—
Ekaterinburg		52·2	317	—	—	e 17 27	+56	24·3	—
Tashkent		53·2	296	—	—	e 20 44	SS	e 27·8	33·5
Pulkovo		64·5	329	e 10 40	+ 5	e 19 36	+22	32·3	—
Scoresby Sund		67·4	355	—	—	19 20?	−30	—	—
Tiflis		68·5	307	e 10 52	− 9	e 19 50	−13	e 37·8	—
Tinemaha	N.	72·5	56	e 11 33	+ 7	—	—	—	—
Mount Wilson	N.	74·3	58	e 11 52	+16	—	—	—	—
Pasadena	Z.	74·3	58	e 11 48	+12	—	—	—	—
Riverside	N.	74·8	58	e 11 52	+13	—	—	—	—
Stuttgart		80·8	331	e 12 2	−10	—	—	e 44·3	—

Additional readings :—
Obihiro S = +59s.
Osaka i = +2m.40s.
Pasadena eN = +11m.52s.
Long waves were also recorded at Copenhagen, De Bilt, and Paris.

July 15d. Readings also at 1h. (Andijan), 2h. (Tiflis, near Christchurch, and Wellington), 3h. (Irkutsk), 4h. (Baku, Tiflis (2), Ekaterinburg, Tashkent, Pulkovo, Copenhagen, and near Santiago), 5h. (Kobe, near Toyooka, and near Tiflis), 8h. (near Batavia), 11h. (De Bilt, Stuttgart, Baku, Ekaterinburg, Irkutsk, Tiflis, Tashkent, Pulkovo, Copenhagen, Ootomari, and near Sumoto), 12h. (Wellington), 15h. (Adelaide, Riverview, Sydney, Perth, Irkutsk, Ekaterinburg, Pulkovo, near Apia, and near Sumoto (2)), 16h. (Mount Wilson, Pasadena, Riverside, Tinemaha, Scoresby Sund, Kew, Edinburgh, Stuttgart, Strasbourg (2), Paris, De Bilt, Copenhagen, Tiflis, and Baku), 18h. (Tiflis), 19h. (Andijan), 20h. (Adelaide, Melbourne, and Perth), 21h. (Wellington, East Machias, and Tiflis), 22h. (Scoresby Sund),

July 16d. 21h. 2m. 53s. Epicentre 6°·8S. 68°·0E. N.3.

A = +·372, B = +·921, C = −·118; D = +·927, E = −·375;
G = −·044, H = −·110, K = −·993.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Colombo		18·1	41	i 4 8	0	8 36	+69	13·0	13·2
Kodaikanal		19·5	29	i 4 26	+ 2	7 12	−44	9·5	11·0
Tananarive		22·9	237	5 3	+ 3	—	—	10·6	12·8
Bombay		26·1	10	(5 15)	−15	(10 16)	+16	10·3	15·3
Hyderabad		26·3	23	5 7	−25	10 12	+ 9	13·1	21·3
Agra	E.	34·8	16	3 59	?	—	—	16·5	—
Batavia		38·6	92	e 7 25	+ 5	i 10 21	?	—	—
Samarkand		46·4	358	e 8 33	+ 9	—	—	—	—
Andijan		47·7	4	e 8 35	+ 1	—	—	—	—
Tashkent		48·1	2	i 8 39	+ 2	i 15 35	+ 1	e 24·1	29·3
Baku		50·0	342	8 55	+ 4	e 16 16	+15	25·1	31·1
Tiflis		52·9	338	e 9 13	0	16 43	+ 2	25·8	—
Hong Kong		53·8	56	—	—	16 57	+ 4	—	33·6
Manila		56·7	68	9 55	+14	17 20	−12	—	—
Ekaterinburg		63·9	356	i 10 28	− 3	e 19 6	0	e 30·8	67·9
Irkutsk		66·6	23	e 10 48	− 1	(19 43)	+ 3	34·1	39·7
Pulkovo		72·9	341	11 26	− 2	20 54	− 2	37·1	48·3
Stuttgart		75·6	325	e 11 40	− 4	—	—	—	—
Neuchatel		76·0	323	e 11 44	− 2	—	—	—	—
Strasbourg		76·3	324	e 12 7?	+19	e 21 7?	−28	58·1	—
Copenhagen		77·3	332	12 7	+13	—	—	45·1	—
De Bilt		79·3	326	12 5	+ 1	—	—	e 48·1	—
Paris		79·5	322	e 12 4	− 1	—	—	53·1	—
Kew		82·2	324	e 12 7?	−12	—	—	—	—
Edinburgh		85·3	328	—	—	e 23 7?	− 4	—	—
Scoresby Sund		96·3	340	17 25	PP	—	—	39·1	—
East Machias		125·8	322	—	—	e 38 37	SS	e 65·1	—
La Paz	E.	130·8	242	e 22 30	PKS	—	—	65·1	70·8
Tinemaha	N.	149·2	9	e 19 50	[+10]	—	—	—	—
Pasadena		152·1	11	e 19 47	[+ 3]	—	—	—	—

Additional readings and notes :—
Colombo eP = +3m.39s.
Tananarive SS = +9m.25s.
Bombay P = +1m.55s.; true P and S are given as S and L respectively.
Tiflis eSSS = +22m.7s.
Irkutsk eSS = +23m.47s.; true S is given as PS.
Long waves were also recorded at Granada.

July 16d. Readings also at 0h. (La Paz), 1h. (near Tyosi), 2h. (Andijan and Samarkand), 3h. (near Samarkand), 4h. (Wellington), 7h. (La Paz), 8h. (Tashkent, Tiflis, Ekaterinburg, Paris, Strasbourg, and Lick), 12h. (near Osaka, Sumoto, Kobe, near Amboina, and near Medan), 13h. (near Andijan and near Osaka), 14h. (Samarkand), 15h. (Almata and near Andijan), 17h. (near Sumoto and Osaka), 18h. (Berkeley, Branner, Lick, and near Santiago), 20h. (Chiufeng and near Batavia and Malabar), 23h. (Mount Wilson, Pasadena, Riverside, Tinemaha, Tucson, St. Louis, Florissant, Ottawa, East Machias, and Madison).

July 17d. 11h. 37m. 14s. Epicentre 39°·0N. 73°·0E. (as on 1927 Jan. 20d.). X.

A = +·227, B = +·743, C = +·629; D = +·956, E = −·292;
G = +·184, H = +·602, K = −·777.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Andijan	1·8	345	0 16	−10	(i 0 41)	− 5	i 0·7	0·7
Tashkent	3·7	310	e 0 55	+ 2	(i 1 40)	+ 5	i 7·7	4·5
Samarkand	4·7	279	(e 1 17)	P*	—	—	(2·4)	(3·1)
Almata	5·2	33	é 1 12	− 2	(2 22)	+ 9	2·4	—
Baku	17·8	282	—	—	e 7 54	+34	e 10·6	—
Ekaterinburg	19·6	340	e 5 13	+48	e 8 59	+61	12·2	—
Tiflis	21·6	286	e 4 46	0	e 10 43	+125	e 16·3	—

For Notes see next page.

NOTES TO JULY 17d. 11h. 37m. 14s.

Additional readings and note :—
Tashkent i = +1m.8s. = P_g +0s.
Samarkand i = (+1m.42s.) ; readings have been *diminished* by 4m.
Ekaterinburg e = +5m.23s., L_q = +11·2m.
Tiflis e = +1m.21s.
Long waves were also recorded at Irkutsk, Pulkovo, Copenhagen, De Bilt, Kew, and Stuttgart.

July 17d. Readings also at 0h. (Florissant), 3h. (Tiflis), 5h. (Baku, Ekaterinburg (2), Irkutsk, Scoresby Sund, Copenhagen, Tashkent, Tiflis, Almata (3), near Samarkand (3), and near La Paz), 6h. (Copenhagen and Tiflis), 7h. (Scoresby Sund), 8h. (near Wellington), 10h. (Edinburgh), 11h. (Manila), 12h. (near Sumoto), 14h. (Andijan), 16h. (Manila), 17h. (Baku, Ekaterinburg (2), Pulkovo, Tashkent, Andijan, Tiflis, Copenhagen, Irkutsk, and Almata ; shock from near 45°N. 91°E. according to Russian stations, but data cannot be made to agree with a determination at this epicentre), 18h. (East Machias, Ottawa, and Scoresby Sund), 19h. (Tiflis and near Manila), 20h. (Tortosa), 21h. (Manila), 22h. (Mount Wilson, Pasadena, Riverside, Tinemaha, Andijan, Samarkand, Manila, New Plymouth, near Wellington, and near Sumoto), 23h. (Baku and Ekaterinburg).

July 18d. 5h. 2m. 5s. Epicentre 14°·7N. 119°·8E. (given by Manila). N.3.

A = −·481, B = +·839, C = +·254 ; D = +·868, E = +·497 ;
G = −·126, H = +·220, K = −·967.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Manila	1·1	96	i 0 21	+ 5	—	—	—	—
Hong Kong	9·3	326	2 27	+16	4 15	+19	4·9	6·7
Phu-Lien	14·0	298	3 29	+14	e 6 15	+24	7·9	—
Nanking	17·4	357	i 4 13	+14	—	—	—	—
Medan	23·6	244	4 43	−23	i 9 49	SS	i 10·0	—
Sumoto	23·9	32	5 8	− 1	—	—	—	—
Kobe	24·3	32	e 5 12	− 1	—	—	—	—
Osaka	24·5	33	5 7	− 8	—	—	—	—
Batavia	24·6	212	i 5 9	− 7	i 10 13	SS	—	—
Nagoya	25·6	34	e 5 0	−25	6 7	PP	—	—
Irkutsk	39·5	345	e 7 29	+ 1	e 13 33	+ 4	22·9	—
Almata	46·3	317	e 8 31	+ 8	—	—	—	—
Andijan	48·6	312	e 8 41	0	—	—	—	—
Tashkent	51·0	311	e 9 3	+ 4	—	—	—	33·2
Ekaterinburg	61·1	327	i 10 12	0	e 18 25	− 5	28·9	—
Baku	65·4	308	i 10 43	+ 2	i 19 29	+ 4	32·9	—
Tiflis	69·2	310	11 3	− 3	20 8	− 3	e 39·7	—
Theodosia	75·7	314	e 11 42	− 2	—	—	—	—
Simferopol	76·6	314	e 11 46	− 3	—	—	—	—
Yalta	76·7	313	e 11 47	− 3	—	—	—	—
Helsingfors	79·7	330	e 16 37	PPP	21 55	−17	—	—
Scoresby Sund	90·9	348	20 24	?	23 22	[−16]	45·9	—
Stuttgart	92·0	322	e 13 4	− 3	e 23 7	[−37]	e 49·9	—

Additional readings :—
Kobe eN = +7m.11s.
Osaka i = +5m.14s., L = +5m.30s.
Tashkent ePP = +11m.10s., SS = +20m.55s.
Tiflis eSKS = +21m.12s., eSS = +24m.42s., e = +29m.55s.
Long waves were also recorded at Copenhagen, De Bilt, Paris, and Tortosa,

July 18d. Readings also at 0h. (Madison, East Machias, Ottawa, Tucson, Pasadena, and Tinemaha), 1h. (Scoresby Sund), 4h. (Almata), 6h. (Seattle, Ottawa, East Machias, and near Mizusawa), 8h. (Tiflis), 17h. (Alicante), 18h. (Alicante, Toledo, La Paz, and near Santiago), 19h. (Matuyama), 21h. (Ekaterinburg), 22h. (near Andijan).

July 19d. Readings at 0h. (Sumoto), 1h. (near Matuyama and Sumoto), 2h. (Andijan and near Sumoto), 4h. (Batavia), 12h. (Tiflis), 14h. (Scoresby Sund), 16h. (San Juan), 17h. (La Paz, Alicante, Strasbourg, Paris, Kucino, Ekaterinburg, Ottawa, and East Machias), 22h. (near La Paz), 23h. (Baku, Tiflis, Branner, San Francisco, near Berkeley, and Lick).

July 20d. 4h. 52m. 30s. Epicentre 40°·0S. 174°·0E. (as on 1929 May 7d.). R.2.

$A = -\cdot762$, $B = +\cdot080$, $C = -\cdot643$; $D = +\cdot105$, $E = +\cdot995$; $G = +\cdot639$, $H = -\cdot067$, $E = -\cdot766$.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
New Plymouth		0·9	3	0 17	+ 4	0 34	+11	—	—
Takaka		1·2	227	0 8	− 9	—	—	—	—
Wellington		1·4	156	0 22	+ 2	0 35	− 1	—	—
Dannevirke		1·6	98	0 48	S_g	—	—	—	—
Hastings		2·2	81	0 30?	− 1	0 55	− 2	—	1·3
Arapuni		2·3	34	0 34	+ 1	1 0	+ 1	—	—
Glenmuick		3·0	192	0 7?	−36	0 41	P	—	—
Christchurch		3·7	195	0 50	− 3	1 32	− 3	—	—
Riverview		19·2	282	e 4 22	+ 1	i 8 4	+14	e 10·3	11·8
Melbourne		22·6	266	i 4 54	− 3	i 9 3	+ 6	—	—
Adelaide		28·4	269	e 8 36	?	—	—	i 11·2	13·2
La Paz	z.	99·2	121	e 23 49	?	—	—	—	—
Tashkent		124·8	298	—	—	e 23 28	PPP	e 55·5	67·8
Kucino		147·3	312	e 22 54	PP	—	—	e 58·5	—
Scoresby Sund		148·4	10	—	—	30 18	{+ 5}	—	—
Theodosia		149·4	293	e 19 18	[−23]	—	—	—	—
Simferopol		150·3	293	e 19 40	[− 2]	—	—	—	—
Copenhagen		160·1	328	—	—	31 30?	{+10}	—	—
Edinburgh		164·0	354	—	—	e 40 30?	?	—	—
De Bilt		165·7	331	—	—	e 33 30?	?	e 44·5	—
Stuttgart		166·1	314	e 20 51	PKP_2	e 24 36	PP	e 34·5	—
Strasbourg		167·0	316	e 20 30?	[+29]	e 31 30?	{−25}	e 37·5	—
Kew		167·9	343	—	—	e 28 30?	PPP	—	—
Paris		169·3	328	e 20 30?	[+27]	e 28 30?	PPP	38·5	—

Additional readings :—
Takaka $S^* = +26s.$, $S_g = +28s.$
Wellington $P^* = +25s.$, $P_g = +28s.$, $S_g = +40s.$
Dannevirke $P_g = +57s.$, $i = +1m.8s.$
Hastings $P^* = +35s.$, $P_g = +39s.$, $PS? = +52s.$, $S_g = +1m.7s.$
Arapuni $P_g = +47s.$, $S_g = +1m.12s.$, $i = +1m.20s.$
Glenmuick $P_g? = +37s.$
Christchurch $P^* = +1m.2s.$, $P_g = +1m.9s.$, $Ps = +1m.22s.$, $S_g = +1m.50s.$, $i = +2m.9s.$
Riverview $PP = +4m.36s.$, $PPP = +4m.44s.$, $PPPP = +4m.50s.$
Melbourne $i = +5m.19s. = PP + 1s.$ and $+9m.35s. = SS + 5s.$
Kucino $e = +28m.30s. = PPPP + 10s.$, $+33m.53s.$ and $+41m.54s. = SS - 15s.$
Stuttgart $e = +28m.36s. = PPP + 2s.$
Strasbourg $e = +24m.30s.? = PP + 22s.$
Long waves were also recorded at Andijan, Ekaterinburg, and Ottawa.

July 20d. 20h. 5m. 39s. Epicentre 25°·7S. 178°·1W. N.2.

A = −·901, B = −·030, C = −·434; D = −·033, E = +·999;
G = +·433, H = +·014, K = −·901.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Suva		8·3	336	2 57?	+59	4 57	L	(5·0)	5·8
Apia		13·3	28	i 3 15	+ 9	5 39?	+ 5	—	9·0
Arapuni		13·5	202	3 41	+32	5 11	−28	—	—
New Plymouth		14·9	204	3 59	+32	6 31	+18	—	—
Wellington		16·7	199	3 43	− 7	6 21	−34	—	—
Riverview		27·8	245	i 5 48	+ 3	i 11 26	SS	13·3	—
Sydney		27·8	245	e 5 21	−24	i 11 27	SS	15·6	16·4
Melbourne		33·4	240	i 6 34	− 1	(i 12 17)	+20	15·1	—
Adelaide		38·2	245	e 8 55	PP	i 13 58	+49	—	—
Honolulu T.H.		51·0	25	e 9 3	+ 4	i 16 11	− 4	e 22·4	—
Amboina		56·0	284	e 9 41	+ 5	i 18 10	+47	—	—
Hatidyozima		71·1	323	11 21	+ 4	20 27	− 7	—	—
Manila		71·7	297	12 3	+42	20 54	PS	—	—
Batavia		73·9	271	i 11 34	0	i 20 50	−17	—	—
Nagoya		74·3	324	e 11 39	+ 3	(21 44)	PS	21·7	—
Oiwake		74·3	325	11 39	+ 3	21 0	−12	—	—
Osaka		74·7	321	11 21	−18	(21 7)	−10	21·1	—
Sumoto		74·8	321	11 40	+ 1	21 4	−14	—	—
Kobe		74·9	321	i 11 41	+ 1	21 7	−12	—	—
Mizusawa	E.	75·2	328	11 39	− 2	21 5	−17	—	—
	N.	75·2	328	11 27	−14	21 3	−19	—	—
Sapporo		78·3	331	11 59	0	—	—	—	—
Hong Kong		81·4	299	18 29	?	21 1	?	22·0	23·4
Berkeley		82·4	41	12 19	− 1	e 22 24	−17	—	—
Mount Wilson		82·6	46	e 12 21	0	e 22 28	−15	—	—
Pasadena		82·6	46	i 12 19	− 2	i 22 27	−16	—	—
Ukiah		82·6	40	e 12 57	+36	i 22 29	−14	—	—
Riverside		82·9	46	i 12 21	− 2	i 22 28	−18	—	—
Tucson		86·4	51	e 12 41	+ 1	e 22 53	[−16]	—	—
Victoria	E.	88·6	33	13 32	+41	23 4	[−20]	—	—
Sitka		90·2	22	—	—	i 23 16	[−18]	—	—
Bozeman		93·7	40	e 17 27	PP	e 23 27	[−27]	—	—
La Plata		97·1	134	—	—	(23 45)	[−27]	23·8	—
La Paz		99·8	114	13 40	− 3	i 24 4	[−21]	42·8	—
Sucre		100·9	117	e 13 47	− 1	—	—	—	—
Irkutsk		103·6	322	e 14 40	+40	24 20	[−23]	e 46·4	—
St. Louis		104·2	53	e 17 31	PP	i 25 42	−21	—	—
Madison		106·4	49	—	—	i 24 31	[−25]	—	52·4
Pittsburgh		112·3	54	e 19 57	PP	i 25 1	[−22]	—	—
Agra	E.	112·9	289	e 22 33	?	—	—	—	—
Buffalo		113·7	52	i 20 1	?	i 29 1	PS	—	59·4
Georgetown		114·0	56	e 19 27	PP	i 25 5	[−25]	—	58·2
Bombay		114·8	279	e 22 16	PPP	—	—	—	—
Ottawa		116·3	49	e 19 43	PP	e 25 12	[−26]	50·4	—
Fordham		116·8	55	e 20 23	PP	e 25 15	[−25]	e 50·4	—
San Juan		117·1	81	e 20 37	PP	25 14	[−27]	—	—
Andijan		120·7	303	e 19 4	[+17]	—	—	—	—
East Machias		122·1	51	i 21 0	PP	i 25 34	[−23]	e 56·4	—
Tchimkent		123·0	304	e 18 21	[−32]	—	—	—	—
Ekaterinburg		128·2	323	i 18 59	[− 4]	25 57	[−17]	—	—
Ivigtut		131·4	30	i 19 5	[− 4]	28 7	{−23}	—	—
Scoresby Sund		133·1	11	e 21 39	PP	i 28 25	{−17}	—	—
Baku		137·7	302	e 19 22	[+ 3]	e 26 57	SKS	61·4	—
Kucino		140·2	328	e 19 3	[−18]	29 4	{−21}	e 40·8	66·6
Pulkovo		140·7	337	e 19 17	[− 5]	29 2	{−26}	66·4	—
Tiflis		141·4	305	e 18 50	[−33]	—	—	e 65·8	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Helsingfors	z.	142·0	341	i 21 47	?	—	—	—	—
Upsala		144·2	347	e 20 7	[+35]	i 29 23	{−26}	—	—
Theodosia		146·9	313	e 19 39	[+ 2]	—	—	—	—
Simferopol		147·8	314	e 19 36	[− 3]	—	—	—	—
Yalta		147·9	314	e 19 42	[+ 3]	—	—	—	—
Lund		148·9	349	19 44	[+ 4]	29 51	{−25}	—	—
Copenhagen		149·0	349	i 19 45	[+ 5]	29 51	{−26}	72·4	—
Edinburgh		149·6	6	e 19 51	[+10]	e 22 45	PP	—	—
Durham		150·8	2	20 37	{+34}	30 5	{−22}	—	—
Hamburg		151·5	350	e 19 43	[0]	e 30 4	{−27}	—	—
Potsdam		152·0	345	i 19 40	[− 4]	i 30 10	{−24}	—	—
De Bilt		153·5	355	e 19 47	[0]	e 30 22	{−20}	e 73·4	—
Oxford		153·8	4	e 20 37	{+21}	i 30 30	{−14}	—	—
Kew		154·2	3	e 19 45	[− 2]	e 29 50	{−56}	e 79·4	—
Uccle		154·8	356	e 19 47	[− 1]	e 30 28	{−22}	49·4	—
Vienna	z.	154·8	337	i 19 46	[− 2]	—	—	—	—
Stuttgart		156·3	348	i 19 48	[− 1]	e 30 33	{−25}	e 50·4	—
Strasbourg		156·7	350	19 50	[0]	i 30 36	{−24}	69·4	—
Paris		156·9	359	e 19 48	[− 2]	e 30 36	{−25}	50·4	—
Zagreb		157·0	334	e 19 50	[0]	—	—	—	—
Zurich		157·7	348	e 19 50	[− 1]	—	—	—	—
Triest		157·9	337	i 19 50	[− 1]	e 30 38	{−28}	e 70·4	—
Chur		158·0	346	e 19 50	[− 1]	—	—	—	—
Neuchatel		158·3	350	e 19 51	[0]	i 30 47	{−22}	—	—
Venice		158·6	339	e 20 2	[+10]	e 30 21	{−50}	—	—
Padova		158·7	340	20 9	[+17]	—	—	—	—
Piacenza		159·6	344	e 20 21	[+28]	—	—	—	34·2
Florence		160·4	339	20 46	[+52]	30 59	{−22}	44·4	51·4
Toledo		165·0	18	e 19 57	[− 2]	i 31 18	{−27}	e 45·8	—
Alicante		167·2	8	e 19 28	[−33]	e 31 22	{−34}	e 47·3	—
San Fernando		167·2	31	—	—	31 37	{−19}	—	101·4
Granada		167·6	21	i 20 1	[− 1]	—	—	e 79·7	95·1
Malaga		167·7	24	e 20 1	[− 1]	32 29	{+30}	—	90·5
Almeria		168·2	17	20 0	[− 2]	e 31 32	{−30}	e 70·1	—
Algiers		168·9	355	—	—	i 31 24	{−42}	—	—

Additional readings and note :—
Riverview PP = +6m.47s.
Melbourne i = +7m.26s. = PP − 14s. and +7m.56s. ; S is given as iL.
Adelaide i = +14m.5s., +16m.0s., and +17m.10s.
Amboina i = +19m.11s. = S_6S − 13s.
Batavia i = +17m.39s., +19m.29s., and +21m.56s. = PS + 26s.
Osaka i = +13m.7s.
Sumoto SN = +21m.8s.
Kobe PPZ = +12m.17s., iSSN = +21m.46s. = PS + 3s.
Berkeley eE = +12m.30s., iEZ = +12m.57s., iSZ = +22m.28s.
Mount Wilson eEN = +12m.59s.
Pasadena iZ = +12m.57s.
Riverside iEN = +12m.59s.
Tucson i = +13m.17s.
Bozeman e = +23m.33s.
La Paz PP = +16m.36s., iPSE = +25m.0s. = S − 25s., iE = +27m.32s.
Irkutsk PP = +18m.10s., e = +19m.37s.
St. Louis iEN = +18m.52s., eEN = +24m.18s. = SKS − 28s., iEN = +25m.5s. = SKKS − 20s.
Madison i = +25m.21s. and +27m.9s.
Pittsburgh i = +26m.3s., iPS = +28m.57s.
Georgetown i = +20m.7s. and +29m.9s.
Ottawa eN = +27m.27s., eE = +29m.23s. = PS − 5s.
Fordham eZ = +21m.33s., e = +27m.27s.
San Juan e = +21m.21s. and +27m.36s.
East Machias e = +26m.39s., i = +27m.7s. = SKKS − 23s., i = +28m.17s., ePS = +30m.39s., e = +41m.21s.? = SSS + 1s.
Ekaterinburg iPP = +21m.2s., iPKS = +22m.6s., iPS = +30m.57s., iPPS = +32m.56s., SS = +38m.9s.
Ivigtut i = +22m.17s. = PKS − 22s. and +23m.11s.
Scoresby Sund e = +22m.26s. = PKS − 21s., iN = +23m.24s., SS = +39m.21s. ?
Baku ePP = +22m.43s. = PKS − 19s., eSS = +41m.27s.
Kucino PP = +22m.19s., ePPS = +34m.47s.
Pulkovo e = +19m.57s., iPP = +22m.21s., i = +22m.45s.
Copenhagen i = +20m.23s., eZ = +23m.17s. = PKS − 9s.

Continued on next page.

Potsdam eEN = +19m.51s., iZ = +20m.1s. = PKP_2 − 7s., and +20m.23s.?, iN = +20m.45s., iNZ = +23m.36s. = PKS + 7s., iZ = +24m.9s.
De Bilt iZ = +20m.47s.
Kew ePP = +23m.46s., ePP′ = +32m.52s., eSKSP = +33m.46s.
Vienna iZ = +20m.56s., iN = +21m.58s.
Stuttgart eZ = +20m.21s. = PKP_2 − 6s., e = +21m.0s., eNZ = +23m.58s. = PP + 2s., e = +24m.31s., eZ = +30m.13s.
Strasbourg i = +20m.26s. = PKP_2 − 3s., PKS = +23m.6s., PP = +24m.0s., SKS = +27m.6s. = PPP − 18s., PPPPP = +31m.57s.
Paris e = +21m.4s.
Triest e = +20m.30s. = PKP_2 − 5s., i = +21m.6s., iS = +30m.41s., ePS = +31m.28s., ePPS = +32m.16s., i = +32m.33s., eSS = +36m.57s., iSS = +37m.18s.
Granada P = +21m.49s., PKS = +25m.0s., PP = +25m.24s., SKSP = +32m.30s., PPS = +38m.39s.
Malaga P = +21m.38s., PP = +25m.44s., i = +31m.27s., SS = +45m.34s.

July 20d. Readings also at 4h. (Almata, near Andijan, Samarkand, and Tchimkent), 7h. (Wellington, Tucson, Pittsburgh, St. Louis, and near Hastings), 8h. (Ottawa, Harvard, Madison, and Florissant), 10h. (Ekaterinburg and Tashkent), 13h. (Samarkand, Tchimkent, near Andijan, near New Plymouth, and Wellington), 14h. (Andijan), 15h. (near La Paz), 19h. (Wellington, Kobe, near Osaka, and Sumoto), 20h. (Innsbruck, Wellington, and near Glenmuick).

July 21d. 12h. 39m. 55s. Epicentre 3°·5S. 137°·3E. (as given by Batavia). N.2.
A = −·734, B = +·677, C = −·061; D = +·678, E = +·735; G = +·045, H = −·041, K = −·998.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Amboina	9·1	268	2 11	+ 2	i 3 54	+ 3	—	—
Palau	11·2	346	2 34	− 3	5 11	+28	—	—
Manila	24·3	318	5 13	0	9 27	− 1	11·1	—
Batavia	30·5	264	e 6 13	+ 4	i 12 25	SS	—	—
Titizima	30·9	9	6 10	− 3	11 0	−18	—	—
Adelaide	31·5	178	e 6 18	0	i 11 22	− 6	14·2	20·1
Riverview	33·0	159	i 6 34	+ 2	i 11 51	0	—	18·4
Sydney	33·0	159	e 6 53	+21	e 11 53	+ 2	17·9	20·1
Hong Kong	34·3	320	6 37	− 6	11 57	−14	—	17·1
Perth	34·9	213	14 5?	SS	—	—	—	20·1
Melbourne	35·0	169	e 7 29	+40	12 19	− 2	16·0	20·1
Miyazaki	35·9	352	7 0	+ 3	12 25	−10	—	—
Nagasaki	36·9	350	e 7 4	− 2	e 12 38	−12	—	—
Koti	37·2	345	e 7 2	− 6	e 12 44	−10	—	—
Sumoto	37·9	358	e 7 16	+ 2	12 53	−12	18·8	19·3
Osaka	38·2	358	6 51	−26	12 52	−17	18·7	—
Kobe	38·2	358	7 26	+ 9	13 0	− 9	e 17·8	19·1
Phu-Lien	38·2	310	e 7 19	+ 2	e 13 5	− 4	16·1	—
Nagoya	38·7	0	e 7 19	− 2	(13 5)	−12	13·1	—
Medan	39·3	280	i 8 23	+57	i 15 4	?	—	—
Tyosi	39·4	5	e 7 34	+ 7	e 13 14	−13	—	—
Suva	42·8	114	—	—	15 5?	+47	—	—
Mizusawa	42·8	5	7 52	− 3	14 7	−11	—	—
Akita	43·3	4	8 15	+16	14 22	− 3	—	—
Sapporo	46·7	4	8 31	+ 5	15 4	−10	—	—
Chiufeng	47·7	338	e 8 28	− 6	e 15 19	−10	—	—
Wellington	50·6	144	9 7	+11	16 25	+16	25·8	29·1
Irkutsk	62·4	337	10 18	− 3	18 37	−10	27·1	36·8
Bombay	67·2	292	10 54	+ 1	19 43	− 4	34·3	—
Honolulu T.H.	68·2	66	11 11	+12	i 19 54	− 5	e 31·6	—
Andijan	73·7	314	e 11 35	+ 2	e 21 0	− 5	—	—
Tashkent	76·1	314	i 11 44	− 3	i 21 21	−12	e 31·2	38·4
Tchimkent	76·2	315	10 49	−58	20 27	−67	—	—
Samarkand	77·3	312	e 19 7	?	—	—	—	—
Ekaterinburg	85·7	328	i 12 33	− 4	i 22 59	[− 5]	38·4	—
Baku	90·4	310	e 12 58	− 1	23 47	[+12]	42·1	—
Tiflis	94·2	312	e 12 40	−37	e 24 40	+ 5	—	—
Kucino	98·2	325	e 13 29	− 6	e 24 4	[−13]	45·0	58·7
Victoria E.	98·8	42	17 38	PP	—	—	45·2	46·8
Ukiah	99·5	51	—	—	i 24 16	[− 7]	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Berkeley		100·3	52	e 17 28	PP	i 24 20	[− 7]	—	—
Pulkovo		101·5	330	13 46	− 4	24 20	[−13]	46·1	64·8
Santa Barbara	E.	102·6	56	—	—	i 24 33	[− 5]	—	—
Tinemaha	N.	103·5	53	e 14 23	+23	e 24 39	[− 4]	—	—
Helsingfors	N.	103·9	332	—	—	e 32 53	SS	e 49·1	—
Mount Wilson		104·0	56	—	—	i 24 39	[− 6]	—	—
Pasadena		104·0	56	e 13 59	− 3	i 24 36	[− 9]	e 47·0	—
Riverside		104·6	56	—	—	i 24 40	[− 8]	—	—
Bozeman		107·5	43	—	—	i 24 53	[− 9]	49·5	—
Upsala		107·5	332	—	—	e 33 32	SS	e 51·1	—
Tucson		110·5	57	e 19 17	PP	e 28 25	PS	e 50·4	—
Scoresby Sund		111·6	353	19 29	PP	25 17	[− 3]	56·1	—
Copenhagen		111·8	330	19 17	PP	28 41	PS	50·1	—
Potsdam		113·0	327	i 19 23	PP	—	—	e 60·1	—
Hamburg		114·1	329	—	—	e 29 5?	PS	e 53·1	65·1
Triest		115·4	319	e 19 31	PP	e 29 40	PS	e 55·1	—
Stuttgart		116·9	324	e 19 51	PP	e 27 35	?	e 57·1	74·1
De Bilt		117·3	329	e 19 54	PP	e 35 53	SS	e 53·1	70·2
Florence		117·8	318	19 5	PP	29 5?	PS	57·1	66·1
Strasbourg		117·8	324	19 52	PP	—	—	65·1	—
Uccle		118·5	328	—	—	e 25 5?	[−41]	53·1	—
Kew		120·4	331	e 20 11	PP	—	—	55·1	76·3
Paris		120·6	327	e 20 5?	PP	e 29 5?	PS	63·1	78·1
Ivigtut		122·1	3	18 57	[+ 7]	—	—	62·1	—
Madison		122·8	38	—	—	e 27 31	{− 5}	51·1	—
St. Louis		124·4	44	e 16 18	+32	—	—	i 55·9	89·1
Alicante		128·2	317	e 21 22	PP	(e 43 0)	SSS	e 43·0	—
Ottawa		129·1	30	e 20 52	PP	e 28 5	{−11}	e 60·1	—
Buffalo		129·2	34	i 19 11	[+ 6]	i 22 25	?	e 61·1	—
Pittsburgh		130·1	37	—	—	e 31 23	PS	e 61·1	—
Almeria		130·2	317	—	—	e 35 12	?	—	—
Granada		130·8	318	e 19 10	[+ 1]	—	—	68·1	—
Malaga		131·8	318	e 23 27	?	—	—	67·7	72·9
Georgetown		132·8	36	e 19 13	[+ 1]	i 22 39	PKS	—	65·1
East Machias		133·4	24	e 21 29	PP	e 28 32	{−11}	—	—
La Paz		147·9	130	19 45	[+ 6]	30 5	{− 5}	71·1	—
Sucre		148·4	137	19 47	[+ 8]	—	—	—	—
San Juan		152·6	55	e 20 20	[+35]	i 30 21	{−16}	73·1	—

Additional readings :—
Adelaide i = +7m.31s., +12m.48s., and +13m.58s.
Riverview iE = +11m.55s.
Melbourne SS = +14m.24s.
Wellington SS = +22m.55s.
Ekaterinburg iPP = +15m.53s., iPS = +23m.57s., iSS = +28m.35s.
Baku PP = +16m.57s.
Kucino ePP = +17m.29s., SS = +31m.5s.
Berkeley eE = +17m.51s. =PP +6s., eZ = +24m.22s.
Pulkovo PP = +17m.54s., S = +25m.18s., SS = +32m.23s.
Tinemaha eN = +18m.41s.
Scoresby Sund e = +26m.10s. =SKKS −8s., +28m.40s. =PS −3s.
Potsdam eZ = +21m.41s. =PPP +5s., eN = +27m.5s.?, iN = +35m.13s. = SS +14s.
Triest e = +23m.7s. and +23m.40s.
Stuttgart e = +22m.11s. =PPP +1s., eSS = +35m.29s.
Strasbourg ePPP = +22m.26s., ePS = +29m.15s.
Uccle e = +29m.5s.? and +36m.5s.? =SS −7s.
Ivigtut +20m.43s. =PP +19s. and +35m.48s.
Madison ePS = +30m.17s., e = +35m.49s.
St. Louis iEN = +20m.38s.
Granada iP = +21m.25s. =PP +2s., PP = +24m.1s. =PPP −4s., SKP = +24m.37s.
Malaga i = +24m.24s. =PPP +13s.
Georgetown i = +31m.52s. =PS −4s.
East Machias e = +21m.44s., PP = +22m.38s. =PKS −10s., eSS = +39m.5s.
La Paz iPKPE = +19m.48s., iE = +20m.55s., ipPN = +21m.12s., ipPE = +21m.39s., PPE = +23m.29s., SSE = +42m.6s., SSSE = +47m.32s.
Long waves were also recorded at Ann Arbor, Harvard, Lund, Cheb, and San Fernando.

July 21d. 16h. 16m. 3s. Epicentre 55°·0S. 131°·0W. (as on 1930 Jan. 6d.). X.

A = −·376, B = −·433, C = −·819 ; D = −·755, E = +·656 ;
G = +·537, H = +·618, K = −·574.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Wellington		37·6	270	—	—	15 57?	SS	26·0	—
Sucre		60·7	82	e 10 10	+ 1	—	—	—	—
La Paz		61·1	77	10 11	− 1	i 18 32	+ 2	30·4	39·5
Riverside	E.	89·7	11	—	—	e 23 40	[+ 9]	—	—
Pasadena		89·8	11	—	—	e 23 33	[+ 2]	e 53·0	—
Mount Wilson	E.	89·8	11	—	—	e 23 34	[+ 3]	—	—
Pittsburgh		104·9	38	—	—	e 24 33	[−16]	e 37·2	—
Ottawa		110·7	38	—	—	e 32 6	?	e 48·0	—
Granada		140·6	94	—	—	e 33 5	PS	e 64·7	—
Alicante		143·1	95	(e 20 46)	[+78]	—	—	e 20·8	—
Scoresby Sund		146·6	34	—	—	30 2	{− 1}	68·0	—
Irkutsk		148·0	289	e 19 56	[+17]	e 29 57?	{−14}	e 81·0	—
Kew		150·9	76	—	—	e 30 25	{− 2}	e 68·0	—
Edinburgh		151·1	66	—	—	e 43 57?	?	e 74·0	—
Paris		151·2	83	e 20 57?	[+74]	e 30 16	{−13}	72·0	86·0
Neuchatel		152·8	90	e 30 6	SKKS	(e 30 6)	{−32}	—	—
Uccle		153·2	80	—	—	e 29 57?	{−43}	e 72·0	—
Florence		153·4	99	26 57	PPP	34 57?	SKSP	74·0	84·0
Strasbourg		154·1	87	—	—	e 29 54	{−52}	74·0	—
De Bilt		154·2	78	—	—	e 26 15	SKS	e 72·0	91·4
Stuttgart		155·0	88	e 20 21	[+33]	e 29 57	{−54}	e 72·0	—
Triest		155·9	98	e 30 31	SKKS	e 47 38	?	e 73·0	97·0
Ksara	N.	157·0	149	e 10 47	?	—	—	85·0	—
Hamburg		157·5	77	—	—	e 30 18	{−46}	e 78·0	—
Potsdam		158·8	82	e 19 57?	[+ 5]	—	—	e 86·0	—
Copenhagen		159·4	73	—	—	30 57?	{−18}	74·0	—
Tashkent		160·9	233	—	—	e 38 40	?	e 85·0	114·6
Baku		165·4	182	e 25 1	PP	e 29 44	?	75·0	94·3
Pulkovo		168·9	57	e 23 16	?	e 34 57?	SKSP	88·0	100·0
Ekaterinburg		173·2	291	e 22 44	?	i 36 56	?	67·0	101·8
Kucino		173·6	78	—	—	e 30 45	?	—	104·6

Additional readings :—
La Paz iPE = +10m.21s.
Pittsburgh iS = +35m.10s.
Ottawa e = +39m.3s.
Irkutsk e = +42m.57s.? and +52m.57s.?
Edinburgh e = +54m.57s.?
Uccle e = +51m.57s.?
De Bilt eZ = +30m.21s. =SKKS −25s.
Stuttgart eZ = +26m.9s., eEN = +53m.27s.
Triest P = +30m.35s. =SKKS −21s.
Tashkent e = +47m.57s.?, +56m.15s., +59m.9s., and +67m.3s.
Baku e = +38m.31s., +45m.9s. =SS −18s., and +55m.25s. =SSSS −11s.
Pulkovo e = +25m.56s. =PP +55s.
Ekaterinburg i = +37m.44s., e = +48m.9s., i = +58m.13s.
Kucino e = +41m.34s., +45m.42s., and +55m.54s.
Long waves were also recorded at Adelaide, Melbourne, Riverview, La Plata, Rio de Janeiro, Honolulu T.H., Tananarive, Ivigtut, Bombay, Tiflis, Algiers, and other European and American stations.

July 21d. Readings also at 0h. (East Machias, Ottawa, Madison, Pittsburgh, St. Louis, and near Tucson), 2h. (Florence and Tiflis), 6h. (near Hukuoka), 7h. (La Paz and near Balboa Heights), 8h. (Baku, Ekaterinburg, Tashkent, and Ksara), 9h. (near Medan), 13h. (Calcutta), 15h. (Ksara), 16h. (La Paz), 18h. (near Batavia and Malabar), 20h. (Baku, Ekaterinburg, Tashkent, Pulkovo, Ksara, and Tiflis), 21h. (Berkeley, Branner, Lick and La Paz).

July 22d. Readings at 0h. (Christchurch, New Plymouth, and near Wellington), 1h. (La Paz (2), Ukiah, Granada, Florence, Stuttgart, Strasbourg, Paris, De Bilt, and Uccle), 3h. (Andijan, Christchurch, and near Wellington), 4h. (Trenta), 5h. (near La Paz (2) and near Santiago), 6h. (Mizusawa, Nagoya, and near Tyosi), 12h. (Samarkand), 13h. (La Paz), 15h. (near Mizusawa), 16h. (La Paz), 20h. (Tiflis), 21h. (Baku, Tiflis, Ekaterinburg, Kucino, Pulkovo, Copenhagen, Hamburg, De Bilt, Stuttgart, Florence, Taranto, Trenta, and Triest), 22h. (near Tyosi), 23h. (Tiflis).

July 23d. Readings at 0h. (Adelaide, Riverview, Wellington, Mount Wilson, Riverside, Tinemaha, La Paz, Irkutsk, Tashkent, Stuttgart, Azores, near Tyosi, Nagoya, and near Apia), 1h. (Berkeley, Ukiah, Tucson (2), East Machias, Ottawa, Scoresby Sund, Granada, De Bilt, Paris, Kew, Strasbourg, Copenhagen, Ekaterinburg, Pulkovo, and near Andijan), 2h. (Berkeley and near Santiago), 3h. (Tiflis and near Sumoto), 4h. (Simferopol), 5h. (Andijan and Triest), 6h. (Berkeley, Ukiah, Tinemaha, Ottawa, and Ksara), 7h. (La Paz, Ivigtut, and near Tyosi), 8h. (Ksara, near Apia, and near Nagoya), 9h. (Andijan and Ksara), 11h. (near Andijan), 13h. (near Wellington), 14h. (near Andijan and near Göttingen), 15h. (near Santiago), 17h. (near Tyosi), 20h. (Baku, Ekaterinburg, and Tashkent), 21h. (Samarkand), 22h. (Berkeley, Lick (2), Ivigtut, Scoresby Sund, Ksara (2), and near La Paz).

July 24d. Readings at 0h. (Ksara and near Samarkand), 1h. (Ksara), 2h. (Scoresby Sund, near Nagoya, Osaka, Kobe, Sumoto, and near La Paz), 4h. (near Tiflis), 5h. (Ekaterinburg, near Almata, Andijan, and near Tchimkent), 6h. (Andijan, Irkutsk, and Wellington), 7h. (Alicante), 8h. (Ksara, Hong Kong, and Manila), 9h. (De Bilt, Paris, Stuttgart, Copenhagen, Scoresby Sund, Ekaterinburg, Irkutsk, Tashkent, and Ksara), 10h. (Serra do Pilar, Mizusawa, and Tyosi), 12h. (Andijan), 13h. (Tyosi), 14h. (Ksara, New Plymouth, near Glenmuick, and Wellington), 15h. (Almata (2), near Andijan (2), Tashkent, Tchimkent (2), Ksara, and near Mizusawa), 16h. (near Santiago), 17h. (near Tyosi (2)), 18h. (Tananarive, Ekaterinburg, and Tiflis), 19h. (Baku, Ekaterinburg, Scoresby Sund, De Bilt, Kew, Stuttgart, Granada, Mizusawa, Nagoya, and Osaka), 20h. (Baku, Tashkent, Copenhagen, Kucino, and Stuttgart).

July 25d. 8h. 24m. 42s. Epicentre **35°·2N. 135°·9E.** N.1.

(Given by Tokyo as 35° 13′N. 135° 52′E).

A = −·587, B = +·569, C = +·576; D = +·696, E = +·718; G = −·414, H = +·401, K = −·817.

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.
Kyoto	+2·6	0·2	216	0 43	+ 3	1 20	+ 8	—	—
Hikone	+2·5	0·3	77	0 45	+ 5	1 22	+10	—	—
Kameyama	+2·4	0·6	127	0 45	+ 2	1 21	+ 4	—	—
Osaka	+2·4	0·6	218	0 44	+ 1	i 1 9	− 8	1·4	1·4
Yagi	+2·3	0·7	187	0 45	+ 2	1 20	+ 3	—	—
Miyadu	+2·3	0·7	300	0 43	0	1 18	+ 1	—	—
Tu	+2·3	0·7	133	0 50	+ 7	1 27	+10	—	—
Gihu	+2·3	0·8	74	0 46	+ 2	1 23	+ 3	—	—
Kobe	+2·3	0·8	228	0 44	0	1 20	0	—	1·4
Nagoya	+2·3	0·9	92	i 0 46	0	1 23	+ 1	—	1·4
Toyooka	+2·3	0·9	291	i 0 44	− 2	i 1 19	− 3	—	1·4
Wakayama	+2·2	1·1	212	0 46	− 1	1 24	− 1	—	—
Sumoto	+2·1	1·2	224	i 0 45	− 2	i 1 23	− 2	—	1·4
Takayama	+2·0	1·5	49	0 50	0	1 32	+ 2	—	—
Hamamatu	+2·0	1·6	108	0 51	0	1 30	− 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.
Iida	+2·0	1·6	79	0 54	+ 3	1 35	+ 3	—	—
Okayama	+1·9	1·7	252	0 56	+ 5	1 28	− 4	—	—
Siomisaki	+1·9	1·8	184	0 50	− 3	1 28	− 7	—	—
Husiki	+1·8	1·9	30	0 49	− 4	1 31	− 4	—	—
Tadotu	+1·8	2·0	242	0 50	− 4	1 41	+ 4	—	—
Matumoto	+1·8	2·0	58	0 55	+ 1	1 37	0	—	—
Sakai	+1·7	2·2	279	1 0	+ 4	1 43	+ 3	—	—
Numadu	+1·5	2·4	92	0 56	0	1 40	0	—	—
Nagano	+1·5	2·4	51	0 55	− 1	1 38	− 2	—	—
Wazima	+1·5	2·4	20	0 53	− 3	1 33	− 7	—	—
Niihama	+1·5	2·5	240	0 53	− 4	1 18	−24	—	—
Koti	+1·5	2·5	230	i 0 55	− 2	1 41	− 1	3·1	—
Misima	+1·5	2·5	92	0 56	− 1	1 42	0	—	—
Oiwake	+1·5	2·5	62	0 54	− 3	1 40	− 2	—	—
Takada	+1·4	2·7	45	0 56	− 2	1 42	− 3	—	—
Matuyama	+1·3	2·9	242	i 0 54	− 6	—	—	—	1·7
Maebasi	+1·3	2·9	65	0 58	− 2	1 43	− 5	—	—
Kumagaya	+1·3	3·0	72	1 0	− 1	1 47	− 3	—	—
Yokohama	+1·3	3·1	86	1 3	0	1 48	− 5	—	—
Hamada	+1·3	3·1	265	0 59	− 4	1 47	− 6	—	—
Tokyo	+1·2	3·2	75	1 0	− 3	1 52	− 1	—	—
Mera	+1·2	3·3	95	1 1	− 3	1 49	− 6	—	—
Utunomiya	+1·1	3·5	65	1 0	− 6	1 53	− 5	—	—
Tukubasan	+1·1	3·6	72	0 58	− 9	1 48	−12	—	—
Kakioka	+1·1	3·6	73	1 4	− 3	1 56	− 4	—	—
Niigata	+1·0	3·7	42	1 5	− 2	1 58	− 2	—	—
Hatidyozima	+0·9	3·9	122	1 48	+40	2 45	+42	—	—
Mito	+0·9	3·9	72	1 7	− 1	1 58	− 5	—	—
Ooita	+0·9	4·0	242	1 3	− 7	2 9	+ 4	—	—
Tyosi	+0·9	4·1	81	1 9	− 2	2 2	− 6	—	2·1
Hukusima	+0·7	4·5	54	1 13	− 1	2 9	− 4	—	—
Hukuoka	+0·6	4·8	252	i 1 16	− 1	i 2 17	− 1	—	2·4
Miyazaki	+0·5	4·9	230	1 19	+ 2	2 24	+ 6	—	—
Kumamoto	+0·5	4·9	242	1 17	0	2 22	+ 4	—	—
Sendai	+0·5	5·0	51	1 19	+ 1	2 20	0	—	—
Nagasaki	+0·4	5·6	246	i 1 24	− 1	2 33	0	—	2·7
Akita	+0·4	5·6	35	1 25	0	2 31	− 2	—	—
Mizusawa	+0·4	5·7	45	1 29	+ 2	2 32	− 4	—	—
Taikyu	+0·3	6·0	279	1 28	− 2	2 38	− 3	—	—
Morioka	+0·2	6·2	41	1 28	− 3	2 39	− 4	—	—
Tomie	+0·2	6·4	249	1 29	− 5	2 40	− 8	—	—
Zinsen	−0·2	7·8	290	1 48	0	3 17	+ 3	—	—
Nake	−0·4	8·7	220	2 2	+ 4	3 41	+10	—	—
Nemuro	−0·9	11·1	40	3 31	+67	5 23	+65	—	—
Naha	−0·9	11·4	221	2 33	+ 5	4 38	+12	—	—
Ootomari	−1·2	12·6	22	2 47	+ 7	(4 56)	+ 8	4·9	—
Zi-ka-wei	−1·2	12·7	256	e 2 47	+ 5	5 3	+13	i 5·6	—
Nanking	−1·5	14·6	263	4 3	+60	i 6 47	+78	—	—
Sikka	−1·6	15·0	18	2 15	−52	—	—	4·5	5·3
Chiufeng	−1·9	16·4	293	e 3 29	+ 7	6 11	+ 8	—	—
Hong Kong	−2·8	22·9	242	5 28	+57	8 13	+ 5	10·0	—
Manila	−3·0	24·6	217	4 48	+ 2	8 52	+14	10·7	17·7
Batavia	−5·5	49·6	219	8 29	+23	i 14 52	+15	—	—
Tashkent	−5·6	51·4	298	8 32	+13	i 15 18	+16	—	45·5
Ekaterinburg	−5·8	53·4	319	i 8 47	+14	i 15 49	+22	—	—
Bombay	−6·1	57·6	271	e 13 18	?	—	—	—	—
Baku	−6·5	65·4	303	10 3	+ 6	18 19	+18	—	—
Kucino	−6·5	65·7	322	e 10 6	+ 7	18 18	+13	e 31·2	40·2
Pulkovo	−6·6	67·2	328	10 15	+ 6	18 41	+17	—	—
Tiflis	−6·7	68·2	306	—	—	i 18 48	+12	40·8	—
Helsingfors z.	−6·8	69·2	330	i 10 23	+ 2	—	—	—	—
Theodosia	−6·9	72·4	313	e 10 47	+ 5	—	—	—	—
Simferopol	−6·9	73·2	314	e 10 50	+ 3	—	—	—	—
Scoresby Sund	−6·9	73·2	353	10 52	+ 5	19 51	+15	—	—
Yalta	−6·9	73·4	313	e 10 51	+ 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.
Königsberg	N.	−7·0	74·4	327	—	—	e 19 18	−32	e 36·3	39·3
Lund		−7·1	76·9	331	11 11	+ 2	20 26	+ 7	—	—
Copenhagen		−7·1	77·2	331	11 12	+ 1	20 25	+ 3	—	—
Berkeley		−7·1	77·2	52	e 11 15	+ 4	—	—	—	—
Branner	N.	−7·1	77·5	53	i 11 18	+ 5	—	—	—	—
Lick		−7·1	78·0	52	e 11 20	+ 4	—	—	—	—
Ksara		−7·1	78·3	303	—	—	20 45	+10	—	—
Potsdam		−7·2	79·3	329	e 11 25	+ 2	i 20 52	+ 6	—	—
Hamburg		−7·2	79·7	331	e 11 23	− 3	i 20 58	+ 7	—	—
Tinemaha	N.	−7·2	80·3	51	i 11 33	+ 4	e 21 12	+14	—	—
Vienna		−7·2	80·7	324	i 11 32	0	21 12	+ 9	—	
Santa Barbara	N.	−7·2	80·9	54	e 11 36	+ 3	—	—	—	—
Cheb		−7·2	81·3	327	e 21 16	S	(e 21 16)	+ 6	—	—
Mount Wilson		−7·3	82·1	53	i 11 41	+ 2	i 21 28	+10	—	—
Pasadena		−7·3	82·1	53	i 11 40	+ 1	i 21 27	+ 9	—	—
Edinburgh		−7·3	82·5	338	e 11 58	+17	i 21 24	+ 2	—	—
Zagreb		−7·3	82·6	322	e 11 42	0	e 21 24	0	—	—
De Bilt		−7·3	82·7	332	i 11 43	0	e 21 27	+ 2	—	—
Riverside		−7·3	82·7	53	i 11 43	0	e 21 32	+ 7	—	—
Stuttgart		−7·3	83·6	327	i 11 47	− 1	e 21 33	− 2	e 41·3	—
Innsbruck		−7·3	83·7	325	11 48	0	—	—	—	—
Triest		−7·3	83·8	323	i 11 47	− 2	i 21 32	− 5	—	—
Uccle		−7·4	84·0	332	i 11 48	− 1	—	—	e 40·3	—
Strasbourg		−7·4	84·4	328	11 50	− 2	(21 38)	− 5	42·3	—
Venice		−7·4	84·6	324	e 11 55	+ 2	20 51	−54	—	—
Chur		−7·4	84·9	327	e 11 53	− 2	e 21 39	− 9	—	—
Zurich		−7·4	85·0	327	e 11 52	− 3	e 21 39	−10	—	—
Kew		−7·4	85·2	334	e 11 54	− 3	e 21 43	− 9	—	—
Taranto		−7·4	85·6	318	21 59	S	(21 59)	+ 3	—	—
Neuchatel		−7·4	85·9	328	e 11 57	− 3	e 21 44	−15	—	—
Piacenza		−7·4	86·2	325	12 1	0	22 2	− 1	—	—
Florence		−7·4	86·4	323	11 48	−15	22 6	+ 1	—	—
Prato		−7·4	86·4	323	e 11 53	−10	22 6	+ 1	—	—
Paris		−7·4	86·4	331	i 12 0	− 3	22 1	− 4	37·3	—
Naples	E.	−7·4	87·0	320	e 22 29	S	(e 22 29)	+18	—	—
Ottawa		−7·7	94·5	22	—	—	e 22 30	[−88]	38·3	—
St. Louis		−7·7	94·8	34	i 12 42	− 2	i 22 40	[−80]	—	—
East Machias		−7·7	97·4	16	e 16 42	PP	22 50	[−83]	—	—
Granada		−7·8	98·5	328	e 11 44	?	e 20 50	?	e 34·9	—
Fordham		−7·8	99·2	22	e 17 12	PP	e 23 6	[−76]	e 32·8	—
La Paz		—	151·6	55	19 8	[−36]	—	—	—	—

Additional readings and note :—
Toyooka iE = +49s.
Koti eScS = +14m.15s.
Batavia i = +9m.14s. and +9m.28s.
Tiflis e = +28m.42s.
Helsingfors ePEN = +10m.27s., ePPN = +13m.1s., ePPZ = +13m.4s., ePPE = +13m.7s., ePSE = +18m.56s.?, ePSNZ = +18m.59s., eN = +19m.42s., eE = +20m.12s., eNZ = +20m.16s.; T_o = 8h.24m.57s.
Königsberg iEN = +20m.0s., iN = +20m.29s., iE = +22m.24s., eEN = +24m.48s., eE = +29m.20s.
Lund +25m.30s.
Copenhagen +25m.30s.
Potsdam eN = +22m.36s.
Vienna i = +13m.50s., ScS = +21m.47s.
Cheb e = +26m.46s.
Pasadena eZ = +14m.53s.
Stuttgart epPZ = +13m.10s., e = +16m.18s. = PPP +6s., eSP = +22m.23s., eSSEN = +27m.12s.
Triest ePP = +15m.5s., i = +22m.29s.
Strasbourg S = +22m.34s. = SKS −21s.; the S entered is given as SKS.
Kew e = +22m.50s. = SKS −11s.
Florence PS = +22m.28s.
St. Louis iEN = +16m.36s. = PP +34s.
East Machias e = +25m.24s.
Granada PP = +14m.20s., SS = +25m.25s.
Fordham e = +19m.6s.
Long waves were also recorded at Riverview.

July 25d. 9h. 12m. 53s. Epicentre 18°·9N. 103°·8W. N.1.

Probable error of epicentre ±0°·17.

A = −·226, B = −·919, C = +·324; D = −·971, E = +·239; G = −·077, H = −·315, K = −·946.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tucson		14·8	336	i 3 27	+ 1	6 23	+13	7·0	—
Riverside		19·3	324	i 4 21	− 1	e 8 14	+22	—	—
Pasadena		19·8	323	i 4 27	0	i 8 33	+31	e 9·5	—
Mount Wilson		19·9	323	e 4 28	− 1	i 8 35	+31	—	—
Denver		20·8	358	e 4 44	+ 6	e 8 49	+27	—	11·1
Santa Barbara		21·0	321	e 4 41	+ 1	i 8 52	+26	—	—
Tinemaha	N.	22·2	328	i 4 52	− 1	e 9 9	+19	—	—
St. Louis		23·0	28	i 5 1	0	i 9 10	+ 5	i 12·8	13·3
Florissant		23·1	28	i 5 2	0	i 9 12	+ 5	—	13·3
Lick		24·2	324	e 5 11	− 1	—	—	—	—
Branner	N.	24·5	323	i 5 16	+ 1	e 9 49	+17	—	—
Berkeley		24·9	324	e 5 18	− 1	e 9 53	+14	e 10·2	—
Columbia		25·3	49	i 5 23	0	i 9 59	+13	i 12·7	—
Ukiah		26·3	324	5 32	0	i 10 11	+ 8	e 11·8	—
Chicago		26·7	28	i 5 36	+ 1	i 10 30	+20	e 13·5	—
Madison		27·1	24	e 5 37	− 2	i 10 33	+16	13·8	—
Bozeman		27·4	349	5 43	+ 1	e 10 23	+ 1	13·5	—
Ann Arbor		28·9	32	i 6 43	+48	i 11 25	+38	e 14·7	17·6
Charlottesville		29·2	44	e 6 32	+34	e 11 1	+10	e 14·1	—
Pittsburgh		29·7	38	i 6 1	− 1	i 11 16	+17	e 15·3	—
Port au Prince		29·8	86	e 6 21	+18	11 54	+53	15·9	—
Georgetown		30·6	44	e 6 11	+ 1	e 11 24	+10	e 14·5	19·1
Buffalo		32·0	36	i 6 25	+ 2	i 11 47	+12	i 18·1	—
Toronto		32·1	34	i 6 30	+ 6	i 11 49	+12	17·0	20·0
Seattle		32·5	337	e 6 18	− 9	e 11 53	+10	16·8	—
Victoria	N.	33·5	337	6 31	− 5	12 2	+ 4	17·2	22·9
Fordham		33·7	43	e 6 41	+ 3	i 12 25	+24	i 19·1	—
Ottawa		35·2	35	e 6 50	− 1	e 12 23	− 1	e 16·9	—
San Juan		35·6	85	i 6 56	+ 2	12 34	+ 4	16·1	—
Harvard		36·2	42	i 6 59	− 1	e 12 44	+ 5	e 16·1	—
East Machias		39·8	41	i 7 27	− 3	e 13 7?	−26	16·7	—
Sitka		44·7	336	i 8 7	− 3	i 18 15	(+ 5)	e 21·1	—
La Paz		49·8	133	8 50	0	i 15 58	0	23·5	33·4
Honolulu T.H.		50·5	283	i 8 55	0	i 16 4	− 4	23·0	—
Sucre	N.	53·6	133	i 8 47	−31	—	—	—	—
La Plata		69·2	141	11 3	− 3	20 5	− 6	30·3	—
Scoresby Sund		69·5	21	11 6	− 2	20 20	+ 5	35·1	—
Rio de Janeiro		72·5	122	i 11 27	+ 1	i 20 48	− 3	34·3	43·4
Edinburgh		80·2	34	e 12 10	+ 1	i 22 27	+ 9	43·1	52·2
Stonyhurst		81·3	36	i 12 14	− 1	22 45	+15	41·1	49·0
Durham		81·5	35	12 16	0	22 39	+ 7	—	48·1
Bergen		82·7	28	e 12 20	− 2	e 22 53	+ 9	—	—
Oxford		82·7	38	i 12 43	+21	23 5	+21	i 37·2	49·5
Kew		83·4	38	i 12 24	− 1	i 22 59	+ 8	37·1	50·0
San Fernando		84·8	54	12 40	+ 8	i 23 5	− 1	45·1	54·1
Suva		85·2	249	9 7	?	—	—	41·1	47·1
Toledo		85·2	49	i 12 33	− 1	i 23 8	− 2	e 42·5	52·3
Malaga		86·0	52	i 12 38	0	i 23 15	− 3	e 42·6	49·7
Paris		86·1	40	i 12 39	0	e 23 14	− 4	29·1	53·1
De Bilt		86·2	35	i 12 40	+ 1	e 23 16	− 3	e 43·1	51·3
Uccle		86·3	37	12 39	− 1	i 23 15	− 5	41·1	52·0
Granada		86·4	52	i 12 38	− 2	i 23 20	− 1	39·0	51·3
Almeria		87·5	52	i 12 47	+ 2	i 23 37	+ 5	—	—
Hamburg		88·1	33	i 12 48	0	e 23 20	[− 1]	e 44·1	47·1
Tortosa		88·1	47	13 1	+13	23 48	+10	e 37·1	52·4

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Copenhagen		88·2	30	12 47	− 2	23 26	[+ 5]	41·1	—
Upsala		88·2	26	e 12 46	− 3	i 23 27	[+ 6]	e 43·1	51·4
Alicante		88·3	50	e 12 52	+ 3	i 23 34	− 6	e 47·3	—
Lund		88·6	30	12 50	− 1	23 28	[+ 4]	41·1	—
Barcelona		88·9	46	e 13 6	+14	e 23 26	[0]	e 37·2	60·1
Besançon		88·9	38	—	—	e 23 34	[+ 8]	e 50·1	—
Göttingen		89·1	35	i 12 52	− 1	i 23 25	[− 2]	e 48·5	53·4
Strasbourg		89·3	38	i 12 53	− 1	23 37	[+ 9]	45·1	—
Karlsruhe		89·5	37	e 16 7?	PP	—	—	e 51·1	—
Neuchatel		89·6	39	e 12 54	− 2	e 23 33	[+ 3]	—	—
Stuttgart		90·0	37	i 12 57	0	e 23 35	[+ 2]	e 42·1	50·1
Jena		90·3	35	e 13 1	+ 2	e 23 42	[+ 8]	e 48·1	55·1
Potsdam		90·3	33	i 13 0	+ 1	i 23 39	[+ 5]	e 34·1	62·1
Zurich		90·4	39	e 12 59	0	e 23 42	[+ 7]	—	—
Algiers		90·7	50	e 12 5	−56	23 53	−10	49·1	—
Helsingfors		90·8	23	12 58	− 3	23 56	− 8	e 46·6	—
Chur		90·9	39	e 13 3	+ 1	e 23 33	[− 5]	—	—
Cheb		91·2	35	e 12 12	−51	e 23 48	[+ 8]	e 45·1	55·3
Piacenza		92·2	41	13 7	− 1	23 55	[+ 9]	44·1	58·7
Königsberg		92·5	28	e 11 49	?	i 23 53	[+ 6]	e 48·6	52·6
Pulkovo		93·0	21	13 12	+ 1	23 38	[−12]	49·1	54·9
Treviso		93·4	39	i 13 12	− 1	i 24 4	{+ 2}	52·1	56·4
Venice		93·6	39	e 13 7?	− 7	23 6	[−47]	56·1	—
Prato		93·6	41	e 13 7	− 7	24 7	{+ 3}	47·1	56·1
Florence		93·8	41	12 7	− 8	23 47	[− 7]	37·1	51·1
Triest		94·2	38	i 13 16	− 1	i 24 44	+ 9	e 47·2	61·8
Vienna		94·3	35	e 13 19	+ 2	23 53	[− 4]	e 35·1	57·1
Zagreb		95·5	38	e 13 22	− 1	e 24 7?	[+ 4]	e 54·1	—
Wellington		96·2	229	18 32	PP	24 9	[+ 2]	48·1	51·1
Budapest		96·2	35	e 13 29	+ 3	24 11	[+ 4]	e 45·1	59·1
Naples	E.	97·2	42	e 23 23	?	—	—	56·1	67·1
Belgrade		98·6	37	—	—	(e 24 22)	[+ 3]	e 26·4	—
Kucino		98·6	22	17 39	PP	24 24	[+ 5]	e 32·2	—
Taranto		99·3	42	18 28	PPP	—	—	—	—
Ekaterinburg		103·2	9	i 14 3	+ 5	i 24 42	[+ 1]	—	—
Simferopol		105·6	29	e 44 7?	?	—	—	e 57·1	—
Riverview		112·6	240	9 25	?	e 29 7	PS	e 51·8	59·1
Sydney		112·6	240	e 26 1	SKKS	(e 26 1)	{−24}	53·3	62·8
Tiflis		112·8	25	19 21	PP	—	—	51·6	68·8
Ksara		114·7	37	e 19 34	PP	—	—	64·1	—
Baku		115·9	22	19 42	PP	e 29 49	PS	47·1	71·8
Melbourne		118·0	236	—	—	i 29 49	PS	54·2	57·2
Tashkent		119·4	6	20 5	PP	—	—	40·0	40·1
Adelaide		123·0	239	—	—	i 37 34	SS	e 52·1	77·2
Hong Kong		124·5	316	20 35	PP	30 39	PS	59·4	84·4
Manila		124·6	304	20 34	PP	—	—	—	—
Cape Town		126·9	119	20 55	PP	—	—	65·1	—
Bombay		142·0	6	22 4	PP	34 39	?	65·9	90·5
Hyderabad		143·6	357	19 25	[− 4]	33 3	SKSP	66·6	90·2
Batavia	Z.	147·6	289	i 19 40	[+ 2]	—	—	—	—
Kodaikanal		150·8	357	30 22	SKKS	44 17	?	77·3	—
Tananarive		152·3	95	e 19 59	[+14]	e 32 44	?	78·0	82·8
Colombo		154·0	352	19 45	[− 2]	—	—	—	97·6

Additional readings :—
St. Louis iEN = +5m.9s., iPPEN = +5m.32s., iE = +8m.18s., iN = +9m.18s.
Florissant iEN = +5m.10s., iPPEN = +5m.33s.
Berkeley eE = +8m.26s.
Columbia e = +9m.19s. and +9m.47s.
Chicago iPP = +6m.15s., i = +6m.20s.
Madison iPP = +6m.29s. ; T_o =9h.12m.40s.
Bozeman ePP = +6m.36s.
Ann Arbor eSS = +12m.44s. ; T_o =9h.13m.18s.
Pittsburgh iPP = +6m.53s., e = +10m.59s. =S +0s., eSS = +12m.54s.

Continued on next page.

Port au Prince i = +6m.51s. =PP − 3s., PP = +7m.40s., PPP = +7m.54s., SS = +13m.28s., SSS = +14m.4s.
Georgetown iPP = +7m.6s., iS = +11m.32s.; T_0 =9h.12m.42s.
Buffalo iPP = +7m.24s.
Toronto iPPN = +7m.26s.; T_0 =9h.12m.22s.
Seattle e = +7m.42s.
Fordham iEN = +7m.50s., iZ = +7m.53s., i = +12m.44s. and +14m.2s. =SS +6s.
Ottawa i = +8m.17s. =PP +14s., e = +14m.31s. =SS +0s.
San Juan iSS = +14m.20s.
Harvard iPP = +8m.29s.: T_0 =9h.12m.43s.
East Machias iPP = +9m.10s.
Sitka ePP = +9m.51s., ePPP = +10m.45s.
La Paz iPN = +8m.55s., iPPN = +10m.37s., iPPPE = +11m.32s. and +11m.37s., iSN = +16m.2s., SSE = +19m.30s., SSN = +19m.42s., L_qN = +22·7m.
Honolulu T.H. e = +9m.7s., eSS = +20m.20s., i = +21m.11s.
Scoresby Sund +20m.49s. =S_cS −13s. and +25m.19s.
Edinburgh i = +12m.17s., +28m.12s. and +29m.13s.
Oxford i = +17m.21s. =PPP +11s.
Kew eZ = +15m.5s. =PP − 27s., SS = +29m.16s., eN = +31m.34s. =SSS − 2s., eE = +32m.28s.
Suva SS = +24m.47s., SSS = +30m.7s.?
Toledo PS = +24m.8s.
Malaga P_cP = +13m.2s., PP = +16m.10s., PPP = +17m.51s., PS = +24m.2s., SS = +28m.56s., SSS = +32m.50s.
Uccle PP = +16m.2s., iPS = +24m.21s., SS = +29m.21s.
Granada PP = +15m.44s., PPP = +17m.50s.
Hamburg iN = +23m.28s.
Copenhagen PP = +16m.19s., +24m.46s. =PS +16s.
Upsala PP = +16m.21s., PPS = +24m.37s.
Lund +24m.44s. =PS +9s.
Göttingen ePPZ = +16m.19s., eSSE = +29m.55s., eSSSE = +34m.31s., eL_qN = +39·5m.
Strasbourg PP = +16m.15s., PPP = +17m.15s., PPPP = +20m.11s., SKS = +23m.25s., PS = +24m.54s., SS = +29m.33s., SSS = +32m.41s.
Stuttgart ePP = +16m.31s., eSS = +30m.7s.
Jena eN = +23m.55s. =S − 4s.
Potsdam i = +16m.40s. =PP +12s., iE = +25m.11s. =PS +16s.
Helsingfors ePPN = +16m.37s.?, ePPZ = +16m.59s., ePPE = +17m.3s., eSKSN = +23m.17s.?, eSKSE = +23m.31s., eEZ = +25m.10s. =PS +9s., eN = +25m.17s., eSSN = +29m.56s., eSSEZ = +30m.7s., eSSSE = +33m.37s.: T_0 =9h.12m.45s.
Cheb ePP = +16m.39s., ePS = +25m.14s., ePSP = +29m.31s., eSS = +34m.13s.
Königsberg eN = +16m.43s. =PP − 2s., eE = +16m.57s., iZ = +20m.47s., eE = +25m.9s. =PS − 12s., eN = +25m.17s., eE = +35m.13s., eN = +37m.37s., eE = +37m.55s., eN = +43m.37s. and +46m.7s.?
Pulkovo PP = +16m.56s., PPS = +25m.45s., SS = +30m.37s.
Triest SKS = +23m.52s.
Vienna PPP = +21m.0s., i = +24m.7s. =SKKS − 2s., SKKS = +24m.46s. = S +10s., PPS = +27m.58s.
Wellington S = +26m.3s. =PS − 1s.
Belgrade eL = +26m.43s. =PS +13s. and +32m.10s.
Kucino PS = +26m.38s.
Ekaterinburg iPP = +18m.15s.
Riverview eE = +35m.19s. =SS +25s.
Tiflis PS = +28m.55s., SS = +35m.31s., SSS = +39m.35s.
Melbourne e = +30m.37s., i = +32m.17s., +36m.29s. =SS +23s. and +41m.7s.
Tashkent PPP = +32m.45s., i = +34m.10s. and +39m.13s.
Adelaide e = +42m.7s.
Hong Kong ? = +25m.14s., SS = +37m.42s.
Cape Town +22m.25s., +24m.14s., +34m.46s., +41m.44s.
Batavia i = +19m.50s. and +23m.58s.
Tananarive PPS = +36m.32s., SS = +43m.44s.
Long waves were also recorded at Laibach, Sebastopol, Theodosia, Dehra Dun, Phu-Lien, and Perth.

July 25d. 9h. 29m. 47s. Epicentre 18°·9N. 103°·8W. (as at 9h. 12m.). X.

		Δ	Az.	P.	O − C.	S.	O − C.
		°	°	m. s.	s.	m. s.	s.
Riverside		19·3	324	e 4 20	− 2	—	—
Pasadena		19·8	323	i 4 26	− 1	—	—
Mount Wilson		19·9	323	e 4 27	− 2	—	—
Santa Barbara	N.	21·0	321	e 4 40	0	—	—
Tinemaha	N.	22·2	328	e 4 54	+ 1	—	—
St. Louis		23·0	28	e 5 3	+ 2	e 9 10	+ 5

Ann Arbor suggests a shock secondary to that of 9h.12m.53s., beginning 9h.28m.36s.

July 25d. Readings also at 2h. (De Bilt, Paris, Granada, and Stuttgart), 3h. (Wellington), 4h. (near Nanking), 5h. (near Wellington), 9h. (Ekaterinburg, Almata, Andijan, and Tchimkent), 10h. (Santiago), 11h. (near Samarkand), 14h. (Tchimkent, Samarkand, and near Andijan), 16h. (Tinemaha and Tucson), 22h. (Tiflis, near Batavia, and Malabar).

July 26d. Readings at 0h. (near Malabar), 3h. (near Santiago), 5h. (Baku, Ekaterinburg, Tashkent, and Pulkovo), 6h. (Stuttgart, Tucson, near Berkeley, Branner, Lick, and San Francisco), 7h. (Ottawa), 14h. (Lick and near Ksara), 15h. (Wellington and near New Plymouth), 16h. (La Paz), 17h. (Mizusawa, Wellington, Tinemaha, Mount Wilson, and Pasadena).

July 27d. 0h. 30m. 58s. Epicentre 31°·2N. 139°·0E. (given by Tokyo). N.1.

$A = -\cdot646$, $B = +\cdot561$, $C = +\cdot518$; $D = +\cdot656$, $E = +\cdot755$; $G = -\cdot391$, $H = +\cdot340$, $K = -\cdot855$.

A *depth* of focus 0·050 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	2·0	20	0 52	+ 5	1 36	+11	—	—
Siomisaki	+0·8	3·5	310	1 1	0	1 52	+ 2	—	—
Mera	+0·7	3·8	10	0 59	− 5	2 2	+ 7	—	—
Numadu	+0·6	3·9	358	1 8	+ 4	2 4	+ 9	—	—
Yokosuka	+0·5	4·2	8	1 5	− 2	2 2	+ 2	—	—
Kameyama	+0·5	4·2	330	1 10	+ 3	2 8	+ 8	—	—
Nagoya	+0·5	4·3	337	e 1 12	+ 4	2 11	+ 8	—	2·2
Yokohama	+0·5	4·3	7	1 7	− 1	2 10	+ 7	—	—
Tokyo	+0·5	4·5	8	1 7	− 4	2 13	+ 5	—	—
Wakayama	+0·5	4·5	314	1 10	− 1	2 2	− 6	—	—
Osaka	+0·4	4·6	322	1 12	+ 1	i 2 3	− 5	2·2	2·7
Sumoto	+0·4	4·7	313	1 13	0	2 13	+ 3	—	2·2
Hikone	+0·4	4·7	332	1 12	− 1	2 14	+ 4	—	—
Kobe	+0·4	4·8	319	1 15	+ 1	i 2 15	+ 2	—	2·3
Tyosi	+0·4	4·8	18	1 16	+ 2	2 17	+ 4	—	—
Kumagaya	+0·3	5·0	3	1 18	+ 3	2 31	+16	—	—
Kakioka	+0·3	5·1	11	1 14	− 3	2 23	+ 5	—	—
Tukubasan	+0·3	5·1	10	1 16	− 1	2 13	− 5	—	—
Koti	+0·3	5·2	299	i 1 17	− 1	i 2 21	+ 1	—	—
Oiwake	+0·3	5·2	356	1 19	+ 1	2 26	+ 6	—	—
Maebasi	+0·3	5·2	1	1 22	+ 4	2 36	+16	—	—
Mito	+0·2	5·3	13	1 18	0	2 24	+ 4	—	—
Toyooka	+0·2	5·6	321	i 1 22	0	i 2 31	+ 3	—	2·6
Matuyama	+0·1	5·9	298	i 1 25	0	i 2 35	+ 2	—	2·6
Wazima	0·0	6·4	345	1 30	− 1	2 46	+ 3	—	—
Miyazaki	0·0	6·5	278	1 31	− 1	2 47	+ 1	—	—
Hukusima	0·0	6·6	10	1 36	+ 2	2 55	+ 7	—	—
Sendai	−0·1	7·2	12	1 43	+ 2	3 6	+ 5	—	—
Hukuoka	−0·2	7·6	290	1 44	− 1	3 11	+ 2	—	—
Nagasaki	−0·3	7·9	283	1 18	−30	3 15	+ 1	—	—
Mizusawa	−0·3	8·1	12	1 56	+ 5	3 27	+ 8	—	—
Akita	−0·4	8·5	6	1 59	+ 4	3 35	+ 9	—	—
Morioka	−0·4	8·7	11	2 0	+ 2	3 36	+ 5	—	—
Naha	−0·7	11·1	246	2 34	+ 8	4 20	− 3	—	—
Ekaterinburg	−5·4	58·1	322	i 9 17	+ 5	e 16 44	+ 6	23·0	—
Tinemaha N.	−6·2	80·7	52	e 11 34	− 3	—	—	—	—
Mount Wilson E.	−6·3	82·4	54	e 11 41	− 6	—	—	—	—
Pasadena Z.	−6·3	82·4	54	i 11 38	− 9	—	—	—	—

Tyosi gives also S = +2m.20s.

July 27d. 8h. 41m. 26s. Epicentre 35°·5N. 133°·5E. (as on 1928 Feb. 20d.). R.3.

A = −·560, B = +·591, C = +·581; D = +·725, E = +·688; G = −·400, H = +·421, K = −·814.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Toyooka	1·1	88	i 0 13	− 3	i 0 22	− 6	—	0·4
Kobe	1·6	120	0 23	0	0 42	+ 1	—	0·8
Sumoto	1·7	135	0 25	+ 1	0 44	0	—	0·7
Osaka	1·9	118	0 27	− 1	(0 50)	+ 1	0·8	—
Nagoya	2·9	97	e 0 44	+ 3	—	—	—	—

Kobe gives also SN = +46s. =S +0s.

July 27d. 21h. 19m. 33s. Epicentre 6°·4S. 130°·3E. N.2.

Batavia gives epicentre 5°·6S. 131°·2E., from which the adopted position has been deduced.

A = −·643, B = +·758, C = −·111; D = +·763, E = +·647; G = +·072, H = −·085, K = −·994.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Amboina	3·4	323	(i 0 41)	− 8	(i 1 25)	− 2	—	—
Malabar	22·6	266	5 1	+ 4	e 8 55	− 2	—	—
Manila	22·9	336	5 4	+ 4	9 6	+ 3	11·4	—
Batavia	23·4	269	i 5 8	+ 3	i 10 19	SS	—	—
Perth	28·9	206	e 6 32	PP	10 27	−20	11·3	16·4
Adelaide	29·6	166	e 6 37	PP	i 11 31	+33	i 14·5	17·2
Hong Kong	32·8	332	6 19	−11	11 32	−16	—	16·6
Riverview	33·6	148	i 6 36	− 1	e 11 44	−16	—	18·4
Sydney	33·6	148	—	—	e 11 39	−21	17·6	18·6
Melbourne	34·1	159	—	—	11 59	− 9	16·9	19·8
Titizima	35·4	19	6 52	− 1	11 29	−58	—	—
Phu-Lien	35·8	320	e 6 58	+ 2	12 27?	− 6	16·0	—
Miyazaki	38·3	1	7 21	+ 3	13 3	− 8	—	—
Nagasaki	39·1	359	e 7 26	+ 2	e 13 12	−10	—	—
Sumoto	40·9	6	e 7 46	+ 6	—	—	—	—
Kobe	41·3	6	e 8 19	+36	13 45	−11	e 16·9	—
Osaka	41·3	6	7 44	+ 1	(13 52)	− 4	13·9	15·4
Nagoya	42·0	8	e 7 52	+ 3	(13 56)	−10	13·9	—
Tokyo	43·0	11	7 55	− 2	14 2	−19	—	—
Oiwake	43·4	10	8 2	+ 2	14 12	−15	—	—
Mito	43·8	11	8 4	+ 1	14 19	−14	—	—
Mizusawa	46·6	12	8 30	+ 5	15 2	−11	—	—
Suva	48·3	108	1 27?	?	—	—	—	—
Wellington	52·7	138	13 12	?	17 12	+34	29·4	—
Kodaikanal	55·2	287	9 27	− 3	—	—	—	—
Hyderabad	56·5	295	—	—	17 14	−16	27·8	33·4
Bombay	62·0	295	10 20	+ 2	18 29	−13	30·1	—
Irkutsk	62·7	342	i 10 23	0	i 18 42	− 9	31·4	—
Andijan	70·9	317	e 11 16	0	e 20 18	−14	—	—
Tashkent	73·3	316	11 28	− 3	i 20 42	−18	—	42·6
Tchimkent	73·8	318	11 46	+13	—	—	—	—
Samarkand	74·2	313	11 28	− 8	20 46	−25	—	—
Honolulu T.H.	75·7	66	i 11 44	0	i 21 17	−11	—	—
Ekaterinburg	84·5	329	i 12 35	+ 4	i 22 43	−20	34·4	—
Baku	86·9	311	e 12 54	+11	i 23 0	−26	e 38·4	—
Tiflis	90·9	311	i 13 1	− 1	e 24 25	+21	e 37·0	—
Kucino	96·6	324	e 17 39	PP	24 48	− 8	e 35·6	40·4
Theodosia	98·0	315	e 17 27	PP	—	—	—	—
Simferopol	98·9	315	e 17 45	PP	—	—	—	—
Pulkovo	100·6	330	13 45	− 1	24 7	[−22]	48·4	52·6

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Lund		110·3	328	—	—	33 27?	?	58·4	—
Copenhagen		110·6	328	19 9	PP	24 57	[−19]	58·4	—
Potsdam		111·4	325	e 18 57	PP	e 28 27?	PS	—	—
Pasadena	Z.	111·4	56	e 18 32	[+10]	i 28 31	PS	—	—
Mount Wilson	E.	111·5	56	e 19 10	PP	—	—	—	—
Riverside		112·1	56	e 18 52	PP	—	—	—	—
La Jolla	N.	112·2	57	e 19 4	PP	—	—	—	—
Cheb		112·6	322	e 19 25	PP	e 25 51	{−34}	—	—
Hamburg		112·8	327	e 18 27?	[+ 1]	e 29 51	?	e 60·4	—
Triest		113·0	317	e 18 47	[+20]	29 0	PS	e 41·4	62·4
Stuttgart		115·0	321	e 19 22	PP	e 27 11	{+29}	e 46·4	—
Florence		115·1	315	19 32	PP	26 27	{−16}	30·4	36·4
Chur		115·4	320	e 18 39	[+ 5]	—	—	—	—
Piacenza		115·8	317	e 15 15	+16	—	—	—	33·9
Strasbourg		115·9	322	e 19 27	PP	i 30 9	?	36·4	—
De Bilt		116·0	327	e 19 50	PP	—	—	e 63·4	—
Uccle		117·0	325	e 19 56	PP	—	—	—	—
Tucson		117·7	57	e 19 27?	PP	e 26 45	{−16}	e 58·4	—
Edinburgh		118·4	332	—	—	e 25 27?	[−18]	—	—
Kew		119·3	327	e 20 12	PP	—	—	—	—
Paris		121·9	323	e 20 7	PP	e 29 48	SKSP	63·4	—
Ottawa		134·9	25	e 21 45	PP	—	—	41·4	—
Pittsburgh		136·5	33	e 16 45	+ 5	—	—	e 59·4	—
East Machias		138·6	19	e 20 33	PP	e 23 47	?	—	—
Fordham		139·3	28	e 20 2	PP	e 23 57	?	40·4	—
La Paz		150·7	142	19 49	[+ 6]	—	—	—	—
San Juan		160·0	52	e 20 27	[+33]	—	—	—	—

Additional readings and notes :—
Amboina readings have been *increased* by 1m.
Batavia i = +5m.31s., +5m.35s., +6m.19s., +6m.25s., +11m.7s., and +11m.35s.
Hong Kong ? = +8m.47s., +10m.7s., and +12m.17s.
Riverview i = +12m.35s.
Melbourne SSS = +15m.17s.
Sumoto i = +8m.30s.
Mizusawa PN = +8m.33s.
Wellington SS = +22m.7s., SSS = +26m.1s.
Tiflis PP = +16m.27s., PPP = +19m.7s., SKS = +23m.19s., SKKS = +23m.48s., SS = +29m.19s.
Kucino ePP = +18m.24s., PS = +26m.36s.
Pulkovo PP = +17m.55s., S = +25m.2s., PS = +26m.33s., SS = +32m.3s.
Potsdam eE = +29m.27s.?
Pasadena eZ = +19m.11s. = PP + 4s.
Cheb e = +28m.53s. = PS + 0s.
Triest e = +19m.5s. = PP − 14s. and +26m.53s. = SKKS + 25s., PS = +29m.38s.
Stuttgart ePPEZ = +19m.43s., ePSZ = +29m.15s., ePPS = +30m.9s., eSS = +35m.39s., eSSSN = +39m.12s.
Strasbourg i = +31m.13s.
Pittsburgh ePP = +22m.27s.?
East Machias e = +41m.51s.
La Paz iN = +22m.4s., iPP = +22m.32s., iE = +43m.54s.
Long waves were also recorded at San Fernando.

July 27d. Readings also at 4h. (Batavia and Soengei-Langka), 5h. (Tiflis), 6h. (Andijan, Samarkand, and near Tchimkent), 7h. (Andijan), 10h. (La Paz), 11h. (near Santiago), 12h. (Lick), 23h. (near Andijan and Tchimkent).

July 28d. Readings at 3h. (Tyosi, near Mizusawa, and Nagoya), 7h. (Mizusawa), 17h. (Ekaterinburg and Ottawa), 18h. (Branner), 19h. (Ottawa), 21h. (Sucre, near La Paz, and near Mizusawa), 23h. (near Amboina),

July 29d. 0h. 45m. 10s. Epicentre 18°·8S. 70°·5W. N.3.

A = +·316, B = −·892, C = −·322; D = −·943, E = −·334; G = −·108, H = +·304, K = −·947.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
La Paz	N.	3·2	45	i 0 49	+ 3	i 1 21	− 1	—	1·6
Sucre	N.	5·0	92	i 1 11	0	—	—	—	—
Santiago		14·6	180	3 30	+ 7	6 4	− 1	6·9	—
La Plata		19·6	148	4 18	− 7	—	—	9·9	—
Rio de Janeiro	N.	25·8	104	—	—	(e 10 10)	+15	e 10·2	—
San Juan		37·4	7	e 8 58	PPP	e 12 34	−23	—	—
St. Louis		59·1	343	e 10 2	+ 4	i 18 5	+ 1	—	—
La Jolla		68·3	319	e 11 35	(+ 9)	—	—	—	—
Riverside		69·1	320	e 11 4	− 1	—	—	—	—
Pasadena		69·6	320	i 11 8	0	—	—	—	—
Mount Wilson		69·7	320	e 11 7	− 2	—	—	—	—
Tinemaha		71·7	322	e 11 21	0	—	—	—	—
Copenhagen		101·6	35	—	—	24 50?	[+17]	—	—
Pulkovo		111·6	32	—	—	e 25 50?	[+30]	e 64·8	77·8
Tiflis		121·1	52	e 20 14	PP	—	—	e 59·5	88·7
Ekaterinburg		127·6	31	—	—	e 38 2	SS	50·8	—
Irkutsk		146·3	6	e 19 34	[− 2]	—	—	e 58·8	64·1

Additional readings:—
La Paz $iP_gN = +52s.$, $iN = +1m.26s. = S^* - 2s.$
St. Louis $iPEN = +10m.26s.$, $iEN = +18m.48s.$
Pasadena $iZ = +11m.43s. = P_gP + 11s.$
Tiflis $e = +20m.32s. = PP + 15s.$
Irkutsk $e = +20m.0s.$

July 29d. 20h. 58m. 37s. Epicentre 0°·3N. 123°·7E. N.2.

A = −·555, B = +·832, C = +·005; D = +·832, E = +·555; G = −·003, H = +·004, K = +1·000.

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.
Amboina	0·0	6·0	132	i 1 9	−16	i 2 11	−22	—	—
Palau	−0·4	12·8	56	3 2	+ 8	5 35	+22	—	—
Manila	−0·5	14·6	349	3 22	+ 5	6 24	+31	—	—
Batavia	−0·7	18·1	249	i 3 56	− 3	—	—	—	—
Hong Kong	−1·0	23·9	338	4 56	− 4	9 3	0	—	—
Phu-Lien	−1·2	26·5	322	4 23?	−60	—	—	—	—
Perth	−1·5	33·1	193	7 48?	+89	i 11 28	− 1	—	—
Kobe	−1·6	36·0	17	i 6 45	+ 1	e 12 9	− 3	—	—
Osaka	−1·6	36·1	17	6 41	− 4	(12 11)	− 3	12·2	—
Kameyama	−1·6	36·5	18	6 50	+ 2	12 20	0	—	—
Nagoya	−1·6	37·0	20	6 54	+ 1	(12 26)	− 1	12·4	—
Oiwake	−1·7	38·6	21	7 5	− 1	12 47	− 3	—	—
Hukusima	−1·7	40·5	22	7 22	0	13 17	− 1	—	—
Sendai	−1·7	41·1	22	7 27	0	13 26	− 1	—	—
Mizusawa E.	−1·8	42·0	21	7 36	+ 2	13 39	0	—	—
N.	−1·8	42·0	21	7 29	− 5	13 41	+ 2	—	—
Melbourne	−1·8	42·8	156	e 9 46	(+ 1)	13 56	+ 5	—	—
Riverview	−1·8	42·8	156	i 7 40	0	i 13 52	+ 1	—	—
Bombay	−2·2	53·3	294	8 59	− 1	—	—	—	—
Irkutsk	−2·3	54·5	346	i 9 8	0	—	—	e 31·4	—
Andijan	−2·4	61·5	317	e 10 5	+ 7	—	—	—	—
Tashkent	−2·5	63·9	317	e 10 12	− 2	i 19 44	+70	e 33·4	39·4
Tchimkent	−2·5	64·1	318	e 10 4?	−12	—	—	—	—
Samarkand	−2·5	64·8	315	e 10 6	−14	—	—	—	—
Ekaterinburg	−2·6	75·4	330	i 11 31	+ 3	e 20 55	+ 1	28·4	—
Baku	−2·7	77·6	312	i 11 37	− 3	e 21 5	−14	34·4	—

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.
Kucino	−2·7	87·4	326	e 12 29	− 3	e 23 35	[+19]	e 24·9	30·0
Pulkovo	−2·8	91·5	330	12 46	− 5	e 23 28	−16	45·7	51·9
Lund	—	101·0	328	—	—	24 23?	[− 8]	51·4	—
Copenhagen	—	101·5	328	18 23?	PP	23 58	[−35]	51·4	—
Potsdam	—	102·2	324	e 17 23?	PP	e 27 23?	PS	—	—
Hamburg	—	103·6	327	e 17 51	PP	28 23?	PS	—	—
Triest	—	103·6	317	e 17 1	PP	e 28 33	PS	—	57·4
Venice	—	104·6	320	19 23?	?	—	—	—	—
Stuttgart	—	105·7	321	e 18 17	[+13]	—	—	e 59·4	—
Florence	—	105·8	316	e 16 23	?	(25 23?)	−54	—	25·4
Chur	—	106·0	320	e 18 19	[+14]	—	—	—	—
Strasbourg	—	106·6	321	e 18 14	[+ 7]	—	—	—	—
De Bilt	—	106·8	326	e 18 25	[+18]	—	—	e 55·4	—
Uccle	—	107·8	325	e 18 33	[+22]	e 27 23?	?	—	—
Edinburgh	—	109·4	331	—	—	e 26 23?	{+20}	—	—
Paris	—	109·7	323	e 18 45	[+28]	—	—	58·4	—
Kew	—	110·1	326	e 18 23?	[+ 5]	—	—	e 66·4	—
Ottawa	—	131·2	18	e 21 59	PP	(38 23?)	SS	38·4	—
East Machias	—	133·9	11	e 22 27	PKS	e 39 47	SS	—	—
La Paz E.	—	160·0	145	e 19 41	[−13]	—	—	—	—

Additional readings :—
Amboina iS_eS = +14m.44s.
Hong Kong ? = +5m.44s., +9m.59s., and +10m.33s.
Osaka i = +9m.0s.
Melbourne SS = +17m.5s.
Riverview iSS = +17m.16s.
Irkutsk ePP = +11m.51s., PS = +17m.14s.
Pulkovo PP = +16m.26s., SKS = +23m.0s., PS = +24m.35s., SS = +29m.59s.
Triest iZ = +17m.58s., e = +20m.15s., eSS = +34m.51s.
Stuttgart ePP = +19m.7s.
Strasbourg e = +18m.59s. = PP + 27s.

July 29d. 21h. 53m. 1s. Epicentre 40°·2N. 142°·4E. (as on 1932 June 3d.). R.2.

Tokyo gives epicentre 40°·4N. 142°·2E.

A = −·605, B = +·466, C = +·645 ; D = +·610, E = +·792 ;
G = −·511, H = +·394, K = −·764.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Morioka	1·1	242	0 16	0	0 30	+ 2	—	—
Mizusawa	1·4	223	0 21	+ 1	0 37	+ 1	—	—
Aomori	1·4	297	0 21	+ 1	0 38	+ 2	—	—
Akita	1·9	254	0 27	− 1	0 52	+ 3	—	—
Hakodate	2·0	321	0 30	+ 1	1 7	S_g	—	—
Sendai	2·3	211	0 31	− 2	1 0	+ 1	—	—
Muroran	2·4	333	0 34	0	1 4	+ 2	—	—
Hukusima	2·9	212	0 41	0	1 22	S*	—	—
Sapporo	3·0	345	0 50	P*	1 20	+ 3	—	—
Asahigawa	3·6	359	0 37	−14	1 19	−13	—	—
Mito	4·1	202	0 55	− 3	1 46	+ 1	—	—
Tukubasan	4·4	205	1 0	− 3	1 49	− 4	—	—
Tyosi	4·6	196	e 1 20	P*	—	—	—	—
Maebasi	4·6	216	1 26	P_g	2 21	S_g	—	—
Nagano	4·8	225	1 11	+ 3	2 35	S_g	—	—
Oiwake	4·9	219	1 10	0	2 18	S*	—	—
Tokyo	5·0	206	1 10	− 1	2 20	S*	—	—
Wazima	5·1	238	1 14	+ 1	2 21	+11	—	—
Mera	5·6	202	1 32	P*	3 1	S_g	—	—
Misima	5·7	210	1 31	P*	2 34	+ 9	—	—
Numadu	5·8	210	1 31	P*	2 45	S*	—	—
Gihu	6·5	224	1 35	+ 3	—	—	—	—
Nagoya	6·6	222	e 1 34	0	3 3	+15	—	—
Kameyama	7·1	223	1 52	+11	3 14	+13	—	—
Osaka	7·7	227	1 57	+ 8	i 3 20	+ 4	3·7	4·6
Kobe	8·0	229	1 5	−48	—	—	—	—
Ekaterinburg	53·1	317	i 9 18	+ 3	—	—	28·0	—

Kobe gives also eN = +2m.19s. = P* + 5s. and +6m.2s.

July 29d. Readings also at 1h. (Nagoya, Ekaterinburg, Ottawa, Phu-Lien, Hong Kong, and near Manila), 2h. (Copenhagen, De Bilt, Kew, Stuttgart, and near La Paz), 5h. (Samarkand), 7h. (Berkeley, Branner, and Lick), 11h. (near Mizusawa), 12h. (near Tyosi), 13h. (Tiflis), 14h. (East Machias), 16h. (Mizusawa, Nagoya, Osaka, and near Tyosi), 19h. (Branner), 23h. (Berkeley).

July 30d. 12h. 13m. 43s. Epicentre 1°·0S. 121°·0E. (as on 1931 Jan. 5d.). R.3.

$A = -\cdot515$, $B = +\cdot857$, $C = -\cdot017$; $D = +\cdot857$, $E = +\cdot515$; $G = +\cdot009$, $H = -\cdot015$, $K = -1\cdot000$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Batavia		15·0	249	3 25	− 3	e 7 55	+100	—	—
Manila		15·6	1	3 40	+ 4	6 48	+19	—	—
Hong Kong		24·2	344	5 8	− 4	9 27	0	—	—
Perth		31·3	188	10 17?	S	(10 17?)	−67	—	—
Adelaide		37·7	156	—	—	e 13 13	+11	i 21·8	24·7
Melbourne		42·9	151	—	—	e 14 35	+16	25·6	—
Riverview		43·3	143	—	—	e 12 39	?	e 26·4	29·3
Sydney		43·3	143	—	—	e 14 47	+22	28·7	30·5
Agra	E.	50·0	307	—	—	e 16 42	+41	—	—
Bombay		51·3	297	9 22	+21	16 3	−16	23·6	—
Irkutsk		55·1	348	e 9 28	− 2	e 17 8	− 3	e 27·3	—
Andijan		60·7	318	e 9 44	−25	e 18 1	−24	—	—
Tashkent		63·0	318	e 10 29	+ 4	e 20 11	(− 3)	e 34·3	44·4
Tchimkent		63·3	319	e 9 6	?	—	—	—	—
Ekaterinburg		75·1	330	i 11 43	+ 2	21 17	− 4	33·3	—
Baku		76·4	315	e 11 52	+ 4	21 24	−12	e 37·3	—
Tiflis		80·4	314	12 9	− 1	22 3	−17	e 45·8	—
Kucino		86·9	325	—	—	i 22 48	[−25]	e 42·5	50·6
Simferopol		88·5	315	e 12 46	− 4	—	—	—	—
Pulkovo		91·2	330	13 3	0	23 51	[+11]	52·3	55·3
Copenhagen		101·1	327	17 59	PP	24 22	[− 9]	58·3	—
Stuttgart		104·9	320	e 18 19	PP	e 24 38	[−11]	e 63·3	—
Strasbourg		105·9	321	—	—	e 27 17?	PS	e 64·3	—
De Bilt		106·3	324	e 18 36	PP	e 27 42	PS	e 61·3	—
Paris		109·1	322	—	—	e 28 4	PS	65·3	—
Edinburgh		109·2	330	—	—	e 25 17?	[+ 7]	—	—
Kew		109·7	326	—	—	e 28 19	PS	e 66·3	—
Ottawa		133·2	15	—	—	28 17?	PS	—	—

Additional readings :—
Adelaide e = +16m.34s.
Melbourne i = +17m.47s.
Riverview e = +17m.53s.
Tashkent e = +18m.16s., +18m.40s. =S −15s., and +28m.53s.
Pulkovo PP = +16m.45s., SKS = +23m.29s., PS = +25m.1s., SS = +30m.5s.
Copenhagen e = +26m.48s. =PS −9s.
Stuttgart e = +27m.29s. =PS −8s.
Long waves were also recorded at Wellington, Lund, and Granada.

July 30d. Readings also at 0h. (Andijan, Tashkent, Ekaterinburg, Irkutsk, Copenhagen, Columbia, near Batavia, and Soengei-Langka), 3h. (near Tananarive), 4h. (Tchimkent, Nagasaki, near Andijan, near Batavia, Malabar, and Soengei-Langka), 7h. (Branner, Lick, Tucson, Ekaterinburg, Tashkent, and near Manila), 17h. (Andijan and Tananarive), 20h. (Andijan, Tchimkent, and Samarkand), 21h. (St. Louis).

July 31d. Readings at 2h. (Riverview and near Tyosi), 6h. (Scoresby Sund, Ottawa, Tucson, Harvard, and San Juan), 7h. (De Bilt, Paris, and Strasbourg), 9h. (near Santiago), 12h. (near Sumoto (2)), 14h. (Berkeley and Lick), 18h. (Göttingen), 20h. (Hamburg and near Amboina), 23h. (Copenhagen and Tananarive),

Aug. 1d. 3h.

A Japanese shock with epicentre " S.E., off Sima peninsula Mie Prefecture : focal depth about 300 km.," Seismological Bulletin of the Imperial Marine Observatory and Kobe Meteorological Observatory, Vol. VIII, No. 3. No formal solution seems to be possible, but the readings are as follows :—

Osaka P =14m.18s., i =14m.27s., 14m.31s., and 14m.35s., L =15m.1s., M = 15m.25s.
Nagoya eP =14m.23s., S =14m.56s.
Kobe P =14m.28s., SE =15m.3s., SZ =15m.4s., M =15m.5s.
Sumoto PZ =14m.28s., PN =14m.32s., eSN =15m.6s., MN =15m.7s.
Tyosi eP =14m.38s., S =15m.25s.
Mizusawa PE =15m.4s., SE =16m.10s.
Tashkent e =23m.30s. and 25m.30s., eL =26m.42s., M =32m.0s.
Agra e =30m.41s.
Tiflis eL =35m.30s.
Ekaterinburg e =40m.57s., L =43m.
Kucino e =44m.18s., M =47m.18s.

Aug. 1d. 4h. 36m. 7s. Epicentre 36°·2N. 139°·6E. X.

(as on 1931 June 29d. and as given by Tokyo and Nagoya).

A = − ·615, B = + ·523, C = + ·591 ; D = + ·648, E = + ·762 ;
G = − ·450, H = + ·383, K = − ·807.

	Δ	Az.	P.	O − C.	S.	O − C.
	°	°	m. s.	s.	m. s.	s.
Tokyo	0·6	166	0 10	+ 1	0 24	+ 9
Tyosi	1·1	115	0 15	− 1	0 33	+ 5
Nagoya	2·4	244	e 0 35	+ 1	1 12	S_g
Mizusawa	3·1	23	0 23	−21	1 22	+ 2

Aug. 1d. 10h. 46m. 30s. Epicentre 8°·3S. 12°·5W. N.3.

A = + ·966, B = − ·214, C = − ·144 ; D = − ·216, E = − ·976 ;
G = − ·141, H = + ·031, K = − ·990.

	Δ	Az.	P.	O − C.	S.	O − C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Malaga	45·6	9	e 9 55	PP	—	—	—	33·9
Granada	46·3	9	e 9 20	+57	—	—	e 23·8	—
Sucre	52·2	252	e 9 34	+26	—	—	—	—
La Paz	54·8	255	e 9 28	+ 1	—	—	25·5	30·4
Paris	58·6	11	—	—	e 13 30?	PPPP	23·5	24·5
Stuttgart	60·1	16	e 10 6	+ 1	e 18 8	− 9	e 29·5	—
De Bilt	62·3	12	e 10 21	+ 1	e 18 39	− 7	e 28·5	—
Edinburgh	64·6	6	—	—	e 19 30?	+15	—	—
Copenhagen	67·3	15	—	—	19 36	−12	31·5	—
Tiflis	72·3	41	11 25	0	20 56	+ 8	e 36·0	—
Pulkovo	76·0	21	e 9 44	−122	e 21 12	−20	36·5	44·8
Kucino	76·4	26	—	—	e 23 24	?	e 35·4	41·8
Ottawa	77·9	320	—	—	e 21 48	− 5	e 31·5	—
Tashkent	89·5	48	e 17 44	?	e 32 12	?	e 36·5	37·4

Additional readings :—
Tiflis PS = +21m.14s., eSS = +25m.17s.
Pulkovo e = +23m.28s.
Kucino e = +28m.18s.
Long waves were also recorded at Rio de Janeiro, Scoresby Sund, Ekaterinburg, Irkutsk, Algiers, and other European stations.

Aug. 1d. Readings also at 0h. (Lund and near Sumoto), 1h. (La Paz, near New Plymouth, and Wellington), 2h. (Stuttgart), 3h. (Ekaterinburg and Tashkent), 4h. (near Apia), 5h. (Batavia), 6h. (De Bilt, Paris, Irkutsk, Pulkovo, Kucino, Tashkent, Kodaikanal, near Bombay, and near Calcutta), 8h. (Edinburgh, Ottawa, and Sitka), 13h. (near Prato), 15h. (Branner and near Apia), 17h. (La Paz), 20h. (near Nagoya and Osaka), 22h. (Wellington, near Christchurch, and Glenmuick).

Aug. 2d. 4h. 25m. 38s. Epicentre 2°·0N. 126°·0E. (as on 1930 June 17d.). R.2.

A = −·587, B = +·809, C = +·035 ; D = +·809, E = +·588 ;
G = −·021, H = +·028, K = −·999.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Amboina		6·1	159	i 1 29	+ 2	i 2 25	−11	—	—
Palau		10·0	57	2 22	+ 1	4 9	− 4	—	—
Manila		13·5	339	3 21	+12	6 12	+33	—	—
Batavia		20·8	247	4 43	+ 5	8 39	SS	e 13·5	—
Hong Kong		23·3	331	5 4	0	9 20	+10	10·7	—
Sumoto		33·4	15	6 36	+ 1	—	—	—	—
Kobe		33·8	15	6 37	− 2	—	—	—	—
Osaka		33·8	15	6 22	−17	12 4	+ 1	—	—
Nagoya		34·7	17	6 47	+ 1	(12 12)	− 5	12·2	—
Nagano		36·4	17	7 3	+ 2	12 38	− 4	—	—
Hukusima		38·1	18	7 16	0	13 8	0	—	—
Sendai		38·8	20	7 22	0	13 21	+ 3	—	—
Adelaide		38·8	165	e 7 14	− 8	i 13 1	−17	18·6?	24·8
Chiufeng	E.	39·1	349	e 7 26	+ 2	—	—	—	—
Mizusawa		39·6	19	7 32	+ 3	13 32	+ 2	—	—
Calcutta		41·8	302	4 9	?	8 56	?	12·8	—
Riverview		43·0	150	e 6 34	−83	e 17 8	SS	e 26·2	—
Melbourne		43·5	159	—	—	14 17	−11	24·7?	—
Colombo		46·2	278	9 51	PP	15 1	− 6	23·8	29·5
Agra	E.	52·3	303	e 10 10	+61	—	—	—	—
Irkutsk		53·4	344	9 18	+ 1	16 52	+ 5	26·4	—
Bombay		54·6	292	e 7 1	−145	—	—	—	—
Almata		59·9	321	e 10 6	+ 2	—	—	—	—
Andijan		61·8	316	e 10 15	− 2	e 18 39	0	—	—
Tashkent		64·2	317	9 22	−72	—	—	e 28·6	37·5
Honolulu T.H.		76·5	69	e 11 22?	−27	i 21 30	− 7	e 35·4	—
Baku		78·1	311	i 11 58	0	i 21 52	− 3	38·4	51·7
Tananarive		79·8	250	12 2	− 5	22 0	−14	—	—
Tiflis		82·1	312	i 12 16	− 3	22 48	+10	44·4	48·2
Kucino		87·2	326	12 45	+ 1	23 21	− 8	e 41·4	53·9
Theodosia		89·0	315	e 12 53	0	e 23 38	− 8	—	—
Simferopol		89·9	315	e 12 56	− 1	—	—	—	—
Pulkovo		91·1	330	e 13 0	− 3	23 56	−10	—	53·8
Helwan		93·0	300	13 10	− 1	23 42	[− 8]	—	57·8
Königsberg		97·2	325	—	—	e 24 6	[− 6]	e 52·4	57·4
Lund		100·9	328	—	—	24 17	[−13]	52·4	—
Copenhagen		101·3	328	14 4	+14	24 22	[−10]	52·4	—
Potsdam		102·1	325	i 13 51	− 2	e 24 22?	[−14]	e 54·4	—
Hamburg		103·4	326	e 18 22?	PP	—	—	e 53·4	—
Triest		103·9	317	e 13 59	− 2	i 25 47	−14	e 55·4	55·6
Scoresby Sund		104·4	349	18 28	PP	24 34	[−13]	52·4	—
Venice		104·8	318	18 22?	PP	—	—	—	—
Stuttgart		105·7	321	e 14 7	− 3	e 27 40	PS	e 58·4	—
Strasbourg		106·6	322	e 14 7	− 7	e 28 47	PS	55·4	—
De Bilt		106·7	325	14 12	− 3	e 24 54	[− 4]	e 55·4	61·8
Piacenza		106·7	318	e 14 22	+ 7	24 52	[− 6]	—	67·8
Uccle		107·7	325	e 14 17	− 3	e 28 4	PS	e 62·4	—
Edinburgh		108·9	331	—	—	e 25 22?	[+14]	—	—
Tinemaha	N.	109·0	50	e 18 56	PP	—	—	—	—
Paris		109·6	324	e 14 27	− 2	e 28 21	PS	54·4	66·4

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Stonyhurst	109·7	330	—	—	e 28 22?	PS	55·4	66·4
Kew	109·9	327	e 14 27	− 4	e 28 22	PS	55·4	—
Pasadena	110·0	52	e 18 25	[+ 7]	e 28 21	PS	—	—
Oxford	110·3	327	—	—	e 25 43	[+28]	e 55·8	71·9
Riverside	110·6	52	e 18 52	PP	—	—	—	—
Algiers	114·5	311	e 13 56	−57	e 19 48	PP	—	—
Granada	118·7	315	e 12 54	?	e 23 7	?	—	—
St. Louis	127·5	35	e 21 10	PP	e 32 33?	?	—	—
Ottawa	128·8	20	e 21 16	PP	—	—	e 63·4	—
Pittsburgh	131·4	26	e 19 14	[+ 5]	—	—	—	—
East Machias	131·7	12	i 21 31	PP	—	—	e 59·6	—
Harvard	133·0	16	e 21 37	PP	—	—	e 64·4	—
Fordham	133·5	20	e 20 23	[+70]	—	—	e 70·4	—
La Plata	146·9	174	(19 34)	[− 3]	—	—	19·6	—
Sucre	159·7	148	20 0	[+ 7]	—	—	80·4	—
La Paz	159·9	137	e 19 46	[− 8]	30 46	{−32}	77·4	—

Additional readings :—
Sumoto iN = +7m.57s.
Kobe PEN = +6m.40s., iZ = +8m.30s., eEZ = +13m.18s.
Osaka i = +6m.24s. and +9m.2s.
Adelaide PP = +8m.31s.
Mizusawa SN = +13m.39s.
Riverview ePP = +13m.30s.
Melbourne SS = +17m.18s.
Tashkent PS = +18m.22s.
Tiflis SKS = +22m.31s.
Kucino PP = +15m.52s., SKS = +23m.7s., SS = +29m.13s.
Pulkovo SKS = +23m.26s., PS = +25m.4s.
Potsdam eEN =iZ = +18m.4s., iE = +25m.34s., iZ = +27m.2s.
Triest eZ = +18m.48s., iSKS = +24m.36s., e = +26m.37s., PS = +27m.22s.
Stuttgart ePPEZ = +18m.34s.
Strasbourg e = +18m.43s. =PP +11s. and +21m.13s.
Paris e = +19m.1s. =PP +7s.
Oxford iE = +26m.1s. =SKKS −8s., i = +28m.29s. =PS −1s.
Pittsburgh e = +21m.31s. =PP +4s., iPP = +22m.37s. =PKS −7s.
Harvard e = +22m.35s. =PKS −11s.
Fordham eN = +21m.53s. =PP +13s., eNZ = +22m.54s. =PKS +6s.
La Paz PP = +23m.32s. =PKS −4s.
Long waves were also recorded at Wellington, Upsala, Helsingfors, San Fernando, and Ivigtut.

Aug. 2d. 13h. 47m. 8s. Epicentre 40°·7S. 173°·5E. (as given by Wellington). N.3.

A = −·753, B = +·086, C = −·652.

	Δ	Az.	P.	O−C.	S.	O−C.
	°	°	m. s.	s.	m. s.	s.
Takaka	0·5	254	(0 7)	0	(0 12)	− 1
Wellington	1·1	122	0 17	+ 1	0 32	+ 4
New Plymouth	1·7	15	0 25	+ 1	0 43	− 1
Glenmuick	2·2	187	0 52?	S	1 16	S_g
Hastings	2·8	68	0 52?	P*	1 22	S*
Christchurch	2·9	193	0 39	− 2	1 12	− 2

Additional readings and notes :—
Takaka readings are given as P_g and S_g and have been *increased* by 2m.
Wellington P_g = +20s., PS = +26s., S_g = +40s.
Hastings PS = +1m.11s., S_g? = +1m.44s.
Christchurch P_g = +50s., PS = +1m.4s., S_g = +1m.29s.

Aug. 2d. Readings also at 6h. (Tananarive), 7h. (Sucre and near La Paz), 8h. (Mount Wilson, Pasadena, and Tucson), 9h. (Baku, Tashkent, and Tiflis). 10h. (Ekaterinburg and Pulkovo), 12h. (La Paz and La Plata), 18h. (Branner), 20h. (near Wellington), 23h. (Apia, near Port au Prince, and San Juan).

Aug. 3d. 11h. 42m. 39s. Epicentre 40°·0N. 19°·5E. (as on 1930 Dec. 2d.). R.2.

$A = +\cdot722$, $B = +\cdot256$, $C = +\cdot643$; $D = +\cdot334$, $E = -\cdot943$; $G = +\cdot606$, $H = +\cdot215$, $K = -\cdot766$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Bari		2·3	300	0 34	+ 1	0 54	− 5	1·1	—
Trenta		2·6	254	e 0 31	− 6	1 11	+ 4	—	—
Mostar		3·5	341	1 8	P_g	1 58	S_g	—	2·0
Messina		3·6	240	0 50	− 1	—	—	—	—
Naples	E.	4·1	283	0 57	− 1	2 13	S_g	—	3·2
Catania		4·2	235	1 13	P_g	—	—	—	3·4
Belgrade		4·8	8	e 1 23	P*	e 2 0	− 3	—	—
Camerino		5·8	305	1 24	+ 2	2 26	− 2	—	—
Zagreb		6·4	337	1 54	P*	e 3 13	S*	—	3·8
Triest		7·1	325	i 1 33	− 8	i 2 47	−14	—	4·7
Prato		7·3	305	e 1 46	+ 2	3 21	S*	—	4·2
Venice	E.	7·6	318	1 57	+ 9	—	—	—	—
Vienna		8·5	346	e 3 10	+70	4 4	S*	—	5·4
Piacenza		8·8	308	e 2 37	+32	—	—	—	8·0
Innsbruck		9·3	323	3 9	+58	e 3 47	− 9	—	—
Chur		9·9	316	e 2 14	− 5	e 4 3	− 8	—	—
Zurich		10·8	317	e 2 33	+ 1	e 4 22	−11	—	—
Cheb		11·2	336	2 34	− 3	e 6 11	L	(e 6·2)	7·8
Stuttgart		11·4	324	e 2 41	+ 1	e 5 33	S*	e 6·5	7·9
Neuchatel		11·5	312	e 2 33	− 9	e 4 45	− 5	—	—
Yalta		11·7	63	2 47	+ 3	—	—	—	—
Simferopol		11·8	61	e 3 0	+14	—	—	—	—
Strasbourg		12·0	320	e 4 13	?	—	—	7·4	—
Theodosia		12·7	62	e 5 21	S	(e 5 21)	+ 1	—	—
Kew		17·8	317	—	—	e 8 21?	+61	11·4	—
Granada		18·2	268	e 4 7	− 2	—	—	e 10·3	—
Oxford		18·6	316	—	—	e 7 37	− 1	e 10·8	12·5
Malaga		19·0	268	e 4 23	+ 4	—	—	11·8	12·9
Tiflis		19·1	77	e 4 18	− 2	8 18	+30	e 12·2	13·8
Pulkovo		20·9	15	e 4 32	− 7	e 8 26	+ 2	12·4	14·6
Ekaterinburg		31·4	44	—	—	e 12 7	+41	16·6	—

Additional readings :—
Mostar PPS = +1m.28s.
Belgrade e = +1m.36s. = P_g +6s. and +2m.30s. = S_g −2s.
Zagreb e = +2m.5s. = P_g +3s., eNW = +2m.27s., iNE = +2m.32s. and +2m.37s., iNW = +2m.44s. = S +1s., iNE = +2m.57s., iNW = +3m.3s.
Triest i = +1m.37s., iPP = +1m.58s. = P* +1s., iSS = +3m.23s., iPSS = +3m.49s. = S_g +4s., i = +4m.7s.
Venice PN = +3m.3s.
Vienna S_g? = +4m.41s.
Strasbourg e = +4m.45s., +6m.4s., and +6m.34s. = S_g +4s.
Long waves were also recorded at Baku, Tashkent, and other European stations.

Aug. 3d. Readings also at 4h. (Tiflis), 5h. (Berkeley and Lick), 8h. (near Amboina), 9h. (Manila, Melbourne, and Riverview), 10h. (San Juan and near Amboina), 12h. (Almeria), 14h. (Ekaterinburg and Tashkent), 16h. (La Paz), 18h. (Tyosi and near Mizusawa), 19h. (Nagoya), 21h. (Branner), 22h. (Wellington), 23h. (Tyosi and near Mizusawa).

Aug. 4d. 6h. 37m. 27s. Epicentre 51°·1N. 162°·5E. N.2.

A = − ·599, B = + ·189, C = + ·778 ; D = + ·301, E = + ·954 ;
G = − ·742, H = + ·234, K = − ·628.

		Δ	Az.	P.	O − C.	S.	O − C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Sikka		12·5	269	e 4 38	+103	—	—	—	4·8
Mizusawa	E.	19·1	240	4 17	− 3	8 14	+26	—	—
	N.	19·1	240	4 14	− 6	8 11	+23	—	—
Hukusima		20·5	238	4 43	+ 8	8 36	+20	—	—
Tyosi		21·8	234	(e 5 1)	+12	e 5 1	P	—	—
Nagano		22·5	240	5 5	+ 9	9 15	+20	—	—
Oiwake		22·5	238	5 5	+ 9	9 11	+16	—	—
Nagoya		24·3	239	e 5 21	+ 8	6 29	?	—	—
Osaka		25·4	240	5 11	−13	(9 55)	+ 7	9·9	—
Irkutsk		35·1	295	6 51	+ 1	e 11 27	−56	17·6	—
Berkeley		52·8	73	e 9 13	+ 1	—	—	—	—
Branner	N.	53·2	74	e 9 15	0	—	—	—	—
Lick		53·6	73	e 9 19	+ 1	—	—	—	—
Ekaterinburg		54·5	318	i 9 27	+ 2	i 16 11	−51	e 24·8	—
Tinemaha	N.	55·8	72	i 9 34	0	e 17 19	− 1	—	—
Santa Barbara		56·6	75	e 9 41	+ 1	—	—	—	—
Frunse		56·9	298	e 9 22	−20	—	—	—	—
Mount Wilson		57·8	74	i 9 49	0	—	—	—	—
Pasadena		57·8	74	i 9 48	− 1	i 17 44	− 3	—	—
Riverside		58·4	74	i 9 51	− 2	—	—	—	—
La Jolla		59·2	75	i 9 58	− 1	—	—	—	—
Andijan		59·6	298	e 10 2	0	e 19 17	+66	—	—
Pulkovo		62·6	335	e 10 20	− 2	e 17 51	−59	—	—
Kucino		63·7	329	e 10 25	− 5	e 18 8	−56	e 25·0	—
Königsberg	N.	69·5	338	—	—	i 20 21	+ 6	—	—
St. Louis		70·1	52	i 10 59	−12	i 19 55	−27	—	—
Copenhagen		70·4	342	—	—	20 17	− 9	—	—
Ottawa		71·3	39	e 11 0	−19	e 19 57	−40	27·6	—
Baku		71·3	312	11 23	+ 4	20 31	− 6	35·6	45·0
Tiflis		72·6	316	i 11 26	0	e 20 48	− 4	e 40·4	46·6
Hamburg		72·8	344	e 16 33?	PPPP	e 20 46	− 8	—	—
Pittsburgh		73·5	44	11 19	−13	20 31	−32	e 28·6	—
Simferopol		74·1	324	11 37	+ 2	—	—	—	—
Yalta		74·5	324	e 11 20	−17	—	—	—	—
De Bilt		75·0	346	—	—	e 21 12	− 8	e 38·6	—
Stuttgart		77·6	343	e 11 57	+ 2	—	—	—	—

Additional readings :—
Osaka i = +5m.51s. =PP − 4s. and +7m.16s.
Königsberg iN = +19m.18s.
Copenhagen S = +19m.31s.
Tiflis PPP = +15m.42s., eS = +19m.59s., eSSS = +28m.17s.
De Bilt e = +20m.27s.

Aug. 4d. Readings also at 5h. (Ekaterinburg, Kucino, and Manila), 6h. (Ekaterinburg and Tashkent), 7h. (Andijan), 9h. (near Tyosi), 12h. (Ekaterinburg), 13h. (Copenhagen, Baku, Irkutsk, Tiflis, and Pulkovo), 14h. (near Mizusawa), 16h. (Alicante, Granada, and La Paz), 17h. (Ottawa, St. Louis, and Tucson), 20h. (La Paz (2)).

Aug. 5d. 0h. 46m. 50s. Epicentre 21°·0N. 120°·0E. (as on 1928 April 27d.). X.

A = −·467, B = +·808, C = +·358; D = +·866, E = +·500; G = −·179, H = +·310, K = −·934.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Taihoku	4·3	19	e 1 6	+ 5	—	—	—	—
Hong Kong	5·6	286	1 19	− 1	2 21	− 2	—	5·0
Manila	6·4	171	1 26	− 5	2 47	+ 4	—	—
Nagoya	20·5	43	e 3 48	−47	—	—	—	—
Irkutsk	33·6	344	e 6 10?	−27	e 16 10?	L	20·2	22·5
Frunse	43·6	312	e 20 22	?	—	—	—	—
Andijan	44·7	308	e 20 10	?	—	—	—	—
Tashkent	47·2	310	e 3 10	?	—	—	e 12·2	15·4
Ekaterinburg	56·0	325	i 10 0	+24	i 17 56	+33	e 28·4	—
Tiflis	65·4	308	11 6	+25	19 55	+30	e 40·1	46·9
Kucino	68·4	324	—	—	e 22 37	?	e 37·1	45·7

Additional readings:—
Tiflis ePP = +11m.54s., eSSS = +27m.49s.
Kucino e = +32m.16s.
Long waves were also recorded at Phu-Lien, Pulkovo, Ottawa, and the European stations.

Aug. 5d. 21h. 24m. 18s. Epicentre 37°·7N. 25°·1W. N.2.

(As given in a report on this quake by J. Agostinho).

A = +·716, B = −·335, C = +·612; D = −·424, E = −·906; G = +·554, H = −·259, K = −·791.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Ponta Delgada	0·5	274	i 0 18	+11	—	—	—	—
Angra do Heroismа	1·9	299	0 33	+ 5	0 56	+ 7	—	1·3
Malaga	16·4	87	3 45	− 1	7 21	+33	8·8	10·2
Granada	17·0	86	e 3 54	0	e 7 24	+22	9·1	—
Tortosa N.	20·0	73	—	—	e 8 25	SS	e 9·3	10·7
Bidston	21·8	37	—	—	i 8 57	+15	10·3	—
Oxford	21·8	43	—	—	i 8 51	+ 9	e 10·4	—
Stonyhurst	22·4	37	—	—	e 9 2	+ 9	—	12·1
Paris	22·8	52	e 4 58	− 1	e 9 12	+11	10·7	14·7
Edinburgh	23·3	32	—	—	e 9 27	+17	—	—
Uccle	24·5	49	e 5 15	0	e 9 36	+ 4	e 11·7	—
De Bilt	25·5	46	5 14	−11	e 9 49	− 1	e 12·7	13·7
Strasbourg	26·0	55	e 5 42?	+13	e 10 42?	SS	e 12·7	—
Stuttgart	27·0	55	—	—	e 10 12	− 3	—	—
Triest	29·7	62	—	—	e 10 48	−11	e 17·7	—
Ottawa	38·0	298	—	—	e 12 42?	−24	19·7	—
Tiflis	52·4	62	e 9 29	+20	e 16 41	+ 7	e 27·2	—
Ekaterinburg	57·0	41	e 9 46	+ 3	e 17 51	+15	26·7	—

Additional readings:—
Granada P_cS = +11m.45s., S_cS = +15m.27s.
Long waves were also recorded at Scoresby Sund, Pulkovo, Tashkent, and other European stations.

Aug. 5d. Readings also at 3h. (near Riverview and Melbourne), 4h. (Ottawa and Riverview), 10h. (Andijan and Tchimkent), 11h. (Edinburgh), 12h. (Ottawa, Ivigtut (2), Reykjavik, Durham, Stonyhurst, Copenhagen (2), Lund, Helsingfors, Granada, Hamburg, Oxford (2), De Bilt (2), Uccle, Strasbourg, Stuttgart, Tiflis, Ekaterinburg, Tashkent, near Tyosi (2), and Mizusawa), 13h. (Ivigtut, Reykjavik, Edinburgh, Tashkent, Copenhagen, Lund, and De Bilt), 14h. (Venice, Granada, Uccle, Oxford, Strasbourg, Ekaterinburg, Tashkent, Sucre, near La Paz, and near Andijan), 15h. (Branner, Lick, near Berkeley, Riverview, near Christchurch, New Plymouth, and Wellington), 17h. (Granada and Stuttgart), 18h. (Ottawa), 19h. (Berkeley, Branner, Lick, and near Manila), 20h. (Andijan and Tchimkent), 21h. (Ivigtut), 22h. (Baku, Ekaterinburg, Irkutsk, Tashkent, Pulkovo, Tiflis, Copenhagen, De Bilt, Scoresby Sund, Lund, and Ivigtut).

Aug. 6d. 22h. Japanese shock, to which Tokyo attiributes epicentre 36°·4N. 140°·2E. The readings are as follows :—

Tokyo	P =45m.14s.	S =45m.24s.
Tyosi	P =45m.15s.	S =45m.24s.
Mizusawa	P =45m.16s.	S =45m.34s.
Nagoya	eP =45m.55s.	S =46m.25s.
Osaka	P =46m.13s.	L =47m.6s.

Aug. 6d. Readings also at 3h. (Sucre and near La Paz), 4h. (Mount Wilson, Pasadena, Tinemaha, St. Louis, and Rio de Janeiro), 7h. (Tyosi), 8h. (Suva and Tinemaha), 9h. (Ottawa, Sumoto, near Osaka, and Nagoya), 10h. (Stuttgart), 11h. (near Manila), 16h. (near Wellington), 17h. (near St. Louis and near Sumoto), 18h. (near Santiago), 20h. (Edinburgh), 21h. (near Malabar), 22h. (Tchimkent, Tashkent, and Seattle), 23h. (Ekaterinburg, Tiflis, and near Hong Kong).

Aug. 7d. Readings at 1h. (Hastings), 2h. (Taihoku), 4h. (Sumoto), 7h. (Tyosi, near Mizusawa, near Wellington, New Plymouth, and Takaka), 23h. (Calcutta).

Aug. 8d. 4h. 24m. 28s. Epicentre 37°·3N. 141°·7E. (as on 1931 May 11d.). X.

Tokyo gives epicentre 37°·4N. 141°·7E.

A = −·624, B +·493, C = +·606.

	Δ	Az.	P.	O−C.	S.	O−C.	L.
	°	°	m. s.	s.	m. s.	s.	m.
Tyosi	1·7	204	e 0 22	− 2	0 43	− 1	—
Mizusawa	1·9	346	0 30	+ 2	0 55	S*	—
Nagoya	4·4	242	e 1 5	+ 2	2 4	S*	—
Osaka	5·6	243	1 45	P*	(2 56)	S_g	2·9

Aug. 8d. Readings also at 0h. (near Mizusawa), 1h. (Baku, Ekaterinburg, Tashkent, near Wellington, and New Plymouth), 2h. (near Samarkand), 6h. (Edinburgh and near Amboina), 7h. (Tyosi, Sucre, and near La Paz), 9h. (near Wellington), 14h. (Apia, Suva, Wellington, and Stuttgart), 15h. (Riverview, Ottawa, and near Mizusawa), 18h. (Christchurch, New Plymouth, near Wellington, La Paz, Tchimkent, and near Andijan), 21h. (Andijan, Tchimkent, Irkutsk, Ekaterinburg, Pulkovo, Kucino, and Copenhagen), 23h. (near Triest and Trenta).

Aug. 9d. 5h. 57m. 2s. Epicentre 40°·5N. 22°·5E. (as on 1922 Feb. 24d.). R.3.

A = +·702, B = +·291, C = +·649 ; D = +·383, E = −·924 ;
G = +·600, H = +·248, K = −·760.

		Δ	Az.	P.	O−C.	S.	O−C.	M.
		°	°	m. s.	s.	m. s.	s.	m.
Belgrade		4·6	342	e 1 8	+ 2	1 53	− 5	—
Trenta		4·9	257	e 1 8	− 2	2 3	− 2	—
Naples	E.	6·3	276	1 21	− 9	2 26	−15	—
Zagreb		7·1	320	1 41	0	—	—	2·8
Budapest		7·4	342	e 2 58?	S	(e 2 58?)	−11	—
Triest		8·2	311	e 2 0	+ 4	e 3 0	−29	—
Venice		8·9	306	e 2 58	?	3 42	− 4	—
Vienna		8·9	333	e 3 10	?	3 54	+ 8	5·3
Stuttgart		12·6	316	—	—	e 5 40?	+23	—
Strasbourg		13·2	312	—	—	e 4 58?	−34	—
Paris		16·4	307	—	—	5 58?	−50	—

Additional readings :—
Belgrade e = +1m.14s. = P* − 2s. and +2m.9s. = S* − 6s.
Triest e = +2m.38s., L_g = +3m.16s.
Long waves were recorded at De Bilt, Pulkovo, and Ekaterinburg.

Aug. 9d. 7h. 44m. 22s. Epicentre 34°·5N. 27°·5E. (as on 1928 April 27d.). R.3.

A = +·731, B = +·381, C = +·566 ; D = +·462, E = −·887 ; G = +·502, H = +·262, K = −·824.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Ksara	E.	7·0	93	(e 2 6)	P_g	(3 24)	S*	—	—
Trenta		10·2	301	e 2 18	− 6	—	—	—	—
Yalta		11·3	25	e 2 22	−17	—	—	—	—
Simferopol		11·6	24	e 2 30	−13	—	—	—	—
Theodosia		12·1	27	e 2 38	−12	—	—	—	—
Zagreb		14·3	326	e 3 19	0	e 7 8	L	(e 7·1)	—
Tiflis		15·3	57	e 3 39	+ 7	6 32	+10	8·3	9·7
Triest		15·3	321	e 3 37	+ 5	e 6 28	+ 6	e 7·2	8·1
Venice		15·9	318	e 4 16	+36	—	—	—	—
Vienna		16·1	332	e 4 21	+38	7 36	+55	—	9·6
Piacenza		17·3	313	e 4 0	+ 2	—	—	—	12·1
Baku		18·7	65	e 4 28	+13	e 9 2	+82	e 12·6	—
Cheb		19·1	329	e 7 51	S	(e 7 51)	+ 3	(e 10·3)	11·9
Stuttgart		19·7	322	e 4 28	+ 2	e 8 0	0	e 10·6	—
Strasbourg		20·4	320	4 39?	+ 5	e 8 17	+ 3	e 11·6	—
Königsberg		20·9	349	e 5 14	+35	—	—	e 10·1	11·6
Hamburg		22·8	332	e 4 58	− 1	e 9 4	+ 3	e 11·3	14·6
Paris		23·4	315	e 5 11	+ 6	—	—	12·6	13·6
De Bilt		23·8	325	e 5 9	+ 1	9 24	+ 5	e 12·6	13·2
Granada		25·3	285	e 5 7	−16	—	—	18·7	—
Pulkovo		25·4	3	i 5 22	− 2	9 47	− 1	12·3	14·7
Helsingfors		25·8	357	e 5 24	− 3	e 9 51	− 4	e 12·5	—
Upsala		26·2	351	—	—	e 10 2	0	e 13·5	16·2
Oxford		26·9	319	—	—	e 10 5	− 9	—	17·0
Ekaterinburg		31·6	35	e 6 27	+ 8	e 11 37	+ 8	15·6	—

Additional readings and note :—
Ksara readings have been *diminished* by 10m.
Cheb gives S as P and L as S.
Oxford iS = +10m.27s.
Long waves were also recorded at Naples, Besançon, Stonyhurst, Scoresby Sund, and Ivigtut.

Aug. 9d. Readings also at 0h. (Cape Town), 7h. (Andijan, near Frunse, and near Apia), 9h. (near Apia), 10h. (near Apia and near Andijan), 11h. (near Andijan), 14h. (Messina), 17h. (Balboa Heights), 18h. (near New Plymouth), 19h. (near Tyosi), 21h. (Branner), 23h. (near Tyosi (2)).

Aug. 10d. 17h. 0m. 27s. Epicentre 38°·7N. 46°·1E. (as on 1932 June 16d.). R.3.

A = +·541, B = +·562, C = +·625 ; D = +·721, E = −·693 ; G = +·434, H = +·451, K = −·780.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Tiflis	3·2	341	e 0 40	− 6	i 1 20	− 2	i 1·4	—
Baku	3·4	59	e 0 51	+ 2	—	—	e 1·5	—
Ksara	9·5	243	e 2 41	+27	—	—	5·0	—
Kucino	17·9	345	—	—	e 6 15	−67	—	8·2
Tchimkent	18·1	71	e 6 26	S	(e 6 26)	−61	—	—
Andijan	20·3	75	e 4 34	+ 1	e 9 39	+87	—	—
Ekaterinburg	20·5	23	i 4 35	0	i 8 19	+ 3	10·6	14·6
Pulkovo	23·2	340	5 2	− 1	9 13	+ 5	11·6	—
Triest	24·8	296	e 5 21	+ 3	e 10 10	SS	—	—
Copenhagen	28·1	318	—	—	10 39	+ 5	17·6	—
Stuttgart	28·2	303	—	—	e 10 33	− 2	—	—
De Bilt	31·2	310	e 7 15	PP	—	—	e 17·6	—

Additional readings :—
Ksara +6m.2s. ; T_o = 17h.0m.10s.
Triest ePP = +9m.47s. = S +10s., eSKS = +15m.53s., e = +16m.54s., and +17m.39s.
Long waves also at Ottawa and other European stations.

Aug. 10d. Readings also at 0h. (Suva), 1h. (Apia, Wellington, Ottawa (2), East Machias, Ukiah, Scoresby Sund, Ekaterinburg, Irkutsk, Tiflis, Stuttgart, Strasbourg, Paris, Uccle, De Bilt, Kew, and Granada), 3h. (Ottawa, Ukiah, Honolulu T.H., Scoresby Sund, Ekaterinburg, Tiflis, and Irkutsk), 4h. (East Machias, Ivigtut, De Bilt, Stuttgart, Madison, Pulkovo, Kucino, and Baku), 6h. (Tiflis and near Balboa Heights), 7h. (Andijan and Tchimkent), 10h. (Buffalo), 13h. (near Amboina), 15h. (Lick), 16h. (Adelaide, Riverview, Sydney, Perth, Bombay, Cape Town, and Ekaterinburg), 17h. (Adelaide, Melbourne, Riverview, Wellington, and Irkutsk), 19h. (Pasadena, Mount Wilson, and near Santiago (2)), 22h. (Tiflis and Tucson).

Aug. 11d. 9h. 41m. 42s. Epicentre 50°·7N. 168°·8W. (as on 1930 Nov. 12d.). R.3.

A = −·621, B = −·123, C = +·774; D = −·194, E = +·981;
G = −·759, H = −·150, K = −·633.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Sitka	20·5	59	—	—	8 21	+ 5	e 13·6	—
Berkeley	35·0	93	(9 42)	(+16)	e 9 42	PcP	—	—
Irkutsk	50·7	310	e 8 55	− 2	e 18 49	(0)	e 27·3	33·5
Madison	52·1	66	—	—	e 16 30	0	25·0	33·3
St. Louis	54·5	70	e 9 32	+ 7	i 16 58	− 4	—	—
Ottawa	58·2	55	—	—	e 17 41	−11	31·3	—
Georgetown	61·8	61	e 10 24	+ 7	i 19 38	(−27)	e 29·8	—
Fordham	62·3	59	—	—	e 18 45	− 1	e 32·8	—
East Machias	62·8	53	—	—	18 47	− 5	e 32·2	—
Ekaterinburg	65·0	333	i 10 40	+ 1	e 19 27	+ 7	33·3	42·3
Copenhagen	73·6	0	—	—	31 18?	?	42·3	—
Tashkent	75·0	319	e 11 36	− 4	e 20 24	−56	e 28·3	36·5
Potsdam	76·9	359	i 10 49	−72	—	—	e 36·3	—
De Bilt	77·1	4	e 11 51	− 2	—	—	e 39·3	—
Paris	80·2	6	e 11 18?	−51	—	—	50·3	—
Stuttgart	80·5	2	e 12 10	0	e 22 27	+ 6	e 36·3	—
Strasbourg	80·7	2	e 12 11	− 1	—	—	e 46·3	—
Tiflis	83·0	336	—	—	e 22 57	+10	e 45·6	57·1

Additional readings:—
Fordham eE = +30m.45s.
East Machias eSS = +24m.17s.
Tashkent e = 9h.40m.0s.; also +12m.18s.
Long waves were also recorded at Honolulu T.H., Harvard, Ukiah, Columbia, Scoresby Sund, Pulkovo, Kucino, San Fernando, and Hong Kong.

Aug. 11d. 11h. 49m. 25s. Epicentre 0°·8S. 108°·1E. N.3.

Batavia gives epicentre 4°·7S. 111°·5E.

A = −·311, B = +·950, C = −·014; D = +·951, E = +·311;
G = +·004, H = −·012, K = −1·000.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Batavia	5·5	193	i 1 31	P*	i 2 33	+13	—	—
Malabar	6·4	184	i 1 25	− 6	i 2 28	−15	—	—
Medan	10·4	296	i 3 3	+37	i 5 41	+78	—	—
Manila	20·0	39	4 29	− 1	8 6	0	—	—
Andijan	52·7	326	e 9 15	+ 3	e 16 27	−11	—	—
Tashkent	54·8	325	e 5 11	?	e 10 35	?	—	16·5
Tchimkent	55·3	326	9 27	− 4	—	—	—	—
Ekaterinburg	69·0	335	e 10 54	−11	e 19 43	−26	24·6	—
Pulkovo	84·6	330	—	—	i 22 14	−50	—	—

No additional readings.

Aug. 11d. Readings also at 1h. (Madison, Ottawa, and Tucson), 6h. (Tiflis), 12h. (Scoresby Sund), 20h. (San Juan), 23h. (Rio de Janeiro and near Apia).

Aug. 12d. 3h. 24m. 4s. Epicentre **52°·6N. 168°·7W.** R.1.

(as on 1929 March 10d.).

Probable error of epicentre ±0°·25.

A = −·596, B = −·119, C = +·794; D = −·196, E = +·981: G = −·779, H = −·156, K = −·607.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Sitka		19·5	64	i 4 30	+ 6	i 8 9	SS	i 9·2	—
Victoria		28·7	80	5 55	+ 2	10 44	+ 1	·14·4	21·7
Seattle		29·6	81	—	—	e 11 8	+10	e 12·9	—
Ootomari		31·4	280	(e 6 10)	− 7	—	—	(e 16·0)	—
Honolulu T.H.		32·4	161	i 6 20	− 6	i 11 39	− 2	i 16·8	—
Ukiah		33·7	95	e 6 38	0	12 4	+ 3	e 14·3	—
Berkeley		35·1	96	e 6 38	−12	i 12 26	+ 3	—	—
Branner	E.	35·4	97	e 6 53	0	—	—	—	—
Lick		35·8	96	e 6 57	+ 1	—	—	—	—
Mizusawa	E.	36·6	271	7 6	+ 3	12 38	− 7	19·8	—
	N.	36·6	271	7 2	− 1	12 44	− 1	19·0	—
Saskatoon		36·7	66	6 56	− 8	12 44	− 3	—	—
Sendai		37·3	269	7 9	0	12 56	0	—	—
Bozeman		37·3	77	e 7 12	+ 3	12 55	− 1	15·9	—
Hukusima		37·8	269	7 13	0	13 3	0	—	—
Tinemaha	N.	38·1	95	e 7 19	+ 3	e 13 13	+ 5	—	—
Mito		38·7	268	7 24	+ 3	13 18	+ 1	—	—
Maebasi		39·5	269	7 27	− 1	13 23	− 6	—	—
Mount Wilson		40·1	97	e 7 33	0	e 13 39	+ 1	—	—
Pasadena		40·1	97	i 7 30	− 3	i 13 38	0	e 17·4	—
Misima		40·5	268	7 36	0	13 42	− 2	—	—
Riverside		40·6	97	e 7 42	+ 5	e 13 47	+ 2	—	—
La Jolla		41·5	98	i 7 45	+ 1	e 14 0	+ 1	—	—
Nagoya		41·7	270	e 7 58	+12	—	—	—	—
Toyooka		42·7	271	i 7 51	− 3	i 14 18	+ 2	e 18·7	—
Osaka		42·8	271	7 56	+ 1	12 12	−126	—	—
Kobe		43·1	270	7 54	− 4	e 14 17	− 5	e 19·9	25·8
Sumoto		43·5	270	8 2	+ 1	—	—	—	—
Koti		44·8	270	—	—	14 16	−31	—	26·1
Tucson		45·4	93	i 8 19	+ 3	i 15 5	+ 9	e 19·9	—
Nagasaki		47·6	273	8 33	0	15 32	+ 5	—	—
Irkutsk		49·6	309	8 50	+ 2	16 10	+15	23·9	33·4
Chiufeng		50·9	289	e 5 1	?	e 14 48	?	—	26·1
Madison		51·3	67	i 8 2	−59	i 15 19	−60	23·6	—
Chicago		53·2	68	i 9 16	+ 1	i 16 41	− 4	25·5	—
St. Louis		53·8	74	i 9 15	− 5	i 16 49	− 4	—	—
Scoresby Sund		54·7	14	i 9 27	+ 1	e 16 56	− 9	29·9	—
Ann Arbor		55·0	65	e 9 32	+ 3	e 17 8	− 1	e 27·1	31·0
Toronto	N.	56·4	60	9 23	−16	e 17 11	−17	27·3	31·9
Ottawa		57·1	58	e 9 42	− 2	e 17 36	− 2	e 29·9	—
Pittsburgh		58·3	64	9 53	+ 1	i 17 55	+ 2	e 27·9	—
Charlottesville		60·8	65	e 10 8	− 2	18 25	− 1	e 29·9	—
Georgetown		61·0	64	i 10 9	− 2	i 18 28	− 1	e 29·0	—
Fordham		61·2	60	e 10 24	+11	e 18 27	− 5	30·9	38·4
Harvard		61·6	57	e 10 13	− 3	i 18 36	− 1	e 30·9	—
East Machias		61·7	53	i 10 15	− 1	i 18 40	+ 2	e 24·9	—
Columbia		62·3	70	e 10 20	0	i 18 44	− 2	30·6	—
Ekaterinburg		63·4	334	i 10 29	+ 1	i 19 12	PS	31·2	41·8
Hong Kong		64·7	275	10 29	− 8	19 12	− 4	—	43·3
Manila		66·5	265	10 48	− 1	19 49	PS	32·5	—
Pulkovo		66·6	350	10 49	0	19 51	PS	36·9	46·0
Helsingfors		66·7	354	10 50	0	i 19 44	+ 3	e 30·9	—
Upsala		67·5	358	10 51	− 4	19 51	0	e 32·9	46·1
Almata		68·8	315	e 11 4	+ 1	21 1	+54	38·9	—
Phu-Lien		70·5	280	e 11 10	− 4	e 20 22	− 5	32·9	—
Edinburgh		70·9	9	e 11 18	+ 2	20 38	+ 6	30·9	49·2

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Copenhagen		71·7	359	11 19	− 2	20 44	+ 3	—	—
Lund		71·8	359	11 20	− 2	20 44	+ 1	29·9	—
Durham		72·2	8	11 22	− 2	20 58	+11	—	49·9
Königsberg	E.	72·4	355	e 11 28	+ 3	i 20 48	− 2	e 30·4	47·9
Tchimkent		72·6	319	e 11 9	−17	—	—	40·9	—
Stonyhurst		72·9	9	e 11 35	+ 7	21 2	+ 6	32·4	—
Andijan		73·2	317	11 26	− 4	e 21 34	PS	41·6	—
Bidston		73·3	10	i 11 33	+ 2	i 21 11	+11	35·9	49·4
Tashkent		73·6	320	i 11 28	− 4	i 20 54	−10	e 32·9	47·4
Hamburg		73·8	2	i 11 33	0	e 21 6?	0	—	48·9
Potsdam		75·0	0	i 11 37	− 3	e 21 20	0	e 44·9	48·9
Oxford		75·1	9	i 11 40	− 1	i 21 25	+ 4	e 33·4	50·8
De Bilt		75·2	5	i 11 42	+ 1	21 29	+ 7	e 36·9	49·6
Kew		75·5	9	i 11 42	− 1	e 21 29	+ 3	e 29·9	51·1
Göttingen		75·9	2	e 11 44	− 1	e 21 38	+ 8	—	48·5
Samarkand		76·0	320	11 52	+ 6	22 1	PS	41·9	—
Uccle		76·4	6	i 11 48	0	e 21 37	+ 1	33·9	50·0
Jena		76·6	0	e 11 50	+ 1	e 21 38	0	e 36·9	51·9
Cheb		77·4	0	e 11 53	− 1	e 22 1	PS	e 39·9	52·3
Paris		78·4	7	i 12 0	+ 1	e 22 14	+16	30·9	54·9
Karlsruhe		78·4	2	11 56?	− 3	—	—	e 47·9	—
Stuttgart		78·7	2	i 12 1	0	e 22 1	− 1	e 35·9	50·4
Strasbourg		78·8	3	i 12 2	+ 1	e 22 0	− 3	30·9	—
Vienna		79·1	357	i 12 3	0	22 8	+ 2	e 41·9	57·9
Calcutta		79·7	295	11 50	−16	21 53	−19	41·7	—
Budapest		79·8	355	12 4	− 3	21 56?	−18	e 35·9	53·9
Zurich		80·0	3	e 12 8	0	e 22 17	+ 1	—	—
Innsbruck		80·1	0	e 12 12	+ 4	—	—	50·9	—
Theodosia		80·2	345	12 12	+ 3	e 22 28	+10	42·9	—
Neuchatel		80·3	4	e 12 9	0	e 22 19	0	—	—
Simferopol		80·5	345	12 12	+ 2	e 22 28	+ 7	31·6	—
Chur		80·6	2	e 12 10	− 1	e 22 21	− 1	—	—
Yalta		80·9	345	12 15	+ 2	22 32	+ 7	46·9	—
Tiflis		81·4	337	12 14	− 1	22 30	− 1	45·9	53·9
Agra	E.	81·5	305	i 12 28	+12	i 22 32	0	e 42·4	54·1
Zagreb		81·6	357	e 12 16	0	e 22 31	− 2	—	44·9
Treviso		81·7	0	e 11 56?	−21	i 22 46	+12	45·9	55·4
Triest		81·7	359	i 12 17	0	i 22 31	− 3	e 33·9	46·9
Venice		81·9	0	i 12 22	+ 4	e 22 36	0	—	—
Padova		82·0	0	e 12 18	0	22 36	− 1	—	—
Pavia		82·2	2	e 12 19	0	—	—	—	—
Belgrade		82·3	354	e 12 18	− 2	e 22 37	− 3	e 50·0	—
Piacenza		82·4	2	12 20	0	22 44	+ 3	—	63·5
San Juan		82·8	69	i 12 20	− 2	i 22 40	− 5	41·1	—
Prato		83·5	1	e 12 29	+ 3	e 22 44	− 8	—	53·9
Barcelona		85·7	7	12 39	+ 2	23 30	+15	e 46·4	60·2
Tortosa	E.	86·2	8	e 12 46	+ 7	23 16	− 3	—	55·9
	N.	86·2	8	12 40	+ 1	23 5	[− 3]	e 38·9	57·3
Toledo		86·6	12	e 12 40	− 1	i 23 22	− 1	e 39·2	54·6
Alicante		88·4	10	i 12 53	+ 3	i 23 39	− 2	e 43·2	—
Medan		88·7	275	e 12 53	+ 2	i 23 39	− 5	50·9	59·9
Hyderabad		89·2	299	23 13	SKS	(23 13)	[−15]	39·3	49·1
Messina		89·2	358	e 12 14	−40	e 23 18	[−10]	e 52·2	58·5
Granada		89·3	13	i 12 58	+ 4	i 23 23	[− 5]	41·5	59·7
Malaga		89·6	13	12 56	0	23 47	− 5	44·4	55·6
San Fernando		89·7	14	—	—	23 36	[+ 5]	—	58·4
Almeria		89·7	11	e 13 0	+ 4	e 23 40	[+ 9]	e 51·9	—
Catania		89·8	358	e 14 20	+84	24 38	+44	e 55·2	—
Algiers		90·4	7	e 12 30	−29	23 30	[− 5]	44·2	60·9
Ksara		91·0	340	13 6	+ 4	24 33	+28	41·9	—
Bombay		91·0	304	13 3	+ 1	23 33	[− 6]	45·4	59·2

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Batavia		91·6	263	e 14 20	+75	i 25 5	PS	—	—
Wellington		95·0	193	—	—	23 15	[−46]	51·9	59·9
Kodaikanal		95·7	296	17 3	PP	—	—	—	—
Colombo		97·2	292	33 52	?	—	—	—	62·8
Adelaide		98·8	222	e 43 59	?	—	—	49·0	66·4
Melbourne		98·9	216	—	—	i 25 7	−10	50·9	—
La Paz		109·4	92	e 16 39	?	25 2	[− 9]	57·9	71·1
Rio de Janeiro	N.	129·4	76	e 23 56	PPP	—	—	—	—

Additional readings and notes :—
Sitka iPP = +4m.45s.
Victoria SN = +10m.47s. ; T_o = 3h.24m.7s.
Ootomari readings have been *diminished* by 25m.
Honolulu T.H. eSS = +13m.24s.
Berkeley iP = +6m.50s., iE = +12m.34s.
Mount Wilson eSN = +13m.43s.
Pasadena iSN = +13m.42s.
Osaka i = +8m.17s.
Sumoto PE = +8m.5s.
Tucson eSS = +17m.56s.
Madison iSKS = +17m.48s., eSS = +18m.48s.
Chicago i = +16m.32s., eSS = +20m.32s.
Scoresby Sund +17m.11s., eN = +17m.15s., iS_cS = +19m.19s., +21m.14s.
Ann Arbor e = +19m.14s. = S_cS − 3s., eSS = +21m.14s., eSSS = +23m.8s.
Toronto iN = +19m.10s. = S_cS − 17s., iSS = +21m.46s. ; T_o = 3h.23m.42s.
Pittsburgh e = +11m.14s., i = +19m.44s. = S_cS + 4s.
Georgetown SS = +22m.44s. ; T_o = 3h.24m.12s.
Fordham iSN = +18m.36s., iSZ = +18m.42s., iE = +23m.22s.
East Machias iPP = +12m.35s., eSS = +23m.10s.
Columbia i = +26m.4s.
Manila PPP = +15m.5s., PSEN = +20m.11s., SSN = +24m.43s., SSSE = +27m.35s.
Helsingfors eN = +19m.52s., eE = +19m.55s. = PS + 1s., ePPS = +20m.44s. = S_cS + 3s., eSSN = +24m.32s., eSSE = +25m.2s., iSSSEN = +27m.32s.
Upsala iN = +21m.4s. = S_cS + 17s.
Copenhagen +20m.56s. = PS − 5s. and +21m.30s.
Lund +20m.56s. = PS − 6s. and +21m.28s.
Durham S? = +22m.41s.
Königsberg eE = +21m.0s. = PS − 10s. and +21m.13s.
Hamburg iN = +21m.20s. = PS − 9s., eZ = +30m.26s., eE = +33m.32s.
Potsdam iE = +11m.40s., iN = +12m.59s., eN = +16m.26s., eZ = +17m.26s., iSN = +21m.29s., eE = +21m.38s., e = +30m.26s.
Oxford iPE = +11m.45s.
Uccle e = +14m.40s. = PP + 7s. and +15m.44s.
Jena eSE = +21m.50s. = PS − 15s., eN = +22m.30s.
Stuttgart eP_cPNZ = +12m.22s., eZ = +14m.6s., eSKSNZ = +22m.16s., eSSS = +31m.26s.
Strasbourg ePP = +15m.12s., iPS = +22m.19s., e = +23m.3s.
Vienna i = +12m.24s., PS = +22m.23s.
Chur i = +12m.13s.
Tiflis PP = +15m.41s., SKS = +22m.34s., SKKS = +22m.46s., eSS = +28m.16s. e = +28m.42s., SSS = +32m.24s., e = +39m.3s.
Triest i = +12m.28s., PS = +23m.14s., eSS = +28m.4s.
Belgrade e = +35m.24s.
San Juan e = +34m.36s.
Toledo PP = +16m.5s., SKS = +23m.10s., SKKS = +23m.33s., SS = +29m.25s.
Medan i = +23m.16s. = SKS − 8s.
Hyderabad S = +30m.22s.
Granada P_cP = +13m.12s., SSS = +34m.2s.
Malaga PP = +16m.24s., PPP = +18m.38s., SKS = +23m.23s., PPS = +24m.58s., SS = +30m.22s., SSS = +34m.30s.
Algiers PP = +16m.29s., PS = +24m.11s. = S + 11s.
Ksara PP = +16m.40s.
Batavia i = +25m.21s. = PS − 1s.
La Paz PPE = +20m.17s., iE = +28m.24s., = PS + 2s., SS? = +35m.43s.
Long waves were also recorded at Dehra Dun, Perth, Sydney, Besançon, and Cape Town.

Aug. 12d. Readings also at 0h. (Ekaterinburg, Tashkent, Tiflis, De Bilt, Paris, Strasbourg, and Stuttgart), 7h. (near Nagoya), 8h. (near Almeria), 13h. (Alicante), 15h. (Alicante and near Tyosi), 18h. (Tchimkent and near Andijan), 19h. (Stuttgart, Tiflis, Triest, Branner, and near Wellington), 20h. (Scoresby Sund), 22h. (Ekaterinburg, Pulkovo, Scoresby Sund, New Plymouth, Wellington, and near Manila), 23h. (Ottawa, Granada, Paris, De Bilt, Strasbourg, Stuttgart, Copenhagen, and Tiflis).

Aug. 13d. 20h. 56m. 6s. Epicentre 51°·0S. 164°·0E. (as on 1928 July 23d.). R.3.

A = −·605, B = +·173, C = −·777; D = +·276, E = +·961; G = +·747, H = −·214, K = −·629.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Christchurch		9·4	42	e 2 18	+ 5	4 4	+ 5	—	—
Glenmuick		10·2	41	(1 54)	−30	1 54	P	2·7	—
Takaka		11·8	34	—	—	4 26	−32	—	—
Wellington		12·2	42	e 2 50	− 1	5 35	+27	6·9	7·6
New Plymouth		13·8	35	3 13	0	6 3	+17	6·6	—
Arapuni		15·3	37	e 5 52	+140	6 49	+27	7·4	8·0
Melbourne		18·9	307	i 4 34?	+17	(7 43)	− 1	7·7	8·9
Riverview		19·6	327	e 4 21	− 4	i 7 47	−11	e 8·8	9·4
Sydney		19·6	327	i 4 18	− 7	i 7 48	−10	9·3	10·6
Adelaide		24·4	301	e 5 28	+14	i 9 59	+29	11·5	14·5
Suva		34·8	25	9 24	(− 1)	16 24	?	—	18·9
Perth		39·9	280	13 54	S	(13 54)	+19	—	—
Apia		41·7	38	e 14 0	S	(e 14 0)	− 2	e 26·3	—
Manila		75·6	317	11 46	+ 2	21 28	+ 1	35·5	—
Hong Kong		85·4	315	—	—	23 9	− 3	—	51·4
Bombay		105·3	282	e 25 36	S	(e 25 36)	{+ 3}	—	—
Berkeley		109·7	55	—	—	e 28 38	PS	e 51·0	—
Irkutsk		114·9	325	e 19 38	PP	26 54?	{+13}	e 49·9	66·3
Victoria		117·1	47	27 26	S	(27 26)	{+29}	57·6	58·7
Tashkent		123·5	295	e 22 19	?	e 29 54?	PS	e 46·9	74·0
Madison		131·5	69	e 22 42	PKS	e 39 13	SS	61·9	—
Georgetown		136·5	81	e 19 28	[+11]	—	—	e 64·9	—
Ekaterinburg		136·9	307	e 19 31	[+13]	—	—	e 54·7	90·2
Toronto		137·7	73	e 17 54?	?	e 41 21	?	e 48·2	—
Tiflis		138·3	282	19 52	[+33]	—	—	e 61·9	90·6
Fordham	z.	139·6	82	e 19 47	[+26]	—	—	e 65·9	—
Ottawa		140·9	73	e 22 41	PP	e 41 6	SS	e 59·9	—
Harvard		142·1	81	—	—	e 25 14	PPP	e 62·9	—
Theodosia		145·9	280	e 19 48	[+12]	—	—	—	—
Yalta		146·3	278	e 19 49	[+13]	—	—	—	—
Simferopol		146·6	279	e 19 46	[+ 9]	—	—	—	—
Pulkovo		153·0	307	20 0	[+14]	—	—	67·9	87·2
Triest		159·7	266	e 20 8	[+15]	e 31 2	{−15}	—	114·4
Scoresby Sund		160·3	6	20 42	{− 3}	34 36	SKSP	69·9	—
Algiers		160·4	231	e 10 25?	?	e 15 24	?	e 91·9	108·9
Piacenza		161·9	261	e 21 22	{+29}	—	—	—	103·2
Potsdam		162·1	286	e 20 18	[+22]	—	—	e 83·9	—
Copenhagen		162·6	297	21 2	{+ 6}	24 40	PP	75·9	—
Granada		163·6	217	e 21 54?	{+54}	—	—	81·9	103·9
Malaga		163·6	215	—	—	e 25 5	PP	85·6	98·3
Stuttgart		163·7	272	e 20 12	[+14]	—	—	e 89·9	—
Hamburg		164·0	289	e 21 1?	{− 1}	—	—	e 86·9	95·9
Strasbourg		164·6	270	e 18 54?	[−65]	e 23 54?	PP	e 95·9	—
De Bilt		166·9	283	e 20 20	[+19]	—	—	e 79·9	90·6
Uccle		167·2	277	e 19 54?	[− 7]	—	—	e 45·9	—
Paris		167·9	267	e 19 54?	[− 8]	—	—	85·9	105·9
Kew		170·2	279	e 19 54?	[−10]	—	—	e 82·9	103·0
Edinburgh		171·0	307	e 20 54?	[+50]	—	—	e 91·9	106·9

Additional readings and note:—
Christchurch iP = +2m.23s., i = +3m.15s., and +3m.43s.
Glenmuick e = 20h.56m.5s. and 57m.26s., some error apparently in the time.
Wellington iP = +2m.54s., PP = +3m.24s., i = +4m.40s., SS = +6m.4s.
New Plymouth i = +5m.19s.
Riverview iZ = +4m.31s. = PP − 5s.
Adelaide i = +11m.5s.
Apia eS = +20m.17s.
Berkeley eN = +28m.44s.
Irkutsk PS = +29m.20s.
Tashkent e = +27m.0s.
Madison e = +44m.18s.

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Georgetown iPKP = +22m.13s. =PP +14s., PP = +23m.9s. =PKS +10s.
Ekaterinburg ePKS = +23m.2s., SS = +40m.6s.
Tiflis PKS = +23m.15s., PPP = +25m.35s.
Fordham eZ = +22m.39s. =PP +20s. and +23m.34s. =PKS +26s., eN = +31m.56s.
Pulkovo e = +22m.8s., +26m.14s., +29m.30s., and +32m.28s., SS = +43m.12s., SSS = +50m.12s.
Triest ePP = +24m.2s., ePPS = +38m.15s.
Potsdam eN = +21m.54s.?, eZ = +24m.54s.? =PP +27s.
Strasbourg e = +11m.54s.?
Long waves were also recorded at other American and European stations.

Aug. 13d. 22h. 29m. 19s. Epicentre 32°·2N. 138°·1E. N.3.

A = −·630, B = +·565, C = +·533; D = +·668, E = +·744; G = −·397, H = +·356, K = −·846.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Nagoya	3·1	342	i 0 46	+ 2	1 24	+ 4	—	1·4
Osaka	3·3	321	0 47	0	(1 26)	+ 1	1·4	1·8
Sumoto	3·4	309	i 0 49	0	1 28	+ 1	—	1·5
Kobe	3·5	316	i 0 49	− 1	i 1 27	− 3	—	1·5
Tyosi	4·2	33	1 1	+ 1	1 52	+ 4	—	—
Mizusawa	7·3	19	1 34	−10	2 41	−25	—	—

Osaka gives i = +52s.
Nagoya gives epicentre 33°·9N. 137°·0E.

Aug. 13d. Readings also at 3h. (Hastings), 5h. (Simferopol, Theodosia, Yalta, and near Andijan), 13h. (Suva), 14h. (Ekaterinburg, Hong Kong, and near Manila), 15h. (De Bilt, Stuttgart, and Irkutsk), 18h. (New Plymouth and Wellington), 19h. (Wellington), 20h. (Lick), 23h. (near Tchimkent, Andijan, and Samarkand).

Aug. 14d. 0h. 43m. 30s. Epicentre 4°·2S. 138°·3E. (given by Batavia). N.3.

A = −·745, B = +·663, C = −·073; D = +·665, E = +·747; G = +·055, H = −·049, K = −·997.

		Δ	Az.	P.	O−C.	S.	O−C.	L.
		°	°	m. s.	s.	m. s.	s.	m.
Amboina		10·1	273	i 2 53	+31	i 4 50	+34	—
Manila		25·5	318	5 34	+ 9	9 52	+ 2	12·6
Perth		34·8	215	6 40	− 7	—	—	—
Phu-Lien		39·9	310	7 30?	− 1	—	—	—
Medan		40·4	281	i 7 51	+16	i 13 56	+14	—
Irkutsk		63·4	337	10 34	+ 6	18 56	− 4	e 29·5
Andijan		74·9	314	e 11 53	+13	—	—	—
Tashkent		77·3	314	e 12 30	+36	i 21 43	− 3	—
Tchimkent		77·4	315	e 11 26	−28	—	—	—
Ekaterinburg		86·8	328	i 12 54	+12	i 23 20	− 5	39·5
Pulkovo		102·6	330	e 18 8	PP	e 25 36	−13	42·5
Scoresby Sund		112·5	353	—	—	29 0	PS	—
Copenhagen		112·9	330	—	—	28 30?	PS	58·5
Stuttgart		118·0	325	e 20 12	PP	—	—	e 65·5
De Bilt		118·5	330	e 20 14	PP	—	—	e 56·5
Strasbourg		118·9	325	e 19 30?	PP	e 22 30?	PPP	e 56·5
La Paz	E.	146·6	129	19 55	[+18]	—	—	—

Additional readings:—
Amboina iE = +3m.26s.
Medan i = +8m.54s. =PP −10s.
Irkutsk i = +21m.43s.
Tashkent e = +10m.27s. and +14m.39s. =PP −2s.
Pulkovo eSS = +32m.42s.
Long waves were also recorded at Riverview, Melbourne, and Paris.

Aug. 14d. 4h. 39m. 39s. Epicentre **25°·8N. 95°·7E.** **N.1.**

A = −·089, B = +·896, C = +·435; D = +·995, E = +·099; G = −·043, H = +·433, K = −·900.

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.
Calcutta	−0·1	7·4	245	2 0	+16	(3 22)	+16	3·4	5·9
Phu-Lien	−0·2	11·2	114	i 2 36	+ 1	i 4 42	+ 4	5·2	5·3
Agra	−0·4	15·8	279	i 3 35	+ 1	6 18	− 6	—	9·2
Dehra Dun	−0·4	16·2	290	3 41	+ 3	6 11	−23	8·0	9·4
Hong Kong	−0·5	17·2	98	3 52	+ 2	7 8	SS	8·5	11·0
Hyderabad	−0·5	18·0	246	4 0	0	7 13	0	—	12·2
Nanking	−0·6	21·1	67	4 34	− 1	i 8 24	+ 8	e 13·4	—
Bombay	−0·7	22·2	257	4 45	0	8 38	+ 2	11·0	11·2
Chiufeng	−0·7	22·2	45	(i 4 47)	+ 2	(i 8 42)	+ 6	—	—
Medan	−0·7	22·4	172	i 4 43	− 5	i 8 42	+ 2	—	—
Takao	−0·7	22·6	94	5 4	+14	8 57	+13	—	—
Almata	−0·7	23·2	323	i 4 55	− 1	—	—	—	—
Kodaikanal	−0·7	23·2	231	i 4 58	+ 2	8 55	0	—	10·3
Zi-ka-wei	−0·7	23·2	71	i 4 53	− 3	8 51	− 4	—	14·0
Taihoku	−0·7	23·3	86	4 54	− 3	8 54	− 3	12·4	—
Colombo	−0·8	24·2	222	5 3	− 2	9 10	− 2	13·0	13·4
Andijan	−0·8	24·4	314	e 5 5	− 1	e 9 32	+16	—	—
Dairen	−0·8	25·4	52	5 14	− 2	9 27	− 7	—	—
Manila	−0·8	26·2	110	5 23	− 1	10 21	+33	14·0	—
Tashkent	−0·9	26·7	312	i 5 25	− 2	e 9 29	−26	—	10·4
Tchimkent	−0·9	27·0	314	i 5 53?	+23	11 17	+77	—	—
Irkutsk	−0·9	27·3	12	i 5 32	− 1	i 10 4	− 1	13·4	—
Samarkand	−0·9	27·6	307	5 46	+11	10 59	SS	15·4	—
Zinsen	−0·9	28·6	58	5 44	0	10 21	− 6	—	—
Tomie	−1·0	29·5	69	5 50	− 2	10 36	− 4	—	—
Nagasaki	−1·0	30·3	69	6 0	+ 1	10 49	− 4	—	16·5
Hukuoka	−1·0	31·0	68	6 0	− 5	10 59	− 5	e 13·9	20·3
Hukuoka B.	−1·0	31·0	68	6 5	0	11 0	− 4	—	—
Miyazaki	−1·1	31·9	70	6 20	+ 8	11 16	− 1	—	—
Koti	−1·1	33·6	68	e 6 28	+ 1	e 11 38	− 5	16·4	18·6
Batavia	−1·2	33·8	159	6 28	0	11 39	− 6	23·4	—
Sumoto	−1·2	34·8	65	6 37	0	e 11 55	− 5	16·8	23·9
Toyooka	−1·2	34·8	64	i 6 36	− 1	11 58	− 2	i 14·3	20·8
Kobe	−1·2	35·0	65	6 39	0	i 12 3	0	—	21·3
Malabar	−1·2	35·0	160	e 6 36	− 3	i 12 1	− 2	19·4	—
Osaka	−1·2	35·3	65	6 42	+ 1	12 7	− 1	14·9	17·2
Siomisaki	−1·2	35·5	68	6 44	+ 1	12 4	− 7	—	—
Nagoya	−1·2	36·2	65	6 53	+ 4	12 24	+ 3	—	—
Gihu	−1·2	36·4	65	6 50	− 1	12 18	− 6	—	—
Nagano	−1·3	37·6	63	7 2	+ 2	12 41	0	—	—
Maebasi	−1·3	38·3	63	7 6	0	12 49	− 2	—	—
Yokohama	−1·3	38·7	64	7 13	+ 3	12 59	+ 2	—	—
Tokyo	−1·3	38·8	64	7 10	− 1	11 55	−64	14·9	17·8
Hukusima	−1·3	39·5	61	7 15	− 2	13 6	− 3	—	—
Tyosi	−1·3	39·8	64	7 18	− 1	13 11	− 3	—	—
Ekaterinburg	−1·3	39·9	330	i 7 22	+ 2	i 13 17	+ 2	i 16·0	24·8
Mizusawa	−1·3	40·1	59	7 20	− 2	13 15	− 3	16·5	—
Morioka	−1·3	40·2	58	7 21	− 2	13 19	− 1	—	—
Sapporo	−1·3	40·8	52	7 28	0	13 44	+15	—	—
Ootomari	−1·3	42·5	48	e 7 45	+ 3	(13 50)	− 4	13·8	13·9
Amboina	−1·4	43·1	128	i 7 3	−43	i 13 24	−38	22·4	—
Sitka	−1·4	43·3	44	10 47	+179	—	—	17·3	17·5
Tiflis	−1·4	44·5	304	7 57	− 1	i 14 25	+ 3	i 18·0	—
Theodosia	−1·6	51·4	308	e 8 52	+ 2	16 4	+ 6	25·4	—
Ksara E.	−1·6	51·8	293	i 8 56	+ 3	i 16 12	+ 8	24·4	—

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.
Simferopol		−1·6	52·3	308	8 58	+ 1	16 13	+ 2	27·5	—
Yalta		−1·6	52·3	307	8 58	+ 1	16 12	+ 1	—	—
Pulkovo		−1·7	55·6	326	i 9 21	0	i 16 55	+ 1	25·4	34·2
Helwan		−1·7	56·3	289	i 9 28	+ 2	i 17 1	− 3	30·4	31·9
Helsingfors		−1·8	58·3	326	i 9 40	+ 1	i 17 32	+ 2	e 26·2	—
Lemberg		−1·8	59·0	314	e 9 47	+ 2	—	—	—	18·6
Königsberg		−1·8	60·8	320	e 9 57	0	e 18 3	0	e 30·4	33·4
Perth		−1·8	60·8	160	9 58	+ 1	18 6	+ 3	—	—
Belgrade		−1·8	62·0	308	e 10 6	0	e 18 19	0	27·0	41·3
Upsala		−1·8	62·0	325	10 5	− 1	i 18 16	− 3	—	34·6
Budapest		−1·9	62·5	312	9 49	−20	18 5	−19	25·4	40·4
Vienna		−1·9	64·2	313	e 10 19	− 1	18 49	+ 3	e 26·4	38·4
Tananarive		−1·9	64·7	231	10 23	− 1	i 18 48	− 4	30·6	33·8
Lund		−1·9	64·8	322	10 27	+ 2	i 18 55	+ 1	32·4	—
Zagreb		−1·9	64·9	310	e 10 26	+ 1	e 18 56	+ 1	e 32·8	38·0
Prague		−1·9	65·1	315	i 10 27	0	i 19 9	+12	e 31·6	37·4
Copenhagen		−1·9	65·2	322	10 27	0	i 19 2	+ 3	—	—
Potsdam		−1·9	65·5	318	i 10 30	+ 1	i 19 5	+ 3	—	—
Trenta		−1·9	66·2	303	e 10 16	−18	18 51	−20	—	—
Cheb		−1·9	66·4	315	e 10 35	0	e 19 16	+ 2	e 35·4	40·4
Triest		−1·9	66·4	310	i 10 33	− 2	i 19 13	− 1	—	—
Jena		−1·9	66·6	316	e 10 38	+ 1	i 19 18	+ 2	e 33·4	35·8
Hamburg		−1·9	67·0	320	e 10 38	− 1	i 19 21	0	—	40·4
Messina		−1·9	67·0	302	e 10 42	+ 3	i 19 20	− 1	34·1	44·2
Collurania		−1·9	67·2	307	10 55	+14	—	—	—	—
Naples	E.	−1·9	67·3	306	10 40	− 1	20 0	+35	35·4	—
Venice		−1·9	67·4	310	e 10 34	− 8	20 19	PS	—	—
Camerino		−1·9	67·5	308	11 3	+21	—	—	—	—
Catania		−1·9	67·5	301	10 51	+ 9	19 27	0	e 47·8	—
Treviso		−1·9	67·5	310	i 10 42	0	i 19 27	0	42·4	—
Göttingen		−1·9	67·5	318	i 10 42	0	e 19 30	+ 3	i 37·4	39·0
Innsbruck		−2·0	67·6	312	10 45	+ 3	e 19 27	0	e 27·6	—
Padova		−2·0	67·8	310	e 10 44	0	19 37	+ 7	—	—
Bergen		−2·0	67·9	327	9 33	−72	19 21	−10	26·4	—
Prato		−2·0	68·7	309	e 10 50	0	i 19 42	+ 1	e 33·6	39·4
Stuttgart		−2·0	68·7	314	10 49	− 1	i 19 43	+ 2	e 35·4	—
Chur		−2·0	69·0	313	e 10 50	− 2	e 19 36	− 9	—	—
Karlsruhe		−2·0	69·1	315	10 56	+ 4	19 53	+ 7	e 37·4	—
Piacenza		−2·0	69·4	311	e 10 52	− 2	i 19 52	+ 2	—	47·4
Zurich		−2·0	69·5	313	e 10 53	− 2	e 19 51	0	—	—
Pavia		−2·0	69·7	311	e 10 31	−25	—	—	—	—
Strasbourg		−2·0	69·7	315	i 10 55	− 1	i 19 53	0	e 37·4	—
De Bilt		−2·0	70·2	319	11 0	+ 1	i 20 2	+ 3	—	40·8
Neuchatel		−2·0	70·6	313	e 11 0	− 2	e 20 4	0	—	—
Uccle		−2·0	71·1	317	e 11 4	− 1	i 20 11	+ 1	36·4	—
Besançon		−2·0	71·2	313	i 11 34	+28	20 2	− 9	e 29·4	—
Grenoble		−2·0	72·0	311	e 12 31	+80	e 21 36	+75	e 35·4	—
Paris		−2·0	72·9	315	e 11 15	− 1	i 20 28	− 4	34·4	36·4
Adelaide		−2·0	73·1	144	i 11 13	− 4	i 20 32	− 2	i 32·4	36·4
Durham		−2·0	73·2	322	11 47	+29	20 32	− 3	—	41·4
Edinburgh		−2·0	73·6	324	e 11 33	+13	i 20 39	− 1	34·4	41·2
Kew		−2·0	73·6	319	e 11 19	− 1	i 20 41	+ 1	e 29·4	41·0
Stonyhurst		−2·0	74·0	321	e 11 21	− 2	i 20 44	− 1	30·4	41·4
Oxford		−2·0	74·1	319	e 11 19	− 4	i 20 45	− 1	e 36·8	48·8
Scoresby Sund		−2·0	74·3	342	i 11 26	+ 1	i 20 52	+ 4	—	—
Bidston		−2·0	74·4	321	e 11 29	+ 4	i 20 41	− 9	35·6	41·8
Barcelona		−2·0	75·7	308	12 2	+29	21 9	+ 4	31·8	50·8
Algiers		−2·0	76·9	303	e 11 34	− 6	21 14	− 5	36·1	—
Tortosa		−2·0	77·1	307	11 39	− 2	21 16	− 5	e 35·4	46·9
Melbourne		−2·1	78·6	144	11 49	0	21 35	− 2	27·4	—

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.
Alicante	−2·1	78·8	306	e 12 9	+19	i 21 35	− 4	e 36·8	—
Riverview	−2·1	79·5	136	i 11 53	− 1	i 21 41	− 6	e 38·0	42·8
Toledo	−2·1	80·7	308	11 58	− 2	i 21 53	− 7	e 37·5	51·6
Almeria	−2·1	80·8	305	e 12 3	+ 2	i 21 55	− 7	e 37·5	—
Granada	−2·1	81·5	306	i 12 5	0	i 22 5	− 4	34·1	54·0
Malaga	−2·1	82·3	305	e 12 8	− 1	i 22 10	− 8	40·4	43·9
Serra do Pilar	−2·1	83·2	311	12 48	+34	—	—	—	—
San Fernando	−2·1	83·7	306	e 12 22	+ 6	i 22 20	−13	44·4	50·8
Sitka	−2·1	86·7	25	i 12 30	− 1	i 22 45	[−26]	e 39·8	—
Cape Town	−2·2	94·4	234	13 41	+33	23 30	[−28]	43·5	49·5
Honolulu T.H.	−2·2	94·6	64	i 13 8	− 1	i 23 33	[−26]	e 38·2	—
Victoria	−2·2	98·0	25	13 21	− 3	24 37	−12	43·6	49·0
Seattle	−2·2	99·0	25	e 19 21?	PPP	—	—	—	—
Wellington	−2·2	99·1	132	17 31	PP	26 31	PS	41·4	—
Ukiah	—	105·6	30	e 18 27	PP	e 24 27	[−26]	—	—
Berkeley	—	107·1	30	e 17 56	[−13]	i 24 32	[−28]	—	—
Lick	—	107·8	30	e 18 9	[− 2]	—	—	—	—
East Machias	—	107·8	346	e 17 45	[−25]	i 24 35	[−28]	e 43·6	—
Ottawa	—	108·4	353	e 14 9	−14	i 24 36	[−30]	e 46·4	—
Tinemaha	—	109·6	28	e 14 46	+17	—	—	—	—
Haiwee	—	110·4	28	—	—	e 24 47	[−28]	—	—
Toronto	—	110·4	356	e 17 48	[−31]	i 24 43	[−32]	45·4	—
Harvard	—	110·8	349	e 14 38	+ 4	e 27 11	?	e 46·4	—
Madison	—	111·0	3	e 19 7	PP	i 24 44	[−34]	43·3	—
Santa Barbara	—	111·0	31	e 19 1	PP	i 24 52	[−26]	—	—
Ann Arbor	—	111·9	358	e 19 45	PP	i 24 51	[−31]	e 48·8	—
Mount Wilson	—	112·0	30	e 18 18	[− 6]	i 24 52	[−30]	—	—
Pasadena	—	112·1	30	e 18 19	[− 5]	e 24 53	[−30]	e 34·5	—
Riverside	—	112·5	30	e 18 21	[− 5]	i 24 55	[−29]	—	—
Fordham	—	112·6	351	e 19 12	PP	i 24 55	[−30]	—	—
Pittsburgh	—	113·7	355	19 28	PP	i 25 1	[−28]	e 50·4	—
St. Louis	—	115·4	5	e 19 9	PP	i 25 2	[−33]	—	—
Tucson	—	116·7	25	i 19 41	PP	27 17	{+23}	e 44·2	—
San Juan	—	132·4	335	e 18 58	[−13]	—	—	e 65·4	—
Port au Prince	—	134·2	343	e 19 17	[+ 4]	—	—	—	—
Rio de Janeiro N.	—	142·5	265	e 22 46	PP	—	—	—	—
La Plata	—	155·5	242	20 23	{− 1}	30 17	{−36}	43·0	—
Sucre	—	161·1	287	e 19 48	[− 7]	27 19	PPP	76·4	—
La Paz	—	162·3	299	i 19 50	[− 6]	i 31 6	{−25}	80·6	93·6
Santiago	—	165·9	234	19 59	[− 1]	—	—	—	—

Additional readings and note :—

Agra PN = +3m.39s.
Nanking iPPZ = +4m.59s., PPPZ = +5m.13s.
Chiufeng iPEN = (+4m.52s.), iPPZ = (+5m.8s.), iPPP = (+5m.24s.), iSE = (+8m.52s.), iSSZ = (+9m.24s.), iSSE = (+9m.32s.), iSSSN = (+9m.52s.), all readings having been *increased* by 4m.
Zi-ka-wei PPPE = +5m.29s., iE = +6m.29s., iN = +6m.44s., iE = +7m.27s., iZ = +8m.2s., PSE = +8m.58s., iE = +9m.43s., SSN = +9m.51s., iN = +10m.28s., +11m.37s., +12m.43s., and +13m.21s.
Koti ePP = +8m.9s.
Batavia iP = +6m.31s.
Toyooka iPE = +6m.38s., ePN = +6m.41s.
Kobe PPE = +7m.8s., PPPZ = +8m.26s., iSSN = +14m.43s., SSS = +16m.42s.
Malabar i = +8m.11s. and +16m.43s.
Mizusawa PE = +7m.23s.
Amboina i = +16m.55s. = SS − 11s.
Tiflis PP = +9m.57s. = PPP − 3s.
Helwan i = +22m.28s.
Helsingfors ePN = +9m.43s., ePPE = +12m.17s., eN = +12m.44s. = PPP − 6s., iPSEN = +18m.17s., iN = +19m.17s., iSKSN = +20m.7s., eSSE = +21m.50s., eSSN = +22m.17s.?, eSSSE = +23m.39s., eSSSN = +24m.9s.
Königsberg eN = +10m.15s., PPE? = +12m.41s., PPPE? = +13m.45s., eN = +18m.9s., ePSN = +18m.51s., SSN = +23m.15s., SSS? = +24m.33s.
Belgrade i = +11m.6s., e = +12m.46s., i = +19m.13s.
Upsala iP$_e$PE = +10m.34s., PP = +12m.44s., PPPP = +14m.16s.?, iPS = +19m.5s., i = +19m.48s., SS = +22m.41s.
Budapest i = +10m.29s.
Vienna PP = +12m.51s., PPP = +14m.5s., PS = +19m.28s., S$_e$S? = +20m.51s.

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Tananarive N = +11m.5s., PP = +12m.47s., PPP = +14m.26s., N = +19m.4s., E = +19m.11s., PS = +19m.31s., SS = +23m.17s., SSSS = +26m.32s.
Lund i = +19m.43s., iEN = +20m.11s. = S_0S −16s., e = +20m.58s. and +23m.51s.
Zagreb i = +10m.56s. and +19m.40s., iNE = +20m.12s., eNW = +20m.52s., e = +23m.46s., +26m.40s. and +28m.45s.
Prague PS = +19m.46s.
Copenhagen eZ = +14m.47s., S? = +19m.48s., eEN = +20m.17s. and +21m.6s.
Potsdam eEN = +10m.33s., iEN = +11m.2s. and +11m.8s., iE = +11m.25s., iEN = +11m.36s. and = +12m.19s.?, iPP = +13m.19s.?, iPPPN = +14m.17s., eZ = +18m.39s., i = +19m.56s., iPSEN = +19m.59s., iEN = +20m.11s. and +20m.32s., iE = +20m.50s. and +27m.2s.
Triest PP = +13m.21s., iPS = +19m.45s., iNW = +19m.58s., +20m.19s. and +27m.4s.
Jena eE = +13m.33s., iPSE = +19m.55s., iPSN = +20m.5s., eN = +27m.51s., and +30m.12s.
Hamburg iZ = +20m.21s., eSSE = +24m.51s., eE = +27m.27s., eZ = +27m.50s.
Göttingen eE = +13m.33s. and +15m.15s.
Innsbruck i = +11m.57s.
Bergen P = +10m.13s., PPP = +14m.21s., S = +18m.31s.
Stuttgart ePP = +13m.46s., ePPP = +15m.21s., iPS = +20m.31s., eSS = +24m.21s., eSS = +27m.45s.
Piacenza iPP = +11m.25s.
Strasbourg i = +11m.48s., PP = +13m.58s., ePPPP = +15m.37s., iSS = +24m.54s., SSSS = +28m.37s.
De Bilt iN = +20m.51s.
Uccle iP_cP = +13m.41s., iPP = +14m.10s., PPPP = +16m.15s., SS = +25m.18s., SSS = +28m.8s.
Grenoble i = +23m.21s.
Paris PP = +14m.24s., PS = +21m.20s.
Adelaide i = +15m.38s. and +21m.11s., iSS = +25m.18s., i = +30m.54s.
Durham PP = +14m.33s., ? = +21m.17s. and +22m.5s.
Edinburgh PP = +14m.33s., PPP = +17m.19s.
Kew ePPEZ = +14m.18s., ePPPEZ = +16m.11s.
Stonyhurst iSKS? = +21m.33s.
Oxford iPN = +12m.5s., eS = +20m.26s.
Scoresby Sund e = +14m.15s. and +16m.21s., iEN = +21m.26s., iN = +21m.44s., e = +25m.3s., and +26m.21s.
Algiers i? = +12m.7s., PP = +14m.51s., PS = +22m.1s.
Alicante iP = +12m.19s., PP = +13m.53s., PS = +22m.21s.
Riverview iSE = +21m.45s., eE = +30m.15s. and +34m.1s.
Toledo i = +12m.29s., PP = +15m.25s., PPP = +17m.15s., PPPP = +18m.21s., PS = +22m.42s., SS = +27m.15s., SSS = +30m.51s.
Almeria iPP = +15m.35s.
Granada PP = +15m.23s., PPP = +16m.50s., SS = +26m.41s.
Malaga PP = +16m.1s., PPP = +17m.32s., PS = +22m.56s., SS = +27m.31s., SSS = +31m.43s.
Sitka ePP = +16m.11s., ePPP = +18m.23s., eSS = +28m.4s.
Cape Town PP = +17m.1s. and +17m.20s., PPP = +18m.53s., PPS = +25m.15s., SS? = +29m.45s.
Honolulu T.H. ePP = +17m.39s.
Victoria SN = +24m.40s.; T_0 = 4h.39m.38s.
Wellington i = +23m.51s., SS = +31m.31s.
Ukiah ePPP = +20m.51s., S = +25m.45s., PS = +27m.16s., SS = +33m.21s.
Berkeley eE = +18m.2s., iN = +25m.54s.
East Machias ePP = +18m.51s., iSKKS = +25m.24s., e = +26m.50s., iSS = +33m.40s., i = +34m.28s., e = +38m.2s., SSS = +38m.22s.
Ottawa ePP = +19m.9s., iSKKS = +25m.29s., eE = +26m.1s. and +26m.51s., eSSE = +34m.28s.; T_0 = 4h.39m.24s.
Tinemaha e = +18m.22s. and +40m.1s.
Toronto i = +28m.1s. and +34m.11s.
Harvard ePE = +18m.42s., ePP = +19m.34s., iN = +24m.47s., eN = +25m.22s., iSKSE = +26m.22s., eN = +28m.8s., ePS = +28m.21s.?
Madison e = +28m.56s. and +33m.35s.
Ann Arbor e?E = +23m.21s., iSN = +25m.57s., iPSN = +28m.27s., eN = +29m.39s., eSSN = +34m.21s., eSSE = +35m.15s., eSSS? = +39m.39s.
Mount Wilson iEN = +39m.47s.
Pasadena iNZ = +19m.7s., iE = +26m.31s. and +29m.3s.
Riverside iEN = +39m.47s.
Fordham ePPZ = +19m.21s., iN = +25m.59s., iE = +26m.39s., iPSZ = +28m.31s., iN = +29m.18s., iZ = +29m.23s., eSS = +34m.51s.
Pittsburgh SKKS = +26m.8s., e = +28m.39s.
Tucson iPPP = +22m.45s., iPS = +29m.15s., iPPS = +30m.6s., SS = +35m.21s.
San Juan iPP = +22m.13s., i = +22m.58s., e = +27m.41s., i = +28m.6s.
Port au Prince PPNW = +22m.26s., PPNE = +22m.30s., SKP = +22m.46s., PPP = +24m.51s., i = +25m.51s., +26m.16s. and +28m.16s.
La Paz $iPKP_3$ = +20m.38s., $iPKP_3$ = +21m.38s., PPE = +23m.52s., iE = +24m.43s. and +25m.21s., iSKS = +27m.19s., iPPP = +28m.32s., iE = +31m.45s. and +32m.37s., SKSP = +35m.4s., SSE = +44m.53s., L_g = +73·6m.

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The Russian stations record a second shock from the neighbourhood of this epicentre 28s. later. The readings for this have been included among those of the main shock by many observing stations and are now summarised in the following table.

Aug. 14d. 4h. 40m. 7s. Epicentre 25°·8N. 95°·7E. (as above). X.

		Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.
		°	°	°	m. s.	s.	m. s.	s.
Chiufeng		−0·7	22·2	45	(i 4 46)	+ 1	—	—
Zi-ka-wei		−0·7	23·2	71	4 51	− 5	i 8 48	− 7
Irkutsk		−0·9	27·3	12	i 5 33	0	—	—
Kobe		−1·2	35·0	65	6 37	− 2	—	—
Nagoya		−1·2	36·2	65	6 53	+ 4	—	—
Ekaterinburg		−1·3	39·9	330	i 7 18	− 2	i 13 28	+13
Tiflis		−1·4	44·5	304	7 55	− 3	i 14 20	− 2
Pulkovo		−1·7	55·6	326	i 9 19	− 2	i 17 11	+17
Helsingfors		−1·8	58·3	326	9 41	+ 2	—	—
Lemberg		−1·8	59·0	314	e 9 53	+ 8	—	—
Königsberg	E.	−1·8	60·8	320	i 9 56	− 1	—	—
Belgrade		−1·8	62·0	308	e 10 4	− 2	—	—
Upsala		−1·8	62·0	325	i 10 4	− 2	—	—
Vienna		−1·9	64·2	313	10 17	− 3	—	—
Lund		−1·9	64·8	322	i 10 24	− 1	e 18 53	− 1
Zagreb		−1·9	64·9	310	e 10 22	− 3	—	—
Copenhagen		−1·9	65·2	322	i 10 26	− 1	—	—
Potsdam		−1·9	65·5	318	i 10 30	+ 1	i 18 51?	−11
Cheb		−1·9	66·4	315	i 10 37	+ 2	—	—
Triest		−1·9	66·4	310	i 10 35	0	—	—
Jena		−1·9	66·6	316	i 10 36	− 1	—	—
Hamburg		−1·9	67·0	320	i 10 38	− 1	e 19 27	+ 6
Messina		−1·9	67·0	302	i 10 42	+ 3	—	—
Göttingen	E.	−1·9	67·5	318	i 10 42	0	e 19 33	+ 6
Innsbruck		−2·0	67·6	312	i 10 44	+ 2	—	—
Stuttgart		−2·0	68·7	314	i 10 48	− 2	—	—
Chur		−2·0	69·0	313	i 10 50	− 2	—	—
Karlsruhe		−2·0	69·1	315	i 10 57	+ 5	—	—
Zurich		−2·0	69·5	313	i 10 55	0	—	—
Strasbourg		−2·0	69·7	315	i 10 53	− 3	i 19 57	+ 4
De Bilt		−2·0	70·2	319	i 10 59	0	i 20 7	+ 8
Uccle		−2·0	71·1	317	i 11 4	− 1	—	—
Grenoble		−2·0	72·0	311	i 12 32	+81	—	—
Edinburgh		−2·0	73·6	324	i 11 22	+ 2	i 20 47	+ 7
Kew		−2·0	73·6	319	e 11 19	− 1	—	—
Stonyhurst		−2·0	74·0	321	i 11 21	− 2	i 20 50	+ 5
Oxford	E.	−2·0	74·1	319	i 11 17	− 6	—	—
Scoresby Sund		−2·0	74·3	342	11 24	− 1	e 20 45	− 3
Bidston		−2·0	74·4	321	i 11 13	−12	i 20 41	− 9
Tortosa		−2·0	77·1	307	11 38	− 3	—	—
Toledo		−2·1	80·7	308	i 11 58	− 2	—	—
Almeria		−2·1	80·8	305	i 12 5	+ 4	—	—
Granada		−2·1	81·5	306	12 3	− 2	—	—
Malaga		−2·1	82·3	305	12 9	0	—	—
Cape Town		−2·2	94·4	234	13 13	+ 5	23 31	[−27]
Honolulu T.H.		−2·2	94·6	64	—	—	e 23 38	[−21]
Berkeley	N.	—	107·1	30	e 17 54	[−14]	—	—
East Machias		—	107·8	346	e 17 47	[−23]	i 25 34	{−17}

Additional readings :—
Tiflis PP = +9m.51s.
Jena iPEN = +10m.39s.
Cape Town P fits here better than in the main shock, it has been entered in both.

Aug. 14d. 7h. 10m. 37s. Epicentre 22°·0N. 95°·5E. N.3.

A = −·089, B = +·923, C = +·375; D = +·995, E = +·096;
G = −·036, H = +·373, K = −·927.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Calcutta		6·6	276	1 33	− 1	2 55	+ 7	3·5	—
Phu-Lien		10·4	95	2 23?	− 3	—	—	—	—
Agra	E.	16·7	291	3 47	− 3	—	—	—	—
Hong Kong		17·3	85	4 4	+ 6	7 23	SS	—	10·8
Bombay		21·4	266	4 59	+15	9 0	+26	11·2	12·4
Andijan		27·0	319	e 5 20	−18	—	—	—	—
Irkutsk		31·0	10	e 6 9	− 5	e 10 23	−57	—	—
Ekaterinburg		43·1	333	e 8 38	+40	i 14 18	− 4	36·4	—
Tiflis		46·6	307	e 8 55	+30	e 16 37	+84	22·7	—
Pulkovo		58·7	328	9 59	+ 4	17 9	−50	19·4	—

Additional readings and note :—
Agra PN = +3m.55s.
Ekaterinburg e = +15m.9s., i = +18m.30s.
Tiflis readings are given without phase.

Aug. 14d. 10h. 16m. 50s. Epicentre 36°·3N. 139°·2E. (as on 1932 May 20d.). X.

Nagoya and Tokyo give 36°·2N. 139°·3E.

A = −·610, B = +·527, C = +·592.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tokyo		0·8	144	0 7	− 4	0 16	− 5	—	—
Tyosi		1·5	113	0 21	0	0 37	− 2	—	—
Nagoya		2·1	238	i 0 35	+ 5	1 3	S_g	—	—
Mizusawa	E.	3·2	28	0 53	P*	1 33	S*	—	—
Osaka		3·4	242	0 50	+ 1	—	—	1·7	2·2

Aug. 14d. 12h. 36m. 14s. Epicentre 13°·6N. 55°·6E. N.2.

A = +·549, B = +·802, C = +·235; D = +·825, E = −·565;
G = +·133, H = +·194, K = −·972.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Kodaikanal		21·6	96	4 46	0	8 46	+ 8	11·2	—
Agra	E.	25·0	54	5 14	− 6	—	—	—	—
Ksara	E.	27·0	322	e 4 54	−44	—	—	—	—
Tiflis		29·6	344	e 6 27	+26	e 11 1	+ 3	e 15·7	22·0
Tashkent		30·1	21	e 6 6	0	e 10 54	−12	e 34·8	—
Andijan		30·9	25	e 6 14	+ 1	—	—	—	—
Theodosia		35·8	335	e 8 29	PP	—	—	—	—
Simferopol		36·3	333	e 7 2	+ 2	—	—	—	—
Ekaterinburg		43·4	4	i 7 58	− 2	14 19	− 8	e 20·5	27·1
Pulkovo		49·8	344	8 50	0	15 58	0	26·8	31·5
Stuttgart		51·8	323	e 9 22	+17	e 16 28	+ 3	e 31·8	—
Lund		53·2	332	—	—	16 46	+ 1	—	—
Copenhagen		53·5	332	9 21	+ 3	16 56	+ 7	29·8	—
De Bilt		55·5	325	9 36	+ 4	17 25	+ 9	e 27·8	—
Granada		57·4	305	e 9 52	+ 6	e 18 1	+19	e 31·0	—
Kew	Z.	58·4	323	e 9 46?	− 7	—	—	—	—
Edinburgh		60·5	327	—	—	e 18 46?	+23	—	—
Scoresby Sund		73·1	340	11 40	+11	—	—	—	—

Additional readings :—
Agra eN = +5m.31s.
Tashkent e = +10s. and +6m.35s.

Aug. 14d. 12h. 57m. 52s. Epicentre 35°·5N. 141°·0E. (as on July 11d.). X.

A = −·633, B = +·512, C = +·581.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Tyosi	0·2	332	i 0 4	+ 1	0 9	+ 4	—	0·2
Nagoya	3·4	265	e 0 56	P*	1 57	S_g	—	—
Mizusawa	3·6	1	0 50	− 1	1 36	+ 4	—	—
Osaka	4·6	261	1 27	P_g	—	—	2·6	3·7
Toyooka	5·0	273	i 1 33	P_g	i 2 37	S_g	—	2·8

Additional readings :—
Mizusawa SN = +1m.44s. =S* −1s.
Toyooka ePZ = +1m.39s., ePN = +1m.47s.

Aug. 14d. Readings also at 0h. (La Paz and Tiflis), 2h. (near Mizusawa), 4h. (Koti and Tiflis), 6h. (Camerino), 9h. (near Irkutsk), 11h. (Haiwee, Mount Wilson, Pasadena, Riverside, Tinemaha, Tucson, Madison, Scoresby Sund, near Catania, Messina, Trenta, and near Tyosi), 12h. (Bombay), 13h. (Tiflis and near Tyosi), 14h. (near Tyosi), 17h. (near Osaka), 19h. (Trenta), 20h. (Wellington and near Tyosi), 23h. (Branner and near Lick (2)).

Aug. 15d. 4h. 34m. 42s. Epicentre 39°·0N. 22°·0E. (as on 1927 June 30d.). R.2.

A = +·721, B = +·291, C = +·629 ; D = +·375, E = −·927 ;
G = +·584, H = +·236, K = −·777.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Trenta	4·5	275	i 0 43	−21	i 1 31	−24	—	—
Bari	4·5	301	1 13	P*	1 56	+ 1	2·6	—
Messina	5·1	262	i 1 13	0	2 11	+ 1	2·4	—
Mostar	5·3	326	1 5	−10	2 12	− 3	—	2·9
Catania	5·5	256	1 18	0	2 16	− 4	—	3·1
Belgrade	5·9	344	1 26	+ 2	2 59	S*	—	3·7
Mineo	6·0	255	2 56	S	(2 56)	S*	—	—
Naples	6·2	290	0 20	?	1 22	P	—	2·1
Collurania	7·3	303	1 56	P*	—	—	—	—
Camerino	7·9	305	2 11	P*	3 33	+12	—	—
Zagreb	8·1	329	e 1 53	− 2	e 3 44	+18	—	5·4
Budapest	8·8	347	e 1 57	− 8	—	—	e 5·3	—
Triest	9·0	320	i 2 2	− 5	i 3 39	−10	i 5·0	5·6
Prato	9·5	304	e 2 18	+ 4	3 40	−21	—	5·0
Venice	9·6	315	e 2 14	− 2	4 23	+20	—	—
Treviso	9·8	316	i 3 16	+58	e 5 12	+64	—	6·2
Padova	9·8	314	2 31	+13	—	—	—	—
Vienna	10·0	338	e 2 20	− 1	5 43	+90	—	6·9
Yalta	10·7	55	e 2 30	− 1	e 4 16	−15	—	—
Simferopol	10·8	53	e 2 32	0	—	—	—	—
Piacenza	10·9	307	e 2 42	+ 9	—	—	—	7·3
Pavia	11·3	307	2 55	+16	—	—	—	—
Innsbruck	11·3	320	e 2 54	+15	i 4 59	+14	—	—
Theodosia	11·6	55	e 2 45	+ 2	—	—	—	—
Chur	12·1	315	e 2 47	− 3	—	—	—	—
Zurich	12·8	315	e 2 55	− 4	—	—	—	—
Cheb	13·0	331	—	—	e 5 39	+12	—	7·4
Stuttgart	13·4	321	e 3 8	+ 1	e 5 38	+ 1	e 6·7	—
Neuchatel	13·8	310	e 3 5	− 8	e 5 24	−22	—	—
Strasbourg	14·0	318	e 3 18?	+ 3	e 6 18?	+27	e 10·3	—
Potsdam	14·8	338	e 2 48	−38	(e 6 18)	+ 8	e 6·3	—
Algiers	15·0	268	e 3 29	+ 1	e 6 33	+18	8·3	—
Hamburg	16·7	335	e 3 49	− 1	e 7 14	+19	—	12·3
Paris	17·1	312	e 3 18?	−37	e 6 18?	−46	—	—
Uccle	17·1	319	e 4 9	+14	e 7 3	− 1	e 9·3	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tiflis		17·5	74	e 3 57	− 3	7 24	+11	e 9·4	—
De Bilt		17·6	324	4 1	− 1	7 24	+ 9	e 8·8	—
Lund		17·7	344	e 4 12	+ 9	—	—	—	—
Kew		19·9	316	e 4 18?	−11	—	—	—	—
Granada		20·2	273	i 4 39	+ 7	—	—	e 9·5	—
Oxford		20·6	316	e 4 33	− 3	i 8 33	+15	—	—
Upsala		21·1	354	e 4 43	+ 2	e 8 51	SS	—	—
Pulkovo		21·4	11	e 4 38	− 6	e 8 32	− 2	—	—
Edinburgh		23·7	324	e 5 18	+11	i 9 21	+ 3	—	—
Ekaterinburg		30·9	42	i 6 10	− 3	e 12 16	+58	—	—
Tashkent		35·8	71	e 6 51	− 5	e 14 23	SS	—	—
Andijan		38·2	71	e 7 15	− 2	e 13 4	− 5	—	—
Scoresby Sund		38·8	338	7 54	+32	13 43	+25	—	—

Additional readings :—
Mostar PPS = +1m.58s.
Belgrade e = +1m.48s., ePg = +1m.56s., e = +2m.3s. and +2m.13s., ePPS = +2m.38s., e = +3m.28s.
Zagreb eNW = +2m.0s., eNE = +2m.5s. and +2m.39s., iNW = +2m.58s., i = +3m.5s., e = +3m.23s., eNW = +3m.27s., iNE = +3m.58s., iNW = +4m.4s., iNE = +4m.10s., iNW = +4m.23s., iNE = +4m.30s., iNW = +4m.38s., iNE = +4m.42s., and +4m.53s., iNW = +4m.57s.
Triest PPP = +2m.50s.
Vienna PPP = +2m.50s., iN = +3m.53s., iE = +4m.21s., iN = +4m.34s., SS = +6m.4s.
Potsdam eEN = +3m.48s.
Oxford +4m.52s.
Ekaterinburg i = +6m.27s.
Long waves were recorded at Copenhagen.

Aug. 15d. 14h. 48m. 6s. Epicentre 52°·6N. 168°·7W. (as on 12d.). X.

A = −·596, B = −·119, C = +·794 ; D = −·196, E = +·981 ;
G = −·779, H = −·156, K = −·607.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Berkeley		35·1	96	—	—	e 12 27	+ 4	—	—
Tinemaha	E.	38·1	95	e 7 12	− 4	—	—	—	—
Haiwee	E.	38·8	95	e 7 22	0	—	—	—	—
Mount Wilson		40·1	97	e 7 50	+17	—	—	—	—
Pasadena	Z.	40·1	97	e 7 37	+ 4	—	—	—	—
East Machias		61·7	53	—	—	e 18 20	−18	e 30·5	—
Ekaterinburg		63·4	334	—	—	e 19 3	+ 3	29·9	—
Pulkovo		66·6	350	10 42	− 7	19 46	+ 6	43·9	46·2
Copenhagen		71·7	359	—	—	21 36	PS	47·9	—
Neuchatel		80·3	4	e 12 4	− 5	—	—	—	—
Tiflis		81·4	337	e 14 53	PP	e 22 40	+ 9	e 46·4	52·4

Additional readings :—
Tinemaha eE = +7m.24s.
Haiwee eE = +7m.32s.
Long waves were also recorded at Madison, Honolulu T.H., Scoresby Sund, Edinburgh, Kew, Stuttgart, and De Bilt.

Aug. 15d. Readings also at 0h. (Hyderabad), 2h. (near Tyosi), 5h. (near Sikka), 6h. (near Tyosi), 8h. (Edinburgh and Tananarive), 11h. (Tiflis), 19h. (Branner), 20h. (La Plata and near Santiago).

Aug. 16d. 21h. 53m. 48s. Epicentre 39°·0N. 73°·0E. (as on 1932 July 17d.). **X.**
The Central Asia stations give epicentre 39°12′N. 72°50′E.

A = +·227, B = +·743, C = +·629 ; D = +·956, E = −·292 ;
G = +·184, H = +·602, K = −·777.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Andijan		1·8	345	e 0 14	−12	—	—	0·6	0·9
Tashkent		3·7	310	e 0 50	− 3	(i 1 30)	− 5	i 1·5	2·2
Samarkand		4·7	279	e 1 30	P_g	—	—	2·6	—
Almata		5·2	33	e 1 14	0	—	—	i 2·5	2·7
Agra	E.	12·6	159	e 4 30	S	(e 4 30)	−47	—	—
Ekaterinburg		19·6	340	4 18	− 7	e 7 59	+ 1	e 10·4	10·7
Bombay		20·1	181	e 5 12?	+41	—	—	—	—
Tiflis		21·6	286	e 5 3	PP	e 8 37	− 1	e 14·5	—
Irkutsk		25·3	48	—	—	e 9 12?	−34	13·2	14·0
Pulkovo		33·8	322	e 6 40	+ 1	e 13 22	+79	15·2	19·9

Additional readings :—
Tashkent e = +1m.1s. = P* +1s.
Long waves were also recorded at other European stations.

Aug. 16d. Readings also at 1h. (Simferopol, Yalta, and Lick), 3h. (La Paz, Tiflis, and near Andijan), 4h. (Lick, La Paz, and near Wellington), 7h. (La Paz and Tiflis), 9h. (Nagoya), 10h. (near Manila), 13h. (Ekaterinburg, Pulkovo, Copenhagen, De Bilt, Strasbourg, Stuttgart, and Scoresby Sund), 17h. (Tyosi).

Aug. 17d. 8h. 46m. 58s. Epicentre 15°·5N. 91°·7W. **N.2.**

A = −·029, B = −·963, C = +·267 ; D = −1·000, E = +·030 ;
G = −·008, H = −·267, K = −·964.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Balboa Heights	13·6	117	e 3 2?	− 8	—	—	—	—
Columbia	20·9	26	—	—	e 8 43	SS	13·6	—
St. Louis	23·2	3	i 5 3	0	i 9 25	+17	—	—
Tucson	24·2	317	5 17	+ 5	e 9 50	+23	13·4	—
San Juan	24·6	79	e 5 21	+ 5	e 9 41	+ 7	e 10·7	—
Charlottesville	25·4	25	—	—	e 10 2?	+14	e 12·0	—
Georgetown	26·7	26	e 5 32	− 3	i 10 19	+ 9	e 12·0	—
Pittsburgh	27·0	20	e 5 38	0	e 10 26	+11	14·8	—
Ann Arbor	27·7	13	—	—	e 11 26	SS	e 15·3	—
Madison	27·7	4	i 5 43	− 1	e 10 23	− 4	—	20·0
Riverside	29·6	314	e 6 1	0	—	—	—	—
Fordham	29·7	28	e 6 2	0	e 10 59	0	e 14·0	—
Toronto	30·0	18	—	—	i 11 29	+25	18·8	—
Mount Wilson	30·2	316	e 6 8	+ 1	—	—	—	—
Pasadena	30·2	316	i 6 7	0	i 8 58	?	—	—
Haiwee	31·2	317	i 6 15	− 1	—	—	—	—
Tinemaha	31·9	317	e 6 23	+ 1	e 9 5	P_cP	—	—
Harvard	32·2	29	e 6 21	− 3	e 11 37	− 1	e 16·5	—
Ottawa	32·8	20	e 6 27	− 3	e 11 52	+ 4	e 19·0	—
Berkeley	35·0	315	i 6 45	− 4	e 12 34	+13	—	—
East Machias	35·8	30	e 6 52	− 4	12 37	+ 4	17·1	—
La Paz	39·6	142	e 7 28	− 1	e 13 24	− 6	18·4	21·8
Scoresby Sund	68·6	19	—	—	25 20	?	40·0	—
De Bilt	82·0	38	—	—	e 22 44	+ 7	e 39·0	—
Copenhagen	85·0	33	—	—	22 2?	−66	43·0	—
Ekaterinburg	104·1	15	—	—	e 24 34	[−11]	47·0	—

Additional readings :—
San Juan ePP = +5m.49s.
Georgetown P = +5m.47s.
Pittsburgh eSS = +12m.32s.
Ann Arbor e = +13m.8s.
Fordham e = +6m.13s. and +6m.24s.
Toronto eN = +14m.37s.
Ottawa e = +8m.2s., eE = +14m.32s. ; T_o = 8h.46m.36s.
East Machias e = +7m.5s. and +15m.15s.
Long waves were also recorded at Ukiah, Ivigtut, Tashkent, Irkutsk, Pulkovo, and several other European stations.

Aug. 17d. Readings also at 0h. (near Sumoto), 3h. (Manila and near Apia), 4h. (Copenhagen, De Bilt, Irkutsk, Pulkovo, Tiflis, near Almata, Andijan, and Tashkent), 5h. (Andijan), 6h. (Cape Town and Tiflis), 8h. (Tiflis and near Sumoto), 12h. (Tyosi), 13h. (Tiflis), 14h. (Ottawa), 15h. (Batavia, Malabar, and Medan), 18h. (Bombay, Kodaikanal, Tashkent, and Branner), 19h. (Ekaterinburg), 20h. (La Paz), 22h. (Tyosi and near Soengei Langka).

Aug. 18d. 20h. 22m. 56s. Epicentre 49°·0N. 129°·0W. (as on 1930 May 31d.). R.3.

A = −·413, B = −·510, C = +·755; D = −·777, E = +·629: G = −·475, H = −·587, K = −·656.

		△ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
Victoria		3·8	97	0 50	− 4	—	—	3·6	3·7
Sitka		8·9	337	—	—	e 4 18	S*	i 4·8	—
Ukiah		10·7	155	e 2 30	− 1	(e 4 34)	+ 3	e 4·6	—
Berkeley		12·1	154	i 2 47	− 3	i 5 10	+ 5	i 7·1	—
Tinemaha		14·3	143	e 3 18	− 1	—	—	—	—
Haiwee	E.	15·2	144	e 3 28	− 3	—	—	—	—
Santa Barbara	N.	16·1	151	e 3 49	+ 6	—	—	—	—
Pasadena		16·9	147	i 3 51	− 2	—	—	—	—
Mount Wilson		16·9	147	e 3 50	− 3	—	—	—	—
Riverside		17·3	146	e 3 44	−14	—	—	—	—
Tucson		21·5	134	e 5 2	PP	8 56	SS	e 11·6	—
Madison		27·8	87	i 5 50	+ 5	e 10 41	+13	14·9	17·1
Ottawa		35·6	75	e 4 40	−134	e 12 16	−14	e 17·1	—
Georgetown		37·9	86	e 7 16	+ 2	e 12 10	−55	e 14·1	—
East Machias		41·2	71	—	—	e 13 56	+ 2	21·5	—

Additional readings:—
Berkeley eEN = +2m.52s.
Charlottesville (△ = 37°·5) gives e = 20h.22m.42s.
Long waves were also recorded at Honolulu T.H., Bozeman, Pittsburgh, Ivigtut, Scoresby Sund, and at European stations.

Aug. 18d. Readings also at 0h. (Tyosi), 2h. (Tiflis), 3h. (near Laibach), 4h. (near Santiago and near Triest), 13h. (Andijan, Padova, and near Triest), 14h. (Edinburgh, De Bilt, Paris, Scoresby Sund, and East Machias), 16h. (near Mizusawa), 18h. (Branner, near Kobe, Osaka, and Sumoto), 19h. (near Osaka and Sumoto), 23h. (near Santiago).

Aug. 19d. 18h. A shock in Mongolia to which the Russian stations attribute the epicentre to 48°·7N. 96°·5E. The readings given are as follows:—
Irkutsk △ = 6°·1, eP = 18h.0m.35s., eL = 2m.2s., also second shock P = 0m.49s., L = 2m.22s.
Andijan △ = 18°·8, eP = 18h.13m.41s.
Tashkent △ = 20°·5, e = 18h.14m.55s., eL = 15m.24s., M = 18m.0s.
Ekaterinburg △ = 22°·9, e = 18h.5m.25s. and 9m.54s., eL_Q = 12m.24s., eL_R = 13m.54s.
Tiflis △ = 36°·4, e = 18h.11m.20s., eL = 23m., M = 28m.6s.
Pulkovo △ = 38°·5, e = 18h.10m.46s. and 16m.18s., L = 20m., M = 22m.6s.
Long waves were also recorded at Phu-Lien, Hong Kong, and at several European stations.

Aug. 19d. 18h. 7m. 40s. Epicentre 15°·5N. 91°·7W. (as on 17d.). X.

		△ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.
St. Louis		23·2	3	e 4 56	− 7	e 9 17	+ 9	—
San Juan		24·6	79	e 5 20	+ 4	(10 35)	+61	e 10·6
Georgetown		26·7	26	e 5 51	+16	i 10 9	− 1	e 12·7
La Jolla	N.	28·9	312	e 5 54	− 1	—	—	—
Riverside		29·6	314	e 6 18	+17	—	—	—
Mount Wilson	E.	30·2	316	e 6 6	− 1	—	—	e 15·2
Tinemaha		31·9	317	e 6 22	0	—	—	e 16·8
Ottawa		32·8	20	e 6 20	−10	e 11 44	− 4	e 18·3

Ottawa gives also e = +14m.20s.
Long waves were also recorded at Pittsburgh, Ekaterinburg, Tashkent, Irkutsk, and Bombay.

Aug. 19d. Readings also at 0h. (near Tiflis), 3h. (De Bilt, Paris, Uccle, Stuttgart, Strasbourg, and Kew), 4h. (Batavia and Copenhagen), 5h. (Tiflis, near Samarkand, near Sumoto, near Hastings, New Plymouth, and Wellington; for these Wellington gives the epicentre 39°·0S. 176°·5E.), 8h. (Hong Kong and near Manila), 9h. (Ekaterinburg, Tashkent, and Irkutsk), 12h. (La Paz), 13h. (Ottawa, Madison, Pittsburgh, La Jolla, Mount Wilson, Pasadena, Tinemaha, Balboa Heights, and San Juan), 14h. (Perth, Adelaide, Riverview, and Wellington), 15h. (East Machias, De Bilt, Paris, and Strasbourg), 19h. (Kucino, Ekaterinburg, and Tashkent), 21h. (Hastings and Wellington), 22h. (near Andijan).

Aug. 20d. 9h. 40m. 7s. Epicentre 37°·0N. 138°·5E. (as on 1929 Oct. 23d.). X.

A = −·599, B = +·529, C = +·602; D = +·663, E = +·749;
G = −·451, H = +·399, K = −·799.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Nagoya	2·2	214	e 0 31	0	1 13	S_g	—	—
Tyosi	2·3	304	e 0 31	− 2	i 1 3	− 4	—	—
Mizusawa	2·9	44	0 11	−30	1 11	− 3	—	—
Osaka	3·5	227	0 55	P*	(1 42)	S*	1·7	1·9

Mizusawa gives also SE = +1m.16s.

Aug. 20d. Readings also at 0h. (near Santiago), 1h. (Andijan), 2h. (Batavia, Hong Kong, Manila, Ekaterinburg, and Tashkent), 3h. (near Santiago), 6h. (Wellington and near Andijan), 7h. (Yalta (2)), 8h. (La Jolla, Pasadena, Riverside, Tinemaha, Tucson, Suva, Andijan, and near Manila), 9h. (Tinemaha, near Almeria, and near Manila), 14h. (near Nagoya, Osaka, and Tyosi), 16h. (De Bilt, Stuttgart, Granada, and San Juan), 17h. (Copenhagen, Paris, Kew, Strasbourg, Tashkent, Ekaterinburg, Ottawa, and near Malaga), 23h. (near Soengei Langka and near Sumoto).

Aug. 21d. 4h. 15m. 42s. Epicentre **24°·8N. 121°·1E.** N.1.

Probable error of epicentre ±0°·24.

A = −·469, B = +·777, C = +·419; D = +·856, E = +·517;
G = −·217, H = +·359, K = −·908.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Taihoku		0·4	58	0 19	+13	0 38	+28	—	—
Hokoto		1·9	228	0 27	− 1	0 50	+ 1	—	—
Zi-ka-wei		6·4	2	1 38	+ 7	i 2 44	+ 1	—	5·2
Hong Kong		6·8	250	1 48	+11	3 11	+18	3·6	5·4
Manila		10·2	181	i 2 11	−13	3 58	−20	—	—
Nagasaki		11·0	42	2 32	− 3	4 45	+ 7	e 5·9	8·5
Hukuoka		12·0	41	2 44	− 4	5 6	+ 3	—	7·3
Koti		13·9	48	e 3 19	+ 5	e 6 1	+12	—	—
Phu-Lien		13·9	256	e 3 23	+ 9	6 18?	+29	7·3	10·9
Sumoto		15·3	48	3 17	−15	7 9	+47	9·2	12·2
Osaka		15·6	47	3 39	+ 3	6 32	+ 3	10·0	10·1
Kobe		15·7	48	e 3 38	0	e 7 18	+47	—	9·6
Chiufeng		15·9	346	i 3 51	+11	i 7 14	+38	i 8·9	11·4
Toyooka		16·0	45	i 3 50	+ 9	i 6 29	− 9	i 8·6	14·7
Nagoya		17·2	49	4 1	+ 4	—	—	10·4	—
Mizusawa	E.	22·1	45	4 51	− 1	8 53	+ 5	11·1	—
	N.	22·1	45	5 0	+ 8	8 42	− 6	10·7	—
Ootomari		27·9	33	e 6 51	+65	—	—	e 12·1	—
Calcutta		30·0	273	5 54	−11	11 12	+ 8	15·7	—
Medan		30·2	231	i 6 10	+ 3	i 10 54	−13	—	—
Irkutsk		30·3	340	6 12	+ 4	e 11 10	+ 1	16·3	20·2
Batavia		34·0	206	i 6 37	− 3	i 10 49	−77	22·5	—
Agra	E.	38·6	283	e 7 29	+ 9	—	—	—	—
Hyderabad		40·3	268	9 36	+121	15 50	+129	21·8	26·1
Andijan		43·3	304	e 7 0	−59	—	—	e 23·9	—
Colombo		43·3	253	17 58	SS	—	—	—	25·9

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Kodaikanal	43·9	260	8 7	+ 3	13 46	−48	26·0	—
Bombay	44·6	273	8 21	+11	15 9	+25	23·2	27·4
Tashkent	45·7	305	e 8 36	+18	e 15 21	+21	e 24·3	30·9
Ekaterinburg	53·4	324	i 9 20	+ 3	i 16 57	+10	33·0	35·1
Perth	56·9	185	17 18	S	(17 18)	−17	—	—
Adelaide	62·0	165	—	—	e 18 24	−18	e 31·3	37·8
Tiflis	64·0	307	i 10 36	+ 4	19 34	+27	e 36·3	43·8
Riverview	65·2	153	e 10 36	− 4	i 19 2	−20	e 32·9	36·8
Sydney	65·2	153	—	—	e 31 42	?	37·5	39·9
Kucino	66·0	323	10 52	+ 7	19 46	+14	e 29·7	42·9
Melbourne	66·5	159	—	—	19 18	−21	32·4	36·5
Pulkovo	69·2	328	i 11 3	− 3	20 11	0	39·3	44·7
Theodosia	69·8	312	e 11 13	+ 4	e 20 29	+10	40·3	—
Suva	70·3	122	—	—	20 18?	− 7	—	—
Simferopol	70·7	312	e 11 15	0	—	—	—	—
Yalta	70·8	311	e 11 27	+11	—	—	—	—
Helsingfors	71·6	330	e 11 20	0	e 21 14?	PS	e 40·3	—
Honolulu T.H.	73·5	74	e 11 51	+19	20 50	−13	e 34·0	—
Upsala	75·2	331	—	—	e 21 14	− 8	e 40·3	49·0
Königsberg	75·8	325	—	—	e 30 12	?	e 40·7	48·3
Sitka	76·3	33	—	—	i 21 26	− 9	e 42·4	—
Helwan	77·8	298	e 11 58	+ 1	21 59	+ 7	—	54·3
Copenhagen	79·4	328	12 5	0	22 16	+ 7	38·3	—
Budapest	79·8	318	12 20	+13	22 16	+ 2	e 44·3	50·3
Potsdam	80·8	325	e 12 18?	+ 6	e 22 18?	− 6	e 44·3	52·3
Vienna	80·8	320	e 12 13	+ 1	22 35	+11	e 42·3	58·3
Scoresby Sund	81·2	349	12 12	− 2	22 36	+ 8	44·3	—
Hamburg	81·8	326	e 12 18	+ 1	e 22 38	+ 3	e 42·3	52·3
Zagreb	82·2	317	e 12 22	+ 3	e 22 36	− 3	—	47·3
Jena	82·3	323	e 12 48	+28	e 22 40	0	e 41·3	53·8
Wellington	82·6	143	—	—	e 33 18?	?	43·3	48·3
Göttingen	82·9	325	e 12 24	+ 1	—	—	e 42·3	53·8
Triest	83·7	318	12 28	+ 1	22 46	− 8	e 43·4	51·4
Stuttgart	84·8	322	e 12 33	+ 1	e 22 30	−36	e 45·3	55·6
De Bilt	85·0	327	12 34	+ 1	—	—	e 41·3	55·1
Trenta	85·1	311	e 12 5	−29	—	—	—	—
Strasbourg	85·6	323	i 12 32	− 4	e 23 10	− 4	e 36·3	56·3
Zurich	85·9	322	e 13 38	0	e 22 17	−60	—	—
Uccle	86·1	326	12 40	+ 1	e 23 8	−10	42·3	55·9
Piacenza	86·5	319	12 42	+ 1	22 58	[−12]	—	58·6
Edinburgh	86·5	332	e 16 33	PP	e 23 6	[− 4]	e 33·3	56·7
Durham	86·6	331	—	—	23 22	− 1	—	57·3
Neuchatel	86·9	322	e 13 42	+59	e 23 27	+ 1	—	—
Kew	88·0	328	i 12 49	+ 1	e 23 17	[− 3]	e 42·3	56·6
Bidston	88·1	331	i 12 38	−10	23 26	[+ 5]	47·8	58·9
Paris	88·3	325	e 12 49	0	—	—	49·3	55·3
Oxford	88·4	328	—	—	e 23 11	[−12]	e 40·3	57·4
Ivigtut	93·6	355	—	—	23 36	[−17]	44·3	—
Berkeley E.	93·7	45	—	—	e 23 18?	[−36]	—	—
Algiers	95·2	314	—	—	e 21 50	?	53·3	—
Alicante	96·6	318	—	—	e 23 54	[−15]	e 54·0	—
Toledo	97·6	320	e 13 50	+18	e 24 9	[− 5]	e 41·2	64·4
Granada	99·1	318	e 13 33	− 6	e 23 11	?	39·4	66·6
Malaga	99·9	318	—	—	e 24 16	[− 9]	e 40·4	66·7
Madison	106·6	22	—	—	e 28 10	PS	48·3	57·3
Ottawa	108·2	12	e 18 54	PP	e 25 0	[− 5]	e 48·3	—
East Machias	110·1	6	e 19 3	PP	e 28 28	PS	e 47·8	—
Pittsburgh	111·9	16	e 19 24	PP	e 26 46	{+26}	e 50·3	—
Fordham	112·9	12	—	—	e 27 18	?	e 45·3	—
Georgetown	114·1	14	e 19 0	[+30]	e 25 36	[+ 6]	e 31·3	—
San Juan	136·8	9	e 21 50	PP	—	—	e 60·6	—
La Paz	168·0	48	e 20 3	[+ 1]	e 86 47	L	98·3	107·1

For Notes see next page.

NOTES TO AUG. 21d. 4h. 15m. 42s.

Additional readings :—
Zi-ka-wei iN = +1m.57s. = P_g −5s., iZ = +2m.8s. and +2m.20s., iN = +2m.29s., iZ = +2m.32s., iN = +2m.39s., SE = +3m.20s., iN = +4m.2s. and +4m.44s., iE = +5m.2s.
Hong Kong PP = +1m.53s. = P* +0s.
Sumoto ePZ = +3m.26s.
Osaka i = +4m.21s.
Kobe eSE = +7m.29s.
Chiufeng iPPZ = +4m.5s.
Toyooka iSEZ = +7m.30s.
Batavia i = +7m.41s. = PP −7s.
Tiflis e = +13m.2s. = PP +17s., PS = +19m.56s., eSS = +25m.10s. = SSS −29s.
Riverview eZ = +10m.39s., i = +19m.28s. = PS −5s.
Helsingfors eZ = +14m.49s., eEN = +21m.22s., eE = +25m.2s. = SS −4s. and +29m.12s. = SSSS −17s.
Upsala e = +30m.34s. = SSSS −16s.
Potsdam eEN = +15m.18s.? = PP +7s., eN = +41m.18s.?
Vienna i = +23m.55s.
Scoresby Sund +19m.18s.? and +28m.18s.?
Triest SKS = +22m.54s., i = +22m.59s., ePS = +23m.37s., i = +25m.21s.
Stuttgart ePP = +15m.53s.
De Bilt PP = +15m.58s.
Strasbourg ePP = +15m.53s., eSKS = +22m.36s.
Kew ePP = +16m.20s.
Algiers eS? = +22m.0s.
Granada PP = +16m.53s., SS = +27m.55s.
Ottawa eE = +26m.6s. = SKKS +12s., e = +28m.6s. = PS −4s., eN = +36m.0s.
Fordham eZ = +32m.5s.
Georgetown e = +21m.54s. = PPP +8s., eSS = +29m.0s. = PS −7s.
San Juan ePP = +22m.25s., eSS = +41m.18s.
Long waves were also recorded at Rio de Janeiro and other American and European stations.

Aug. 21d. Readings also at 0h. (near Soengei Langka), 1h. (Paris), 3h. (Nanking), 8h. (Batavia and Tiflis), 9h. (Tyosi, near Nagoya (2), and near Manila), 12h. (Hong Kong, Manila, Ekaterinburg, Irkutsk, and Tashkent), 13h. (Kodaikanal, De Bilt, Stuttgart, and near Santiago), 14h. (Lick), 16h. (near Manila), 18h. (Ekaterinburg, Calcutta, Phu-Lien, and Hong Kong), 19h. (Irkutsk and Medan), 23h. (near Andijan).

Aug. 22d. 11h. 12m. 44s. Epicentre 35°·3N. 121°·3E. N.1.

Probable error of epicentre ±0°·23. (given by Tokyo).

A = −·424, B = +·697, C = +·578 ; D = +·854, E = +·520 ;
G = −·300, H = +·494, K = −·816.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Dairen		3·6	3	0 42	− 9	1 33	+ 1	—	—
Nanking		3·9	214	e 1 42	S	(e 1 42)	+ 2	—	—
Zi-ka-wei	N.	4·1	179	e 1 7	P*	—	—	—	—
Zinsen		4·7	60	0 57	−10	2 3	+ 3	—	—
Taikyu		6·0	83	1 17	− 8	2 30	− 3	—	—
Chiufeng	E.	6·3	321	(e 1 25)	− 5	(2 36)	− 5	(i 3·2)	(4·4)
Nagasaki		7·5	107	e 1 47	+ 1	3 21	+10	3·8	4·3
Hukuoka		7·7	100	e 2 5	P*	3 37	S*	—	4·2
	B.	7·7	100	1 53	+ 4	3 25	+ 9	—	—
Miyazaki		9·1	109	2 15	+ 6	4 16	S*	—	—
Matuyama		9·5	96	i 2 15	+ 1	4 55	S*	—	5·3
Koti		10·2	96	e 4 17	S	(e 4 17)	− 1	—	7·2
Toyooka		11·0	95	i 2 32	− 3	—	—	e 8·2	9·2
Sumoto	E.	11·2	91	e 2 39	+ 2	5 40	S*	—	6·2
	N.	11·2	91	e 2 43	+ 6	5 42	S*	—	6·9
Kobe		11·3	89	e 2 36	− 3	e 5 9	+24	—	7·7
Osaka		11·7	89	2 43	− 1	—	—	5·1	8·5
Kyoto		11·8	87	2 43	− 3	5 55	S*	—	—
Nagoya		12·8	86	2 54	− 5	7 36	+134	—	—
Hong Kong		14·4	208	3 28	+ 7	6 38	+37	7·8	8·8

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Mito		15·6	80	3 32	− 4	7 30	+61	—	—
Mizusawa	E.	16·2	70	3 42	− 2	9 4	L	11·9	—
	N.	16·2	70	3 45	+ 1	8 54	L	12·0	—
Phu-Lien		19·4	226	e 4 33	+10	8 16?	+22	10·3	11·8
Manila		20·7	181	4 50	+13	8 50	+30	11·0	—
Irkutsk		20·8	330	i 4 37	− 1	8 24	+ 2	10·3	13·3
Calcutta		31·3	255	8 9	?	14 14	?	20·7	—
Andijan		38·4	293	e 7 36	+18	—	—	—	—
Hyderabad		41·9	256	7 57	+ 9	14 18	+13	21·2	28·3
Batavia		43·7	201	e 8 3	+ 1	i 14 44	+13	25·6	—
Ekaterinburg		45·3	318	i 8 14	− 1	i 14 56	+ 1	26·5	29·1
Bombay		45·7	262	e 8 34	+16	15 11	+11	23·4	30·8
Kodaikanal		47·0	250	15 31	S	(15 31)	+12	—	—
Baku		55·1	298	e 9 41	+11	17 23	+12	27·3	31·8
Kucino		57·9	319	—	—	17 46	− 2	e 27·4	32·2
Tiflis		58·2	302	9 53	+ 1	18 1?	+ 9	e 32·3?	38·2?
Pulkovo		60·5	325	10 7	− 1	18 19	− 4	27·3	37·2
Theodosia		63·3	308	e 10 31	+ 4	—	—	e 35·3	—
Simferopol		64·1	309	e 10 33	0	—	—	—	—
Yalta		64·2	308	e 10 33	− 1	—	—	—	—
Copenhagen		70·8	326	11 12	− 4	20 23	− 8	37·3	—
Scoresby Sund		71·0	349	11 10	− 7	20 30	− 3	41·3	—
Vienna		73·0	318	11 30	+ 1	20 48	− 9	i 29·3	41·0
Hamburg		73·2	325	—	—	e 21 2	+ 3	e 39·3	41·3
Helwan		73·3	295	—	—	e 20 57	− 3	—	—
Cheb		74·2	320	—	—	e 30 0	?	e 34·8	37·3
Zagreb		74·7	316	e 11 45	+ 6	—	—	—	41·3
Triest		76·0	316	11 46	0	e 21 26	− 6	e 38·8	40·9
De Bilt		76·4	326	—	—	e 21 33	− 3	e 40·3	44·6
Stuttgart		76·6	321	e 11 46	− 3	—	—	e 38·3	50·0
Edinburgh		77·3	332	—	—	e 21 46	0	e 41·3	51·3
Strasbourg		77·5	322	e 11 48	− 7	e 21 43	− 5	e 37·3	—
Uccle		77·6	325	11 54	− 1	e 21 45	− 4	e 39·3	—
Prato		78·6	316	e 21 51	S	(e 21 51)	− 9	41·9	—
Piacenza		78·7	319	e 12 31	+30	—	—	—	46·3
Neuchatel		78·8	321	e 11 59	− 2	—	—	—	—
Kew		79·3	327	e 12 3	− 1	—	—	e 41·3	51·6
Oxford		79·5	328	—	—	e 21 59	−11	e 43·4	47·2
Paris		79·8	324	e 12 16?	+ 9	—	—	42·3	51·3
Alicante		88·8	318	—	—	28 43	?	e 48·2	—
Tinemaha	N.	88·9	44	e 12 53	+ 1	—	—	—	—
Toledo		89·5	321	—	—	e 29 43	SS	e 45·3	51·4
Haiwee	E.	89·7	44	e 12 59	+ 3	—	—	—	—
Pasadena	Z.	91·1	45	i 12 59	− 4	—	—	—	—
Madison		96·8	22	—	—	e 24 42	−16	45·3	54·3
Ottawa		97·8	12	—	—	e 24 4	[−11]	e 46·3	—

Additional readings and note :—
Nanking SZ = +2m.55s.
Zi-ka-wei iE = +3m.25s., i = +3m.42s., +3m.49s., +3m.52s., +3m.58s., +4m.10s., +4m.32s., +5m.1s., +5m.37s., and +6m.16s.
Chiufeng iP = +1m.41s.; readings have been *increased* by 8m.
Koti eS = +4m.58s. = S* − 3s. and +5m.14s.
Toyooka iE = 11h.11m.24s., iZ = 11h.12m.16s., iZ = +2m.46s., iN = +5m.52s. = S_s − 6s., iE = +6m.19s.
Kobe ePEN = +2m.39s., iE = +2m.58s., SN = +5m.43s.
Kucino e = +19m.33s. = S_cS − 4s. and +21m.42s. = SS + 7s., SSS = +24m.4s. = SSSS + 6s.
Scoresby Sund +15m.28s. = PP + 7s. and +24m.52s. = SS − 6s.
Vienna i = +23m.9s. and +32m.3s.
Cheb e = +32m.34s.
Triest ePS = +21m.56s.
Prato S = +31m.7s.
Ottawa eE = +25m.52s.
Long waves were also recorded at Taihoku, Medan, Ivigtut, and other American and European stations.

Aug. 22d. 11h. 23m. 44s. Epicentre 35°·0N. 137°·2E. (as on 1931 Dec. 23d.). X.

A = −·601, B = +·557, C = +·574.

	Δ	P.	O−C.	S.	O−C.	L.	M.
	°	m. s.	s.	m. s.	s.	m.	m.
Nagoya	0·3	e 0 1	− 3	0 3	− 5	—	0·1
Osaka	1·4	i 0 20	0	—	—	0·7	0·8
Kobe	1·7	e 0 29	+ 5	0 46	+ 2	—	0·8
Toyooka	2·0	i 0 29	0	i 0 51	0	—	0·9

No additional readings.

Aug. 22d. Readings also at 3h. (Nagoya and near Tyosi), 6h. (near Sumoto), 10h. (Sitka), 11h. (Almeria and near Hokoto), 16h. (Wellington), 18h. (Andijan and Tiflis), 23h. (Andijan).

Aug. 23d. Readings at 6h. (near Nagasaki), 8h. (Andijan, Ekaterinburg, Tashkent, Mount Wilson, Pasadena, Riverside, Tinemaha, near Glenmuick, New Plymouth, and Wellington, 40°·5S. 171°·5E.), 10h. (near Berkeley), 12h. (Edinburgh and near Balboa Heights), 15h. (Nagasaki, near Hukuoka, Matuyama, and near La Paz), 19h. (Andijan, Ekaterinburg, and Tashkent), 20h. (Camerino and Kucino), 22h. (Tyosi), 23h. (Ekaterinburg, Irkutsk, Tashkent, and Bombay).

Aug. 24d. 3h. 40m. 31s. Epicentre 19°·1N. 104°·5W. (as on 1932 June 22d.). R.3.

A = −·237, B = −·915, C = +·327; D = −·968, E = +·250;
G = −·082, H = −·317, K = −·945.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tucson		14·4	338	i 3 22	+ 1	—	—	7·7	—
La Jolla	N.	17·9	323	i 4 4	− 1	—	—	—	—
Riverside		18·8	325	e 4 6	−10	e 8 10	+28	—	—
Mount Wilson		19·3	324	e 4 22	0	e 8 20	+28	—	—
Pasadena		19·3	324	e 3 53	−29	e 9 59	+127	—	—
Haiwee	E.	20·8	328	e 4 38	0	e 8 48	+26	—	—
Tinemaha		21·6	329	e 4 46	0	—	—	e 10·2	—
St. Louis		23·2	29	e 5 1	− 2	e 9 26	+18	e 13·2	—
Chicago		26·8	29	—	—	e 10 27	+15	i 14·9	—
Madison		27·2	25	—	—	e 10 27	+ 9	—	16·5
Georgetown		30·9	44	e 11 23	S	(e 11 23)	+ 5	e 17·0	—
Ottawa		35·5	35	—	—	e 12 37	+ 8	19·5	—
Harvard		36·6	43	—	—	e 17 9	(−13)	20·5	—
La Paz		50·5	132	e 8 54	− 1	—	—	26·8	30·3
De Bilt		86·5	35	—	—	e 23 29?	+ 7	e 44·5	—

Additional readings:—
Tucson ePP = +3m.35s.
St. Louis eSSEN = +12m.45s.
Georgetown iS = +14m.44s.
Long waves were also recorded at Honolulu T.H., Scoresby Sund, and other American, European, and Russian stations.

Aug. 24d. 12h. 10m. 36s. Epicentre 16°·3N. 120°·6E. (as on 1931 May 6). R.2.

A = −·489, B = +·826, C = +·281 ; D = +·861, E = +·509 ; G = −·143, H = +·242, K = −·960.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Manila		1·8	168	i 0 31	+ 5	0 56	S_g	—	—
Kosyun		5·7	2	1 39	P*	2 28	+ 3	—	—
Hong Kong		8·5	316	1 56	− 4	3 28	− 8	3·8	6·9
Phu-Lien		14·0	291	e 3 16	+ 1	—	—	7·4	—
Palau		16·2	122	3 56	+12	7 3	+20	—	—
Nagasaki		18·4	25	e 4 14	+ 3	—	—	—	—
Miyazaki		18·5	30	4 12	− 1	7 39	+ 3	—	—
Koti		20·8	32	i 4 40	+ 2	e 8 34	+12	—	—
Sumoto	N.	22·1	33	e 4 46	− 6	e 8 53	+ 5	—	—
Kobe	N.	22·5	33	e 5 1	+ 5	—	—	—	—
Osaka		22·7	33	4 26	−32	9 43	SS	—	—
Nagoya		23·8	35	(e 5 11)	+ 3	e 5 11	P	—	—
Gihu		23·9	34	5 11	+ 2	9 32	+11	—	—
Chiufeng		24·0	352	(e 5 9)	− 1	(i 9 33)	+10	(e 13·9)	—
Medan		24·9	242	e 5 32	+13	—	—	15·4	—
Batavia		26·3	212	e 5 46	+14	i 10 26	+23	—	—
Mizusawa	E.	29·0	34	(6 0)	+ 4	6 0	P	—	—
Calcutta		31·0	286	8 47	+153	14 32	L	19·5	—
Irkutsk		38·0	345	e 7 18	+ 3	e 13 11	+ 5	15·4	—
Kodaikanal		42·3	268	7 52	+ 1	—	—	—	—
Bombay		45·5	282	8 17	0	—	—	—	—
Tashkent		50·5	312	e 7 57	−58	i 15 9	−59	e 21·4	28·3
Sydney		58·0	150	e 17 30	S	(e 17 30)	−19	28·9	30·5
Ekaterinburg		60·1	327	i 10 5	0	18 17	0	e 26·6	38·0
Baku		65·0	310	e 10 45	+ 6	19 26	+ 6	32·4	39·7
Tiflis		68·8	310	i 10 33?	−30	19 42?	−25	e 38·9?	—
Kucino		72·5	325	—	—	20 46	− 5	33·4	41·1
Theodosia		75·2	314	e 11 42	+ 1	—	—	—	—
Pulkovo		76·1	330	11 47	0	21 25	− 8	38·4	46·1
Simferopol		76·1	314	e 11 46	− 1	—	—	—	—
Yalta		76·1	313	e 11 46	− 1	21 25	− 8	—	—
Copenhagen		86·3	328	12 42	+ 2	23 14	− 6	43·4	—
Vienna		87·0	321	i 12 40	− 3	—	—	—	56·4
Potsdam		87·4	325	e 10 6	?	i 23 23?	− 8	e 43·4	49·4
Zagreb		88·1	318	e 12 42	− 6	e 23 12	[− 9]	e 47·9	—
Hamburg		88·6	326	—	—	e 23 24?	[0]	e 44·4	50·4
Scoresby Sund		89·4	349	—	—	23 38	[+ 9]	43·4	—
Stuttgart		91·2	323	e 13 6	+ 3	e 24 0	− 7	e 47·4	—
De Bilt		91·8	326	e 21 24?	?	—	—	e 45·4	52·4
Strasbourg		92·1	324	—	—	e 23 24?	[−21]	e 47·4	—
Edinburgh		93·8	333	e 20 54	?	—	—	e 48·4	—
Paris		94·9	324	e 13 24?	+ 4	—	—	50·4	54·4

Additional readings and notes :—
Manila gives epicentre 16°25′N. 120°30′E.
Sumoto ePEZ = +4m.51s.
Kobe eN = +5m.57s.
Osaka i = +5m.7s. and +6m.47s.
Chiufeng readings have been *increased* by 8m.
Tashkent e = +8m.8s., i = +11m.13s.
Kucino e = +24m.24s., eSSS = +29m.12s.
Potsdam eEZ = +22m.54s.
Long waves were also recorded at Ottawa, Ivigtut, and at other European stations.

Aug. 24d. Readings also at 1h. (near Mizusawa), 2h. (Andijan), 3h. (near Tiflis), 4h. (Madison, Haiwee, Mount Wilson, Pasadena, Tinemaha, Riverside, La Jolla, and near Mizusawa), 5h. (La Paz, Alicante, near Granada, and Malaga), 6h. (Edinburgh), 9h. (Edinburgh, Berkeley, near Branner, Lick, and San Francisco), 13h. (Koti, near Hukuoka (2), Matuyama, and Nagasaki), 14h. (Andijan, Tashkent, Ekaterinburg, Irkutsk, Pulkovo, Edinburgh, Haiwee, Tinemaha, Mount Wilson, Pasadena, and near Mizusawa), 15h. (Copenhagen and Pulkovo), 16h. (Tashkent and near Manila), 17h. (Branner), 19h. (near Balboa Heights), 23h. (New Plymouth and near Trenta).

Aug. 25d. 8h. 5m. 54s. Epicentre 19°·8N. 107°·0W. (as on 1925 Nov. 16d.). R.2.

A = −·275, B = −·900, C = +·339; D = −·956, E = +·292;
G = −·099, H = −·324, K = −·941.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tucson		12·9	345	3 4	+ 3	e 5 36	+11	e 6·2	—
La Jolla	N.	16·0	327	e 3 40	− 1	—	—	—	—
Riverside		16·9	329	e 3 52	− 1	—	—	—	—
Pasadena		17·4	328	i 3 58	− 1	—	—	e 9·4	—
Mount Wilson		17·4	328	e 4 0	+ 1	—	—	—	—
Haiwee	E.	19·0	332	e 4 22	+ 3	—	—	e 11·4	—
Berkeley		22·4	327	e 4 53	− 2	e 9 12	+19	—	—
Ukiah		23·8	328	—	—	e 9 36	+17	e 13·6	—
St. Louis		23·8	34	e 5 14	+ 6	e 9 36	+17	i 13·2	15·6
Bozeman		26·1	353	—	—	e 10 18	+18	e 14·3	—
Columbia		27·0	53	—	—	e 10 30	+15	e 16·0	—
Chicago		27·4	32	—	—	e 10 33	+11	13·9	—
Madison		27·6	28	e 6 0	+16	e 10 29	+ 4	13·1	15·1
Ann Arbor		29·9	36	—	—	e 13 18	?	e 16·5	—
Pittsburgh		31·0	42	—	—	e 11 24	+ 4	e 13·2	—
Georgetown		32·1	47	e 6 24	0	i 11 45	+ 8	e 15·7	—
Toronto	N.	33·1	38	—	—	i 11 54	+ 2	i 15·1	—
Fordham		35·2	46	e 7 47	PP	e 12 23	− 1	e 16·2	20·1
Ottawa		36·3	39	e 7 31	+31	e 12 48	+ 7	e 18·1	—
Harvard		37·7	45	e 8 29	PP	e 13 1	− 1	e 19·1	—
San Juan		38·5	85	—	—	e 13 12	− 2	e 17·1	—
East Machias		41·1	43	—	—	e 13 59	+ 6	e 17·2	—
Sitka		42·7	339	—	—	e 14 30	+14	e 24·5	—
Huancayo		44·6	133	—	—	e 14 34	−10	e 19·3	—
La Paz	N.	52·7	131	e 9 10	− 2	e 16 43	+ 5	24·1	27·8
Scoresby Sund		69·8	22	—	—	20 18	− 1	32·1	—
Edinburgh		81·1	35	—	—	e 31 6?	?	—	—
Kew		84·5	37	—	—	e 34 6?	?	—	—
De Bilt		87·2	35	e 21 6?	?	—	—	e 38·1	—
Paris		87·3	39	—	—	e 23 6?	−24	45·1	—
Strasbourg		90·4	38	(e 20 6?)	?	—	—	e 20·1	—
Stuttgart		91·1	38	e 21 6?	?	—	—	e 44·1	—
Pulkovo		93·0	20	e 12 12	−59	e 25 20	PS	38·1	51·4
Ekaterinburg		102·6	7	—	—	e 33 1	?	42·1	—
Tashkent		118·8	3	—	—	e 48 6?	?	e 63·1	74·7

Additional readings:—
Tucson e = +5m.53s.
Pasadena eZ = +4m.20s.
Berkeley eE = +5m.17s. = PP +2s.
St. Louis eSSEN = +10m.42s.
Chicago e = +12m.33s.
Ann Arbor eE = +14m.36s., eN = +16m.18s.
Georgetown ePPEN = +7m.18s., eSS = +13m.54s.; T_o = 8h.6m.0s.
Fordham e = +15m.19s.
Ottawa eN = +15m.30s.
La Paz PPN = +11m.7s.
Long waves were also recorded at Honolulu T.H., Charlottesville, Ivigtut, Kucino, and Baku.

Aug. 25d. Readings also at 2h. (near Sumoto), 6h. (Medan), 7h. (Irkutsk), 8h. (Tashkent, Huancayo, and La Paz (2)), 10h. (near Mizusawa), 15h. (La Paz), 21h. (near Sumoto), 22h. (Baku, Ekaterinburg, and Andijan), 23h. (Kucino).

Aug. 26d. 13h. 52m. 51s. Epicentre 30°·5N. 129°·0E. (as on 1928 Oct. 20d.). X.

$A = -\cdot542$, $B = +\cdot670$, $C = +\cdot508$; $D = +\cdot777$, $E = +\cdot629$; $G = -\cdot319$, $H = +\cdot394$, $K = -\cdot862$.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Nagasaki	2·3	18	0 34	+ 1	1 11	S_g	—	—
Hukuoka	3·3	21	0 47	0	1 18	− 7	—	1·4
Matuyama	4·6	42	e 0 51	−15	—	—	—	—
Sumoto	6·3	51	e 1 51	P*	2 37	− 4	—	2·9
Osaka	6·8	51	2 1	P*	(2 56)	+ 3	2·9	3·4

No additional readings.

Aug. 26d. Readings also at 0h. (Tiflis, Sucre, and near La Paz), 1h. (La Paz), 5h. (Mizusawa), 7h. (Wellington), 10h. (Baku, Ekaterinburg, Tiflis, near Mizusawa, and near Apia), 13h. (Adelaide, Melbourne, Riverview, and Wellington), 14h. (Ekaterinburg, Irkutsk, and Granada), 15h. (Stuttgart), 16h. (near Mizusawa), 20h. (Branner), 23h. (near Balboa Heights).

Aug. 27d. Readings at 2h. (Hastings and Lick), 3h. (Berkeley, Branner, Lick, and near Mizusawa), 5h. (near Andijan), 7h. (La Paz), 10h. (Hastings), 11h. (Tyosi), 12h. (near Santiago), 14h. (La Paz, near Apia, and near Nagoya), 15h. (near Santiago (2)), 18h. (near Christchurch and Glenmuick), 19h. (Almata), 20h. (near Mizusawa), 21h. (Strasbourg).

Aug. 28d. Readings at 0h. (Andijan), 2h. (near Wellington), 3h. (near Apia (2)), 4h. (La Paz), 6h. (Berkeley and Branner), 8h. (near Balboa Heights and near Mizusawa), 9h. (Yalta), 11h. (Ivigtut, Stuttgart, Uccle, De Bilt, Durham, Oxford, Kew, Edinburgh, Paris, Strasbourg, Copenhagen, Lund, Pulkovo, Kucino, Ekaterinburg, and near Andijan), 12h. (Granada), 13h. (Balboa Heights and Tiflis (2)), 14h. (Ksara and Tiflis), 18h. (Baku, Ekaterinburg, and Tiflis (2)), 23h. (near Andijan).

Aug. 29d. Readings at 2h. (Tyosi and near Mizusawa), 4h. (near Andijan and near Mizusawa), 5h. (Sucre, near La Paz, and near Tyosi), 7h. (Mizusawa), 8h. (Hong Kong and near Manila), 10h. (Almeria, Tiflis, Batavia, Manila, and Medan (2)), 12h. (near Manila), 14h. (Branner and Lick), 16h. (Tucson), 17h. (near St. Louis), 21h. (Almeria and near Nagoya).

Aug. 30d. 16h. 18m. 50s. Epicentre 39°·5N. 157°·0E. (as on 1928 Aug. 20d.). X.

$A = -\cdot710$, $B = +\cdot301$, $C = +\cdot636$; $D = +\cdot391$, $E = +\cdot920$; $G = -\cdot586$, $H = +\cdot249$, $K = -\cdot772$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Mizusawa	E.	12·3	274	4 52	+120	5 29	+19	—	—
Nagoya		16·5	261	e 4 47	+59	7 42	+52	—	—
Ekaterinburg		60·8	322	i 10 7	− 3	—	—	26·2	—
Tashkent		63·7	304	—	—	e 28 48	?	e 30·7	31·2
Pulkovo		71·5	335	11 20	0	20 58	PS	27·2	—
Baku		76·2	312	e 11 56	+ 9	21 45	+11	35·9	—
Tiflis		78·2	316	11 3	−55	e 21 28	−28	e 28·2	—

No additional readings.

Aug. 30d. Readings also at 0h. (Trenta), 1h. (Melbourne and Riverview), 7h. (Alicante), 8h. (Baku, Ekaterinburg, and Tashkent, and La Paz), 12h. (Yalta and near Mizusawa), 13h. (Tyosi), 16h. (near Manila), 19h. (Apia, Suva, La Paz, and near Mizusawa), 20h. (Paris), 21h. (near Apia).

Aug. 31d. 7h. 34m. 35s. Epicentre 38°·1N. 1°·2W. (as on 1930 Sept. 3d.). X.

Felt at Lorca.

A = +·787, B = −·016, C = +·617.

	Δ	Az.	P.	O−C.	S.	O−C.
	°	°	m. s.	s.	m. s.	s.
Alicante	0·6	66	0 12	+ 3	0 21	+ 6
Almeria	1·5	219	0 18	− 3	0 38	− 1
Granada	2·1	244	i 0 31	+ 1	e 0 55	+ 1
Toledo	2·8	309	e 0 54	P_g	è 1 29	S_g
Malaga	2·9	242	e 0 29	−12	0 58	P_g

Additional readings :—
Toledo i = +1m.5s., +1m.10s. =S − 2s., and +1m.13s.
Malaga i = +45s. =P* − 1s.
Barcelona (Δ =4°·2) gives 7h.35m.

Aug. 31d. Readings also at 1h. (La Paz and near Tyosi), 2h. (Tiflis, Kobe, and near Sumoto), 7h. (near Mizusawa), 8h. (near Manila), 11h. (Hastings), 13h. (near Sumoto), 14h. (near Apia), 19h. (Sydney), 20h. (near Huancayo), 23h. (near Angra do Heroismo).

Sept. 1d. 1h. 53m. 34s. Epicentre 2°·0S. 137°·0E. (as on 1931 April 8d.). X.

A = −·731, B = +·682, C = −·035 ; D = +·682, E = +·731 ;
G = +·026, H = −·024, K = −·999.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Manila	23·0	317	5 1	0	9 16	+11	—	—
Hong Kong	33·0	320	—	—	11 46	− 5	—	—
Riverview	34·5	159	—	—	13 13	+59	—	19·1
Sydney	34·5	159	e 8 14	PP	—	—	17·8	18·8
Melbourne	36·5	169	—	—	e 14 40	?	i 19·0	19·8
Mizusawa	41·3	5	(7 44)	+ 1	7 44	P	—	—
Ekaterinburg	84·3	328	12 23	− 7	22 45	[− 9]	37·4	—
Baku	89·1	312	—	—	23 38	− 9	—	—
La Paz	z. 149·0	127	19 40	[0]	—	—	—	—

Additional readings :—
Riverview e = +14m.44s. and +16m.53s., iN = +17m.50s., eZ = +17m.52s., iE = +17m.55s., and +18m.19s.
Melbourne i = +15m.17s. =SS − 6s.
Long waves were also recorded at Adelaide, Kucino, Pulkovo, Copenhagen, De Bilt, and Stuttgart.

Sept. 1d. Readings also at 0h. (Lick), 1h. (La Paz), 2h. (near Apia), 6h. (near Amboina and near Wellington), 7h. (Almeria), 10h. (Tyosi, Suva, and near Apia), 11h. (near Apia and near Tchimkent), 13h. (Haiwee, Tinemaha, Mount Wilson, Pasadena, Riverside, Santa Barbara, La Jolla, Tiflis, Ekaterinburg, Tashkent, Simferopol, and Yalta), 15h. (Apia, Tchimkent, and near Andijan), 17h. (Hastings and near Mizusawa), 21h. (Mizusawa), 23h. (Andijan).

Sept. 2d. 12h. 56m. 32s. Epicentre 23°·0N. 142°·6E. N.2.

Tokyo gives epicentre 24°·0N. 142°·0E. with no reference to abnormal focus.

A = −·731, B = +·559, C = +·391; D = +·607, E = +·794; G = −·310, H = +·237, K = −·921.

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.
Titizima		+0·1	4·1	354	0 57	− 3	1 43	− 5	—	—
Hatidyozima		−0·2	10·4	347	2 21	− 3	4 36	+18	—	—
Misima		−0·4	12·5	346	2 48	− 2	5 2	− 3	—	—
Numadu		−0·4	12·5	346	2 49	− 1	5 11	+ 6	—	—
Yokohama		−0·4	12·7	349	2 48	− 4	5 1	− 9	—	—
Tyosi		−0·4	12·8	354	2 52	− 2	(5 0)	−13	—	—
Tokyo		−0·4	12·9	349	2 52	− 3	—	—	—	—
Kameyama		−0·4	12·9	337	2 57	+ 2	3 59	−76	—	—
Wakayama		−0·4	12·9	331	2 56	+ 1	—	—	—	—
Kumagaya		−0·4	13·0	348	3 0	+ 4	5 19	+ 2	—	—
Kohu		−0·4	13·1	345	3 3	+ 5	5 25	+ 5	—	—
Nagoya		−0·4	13·1	339	e 2 57	− 1	4 48	−32	—	—
Osaka		−0·4	13·1	333	3 2	+ 4	(6 2)	+42	6·0	—
Sumoto		−0·4	13·2	331	2 59	0	5 25	+ 3	—	5·8
Kobe		−0·4	13·3	332	e 3 3	+ 2	—	—	—	—
Miyazaki		−0·4	13·3	315	3 5	+ 4	5 40	+15	—	—
Gihu		−0·4	13·4	339	3 0	− 2	5 25	− 2	—	—
Kakioka		−0·4	13·4	353	2 58	− 4	5 19	− 8	—	—
Tukubasan		−0·4	13·4	351	2 58	− 4	5 15	−12	—	—
Mito		−0·4	13·5	353	2 41	−22	5 18	−11	—	—
Maebasi		−0·4	13·7	348	3 2	− 4	5 26	− 8	—	—
Oiwake		−0·4	13·8	346	3 4	− 3	5 29	− 8	—	—
Nagano		−0·4	14·1	345	3 8	− 3	5 45	+ 1	—	—
Hukusima		−0·5	14·8	353	3 17	− 2	5 50	− 8	—	—
Sendai		−0·5	15·3	355	3 23	− 3	6 3	− 7	—	—
Mizusawa		−0·6	16·1	356	3 39	+ 4	6 26	− 1	—	—
Akita		−0·6	16·8	353	3 45	+ 1	6 57	+14	—	—
Isigakizima		−0·6	16·9	278	3 47	+ 2	6 57	+12	—	—
Sapporo		−0·8	20·1	357	4 23	+ 1	—	—	—	—
Zi-ka-wei	Z.	−0·8	20·5	298	4 25	− 1	i 8 7	+ 7	—	—
Manila		−0·9	22·1	252	4 43	+ 1	9 10	+40	—	—
Hong Kong		−1·2	26·2	274	5 52	+32	8 35	−66	9·7	10·7
Irkutsk		−1·8	41·3	325	e 7 30	+ 2	13 38	+ 9	19·5	—
Andijan		−2·4	60·6	305	e 10 4	+12	e 18 3	+11	—	—
Tashkent		−2·5	62·8	306	—	—	e 18 28	+ 8	—	46·5
Ekaterinburg		−2·5	66·5	324	i 10 35	+ 3	i 19 15	+ 8	e 32·5	—
Baku		−2·6	77·3	309	e 11 43	+ 4	e 21 24	+ 7	—	—
Tiflis		−2·7	80·4	311	11 56	0	e 21 53	+ 2	e 45·5	—
Pulkovo		−2·7	80·7	332	i 11 58	+ 1	i 21 50	− 4	—	—
Santa Barbara		−2·7	83·1	55	e 12 10	0	—	—	—	—
Tinemaha		−2·7	83·2	52	i 12 11	+ 1	e 22 17	− 4	—	—
Haiwee		−2·7	83·7	53	e 12 14	+ 1	—	—	—	—
Mount Wilson		−2·7	84·4	55	e 12 17	0	—	—	—	—
Pasadena		−2·7	84·4	55	i 12 16	− 1	—	—	—	—
Riverside	N.	−2·7	85·0	55	e 12 19	− 1	—	—	—	—
Theodosia		−2·7	85·2	317	e 12 32	+11	—	—	—	—
La Jolla		−2·7	85·7	56	e 12 25	+ 2	—	—	—	—
Simferopol		−2·7	86·0	318	e 12 25	0	—	—	—	—
Yalta		−2·7	86·2	317	12 25	− 1	22 31	−21	—	—
La Paz	N.	—	150·4	83	e 19 34	[− 8]	—	—	—	—

Additional readings and note:—
Tyosi P and S are recorded as P's of two close shocks which are followed by corresponding S's at intervals of 5s. and 7s. respectively.
Kobe eEN = +3m.7s.
Mizusawa SN = +6m.31s.
Zi-ka-wei iZ = +4m.50s., iE = +8m.11s.
Tashkent i = +24m.34s.
Tiflis ePS = +22m.45s.
Long waves were also recorded at Copenhagen.

Sept. 2d. Readings also at 1h. (Tashkent), 2h. (Baku, Ekaterinburg, Tiflis (2), Simferopol, Theodosia, Yalta, near Mizusawa, Nagoya, and Tyosi), 3h. (near Balboa Heights), 5h. (near Sumoto), 8h. (near Mizusawa (2)), 9h. (La Paz, Huancayo, near Tananarive, and near Tyosi), 12h. (La Paz and near Tyosi), 16h. (Tyosi), 17h. (Trenta and near Triest), 18h. (Adelaide, Melbourne, Riverview, Nagoya, Tyosi, and near Mizusawa), 20h. (Melbourne (2)), 21h. (near Santiago).

Sept. 3d. 11h. 58m. 58s. Epicentre 41°·0N. 143°·1E. R.1.

(as on 1929 Aug. 28d. and as given by Tokyo).

Probable error of epicentre ±0°·23.

A = −·604, B = +·453, C = +·656; D = +·600, E = +·800;
G = −·524, H = +·394, K = −·755.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Urakawa	1·2	349	0 23	+ 6	0 38	+ 7	—	—
Miyako	1·6	212	0 22	− 1	0 42	+ 1	—	—
Aomori	1·8	264	0 28	+ 2	0 50	+ 4	—	—
Hakodate	2·0	293	0 34	+ 5	1 4	S_g	—	—
Morioka	2·0	229	0 31	+ 2	0 57	+ 6	—	—
Muroran	2·1	310	0 35	+ 5	1 0	+ 6	—	—
Kusiro	2·2	26	0 30	− 1	0 53	− 4	—	—
Sapporo	2·4	319	0 37	+ 3	1 14	S_g	—	—
Mizusawa	2·5	219	0 58	+22	1 14	S*	—	—
Akita	2·7	240	0 40	+ 1	1 17	+ 8	—	—
Asahigawa	2·8	349	0 43	+ 3	1 16	+ 4	—	—
Nemuro	3·0	38	0 42	− 1	1 9	− 8	—	—
Sendai	3·2	212	0 49	+ 3	1 42	S_g	—	—
Yamagata	3·5	219	0 49	− 1	1 49	S_g	—	—
Hukusima	3·8	214	0 56	+ 2	1 43	+ 6	—	—
Onahama	4·4	204	1 0	− 3	2 19	S_g	—	—
Mito	5·1	205	1 9	− 4	1 37	P_g	—	—
Kakioka	5·3	207	1 14	− 1	2 36	S*	—	—
Tyosi	5·6	199	1 19	− 1	2 21	− 2	—	4·3
Maebasi	5·6	216	1 22	+ 2	2 45	S*	—	—
Kumagaya	5·7	212	1 22	+ 1	2 38	+13	—	—
Nagano	5·8	224	1 25	+ 3	3 5	S_g	—	—
Oiwake	5·8	219	1 26	+ 4	2 50	S*	—	—
Tokyo	6·0	207	1 24	− 1	2 41	+ 8	—	—
Wazima	6·0	236	1 28	+ 3	2 31	− 2	—	—
Yokohama	6·2	211	1 28	0	2 39	+ 1	—	—
Kohu	6·4	216	1 32	+ 1	3 13	S*	—	—
Mera	6·6	204	1 34	0	3 14	S*	—	—
Misima	6·7	211	1 35	0	3 14	S*	—	—
Numadu	6·8	211	1 36	− 1	2 44	− 9	—	—
Gihu	7·5	224	1 48	+ 2	3 36	S*	—	—
Hamamatu	7·6	216	1 50	+ 2	3 30	+16	—	—
Nagoya	7·6	222	i 1 48	0	e 3 35	+21	—	4·4
Hikone	7·9	225	1 52	0	3 46	+25	—	—
Kameyama	8·1	223	1 55	0	3 41	+15	—	—
Sikka	8·2	0	4 5	S*	—	—	—	7·1
Hatidyozima	8·3	199	1 55	− 3	3 24	− 7	—	—
Kyoto	8·4	227	2 0	+ 1	4 2	S*	—	—
Toyooka	8·5	233	i 2 2	+ 2	i 4 5	S*	5·3	5·7
Osaka	8·7	226	2 0	− 3	i 3 7	−34	4·3	5·5
Kobe	8·9	228	e 2 5	− 1	4 4	+18	e 5·0	7·0
Wakayama	9·2	226	2 9	− 1	4 13	+19	—	—
Sumoto	9·3	227	2 11	0	4 13	+17	5·0	5·4
Siomisaki	9·5	220	2 14	0	4 54	+53	—	—
Hamada	10·6	239	2 29	0	4 31	+ 3	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Koti		10·6	229	i 2 30	+ 1	e 4 49	+21	5·3	6·1
Matuyama		10·9	232	i 2 36	+ 3	—	—	6·1	7·0
Simidu		11·5	228	2 41	− 1	5 17	+27	—	—
Hukuoka		12·5	238	2 53	− 2	e 5 33	+18	—	7·6
	B.	12·5	238	2 57	+ 2	6 6	S*	—	—
Kumamoto		12·8	234	2 59	0	5 47	+25	—	—
Miyazaki		13·0	230	3 3	+ 1	5 6	−21	—	—
Zinsen		13·3	260	3 6	0	6 9	+35	—	—
Nagasaki		13·6	237	3 8	− 2	6 31	+50	—	7·9
Titizima		13·9	184	3 12	− 2	5 32	−17	—	—
Tomie		14·2	239	3 4	−14	7 26	L	(7·4)	—
Nake		16·8	226	3 49	− 3	—	—	—	—
Naha		19·5	226	4 28	+ 4	8 18	SS	—	—
Zi-ka-wei		20·0	248	e 4 27	− 3	8 23	SS	—	16·4
Chiufeng		20·5	276	e 4 32	− 3	e 8 16	0	—	—
Nanking		21·4	253	i 4 41	− 3	9 1	SS	12·7	13·8
Isigakizima		23·0	229	5 0	− 1	9 9	+ 4	—	—
Taihoku		24·0	235	e 5 19	+ 9	—	—	—	—
Irkutsk		28·5	307	e 5 52	0	10 39	− 1	14·3	14·6
Hong Kong		30·7	242	6 11	0	11 12	− 4	14·5	18·0
Manila		32·7	225	6 28	− 1	11 45	− 1	15·9	—
Phu-Lien		36·9	250	e 7 5	− 1	12 48	− 2	—	—
Almata		47·8	296	8 40	+ 5	—	—	—	—
Calcutta		49·2	268	(8 40)	− 5	19 0	SS	30·8	—
Andijan		52·2	296	e 9 7	− 1	e 16 51	+20	28·9	—
Ekaterinburg		52·9	319	i 9 13	0	i 16 40	− 1	25·5	35·0
Tchimkent		53·2	297	e 10 39	(+11)	—	—	—	—
Honolulu T.H.		53·2	93	e 9 16	+ 1	e 16 36	− 9	22·5	—
Tashkent		53·8	297	e 5 2	?	e 12 2	?	23·0	30·2
Medan		54·6	240	9 44	+18	i 17 7	+ 3	31·0	—
Agra	E.	54·7	278	e 9 23	− 3	—	—	—	—
Batavia		57·7	225	9 55	+ 7	i 17 40	− 6	—	—
Hyderabad		59·7	270	18 8	S	(18 8)	− 4	—	38·2
Bombay		63·1	275	10 27	+ 1	18 49	− 7	31·9	41·4
Kodaikanal		65·0	265	19 15	S	(19 15)	− 5	—	—
Pulkovo		65·3	330	i 10 38	− 3	i 19 18	− 6	39·6	41·6
Colombo		65·4	259	19 21	S	(19 21)	− 4	—	44·9
Baku		67·0	304	i 10 51	− 1	i 19 46	+ 1	31·5	44·0
Helsingfors		67·0	332	e 10 48	− 4	e 19 38	− 7	e 33·5	—
Berkeley		69·2	57	e 13 2?	?	i 23 2?	?	—	—
Tiflis		69·3	308	i 11 4	− 2	i 20 4	− 9	e 36·0	44·7
Upsala		69·7	335	11 2?	− 7	20 10	− 8	e 34·0	41·2
Lick		69·9	57	e 11 8	− 2	—	—	—	—
Bozeman		71·0	45	e 11 15	− 2	e 20 32	− 1	e 38·5	—
Tinemaha		72·3	56	i 11 14	−11	e 20 48	0	—	—
Theodosia		72·4	317	e 11 24	− 1	e 20 46	− 4	38·0	—
Königsberg		72·4	330	—	—	e 20 44	− 6	e 43·8	45·0
Santa Barbara		72·9	59	e 11 26	− 2	—	—	—	—
Simferopol		73·2	317	11 27	− 3	20 52	− 7	—	—
Yalta		73·4	317	11 30	− 1	20 57	− 4	—	—
Haiwee		73·4	57	i 11 26	− 5	—	—	—	—
Pasadena		74·2	58	i 11 32	− 4	e 21 5	− 6	—	—
Mount Wilson		74·2	58	i 11 33	− 3	—	—	—	—
Copenhagen		74·7	335	11 35	− 4	21 9	− 8	37·0	—
Riverside		74·7	58	e 11 35	− 4	—	—	—	—
La Jolla		75·6	59	i 11 41	− 3	—	—	—	—
Hamburg		77·2	335	i 11 6	−47	e 21 5	−40	e 39·0	48·0
Potsdam		77·2	332	i 11 56	+ 3	i 21 32	−13	e 40·0	46·0
Ivigtut		77·4	6	i 11 51	− 3	21 38	− 9	37·0	—
Budapest		78·6	325	e 12 2?	+ 2	21 57	− 3	e 40·0	50·5

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Jena		78·8	331	i 11 56	− 5	e 21 53	−10	e 41·0	47·5
Göttingen		78·9	334	e 11 56	− 6	e 21 57	− 7	e 37·0	50·0
Edinburgh		79·0	342	—	—	e 22 2?	− 3	—	—
Vienna		79·1	328	e 11 56	− 7	23 4	+58	i 41·8	50·0
Cheb		79·2	330	—	—	e 22 23	+16	e 42·0	47·0
Ksara	N.	79·6	308	e 11 27	−39	21 31	−40	—	—
Tucson		80·0	56	e 12 8	0	e 22 11	− 5	e 39·4	—
De Bilt		80·1	335	i 12 6	− 2	e 22 8	− 9	e 37·0	42·5
Zagreb		81·2	327	e 12 13	− 1	e 22 39	+11	e 42·6	46·5
Uccle		81·4	336	e 12 15	0	e 22 50	+19	38·0	53·1
Stuttgart		81·5	331	e 12 14	− 2	e 22 22	−10	e 40·0	52·2
Strasbourg		82·2	332	e 12 20	+ 1	—	—	e 41·0	—
Oxford		82·2	340	—	—	e 22 27	−12	e 42·0	46·5
Kew		82·2	339	e 13 2?	+43	e 22 32	− 7	38·0	45·8
Triest		82·2	327	i 12 17	− 2	e 22 28	−11	e 44·0	52·0
Paris		83·7	336	i 12 25	− 2	—	—	43·0	44·0
Neuchatel		83·8	332	i 12 25	− 2	e 22 45	−10	—	—
Besançon		84·0	333	e 12 41	+13	—	—	e 46·0	—
Piacenza		84·5	330	12 42	+11	22 52	[− 3]	—	49·5
Camerino		84·6	325	12 49	+18	—	—	—	—
Prato		84·8	327	e 12 2	−30	e 22 47	[−11]	—	46·6
Helwan		85·2	307	e 12 32	− 2	i 22 52	[− 9]	—	55·1
Trenta		86·3	320	e 12 32	− 8	—	—	—	—
St. Louis		86·7	40	i 12 39	− 3	i 23 12	[+ 1]	e 38·0	—
Ottawa		86·9	26	e 12 39	− 4	e 23 8	[− 5]	e 41·0	—
Cincinnati		88·9	35	i 12 51	− 1	i 23 35	[+ 9]	e 41·5	47·7
Pittsburgh		89·6	31	i 12 57	+ 1	i 23 45	− 7	e 36·0	—
East Machias		89·9	21	i 12 56	− 1	23 45	−10	e 41·3	—
Tortosa	N.	91·4	334	13 14	+10	23 48	[+ 7]	e 46·0	55·2
Fordham		91·6	27	e 13 2	− 3	e 24 2	− 9	e 42·0	—
Georgetown		92·1	30	i 13 6	− 1	—	—	—	—
Toledo		93·8	335	13 12	− 3	e 24 9	{+ 4}	e 45·0	57·6
Algiers		94·0	330	e 13 28	+12	e 21 57	?	52·0	59·0
Alicante		94·0	333	—	—	e 31 5	?	e 52·4	—
Granada		96·1	335	e 13 35	+ 9	—	—	e 47·9	60·3
Malaga		96·8	334	e 13 38	+ 9	e 24 33	{+ 4}	45·2	51·3
San Juan		114·7	31	—	—	e 29 27	PS	e 52·0	—
La Paz		143·6	58	e 19 26	[− 3]	—	—	70·0	—

Additional readings and note :—
Tyosi P = +1m.35s. =P* +2s., S = +2m.44s. =S* − 1s.
Nagoya P_g = +1m.55s.
Toyooka i = +2m.16s.
Kobe iEN = +2m.12s., eSE = +4m.7s., SZ = +4m.20s. =S* − 3s.
Sumoto SN = +4m.21s.
Zi-ka-wei iN = +8m.47s.
Chiufeng iPZ = +4m.41s. =PP − 8s., iPP?E = +4m.43s., PP?N = +4m.50s., iZ = +5m.8s.
Hong Kong PP = +7m.8s.
Batavia i = +10m.57s. =P_cP +12s.
Helsingfors eSZ = +19m.46s., ePSN = +20m.1s., ePSE = +20m.9s., eE = +26m.2s.; T_o =11h.58m.57s.
Tiflis i = +11m.17s., PP = +13m.49s., PS = +20m.27s.
Upsala iPS = +20m.32s.
Tinemaha iE = +11m.26s.
Königsberg eE = +20m.56s. ?, iE = +21m.4s. =PS − 6s., eN = +24m.50s. and +27m.10s.
Haiwee i = +11m.40s.
Pasadena iZ = +11m.47s.
Potsdam iN = +14m.9s., iN = +21m.36s., eZ = +21m.44s., iEN = +21m.59s., eE = +22m.20s. =PS +7s.
Jena iP = +11m.59s., iPZ = +12m.11s.
Vienna iPZ = +12m.1s., P_cP = +12m.11s., PP = +15m.14s., PPP = +17m.4s. SS = +26m.44s.
Zagreb eP_cP = +12m.27s., ePPE = +15m.34s., e = +22m.21s.
Stuttgart e = +13m.30s., ePP = +15m.36s.
Triest i = +12m.28s., PP = +15m.39s., SKS = +22m.37s., iPS = +23m.17s.
Neuchatel ePP = +15m.45s.

Continued on next page.

St. Louis iEN = +12m.54s., eEN = +15m.59s. =PP +0s., eSE = +23m.0s., iE = +23m.31s. =S +7s.
Ottawa ePPN = +16m.6s. ; T_0 =11h.59m.6s.
Cincinnati iPPEZ = +13m.6s., iPPPNZ = +16m.19s., iSSZ = +24m.40s. = PS +1s.
Pittsburgh iS = +24m.3s.
East Machias eSKS = +23m.28s., eSS = +29m.55s.
Tortosa SE = +24m.3s.
Fordham iNZ = +13m.18s., eN = +23m.36s. =SKS +6s., ePS = +25m.7s., e = +25m.30s. and +31m.2s. ?
Georgetown PP = +16m.47s., iPS = +25m.4s., SS = +30m.8s. ; T_0=11h.59m.36s.
Toledo PP = +17m.9s.
Granada ePP = +17m.22s.
Malaga PP = +17m.24s., PPP = +19m.33s., SKS = +24m.6s.
San Juan eSS = +35m.24s.
Long waves were also recorded at Wellington, Huancayo, Columbia, Ukiah, Kucino, and other European stations.

Sept. 3d. Readings also at 0h. (Osaka, near Mizusawa, Nagoya, and Tyosi), 3h. (Honolulu T.H.), 4h. (Honolulu T.H., Tiflis, Sydney, Suva, Wellington, and near Apia), 5h. (Huancayo, Paris, Ottawa, and La Paz), 7h. (Sydney, near New Plymouth, and Wellington), 8h. (Nagoya, Tyosi (2), and Wellington), 10h. (Zagreb), 11h. (near Tananarive), 13h. (near Mizusawa), 14h. (Tyosi and near Mizusawa), 15h. (Reykjavik, Nanking, near Andijan (2), Almata, Tchimkent, and near Mizusawa), 16h. (Baku, Ekaterinburg, Tiflis, Mizusawa, near Hokoto, and Samarkand (2)), 17h. (near Mizusawa), 19h. (near Triest, Trenta, and Zagreb), 20h. (near Santiago), 22h. (near Mizusawa).

Sept. 4d. 12h. 28m. 41s. Epicentre 41°·0N. 143°·1E. (as on 3d.). R.2.

A = −·604, B = +·453, C = +·656 ; D = +·600, E = +·800 ;
G = −·524, H = +·394, K = −·755.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Urakawa	1·2	349	0 11	− 6	0 28	− 3	—	—
Aomori	1·8	264	0 26	0	0 48	+ 2	—	—
Hakodate	2·0	293	0 31	+ 2	0 58	+ 7	—	—
Morioka	2·0	229	0 28	− 1	0 54	+ 3	—	—
Muroran	2·1	310	0 30	0	0 59	+ 5	—	—
Sapporo	2·4	319	0 34	0	1 10	S_g	—	—
Mizusawa	2·5	219	0 37	+ 1	1 10	+ 6	—	—
Akita	2·7	240	0 38	− 1	1 14	+ 5	—	—
Sendai	3·2	212	0 45	− 1	1 22	0	—	—
Hukusima	3·8	214	0 53	− 1	1 36	− 1	—	—
Mito	5·1	205	1 6	− 7	2 5	− 5	—	—
Kakioka	5·3	207	1 13	− 2	2 13	− 2	—	—
Tyosi	5·6	199	e 1 18	− 2	2 19	− 4	—	—
Maebasi	5·6	216	1 21	+ 1	2 49	S*	—	—
Kumagaya	5·7	212	1 21	0	2 23	− 2	—	—
Nagano	5·8	224	1 27	+ 5	2 51	S*	—	—
Oiwake	5·8	219	1 24	+ 2	2 59	S_g	—	—
Tokyo	6·0	207	1 20	− 5	2 28	− 5	—	—
Kohu	6·4	216	1 39	+ 8	2 41	− 2	—	—
Misima	6·7	211	1 36	+ 1	2 52	+ 1	—	—
Gihu	7·5	224	1 51	+ 5	2 54	−17	—	—
Nagoya	7·6	222	e 1 57	+ 9	3 35	S*	—	—
Hatidyozima	8·3	199	1 55	− 3	3 20	−11	—	—
Osaka	8·7	226	2 15	+12	—	—	4·7	5·5

No additional readings.

Sept. 4d. Readings also at 0h. (Berkeley, Branner (2), and Lick), 1h. (Nanking, Tyosi, near Mizusawa, near Taihoku, and Hokoto), 3h. (near Mizusawa), 4h. (near La Paz), 7h. (near Apia and near Mizusawa (2)), 13h. (Strasbourg, near Neuchatel, and near Mizusawa), 15h. (Berkeley, Branner (2), Ukiah, Tinemaha, Haiwee, Pasadena, and East Machias), 17h. (near Andijan), 18h. (La Paz), 19h. (Mount Wilson, Pasadena, Tinemaha, Haiwee, Suva, Wellington, Simferopol, and Yalta), 20h. (Apia, Suva, East Machias, San Fernando, Granada, De Bilt, Uccle, Paris, and Stuttgart), 21h. (Almeria, near Almata, Andijan, and Tchimkent), 23h. (Andijan and Almata).

Sept. 5d. 3h. 8m. 10s. Epicentre 41°·0N. 143°·1E. (as on 4d.). R.2.

A = −·604, B = +·453, C = +·656 ; D = +·600, E = +·800 ;
G = −·524, H = +·394, K = −·755.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Urakawa		1·2	349	0 15	− 2	0 33	+ 2	—	—
Aomori		1·8	264	0 27	+ 1	0 49	+ 3	—	—
Obihiro		1·9	2	0 38	P_g	1 6	S_g	—	—
Hakodate		2·0	293	0 34	+ 5	0 59	S*	—	—
Muroran		2·1	310	0 32	+ 2	0 59	+ 5	—	—
Sapporo		2·4	319	0 35	+ 1	1 3	+ 1	—	—
Mizusawa		2·5	219	0 38	+ 2	1 10	+ 6	—	—
Akita		2·7	240	0 46	+ 7	1 22	S_g	—	—
Asahigawa		2·8	349	0 40	0	1 18	+ 6	—	—
Sendai		3·2	212	0 44	− 2	1 33	S*	—	—
Hukusima		3·8	214	0 53	− 1	1 36	− 1	—	—
Niigata		4·4	227	1 17	P*	2 38	S_g	—	—
Kakioka		5·3	207	1 12	− 3	2 28	S*	—	—
Maebasi		5·6	216	1 18	− 2	2 37	S*	—	—
Tyosi		5·6	199	1 16	− 4	2 18	− 5	—	—
Kumagaya		5·7	212	1 19	− 2	2 28	+ 3	—	—
Nagano		5·8	224	1 24	+ 2	2 56	S*	—	—
Tokyo		6·0	207	1 21	− 4	2 56	S*	—	—
Wazima		6·0	236	1 27	+ 2	2 40	+ 7	—	—
Yokohama		6·2	211	1 26	− 2	2 39	+ 1	—	—
Kohu		6·4	216	1 34	+ 3	2 47	+ 4	—	—
Mera		6·6	204	1 31	− 3	3 12	S*	—	—
Misima		6·7	211	1 37	+ 2	2 53	+ 2	—	—
Numadu		6·8	211	1 42	+ 5	3 7	S*	—	—
Gihu		7·5	224	1 45	− 1	3 6	− 5	—	—
Nagoya		7·6	222	e 1 52	+ 4	3 37	S*	—	3·9
Hatidyozima		8·3	199	1 56	− 2	3 24	− 7	—	—
Kyoto		8·4	227	1 58	− 1	—	—	—	—
Toyooka		8·5	233	i 2 4	+ 4	e 4 3	S*	—	—
Osaka		8·7	226	2 7	+ 4	—	—	4·3	5·5
Kobe		8·9	228	e 2 10	+ 4	—	—	—	5·8
Wakayama		9·2	226	2 10	0	4 18	S*	—	—
Sumoto	E.	9·3	227	e 2 15	+ 4	4 18	S*	—	5·1
	N.	9·3	227	e 2 22	+11	e 4 36	S*	—	5·3
Koti		10·6	229	e 2 43	+14	e 5 56	S_g	—	—
Ekaterinburg		52·9	319	e 9 10	− 3	16 39	− 2	23·8	—
Tinemaha	Z.	72·3	56	e 11 20	− 5	—	—	—	—
Haiwee	E.	73·4	57	e 11 23	− 8	—	—	—	—
Pasadena	Z.	74·2	58	i 11 29	− 7	—	—	—	—

Additional readings :—
Mizusawa SN = +1m.13s. = S* +0s.
Kobe ePE = +2m.13s.
Long waves were also recorded at Hong Kong, Phu-Lien, Ottawa, several Russian and European stations.

Sept. 5d. 6h. 23m. 54s. Epicentre 6°·5S. 81°·5W. (as on 1932 June 25d.). R.3.

A = +·147, B = −·983, C = −·113 ; D = −·989, E = −·148 ;
G = −·017, H = +·112, K = −·994.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Huancayo		8·3	132	i 2 1	+ 3	i 3 26	− 5	i 4·3	—
La Paz		16·4	128	3 47	+ 1	i 6 47	− 1	7·9	8·6
San Juan		29·1	31	(e 5 53)	− 4	(10 46)	− 4	10·8	—
Ottawa		52·1	5	—	—	20 6?	SS	—	—
Mount Wilson	E.	53·4	322	e 9 19	+ 2	—	—	—	—
Pasadena		53·4	322	i 9 15	− 2	—	—	—	—
Tinemaha	Z.	55·5	325	e 9 28	− 4	—	—	—	—

Additional readings and notes :—
Huancayo i = +2m.43s., +3m.41s., and +3m.47s.
San Juan gives P as S and S as L.
Long waves were also recorded at Rio de Janeiro and Tucson.

Sept. 5d. Readings also at 0h. (near Samarkand), 1h. (Toyooka, near Osaka, Kobe, Sumoto, and Nagoya), 2h. (near Apia, near Tyosi, and Mizusawa), 3h. (Mizusawa and near Apia), 4h. (near Mizusawa), 5h. (near Tyosi, Berkeley, Lick, and near Branner), 7h. (Georgetown and near Mizusawa), 8h. (near Mizusawa), 9h. (Tyosi), 11h. (Belgrade and near Balboa Heights), 12h. (near Mizusawa, Nagoya, and Tyosi), 17h. (Berkeley, Branner, Lick, near Almata, Andijan (2), and Tchimkent), 19h. (Tucson), 21h. (near Amboina), 22h. (Tchimkent, near Andijan, near Koti, and Matuyama), 23h. (near Mizusawa).

Sept. 6d. Readings at 4h. (Almeria), 6h. (near La Paz), 7h. (Almata, near Andijan, and Tchimkent), 11h. (La Paz, Tchimkent, Samarkand, and near Andijan), 12h. (near Andijan), 15h. (Ekaterinburg, Tashkent, Andijan, La Paz, near Tchimkent, Samarkand, and near Tyosi), 16h. (Honolulu T.H., East Machias, Simferopol, Theodosia, Yalta, Ekaterinburg, and Tashkent), 17h. (Baku, Copenhagen, Kucino, Tiflis, and Stuttgart), 18h. (Simferopol (2), Yalta (2), and near Theodosia), 22h. (Tiflis), 23h. (near Manila).

Sept. 7d. Readings at 0h. (Tiflis, near Manila, and near Santiago), 2h. (near Santiago), 4h. (near La Paz), 6h. (near Apia), 8h. (Almata, Andijan, Tashkent, Ekaterinburg, Baku, and Tiflis), 9h. (near Mizusawa), 11h. (Mizusawa, near Nagoya, Tokyo, and Tyosi; Tokyo gives epicentre 35°·9N. 140°·6E., but the readings do not seem to fit this position), 13h. (Ekaterinburg, Irkutsk, Hong Kong, and Phu-Lien), 14h. (near Apia), 16h. (La Paz, La Plata, and near Santiago), 17h. (Berkeley, Branner, Lick, San Francisco, near New Plymouth (2), and Wellington (2)), 18h. (Andijan, Ekaterinburg, Pulkovo, near Mizusawa, Nagoya, and Tyosi), 19h. (Baku and Tyosi), 22h. (Simferopol, Theodosia, and near Yalta), 23h. (Branner).

Sept. 8d. 1h. 41m. 18s. Epicentre 19°·2N. 104°·2W. (as on 1932 June 19d.). R.1.

Probable error of epicentre ±0°·18.

A = −·232, B = −·915, C = +·329; D = −·969, E = +·245; G = −·081, H = −·319, K = −·944.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tucson		14·4	336	i 3 22	+ 1	6 12	+11	i 7·4	—
La Jolla		18·0	322	i 4 7	0	—	—	—	—
Riverside	N.	18·8	324	i 4 16	0	—	—	—	—
Mount Wilson		19·4	323	i 4 22	− 1	—	—	—	—
Pasadena		19·4	323	e 4 21	− 2	i 8 12	+18	e 10·5	—
Denver		20·5	358	e 4 34	− 1	e 8 42	+26	—	—
Santa Barbara		20·5	321	i 4 36	+ 1	e 7 31	−45	—	—
Haiwee		20·8	327	i 4 39	+ 1	e 8 37	+15	—	—
Tinemaha		21·7	328	i 4 46	− 2	e 8 53	+13	—	—
St. Louis		22·9	29	i 4 57	− 3	e 9 18	+15	i 12·6	15·5
Florissant		23·0	28	i 4 58	− 3	i 9 20	+15	e 12·6	15·5
Lick		23·7	324	e 5 6	− 1	—	—	—	—
Branner		24·0	323	e 5 12	+ 2	—	—	—	—
Berkeley		24·4	324	i 5 14	0	e 9 37	+ 7	—	—
Columbia		25·3	50	—	—	e 9 54	+ 8	17·3	—
Ukiah		25·8	324	e 5 31	+ 4	e 10 2	+ 7	—	—
Cincinnati		26·2	36	e 6 1	PP	e 10 23	+21	e 14·2	—
Chicago		26·6	28	e 6 33	PP	e 10 25	+16	i 14·4	—
Madison		27·0	24	i 6 28	PP	e 10 34	+19	13·7	—
Ann Arbor		28·9	32	e 6 36	PP	—	—	e 11·4	—

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Toronto	32·1	35	i 7 18	PP	i 11 28	− 9	18·7	—
Ottawa	35·2	35	e 8 2	PP	e 12 44	+20	18·7	—
San Juan	36·0	85	i 6 53	− 5	e 12 38	+ 2	e 16·0	—
East Machias	39·8	42	e 9 4	PP	e 16 41	SSS	21·7	—
Huancayo	42·3	135	—	—	e 14 14	+ 4	17·6	—
Honolulu T.H.	50·1	283	—	—	e 16 7	+ 5	e 21·0	—
La Paz	50·3	133	8 54	0	i 16 4	− 1	22·7	32·4
Ivigtut	57·1	28	9 42	− 2	17 58	+20	30·7	—
Edinburgh	80·2	34	—	—	e 22 22	+ 4	e 44·7	—
Stonyhurst	81·2	36	e 12 14	0	e 23 3	PS	46·6	48·7
Kew	83·3	37	i 12 23	− 2	e 22 47	− 3	e 39·7	49·9
San Fernando	84·9	53	e 12 44	+11	e 23 7	0	50·7	54·2
Toledo	85·2	50	12 32	− 2	e 23 10	0	e 41·3	51·8
Malaga	86·1	52	i 12 31	− 8	23 8	[+ 1]	e 39·9	54·3
Paris	86·1	40	e 12 59	+20	e 23 56	+38	e 33·7	—
De Bilt	86·2	35	12 37	− 2	e 23 5	[− 3]	e 43·7	51·4
Uccle	86·2	37	e 12 37	− 2	e 23 9	[+ 1]	42·7	—
Granada	86·5	52	i 12 39	− 2	e 23 13	[+ 3]	38·6	54·6
Copenhagen	88·0	30	12 45	− 3	23 25	[+ 5]	72·7	—
Hamburg	88·0	33	—	—	e 22 42?	?	e 48·7	52·7
Alicante	88·3	49	—	—	e 23 39	− 1	e 52·4	—
Strasbourg	89·2	38	e 12 34	−20	—	—	46·7	52·7
Stuttgart	90·0	37	e 12 55	− 2	e 23 22	[−11]	e 45·7	53·2
Potsdam	90·2	33	e 16 12	PP	e 22 42?	?	e 47·7	—
Helsingfors	90·6	22	—	—	e 23 33	[− 3]	e 48·7	—
Cheb	91·1	35	i 16 31	PP	e 23 37	[− 2]	e 52·7	54·7
Piacenza	92·1	40	e 12 42	−25	23 38	[− 7]	—	57·6
Königsberg	92·4	28	—	—	e 23 50	[+ 3]	e 55·7	58·7
Pulkovo	92·8	21	e 13 6	− 4	23 42	[− 7]	52·7	56·0
Florence	93·8	41	e 13 12	− 3	—	—	—	54·7
Triest	94·3	38	e 12 43	−34	e 23 53	[− 4]	e 51·7	57·7
Zagreb	95·5	37	e 13 15	− 8	e 23 56	[− 7]	e 55·7	—
Kucino	98·4	21	—	—	25 12	0	e 43·9	59·7
Ekaterinburg	102·9	8	e 13 52	− 5	24 34	[− 6]	42·7	67·5
Tiflis	112·7	26	e 15 6	+22	—	—	e 57·7	—
Tashkent	119·2	5	e 18 42	[− 2]	e 25 42	[− 6]	e 62·7	75·8

Additional readings :—
Tucson e = +7m.1s.
Pasadena iZ = +6m.21s.
Berkeley iE = +9m.56s.
Columbia e = +10m.7s.
Cincinnati ePPN = +6m.48s., eSSN = +12m.5s.
Chicago iS = +10m.40s.
Toronto i = +17m.23s.
Kew eSSE = +28m.52s., eSSSE = +32m.18s.
Malaga PP = +15m.49s., SKS = +22m.51s., SS = +29m.12s.
Paris ePP = +16m.21s., eSKS = +23m.25s., eSS = +30m.12s.
Uccle SS = +28m.42s.?, SSS = +32m.42s.?
Granada PP = +15m.54s., PS = +23m.29s. =S +7s.
Copenhagen +24m.48s. =PS +20s.
Stuttgart ePP = +16m.25s., eSSS = +33m.42s.
Pulkovo PP = +16m.50s., PS = +25m.43s.
Triest e = +13m.14s. =P −3s., ePS = +24m.40s. =S +4s.
Kucino PPS = +27m.40s., SS = +33m.12s.
Ekaterinburg ePP = +18m.6s., ePS = +27m.21s.
Tiflis PP = +19m.17s., PS = +28m.53s., PPS = +30m.8s.
Tashkent i = +24m.12s., e = +28m.30s. and +35m.24s.
Long waves were also recorded at Pittsburgh, Charlottesville, Seattle, Sitka, Tortosa, Durham, Bidston, Upsala, Wellington, Sydney, and Hong Kong.

Sept. 8d. 7h. 25m. 39s. Epicentre 30°·7N. 58°·4E. N.2.

A = +·451, B = +·732, C = +·511 ; D = +·852, E = −·524 ;
G = +·268, H = +·435, K = −·860.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Baku		12·1	328	i 2 44	− 6	5 3	− 2	7·9	10·4
Tashkent		13·7	37	i 0 45	?	e 5 15	−29	—	7·5
Tchimkent		14·6	35	e 3 49	+26	—	—	—	—
Andijan		15·2	44	e 3 25	− 6	—	—	—	—
Tiflis		15·5	319	4 21?	+46	7 21?	+54	8·6	10·5
Agra	N.	17·6	97	—	—	e 7 42	+27	—	—
Bombay		17·6	129	4 2	0	7 37	+22	9·9	14·4
Ksara	E.	19·2	285	i 4 24	+ 3	i 7 59	+ 9	11·1	—
Almata		19·4	44	4 23	0	e 8 7	+13	—	—
Hyderabad		22·6	121	4 54	− 3	9 14	+17	12·0	17·5
Theodosia		23·0	315	e 5 2	+ 1	e 9 8	+ 3	11·4	—
Helwan		23·3	275	e 5 21	+17	9 32	+22	13·2	16·7
Yalta		23·4	313	5 7	+ 2	e 9 20	+ 8	10·4	—
Simferopol		23·7	314	e 5 5	− 2	—	—	—	—
Ekaterinburg		26·2	3	i 5 25	− 6	i 10 3	+ 1	i 14·5	20·8
Kodaikanal		27·1	135	10 21	S	(10 21)	+ 4	—	—
Calcutta		28·0	100	11 21	S	(11 21)	+49	15·8	—
Kucino		28·9	336	5 56	+ 1	10 38	− 9	14·4	19·9
Budapest		34·3	311	—	—	e 8 21?	?	e 14·4	—
Pulkovo		34·6	336	6 45	− 1	12 9	− 6	19·4	24·1
Vienna		36·2	311	e 6 57	− 3	16 37	?	—	31·4
Helsingfors		36·9	334	e 7 6	0	—	—	e 20·4	—
Triest		37·5	307	e 7 13	+ 2	e 12 56	− 3	—	29·4
Florence		39·1	304	7 30	+ 6	13 21	− 1	—	24·4
Cheb		39·2	314	e 8 55	+90	e 14 57	+93	e 24·4	30·4
Potsdam		39·3	318	i 7 26	0	e 13 21?	− 5	e 19·4	—
Innsbruck		39·4	309	7 27	0	—	—	—	—
Upsala		39·8	330	—	—	e 16 21?	SS	e 22·4	26·5
Piacenza		40·3	307	e 7 41	+ 6	16 57	SSS	—	33·4
Copenhagen		40·6	323	7 33	− 4	13 33	−12	—	—
Stuttgart		41·0	311	e 7 41	+ 1	e 13 53	+ 2	e 23·4	31·1
Hamburg		41·4	319	e 9 27	PP	—	—	—	29·4
Strasbourg		41·9	311	e 8 15	+27	e 18 21	(+28)	27·4	35·4
De Bilt		44·0	316	e 8 4	− 1	e 18 0	(− 6)	e 25·4	26·6
Uccle		44·3	314	—	—	e 14 51	+11	e 22·4	—
Paris		45·4	310	(e 7 21)?	−55	—	—	e 7·4	—
Kew		46·9	315	—	—	e 18 21?	(− 3)	—	—
Zi-ka-wei		53·3	72	—	—	e 21 13	?	—	34·4
Manila		59·2	91	—	—	e 16 30	?	—	36·5

Additional readings :—
Tiflis e = +5m.21s.? and +6m.19s.?
Calcutta S = +14m.26s.
Helsingfors eZ = +8m.31s. = PP + 7s., eEN = +16m.46s.
Triest PP = +8m.38s.
Potsdam iEN = +8m.51s. = PP − 1s., iZ = +8m.59s.
Copenhagen +9m.11s. = PP + 5s.
Stuttgart e = +17m.3s.
Uccle e = +18m.7s. = S_eS − 1s.
Long waves were also recorded at Hong Kong, Phu-Lien, Stonyhurst, Edinburgh, San Fernando, and La Paz.

Sept. 8d. Readings also at 0h. (Baku, Ekaterinburg, Riverview, Berkeley, La Paz, and near Mizusawa), 1h. (Ann Arbor and Simferopol), 3h. (Tucson (2)), 4h. (Stuttgart), 5h. (Ekaterinburg, Tyosi, Halwee, Pasadena, and Tinemaha), 6h. (Tashkent), 9h. (Tortosa), 11h. (Phu-Lien and Tashkent), 12h. (Ekaterinburg), 13h. (La Paz and near Amboina), 14h. (Ekaterinburg, Tashkent, Cape Town, Tananarive, and near La Paz), 15h. (San Fernando), 16h. (near New Plymouth, and Wellington), 20h. (Pasadena, Tinemaha, and near Santiago), 22h. (Neuchatel).

Sept. 9d. 6h. 46m. 28s. Epicentre 1°·0S. 129°·0E. (as on 1925 April 22d.). R.3.

A = −·629, B = +·777, C = −·017; D = +·777, E = +·629;
G = +·011, H = −·014, K = −1·000.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Amboina		2·8	198	i 0 28	−12	i 0 55	−17	—	—
Manila		17·5	333	4 4	+ 4	7 32	+19	9·2	11·2
Batavia		22·7	256	i 4 56	− 2	e 9 28	SS	—	—
Hong Kong		27·4	329	5 43	+ 1	10 37	+15	—	—
Medan		30·6	280	6 27	+17	11 10	− 4	—	—
Phu-Lien		30·9	316	5 32?	−41	—	—	—	—
Adelaide		35·1	167	—	—	i 14 57	SS	17·8?	23·4
Melbourne		39·6	161	—	—	i 13 32?	+ 2	22·7	—
Mizusawa	E.	41·6	15	7 56	+11	14 8	+ 8	—	—
Chiufeng		42·7	346	7 59	+ 5	e 14 21	+ 5	—	—
Irkutsk		57·2	343	e 9 45	0	e 17 36	− 3	29·5	—
Bombay		58·6	293	14 24	?	—	—	—	—
Tashkent		68·4	316	e 8 20	?	i 19 14	−48	e 27·5	36·1
Ekaterinburg		79·2	330	12 0	− 4	i 21 56	−11	35·5	—
Tiflis		86·3	312	12 37	− 3	e 23 14	− 6	e 35·5	—
Kucino		91·4	325	—	—	e 24 2	− 7	e 43·1	53·9
Copenhagen		105·4	329	—	—	24 44	[− 8]	55·5	—
Stuttgart		109·9	323	—	—	e 23 2	?	e 66·5	—

Additional readings:—
Tiflis PP = +16m.4s.
Kucino eSS = +30m.26s.
Long waves were also recorded at Riverview, Pulkovo, De Bilt, and Uccle.

Sept. 9d. 13h. 39m. 11s. Epicentre 3°·5S. 128°·5E. (as on 1920 July 2d.). R.2.

A = −·621, B = +·781, C = −·061; D = +·783, E = +·622;
G = +·038, H = −·048, K = −·998.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Amboina		0·4	239	−i 0 3	− 9	—	—	—	—
Palau		12·4	29	2 54	0	6 0	S*	—	—
Manila		19·5	338	4 24	0	7 58	+ 2	9·8	11·8
Malabar		21·1	259	e 4 41	0	i 8 35	+ 7	12·8	—
Batavia		21·7	262	i 4 48	0	e 8 27	−13	—	—
Hong Kong		29·4	332	6 27	+27	10 19	−36	—	15·5
Medan		30·6	284	6 8	− 2	11 8	− 6	—	—
Perth		31·0	201	10 29	S	(10 29)	−51	—	—
Phu-Lien		32·4	320	e 6 24	− 2	—	—	10·8	—
Adelaide		32·8	165	e 6 29	− 1	i 11 55	+ 7	15·4?	20·9
Titizima		33·3	24	6 43	+ 9	11 55	0	—	—
Zi-ka-wei	Z.	35·4	350	6 49	− 4	i 12 57	+30	—	—
Nagasaki		36·3	2	e 6 57	− 3	e 12 38	− 3	—	—
Nanking		36·7	345	7 4	0	12 46	− 1	17·9	—
Riverview		37·0	146	e 7 20	+14	i 12 53	+ 2	—	21·0
Sydney		37·0	146	e 5 19	−107	e 12 25	−26	19·6	27·0
Melbourne		37·5	160	e 6 35	−36	12 59	0	19·3	20·5
Sumoto		38·3	9	7 16	− 2	13 9	− 2	15·8	—
Kobe		38·6	10	7 20	0	e 13 27	+12	—	22·7
Osaka		38·8	10	7 6	−16	13 15	− 3	—	15·1
Nagoya		39·5	11	e 7 23	− 5	(13 22)	− 7	13·4	—
Toyooka		39·5	9	i 7 25	− 3	e 13 27	− 2	e 16·6	—
Sendai		43·3	15	8 0	+ 1	14 25	0	—	—
Mizusawa	E.	44·2	15	8 7	+ 1	14 43	+ 4	18·5	—
	N.	44·2	15	8 11	+ 5	14 32	− 7	17·9	—
Chiufeng		45·0	347	e 8 6	− 7	15 38	+48	25·5	—
Calcutta		47·0	307	8 36	+ 7	(15 16)	− 3	15·3	—
Sapporo		48·0	12	8 28	− 8	15 33	0	—	—
Colombo		49·6	282	6 28	?	15 50	− 5	29·9	33·2
Suva		50·9	111	9 22	+24	16 49	+36	25·8	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Kodaikanal		52·6	286	9 7	− 4	16 37	0	22·9	—
Wellington		56·0	140	8 7	−89	17 11	−12	25·8	—
Bombay	N.	59·1	296	10 44	(− 6)	17 53	−11	27·7	—
Irkutsk		59·4	344	e 9 54	− 6	18 4	− 4	29·8	—
Andijan		67·5	317	e 10 48	− 7	—	—	—	—
Tchimkent		70·1	318	e 11 11	0	—	—	—	—
Honolulu T.H.		76·3	67	—	—	e 21 31	− 4	e 39·8	—
Tananarive		80·3	251	—	—	23 9	PS	40·4	46·9
Ekaterinburg		81·0	330	i 12 8	− 5	i 22 10	−16	37·3	—
Baku		83·6	311	12 23	− 3	—	—	e 43·3	51·5
Tiflis		87·6	312	i 12 42	− 4	e 23 25	− 8	e 36·7	—
Theodosia		94·7	315	e 23 49	S	(e 23 49)	[−10]	—	—
Pulkovo		97·2	330	e 13 43	+12	24 17	[+ 5]	57·8	59·4
Helwan		98·0	300	e 15 54	?	—	—	—	61·5
Königsberg	N.	103·2	325	—	—	e 24 31	[−10]	e 53·1	58·8
Upsala		103·4	331	—	—	e 24 49?	[+ 7]	e 52·8	—
Budapest		105·6	319	e 18 49?	PP	—	—	—	25·8
Berkeley		107·2	50	e 24 51	S	(e 24 51)	[− 9]	—	—
Vienna	Z.	107·2	320	e 18 34	PP	—	—	—	—
Copenhagen		107·3	327	18 49	PP	24 49?	[−12]	50·8	—
Hamburg		109·4	326	e 18 55	PP	e 26 18	{+15}	e 53·8	—
Triest		109·6	317	e 17 10	?	e 28 34	PS	e 54·2	61·1
Tinemaha		110·6	51	e 18 26	[+ 6]	—	—	—	—
Pasadena		111·2	54	e 19 25	PP	—	—	e 55·7	—
Stuttgart		111·6	321	e 18 31	[+ 8]	e 26 50	{+32}	e 51·8	—
Florence		111·8	316	e 17 19	?	28 59	PS	—	82·8
Piacenza		112·5	318	19 29	PP	27 49	?	—	67·8
Strasbourg		112·6	320	(e 16 49?)	?	—	—	e 16·8	—
De Bilt		112·6	326	e 18 49?	[+23]	—	—	e 53·8	66·6
Uccle		113·6	325	e 18 49?	[+21]	e 25 49?	[+21]	e 54·8	—
Edinburgh		114·9	331	—	—	e 35 49?	SS	e 56·8	—
Paris		115·6	323	e 19 49?	PP	e 28 49?	PS	60·8	73·8
Stonyhurst		115·8	329	e 19 44	PP	e 24 44	[−52]	—	—
Kew		115·9	327	e 18 49?	[+14]	—	—	e 53·8	—
Toledo		123·9	316	—	—	e 37 32	SS	e 53·9	—
Granada		124·8	313	e 20 45	PP	—	—	e 65·8	80·9
Ottawa		133·0	21	22 49?	PKS	—	—	—	—
Huancayo		151·7	124	e 18 11	?	—	—	e 72·7	—
Rio de Janeiro	N.	152·4	197	e 23 49	PP	—	—	—	—
Sucre		153·7	150	e 19 52	[+ 5]	27 27	PPP	—	—
La Paz		154·1	141	e 20 0	[+13]	26 45	PPP	71·8	92·5

Additional readings :—
Malabar i = +4m.55s. and +5m.14s.
Batavia i = +5m.43s. and +10m.8s.
Hong Kong SS = +11m.18s.
Medan i = +7m.0s. = PP −5s.
Adelaide i = +6m.50s. and +7m.40s., e = +11m.15s., iS = +12m.44s., i = +13m.36s. = SS +0s.
Zi-ka-wei iZ = +7m.26s., +17m.53s., +21m.57s., +23m.7s., and +34m.29s.
Riverview eZ = +2m.18s., eN = +2m.28s., eZ = +9m.41s. = P_cP +9s., iN = +12m.41s., iEN = +15m.20s. = SS +8s.
Melbourne i = +7m.34s., SS = +16m.15s.
Toyooka ePE = +7m.38s.
Chiufeng i = +8m.43s., PP = +10m.40s.
Calcutta S = +12m.41s.
Wellington SS = +23m.39s.
Honolulu T.H. e = +25m.49s.
Baku PS = +23m.5s., eSS = +28m.40s.
Pulkovo PP = +17m.37s., SSS = +35m.49s.
Königsberg eN = +25m.9s. = SKKS −8s., +25m.33s., +28m.53s., +33m.45s., and +35m.33s.
Berkeley eZ = +28m.7s. = PS +7s.
Triest e = +18m.21s. and +18m.39s. = PP −15s., ePKP = +21m.1s. = PPP −6s., e = +25m.26s. = SKS +15s., +26m.34s. = SKKS +30s. and +29m.31s.
Stuttgart ePPP = +22m.3s., ePPS = +29m.44s., eSSS = +38m.49s.
Huancayo e = +18m.52s. and +43m.56s.
La Paz PP = +23m.20s.
Long waves were also recorded at Durham, San Fernando, and Cape Town,

Sept. 9d. Readings also at 0h. (near Koti, Matuyama, and Sumoto), 3h. (Berkeley), 4h. (near Nagoya), 7h. (near La Paz), 8h. (Hong Kong, Zi-ka-wei, and near Nanking (2)), 12h. (Tyosi and near Sumoto), 13h. (near Nanking), 14h. (near Sumoto), 16h. (Ekaterinburg and Pulkovo), 17h. (Bombay), 18h. (Branner), 19h. (Tchimkent, Ekaterinburg, Samarkand, Tashkent, and near Andijan), 20h. (near Santiago and near Tyosi), 22h. (Alicante, Manila, Tchimkent, and Mizusawa), 23h. (Manila, Hong Kong, Irkutsk, Ekaterinburg, Tashkent, Baku, Pulkovo, Tiflis, Copenhagen, De Bilt, Uccle, and Stuttgart).

Sept. 10d. 22h. 51m. 3s. Epicentre 22°·5N. 120°·5E. (as on 1930 Nov. 4d.). X.

A = − ·469, B = + ·796, C = + ·383 ; D = + ·862, E = + ·508 ;
G = − ·194, H = + ·330, K = − ·924.

	△	Az.	P.	O − C.	S.	O − C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Hokoto	1·3	320	0 29	P_g	0 49	+16	—	—
Taihoku	2·7	21	0 39	0	0 56	−13	—	—
Manila	7·9	176	1 51	− 1	4 1	S*	5·2	—
Nanking	9·7	352	e 2 12	− 5	—	—	—	—
Tashkent	46·6	306	e 12 57	?	e 14 9	−64	e 14·4	17·6
Ekaterinburg	54·9	325	e 9 32	+ 4	—	—	27·0	—
Copenhagen	81·1	327	(20 57?)	PP	—	—	21·0	—

Long waves were also recorded at Hong Kong, Phu-Lien, Irkutsk, Pulkovo, Baku, and Stuttgart.

Sept. 10d. A series of shocks recorded very near Amboina, which gives S − P intervals of from 1 to 6 seconds :—

	P.		S.			P.		S.		
h.	m.	s.	h.	m.	s.	h.	m.	s.	h.	m.	s.
0	43	36	0	43	40	5	40	49	5	40	51
1	5	46	1	5	50	4	43	36	5	43	40
1	32	2	1	32	8	5	52	18	5	52	22
1	42	15	1	42	20	6	12	53	6	12	56
1	43	58	1	44	2	6	21	7	6	21	10
1	49	20	1	49	25	6	24	22	6	24	25
1	54	22	1	54	27	6	45	2			
2	2	29	2	2	31	9	15	19	9	15	21
2	4	36	2	4	39	9	20	26	9	20	30
2	6	39				9	40	25	9	40	28
2	9	9	2	9	12	9	48	7	9	48	9
2	14	52				10	31	39	10	31	42
2	15	28				10	58	12?	10	58	18
2	37	10	2	37	11	11	21	27			
2	40	28	2	40	31	12	25	12?	12	25	17
2	46	1	2	46	5	12	47	0	12	47	3
2	49	51	2	49	57	13	24	25	13	24	28
2	59	2				13	35	9	13	35	12?
3	8	50	3	8	55	13	45	55			
3	50	0	3	50	2	14	7	55	14	7	58
3	55	1				14	38	22	14	38	26
4	7	27	4	7	30						

Sept. 10d. Readings also at 0h. (Tyosi), 1h. (Koti), 3h. (near Mizusawa), 6h. (Huancayo, Edinburgh, and near Nanking), 8h. (Andijan), 9h. (Tucson), 10h. (near Sumoto), 11h. (Baku, Ekaterinburg, Tashkent, and Berkeley), 13h. (Medan), 14h. (Andijan), 15h. (near Medan and near New Plymouth), 16h. (near Ivigtut), 17h. (near New Plymouth and Wellington),

Sept. 11d. 4h. 17m. 17s. Epicentre 24°·0N. 123°·0E. (as on 1929 Dec. 18d.). X.

A = −·498, B = +·766, C = +·407; D = +·839, E = +·545; G = −·224, H = +·341, K = −·913.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Taihoku		1·7	308	0 20	− 4	0 38	− 6	—	—
Hokoto		3·2	262	1 1	P_g	1 21	− 1	—	—
Zi-ka-wei	Z.	7·3	349	e 1 47	+ 3	e 3 11	+ 5	i 4·9	—
Manila		9·6	192	2 19	+ 3	4 46	S*	6·1	7·5
Chiufeng		17·1	342	3 55	0	e 7 10	+ 6	e 9·1	11·4
Irkutsk		31·7	338	—	—	e 10 43?	−48	18·7	20·1

Irkutsk gives e = +15m.43s.?
Long waves were also recorded at Hong Kong, Phu-Lien, Tiflis, Baku, Ekaterinburg, Pulkovo, Copenhagen, Stuttgart, and De Bilt.

Sept. 11d. 14h. 13m. 11s. Epicentre 44°·9N. 83°·2E. N.2.

A = +·084, B = +·703, C = +·706; D = +·993, E = −·118; G = +·084, H = +·701, K = −·708.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Almata		4·7	250	e 1 3	− 4	(2 4)	+ 4	2·1	2·9
Andijan		8·9	246	e 2 7	+ 1	—	—	—	4·1
Tchimkent		10·2	260	1 49	−35	—	—	4·8	5·2
Tashkent		10·8	255	e 1 1	?	e 1 43	?	e 1·8	4·8
Samarkand		13·0	252	e 2 59	− 3	(e 5 55)	+28	e 5·9	—
Irkutsk		15·7	56	3 44	+ 6	6 54	+23	8·4	8·7
Agra	E.	18·2	195	e 4 20	+11	—	—	—	—
Ekaterinburg		18·4	318	i 4 15	+ 4	i 7 44	+11	i 11·0	11·2
Calcutta		22·8	167	5 3	+ 4	9 8	+ 7	11·8	—
Chiufeng		24·6	90	e 5 14	− 2	e 9 40	+ 6	e 14·5	16·3
Baku		24·7	271	i 5 16	− 1	e 10 14	SS	11·8	13·1
Bombay	E.	27·4	202	5 47	+ 5	10 25	+ 3	13·9	—
Hyderabad		27·8	190	6 5	+20	10 28	0	13·8	17·4
Tiflis		27·9	277	i 5 43	− 3	e 11 0	+30	—	—
Kucino		30·2	307	6 4	− 3	e 11 14	+ 7	15·3	18·3
Phu-Lien		30·9	132	—	—	10 49?	−29	—	—
Zi-ka-wei	Z.	32·7	100	e 6 25	− 4	—	—	i 16·9	22·4
Theodosia		33·3	287	6 36	+ 2	—	—	—	—
Hong Kong		33·9	120	11 54	S	(11 54)	−10	18·0	21·2
Yalta		34·3	286	6 42	− 1	—	—	—	—
Pulkovo		34·4	315	i 6 44	0	12 28	+16	18·2	20·2
Sebastopol		34·7	287	6 49	+ 3	—	—	—	—
Helsingfors		37·0	316	e 7 8	+ 2	—	—	e 18·8	—
Colombo		38·1	186	16 58	?	—	—	—	23·7
Lemberg	E.	39·3	299	—	—	e 17 1	?	—	21·7
Königsberg		40·1	308	e 6 23	−70	—	—	—	24·4
Upsala	E.	40·8	315	e 9 21	+102	—	—	—	24·8
Budapest		43·2	297	e 7 49?	− 9	—	—	e 21·8	26·8
Manila		44·0	121	e 8 5	′ 0	14 31	− 5	20·8	24·3
Copenhagen		44·3	310	8 9	+ 2	15, 1?	+21	22·8	—
Vienna		44·6	299	i 8 9	− 1	20 54	?	—	28·8
Potsdam		45·1	306	i 8 16	+ 2	—	—	e 24·3	—
Zagreb		45·8	296	e 8 17	− 2	e 15 12	+10	e 25·0	—
Cheb		46·3	303	—	—	e 21 19	?	e 27·8	28·8
Hamburg		46·4	309	e 8 26	+ 2	—	—	e 23·8	24·8
Jena		46·4	304	i 8 25	+ 1	—	—	e 21·8	29·8
Bergen		46·6	319	—	—	e 18 39?	(+17)	—	—
Triest		47·3	296	i 8 29	− 2	e 15 41	+18	—	26·8
Innsbruck		48·0	300	8 37	+ 1	—	—	—	—
Trenta		48·5	287	e 8 34	− 6	—	—	—	—

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Stuttgart	48·7	302	e 8 41	0	—	—	e 23·8	30·3
Strasbourg	49·7	303	e 9 2	+13	e 16 49?	+52	e 28·8	—
Florence	49·7	295	i 8 49	0	—	—	—	31·8
Zurich	49·7	301	e 8 53	+ 4	—	—	—	—
Piacenza	50·1	298	e 9 13	+21	—	—	—	28·9
Neuchatel	50·8	301	e 8 57	0	—	—	—	—
Paris	52·6	305	—	—	e 21 49?	SSS	29·8	32·8

Additional readings :—
Almata i = +1m.23s. = P_g − 5s.
Samarkand i = +3m.13s.
Chiufeng i = +5m.23s., +13m.11s., and +13m.54s.
Tiflis eS = +11m.39s. = SS − 1s., eSSS = +13m.12s., e = +18m.0s. and +18m.27s.
Hong Kong S = +16m.9s.
Helsingfors eN = +16m.8s. and +17m.21s. = S_cS − 3s., iZ = +17m.49s.
Lemberg eN = +17m.7s.
Königsberg e?E = +6m.47s.?, eE = +9m.19s. and +17m.1s., e = +17m.23s., iN = +17m.59s. = S_cS + 17s., eE = +18m.10s.?, e?N = +19m.1s., eE = +19m.27s., iE = +20m.7s., iZ = +20m.54s., iE = +21m.7s., iEN = +21m.13s., iE = +21m.29s., iN = +21m.47s., iE = +21m.53s.
Copenhagen +9m.49s. = P_cP − 7s.
Vienna P = +10m.6s.
Potsdam iZ = +8m.20s., eEZ = +9m.49s.? = PP − 3s., eEN = +17m.49s.? = SS − 3s., e = +18m.49s.? = SSS + 2s., iE = +20m.14s., iEN = +21m.51s.?
Zagreb e = +10m.10s. = PP + 11s.
Cheb e = +24m.44s.
Hamburg e = +18m.49s.?
Triest ePP = +10m.19s., eSS = +18m.52s.
Stuttgart e = +10m.33s. = PP + 6s. and +13m.12s.
Strasbourg ePP = +11m.55s., eSS = +20m.49s.?
Paris e = +28m.9s.
Long waves were also recorded at Ottawa and several European stations.

Sept.11d. Readings also at 0h. (Tucson), 1h. (Ekaterinburg and Tashkent), 2h. (Ekaterinburg, Tashkent, Irkutsk, Nanking, Hong Kong, near Amboina (2), and near Chiufeng), 4h. (Amboina, Tashkent, Almata, and near Andijan), 12h. (Almata, Samarkand, near Tchimkent, and near Amboina (2)), 13h. (Hong Kong, Zi-ka-wei, Matuyama, near Kobe, Sumoto, Osaka, Nagoya (2), and Nagasaki), 14h. (near Amboina, near Osaka, and near Mizusawa), 15h. (Cincinnati), 16h. (Almeria, Alicante, Granada, Toledo, and near Malaga), 17h. (La Paz, Alicante, and near Malaga), 19h. (Amboina, near Berkeley, Branner, and Lick), 20h. (Andijan and near Amboina), 22h. (near Amboina).

Sept. 12d. 23h. 37m. 35s. Epicentre 39°·0N. 50°·0E. N.3.

Very rough.

A = +·500, B = +·595, C = +·629 ; D = +·766, E = −·643 ;
G = +·405, H = +·482, K = −·777.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Baku	1·4	357	e 0 25	+ 5	e 0 37	+ 1	—	—
Tiflis	4·8	306	e 1 9	+ 1	e 2 4	+ 1	—	—
Theodosia	12·4	303	e 2 49	− 5	—	—	—	—
Yalta	13·0	300	e 3 12	+10	—	—	—	—
Simferopol	13·2	301	e 3 52	−13	—	—	—	—
Tashkent	14·9	75	—	—	e 5 25	−48	e 10·4	11·0
Tchimkent	15·4	71	4 14	+43	—	—	—	—
Andijan	17·3	77	3 54	− 4	—	—	—	—
Ekaterinburg	19·2	18	e 4 19	− 2	e 7 44	− 6	11·4	—
Pulkovo	24·2	336	i 5 17	+ 5	i 9 57	+30	—	—

Additional readings :—
Baku e = +45s., S_g = +50s.
Tiflis e = +1m.15s. = P* − 4s., +1m.54s. and +2m.24s. = S* + 3s.

Sept. 12d. Readings also at 0h. (near Andijan), 1h. (near Amboina), 2h. (Königsberg and near Amboina), 5h. (near Amboina (3)), 7h. (Baku, Ekaterinburg, Tiflis, La Paz, and near Amboina), 8h. (Florence, Paris, Strasbourg, Stuttgart, San Fernando, Tashkent, Pulkovo, near Mizusawa, and Nagoya), 9h. (near Amboina), 13h. (La Paz), 17h. (Andijan, Malabar, and near Batavia), 19h. (near Amboina), 20h. (near Batavia and Malabar), 22h. (Huancayo), 23h. (Berkeley).

Sept. 13d. 12h. 58m. 0s. Epicentre 47°·7N. 7°·6E. (as on 1932 April 3d.). R.2.

A = +·667, B = +·089, C = +·740.

	Δ	Az.	P.	O−C.	S.	O−C.
	°	°	m. s.	s.	m. s.	s.
Zurich	0·7	117	e 0 8	− 2	e 0 20	+ 2
Neuchatel	0·8	213	e 0 10	− 1	e 0 20	− 1
Strasbourg	0·9	7	e 0 13	0	e 0 26	+ 3
Ravensburg	1·4	86	e 0 21	+ 1	e 0 36	0
Hohenheim	1·5	47	e 0 20	− 1	e 0 39	0
Stuttgart	1·5	45	e 0 22	+ 1	e 0 40	+ 1

Additional readings:—
Zurich e = +22s.
Neuchatel e = +22s.
Hohenheim e_q = +45s.
Stuttgart e_q = +45s.

Sept. 13d. Readings also at 5h. (near Amboina (2)), 6h. (near Nagoya and Tyosi (2)), 10h. (near Soengei Langka), 11h. (Tyosi and near Sumoto), 15h. (Sumoto), 17h. (near Tyosi), 19h. (Berkeley, Ukiah, Tinemaha, and Pasadena), 20h. (Soengei Langka, and near Amboina), 21h. (La Paz), 22h. (Mizusawa, near Nagoya, and Tyosi), 23h. (near Amboina).

Sept. 14d. 8h. 43m. 26s. Epicentre 61°·0N. 149°·0W. (as on 1931 Jan. 27d.). R.2.

A = −·416, B = −·250, C = +·875; D = −·515, E = +·857; G = −·750, H = −·450, K = −·485.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Sitka		8·0	113	1 50	− 3	3 18	− 6	4·0	—
Seattle		20·2	119	e 4 30	− 2	e 7 47	−23	—	—
Bozeman		26·8	107	e 5 46	+10	e 10 12	0	e 14·1	—
Ukiah		27·0	132	e 5 48	+10	e 10 18	+ 3	e 12·3	—
Berkeley		28·5	132	e 5 47	− 5	—	—	—	—
Branner		28·9	132	e 5 58	+ 3	—	—	—	—
Lick		29·2	132	e 5 58	0	—	—	—	—
Tinemaha		30·7	127	e 6 9	− 2	i 11 13	− 3	—	—
Santa Barbara		32·5	132	e 6 36	+ 9	—	—	—	—
Mount Wilson		33·3	131	e 6 32	− 2	e 11 49	− 6	—	—
Pasadena		33·4	131	i 6 29	− 6	i 11 50	− 7	e 16·1	—
Riverside	E.	33·8	129	e 6 44	+ 5	e 11 55	− 8	—	—
La Jolla		34·8	129	e 6 44	− 3	e 12 14	− 4	—	—
Tucson		37·9	123	7 24	+10	e 13 2	− 3	16·2	—
Madison		39·1	90	i 7 19	− 5	e 13 22	0	17·7	—
Honolulu T.H.		40·2	193	7 54	+20	13 34	− 5	e 19·1	—
Chicago		40·9	89	e 7 55	+15	e 13 42	− 8	19·1	—
Florissant		41·8	95	e 7 42	− 5	e 13 59	− 4	—	22·6
St. Louis		42·1	95	e 7 43	− 6	e 14 1	− 7	—	22·6
Ann Arbor		42·4	85	e 8 4	+12	e 14 22	+11	e 20·0	—
Toronto		43·5	82	e 8 5	+ 4	14 20	− 8	21·1	—
Ottawa		43·9	77	e 7 58	− 6	e 14 28	− 6	e 21·6	—
Buffalo		44·3	82	i 8 18	+11	i 14 8	−32	e 18·1	—
Cincinnati		44·4	90	i 8 10	+ 2	e 14 34	− 7	e 20·1	—
Pittsburgh		45·6	84	e 10 14	(+13)	14 56	− 3	e 20·6	—
Fordham		48·2	80	i 9 7	+29	e 15 46	+10	e 23·6	—
East Machias		48·2	72	e 10 49	PP	i 15 32	− 4	18·8	—
Georgetown		48·2	83	e 8 34	− 4	i 15 38	+ 2	e 21·0	—
Charlottesville		48·2	87	—	—	e 15 44	+ 8	—	—
Harvard		48·4	76	e 8 53	+14	i 15 31	− 7	e 20·6	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Columbia		50·2	91	e 11 6	PPP	e 15 54	−10	e 23·6	—
Irkutsk		52·7	315	9 9	− 3	16 37	− 1	28·6	—
Pulkovo		59·3	1	e 9 59	− 1	i 18 5	− 2	23·6	32·9
Ekaterinburg		59·9	344	i 10 1	− 3	—	—	26·1	32·7
Copenhagen		62·4	13	i 10 17	− 4	18 45	− 2	—	—
Kucino		63·2	356	—	—	e 18 54	− 3	e 31·1	39·8
De Bilt		65·1	18	—	—	e 19 34?	PS	e 31·6	—
Uccle		66·2	19	e 10 46	− 1	—	—	—	—
Paris		67·8	20	—	—	e 20 34?	+40	35·6	—
Stuttgart		68·9	15	e 10 58	− 6	e 20 4	− 4	e 41·6	—
Strasbourg		68·9	17	e 10 34?	−30	—	—	e 37·6	—
Vienna	z.	70·2	11	e 11 5	− 7	—	—	—	—
Innsbruck		70·6	14	11 16	+ 2	—	—	—	—
San Juan		70·6	87	—	—	e 28 16	?	e 36·1	—
Tchimkent		72·1	331	e 11 51	+28	—	—	—	—
Andijan		72·8	330	e 11 24	− 4	e 20 50	− 4	—	—
Tashkent		73·1	331	e 11 34	+ 5	e 20 58	0	32·6	40·1
Hong Kong		73·8	288	20 55	S	(20 55)	−11	—	43·7
Theodosia		73·9	357	e 11 33	− 1	—	—	—	—
Simferopol		74·1	358	e 11 36	+ 1	—	—	—	—
Toledo		75·2	28	11 36	− 5	e 21 36	+14	—	—
Tiflis		76·7	350	e 11 49	− 1	e 21 36	− 3	e 42·6	—
Baku		77·5	346	11 52	− 3	i 21 42	− 6	36·6	50·4
Malaga		78·1	29	i 11 53	− 5	21 50	− 5	37·0	38·8

Additional readings :—
Seattle i = +4m.42s. = PP − 3s. and +8m.23s. = SS − 8s.
Bozeman eS = +10m.0s.
Ukiah eS = +10m.2s.
Berkeley ePN = +5m.50s., ePE = +5m.58s., iZ = +6m.6s.
Tinemaha iEN = +6m.29s.
Santa Barbara iN = +6m.51s.
Mount Wilson iEN = +6m.44s.
Pasadena iNZ = +6m.42s.
La Jolla iEN = +6m.56s.
Tucson ePP = +8m.43s.
Madison iP = +7m.31s., iPP = +8m.48s., eS = +13m.12s., eSS = +15m.21s. and +15m.36s. : T_0 = 8h.43m.30s.
Honolulu T.H. e = +16m.41s. = SSS − 9s. and +16m.54s. = SSSS − 4s.
Chicago iPP = +9m.12s., e = +16m.28s. = SS − 3s., i = +17m.5s. = SSS − 2s.
Florissant iN = +7m.57s., iPPEN = +10m.35s., eSSEN = +17m.1s.
St. Louis iN = +7m.58s., iPPEN = +10m.36s., eSSEN = +17m.2s.
Ann Arbor eSS = +17m.10s. ; T_0 = 8h.43m.18s.
Toronto e = +7m.50s., iPE = +8m.13s., iPPEN = +9m.50s. = $P_cP - 3s_4$, SS = +17m.34s. ? ; T_0 = 8h.43m.27s.
Ottawa eE = +8m.21s., ePPP = +10m.6s., eSSN = +17m.34s. ; T_0 = 8h.43m.12s.
Buffalo i = +8m.26s. and +10m.14s. = PPP − 2s. and +14m.27s.
Cincinnati iPNZ = +8m.16s., iPPE = +9m.53s., iPPZ = +9m.56s., eSZ = +14m.44s., iSSZ = +18m.12s.
Pittsburgh e = +18m.6s. = SS + 4s. and +18m.32s.
Fordham e = +10m.59s., eSN = +15m.52s., e = +19m.48s.
East Machias S = +15m.41s., e = +19m.44s.
Georgetown iP = +8m.53s., eE = +15m.16s. ; T_0 = 8h.43m.18s.
Harvard eN = +9m.14s., +10m.34s. and +15m.37s.
Charlottesville e = +19m.28s.
Columbia e = +18m.59s. and +20m.6s.
Ekaterinburg i = +17m.32s., iPS = +18m.35s.
Kucino e = +19m.24s. and +25m.58s.
Stuttgart eZ = +11m.13s. = P_cP − 16s.
San Juan e = +28m.46s.
Tiflis eSKS = +22m.3s. = PS − 4s.
Malaga PP = +14m.49s., PS = +32m.22s.
Long waves were also recorded at Phu-Lien, Bombay, Kew, San Fernando, Balboa Heights, and La Paz.

Sept. 14d. Readings also at 2h. (near Sumoto), 3h. (Zurich, Stuttgart, Strasbourg, Neuchatel, Uccle, and near Santiago), 4h. (near Nagoya), 6h. (near Amboina), 8h. (near Tyosi), 9h. (Kodaikanal), 10h. (Tchimkent), 11h. (near Tananarive), 12h. (Lick), 14h. (near Nanking), 16h. (near Amboina), 18h. (Tiflis and near Amboina (2)), 19h, and 21h. (near Amboina), 23h, (near Sumoto),

Sept. 15d. 11h. 13m. 22s. Epicentre 5°·9N. 120°·7E. N.2.

A = −·508, B = +·855, C = +·103 ; D = +·860, E = +·511 ; G = −·052, H = +·088, K = −·995.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Manila	8·7	2	2 16	+13	3 58	+17	—	—
Amboina	12·2	142	i 2 47	− 4	—	—	—	—
Palau	13·7	83	3 14	+ 3	6 28	+44	—	—
Hong Kong	17·6	340	3 56	− 6	7 18	+ 3	8·3	10·1
Batavia	18·4	229	i 4 14	+ 3	i 8 33	+60	—	—
Isigakizima	18·7	10	4 11	− 4	7 40	0	—	—
Phu-Lien	20·2	319	e 4 33	+ 1	8 17	+ 7	—	—
Medan	22·1	265	i 4 53	+ 1	i 9 13	SS	—	—
Nagasaki	28·1	16	e 5 50	+ 2	e 10 35	+ 1	—	—
Sumoto	31·3	24	e 6 18	+ 1	—	—	—	—
Chiufeng	34·4	353	6 41	− 3	e 12 54	+42	e 18·2	22·0
Maebasi	34·8	26	6 44	− 3	12 22	+ 4	—	—
Calcutta	35·3	302	5 13	−99	11 13	−73	17·0	—
Akita	38·0	25	7 16	+ 1	13 11	+ 5	—	—
Colombo	40·6	274	7 41	+ 4	—	—	—	27·9
Sapporo	41·4	23	7 44	0	14 0	+ 3	—	—
Kodaikanal	42·8	279	7 49	− 6	—	—	—	—
Adelaide	44·2	159	e 8 5?	− 1	i 14 42	+ 3	20·4?	30·3
Dehra Dun	46·9	307	8 8?	−20	15 8	− 9	22·3?	—
Irkutsk	48·3	347	e 8 38	0	15 38	+ 1	23·6	30·1
Bombay	48·4	290	8 46	+ 7	15 53	+15	25·7	35·6
Riverview	49·1	146	—	—	i 15 58	+10	e 19·4	21·6
Sydney	49·1	146	—	—	i 15 26	−22	25·2	32·7
Melbourne	49·2	154	i 7 23	−82	i 15 53	+ 3	—	—
Andijan	55·4	317	e 9 36	+ 4	e 17 16	+ 1	—	—
Tashkent	57·7	316	e 6 38	?	e 14 2	?	e 21·6	35·2
Tchimkent	57·9	317	e 9 38	−12	—	—	—	—
Ekaterinburg	69·0	330	i 11 4	− 1	20 3	− 6	32·6	41·9
Baku	71·6	311	11 23	+ 3	i 20 43	+ 3	34·6	46·4
Tiflis	75·6	312	11 43	− 1	e 21 39	+12	e 41·8	—
Tananarive	76·2	249	—	—	26 38?	SS	38·0	43·3
Honolulu T.H.	80·0	70	—	—	e 22 11	− 5	e 36·6	—
Theodosia	82·5	315	e 12 23	+ 2	—	—	—	—
Simferopol	83·4	315	e 12 25	0	—	—	—	—
Yalta	83·4	314	e 12 24	− 1	—	—	—	—
Pulkovo	85·1	330	12 32	− 2	23 0	− 9	44·6	50·7
Helwan	86·5	299	e 12 38	− 3	23 9	−13	—	61·3
Copenhagen	95·2	328	—	—	33 38?	?	46·6	—
Stuttgart	99·4	321	e 17 47	PP	e 20 18	?	e 52·6	—
Florence	99·7	316	e 17 8	PP	e 27 8	PS	—	58·6
Strasbourg	100·3	322	e 17 38?	PP	e 26 38?	PS	e 42·6	—
De Bilt	100·5	326	—	—	e 24 38?	[+10]	e 48·6	61·5
Uccle	101·5	325	—	—	e 23 38?	[−55]	e 52·6	—
Paris	103·4	323	e 18 38?	PP	—	—	52·6	58·6
Kew	103·8	327	—	—	e 24 38?	[− 6]	e 49·6	—
Triest	106·1	318	e 17 28	[−37]	e 27 28	PS	e 54·6	—
Algiers	108·0	312	e 14 38?	+17	e 19 38?	PS	—	—
Ottawa	126·6	14	—	—	e 30 44	PS	e 55·6	—
East Machias	128·8	8	—	—	e 33 50	?	—	—
Fordham	131·4	14	e 21 54	PP	e 39 8	SS	e 54·6	—

Additional readings :—
Hong Kong PP = +4m.0s.
Medan i = +7m.2s. and +14m.32s.
Chiufeng ePE = +6m.44s., iPPZ = +8m.1s.
Adelaide SS = +17m.48s.
Riverview iE = +17m.58s.
Melbourne i = +19m.38s. =SS +30s.
Tiflis eSSS = +30m.50s.
Pulkovo ePS = +23m.46s.
Triest e = +30m.43s.
Ottawa eE = +38m.2s. =SS +5s.
East Machias eSS = +38m.32s.
Fordham eZ = +22m.59s. =PKS +20s.
Long waves were also recorded at Ukiah, Cape Town, and other European stations.

Sept. 15d. 13h. 54m. 55s. Epicentre 39°·2S. 178°·2E. N.1.

Probable error of epicentre ±0°·33.

Epicentre given by Wellington. See also R. C. Hayes "Seismological Aspects of the Wairoa Equake," N.Z. Journal of Science and Technology, XVIII, No. 12.

A = −·775, B = +·024, C = −·632; D = +·031, E = +1·000; G = +·632, H = −·020, K = −·775.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Hastings		1·1	247	1 5?	+49	1 22	+54	—	—
Dannevirke		1·9	238	0 38	P_g	0 59	S*	—	1·3
Arapuni		2·3	299	0 34	+ 1	1 0	+ 1	—	—
New Plymouth		3·2	272	0 37	− 9	1 12	−10	—	—
Wellington		3·4	231	0 49	0	1 27	0	—	—
Takaka		4·5	248	1 6	+ 2	1 57	+ 2	—	2·6
Glenmuick		5·3	224	—	—	3 5	S_g	3·4	—
Christchurch		6·0	222	1 28	+ 3	—	—	—	—
Suva		21·1	0	4 56	+15	9 14	SS	12·1	14·1
Riverview		22·3	275	i 4 54	0	i 9 27	SS	10·9	12·8
Sydney		22·3	275	i 4 59	+ 5	i 9 17	SS	11·4	13·7
Melbourne		25·9	262	5 27	− 1	10 6	+ 9	12·1	18·0
Apia		26·8	22	e 5 45	+ 9	10 13	+ 1	—	—
Adelaide		31·6	265	e 6 22	+ 3	i 11 36	+ 7	i 15·3	19·1
Perth		50·3	258	9 5	+11	15 55	−10	25·3	26·9
Amboina		57·5	296	e 9 42	− 5	—	—	24·1	37·3
Honolulu T.H.		64·5	26	e 10 48	+13	i 19 11	− 3	30·1	—
Batavia		71·7	278	11 15	− 6	—	—	35·1	44·1
Manila	N.	75·8	304	—	—	e 20 39	−50	—	—
Kohu		83·3	328	12 25	0	—	—	—	—
Miyazaki		83·3	322	12 21	− 4	22 27	−23	—	—
Santiago		83·4	129	e 12 18	− 7	—	—	—	40·1
Nagoya		83·6	328	e 12 22	− 4	—	—	—	—
Osaka		83·7	326	12 21	− 6	—	—	13·9	14·7
Medan		84·3	280	e 12 20	−10	i 23 58	PS	43·2	49·1
Nagano		84·3	329	12 34	+ 4	—	—	—	—
Hong Kong		85·8	304	16 25	PP	23 13	− 3	29·4	37·7
La Plata		89·6	138	—	—	(37 29)	?	37·5	—
La Jolla		93·5	51	e 13 19	+ 5	—	—	—	—
Pasadena		94·0	49	e 13 19	+ 3	e 24 8	{+ 1}	e 42·9	—
Mount Wilson		94·1	49	e 13 24	+ 8	—	—	—	—
Riverside	N.	94·3	49	e 13 23	+ 6	e 23 57	[0]	—	—
Berkeley	E.	94·4	44	e 24 10	S	(e 24 10)	{ 0}	—	—
Lick		94·4	44	e 13 29	+11	—	—	—	—
Huancayo		94·7	110	—	—	i 24 12	{− 1}	e 39·4	—
Ukiah		94·9	42	—	—	i 24 50	+ 9	39·1	—
Tinemaha		96·0	47	e 13 29	+ 4	—	—	—	—
La Paz		96·8	119	e 14 18	+49	24 20	[+10]	44·1	49·9
Sucre		96·8	122	e 14 14	+45	—	—	—	—
Tucson		97·0	55	—	—	24 29	{− 1}	e 44·6	—
Chiufeng		97·4	318	e 12 35	−57	22 38	?	e 38·7	50·9
Colombo		100·8	270	18 3	PP	31 18	?	47·7	59·3
Victoria	E.	101·7	37	—	—	24 45	[+11]	47·1	51·4
Calcutta		103·9	289	33 13	SS	42 7	?	58·2	—
Kodaikanal		104·7	272	21 12	?	32 28	SS	43·9	61·3
Cape Town		104·8	198	e 22 24	PPPP	33 20	SS	43·1	60·9
Bozeman		105·8	44	—	—	e 25 53	{+16}	e 43·7	—
Tananarive		105·8	228	—	—	34 34	?	44·4	54·7
Rio de Janeiro		107·2	141	—	—	e 25 1	[+ 1]	e 44·7	—
Irkutsk		111·6	321	e 19 16	PP	e 24 56	[−24]	48·1	65·8

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Bombay	113·5	276	21 14	PPP	29 14	PS	40·4	70·6
Florissant	114·3	60	—	—	e 26 55	{+18}	62·4	—
St. Louis	114·5	60	—	—	e 26 54	{+15}	e 62·4	—
Dehra Dun	115·9	290	55 45	?	65 35	?	73·1	80·1
Madison	117·1	55	—	—	e 25 47	[+ 6]	55·1	—
Chicago	117·6	57	—	—	e 29 41	PS	e 48·6	—
Cincinnati	118·7	62	e 15 2	−11	e 30 23	PS	e 55·7	—
Ann Arbor	120·4	59	—	—	e 35 53	?	e 54·2	—
San Juan	121·2	92	—	—	e 26 2	[+ 8]	e 52·1	—
Charlottesville	122·0	65	—	—	e 37 5	SS	—	—
Pittsburgh	122·1	62	e 16 6	+37	e 25 56	[− 1]	57·7	—
Georgetown	123·4	65	e 19 53	[+59]	i 30 53	PS	e 58·3	—
Toronto	123·8	59	—	—	e 25 21	[−41]	52·7	—
Buffalo	123·9	60	e 20 45	PP	i 31 12	PS	e 59·1	—
Andijan	124·9	297	e 18 57	[0]	—	—	57·1	—
Fordham	126·4	64	e 19 7	[+ 7]	—	—	58·1	—
Ottawa	126·9	58	e 21 5	PP	e 26 25	[+15]	e 55·1	—
Tashkent	127·3	297	e 16 5	+10	e 23 5?	PPP	—	—
Tchimkent	127·5	298	e 19 54	[+52]	—	—	—	—
East Machias	132·2	62	e 21 47	PP	e 28 11	{−24}	60·8	—
Ekaterinburg	136·4	316	i 19 19	[+ 2]	—	—	65·1	76·9
Baku	140·8	289	e 19 32	[+ 9]	e 23 18	PKS	65·1	83·8
Tiflis	144·9	289	19 28	[− 6]	26 24	?	70·1	87·3
Ksara N.	149·5	270	e 19 56	[+15]	—	—	79·4	—
Pulkovo	151·2	326	e 19 42	[− 1]	e 30 8	{−21}	63·1	82·2
Helwan	151·4	261	20 5	{ 0}	30 5	{−25}	74·9	100·4
Theodosia	152·1	294	e 19 52	[+ 8]	—	—	75·6	—
Yalta	152·9	293	e 19 48	[+ 2]	—	—	75·1	—
Simferopol	153·0	294	e 19 53	[+ 7]	—	—	—	—
Upsala	156·0	336	—	—	e 53 5?	SSSS	e 69·1	88·5
Copenhagen	161·0	335	20 47	{− 2}	—	—	—	—
Budapest	162·8	305	—	—	e 38 5?	?	e 81·1	90·6
Edinburgh	163·3	3	—	—	e 42 5?	?	85·1	113·6
Potsdam	163·3	327	e 23 5?	PKS	e 35 5?	SKSP	e 65·1	83·1
Hamburg	163·5	335	e 26 5?	?	e 45 5?	SS	e 70·1	90·1
Vienna	164·1	311	e 19 56	[− 2]	—	—	—	90·1
Jena	165·0	326	e 19 32	[−27]	—	—	e 70·1	84·6
Cheb	165·2	322	e 34 45	SKSP	46 7	SS	e 71·1	93·1
Zagreb	165·4	303	e 19 44	[−15]	e 31 5?	{−42}	e 68·1	—
Bidston	165·7	3	e 15 29	?	e 28 25	PPP	67·1	100·3
Trenta	165·9	276	e 17 35	?	—	—	—	—
De Bilt	166·2	342	e 20 11	[+11]	—	—	e 75·1	87·7
Triest	166·9	305	e 20 3	[+ 2]	e 31 35	{−20}	e 69·1	74·8
Oxford	167·4	359	i 20 0	[− 1]	—	—	e 63·1	116·0
Stuttgart	167·6	324	e 20 15	[+13]	—	—	e 76·1	100·1
Uccle	167·6	342	e 20 5?	[+ 3]	e 30 5?	?	e 70·1	90·9
Kew	167·7	356	e 20 5?	[+ 3]	—	—	e 74·1	95·5
Karlsruhe	167·8	327	—	—	(e 30 5?)	?	e 30·1	—
Strasbourg	168·4	327	e 20 15	[+13]	32 9	{+ 6}	64·1	98·6
Zurich	168·9	321	e 21 15	{−10}	—	—	—	—
Florence	169·2	299	20 5	[+ 2]	—	—	82·1	93·1
Piacenza	169·7	308	e 20 5	[+ 1]	—	—	—	102·6
Neuchatel	169·9	324	e 20 3	[− 1]	—	—	—	—
Paris	169·9	344	e 20 18	[+14]	e 47 5?	?	74·1	89·1
Algiers	175·5	239	21 5?	[+59]	e 30 5?	?	48·1	93·1
San Fernando	175·5	127	e 20 8	[+ 2]	32 52	{+12}	70·1	103·6
Malaga	176·8	140	e 20 8	[+ 1]	32 42	{− 5}	75·1	95·4
Granada	177·6	145	e 20 0	[− 7]	i 32 43	{− 8}	e 84·7	97·6
Tortosa	177·6	312	e 20 5?	[− 2]	(e 48 5?)	SS	e 48·1	103·0
Almeria	177·7	167	e 20 8	[+ 1]	e 36 14	SKSP	e 87·2	—
Toledo	178·1	70	e 20 9	[+ 2]	e 32 49	{− 5}	e 75·1	99·8
Alicante	178·7	231	e 19 45	[−22]	e 33 31	{+35}	e 47·5	—

For Notes see next page.

NOTES TO SEPT. 15d. 13h. 54m. 55s.

Additional readings :—
Dannevirke i = +41s., P_g = +45s., i = +50s. = S +1s. and +1m.2s., S_g = +1m.6s.
Arapuni P* = +40s., P_g = +50s.
New Plymouth P_g = +47s., i = +54s. = P* +2s., S_g = +1m.33s. = S* −1s., i = +1m.52s.
Wellington i = +54s. = P* −1s., P* = +59s., P_g = +1m.12s., S_g? = +1m.40s.
Takaka P_g? = +1m.24s., S* = +2m.12s.
Glenmuick e = −55s., i = +47s.
Christchurch P* = +1m.43s.
Riverview i = +5m.6s. = PP − 7s., iEN = +9m.10s. = SS − 14s.
Melbourne i = +5m.33s. and +5m.37s.
Adelaide i = +6m.43s., iPP = +7m.29s., i = +12m.1s., +13m.46s., and +14m.11s.
Perth P_cP = +10m.5s., P_cS = +14m.5s., SS = +22m.20s., SSS = +23m.40s.
Amboina i = +10m.31s.
Batavia e = +11m.31s., i = +13m.12s. and +21m.55s.
Manila iN = +23m.8s.
Pasadena ePPZ = +17m.19s.
Huancayo eSS = +30m.55s.
Tinemaha eE = +17m.38s. = PP +26s.
La Paz PPE = +17m.30s., SN? = +25m.10s., SSS = +32m.24s., L_qN = +41·1m.
Chiufeng ePP = +16m.18s., ePPP = +18m.33s., ePS = +23m.23s., eSS = +28m.5s.
Cape Town iP = +22m.35s. and +22m.45s., PP? = +26m.9s. = S +0s. and +26m.18s., also +26m.42s., +38m.4s., and +38m.43s.
Bozeman e = +26m.22s., ePS = +28m.3s., eSS = +33m.31s.
Irkutsk ePS = +28m.48s., SS = +35m.23s.
Florissant eEN = +26m.21s. and +29m.15s. = PS +6s., eSSEN = +34m.58s.
St. Louis eEN = +26m.20s. and +29m.14s. = PS +3s., eSSSEN = +34m.56s. = SS +37s.
Madison ePS = +29m.47s. = SKSP +15s., eSS = +36m.26s. ; T_0 = 13h.54m.55s.
Chicago eSS = +36m.43s.
Cincinnati eZ = +20m.49s.
San Juan eSS = +37m.35s.
Pittsburgh ePP = +20m.24s., eSS = +37m.11s., eSSS = +41m.35s.
Georgetown ePP = +20m.35s. ; T_0 = 13h.54m.54s.
Toronto e = +23m.21s. = PPP +13s.
Fordham ePP = +21m.5s.?, eSS = +38m.5s.?
Ottawa eE = +22m.41s. and +28m.13s., e = +38m.35s. = SS +34s.
East Machias i = +22m.43s., iSS = +40m.5s.
Ekaterinburg iPP = +22m.6s., iPKS = +22m.50s., iPPS = +34m.10s., SS = +39m.41s.
Baku ePP = +22m.39s., PPS = +35m.18s., eSS = +42m.5s.
Tiflis e = +21m.6s.
Pulkovo eSKS = +26m.13s., SKSP = +33m.27s., eSS = +42m.41s.
Jena eZ = +20m.59s., eE = +21m.2s., eN = +59m.32s. and +60m.5s.
Zagreb e = +23m.24s. = PKS − 15s., e = +35m.35s. = SKSP − 41s., +45m.14s. = SS − 14s. and +52m.5s.?
Triest e = +25m.35s., PPP = +28m.59s., e = +36m.46s. and +38m.3s., eSS = +45m.16s.
Oxford e = +25m.51s. and +29m.2s.
Stuttgart eZ = +21m.14s. = P'_g +3s., e = +24m.53s. = PP − 2s.
Strasbourg ePP = +25m.19s., eSKS = +27m.23s., eSS = +46m.35s.
Florence i = +25m.20s. = PP +17s., SS = +48m.5s.
Paris e = +27m.5s.?
Algiers e = +25m.5s.? = PP − 27s., i = +33m.5s.
Malaga PKP_3 = +22m.13s., PP = +25m.37s., SKS = +27m.6s., PPP = +29m.31s., SS = +47m.15s., SSS = +55m.13s.
Granada e = +25m.39s. = PP − 4s.
Toledo eP = +21m.57s. = P'_g − 9s., PP = +26m.5s., PPP = +30m.5s., SKKS = +33m.3s., S = +37m.5s., SS = +47m.56s., i = +50m.5s., SSS = +54m.41s., SSSS = +59m.31s.
Long waves were also recorded at Phu-Lien, Sumoto, Sitka, Dakar, and other European stations.

Sept. 15d. Several shocks were recorded in New Zealand, apparently associated with the 13h. earthquake. Wellington specifies definite origins to the principle disturbances of which four have been computed. In each case the Wellington determination is adopted.

Sept. 15d. 14h. 17m. 10s. Epicentre 39°·7S. 178°·4E. N.3.

A = − ·769, B = + ·021, C = − ·639.

	Δ	P.	O − C.	S.	O − C.	L.	M.
	°	m. s.	s.	m. s.	s.	m.	m.
Hastings	1·2	0 20?	+ 3	0 37	+ 6	—	—
Arapuni	2·3	—	—	0 50	− 9	—	—
Wellington	3·2	0 56	P_g	1 32	S*	—	2·1
New Plymouth	3·4	0 49	0	1 28	+ 1	—	—
Takaka	4·5	—	—	2 50?	?	—	—
Glenmuick	5·1	2 8	S	3 44	?	4·0	—

Wellington gives i = +1m.15s., P_g? = +1m.22s. =S − 3s., S_g = +1m.53s.

Sept. 15d. 14h. 51m. 19s. Epicentre 39°·4S. 178°·0E. N.3.

A = − ·772, B = + ·027, C = − ·635.

	Δ	P.	O − C.	S.	O − C.
	°	m. s.	s.	m. s.	s.
Hastings	0·9	0 41?	+28	0 54	+31
Arapuni	2·3	0 32	− 1	0 58	− 1
New Plymouth	3·0	0 39	− 4	1 12	− 5
Wellington	3·1	0 45	+ 1	1 19	− 1
Takaka	4·2	1 41?	S	(1 41?)	− 7
Glenmuick	5·0	1 41?	?	—	—
Christchurch	5·8	1 24	+ 2	—	—

Arapuni P_g = +45s., S_g? = +1m.23s.
Wellington P* = +54s., i = +1m.28s. =S* − 3s., +1m.40s., and +1m.48s.

Sept. 15d. 15h. 58m. 44s. Epicentre 39°·4S. 178°·3E. N.3.

A = − ·772, B = + ·023, C = − ·635.

	Δ	P.	O − C.	S.	O − C.
	°	m. s.	s.	m. s.	s.
Wellington	3·3	0 50	+ 3	1 26	+ 1
New Plymouth	3·3	0 44	− 3	1 21	− 4

Sept. 15d. 22h. 38m. 45s. Epicentre 39°·9S. 177°·8E. N.3.

A = − ·767, B = + ·029, C = − ·641.

	Δ	P.	O − C.	S.	O − C.
	°	m. s.	s.	m. s.	s.
Hastings	0·8	1 15?	?	—	—
Wellington	2·7	0 47	+ 8	1 17	+ 8
New Plymouth	3·0	0 35	− 8	1 8	− 9

Sept. 15d. Readings also at 1h. (near Amboina), 4h. (near Nagoya), 8h. (near Amboina and near Nagoya), 9h. (near Amboina), 10h. (near Santiago), 11h. (Batavia, Manila, Phu-Lien, near Amboina, and near Mizusawa), 12h. (near Amboina (2)), 13h. (Chiufeng), 14h. (Mizusawa, near New Plymouth (4) and Wellington (6)), 15h. (Alicante, near Amboina, near Hastings, New Plymouth (4), and Wellington (4)), 16h. (near Mizusawa), 17h. (near New Plymouth (3) and Wellington (2)), 18h. (Tchimkent, Hastings, near New Plymouth (2), and Wellington (2)), 19h. (New Plymouth and Wellington), 21h. (near New Plymouth (2), Wellington (2), and near Amboina), 23h. (New Plymouth (3) and Wellington (2)).

Sept. 16d. 22h. 7m. 58s. Epicentre 40°·0N. 126°·2W. (as on 1931 Aug. 23d.). X.

A = −·452, B = −·618, C = +·643; D = −·807, E = +·591; G = −·380, H = −·519, K = −·766.

	Δ	Az.	P.	O−C.	S.	O−C.	L.
	°	°	m. s.	s.	m. s.	s.	m.
Ukiah	2·5	111	1 11	S*	—	—	2·1
Berkeley	3·7	124	e 0 53	0	—	—	—
San Francisco	3·7	127	e 0 56	+ 3	e 1 44	S*	—
Branner	4·0	128	i 0 58	+ 1	e 1 52	S*	—
Tinemaha	6·8	113	i 1 40	+ 3	—	—	—
Santa Barbara	7·5	134	i 1 40	− 6	i 3 11	0	—
Mount Wilson	8·7	129	e 2 3	0	e 3 48	+ 7	—
Pasadena	8·7	130	i 2 2	− 1	i 3 44	+ 3	—

Berkeley gives also ePEN = +56s., iN = +1m.3s. = P_g − 5s.

Sept. 16d. 23h. 15m. 43s. Epicentre 38°·9S. 177°·8E. (as given by Wellington). N.3.

A = −·778, B = +·030, C = −·628.

	Δ	P.	O−C.	S.	O−C.	M.
	°	m. s.	s.	m. s.	s.	m.
Hastings	1·0	1 17?	+63	1 32	+66	—
New Plymouth	2·9	0 42	+ 1	1 14	0	—
Wellington	3·4	0 44	− 5	1 21	− 6	—
Glenmuick	5·3	e 1 17?	+ 2	—	—	2·4
Christchurch	6·1	1 5	−22	2 11	−25	—

Additional readings:—
New Plymouth P_g = +59s., S_g? = +1m.41s.
Wellington P_g = +1m.10s., S* = +1m.38s., S_g? = +2m.1s.
Christchurch P_g = +1m.31s., S_g = +2m.39s.
Long waves were recorded at Riverview.

Sept. 16d. Further local shocks were recorded by New Zealand stations as follows:

Hastings 4h.35m.0s. ?
New Plymouth P = 4h.34m.38s., S = 35m.12s.
Wellington P = 4h.34m.36s., S = 35m.15s.; epicentre 39°·0S. 178°·0E.

New Plymouth P = 9h.11m.49s., S = 12m.24s.
Wellington 9h.12m.

Hastings 9h.38m.0s. ?
New Plymouth P = 9h.38m.18s., S = 38m.57s.
Wellington P = 9h.38m.23s., S = 38m.54s.

New Plymouth P = 14h.9m.51s., S = 10m.24s.

Hastings P = 19h.33m.0s. ?, i = 33m.9s., S? = 33m.19s.
New Plymouth P = 19h.33m.21s., S = 33m.57s.
Wellington P = 19h.33m.22s., S = 33m.54s.

New Plymouth P = 19h.35m.59s., S = 36m.31s.
Wellington P = 19h.35m.56s., S = 36m.30s.

New Plymouth P = 23h.47m.39s., S = 48m.15s.

Sept. 16d. Readings also at 1h. (Amboina (2)), 2h. (New Plymouth and Wellington), 3h. (New Plymouth), 6h. (Lick, near Osaka (2), near Andijan, and Tchimkent), 8h. (New Plymouth), 9h. (New Plymouth, Wellington, and La Paz), 10h. (Amboina), 11h. (New Plymouth and Wellington), 15h. (Andijan and Amboina), 17h. (New Plymouth and near Almeria), 19h. (Toledo), 20h. (Tiflis), 21h. (Sucre and near La Paz), 22h. (Amboina, Melbourne, and Riverview), 23h. (New Plymouth and near Tyosi).

Sept. 17d. 6h. 11m. 39s. Epicentre 38°·8S. 178°·0E. (given by Wellington). N.3.

A = −·779, B = +·027, C = −·627.

	Δ	P.	O−C.	S.	O−C.	M.
	°	m. s.	s.	m. s.	s.	m.
Hastings	1·2	0 21?	+ 4	0 37	+ 6	—
New Plymouth	3·1	0 45	+ 1	1 19	− 1	—
Wellington	3·5	0 41	− 9	1 21	− 9	—
Glenmuick	5·5	e 1 21?	+ 3	—	—	2·5
Christchurch	6·2	2 3	P_g	2 27	−11	—

Additional readings :—
Hastings i = +27s.
New Plymouth P_g = +49s., i = +1m.10s.
Wellington P_g = +1m.7s., S* = +1m.35s.
Christchurch gives P_g and S as P and P_g respectively, also i = +3m.36s.

Sept. 17d. Readings also at 1h. (near Andijan and Tchimkent), 4h. (near Granada and Malaga), 7h. (near Andijan and Tchimkent), 8h. (Andijan, Tchimkent, and near Samarkand), 11h. (Edinburgh), 12h. (Tchimkent), 13h. (Sucre, near La Paz, Tyosi, and near Nagoya), 14h. (Alicante), 15h. (La Paz, Lick, Hastings, Wellington, and near New Plymouth), 17h. (New Plymouth, La Paz, and Huancayo), 18h. (Mizusawa), 19h. (Hastings, Wellington, and near New Plymouth), 20h. (Wellington and near Almata), 21h. (near Apia), 22h. (Tiflis, Hastings, and near New Plymouth), 23h. (near Malabar).

Sept. 18d. 18h. A local Japanese shock for which the epicentre is given as " N.W. off the Island of Hatiyo," 33°6′N. 139°50′E. The observations would fit a position about 29°·5N. 139°·0E., which is incompatible with local information, so the actual readings are given, as recorded by the stations.

Kobe eP = 18h.17m.46s., SN = 18m.51s., SZ = 18m.54s., iSE = 18m.56s., M = 18m.57s.
Osaka P = 18h.17m.47s., L = 18m.53s., M = 19m.16s.
Nagoya eP = 18h.17m.47s., S = 18m.53s., M = 18m.55s.
Mizusawa P = 18h.18m.30s., SE = 20m.8s., SN = 20m.10s.
Sumoto eP = 18h.18m.54s.
Tyosi eP = 18h.19m.3s., S = 19m.14s.

Sept. 18d. Readings also at 1h. (New Plymouth and Wellington), 2h. (Berkeley, Branner, Lick, Ukiah, Pasadena, Mount Wilson, Tinemaha, near Batavia, and Malabar (2)), 8h. (Mizusawa), 9h. (Almeria and Tchimkent), 11h. (Samarkand, near Amboina (2), and near Manila), 12h. (Andijan, Ekaterinburg, and Tchimkent), 13h. (La Paz), 14h. (Baku, Ekaterinburg, Tiflis, Tchimkent, De Bilt, Kew, and near Andijan), 15h. (Huancayo), 16h. (near Tokyo and Tyosi), 17h. (near Christchurch, Hastings, New Plymouth, and Wellington ; epicentre given as 39°·1S. 177°·9E.), 18h. (La Paz and Sucre), 21h. (Huancayo).

Sept. 19d. 14h. 12m. 40s. Epicentre 35°·7N. 140°·4E. (as on 1932 May 22d.). X.

A = −·626, B = +·518, C = +·584.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tyosi		0·4	85	0 7	+ 1	0 17	+ 7	—	0·3
Tokyo		0·5	268	0 5	− 2	0 14	+ 1	—	0·3
Nagoya		2·9	259	e 0 38	− 3	1 11	− 3	—	—
Mizusawa	E.	3·5	9	—	—	1 27	− 3	—	—
Osaka		4·1	261	0 59	+ 1	—	—	2·1	2·5

Sept. 19d. Readings also at 0h. (near Wellington), 1h. (Mizusawa and near Manila), 2h. (Ekaterinburg, Irkutsk, Tucson, and near Manila), 3h. (Tiflis and La Paz), 5h. (Baku, Ekaterinburg, Tashkent, near Andijan, and Tchimkent), 6h. (Tiflis and near Matuyama), 7h. (Ekaterinburg and Irkutsk), 9h. (Tucson), 10h. (Lick), 13h. (Tyosi), 15h. (Tortosa), 16h. (Bergen), 17h. (near Glenmuick).

Sept. 20d. 12h. 41m. 40s. Epicentre 11°·5S. 81°·5W. N.3.

A = +·145, B = −·969, C = −·199; D = −·989, E = −·148;
G = −·029, H = +·197, K = −·980.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Huancayo		6·1	96	i 1 19	− 8	—	—	i 2·3	—
La Paz	N.	13·9	113	e 3 21	+ 7	i 6 2	+13	7·0	7·7
Sucre		17·4	117	e 4 0	+ 1	—	—	—	—
La Jolla	N.	56·0	323	e 9 36	0	—	—	—	—
Mount Wilson	E.	57·4	324	e 9 47	+ 1	—	—	—	—
Tinemaha		59·6	326	e 10 1	− 1	—	—	—	—

Huancayo gives i = +1m.22s. and +1m.33s.
La Paz iPN = +3m.31s.

Sept. 20d. 15h. 43m. 32s. Epicentre 8°·5N. 93°·6E. N.2.

A = −·062, B = +·987, C = +·148; D = +·998, E = +·063;
G = −·009, H = +·148, K = −·989.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Medan		7·0	134	i 1 48	+ 9	i 2 52	− 7	—	—
Colombo		13·7	264	3 25	+14	—	—	—	10·5
Kodaikanal		16·0	278	3 39	− 2	—	—	—	—
Hyderabad		17·2	303	3 58	+ 1	7 21	+15	9·3	13·5
Phu-Lien		17·6	44	e 4 3	+ 1	7 28?	+13	9·5	—
Batavia		19·8	138	e 4 22	− 5	—	—	i 10·4	—
Bombay		22·7	299	5 3	+ 5	9 10	+11	11·8	20·8
Hong Kong		24·1	53	5 19	+ 8	10 38	+73	12·0	14·5
Manila		27·5	75	6 12	+29	12 16	+112	16·5	—
Zi-ka-wei	Z.	34·4	45	e 6 48	+ 4	14 48	?	21·2	27·5
Andijan		37·3	333	e 7 12	+ 3	—	—	—	—
Chiufeng		37·4	29	i 7 9	− 1	e 13 11	+14	—	23·4
Tashkent		39·2	331	—	—	e 12 28	−56	e 15·8	30·7
Tchimkent		39·8	332	e 9 57	(+16)	—	—	—	—
Irkutsk		44·6	9	e 8 5	− 5	e 14 46	+ 2	e 25·5	27·3
Baku		50·2	317	e 9 0	+ 7	e 16 10	+ 6	24·5	34·5
Tiflis		54·2	316	e 9 20	− 3	16 57	− 1	27·2	35·5
Ekaterinburg		54·7	339	e 9 27	+ 1	e 18 2	+57	25·3	34·6
Kucino		64·1	329	—	—	e 19 10	+ 1	e 32·9	43·3
Pulkovo		69·4	332	e 11 27	(− 4)	20 6	− 8	35·5	47·1
Copenhagen		77·9	326	—	—	21 28?	−25	46·5	—
Tucson		133·0	29	—	—	e 39 2	SS	—	—

Additional readings:—
Medan i = +4m.48s.
Hong Kong PP = +5m.32s., SS = +10m.58s.
Chiufeng iPP = +8m.39s., eSS? = +15m.50s.
Tucson e = +39m.51s.
Long waves were recorded at Perth, Kobe, De Bilt, Paris, and Granada.

Sept. 20d. Readings also at 1h. (near Andijan), 3h. (near Medan), 4h. (Almeria, Andijan, near Christchurch, New Plymouth, and near Wellington), 5h. (Andijan), 7h. (near Medan (2)), 10h. (Manila), 14h. (Glenmuick and Tiflis), 18h. (near Amboina), 19h. (Hastings, near New Plymouth, and Wellington), 21h. (Tiflis).

Sept. 21d. Readings at 1h. (Berkeley, Branner, and near Lick), 2h. (Stonyhurst), 6h. (near Amboina, near Tiflis, near Triest, and Treviso), 8h. (Christchurch, Hastings, Wellington, near New Plymouth, and Tuai), 9h. (Samarkand), 12h. (Yalta and near Amboina), 13h. (near Matuyama), 14h. (Hastings, New Plymouth (2), Wellington (2), and near Glenmuick), 17h. (Huancayo and La Paz), 18h. (Ekaterinburg, Tashkent, and Rio de Janeiro), 19h. (Baku, Tiflis, Ekaterinburg, and near Amboina), 20h. (Alicante), 22h. (near Apia).

Sept. 22d. 11h. 0m. 9s. Epicentre 34°·8N. 135°·7E. (as on 1932 March 1d.). X.

A = −·588, B = +·574, C = +·571.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Osaka	0·2	218	0 1	− 2	(i 0 5)	0	i 0·1	0·1
Kobe	0·4	254	0 4	− 2	0 10	0	—	0·2
Sumoto	0·8	236	e 0 18	+ 7	0 22	+ 1	—	0·4
Toyooka	1·0	316	—	—	i 0 28	+ 2	—	—
Nagoya	1·1	71	—	—	e 0 29	+ 1	—	—

Osaka gives i = +3s.

Sept. 22d. Readings also at 5h. (Mizusawa), 8h. (Mount Wilson, Pasadena, and Tinemaha), 11h. (Berkeley, Branner, San Francisco, and near Lick), 12h. (near Amboina), 13h. (near Hukuoka and near Nagoya), 14h. (near Apia), 15h. (New Plymouth), 18h. (Baku, Ekaterinburg, and Tiflis), 19h. (Baku, Ekaterinburg, Tiflis, De Bilt, Stuttgart, and near Belgrade), 21h. (near Apia (2)), 22h. (Tiflis).

Sept. 23d. 14h. 22m. 14s. Epicentre **44°·7N. 139°·0E.** N.1.
(given by Tokyo).

A = −·536, B = +·466, C = +·703 ; D = +·656, E = +·755 ;
G = −·531, H = +·461, K = −·711.

A *depth* of focus 0·040 has been assumed.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Haboro	+0·9	2·0	99	0 54	+13	—	—	—	—
Sapporo	+0·9	2·3	134	0 54	+ 8	1 39	+17	—	—
Asahigawa	+0·8	2·6	111	0 54	+ 5	1 41	+14	—	—
Muroran	+0·7	2·8	149	1 2	+12	1 49	+19	—	—
Hakodate	+0·6	3·2	157	1 12	+18	2 1	+24	—	—
Ootomari	+0·6	3·3	53	1 3	+ 7	1 55	+15	—	2·3
Urakawa	+0·5	3·7	132	1 9	+ 9	2 6	+18	—	—
Aomori	+0·4	4·1	161	1 10	+ 6	2 8	+13	—	—
Nemuro	+0·1	4·9	108	1 21	+10	2 26	+18	—	—
Akita	+0·1	5·1	170	1 20	+ 6	2 24	+11	—	—
Morioka	+0·1	5·2	162	1 21	+ 6	2 25	+10	—	—
Mizusawa	0·0	5·8	163	1 28	+ 6	2 37	+ 9	—	—
Sendai	−0·1	6·6	167	1 49	+17	3 6	+20	—	—
Niigata	−0·1	6·7	179	1 41	+ 7	3 1	+13	—	—
Hukusima	−0·2	7·1	170	1 41	+ 3	2 59	+ 3	—	—
Wazima	−0·2	7·5	193	1 47	+ 3	3 13	+ 7	—	—
Nagano	−0·3	8·1	185	1 54	+ 3	3 21	+ 2	—	—
Maebasi	−0·3	8·3	180	1 53	0	3 29	+ 5	—	—
Mito	−0·3	8·4	172	1 57	+ 2	3 28	+ 2	—	—
Oiwake	−0·3	8·4	182	1 57	+ 2	3 31	+ 5	—	—
Kakioka	−0·3	8·5	173	1 57	+ 1	3 30	+ 1	—	—
Tukubasan	−0·3	8·5	174	1 59	+ 3	3 33	+ 4	—	—
Kumagaya	−0·4	8·6	178	1 50	− 6	3 29	0	—	—
Kohu	−0·4	9·0	182	2 7	+ 5	3 53	+14	—	—
Tokyo	−0·4	9·1	176	2 8	+ 5	3 48	+ 7	—	4·9
Tyosi	−0·4	9·1	170	2 4	+ 1	3 43	+ 2	—	3·9
Yokohama	−0·4	9·3	177	2 9	+ 3	3 52	+ 6	—	—
Gihu	−0·4	9·5	191	2 9	0	3 50	− 1	—	—
Misima	−0·5	9·6	180	2 10	+ 1	3 53	+ 2	—	—
Numadu	−0·5	9·6	181	2 16	+ 7	3 57	+ 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.
Toyooka		−0·5	9·6	200	i 2 13	+ 4	i 3 57	+ 6	—	4·2
Hikone		−0·5	9·7	193	2 13	+ 3	3 57	+ 3	—	—
Nagoya		−0·5	9·7	190	i 2 13	+ 3	3 59	+ 5	—	4·1
Mera		−0·5	9·8	176	2 16	+ 5	4 1	+ 5	—	—
Hamamatu		−0·5	10·0	186	2 15	+ 1	3 58	− 3	—	—
Kameyama		−0·5	10·0	192	2 17	+ 3	4 5	+ 4	—	—
Kyoto		−0·5	10·0	195	2 18	+ 4	4 5	+ 4	—	—
Kobe		−0·5	10·4	198	2 21	+ 2	i 4 15	+ 4	—	6·7
Osaka		−0·5	10·4	196	2 21	+ 2	i 3 44	−27	4·3	5·8
Sumoto		−0·6	10·8	198	2 26	+ 2	4 23	+ 5	5·6	6·6
Wakayama		−0·6	10·9	197	2 25	0	4 21	0	—	—
Hamada		−0·6	11·2	211	2 30	+ 1	4 27	− 1	—	—
Siomisaki		−0·6	11·5	193	2 34	+ 1	4 41	+ 5	—	—
Hatidyozima		−0·6	11·6	177	2 35	0	4 40	+ 2	—	—
Zinsen		−0·6	11·8	237	2 33	− 4	4 40	− 3	—	—
Taikyu		−0·6	11·8	225	2 39	+ 2	4 52	+ 9	—	—
Koti		−0·6	11·9	203	e 2 39	0	e 4 45	0	—	—
Matuyama		−0·6	11·9	208	e 3 24	+45	i 5 33	+48	—	5·6
Simidu		−0·8	12·8	203	2 49	+ 1	5 13	+10	—	—
Hukuoka		−0·8	12·9	214	i 2 50	0	i 5 10	+ 5	—	5·4
	B.	−0·8	12·9	214	2 50	0	5 8	+ 3	—	—
Kumamoto		−0·8	13·5	211	2 57	− 1	5 24	+ 4	—	—
Nagasaki		−0·9	13·9	214	e 3 0	− 2	5 33	+ 6	—	6·2
Miyazaki		−0·9	14·1	207	3 6	+ 1	5 34	+ 2	—	—
Dairen		−0·9	14·2	252	2 58	− 8	5 32	− 2	—	—
Tomie		−0·9	14·5	217	3 7	− 3	5 41	0	—	—
Chiufeng		−1·3	17·4	263	e 3 35	− 8	i 6 44	+ 3	—	—
Nake		−1·4	18·0	208	3 53	+ 4	7 7	+15	—	—
Zi-ka-wei		−1·5	19·3	232	e 3 58	− 6	7 19	− 1	—	23·5
Nanking	N.	−1·6	20·2	238	4 4	−10	i 7 30	− 8	e 10·4	—
Naha		−1·7	20·6	210	4 17	0	7 45	+ 1	—	—
Isigakizima		−2·0	23·7	216	4 37	−11	8 29	−11	—	—
Irkutsk		−2·0	23·9	301	i 4 46	− 4	i 8 37	− 7	10·2	—
Hong Kong		−2·6	30·2	231	5 41	− 3	10 16	− 9	12·4	16·2
Manila		−2·9	33·8	213	6 14	+ 1	i 11 20	+ 2	15·1	17·8
Phu-Lien		−3·0	35·8	240	e 6 28	− 2	e 11 39	− 9	14·3	—
Almata		−3·5	43·6	292	i 7 35	+ 2	i 13 42	+ 4	—	—
Calcutta		−3·7	46·6	259	8 16	+20	14 24	+ 5	20·2	—
Andijan		−3·8	47·7	291	8 3	− 1	i 14 41	+ 7	—	—
Ekaterinburg		−3·9	48·1	315	i 8 11	+ 5	i 14 49	+10	—	—
Dehra Dun		−3·9	49·2	275	8 6	− 9	14 46	− 9	20·3	20·8
Amboina		−3·9	49·3	194	i 8 7	− 9	i 15 2	+ 6	—	—
Agra	N.	−4·1	51·1	272	8 53	+24	—	—	e 15·7	—
Sitka		−4·1	51·7	43	i 8 45	+12	i 15 46	+19	e 21·3	—
Samarkand		−4·1	51·8	292	8 44	+10	15 26	− 3	—	—
Medan		−4·3	54·2	233	i 8 54	+ 3	i 16 5	+ 6	—	—
Honolulu T.H.		−4·5	56·3	93	e 9 16	+11	i 16 49	+24	—	—
Hyderabad		−4·5	57·0	262	9 15	+ 5	16 41	+ 6	25·9	36·8
Batavia		−4·5	58·5	218	i 9 19	− 2	i 17 0	+ 4	—	—
Kucino		−4·6	59·7	321	9 33	+ 3	i 17 20	+ 9	21·4	23·1
Bombay		−4·6	60·0	267	9 34	+ 2	17 24	+ 9	29·4	31·3
Pulkovo		−4·6	60·5	327	—	—	e 17 26	+ 5	23·8	24·9
Helsingfors		−4·6	62·2	330	i 9 52	+ 5	i 17 48	+ 4	e 25·3	—
Baku		−4·6	62·4	301	—	—	i 17 58	+11	25·3	—
Victoria	N.	−4·6	62·4	48	9 53	+ 4	(18 2)	+15	18·0	20·2
Kodaikanal		−4·7	62·7	257	9 52	+ 2	17 48	− 1	26·6	—
Seattle		−4·7	63·4	48	i 10 21	+26	e 18 40	+41	—	—
Colombo		−4·7	63·5	252	9 58	+ 2	18 6	+ 6	28·3	36·4
Tiflis		−4·7	64·6	305	e 10 3	− 1	18 11	− 4	24·8	—
Upsala		−4·7	65·0	333	10 8	+ 1	i 18 23	+ 3	—	26·0
Königsberg		−4·8	67·7	328	9 37	−48	i 17 53	−61	—	—

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.
Theodosia		−4·8	67·7	313	10 26	+ 1	i 19 0	+ 6	27·8	—
Bergen		−4·8	68·3	338	10 30	+ 1	19 7	+ 6	—	—
Ukiah		−4·8	68·3	56	i 10 47	+18	i 19 32	+31	29·2	—
Simferopol		−4·8	68·4	314	10 28	− 1	19 6	+ 4	26·8	—
Yalta		−4·9	68·7	313	10 30	− 1	i 19 9	+ 4	25·8	29·3
Sebastopol		−4·9	68·9	314	10 34	+ 2	—	—	27·2	—
Berkeley		−4·9	69·7	57	e 10 41	+ 4	—	—	—	—
Copenhagen		−4·9	69·9	332	10 39	0	i 19 24	+ 4	—	—
Branner		−4·9	70·0	57	i 10 44	+ 5	—	—	—	—
Lick		−4·9	70·4	57	e 10 46	+ 4	—	—	—	—
Bozeman		−4·9	70·5	44	i 10 47	+ 5	e 19 38	+11	—	—
Suva		−4·9	72·3	141	—	—	21 26	?	—	—
Hamburg		−5·0	72·5	332	e 10 53	− 2	i 19 55	+ 4	e 28·8	31·8
Tinemaha		−5·0	72·6	55	i 11 0	+ 4	e 20 8	+16	—	—
Potsdam		−5·0	73·0	330	i 10 55	− 3	i 19 53	− 4	—	31·8
Santa Barbara		−5·0	73·5	58	i 10 55	− 6	—	—	—	—
Budapest		−5·0	73·8	323	11 15	+12	i 20 22	+17	22·3	46·8
Jena		−5·0	74·1	329	11 6	+ 1	e 20 8	− 2	e 27·8	30·5
Göttingen		−5·0	74·2	331	i 11 7	+ 1	i 20 10	− 1	—	—
Vienna		−5·0	74·3	325	e 11 3	− 3	i 20 18	+ 5	i 29·4	39·8
Edinburgh		−5·0	74·4	340	e 11 14	+ 7	i 20 15	+ 1	—	—
Cheb		−5·0	74·5	328	e 11 11	+ 3	e 20 13	− 2	e 33·8	41·1
Mount Wilson		−5·0	74·7	57	e 11 11	+ 2	e 20 30	+12	—	—
Pasadena		−5·0	74·7	57	i 11 10	+ 1	i 20 28	+10	—	—
Durham		−5·0	75·0	339	11 9	− 2	20 24	+ 3	—	38·3
Ksara	E.	−5·0	75·0	303	11 9	− 2	i 20 23	+ 2	30·4	—
Belgrade		−5·0	75·2	320	e 11 9	− 3	e 20 29	+ 5	e 31·0	—
De Bilt		−5·0	75·4	333	11 13	0	20 26	0	—	—
Stonyhurst		−5·0	76·0	339	11 19	+ 2	i 20 35	+ 2	—	—
La Jolla		−5·0	76·1	58	i 12 18	+61	—	—	—	—
Zagreb		−5·0	76·4	323	e 11 17	− 2	i 20 38	0	—	—
Uccle		−5·0	76·7	334	i 11 20	− 1	i 20 39	− 2	29·8	—
Stuttgart		−5·0	76·7	329	e 11 20	− 1	i 20 42	+ 1	e 31·8	46·1
Karlsruhe		−5·0	76·8	330	11 23	+ 1	i 20 46?	+ 3	e 37·8?	—
Laibach		−5·0	76·8	325	e 11 23	+ 1	e 19 46	−57	—	—
Innsbruck		−5·0	77·1	327	e 11 24	+ 1	e 20 48	+ 2	e 29·0	—
Strasbourg		−5·0	77·4	330	i 11 23	− 2	i 20 44	− 6	29·8	—
Triest		−5·0	77·5	325	e 11 21	− 5	i 20 46	− 5	—	38·8
Oxford	E.	−5·1	77·6	336	i 11 27	+ 1	i 20 47	− 4	—	—
	N.	−5·1	77·6	336	e 11 20	− 6	i 20 49	− 2	—	—
Kew		−5·1	77·6	335	i 11 25	− 1	i 20 51	0	—	—
Treviso		−5·1	78·1	325	i 11 28	− 1	i 20 59	+ 2	49·8	—
Zurich		−5·1	78·1	329	e 11 27	− 2	i 20 53	− 4	—	—
Chur		−5·1	78·2	329	e 11 29	0	i 20 56	− 2	—	—
Venice		−5·1	78·2	325	i 11 28?	− 1	21 7?	+ 9	—	—
Neuchatel		−5·1	79·0	329	e 11 32	− 2	i 21 0	− 7	—	—
Paris		−5·1	79·0	332	i 11 33	− 1	i 21 6	− 1	30·8	31·8
Besançon		−5·1	79·2	329	i 11 32	− 3	i 21 7	− 3	31·8	—
Riverview		−5·1	79·3	170	i 11 15	−21	i 21 13	+ 2	e 34·1	42·6
Perth		−5·1	79·5	200	12 31	+54	i 21 6	− 7	—	—
Piacenza		−5·1	79·6	326	11 40	+ 3	i 21 8	− 6	—	46·2
Adelaide		−5·1	79·6	181	e 11 34	− 3	i 21 12	− 2	28·3	38·0
Pavia		−5·1	79·7	327	i 11 44	+ 6	21 13	− 2	—	—
Camerino		−5·1	79·8	323	12 17	+38	21 46	+29	—	—
Prato		−5·1	80·0	324	e 11 25	−15	i 21 14	− 5	e 31·9	—
Taranto		−5·1	80·0	319	12 6	+26	22 36	+77	—	—
Tucson		−5·1	80·3	53	i 11 44	+ 3	21 33	+11	e 33·0	—
Helwan		−5·1	80·6	303	e 11 41	− 2	i 21 16	−10	—	—
Naples	E.	−5·1	81·1	321	e 12 37	+51	e 22 36	+64	—	—
Trenta		−5·2	81·4	318	i 11 26	−21	i 21 26	− 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.
Puy de'Dôme	−5·2	81·5	330	11 50	+ 2	21 36	+ 1	—	—
Madison	−5·2	82·1	34	i 11 51	0	i 21 41	− 1	—	—
Melbourne	−5·2	82·6	175	e 13 9	?	21 45	− 2	36·6	39·3
Messina	−5·2	82·6	318	11 53	− 1	21 38	− 9	—	—
Catania	−5·2	83·4	318	11 51	− 7	21 33	−23	—	—
Ottawa	−5·3	84·8	24	e 12 4	− 1	i 22 1	− 9	e 37·8	—
Ann Arbor	−5·3	85·0	31	i 12 4	− 2	i 22 4	− 8	e 39·2	—
Toronto E.	−5·3	85·2	27	12 9	+ 2	22 2	−13	37·8	—
Florissant	−5·3	85·4	37	i 12 5	− 3	22 5	−12	—	—
St. Louis	−5·3	85·6	37	i 12 7	− 2	i 22 7	−12	24·1	—
Barcelona	−5·3	85·6	329	e 12 1	− 8	i 22 13	− 6	e 32·1	47·5
Buffalo	−5·3	86·0	27	i 12 10	− 2	i 22 6	−17	e 34·8	—
Tortosa E.	−5·3	86·7	329	12 12	− 3	i 22 9	−22	34·7	46·1
N.	−5·3	86·7	329	12 14	− 1	i 22 6	−25	34·5	36·9
East Machias	−5·3	87·4	19	i 12 24	+ 5	i 22 23	−15	e 36·8	—
Pittsburgh	−5·4	87·9	28	i 12 23	+ 2	22 19	−23	—	—
Toledo	−5·4	89·1	333	e 12 22	− 5	i 22 45	− 9	e 36·8	48·0
Alicante	−5·4	89·2	330	e 11 46	−41	e 22 26	−29	e 37·7	—
Algiers	−5·4	89·3	326	i 12 24	− 4	i 22 21	−35	39·8	—
New Plymouth	−5·4	89·6	153	13 46?	+77	—	—	—	—
Georgetown	−5·4	90·2	27	i 12 30	− 2	i 22 34	[−60]	—	—
Charlottesville	−5·4	90·6	29	i 12 35	+ 1	i 23 7	− 3	—	—
Almeria	−5·4	91·3	330	e 12 41	+ 3	i 23 7	−10	e 36·6	—
Granada	−5·4	91·4	332	i 12 32	− 6	e 23 2	−16	37·3	55·3
Wellington	−5·4	91·8	154	12 35	− 5	23 14	− 7	—	—
Malaga	−5·4	92·2	332	e 12 32	−10	i 23 9	−16	37·7	43·6
San Fernando	−5·4	93·0	333	12 40	− 6	22 50	[−60]	35·3	57·3
Columbia	−5·5	93·3	32	e 16 1	?	i 22 48	[−64]	—	—
Tananarive	−5·7	104·2	257	—	—	23 39	[−67]	—	—
San Juan	—	112·8	25	19 0	PP	i 25 32	{−55}	46·5	—
Cape Town	—	133·8	262	21 37	PP	32 30	PS	—	—
Huancayo	—	136·2	52	e 18 38	[−38]	—	—	—	—
La Paz	—	143·7	46	i 19 2	[−28]	i 25 28	[−54]	77·2	—
Sucre	—	147·3	44	i 19 13	[−25]	—	—	—	—
Rio de Janeiro	—	158·1	5	e 19 26	[−25]	—	—	—	—
La Plata	—	163·8	59	20 24	{−37}	24 16	PP	—	—

Additional readings and note :—
Tyosi P = +2m.7s.
Toyooka iSZ = +4m.0s., iS_cSEN = +14m.39s.
Kobe iP = +2m.25s.
Osaka i = +2m.40s. and +2m.48s.
Koti i = +2m.42s. = PP + 1s., eS_cS = +14m.43s.
Chiufeng iPP = +3m.46s., i = +4m.26s., iS = +6m.49s.?, iSS = +7m.2s.
Zi-ka-wei iN = +4m.4s., +4m.46s., and +5m.4s., iE = +9m.30s.
Nanking PPN = +4m.25s., SSN = +8m.18s.
Hong Kong ? = +7m.2s.
Amboina i = +9m.24s. = PP − 31s., i = +16m.49s. and +17m.10s.
Sitka ePP = +10m.49s., e = +13m.37s., i = +17m.41s., eSS = +19m.46s.?
Medan i = +10m.7s. = PP + 0s., +10m.28s., and +28m.40s.
Honolulu T.H. iP = +9m.20s., iPP = +12m.54s., i = +16m.56s., e = +18m.26s. = S_cS − 30s., i = +18m.36s., +23m.36s., and +24m.0s.
Batavia iP = +9m.23s., i = +10m.32s.
Pulkovo iSS = +18m.58s.
Helsingfors iP_cPZ = +10m.52s., eP_cPE = +10m.56s., iP_cPN = +11m.1s., eN = +14m.0s., iN = +19m.6s., iE = +19m.10s., iSKSN = +19m.37s. = S_cS + 2s., eSKSE = +19m.50s., iSSN = +22m.52s., eSSE = +23m.7s., eSSSEN = +23m.51s.; T_e = 14h.22m.9s.
Seattle e = +16m.52s.
Tiflis iP = +10m.6s., pP = +11m.12s., sPP = +14m.58s., iSP = +18m.22s.
Upsala records a second shock with P = +11m.15s., iS = +19m.30s.
Königsberg iZ = +9m.40s. and +10m.43s., eE = +15m.17s., iSN = +18m.3s., iEZ = +18m.7s., iE = +18m.13s., iN = +19m.2s., iE = +19m.7s. and +19m.40s., SS = +21m. 16s.
Ukiah e = +12m.18s. and +13m.27s.
Berkeley iZ = +10m.46s., eE = +13m.28s.
Copenhagen +11m.49s., i = +20m.10s. = S_cS − 18s.
Bozeman e = +13m.21s. = PP + 22s., iS = +19m.45s., e = +21m.9s. and +29m.29s.

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Suva i = +23m.26s., SS? = +27m.36s.
Hamburg iZ = +10m.57s., eZ = +12m.8s. and +16m.41s.
Tinemaha eN = +22m.17s.
Potsdam iPEN = +10m.58s., iZ = +12m.5s., eE = iN = +12m.7s., eEZ = +13m.34s. = PP + 13s., ePPZ = +14m.34s., iPPPZ = +16m.2s., eEN = +19m.49s., iEN = +20m.35s. = S_cS − 15s., iNZ = +21m.17s.
Santa Barbara iEN = +11m.10s. = P_cP − 17s.
Jena iZ = +11m.12s., iE = +12m.21s., iSN = +20m.13s., iN = +20m.44s. = S_cS − 15s.
Göttingen eZ = +12m.13s.
Vienna iPZ = +11m.6s., iN = +11m.48s., iE = +12m.43s. and +13m.39s., PP = +14m.14s., iN = +17m.38s., iE = +19m.23s., PS = +20m.59s., S_cS = +21m.10s., iEN = +22m.29s. and +24m.29s. = SS − 3s.
Edinburgh i = +20m.22s., +20m.54s., and +30m.49s.
Cheb eSS = +24m.51s., e = +30m.36s.
Pasadena iE = +11m.15s., epPZ = +12m.21s., esPZ = +12m.53s., iPPZ = +14m.4s., sSN = +22m.31s., eN = +32m.9s.
Durham PPP = +15m.34s.
Belgrade eP = +11m.12s., e = +12m.16s.
De Bilt iZ = +12m.22s., eE = +30m.22s.
Stonyhurst pP? = +12m.28s., isP? = +13m.6s., iSP? = +21m.8s., sS? = +22m.19s., i? = +23m.56s. and +24m.52s., iSS = +25m.34s., iSSS? = +31m.16s., i = +32m.20s.
La Jolla iN = +14m.14s.
Zagreb iP_cP = +11m.25s., e = +12m.30s., ePP = +15m.16s., ePPP = +17m.8s., ePPPP = +18m.11s., ePS = +20m.53s., e = +21m.17s., +23m.3s., and +30m.5s., eNW = +31m.3s.
Uccle i = +12m.34s., e = +15m.19s. = PPP − 9s. and +17m.16s.
Stuttgart epP = +12m.29s., e = +14m.2s., +15m.21s., and +17m.16s., iSP = +21m.13s., i = +22m.17s.
Laibach e = +15m.18s. = PPP − 11s. and +17m.17s.
Strasbourg PP = +14m.26s., ePPP = +15m.40s., iPS = +21m.17s., SS = +25m.46s.
Triest iPZ = +11m.24s., ePSZ = +21m.40s.
Oxford iEN = +31m.45s.
Kew epPZ = +12m.35s., iSPEN = +21m.15s., eEN = +31m.47s.
Neuchatel pP = +12m.44s.
Riverview iN = +21m.22s. = PS − 14s., iE = +23m.8s.
Adelaide i = +23m.6s.
Tucson ePS = +22m.55s., e = +26m.41s.
Madison ipP = +12m.53s., iPP = +15m.8s., e = +16m.43s., iSS = +22m.5s., iSP = +23m.19s.
Melbourne i = +23m.40s., +28m.56s., and +32m.34s.
Ottawa ePPPN = +15m.34s., i = +23m.48s.; T_o = 14h.22m.18s.
Ann Arbor e = +24m.10s., eN = +33m.10s., eE = +33m.46s.; T_o = 14h.21m.42s.
Toronto iPPE = +15m.44s., iSN = +22m.7s., iE = +23m.53s.; T_o = 14h.22m.35s.
Florissant ipPEN = +13m.7s., isSEN = +13m.47s., iEN = +24m.8s.
St. Louis ipPEN = +13m.8s., isSEN = +13m.48s., iEN = +15m.19s. = PP + 12s. and +15m.33s., eEN = +22m.2s.
Buffalo iPP = +15m.42s. iPPP = +17m.38s., iPPPP = +19m.42s.
East Machias i = +12m.41s., PP = +15m.49s., i = +17m.27s., e = +19m.31s., iSKS = +22m.20s., i = +22m.36s., e = +24m.22s., i = +30m.34s.
Pittsburgh i = +14m.2s. and +15m.36s., PP = +17m.48s., i = +22m.24s., e = +24m.22s., +25m.50s., and +33m.46s.?
Toledo iP = +12m.24s., PP = +15m.46s., PPP = +18m.0s., SKS = +22m.22s., SKKS = +22m.51s., PS = +23m.36s.
Charlottesville ePP = +16m.20s., e = +19m.46s., iSKS = +22m.37s., ePS = +24m.52s., e = +32m.46s.
Granada P_cP = +12m.46s., PP = +15m.44s., PPP = +17m.20s., S_cS = +23m.20s., PS = +23m.38s., i = +24m.23s., SS = +28m.28s.
Malaga PP = +16m.14s., SKS = +22m.34s., PS = +23m.59s., PPS = +24m.29s., SS = +28m.44s.
San Fernando iPS = +23m.27s.
Columbia e = +19m.16s., eSP = +24m.58s., e = +35m.22s.
Tananarive E = +23m.42s. and +26m.26s., EN = +27m.57s., E = +32m.14s. and +33m.46s.?
San Juan e = +19m.19s. = PP + 2s., i = +19m.35s., iPPP = +24m.24s., ePS = +27m.57s., iPS = +28m.20s., i = +34m.19s. and +36m.12s.
Cape Town +21m.43s., +21m.52s., +23m.30s., +24m.2s., +24m.18s., +24m.30s., +24m.43s., +24m.55s., PP? = +25m.30s., PPP? = +27m.40s., +27m.57s., SS? = +38m.37s.
Huancayo i = +18m.51s., ePKP = +19m.52s., i = +21m.36s. = PP − 22s.
La Paz iN = +19m.11s. and +19m.29s., ipP = +20m.9s., isP = +21m.0s., iPP = +22m.26s., iN = +24m.41s. and +25m.35s., PPPN? = +28m.23s., iSKKS = +28m.46s., SP = +32m.37s., sSP = +34m.9s., SSN = +43m.15s., L_q = +72·9m.
Long waves were also recorded at Feldberg.

Sept. 23d. Readings also at 4h. (Branner, Lick, and near Malabar), 7h. (Berkeley, Lick, San Francisco, and near Branner), 9h. (Baku, Ekaterinburg, Hong Hong, Nanking, Phu-Lien, Tyosi, Manila, and near Taihoku), 11h. (Amboina and Tucson), 13h. (Andijan), 14h. (Tinemaha and near La Paz), 15h. (Pasadena, near Sikka, and near Taihoku), 16h. (near Tiflis), 17h. (Tiflis, Sucre, and near La Paz), 21h. (Almata, Ekaterinburg, Irkutsk, and Tashkent), 22h. (Ekaterinburg, Tashkent, near Almata, Andijan, and Samarkand), 23h. (Tananarive and Tiflis).

Sept. 24d. Readings at 0h. (Hastings), 2h. (Hastings, near Amboina, near Nagoya, and Osaka), 4h. (Manila and near Amboina), 5h. (Andijan and Hastings), 9h. (near Tananarive), 10h. (Alicante (2)), 11h. (near Amboina), 12h. (Almata, Tashkent, and Ekaterinburg), 14h. (Reykjavik, Tyosi, and near Nagoya (2)), 16h. (Reykjavik, New Plymouth, Hastings, near Tuai, and Wellington), 17h. (Reykjavik), 21h. (near Amboina), 23h. (Ekaterinburg, Tashkent, near Almata, Andijan, and Samarkand).

Sept. 25d. 22h. 0m. 35s. Epicentre 7°·0N. 137°·0E. (as on 1920 April 2d.). X.

A = −·726, B = +·677, C = +·122 ; D = +·682, E = +·731 ;
G = −·089, H = +·083, K = −·993.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Manila		17·5	297	3 59	− 1	7 25	+12	9·1	—
Hong Kong		26·8	307	5 38	+ 2	10 12	0	—	15·2
Kobe		27·7	357	e 6 45	+61	—	—	—	—
Phu-Lien		32·5	299	—	—	(11 25?)	−18	11·4	—
Chiufeng		38·0	334	7 22	+ 7	e 12 39	−27	e 18·7	20·3
Adelaide		42·0	177	—	—	i 14 30	+24	23·8	26·4
Irkutsk		52·6	335	e 9 2	− 9	16 35	− 2	e 26·4	—
Tashkent		68·7	312	e 11 22	(+ 6)	i 21 2	(+ 6)	e 34·2	42·4
Ekaterinburg		76·7	327	i 12 49	+59	i 22 41	+62	e 34·4	—
Baku		83·3	310	12 28	+ 3	e 22 45	− 5	42·4	55·7
Tiflis		87·0	312	12 44	+ 1	e 23 7	[− 6]	50·4	58·9
Helsingfors	E.	94·5	333	—	—	e 23 43	[−15]	e 56·4	—
Stuttgart		108·0	327	—	—	e 28 13	PS	e 57·4	—

Additional readings :—
Kobe eE = +8m.9s.
Chiufeng ePP = +8m.38s.
Tiflis eS = +23m.34s., ePS = +24m.22s.
Long waves were also recorded at Bombay and other European stations.

Sept. 25d. Readings also at 0h. (Copenhagen, Pulkovo, Irkutsk, Tiflis, near Baku, Hastings, near New Plymouth, and Wellington), 4h. (near Granada and Malaga), 7h. (Manila (2)), 8h. (Suva and near Apia), 9h. (Ukiah, Pasadena, Haiwee, Tinemaha, Manila, Chiufeng, and Wellington), 10h. (Baku and Tashkent), 11h. (Apia and La Paz), 12h. (near Amboina), 14h. (near Mizusawa, Nagoya, and Tyosi), 17h. (near Apia), 20h. (near Andijan), 21h. (Andijan and Samarkand), 22h. (near Manila), 23h. (Tiflis).

Sept. 26d. 10h. 23m. 12s. Epicentre 36°·5N. 140°·5E. (as on 1931 July 22d.). X.

A = −·620, B = +·511, C = +·595.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Tyosi	0·9	160	e 0 9	− 4	0 17	− 6	—	—
Mizusawa	2·6	10	0 37	0	0 55	−12	—	—
Nagoya	3·2	245	e 1 4	P_g	1 39	S_g	—	—
Osaka	4·5	248	1 8	+ 4	—	—	2·3	2·7

Mizusawa gives also SE = +58s.

Sept. 26d. 19h. 20m. 42s. Epicentre **39°·8N. 23°·8E.** N.1.

A = +·703, B = +·310, C = +·640; D = +·404, E = −·915; G = +·586, H = +·258, K = −·768.

High focus 0·0075 has been assumed.

		Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Taranto		0·0	5·0	280	1 16	+ 5	2 6	− 2	—	4·3
Bari		0·0	5·4	286	1 24	+ 7	2 19	+ 1	3·6	—
Belgrade		0·0	5·5	335	e 1 18	0	i 2 16	− 4	—	2·9
Trenta		0·0	5·8	267	e 1 18	− 4	2 48	+20	—	—
Messina		0·0	6·6	257	1 55	+21	—	—	—	—
Catania		0·0	7·2	254	1 47	+ 5	3 8	+ 4	4·6	5·4
Naples	E.	0·0	7·4	281	i 1 55	+10	e 2 56	−13	3·2	4·5
Casamicciolo		0·0	7·6	280	2 51	S	5 4	?	7·5	—
Mineo		0·0	7·6	253	1 49	+ 1	—	—	—	—
Zagreb		0·0	8·3	319	e 1 57	− 1	i 3 37	+ 6	—	5·1
Budapest		+0·1	8·4	338	i 2 8	+ 8	—	—	4·8	—
Sebastopol		+0·1	8·7	53	2 4	− 1	4 4	+20	4·6	4·8
Yalta		+0·1	9·0	55	2 9	0	4 13	+22	5·3	6·1
Simferopol		+0·1	9·2	53	e 2 10	− 1	—	—	5·3	6·1
Laibach		+0·1	9·2	315	2 9	− 2	i 4 4	+ 8	—	5·2
Triest		+0·1	9·4	311	i 2 12	− 2	i 4 1	0	—	5·7
Lemberg	E.	+0·1	10·0	1	e 2 28	+ 6	e 4 14	− 2	—	6·9
	N.	+0·1	10·0	1	i 2 31	+ 9	e 4 34	+18	—	6·7
Theodosia		+0·1	10·0	55	e 2 25	+ 3	e 4 42	+26	5·3	6·2
Vienna		+0·1	10·0	330	i 2 20	− 2	3 52	−24	6·2	6·3
Florence		+0·1	10·1	298	i 2 27	+ 3	4 35	+17	—	6·3
Venice		+0·1	10·1	307	i 2 29	+ 5	i 5 29	+71	—	—
Prato		+0·1	10·3	297	e 2 27	+ 1	i 4 33	+10	—	6·3
Treviso		+0·1	10·3	308	i 2 30	+ 4	5 18	+55	—	10·0
Livorno		+0·1	10·7	295	2 46	+14	5 20	+47	—	—
Ksara		+0·1	11·3	118	e 2 47	+ 7	5 6	+18	5·9	—
Piacenza		+0·1	11·6	301	2 46	+ 2	i 5 18	+23	i 6·6	—
Helwan		+0·1	11·7	146	i 2 58	+12	i 5 26	+28	10·5	12·8
Carloforte		+0·1	12·0	271	i 2 59	+ 9	5 43	+38	—	—
Pavia		+0·1	12·0	301	2 55	+ 5	—	—	—	—
Chur		+0·1	12·5	309	e 2 57	+ 1	6 12	+55	—	—
Cheb		+0·1	13·0	326	e 3 1	− 2	e 5 50	+21	e 7·0	8·2
Zurich		+0·1	13·4	309	e 3 4	− 5	e 5 41	+ 2	—	—
Hof		+0·1	13·5	326	i 3 9	− 1	e 6 0	+19	e 6·3	8·9
Stuttgart		+0·1	13·7	315	i 3 9	− 4	i 6 11	+25	—	—
Jena		+0·1	14·0	327	3 11	− 6	i 5 27	−26	e 6·1	8·0
Neuchatel		+0·1	14·1	306	e 3 16	− 2	e 5 50	− 6	6·5	—
Marseilles		+0·1	14·2	290	e 2 28	−51	5 16	−42	7·3	—
Karlsruhe		+0·1	14·3	315	3 23	+ 2	6 24	+23	7·8	—
Strasbourg		+0·1	14·4	313	i 3 21	− 1	i 6 26	+23	—	8·8
Potsdam		+0·1	14·6	333	i 3 20	− 5	i 6 13	+ 5	e 6·8	8·8
Besançon		+0·1	14·8	306	e 3 30	+ 3	6 16	+ 3	7·8	—
Feldberg		+0·1	15·0	319	e 3 30	0	i 6 8	− 9	—	8·5
Göttingen		+0·2	15·1	325	e 3 28	− 4	i 6 40	+18	e 7·3	8·5
Königsberg	N.	+0·2	15·2	353	i 3 31	− 3	e 6 10	−14	e 7·7	9·3
Tiflis		+0·2	16·0	77	i 3 48	+ 4	6 54	+11	—	—
Puy de Dôme		+0·2	16·4	298	i 3 49	0	e 7 4	+12	9·3	—
Barcelona		+0·2	16·5	283	e 3 43	− 7	7 9	+14	e 8·0	11·5
Algiers		+0·2	16·6	266	i 4 1	+ 9	i 7 17	+20	i 8·7	11·3
Hamburg		+0·2	16·7	331	e 3 48	− 5	e 7 4	+ 5	e 7·7	10·3
Uccle		+0·2	17·5	315	4 0	− 3	i 7 29	+12	8·3	11·2
Copenhagen		+0·2	17·6	338	i 4 1	− 3	e 7 15	− 5	—	9·3
Paris		+0·2	17·6	308	i 4 1	− 3	7 35	+15	9·3	9·3
De Bilt		+0·2	17·7	320	4 5	0	7 23	+ 1	9·3	10·3
Tortosa		+0·2	17·7	281	i 4 5	0	i 7 45	+23	9·5	13·7

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	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Bagnères	+0·2	17·9	288	e 4 9	+ 1	7 25	− 2	9·3	—
Alicante	+0·3	18·9	273	i 4 26	+ 5	i 8 0	+10	e 9·1	11·1
Baku	+0·3	19·9	80	i 4 37	+ 5	8 19	+ 9	9·0	13·3
Kew	+0·3	20·3	313	e 4 36	0	i 8 22	+ 4	10·0	13·4
Helsingfors	+0·3	20·4	2	i 3 44	−53	i 7 31	−49	i 8·1	—
Pulkovo	+0·3	20·4	9	i 4 32	− 5	e 8 2	−18	10·8	15·0
Upsala	+0·3	20·4	351	i 4 32	− 5	i 8 16	− 4	e 9·3	11·7
Almeria	+0·3	20·6	270	e 4 54	+15	i 8 44	+20	e 11·4	17·6
Oxford E.	+0·3	21·0	313	i 4 40	− 3	i 8 28	− 4	—	12·8
N.	+0·3	21·0	313	i 4 46	+ 3	i 8 33	+ 1	—	13·8
Toledo	+0·3	21·3	279	4 45	− 1	i 8 48	+10	i 10·7	17·8
Granada	+0·3	21·5	272	i 4 50	+ 1	i 8 47	+ 5	10·8	15·4
Malaga	+0·3	22·3	271	4 56	− 1	i 9 10	+13	11·1	13·9
Durham	+0·3	22·6	320	5 4	+ 4	9 7	+ 4	—	13·3
Stonyhurst	+0·3	22·6	317	i 4 55	− 5	i 9 10	+ 7	12·2	13·7
Bidston	+0·3	22·7	316	i 5 6	+ 5	i 9 12	+ 7	12·2	13·3
Bergen	+0·3	23·6	337	5 2	− 7	9 18	− 3	—	13·3
San Fernando	+0·4	23·7	271	5 18	+ 7	9 36	+11	—	15·3
Edinburgh	+0·4	23·9	321	e 5 11	− 2	i 9 28	0	10·3	13·8
Serra do Pilar	+0·4	24·6	284	5 21	+ 1	—	—	—	—
Ekaterinburg	+0·5	29·3	42	i 6 3	0	i 10 57	− 4	i 18·7	—
Samarkand	+0·6	32·9	76	5 53	−43	—	—	14·3	—
Reykjavik	+0·6	35·9	328	7 11	+ 9	12 55	+11	17·8	21·4
Andijan	+0·6	36·6	72	7 11	+ 3	—	—	16·5	—
Angra do Heroismo	+0·6	39·0	285	6 22	−67	13 34	+ 4	17·7	25·2
Almata	+0·6	39·3	66	7 34	+ 3	13 46	+11	18·4	—
Dakar	+0·7	43·9	247	e 8 17	+ 7	e 15 9	+25	e 20·9	31·0
Dehra Dun	+0·7	44·7	84	8 28	+12	15 8	+12	12·5	24·3
Agra	+0·7	46·3	88	i 8 18	−11	i 15 48	+29	24·3	28·6
Bombay	+0·7	46·8	101	8 37	+ 5	15 30	+ 4	24·4	30·2
Hyderabad	+0·8	52·0	98	9 13	+ 1	16 35	− 4	26·1	34·4
Irkutsk	+0·8	54·3	48	9 28	− 2	17 10	− 1	29·3	34·6
Kodaikanal	+0·8	55·8	106	9 39	− 1	17 33	+ 2	28·5	39·1
Calcutta	+0·8	56·6	87	9 41	− 5	17 29	−13	30·1	39·6
Colombo	+0·9	59·8	107	10 6	− 3	20 26	?	36·2	38·7
Tananarive E.	+0·9	62·7	155	e 10 35	+ 6	e 19 14	+12	27·6	35·4
N.	+0·9	62·7	155	e 10 45	+16	e 19 17	+15	—	—
East Machias	+0·9	63·9	308	10 33	− 4	e 19 7	−10	26·4	—
Chiufeng	+0·9	67·2	55	i 11 2?	+ 3	i 20 13	+15	e 31·8	43·6
Harvard	+0·9	67·5	307	e 11 2	+ 1	i 20 0	− 2	e 30·3	—
Ottawa	+1·0	68·5	312	e 11 6	− 2	e 19 57	−18	e 30·3	—
Fordham	+1·0	70·0	307	e 11 16	− 1	e 20 26	− 7	e 31·3	—
Toronto	+1·0	71·6	312	e 11 21	− 5	i 20 47	− 5	i 34·4	—
Buffalo	+1·0	71·8	311	i 11 22	− 6	i 20 58	+ 4	e 32·3	—
Georgetown	+1·0	73·2	307	i 11 32	− 4	21 6	− 5	e 32·3	—
Nanking E.	+1·0	73·5	62	e 11 42	+ 5	e 21 8	− 6	e 32·6	—
N.	+1·0	73·5	62	e 11 37	0	e 21 26	+12	—	45·8
Z.	+1·0	73·5	62	11 35	− 2	21 22	+ 8	—	45·9
Cape Town	+1·0	73·9	184	20 55	S	(20 55)	−24	41·3	42·1
Pittsburgh	+1·0	74·0	309	i 11 42	+ 2	i 21 16	− 4	e 31·2	—
Charlottesville	+1·0	74·6	306	e 11 44	0	e 21 18	− 9	e 33·3	—
Ann Arbor	+1·0	74·9	313	e 11 42	− 3	i 21 30	0	40·6	43·0
Zinsen	+1·0	75·2	53	11 46	− 1	21 24	−10	—	—
Zi-ka-wei E.	+1·0	75·9	61	11 59	+ 8	—	—	—	47·0
Medan	+1·0	76·1	97	11 44	− 9	e 21 35	− 9	e 43·3	—
Hong Kong	+1·0	76·2	72	11 52	− 1	21 38	− 7	30·6	49·4
Madison	+1·0	77·4	316	e 11 59	0	e 21 49	− 9	34·3	—
Chicago	+1·0	77·5	315	e 11 58	− 2	i 21 53	− 6	e 33·4	—
Ootomari	+1·0	77·9	38	e 12 13	+11	22 1	− 3	31·1	44·2
San Juan	+1·0	78·3	284	i 12 ·11	+ 7	22 5	− 3	e 31·5	—

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.
Columbia		+1·0	78·8	305	e 12 6	− 1	i 22 5	− 9	38·8	—
Hukuoka		+1·0	80·2	54	—	—	e 22 21	− 7	e 47·0	50·3
Nagasaki		+1·0	80·4	55	e 12 15	0	e 22 24	− 7	—	52·3
Florissant		+1·0	81·0	314	e 12 19	+ 1	i 22 30	− 7	e 31·9	—
St. Louis		+1·0	81·0	314	e 12 19	+ 1	i 22 31	− 6	e 31·9	—
Matuyama		+1·0	81·4	53	e 21 24	?	—	—	—	—
Toyooka		+1·0	81·5	49	e 12 22	+ 1	—	—	e 44·6	54·7
Sitka		+1·0	81·6	348	e 12 12	− 9	e 22 24	−19	e 37·3	—
Miyazaki		+1·0	81·9	55	12 21	− 2	22 36	−10	—	—
Koti		+1·0	82·1	52	12 32	+ 8	22 42	− 6	—	—
Morioka		+1·0	82·1	44	12 28	+ 4	22 51	+ 3	—	—
Kobe		+1·0	82·3	50	13 19	+54	e 22 38	−12	e 41·3	48·9
Sumoto	E.	+1·0	82·4	51	12 33	+ 8	23 0	+ 9	44·6	48·9
Mizusawa		+1·0	82·5	44	12 33	+ 7	23 29	PS	42·9	—
Osaka		+1·0	82·5	50	12 25	− 1	22 48	− 4	42·8	49·1
Wakayama		+1·0	82·6	51	12 25	− 1	22 46	− 7	—	—
Port au Prince		+1·0	82·7	288	e 12 30	+ 3	e 23 0	+ 6	—	—
Nagoya		+1·0	83·1	49	e 12 26	− 3	25 16	?	—	—
Hukusima		+1·0	83·2	45	12 35	+ 6	22 58	− 2	—	—
Kumagaya		+1·0	83·7	46	12 29	− 3	22 59	− 6	—	—
Tokyo		+1·0	84·2	47	12 35	+ 1	23 6	− 4	—	46·0
Tyosi		+1·0	84·9	46	e 12 39	+ 1	—	—	47·3	48·0
Bozeman		+1·0	85·4	330	e 12 47	+ 7	e 23 7	[+ 5]	e 37·0	—
Manila		+1·0	86·1	74	12 44	0	23 18	[+11]	40·6	47·2
Victoria	E.	+1·0	87·2	338	12 55	+ 6	23 33	− 6	37·4	46·2
	N.	+1·0	87·2	338	12 50	+ 1	23 30	− 9	41·7	—
Seattle		+1·0	87·5	337	—	—	e 23 42	0	e 39·1	—
Denver		+1·0	87·8	322	e 12 56	+ 4	e 24 0	+15	—	e 45·8
Rio de Janeiro	E.	+1·0	88·4	238	e 13 18	+23	e 23 40	−10	e 40·1	53·0
	N.	+1·0	88·4	238	e 13 18	+23	e 23 43	− 7	e 40·3	55·0
Batavia		+1·0	88·7	98	12 52	− 4	i 23 44	− 9	—	—
Ukiah		+1·1	95·5	334	e 17 40	PP	e 24 47	− 9	e 41·3	—
Tinemaha		+1·1	95·6	330	e 13 37	+ 9	—	—	—	—
Haiwee	N.	+1·1	96·3	329	e 13 48	+16	—	—	—	—
Berkeley		+1·1	96·4	333	e 17 32	PP	e 25 5	+ 1	—	53·3
Tucson		+1·1	96·6	322	e 13 41	+ 8	e 24 54	−12	e 38·7	—
Mount Wilson	E.	+1·1	98·0	328	e 14 8	+29	—	—	—	—
Pasadena		+1·1	98·2	328	e 13 40	0	e 25 40	+20	e 47·3	—
Santa Barbara	N.	+1·1	98·5	329	e 14 2	+20	—	—	—	—
La Jolla		+1·1	98·9	327	e 17 50	PP	—	—	—	—
Sucre		—	101·3	254	e 14 55	+65	—	—	—	—
La Paz		—	101·9	257	e 14 24	+32●	26 44	+61	48·1	62·3
Huancayo		—	104·6	266	e 14 15	+10	25 3	[+15]	44·4	—
Perth		—	111·2	114	29 18	PS	—	—	—	—
Adelaide		—	129·1	107	i 22 53	PKS	—	—	60·7?	88·3
Melbourne		—	134·9	107	i 22 35	PKS	i 29 11	{+19}	58·3	—
Riverview		—	138·0	99	i 23 16	PKS	e 34 42	?	65·9	79·3
Wellington		—	158·0	103	—	—	e 30 58	{− 9}	68·3	—

Additional readings and notes :—
Belgrade $iP_g = +1m.37s.$, i = +1m.50s., +1m.59s., and +2m.9s., iPS = +2m.28s. $= S^* - 1s.$
Zagreb e = +1m.59s., i = +2m.1s., +2m.10s. $= P^* - 4s.$, +2m.32s. $= P_g - 2s.$, +3m.4s., +3m.55s., +4m.9s., +4m.18s., and +4m.25s.
Laibach i = +2m.25s. and +3m.9s., iPSS = +4m.26s.
Triest i = +2m.17s. and 2m.22s., iPP = +3m.1s., iPPP = +3m.5s., i = +4m.48s., iPPS = +5m.3s., iSSZ = +5m.18s., iSSSZ = +5m.25s.
Vienna iZ = +2m.45s. and +3m.2s., iN = +3m.6s., SS = +4m.20s., SSS = +4m.28s., iN = +4m.38s., iZ = +4m.54s. $= S^* - 4s.$, and +5m.26s. $= S_g - 2s.$
Florence iPP = +2m.48s.
Hof eP = +3m.12s., iP = +3m.24s., eSNW = +6m.6s.
Stuttgart i = +3m.14s. $= PP - 2s.$, iPII? = +4m.6s., iSII? = +7m.8s.
Jena iP = +3m.17s. $= PP - 3s.$, iSZ = +5m.35s., iSE = +5m.41s.
Marseilles PPP? = +2m.44s.
Strasbourg iPP = +3m.33s., iPPP = +3m.38s., iPPPP = +3m,40s., SS = +6m.48s.

Continued on next page.

Potsdam iEN = +3m.25s. =PP − 1s., +3m.36s. =PPP +5s., and +3m.48s., iE = +4m.17s. and +4m.29s., iN = +4m.46s., iE = +4m.57s., iN = +5m.10s. iEN = +5m.24s., +6m.21s. =SS +6s., and +6m.25s., iE = +6m.38s.
Feldberg iEN = +3m.37s. =PP +3s., iN = +3m.42s., iN = +3m.54s., eE = +4m.18s., iE =eN = +4m.48s., iN = +5m.46s., iE = +6m.31s. =SS +6s., eN = +7m.6s. and +7m.40s.
Göttingen iP = +3m.33s., i = +3m.47s.
Königsberg iN = +3m.44s. =PP +6s., PN = +3m.48s., iN = +5m.0s., +5m.24s., +6m.32s. =SS +0s., and +7m.11s.
Algiers PP = +4m.11s., PPP = +4m.19s., SS = +7m.39s.
Hamburg iPZ = +3m.53s. =PP − 6s., iSE = +7m.24s.? =SS +14s.
Uccle i = +4m.5s., iS = +7m.35s.
Copenhagen i = +4m.27s. and +7m.34s. =SS +2s.
Bagnères PP = +4m.23s., PPP = +4m.34s., SS = +7m.45s.
Alicante PP = +4m.45s.
Kew iP = +4m.40s., i = +4m.56s. =PP +6s. and +8m.41s. =SS +0s.
Upsala iP = +4m.36s.
Almeria iP = +5m.6s.
Toledo i = +4m.51s., PP = +4m.57s., PPP = +5m.16s., PPPP = +5m.21s., SS = +9m.48s., SSS = +10m.3s., SSSS = +10m.12s.
Granada PP = +5m.17s., PPP = +5m.29s.
Malaga PP = +5m.19s., PPP = +5m.31s., SSS = +9m.53s.
Stonyhurst PP = +5m.22s., PPP = +6m.5s., SS = +10m.20s., SSS? = +11m.0s.
Bidston i = +6m.30s., +7m.29s., and +10m.4s.; T_0 =19h.20m.44s.
Bergen P = +5m.8s.
San Fernando P = +5m.34s.
Edinburgh iP = +5m.14s., i = +5m.28s. and +9m.47s.
Ekaterinburg iL_q = +17m.6s.
Reykjavik PP = +8m.21s., PPP = +8m.40s., PS = +13m.10s., SSS = +15m.37s.
Dakar ePP = +10m.14s., ePPP = +10m.36s., eSS = +18m.27s.
Agra ePN = +9m.0s.
Tananarive SSN = +23m.53s.
East Machias iSS = +23m.43s.
Chiufeng iPP = +13m.39s., iPPP = +15m.15s., eSS? = +24m.38s., iSSS? = +27m.44s.
Harvard eN = +24m.6s. =SS −12s.; T_0 =19h.20m.47s.
Ottawa ePPPE = +13m.50s., ePS = +20m.12s., eSS = +24m.42s.
Fordham ePN = +11m.21s., iS = +20m.32s., iN = +20m.48s.
Toronto ePE = +11m.24s., iP = +11m.29s.; T_0 =19h.20m.44s.
Nanking PPZ = +14m.30s., PPN = +14m.54s., PPPZ = +15m.52s., PPPN = +16m.42s., eSZ = +21m.22s., SSN = +26m.1s., SSSNZ = +29m.46s.
Cape Town +21m.9s., +21m.20s., +21m.36s., +22m.0s., +22m.19s., +22m.32s. +23m.4s., PP = +24m.20s., +24m.50s., PPP = +26m.50s., +28m.15s., S? = +30m.6s., +31m.13s., +31m.21s., PPS? = +32m.46s., +34m.46s., +35m.6s., +36m.12s., SS? = +37m.6s., SSS? = +39m.29s.
Charlottesville ePP = +14m.46s., eSS = +26m.6s., e = +29m.18s.
Ann Arbor ePP = +14m.30s., eSS = +26m.18s., eSSS = +29m.54s.
Medan i = +12m.29s. and +23m.46s.
Hong Kong PPP = +16m.45s.
Madison ePP = +15m.1s., iPS = +22m.36s., iSS = +26m.55s., eSSS = +30m.30s.
San Juan e = +27m.55s.
Columbia eSS = +27m.36s.
Hukuoka e = +32m.12s.
Toyooka iPE = +12m.35s.
Sitka ePP = +15m.19s.
Sumoto SN = +22m.36s.
Mizusawa PN = +12m.36s.
Port au Prince i = +12m.53s., PP = +15m.43s.
Bozeman e = +12m.57s., +26m.40s. and +32m.48s.
Denver ePPN = +16m.32s.
Batavia eP = +13m.3s., iPZ = +13m.11s., i = +14m.41s., +24m.10s., and +25m.2s. =PS +14s.
Ukiah e = +21m.18s., +34m.26s., and +35m.32s.
Berkeley eE = +25m.10s.
Tucson eSKS = +24m.13s., e = +31m.4s. =SS −26s.
Pasadena eZ = +13m.44s. and +17m.37s. =PP +0s.
La Paz iN = +18m.3s., PPE = +18m.21s., PPN = +19m.5s., i = +22m.53s., iSKSN = +25m.0s., iSKSE = +25m.4s., PSN = +27m.28s., PPE = +27m.56s., SSE = +33m.12s., SSSE = +37m.18s., SSSN = +37m.44s., L_q = +44·6s.
Huancayo e = +18m.5s. =PP −12s., ePS = +27m.58s.
Adelaide e = +29m.23s. and +34m.48s., i = +36m.44s., e = +41m.43s.
Melbourne i = +23m.18s. =PKS +25s. and +40m.48s.
Riverview e?N = +13m.48s.
Long waves were also recorded at Johannesburg, Honolulu T.H., Lick, La Plata, and Sydney.

Sept. 26d. 21h. 26m. 56s. · Epicentre 39°·8N. 23°·8E. (as at 19h.). R.1.

High focus 0·0075 is retained here.

		Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Taranto		0·0	5·0	280	0 14	−57	—	—	—	—
Bari		0·0	5·4	286	1 50	+33	2 20	+ 2	3·0	—
Belgrade		0·0	5·5	335	1 17	− 1	i 2 29	+ 9	—	3·0
Mostar		0·0	5·7	310	e 1 6	−15	i 2 15	−10	—	2·9
Trenta		0·0	5·8	267	e 2 4	+42	3 4	+36	—	—
Messina		0·0	6·6	257	1 46	+12	—	—	—	—
Catania		0·0	7·2	254	1 23	−19	2 31	−33	4·2	4·4
Naples	E.	0·0	7·4	281	e 1 55	+10	e 3 25	+16	—	7·0
Zagreb		0·0	8·3	319	e 1 59	+ 1	e 3 37	+ 6	—	4·8
Budapest		+0·1	8·4	338	2 9	+ 9	3 50	+14	5·1	9·1
Sebastopol		+0·1	8·7	53	e 2 2	− 3	e 3 50	+ 6	4·1	—
Yalta		+0·1	9·0	55	e 2 3	− 6	—	—	—	—
Laibach		+0·1	9·2	315	e 2 9	− 2	e 4 58	+62	—	5·6
Simferopol		+0·1	9·2	53	e 2 12	+ 1	(3 52)	− 4	3·9	—
Triest		+0·1	9·4	311	e 2 8	− 6	i 3 51	−10	—	4·8
Lemberg	E.	+0·1	10·0	1	e 2 52	+30	e 4 32	+16	—	6·2
	N.	+0·1	10·0	1	e 2 18	− 4	e 4 42	+26	—	6·6
Theodosia		+0·1	10·0	55	e 2 25	+ 3	4 27	+11	5·3	—
Vienna		+0·1	10·0	330	i 2 19	− 3	4 5	−11	i 5·1	6·1
Florence		+0·1	10·1	298	e 2 4	−20	4 14	− 4	—	—
Prato		+0·1	10·3	297	e 2 23	− 3	i 4 34	+11	—	8·2
Treviso		+0·1	10·3	308	i 2 24	− 2	e 5 12	L	(e 5·2)	—
Ksara		+0·1	11·3	118	2 56	+16	6 52	?	—	—
Piacenza		+0·1	11·6	301	2 34	−10	5 0	+ 5	7·1	7·3
Helwan		+0·1	11·7	146	i 4 9	S	(i 4 9)	−49	—	—
Pavia		+0·1	12·0	301	2 11	−39	—	—	—	—
Chur		+0·1	12·5	309	e 2 56	0	e 6 32	+75	—	—
Cheb		+0·1	13·0	326	e 3 6	+ 3	e 5 30	+ 1	e 7·1	7·5
Zurich		+0·1	13·4	309	e 3 4	− 5	—	—	—	—
Stuttgart		+0·1	13·7	315	e 3 10	− 3	e 5 44	− 2	e 6·5	—
Jena		+0·1	14·0	327	i 3 25	+ 8	e 5 56	+ 3	e 6·8	8·9
Neuchatel		+0·1	14·1	306	e 3 16	− 2	e 5 50	− 6	—	—
Marseilles		+0·1	14·2	290	e 3 27	+ 8	—	—	—	—
Strasbourg		+0·1	14·4	313	i 3 22	0	i 6 18	+15	—	8·4
Potsdam		+0·1	14·6	333	i 3 25	0	i 6 26	+18	9·1	—
Feldberg		+0·1	15·0	319	e 3 31	+ 1	e 6 35	+18	—	9·8
Göttingen		+0·2	15·1	325	e 3 30	− 2	e 6 36	+14	—	8·6
Königsberg		+0·2	15·2	353	i 3 11	−23	i 8 23	?	—	9·1
Tiflis		+0·2	16·0	77	3 47	+ 3	7 3	+20	9·4	—
Puy de Dôme		+0·2	16·4	298	e 3 50	+ 1	—	—	e 9·2	—
Barcelona		+0·2	16·5	283	e 3 46	− 4	e 7 2	+ 7	—	11·9
Algiers		+0·2	16·6	266	i 4 1	+ 9	i 7 13	+16	8·5	—
Hamburg	E.	+0·2	16·7	331	e 3 50	− 3	e 6 41	−18	—	10·1
Uccle		+0·2	17·5	315	e 4 1	− 2	e 7 21	+ 4	9·1	—
Copenhagen		+0·2	17·6	338	3 58	− 6	7 20	0	—	—
Paris		+0·2	17·6	308	e 4 3	− 1	e 7 31	+11	9·1	9·1
De Bilt		+0·2	17·7	320	4 4	− 1	7 28	+ 6	9·1	10·4
Tortosa	E.	+0·2	17·7	281	4 6	+ 1	7 35	+13	—	11·7
	N.	+0·2	17·7	281	e 4 8	+ 3	e 7 48	+26	—	13·2
Bagnères		+0·2	17·9	288	4 4?	− 4	—	—	12·1	—
Alicante		+0·3	18·9	273	i 4 25	+ 4	i 7 58	+ 8	e 9·2	—
Kew		+0·3	20·3	313	i 4 36	0	e 8 20	+ 2	10·7	11·6
Pulkovo		+0·3	20·4	9	i 4 32	− 5	e 8 14	− 6	11·1	12·2
Upsala		+0·3	20·4	351	e 4 31	− 6	e 8 15	− 5	e 10·5	14·3
Almeria		+0·3	20·6	270	e 4 42	+ 3	e 8 38	+14	—	—
Toledo		+0·3	21·3	279	e 4 46	0	i 8 44	+ 6	e 10·7	16·1
Granada		+0·3	21·5	272	i 4 55	+ 6	i 8 52	+10	10·6	14·7
Malaga		+0·3	22·3	271	i 5 0	+ 3	i 9 9	+12	11·7	14·9
Durham		+0·3	22·6	320	—	—	9 1	− 2	—	13·1
Bidston		+0·3	22·7	316	i 5 12	+11	i 9 9	+ 4	10·4	12·9

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.
Bergen		+0·3	23·6	337	e 5 4?	− 5	—	—	—	13·1
San Fernando		+0·4	23·7	271	5 18	+ 7	9 26	+ 1	—	16·6
Edinburgh		+0·4	23·9	321	e 5 4?	− 9	i 9 56	SS	i 13·6	—
Ekaterinburg		+0·5	29·3	42	i 6 3	0	i 10 57	− 4	i 17·9	18·2
Andijan		+0·6	36·6	72	e 7 12	+ 4	—	—	—	—
Almata		+0·6	39·3	66	e 7 38	+ 7	—	—	—	—
Bombay	E.	+0·7	46·8	101	8 39	+ 7	15 33	+ 7	e 23·1	—
Nagoya		+1·0	83·1	49	e 12 15	−14	—	—	—	—

Additional readings :—
Belgrade iP_g = +1m.36s., i = +1m.41s., iPS = +2m.25s., i = +2m.39s.
Mostar iP* = +1m.13s., i = +1m.36s., and +2m.7s.
Zagreb e = +2m.4s., eSS = +4m.13s.
Laibach e = +2m.44s. and +4m.33s.
Triest iPZ = +2m.11s., iZ = +4m.24s.
Vienna i = +2m.46s. and +3m.34s.
Stuttgart i = +3m.23s.
Jena eEZ = +6m.4s.
Strasbourg PP = +3m.31s., PPP = +3m.44s.
Potsdam iEN = +3m.27s., e = +6m.4s. ?
Feldberg iE = eN = +3m.35s., eN = +3m.42s., and +7m.46s., eE = +7m.59s., iE = +8m.13s.
Königsberg e = +4m.29s., +6m.21s.?, +7m.58s., and +8m.21s.?
Algiers PP = +4m.11s., PPP = +4m.18s.
Uccle eS = +7m.28s.
Kew eSZ = +8m.28s.
Upsala iP = +4m.35s., eSE = +8m.18s.
Toledo i = +4m.57s.
Granada PP = +5m.22s., PPP = +5m.34s., P_cS = +12m.34s., S_cS = +16m.10s.
Malaga PP = +5m.27s., SSS = +9m.48s.
San Fernando PS = +9m.48s.
Ekaterinburg iL_q = +15m.52s.
Long waves were recorded at Hof.

Sept. 26d. Readings at 0h. (Paris and near Chiufeng), 1h. (near Mizusawa), 3h. (near Amboina), 5h. (Tashkent, Hong Kong, and near Manila), 6h. (Ekaterinburg, Tiflis, and Hong Kong), 14h. (Ksara), 15h. (Baku, Ekaterinburg, Tashkent, Tiflis, Ksara, near Kobe, and Sumoto), 20h. (Andijan, Belgrade (3), Naples, Triest (2), Tyosi, Vienna (4), Zagreb (3), and Sydney), 22h. (Almata), 23h. (Cheb, Andijan, Theodosia, Copenhagen, De Bilt, Stuttgart, and Berkeley).

Sept. 27d. Shocks apparently repetitions of the large shocks of 26d., but not giving agreement in the phases, were recorded as follows :—

27d. 1h.
Belgrade e = 1h.29m.17s., 30m.6s., 30m.25s., and 30m.32s.
Florence eP = 1h.33m.25s., M = 34m.
Cheb e = 1h.35m.
Stuttgart eL = 1h.36m.
Copenhagen L = 1h.36m.
De Bilt e = 1h.37m.
Pulkovo eL = 1h.38m.
Ekaterinburg L = 1h.45s.

27d. 2h.
Belgrade e = 2h.1m.48s., 2m.32s., 2m.51s., and 3m.3s.
Zagreb e = 2h.4m.18s. and 4m.28s.
Budapest e = 2h.5m.
Yalta eP = 2h.3m.41s.
Simferopol eP = 2h.3m.45s.
Theodosia eP = 2h.4m.25s.
Vienna eP = 2h.4m.52s.
Florence P = 2h.3m.15s., M = 8m.
Cheb e = 2h.7m.
Stuttgart eS = 2h.7m.45s., eL = 8m.36s.
Strasbourg e = 2h.8m.28s., i = 9m.2s.
Tiflis L = 2h.9m.42s.
Uccle 2h.9m.
Copenhagen L = 2h.12m.
De Bilt eL = 2h.9m.48s.
Pulkovo eL = 2h.9m.
Ekaterinburg L = 2h.16m.

Continued on next page.

27d. 3h.
Belgrade P =3h.28m.11s., e =29m.4s., 29m.20s., and 29m.28s.
Budapest e =3h.31m.
Yalta eP =3h.30m.40s.
Simferopol eP =3h.30m.41s.
Theodosia eP =3h.30m.55s.
Vienna ePZ =3h.31m.35s.
Florence eP =3h.29m.25s., M =32m.45s.
Cheb e =3h.34m.
Stuttgart eS =3h.34m.6s., L =35m.6s.
Strasbourg e =3h.34m.31s.
Tiflis e =3h.33m.35s., L =36m.0s.
Uccle 3h.36m.
Copenhagen L =3h.36m.
De Bilt eL =3h.36m.12s.
Baku eL =3h.38m.30s.
Pulkovo eL =3h.37m.30s., M =39m.30s.
Ekaterinburg e =3h.37m.56s., L =43m.

27d. 9h.
Belgrade e =9h.32m.30s., 33m.15s., 33m.39s., and 33m.45s.
Piacenza e? =9h.33m.0s., M =40m.8s.
Zagreb eNW =9h.33m.28s., eNE =33m.31s., and 35m.8s., e =35m.18s., M =35m.52s.
Budapest e =9h.35m.30s.
Yalta eP =9h.34m.29s.
Simferopol eP =9h.34m.29s.
Triest e =9h.32m.0s., M =36m.
Sebastopol eP =9h.34m.35s.
Theodosia eP =9h.35m.10s.
Vienna ePZ =9h.35m.19s.
Florence eP =9h.32m.30s., M =9h.36m.45s.
Zurich 9h.23m.
Stuttgart e =9h.38m.
Strasbourg e =9h.37m.43s. and 38m.0s.
Cheb e =9h.38m.
Tiflis eL =9h.40m.0s.
Copenhagen L =9h.36m.
De Bilt eL =9h.40m.30s.
Baku eL =9h.42m.48s.
Pulkovo eL =9h.41m.
Ekaterinburg e =9h.42m.14s., L =46m.
Kucino eL =9h.41m.42s.

27d. 11h.
Piacenza e? =11h.20m.36s., M =30m.0s.
Belgrade e =11h.21m.14s., 21m.42s., 22m.7s., and 22m.24s.
Zagreb e =11h.21m.46s., eNE =23m.55s., eNW =24m.3s., M =24m.27s.
Budapest e =11h.24m.
Yalta eP =11h.22m.33s.
Simferopol eP =11h.22m.9s.
Triest ePZ =11h.21m.53s., eS =23m.43s.
Theodosia eP =11h.22m.43s.
Vienna ePZ =11h.23m.35s., M =26m.
Florence eP =11h.22m.30s., M =25m.0s.
Zurich 11h.26m.
Stuttgart e =11h.27m.0s.
Cheb e =11h.27m.
Strasbourg i =11h.26m.56s., e =27m.33s.
Tiflis P =11h.23m.33s., eS =26m.18s., L =29m.0s., M =30m.24s.
Hamburg e =11h.26m., M =30m.
Uccle 11h.29m.
Copenhagen L =11h.29m.
Paris 11h.30m.
De Bilt eL =11h.29m., M =29m.44s.
Baku eL =11h.31m.42s.
Pulkovo P =11h.24m.16s., L =30m., M =32m.12s.
Ekaterinburg e =11h.30m.47s., L =34m.
Kucino e =11h.28m.9s., M =31m.12s.

27d. 16h.
Belgrade e =16h.0m.10s., 0m.29s., and 0m.38s.
Zagreb e =16h.0m.37s. and 2m.7s.
Budapest e =16h.2m.
Triest e =16h.1m.12s., eL =2m.32s.
Vienna ePZ =16h.2m.46s.
Florence e =16h.1m.30s., M =3m.40s.
Piacenza e? =16h.3m.30s.
Stuttgart e =16h.5m.
Copenhagen L =16h.6m.
De Bilt e =16h.8m.
Zurich 16h.14m.

Sept. 27d. 4h. New Zealand shock for which Wellington attributes the epicentre to 38°·8S. 177°·6E. Adopting this position the readings are as follows :—

Tuai (Δ =0°·3), P_g =4h.50m.0s., S_g =50m.4s.
Hastings (Δ =1°·0), P_g =4h.51m.0s.?, S_g =51m.12s., i =51m.22s.
New Plymouth (Δ =2°·7), P =4h.50m.47s., P_g =51m.0s., S =51m.31s.
Wellington (Δ =3°·3), P =4h.50m.57s., P_g =51m.14s., S_g =52m.0s.
Glenmuick (Δ =5°·3), P =4h.50m.18s.?, P_g =51m.0s., S? =51m.42s., S_g = 52m.0s.
Christchurch (Δ =6°·0), P =4h.51m.30s., P_g =51m.42s., S_g =53m.0s.

Sept. 27d. Readings also at 2h. (Kobe), 6h. (Wellington, Hastings, and near New Plymouth), 7h. (Manila, Tiflis, Vienna, Stuttgart, Sucre, and near La Paz), 8h. (Mizusawa), 12h. (near Sumoto), 14h. (Branner, near Lick, and near Amboina), 16h. (Belgrade and Florence (2)), 17h. (Florence (2)), 18h. (Bombay and Colombo), 19h. (Baku and Ekaterinburg).

Sept. 28d. 16h. 52m. 17s. Epicentre 40°·4N. 23°·3E. **N.2.**

A = +·699, B = +·301, C = +·648 ; D = +·396, E = −·918 ; G = +·595, H = +·256, K = −·762.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Taranto		4·6	273	2 3	S	(2 3)	+ 5	—	—
Bari		4·9	281	1 32	P_g	2 22	+17	2·8	—
Belgrade		4·9	336	e 1 3	− 7	i 2 5	0	—	2·6
Mostar		5·0	308	e 0 59	−12	i 2 21	S*	—	2·5
Trenta		5·4	260	1 13	− 4	—	—	—	—
Messina		6·4	252	1 30	− 1	4 18	L	(4·3)	—
Naples	N.	6·9	277	e 1 36	− 2	e 3 5	+ 9	—	5·9
Catania		7·0	249	1 24	−15	2 6	−53	—	4·7
Zagreb		7·6	318	e 1 43	− 5	i 3 7	− 7	—	4·4
Budapest.		7·7	338	e 1 50	+ 1	3 41	S*	4·2	5·7
Camerino		8·1	293	3 16	?S	(3 16)	−10	—	—
Laibach		8·5	315	e 1 32	−28	e 3 29	− 7	—	4·5
Sebastopol		8·6	57	e 1 59	− 3	3 29	−10	4·6	—
Triest		8·7	310	2 0	− 3	3 37	− 4	—	4·4
Yalta		9·0	59	e 2 12	+ 5	—	—	—	—
Simferopol		9·1	56	e 2 13	+ 4	3 55	+ 4	4·4	5·0
Vienna		9·2	330	e 1 59	−11	3 37	−17	—	5·7
Lemberg	E.	9·4	3	e 2 20	+ 7	—	—	—	7·1
Florence		9·5	295	1 50	−24	—	—	—	5·4
Prato		9·6	296	e 2 35	+19	i 4 43	S*	—	6·4
Theodosia		10·0	58	e 2 18	− 3	4 31	+18	4·7	—
Piacenza		11·0	300	2 33	− 2	5 23	S*	7·3	19·9
Pavia		11·4	299	2 33	− 7	—	—	—	—
Prague		11·5	330	e 2 51	+ 9	e 5 28	S*	—	6·9
Chur		11·8	308	e 2 44	− 2	e 5 34	S*	—	—
Ksara		12·0	119	e 2 46	− 2	6 34	S_g	7·6	—
Cheb		12·3	325	e 2 51	− 1	e 5 35	+25	e 6·8	7·9
Helwan		12·4	146	2 55	+ 1	5 8	− 5	—	12·9
Stuttgart		13·0	315	e 2 59	− 3	e 5 20	− 7	5·9	8·4
Jena		13·3	326	e 4 13	+67	e 5 43	+ 9	e 6·7	7·5
Neuchatel		13·5	305	e 3 5	− 4	e 5 31	− 8	—	—
Karlsruhe		13·6	314	e 3 13	+ 3	5 43?	+ 2	7·2	8·0
Strasbourg		13·7	312	i 3 7	− 4	i 5 53	+ 9	—	8·0
Potsdam		13·8	333	—	—	e 5 43?	− 3	7·7	8·7
Feldberg		14·3	318	3 27	+ 8	—	—	e 7·7	9·4

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Göttingen	14·4	325	e 3 25	+ 4	e 6 15	+14	—	9·2
Königsberg	14·5	353	—	—	e 5 37	−26	—	9·7
Hamburg	15·9	330	e 4 13	+33	e 6 40	+ 4	e 9·1	9·7
Barcelona	16·0	281	—	—	e 5 19	−79	e 7·7	12·5
Algiers	16·2	264	i 3 38	− 6	6 32	−11	9·7	—
Tiflis	16·2	78	e 3 42	− 2	7 1	+18	9·8	10·9
Uccle	16·8	314	e 3 49	− 3	7 5	+ 8	e 7·7	—
Copenhagen	16·8	339	3 52	0	6 59	+ 2	8·7	—
Paris	16·9	307	e 3 51	− 2	e 7 11	+12	8·7	9·7
De Bilt	17·0	320	3 53	− 1	7 13	+11	e 8·2	9·8
Kucino	18·1	27	4 1	− 7	e 7 18	− 9	8·7	11·3
Alicante	18·5	271	e 4 24	+11	e 8 22	?	e 11·7	—
Kew	19·6	312	e 4 25	0	e 8 5	+ 7	e 9·7	11·1
Upsala	19·8	351	e 4 20	− 7	e 8 2	0	e 10·1	13·9
Pulkovo	19·8	10	4 19	− 8	e 7 50	−12	10·7	12·3
Helsingfors	19·8	2	—	—	e 7 22	−40	e 10·7	—
Baku	20·2	81	i 4 34	+ 2	i 8 20	+10	11·9	14·7
Almeria	20·3	268	e 4 7	−26	e 7 59	−13	—	—
Oxford	20·3	312	e 4 32	− 1	i 8 19	+ 7	i 10·4	11·5
Toledo	20·8	278	4 40	+ 2	e 8 29	+ 7	e 10·7	—
Granada	21·1	270	i 4 40	− 1	i 8 37	+ 9	10·6	14·7
Durham	21·9	320	—	—	8 45	+ 1	—	12·7
Stonyhurst	21·9	317	4 45	− 5	8 53	+ 9	12·1	14·5
Malaga	21·9	269	i 4 48	− 2	i 8 49	+ 5	11·8	14·2
Bidston	22·0	315	e 4 53	+ 2	i 8 58	+12	e 11·0	12·5
Bergen	22·9	337	—	—	e 9 5	+ 2	—	—
Edinburgh	23·2	321	e 5 2	− 1	9 8	0	—	14·0
San Fernando	23·3	270	5 9	+ 5	i 9 27	+17	—	14·7
Ekaterinburg	29·1	43	i 5 55	− 2	10 44	− 6	17·7	17·9
Bombay	47·3	102	8 33	+ 2	—	—	—	—
Irkutsk	54·0	48	—	—	e 18 43?	(−28)	32·7?	34·2
Chiufeng	67·1	56	e 10 48	− 4	e 19 46	0	—	—
Ottawa	67·8	311	—	—	e 19 55	+ 1	e 35·7	—

Additional readings :—
Belgrade eP* = +1m.14s., i = +1m.20s., iS_g = +2m.28s.
Mostar eP* = +1m.10s., i = +1m.28s. = P* +6s., iPPS = +1m.55s. and +2m.13s.
Zagreb eEN = +1m.45s., i = +1m.53s., eZ = +3m.43s.?, iEN = +3m.56s., i = +4m.13s.
Camerino S = +5m.50s.
Laibach e = +2m.43s. and +3m.9s.
Triest PP = +2m.53s., iPP = +3m.42s., iSS = +3m.56s., iSSS = +4m.4s.
Vienna iN = +2m.31s., SS = +4m.8s., iNZ = +4m.24s., iZ = +4m.51s., iEN = +5m.24s.
Lemberg eN = +2m.24s.
Stuttgart i = +3m.11s.
Strasbourg PP = +3m.21s.
Potsdam iN = +5m.51s., eNZ = +6m.55s., and +7m.25s.
Feldberg eE = +3m.35s.
Königsberg eN = +8m.17s., eE = +8m.21s., eN = +11m.29s., eE = +11m.32s.
Algiers PP = +3m.46s.
Tiflis P = +3m.46s.
Pulkovo L_q = +10m.13s.
Helsingfors eE = +7m.26s. and +10m.1s.
Toledo iS = +8m.35s.
Granada P_gS = +12m.34s., S_gS = +16m.24s.
Durham ? = +9m.2s. and +9m.27s.
Malaga PP = +5m.18s., PPP = +5m.25s., SS = +9m.27s.
Stonyhurst ? = +8m.15s.
Edinburgh i = +9m.13s.
Ekaterinburg L_q = +15m.7s.
Irkutsk e = +27m.43s.?
Chiufeng i = +31m.16s.
Ottawa e = +28m.1s.
Long waves were also recorded at Puy de Dôme and Tortosa.

Sept. 28d. 20h. 13m. 44s. Epicentre 39°·7S. 178°·8E. (given by Wellington). N.3.

A = −·769, B = +·016, C = −·639; D = +·021, E = +1·000; G = +·639, H = −·013, K = −·769.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Hastings	1·5	273	0 16?	− 5	0 30	− 9	—	—
Tuai	1·6	305	1 16	+53	1 25	+44	—	—
Wellington	3·5	242	0 54	+ 4	1 59	S_g	—	2·3
New Plymouth	3·7	279	0 52	− 1	1 34	− 1	—	—
Glenmuick	5·3	233	1 9	− 6	2 39	S*	—	—
Christchurch	6·0	229	1 46	P*	2 54	S*	—	—
Riverview	22·8	278	—	—	e 7 56	−65	(12·7)	—
Melbourne	26·3	263	—	—	e 10 56?	+53	e 12·9	—
Adelaide	32·0	266	—	—	e 12 44	+69	e 14·6	16·9
Ekaterinburg	137·2	315	(20 16?)	?	—	—	20·3	—
Baku	141·4	288	(e 19 16?)	[− 7]	—	—	e 19·3	—
Stuttgart	168·3	324	—	—	e 29 0	?	e 83·3	—
Hohenheim	168·3	324	—	—	e 29 0	?	—	—
Ravensburg	168·8	320	—	—	e 28 52	PPP	—	—

Additional readings :—
Hastings i = +38s. and +48s.
Tuai P_g = +1m.18s., S_g = +1m.30s.
Wellington P_g = +1m.11s.
Glenmuick P_g = +1m.27s., e = +2m.54s.
Christchurch P_g = +2m.8s., S_g? = +3m.41s.
Riverview L is given as S?
Long waves were also recorded at Perth, Ottawa, Zagreb, and Florence.

Sept. 28d. 21h. 57m. 56s. Epicentre 40°·4N. 23°·3E. (as at 16h.). X.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Taranto	4·6	273	1 54	S	(1 54)	− 4	—	—
Belgrade	4·9	336	e 1 19	P*	e 2 29	S*	—	—
Trenta	5·4	260	e 2 4	S	(e 2 4)	−14	—	—
Zagreb	7·6	318	1 43	− 5	e 3 13	− 1	—	4·6
Triest	8·7	310	e 2 1	− 2	e 3 40	− 1	—	4·6
Vienna	z. 9·2	330	e 2 46	+36	—	—	—	—
Florence	9·5	295	—	—	e 4 59	S_g	—	6·1
Piacenza	11·0	300	e 1 52	−43	—	—	—	8·4
Zurich	12·6	308	e 2 59	+ 3	—	—	—	—
Neuchatel	13·5	305	e 3 4	− 5	—	—	—	—
Ekaterinburg	29·1	43	—	—	e 11 20	+30	15·1	—

Additional readings :—
Belgrade e = +1m.22s., +2m.43s., and +3m.19s.
Zagreb eEN = +1m.45s., e = +2m.22s. = P_g −4s., eZ = +3m.20s., e = +3m.47s. = S* +3s., eSS = +3m.56s.
Long waves were also recorded at other European and Russian stations.

Sept. 28d. Readings also at 0h. (La Paz and near Huancayo), 1h. (near Andijan), 3h. (near Apia (2)), 4h. (La Paz), 9h. (Marseilles), 10h. (near Wellington), 11h. (Belgrade, De Bilt, Strasbourg, Stuttgart, Triest, Venice, Piacenza, Zagreb, Tiflis, and near Manila), 12h. (Belgrade, Budapest, Florence, Piacenza, Triest, Trenta, Zagreb, and near New Plymouth), 13h. (De Bilt, Paris, Strasbourg, Stuttgart, Venice, Tiflis, and near Christchurch), 14h. (La Paz and near New Plymouth), 15h. (Budapest, De Bilt, Strasbourg, Stuttgart, Triest, Cheb, Piacenza, Venice, Vienna, Zagreb, Ekaterinburg, Pulkovo, and Copenhagen), 16h. (Theodosia, De Bilt, Florence, Piacenza, Budapest, Cheb, Strasbourg, Stuttgart, Triest, Zagreb (3), La Paz (2), and Tyosi), 18h. (Belgrade, Budapest, De Bilt, Piacenza, Florence, Triest, Cheb, Strasbourg, Stuttgart, Zagreb (3), Tiflis, Simferopol, Theodosia, Yalta, Ekaterinburg, Pulkovo, and near Nagoya), 19h. (La Paz, Huancayo, and Tiflis), 20h. (near Neuchatel and Zurich), 21h. (Belgrade), 22h. (Cheb and near Manila).

Sept. 29d. 3h. 42m. 51s. Epicentre 33°·5N. 130°·3E. (as on 1929 Aug. 8d.). R.3.

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

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Hukuoka	0·1	49	i 0 1	− 2	i 0 5	+ 2	—	0.1
Nagasaki	0·9	205	0 16	+ 3	0 36	+13	—	—
Matuyama	2·1	81	e 0 25	− 5	i 0 53	− 1	—	—
Koti	2·7	89	—	—	1 13	+ 4	—	—
Sumoto	3·9	76	1 46	S	(1 46)	+ 6	—	—
Kobe	4·2	72	—	—	e 1 57	S*	—	2·1
Osaka	4·5	73	1 7	+ 3	(2 6)	S*	2·1	2·4
Nagoya	5·8	71	1 24	+ 2	e 2 45	S*	—	—

Sept. 29d. 3h. 57m. 26s. Epicentre **40°·4N. 23°·3E.** R.1.

Probable error of epicentre ±0°·25. (as on 28d.).

A = +·699, B = +·301, C = +·648 ; D = +·396, E = −·918 ;
G = +·595, H = +·256, K = −·762.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Taranto		4·6	273	1 34	P_g	—	—	—	—
Bari		4·9	281	1 11	+ 1	2 9	+ 4	2·9	—
Belgrade		4·9	336	e 1 4	− 6	i 2 15	+10	—	2·9
Trenta		5·4	260	i 1 4	−13	1 29	P*	—	—
Messina		6·4	252	1 36	+ 5	4 6	?	—	—
Naples	N.	6·9	277	e 1 39	+ 1	—	—	—	5·6
Catania		7·0	249	2 42	+63	4 29	+90	6·1	6·8
Casamicciola		7·1	276	1 48	+ 7	3 55	S_g	6·4	—
Zagreb		7·6	318	e 1 45	− 3	—	—	—	4·4
Budapest		7·7	338	1 47	− 2	3 34	+18	5·1	5·6
Laibach		8·5	315	e 1 58	− 2	e 4 6	S*	—	5·5
Sebastopol		8·6	57	1 59	− 3	—	—	—	—
Triest		8·7	310	i 2 3	0	i 3 41	0	—	5·5
Yalta		9·0	59	2 2	− 5	3 47	− 2	—	5·5
Simferopol		9·1	56	e 2 22	+13	—	—	—	—
Vienna		9·2	330	e 2 8	− 2	3 34	−20	—	5·4
Lemberg	E.	9·4	3	e 0 2	?	e 4 44	?	—	5·5
	N.	9·4	3	e 0 16	?	e 5 24	?	—	6·1
Venice		9·4	306	e 2 9	− 4	5 6	S_g	—	7·6
		9·4	306	e 2 12	− 1	4 54	S_g	—	7·6
Florence		9·5	295	1 34?	−40	—	—	—	6·0
Prato		9·6	296	e 2 7	− 9	i 4 34	+31	—	5·6
Livorno		10·0	293	3 4	+43	5 24	+71	—	—
Theodosia		10·0	58	e 2 10	−11	4 9	− 4	4·6	5·9
Piacenza		11·0	300	i 2 34	− 1	5 14	S*	6·4	9·4
Pavia		11·4	299	2 44	+ 4	—	—	—	—
Prague		11·5	330	e 2 46	+ 4	e 5 1	+11	e 5·4	8·1
Chur		11·8	308	e 2 46	0	—	—	—	—
Ksara		12·0	119	e 2 50	+ 2	5 16	+13	7·2	—
Cheb		12·3	325	e 2 52	0	e 5 17	+ 7	e 6·5	7·9
Helwan		12·4	146	i 2 58	+ 4	i 5 22	+ 9	9·6	12·7
Zurich		12·6	308	e 2 55	− 1	e 5 26	+ 9	—	—
Stuttgart		13·0	315	e 2 59	− 3	e 5 14	−13	—	—
Jena		13·3	326	e 3 1	− 5	e 5 4	−30	e 5·6	7·5
Neuchatel		13·5	305	e 3 5	− 4	e 5 38	− 1	—	—
Marseilles		13·6	288	—	—	i 6 10	+29	10·6	—
Karlsruhe		13·6	314	3 14	+ 4	6 6	+25	7·6	7·9
Grenoble		13·7	297	3 27	+16	5 3	−41	7·6	—
Strasbourg		13·7	312	i 3 12	+ 1	i 5 52	+ 8	—	8·9
Potsdam		13·8	333	e 3 10	− 3	i 5 47	+ 1	e 6·2	7·6

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		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Besançon		14·2	305	3 16	− 2	6 39	+43	7·8	—
Feldberg		14·3	318	e 3 22	+ 3	—	—	—	8·4
Göttingen		14·4	325	e 3 24	+ 3	i 6 3	+ 2	—	9·3
Königsberg		14·5	353	i 3 26	+ 4	6 1	− 2	e 7·2	9·6
Puy de Dôme		15·8	297	e 3 49	+10	8 50	L	(8·8)	—
Hamburg		15·9	330	e 3 40?	0	e 6 40	+ 4	—	9·6
Barcelona		16·0	281	3 34	− 7	—	—	e 8·1	12·6
Tiflis		16·2	78	e 3 45	+ 1	7 4	+21	10·0	11·0
Algiers		16·2	264	i 3 50	+ 6	6 40	− 3	9·6	11·3
Copenhagen		16·8	339	3 46	− 6	6 57	0	8·6	—
Uccle		16·8	314	3 53	+ 1	7 7	+10	7·6	10·5
Paris		16·9	307	i 3 51	− 2	7 7	+ 8	8·6	9·6
De Bilt		17·0	320	3 56	+ 2	7 15	+13	e 8·1	9·8
Tortosa		17·2	279	3 58	+ 1	7 15	+ 9	9·7	11·7
Bagnères		17·3	287	e 3 58	0	7 25	+16	9·6	—
Alicante		18·5	271	i 4 11	− 2	i 7 39	+ 3	e 9·3	11·8
Kew		19·6	312	e 4 26	+ 1	i 8 6	+ 8	e 8·6	11·1
Pulkovo		19·8	10	i 4 21	− 6	7 55	− 7	10·1	12·5
Upsala		19·8	351	e 4 22	− 5	i 7 58	− 4	e 10·2	13·9
Helsingfors		19·8	2	e 4 19	− 8	i 7 53	− 9	e 10·6	—
Oxford		20·3	312	i 4 34	+ 1	i 8 13	+ 1	i 10·4	13·0
Almeria		20·3	268	i 4 34	+ 1	i 8 32	+20	e 11·6	13·7
Toledo		20·8	278	e 4 37	− 1	8 28	+ 6	e 10·6	15·1
Granada		21·1	270	i 4 42	+ 1	i 8 39	+11	10·7	17·0
Stonyhurst		21·9	317	i 4 58	+ 8	i 8 53	+ 9	—	14·5
Durham		21·9	320	4 49	− 1	8 47	+ 3	—	12·6
Malaga		21·9	269	i 4 48	− 2	i 8 57	+13	12·1	14·8
Bidston		22·0	315	i 4 54	+ 3	i 8 54	+ 8	11·2	12·7
Bergen		22·9	337	5 1	+ 1	9 6	+ 3	—	—
Edinburgh		23·2	321	i 5 4	+ 1	i 9 8	0	—	16·2
San Fernando		23·3	270	5 4	0	i 9 17	+ 7	13·1	17·1
Serra do Pilar		24·0	282	5 14	+ 4	—	—	—	—
Ekaterinburg		29·1	43	i 5 55	− 2	—	—	—	—
Tchimkent		34·4	70	e 7 21	+37	—	—	—	—
Andijan		36·8	73	e 7 1	− 4	—	—	—	—
Almata		39·4	66	e 7 30	+ 3	—	—	—	—
Agra	E.	46·6	89	8 19	− 6	—	—	—	—
Bombay		47·3	102	8 33	+ 2	15 27	+ 4	24·2	—
Hyderabad		52·5	99	9 10	0	16 32	− 3	26·8	35·0
Irkutsk		54·0	48	9 27	+ 6	17 1	+ 5	29·6	34·3
Calcutta		57·0	87	9 50	+ 7	17 50	+14	e 31·3	—
Colombo		60·3	108	10 6	− 1	—	—	—	48·4
East Machias		63·2	306	i 10 23	− 4	18 59	+ 2	e 27·6	—
Harvard		66·8	306	e 10 51	0	i 19 46	+ 4	e 29·6	—
Chiufeng		67·1	56	i 10 52	0	e 19 45	− 1	e 32·2	41·4
Ottawa		67·8	311	e 10 56	− 1	e 19 56	+ 2	e 30·6	—
Fordham		69·3	306	e 11 8	+ 2	i 20 14	+ 1	e 31·6	—
Toronto		70·9	311	e 11 9	− 7	i 20 34?	+ 2	35·2	—
Buffalo		71·0	310	i 11 16	− 1	e 20 38	+ 5	e 34·6	—
Georgetown		72·5	305	i 11 23	− 3	i 20 52	+ 1	e 32·6	—
Pittsburgh		73·2	309	i 11 34	+ 4	i 21 3	+ 4	e 34·7	—
Cape Town		74·4	184	—	—	21 5	− 8	35·9	41·8
Hong Kong		76·4	72	21 32	S	(21 32)	− 4	44·1	51·4
Chicago		76·7	315	—	—	e 21 38	− 1	e 36·9	—
Cincinnati		76·8	310	i 11 45	− 5	i 21 41	0	31·6	43·6
Madison		76·8	316	e 11 48	− 2	i 21 34	− 7	33·6	—
Columbia		78·1	305	—	—	e 21 58	+ 3	e 38·6	—
Florissant		79·9	313	e 12 8	+ 1	—	—	e 41·6	—
St. Louis		80·3	313	e 12 8	− 1	—	—	e 41·6	—
Sitka		80·8	348	—	—	22 23	− 1	e 48·6	—
Osaka		82·4	50	e 3 32?	?	e 18 43	?	—	—
Manila		86·3	74	12 39	− 1	22 57	[−11]	—	—
Rio de Janeiro		88·4	237	—	—	37 34?	?	—	92·6
Batavia		89·1	98	e 12 57	+ 4	e 23 11	[−16]	—	—
Pasadena		97·4	328	e 17 7	PP	—	—	—	—

For Notes see next page.

NOTES TO SEPT. 29d. 3h. 57m. 26s.

Additional readings :—
Belgrade iP = +22s., i = +1m.35s. = P_g +3s., iPS = +2m.2s., iS_g = +2m.28s. = S_g −8s.
Zagreb eEN = +1m.48s., iEN = +1m.56s., i = +2m.6s. = P* −1s., +2m.24s. = P_g −2s., +2m.38s., and +3m.38s., iSS = +3m.54s., i = +4m.7s.
Laibach e = +2m.3s., ePP = +2m.36s., i = +4m.37s.
Triest iPP = +2m.46s., iPS = +4m.44s., iSS = +4m.59s., iSSS = +5m.6s.
Vienna iNZ = +3m.7s., SS = +4m.9s.
Cheb e = +5m.51s. = S* −10s.
Stuttgart i = +3m.5s. = PP +0s. and +3m.15s., e = +3m.43s., i = +5m.41s. +6m.0s., and +6m.11s.
Strasbourg PP = +3m.22s.
Potsdam i = +3m.16s., eEN = +5m.34s.?, iN = +5m.51s. = SS −1s.
Feldberg iE = EN = +3m.31s., eE = +6m.15s. = SS +10s.
Göttingen iSE = +6m.14s., iEN = +7m.6s.
Königsberg iZ = +7m.1s.
Puy de Dôme i = +10m.18s.
Tiflis i = +3m.50s.
Algiers PP = +3m.59s.
Tortosa PN = +4m.6s.
Kew iP = +4m.29s., i = +4m.33s.
Helsingfors eZ = +3m.56s., iSZ = +7m.59s.
Toledo iP = +4m.42s., PP = +5m.4s., PPP = +5m.24s., i = +8m.33s.
Granada P_gP = +8m.45s.
Stonyhurst i? = +9m.9s. = SS −5s., +12m.9s., and +12m.46s., i = +13m.36s.
Malaga i = +4m.54s., PP = +5m.12s., SS = +9m.30s., SSS = +9m.37s.
Edinburgh i = +9m.17s.
San Fernando PP = +5m.42s.
Ekaterinburg i = +5m.59s.
East Machias e = +10m.33s. and +26m.18s.
Ottawa eSSSN = +24m.46s.; T_0 = 3h.57m.24s.
Cape Town SSS? = +28m.47s.
Hong Kong S = +30m.41s.
Cincinnati ePE = +11m.53s., ePPZ = +14m.52s., eSE = +21m.44s., eSSZ = +26m.35s.
Long waves were also recorded at Phu-Lien, Koti, Sumoto, Berkeley, Ukiah, Tucson, Bozeman, and Ann Arbor.

Sept. 29d. 6h. 49m. 35s. Epicentre 33°·5N. 131°·9E. (as on 1929 Oct. 9d.). X.

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

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Matuyama	0·8	65	i 0 6	− 5	0 16	− 5	—	0·3
Hukuoka	1·2	274	e 0 16	− 1	e 0 44	+13	—	0·7
Koti	1·4	88	0 14	− 6	0 26	P_g	—	—
Sumoto	2·6	71	0 39	+ 2	1 14	S*	—	1·3
Kobe	2·9	66	e 0 50	+ 9	e 1 35	S_g	—	—
Osaka	3·2	69	0 52	+ 6	—	—	1·5	2·3
Nagoya	4·5	67	—	—	e 1 48	− 7	—	—

Kobe gives also eE = +56s.

Sept. 29d. 6h. 50m. 45s. Epicentre 40°·4N. 23°·3E. (as at 3h.). R.3.

A = +·699, B = +·301, C = +·648; D = +·396, E = −·918; G = +·595, H = +·256, K = −·762.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Belgrade		4·9	336	e 1 17	+ 7	e 2 28	S*	—	2·6
Trenta		5·4	260	e 1 5	−12	2 55	S_g	—	—
Messina		6·4	252	2 42	S	(2 42)	− 1	—	—
Naples	N.	6·9	277	e 3 50	S_g	—	—	—	—
Zagreb		7·6	318	e 1 39	− 9	e 3 54	S*	—	4·4

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Triest		8·7	310	e 1 58	− 5	e 3 39	− 2	e 4·9	—
Yalta		9·0	59	e 2 2	− 5	—	—	—	—
Vienna		9·2	330	2 4	− 6	—	—	—	5·0
Lemberg	N.	9·4	3	e 2 51	+38	—	—	—	7·8
Florence		9·5	295	e 2 45	+31	—	—	—	5·8
Theodosia		10·0	58	e 1 57	−24	—	—	—	—
Piacenza		11·0	300	e 2 15	−20	—	—	—	8·4
Chur		11·8	308	e 2 43	− 3	—	—	e 7·1	—
Zurich		12·6	308	e 3 15	+19	—	—	—	—
Stuttgart		13·0	315	—	—	e 5 45	+18	e 7·2	—
Neuchatel		13·5	305	e 3 2	− 7	—	—	—	—
Strasbourg		13·7	312	i 4 44	+93	i 7 46	+122	9·2	—
De Bilt		17·0	320	e 4 2	+ 8	e 7 17	+15	e 9·2	11·5
Pulkovo		19·8	10	e 3 35	−52	—	—	10·2	12·6
Baku		20·2	81	e 4 34	+ 2	e 8 3	− 7	11·8	—

Additional readings :—
Belgrade e = +1m.22s. = P* +2s. and +1m.51s.
Zagreb e = +1m.42s., +2m.4s. = P* −3s., +2m.19s., and +4m.16s.
Triest e = +4m.29s.
Lemberg eE = +3m.9s.
Stuttgart eS = +6m.53s.
Long waves were also recorded at Ksara, Tiflis, Ekaterinburg, Kucino, and at other European stations.

Sept. 29d. 17h. 46m. 35s. Epicentre **46°·3N. 153°·0E.** N.1.

Probable error of epicentre ±0°·24.

A = −·616, B = +·314, C = +·723; D = +·454, E = +·891;
G = −·644, H = +·328, K = −·691.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Ootomari		7·0	276	1 50	P*	3 24	S*	—	3·8
Mizusawa	E.	11·3	235	2 31	− 8	4 36	− 9	—	—
	N.	11·3	235	2 37	− 2	4 49	+ 4	—	—
Tyosi		13·9	225	e 3 24	+10	6 10	+21	11·4	—
Nagoya		16·4	233	e 3 48	+ 2	—	—	13·1	—
Toyooka		17·3	238	i 3 56	− 2	—	—	i 9·3	12·7
Osaka		17·6	235	3 57	− 5	6 52	−23	10·4	—
Kobe	E.	17·8	236	4 4	0	7 45	+25	e 10·8	13·7
	N.	17·8	236	4 4	0	7 31	+11	e 10·4	12·5
	Z.	17·8	236	4 3	− 1	7 49	+29	e 11·0	12·5
Sumoto		18·2	235	i 4 8	− 1	7 31	+ 2	11·1	12·9
Koti		19·5	236	e 4 23	− 1	e 8 5	+ 9	9·4	—
Matuyama		19·8	238	i 4 24	− 3	—	—	—	—
Hukuoka		21·3	242	4 45	+ 2	8 48	PcP	e 13·6	15·1
Nagasaki		22·3	240	4 55	+ 1	9 6	+14	e 12·1	—
Chiufeng		27·3	270	e 5 44	+ 3	e 10 33	+13	—	18·2
Nanking	N.	29·8	254	6 5	+ 2	11 26	+25	e 16·9	—
Irkutsk		31·7	300	6 20	0	e 11 42	+11	18·4	20·2
Hong Kong		39·4	246	7 25	− 2	13 41	+14	19·6	31·1
Manila		41·5	231	7 47	+ 3	13 50	− 9	19·3	—
Sitka		43·5	49	e 8 37	+36	i 14 34	+ 6	e 21·4	—
Phu-Lien		45·4	252	e 8 15	− 1	—	—	22·4	—
Honolulu T.H.		46·9	105	—	—	i 15 23	+ 6	21·1	—
Almata		51·9	297	9 9	+ 3	—	—	—	—
Ekaterinburg		53·9	318	i 9 21	0	16 56	+ 2	26·0	34·9
Amboina		54·6	211	i 9 20	− 6	i 17 0	− 4	—	—
Andijan		56·1	296	9 36	− 1	—	—	24·0	—
Calcutta		56·6	268	9 11	−29	17 11	−20	30·7	—
Tchimkent		57·0	299	9 59	+16	—	—	—	—
Ukiah		59·1	65	—	—	18 7	+ 3	e 31·0	—

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		△	Az.	P.	O − C.	S.	O − C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Samarkand		60·1	298	10 5	0	18 15	− 2	—	—
Berkeley		60·4	66	e 10 1	− 6	i 18 24	+ 3	—	—
Agra		60·7	280	10 3	− 6	18 19	− 6	32·1	—
Lick		61·2	66	e 9 49	−24	—	—	—	—
Bozeman		62·2	52	e 10 31	+11	i 18 49	+ 4	e 33·4	—
Medan		63·4	246	e 10 35	+ 7	i 18 54	− 6	36·4	—
Tinemaha		63·4	64	e 10 28	0	—	—	—	—
Santa Barbara	N.	64·2	67	e 10 30	− 4	—	—	—	—
Pulkovo		64·2	333	i 10 31	− 3	e 19 9	− 1	32·4	38·8
Kucino		64·4	326	10 35	0	19 38	PS	33·6	41·6
Mount Wilson		65·4	66	e 10 42	+ 1	e 19 24	− 1	—	—
Pasadena		65·4	66	i 10 38	− 3	e 19 20	− 5	e 29·5	—
Helsingfors	E.	65·5	336	e 14 54	?	e 19 43	PS	e 34·4	—
Batavia		66·6	232	e 10 49	0	i 19 32	− 8	—	—
La Jolla		66·8	67	e 10 55	+ 4	—	—	—	—
Hyderabad		66·9	272	10 49	− 2	19 44	+ 1	35·0	46·2
Upsala		67·8	338	10 53	− 4	e 19 52	− 2	e 33·4	47·2
Suva		68·4	155	—	—	20 25?	+23	—	—
Baku		69·6	308	i 11 9	+ 1	i 20 20	+ 4	34·1	41·6
Bombay		69·8	277	11 9	0	20 23	+ 4	36·8	46·3
Bergen		70·2	345	10 25?	−47	—	—	e 44·4	—
Tucson		71·2	63	e 11 20	+ 2	i 20 35	0	e 30·9	—
Königsberg		71·3	334	i 11 18	− 1	e 21 11	PS	e 37·2	41·4
Tiflis		71·4	312	i 11 16	− 3	20 22	−16	e 38·1	46·6
Kodaikanal		72·7	267	11 33	+ 6	20 58	+ 5	—	—
Copenhagen		72·8	339	11 30	+ 2	20 55	+ 1	37·4	—
Colombo		73·4	263	11 27	− 4	—	—	—	49·4
Theodosia		73·4	320	e 11 32	+ 1	e 21 40	PS	40·4	—
Simferopol		74·1	321	e 11 29	− 6	—	—	41·6	—
Yalta		74·4	320	11 35	− 2	—	—	38·4	—
Sebastopol		74·6	321	e 11 42	+ 4	—	—	—	—
Madison		75·0	43	e 11 25	−15	i 21 10	−10	37·0	—
Hamburg		75·4	339	i 11 42	− 1	e 21 31	+ 6	e 34·4	40·4
Potsdam		75·6	337	i 11 41	− 3	i 21 23	− 4	e 39·4	50·4
Edinburgh		75·9	347	e 12 5	+20	21 29	− 1	42·4	—
Durham		76·7	346	11 51	+ 1	21 37	− 2	—	53·4
Chicago		76·8	43	—	—	e 21 31	−10	e 44·1	—
Göttingen		77·2	338	e 11 52	− 1	e 21 38	− 7	e 38·4	47·2
Jena		77·3	336	e 11 54	0	e 21 37	− 9	e 36·4	40·4
Stonyhurst		77·7	346	—	—	i 20 37	−74	48·4	—
De Bilt		77·8	341	11 55	− 2	21 50	− 2	40·4	52·3
Florissant		77·8	46	e 11 55	− 2	e 21 46	− 6	—	—
Cheb		77·9	335	e 11 29	−28	e 21 50	− 3	e 38·4	48·4
St. Louis		78·0	46	e 11 56	− 1	e 21 46	− 8	—	—
Budapest		78·0	330	12 27	+30	21 58	+ 4	e 40·4	32·4
Ann Arbor		78·1	40	e 15 1	PP	e 21 49	− 6	e 46·1	—
Bidston		78·2	346	i 12 0	+ 2	i 21 55	− 1	29·9	—
Vienna		78·2	333	e 11 57	− 1	22 4	+ 8	e 39·4	50·4
Toronto		78·8	36	e 11 49	−12	e 21 55	− 8	47·4	—
Ottawa		78·8	33	e 12 29	+28	e 21 52	−11	e 40·4	—
Uccle		79·2	342	12 3	− 1	22 6	− 1	e 34·4	—
Oxford		79·5	344	12 4	− 1	i 22 5	− 5	e 38·4	55·2
Kew		79·6	344	e 12 5	− 1	e 22 7	− 4	e 35·4	42·8
Buffalo		79·7	36	i 12 5	− 1	i 21 41	−31	e 44·4	—
Belgrade		79·8	328	e 12 7	0	e 19 37	?	e 51·6	—
Stuttgart		80·0	337	i 12 7	− 1	e 22 9	− 7	e 38·4	54·9
Riverview		80·2	182	—	—	i 22 9	− 9	—	—
Cincinnati	E.	80·3	42	i 12 7	− 2	i 22 18	− 1	e 38·0	43·7
Zagreb		80·5	332	e 12 8	− 2	e 22 12	− 9	e 41·7	—
Strasbourg		80·5	338	i 12 9	− 1	22 3	−18	40·4	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Innsbruck		80·6	335	12 13	+ 2	—	—	—	—
Pittsburgh		81·3	38	—	—	e 27 25	SS	e 34·4	—
Triest		81·4	333	12 13	− 2	e 22 23	− 8	e 32·1	—
Zurich		81·4	337	e 12 14	− 1	e 22 22	− 9	—	—
Paris		81·5	342	i 12 16	0	22 28	− 4	42·4	49·4
Chur		81·5	337	e 12 18	+ 2	e 22 28	− 4	—	—
Ksara		82·0	312	12 21	+ 3	22 39	+ 2	—	—
Venice		82·0	334	e 12 25?	+ 7	—	—	—	—
Neuchatel		82·1	338	e 12 16	− 3	e 22 32	− 6	—	—
East Machias		82·2	28	—	—	e 22 33	− 6	e 39·4	—
Piacenza		83·4	335	12 19	− 6	22 41	−10	40·7	52·6
Fordham		83·4	34	e 12 25	0	e 22 40	−11	41·4	—
Prato		83·7	333	e 12 15	−12	22 50	− 4	—	—
Georgetown		83·7	37	e 12 25	− 2	i 22 50	− 4	—	—
Florence		83·8	333	12 29	+ 2	22 55	0	39·4	44·4
Melbourne		84·4	187	e 16 38?	PP	i 22 48	[− 7]	36·4	—
Taranto		84·8	328	12 11	−21	22 11	[−47]	—	—
Perth		85·2	212	22 55	SKS	(22 55)	[− 6]	—	—
Helwan		87·5	313	12 45	0	i 23 13	[− 4]	—	57·2
Barcelona		88·5	339	—	—	e 23 24	[+ 1]	e 49·8	64·6
Tortosa	N.	89·5	340	12 57	+ 2	23 20	[−10]	33·4	54·3
Toledo		91·4	343	e 13 5	+ 1	e 23 37	[− 4]	e 32·4	48·4
Alicante		92·1	340	e 14 20	+73	e 24 52	[+67]	e 49·3	—
Algiers		92·6	337	e 11 34	−95	e 21 48	[−120]	—	—
Granada		93·8	342	e 13 19	+ 4	23 52	[− 2]	41·3	65·3
Almeria		94·0	341	—	—	e 20 11	PPPP	e 50·9	—
Malaga		94·5	343	e 13 16	− 2	23 49	[− 9]	43·7	54·1
San Fernando		95·2	344	—	—	24 1	[− 1]	—	66·9
La Paz		134·8	63	19 20	[+ 5]	—	—	73·4	—

Additional readings :—
Toyooka iPN = +3m.59s.
Sumoto SE = +7m.35s.
Chiufeng iP = +5m.46s., PP = +6m.29s.
Sitka e = +15m.15s., SS = +17m.55s.
Amboina i = +9m.35s.
Ukiah e = +24m.1s. =SSS +2s.
Berkeley eP = +10m.7s.
Medan i = +11m.33s. =P_cP +26s. and +19m.21s.
Kucino SS = +23m.37s., SSS = +27m.1s.
Helsingfors eE = +23m.8s., +27m.8s., and +31m.1s.
Hyderabad PP = +13m.25s.
Tiflis ePPP = +15m.42s., SKS = +20m.42s., SKKS = +21m.13s.
Copenhagen +15m.55s. and +21m.37s. =PS +22s.
Madison eSS = +26m.1s. ; T_o =17h.46m.1s.
Potsdam eEN = +11m.25s.?, iE = +11m.44s., eN = +21m.7s., iEN = +21m.59s. =PS +7s., eZ = +22m.1s.
Edinburgh i = +22m.1s. =PS +5s.
De Bilt eZ = +17m.57s., eE = +35m.25s. ?
Ann Arbor e?E = +15m.19s.
Toronto e = +12m.40s.
Uccle ePP = +18m.19s., eSS = +27m.57s., eSSS = +31m.23s.
Oxford eS = +21m.55s.
Belgrade e = +39m.44s.
Riverview e =17h.41m.30s.
Cincinnati iPE = +12m.14s., iPPZ = +15m.11s., iSZ = +22m.11s., eSSE = +27m.38s., eSSEZ = +30m.41s.
Strasbourg PP = +14m.35s., PPP = +16m.40s., SS = +23m.5s.
Triest e = +14m.29s., ePP = +15m.27s., e = +23m.55s.
Ksara SE = +22m.42s.
East Machias e = +22m.41s. and +27m.32s.
Fordham iSN = +22m.44s.
Melbourne i = +28m.25s. =SS +8s.
Granada PP = +17m.4s., PPP = +19m.1s., PS = +24m.24s.
Malaga P_cP = +13m.39s., PP = +16m.36s., SKS = +23m.37s., PS = +24m.46s., SSS = +32m.52s.
La Paz PPN = +22m.56s.
Long waves were also recorded at Besançon and Wellington.

Sept. 29d. 21h. 44m. 52s. Epicentre 39°·8N. 23°·8E. (as on 26d.). X.

The *high* focus 0·0075 is retained here.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Belgrade	0·0	5·5	335	e 1 27	+ 9	e 2 36	+16	—	2·7
Trenta	0·0	5·8	267	e 0 13	?	—	—	—	—
Zagreb	0·0	8·3	319	e 1 54	− 4	e 3 35	+ 4	—	4·6
Budapest	+0·1	8·4	338	e 2 38	+38	—	—	5·1	—
Sebastopol	+0·1	8·7	53	e 3 55	S	(e 3 55)	+11	—	—
Yalta	+0·1	9·0	55	e 3 56	S	(e 3 56)	+ 5	—	—
Simferopol	+0·1	9·2	53	e 3 59	S	(e 3 59)	+ 3	—	—
Triest	+0·1	9·4	311	2 10	− 4	e 3 53	− 8	—	4·5
Theodosia	+0·1	10·0	55	e 4 8	S	(e 4 8)	− 8	—	—
Vienna	+0·1	10·0	330	e 3 55	S	(e 3 55)	−21	—	6·1
Florence	+0·1	10·1	298	—	—	e 3 38	−40	6·0	—
Piacenza	+0·1	11·6	301	e 2 38	− 6	—	—	—	8·7
Chur	+0·1	12·5	309	e 2 58	+ 2	e 5 13	− 4	—	—
Tiflis	+0·2	16·0	77	e 2 40	−64	—	—	10·7	—

Additional readings :—
Belgrade e = +1m.40s. and +2m.19s. =S − 1s.
Zagreb e = +2m.23s.
Long waves were also recorded at Baku, Ekaterinburg, Ksara, and other European stations.

Sept. 29d. Readings also at 0h. (Baku, Ekaterinburg, Tiflis, Manila, and near Amboina (5)), 1h. (Hastings, near Amboina (6), and near Santiago (2)), 2h. (near Amboina (5)), 4h. (Yalta, Florence, Trenta, Triest, Belgrade, Zagreb, Osaka, and near Nagoya), 5h. (near Amboina), 6h. (Bombay, Kodaikanal, Mizusawa, Nagoya, Tyosi, and near Osaka), 8h. (near Amboina), 10h. (Manila and near Nagoya), 11h. (near Amboina and near Reykjavik), 12h. (Simferopol, Tiflis, Copenhagen, Helsingfors, Vienna, Budapest, Belgrade, Triest (2), Zagreb (2), Florence, Piacenza, De Bilt, Strasbourg, Stuttgart, Trenta, Paris, Kew, Edinburgh, and near Reykjavik), 13h. (La Jolla, Mount Wilson, Pasadena, Tinemaha, Sitka, near Reykjavik, and near Sumoto), 14h. (Bombay, Hong Kong, Honolulu T.H., Tiflis, Almata, Andijan, Tchimkent, Copenhagen, De Bilt, Strasbourg, Stuttgart, Paris, Kew, Edinburgh, San Fernando, Fordham, Ottawa, Ann Arbor, Chicago, Cincinnati, Pittsburgh, Columbia, Bozeman, Berkeley), 15h. (Branner and Lick), 16h. (Lick (2)), 17h. (Manila and near Sumoto), 19h. (Belgrade and Zagreb), 20h. (Triest, Piacenza, Simferopol, Yalta, Stuttgart, and De Bilt), 21h. (Stuttgart), 22h. (Triest and near Granada), 23h. (Belgrade, Triest, Zagreb, Stuttgart, De Bilt, Cheb, and La Jolla).

Sept. 30d. 4h. 55m. 24s. Epicentre 31°·3N. 138°·7E. (as on 1931 Oct. 23d.). R.3.

A = −·642, B = +·564, C = +·520.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M
	°	°	m. s.	s.	m. s.	s.	m.	m.
Nagoya	4·1	340	e 1 2	+ 4	1 50	+ 5	—	1·9
Osaka	4·3	323	1 1	0	(1 49)	− 1	1·8	2·7
Sumoto	4·4	314	i 0 26	−37	i 1 49	− 4	—	1·8
Kobe	4·5	319	i 1 1	− 3	1 51	− 4	—	1·9
Tyosi	4·8	22	1 14	+ 6	2 11	+ 8	—	—
Mizusawa	8·0	14	1 48	− 5	3 6	−18	—	—

Sept. 30d. 6h. 12m. 16s. Epicentre 36°·0N. 22°·7E. N.2.

A = +·746, B = +·312, C = +·588; D = +·386, E = −·923; G = +·542, H = +·227, K = −·809.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Trenta		5·9	306	i 1 24	0	2 29	− 2	—	—
Messina		6·1	293	1 30	+ 3	2 38	+ 2	—	—
Catania		6·2	286	1 23	− 5	—	—	—	3·6
Taranto		6·2	319	1 36	+ 8	—	—	—	—
Bari		6·8	321	1 36	− 1	2 46	− 7	4·7	—
Naples	E.	8·2	309	e 1 58	+ 2	e 3 38	+ 9	—	5·7
Casamicciolo		8·3	308	2 0	+ 2	3 39	+ 8	5·1	—
Belgrade		9·0	350	e 2 4	− 3	e 3 53	+ 4	—	5·2
Casamari		9·2	310	2 3	− 7	—	—	—	—
Helwan		9·5	128	e 1 16	−58	i 2 54	−67	—	—
Camerino		10·3	317	2 24	− 1	4 13	− 8	—	—
Ksara	E.	11·0	97	e 2 35	0	4 31	− 7	—	—
Zagreb		11·0	335	e 2 32	− 3	e 4 27	−11	—	6·8
Triest		11·7	328	i 2 44	0	i 4 46	− 9	—	6·5
Florence		11·7	315	e 2 44	0	—	—	—	5·7
Laibach		11·7	331	—	—	e 4 42	−13	—	—
Prato		11·8	312	e 2 54	+ 8	i 4 44	−14	—	7·1
Budapest		11·8	348	2 57	+11	5 27	+29	e 6·7	—
Sebastopol		11·9	41	i 2 53	+ 6	—	—	—	—
Yalta		12·2	43	i 2 51	0	—	—	—	—
Simferopol		12·4	41	e 2 56	+ 2	—	—	—	—
Vienna		13·1	341	3 0	− 3	—	—	—	8·7
Theodosia		13·2	43	e 3 6	+ 1	—	—	—	—
Piacenza		13·4	317	3 10	+ 3	6 20	+43	—	9·2
Pavia		13·7	316	3 21	+10	—	—	—	—
Innsbruck		14·1	327	e 3 14	− 3	(i 5 46)	− 7	i 5·8	—
Chur		14·6	322	e 3 28	+ 5	e 5 28	−37	—	—
Zurich		15·4	322	e 3 38	+ 4	e 6 36	+12	—	—
Cheb		15·9	335	—	—	e 6 14	−22	—	—
Neuchatel		16·0	318	e 3 42	+ 1	e 6 22	−16	—	—
Stuttgart		16·1	328	i 3 44	+ 1	e 6 39	− 2	e 8·7	—
Strasbourg		16·7	324	e 3 25	−25	i 7 2	+ 7	—	—
Besançon		16·7	317	3 52	+ 2	i 6 49	− 6	—	—
Karlsruhe		16·7	326	e 3 44?	− 6	—	—	—	—
Jena		16·8	335	3 52	0	—	—	—	—
Potsdam		17·7	340	i 4 0	− 3	i 7 21	+ 4	—	—
Tortosa		18·0	292	5 12	+65	—	—	—	—
Tiflis		18·0	65	i 4 6	− 1	e 7 26	+ 1	e 10·1	—
Alicante		18·6	284	e 4 11	− 3	e 7 54	SS	—	—
Paris		19·5	317	e 4 25	+ 1	e 8 0	+ 4	—	—
Hamburg		19·7	337	i 4 26	0	e 8 0	0	e 39·7	—
Uccle		19·8	324	e 4 29	+ 2	e 8 6	+ 4	10·7	—
Almeria		20·1	280	i 4 47	+16	e 8 55	PcP	—	—
De Bilt		20·3	327	i 4 35	+ 2	e 8 16	+ 4	10·7	12·9
Copenhagen		20·9	344	4 40	+ 1	8 23	− 1	—	—
Granada		21·1	281	i 4 46	+ 5	e 8 43	+15	e 10·3	—
Toledo		21·3	288	e 4 47	+ 4	e 8 42	+10	—	—
Malaga		21·8	280	i 4 47	− 2	8 53	+11	11·2	11·7
Kew		22·5	321	—	—	e 8 59	+ 4	e 11·7	—
Oxford		23·2	320	5 4	+ 1	i 9 13	+ 5	—	—
Upsala		24·1	354	e 5 11	0	e 9 19	− 6	e 13·7	—
Pulkovo		24·2	9	i 5 11	− 1	9 25	− 2	11·7	13·6
Helsingfors	E.	24·2	3	—	—	(e 9 14)	−13	e 9·2	—
Edinburgh		26·5	327	—	—	e 10 14	+ 7	—	—
Ekaterinburg		32·7	39	i 6 26	− 3	e 11 32	−14	16·2	—
Tchimkent		36·4	65	e 7 44	+43	—	—	—	—
Almata		41·7	63	e 7 20	−26	—	—	—	—
Bombay		47·1	97	e 8 26	− 3	—	—	—	—
Tananarive		59·7	152	5 59	?	14 34	?	i 22·1	—

For Notes see next page.

NOTES TO SEPT. 30d. 6h. 12m. 16s.

Additional readings and note :—
Belgrade e = +2m.18s., +3m.4s., and +4m.28s. =S* +2s.
Zagreb e = +2m.35s., +2m.43s., +2m.55s., and +3m.31s.
Triest iPP = +2m.46s.
Laibach e = +5m.11s., +5m.37s. =S* −9s., and +6m.52s.
Innsbruck e = +8m.20s.
Stuttgart iZ = +4m.11s., eN = +6m.30s.
Strasbourg i = +3m.52s. =PP −4s.
Jena iE = +4m.37s. and +5m.20s.
Potsdam iEN = +4m.6s., iEZ = +7m.24s.
Tiflis e = +7m.3s., +7m.11s., and +7m.51s.
Hamburg iE = +4m.50s.
De Bilt iZ = +4m.43s. =PP −3s. and +4m.53s., e = +8m.50s.
Granada PP = +5m.23s., PPP = +5m.38s.
Toledo SS = +9m.4s., i = +9m.10s.
Malaga PP = +5m.14s., PPP = +5m.25s., iSS = +9m.14s., SSS = +9m.27s.

Sept. 30d. 7h. 31m. 10s. Epicentre 39°·8N. 23°·8E. (as on 29d.). X.

High focus correction of 0·0075 is retained.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Belgrade	0·0	5·5	335	e 1 18	0	e 2 18	− 2	—	2·6
Trenta	0·0	5·8	267	1 40	P_g	—	—	—	—
Zagreb	0·0	8·3	319	2 9	+11	—	—	—	4·5
Yalta	+0·1	9·0	55	e 3 35	S	(e 3 35)	−16	—	—
Triest	+0·1	9·4	311	e 1 50	−24	e 3 52	− 9	—	4·7
Theodosia	+0·1	10·0	55	e 4 3	S	(e 4 3)	−13	—	—
Vienna	+0·1	10·0	330	e 4 50	S	(e 4 50)	+34	—	5·8
Florence	+0·1	10·1	298	(e 2 20)	− 4	i 4 20	+ 2	—	5·8
Piacenza	+0·1	11·6	301	4 38	S	(4 38)	−17	—	16·6
Tiflis	+0·2	16·0	77	e 3 36	− 8	—	—	—	—
Pulkovo	+0·3	20·4	9	e 4 20	−17	—	—	11·8	—
Ekaterinburg	+0·5	29·3	42	—	—	e 11 21	+20	14·3	—

Additional readings and note :—
Belgrade e = +1m.22s.
Zagreb eNW = +2m.20s., eZ = +2m.27s., and +3m.58s., eEN = +4m.3s., eZ = +4m.10s.
Florence P has been *increased* by 4m.
Long waves were also recorded at Kucino and other European stations.

Sept. 30d. Readings also at 0h. (Stonyhurst), 1h. (Belgrade, Stuttgart, Triest, Zagreb, Tiflis, Huancayo, Sucre, and near La Paz), 2h. (Mount Wilson, Pasadena, Tinemaha, De Bilt, Stuttgart, Triest, and Zagreb), 4h. (Zagreb), 5h. (near Casamicciolo (2)), 6h. (Alicante, Ksara, Tyosi, near Nagoya, and near Amboina), 7h. (Belgrade, Budapest, Zagreb (2), Strasbourg, De Bilt (2), Zurich, Trenta, Triest (2), Stuttgart, Kew, and Tananarive), 8h. (Triest, Stuttgart, Zagreb, and De Bilt), 9h. (Belgrade, Budapest, Florence, Piacenza, Triest, Vienna, Zagreb (2), Theodosia, Yalta, Strasbourg, Stuttgart, and De Bilt), 10h. (Triest and Zagreb), 11h. (Triest, Zagreb, Kucino, La Jolla, Mount Wilson, Pasadena, Tinemaha, Perth, Adelaide, Riverview (2), Hastings, Tuai, near Wellington, New Plymouth, and Christchurch ; epicentre given for the New Zealand readings 38°·9S. 177°·9E.), 12h. (Belgrade, Budapest, Piacenza, Triest, Zagreb, Strasbourg, Stuttgart, Tiflis, Copenhagen, De Bilt, Pulkovo, Ekaterinburg, La Paz, and near Huancayo), 13h. (Edinburgh), 14h. (Tiflis, Hastings, Wellington, near New Plymouth, and near Amboina), 16h. (near Batavia), 17h. (Medan), 19h. (Triest, Vienna (2), Zagreb, Piacenza, Tiflis, Baku, Stuttgart, De Bilt, and Ekaterinburg), 20h. (near Alicante), 21h. (Riverview and near La Paz).