

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

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The International Seismological Summary. 1930 July, August, September.

FORMERLY THE BULLETIN OF THE
BRITISH ASSOCIATION SEISMOLOGY COMMITTEE.

In this quarter there are 156 epicentres, 59 of these are new, and 97 old epicentres. The quality of the material according to the new notation is as follows :—

N.1=14	R.1= 5	X=45
N.2=12	R.2=19	
N.3=31	R.3=30	

There are six cases of abnormal focal depth :—

	Date.	Epicentre	Focal Depth.
	d. h. m. s.	° °	Below Normal.
July	22 19 25 58	44·2N. 147·4E.	+0·020
Aug.	4 5 4 38	8·0S. 68·0W.	+0·080
	10 18 10 54	34·5N. 137·2E.	+0·050
	29 20 2 36	44·2N. 146·7E.	+0·020
Sept.	11 17 20 10	36·5N. 70·5E.	+0·025
	29 4 52 48	81·6N. 180·6E.	+0·080

UNIVERSITY OBSERVATORY,
OXFORD.

1984 October 17.

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1930 JULY, AUGUST, SEPTEMBER.

July 1d. 1h. 9m. 13s. Epicentre 51°·5N. 133°·3W.

N.1.

Probable error of the epicentre ±0°·3.

A = -·427, B = -·453, C = +·783; D = -·728, E = +·686;
G = -·537, H = -·570, K = -·623.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Sitka	5·7	349	11 15	- 6	12 20	- 5	12·7	—
Victoria	7·1	111	1 47	+ 6	—	—	3·4	4·0
Berkeley	15·7	146	e 4 13	+35	e 7 7	+36	e 8·7	9·0
Lick	16·4	145	—	—	e 7 19	+31	e 8·1	—
Florissant	32·3	96	1 6 30	+ 5	e 11 38	- 2	e 16·4	16·8
St. Louis	E. 32·5	96	e 6 30	+ 3	111 38	- 5	114·0	16·9
Ann Arbor	34·4	85	e 7 59	+15	e 12 5	- 7	e 17·0	20·7
Honolulu T.H.	35·7	224	—	—	e 13 10	+38	17·5	—
Toronto	E. 36·3	81	e 7 0	0	e 12 33	- 8	17·3	20·8
Ottawa	37·7	76	e 7 2	-10	e 12 55	- 7	e 18·3	—
Georgetown	40·5	85	e 7 39	+ 3	—	—	21·8	—
Fordham	Z. 41·3	82	e 7 44	+ 1	e 14 2	+ 6	20·2	—
Harvard	42·1	77	e 7 49	0	e 13 56	-12	e 20·3	—
Scoresby Sund	45·6	25	8 36	- 5	15 46	+ 5	23·8	—
Dyce	48·2	28	—	—	e 24 5?	?	e 32·6	39·1
Irkutsk	65·5	325	10 47	+ 5	—	—	35·8	42·8
Stonyhurst	66·9	30	—	—	e 24 6	SS	—	39·8
Helsingfors	E. 67·0	11	e 13 57	?	—	—	e 27·8	—
Pulkovo	67·9	9	10 59	+ 1	19 55	- 1	27·8	41·5
Copenhagen	69·1	20	11 4	- 1	20 17	+ 7	32·8	—
Oxford	69·1	30	11 7	+ 2	20 17	+ 7	e 36·3	42·6
Kew	69·7	30	e 11 8	- 1	—	—	30·8	42·2
Hamburg	70·5	23	e 11 16	+ 2	—	—	e 36·8	42·8
De Bilt	70·7	25	11 15	0	—	—	e 34·8	44·0
Ekaterinburg	71·1	353	11 18	+ 1	20 35	+ 1	27·8	46·9
Uccle	71·6	27	11 20	0	e 19 47?	-53	e 36·8	—
Göttingen	72·4	24	e 11 30	+ 5	—	—	e 38·8	47·8
Kucino	72·5	5	11 25	- 1	20 52	+ 1	e 33·9	44·6
Paris	72·8	30	e 11 27	- 1	—	—	30·8	42·8
Strasbourg	74·6	26	11 38	0	—	—	35·8	—
Stuttgart	74·8	25	e 11 39	0	e 21 2	-16	e 38·8	46·6
Piacenza	78·4	26	11 47	-12	—	—	—	50·3
Toledo	78·5	38	—	—	e 22 26	+27	e 38·0	—
Tortosa	N. 79·3	34	e 12 7	+ 3	—	—	e 36·8	50·4
Florence	79·9	26	e 12 3	- 4	22 27	+12	—	45·8
Granada	81·0	39	112 16	+ 3	122 34	+ 8	e 38·8	46·1
Almeria	81·7	38	e 12 13	- 4	e 21 11	-83	42·3	48·8
Rome	82·0	25	e 12 29	+11	—	—	—	—
Rocca di Papa	82·2	25	e 11 17	-62	e 22 47	+ 8	e 50·8	59·8
Tashkent	85·2	345	12 41	+ 7	123 8	- 2	e 38·8	60·4
Baku	88·1	358	12 54	+ 6	23 37	- 1	39·8	61·4
La Paz	88·4	120	e 10 26	?	—	—	50·8	—
Phu-Lien	90·8	308	20 47?	?	—	—	—	—

Additional readings :—

Lick eN = +7m.29s.

Florissant iE = +14m.22s.

St. Louis iE = +7m.22s. = PP-7s.

Ann Arbor eE = +13m.35s., eN = +13m.59s., eN = +14m.23s., e = +16m.11s.

Honolulu T.H. e = +16m.24s.

Toronto eSN = +12m.27s.; T₀ = 1h.8m.58s.

Georgetown ePPZ = +9m.11s., iZ = +20m.26s.

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Fordham ePP = +9m.16s., SS = +16m.59s.
 Harvard e = +9m.23s. = PP + 1s. and +16m.59s. = SS + 4s.; T₀ = 1h.9m.18s.
 Scoresby Sund +10m.35s. = PP + 8s. and +19m.29s.
 Irkutsk ePP = +13m.11s., ePS = +19m.35s.
 Copenhagen +13m.41s. = PP + 10s. and +24m.29s. = SS + 0s.
 Kew eSSEN = +28m.35s.
 Paris e = +15m.47s.? = PP + 8s.
 Strasbourg PP = +13m.47s.?
 Stuttgart iPZ = +11m.42s., ePPNZ = +14m.22s., ePPPNZ = +15m.57s., ePS = +21m.22s., eSSNZ = +26m.7s., eN = +29m.52s.
 Rocca di Papa e? = +10m.11s., i = +12m.26s.
 Long waves were also recorded at Hong Kong, Ivigtut, and at other European stations.

July 1d. Readings also at 0h. (La Paz), 4h. (Bombay and La Paz), 8h. (Rocca di Papa and Rome), 13h. (Ksara), 14h. (La Paz and Wellington), 15h. (La Paz), 18h. (Rocca di Papa), 20h. (Copenhagen, Rocca di Papa, Rome, Stuttgart, Trenta, and Zagreb), 22h. (near Taihoku).

July 2d. 8h. 18m. 36s. Epicentre 35°·7N. 134°·8E. (as on 1930 March 22d.). R.3.

A = -·572, B = +·576, C = +·584; D = +·710, E = +·705;
 G = -·411, H = +·414, K = -·812.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Toyouka	0·2	175	i 0 1	- 2	i 0 4	- 1	—	0·1
Kobe	1·1	163	i 0 17	+ 1	0 29	+ 1	—	0·5
Osaka	1·2	154	0 17	0	(0 34)	+ 3	0·6	0·6
Sumoto	1·4	177	0 21	+ 1	0 39	+ 3	—	0·7
Nagoya	1·8	107	0 28	+ 2	0 50	+ 4	—	—
Matuyama	2·5	222	e 0 16?	- 20	—	—	i 1·5	1·5

No additional readings.

July 2d. 21h. 3m. 44s. Epicentre 25°·8N. 90°·2E. N.1.

Probable error of epicentre ±0°·25.

A = -·003, B = +·900, C = +·435; D = +1·000, E = +·003;
 G = -·002, H = +·435, K = -·900.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Agra	E. 10·9	280	i 1 56	-37	4 1	-35	5·4	—
	N. 10·9	280	2 1	-32	4 1	-35	5·0	—
Dehra Dun	11·6	295	2 46	+ 3	4 46	- 7	6·1	7·3
Hyderabad	13·7	235	3 13	+ 2	—	—	—	—
Phu-Lien	15·9	105	i 3 40	0	i 6 36	0	8·3	10·6
Bombay	17·4	250	4 12	+13	7 27	+16	9·0	11·0
Kodaikanal	19·7	220	e 5 58	+92	—	—	i 9·2	13·9
Almata	20·5	332	4 38	+ 3	—	—	—	—
Andijan	21·0	320	4 45	+ 5	8 42	+16	—	9·4
Colombo	21·3	209	4 48	+ 5	8 54	+22	22·4	24·3
Hong Kong	22·1	94	4 51	- 1	8 53	+ 5	10·7	12·8
Tashkent	23·2	317	i 5 7	+ 4	—	—	—	23·3
Medan	23·6	158	14 56	-10	9 11	- 5	—	—
Samarkand	23·8	311	i 5 13	+ 5	e 9 59	SS	—	13·7
Zi-ka-wei	27·9	72	5 45	- 1	11 0	+30	i 15·0	18·6
Taihoku	28·3	85	5 54	+ 4	10 40	+ 3	15·6	18·9
Irkutsk	28·5	18	5 55	+ 3	—	—	—	—
Isigakizima	30·7	86	6 15	+ 4	11 40	+24	—	—
Manila	30·9	105	6 2	-11	i 11 23	+ 5	—	20·9
Zinsen	32·9	61	6 32	+ 1	12 8	+19	—	—
Nagasaki	35·1	69	6 52	+ 2	e 12 21	- 2	e 16·7	20·3
Hukuoka	35·6	67	6 58	+ 4	12 32	+ 2	16·7	23·5
Kagosima	35·7	71	7 2	+ 7	12 34	+ 2	—	—
Batavia	35·8	152	6 57	+ 1	—	—	19·3	—
Baku	36·4	307	i 7 6	+ 5	—	—	—	—

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	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	o	o	m. s.	s.	m. s.	s.	m.	m.
Malabar	37-1	152	e 7 33	+26	13 37	+44	19-3	—
Ekaterinburg	37-5	334	i 7 15	+4	i 13 0	+1	15-3	—
Vladivostok	38-0	50	7 17	+2	13 2	-4	18-9	—
Koti	38-2	67	e 7 16	-1	—	—	e 18-3	21-9
Muroto	38-7	68	7 24	+3	13 16	-1	—	—
Toyooka	E.Z. 39-3	64	7 26	0	i 13 27	+1	e 22-6	25-6
	N. 39-3	64	7 31	+5	i 13 30	+4	e 19-4	25-3
Kobe	39-5	65	7 29	+1	13 36	+7	e 19-3	23-5
Sumoto	39-6	66	7 27	-2	e 16 12	SS	e 19-5	26-2
Osaka	39-8	65	7 31	+1	13 44	+11	21-8	27-0
Siomisaki	40-0	68	7 27	-5	13 13	-23	—	—
Gihu	40-8	65	7 36	-3	14 0	+12	—	—
Nagoya	41-0	65	7 43	+3	14 50	+59	e 20-0	25-4
Hamamatu	41-6	66	7 54	+9	14 7	+7	—	—
Kumagaya	42-9	63	7 57	+1	14 35	+16	—	—
Yokohama	43-2	64	8 9	+11	15 16	+52	—	—
Kakioka	43-6	63	8 2	0	14 27	-3	—	—
Tyosi	44-2	64	e 8 26	+20	e 15 44	?	e 23-7	—
Mizusawa	E. 44-4	60	8 10	+2	14 44	+3	20-3	—
	N. 44-4	60	8 15	+7	14 40	-1	20-6	—
Ootomari	46-2	49	8 32	+10	15 18	+11	21-8	25-0
Ksara	E. 47-3	295	8 32	+1	15 26	+3	—	—
Theodosia	47-6	311	8 36	+3	15 45	+18	30-3	32-3
Kucino	48-0	325	8 37	+1	15 31	-2	e 25-3	32-6
Simferopol	48-4	310	i 8 41	+2	e 15 56	+18	—	—
Sebastopol	48-8	310	8 45	+3	—	—	—	—
Helwan	51-7	290	9 2	-2	i 16 24	0	—	37-0
Pulkovo	52-9	329	9 16	+3	16 40	-1	24-3	34-6
Lemberg	55-4	315	9 34	+2	17 4	-11	—	37-5
Helsingfors	55-6	329	i 9 31	-2	i 17 16	-1	e 24-5	—
Konigsberg	57-6	321	i 9 45	-2	i 17 45	+1	e 31-3	38-2
Belgrade	58-1	310	e 10 20	+29	e 18 16	+25	—	39-4
Upsala	59-2	328	i 9 59	0	18 4	-1	e 28-3	37-8
Vienna	60-5	315	10 7	-1	18 31	+8	e 31-3	41-3
Tananarive	61-0	229	10 22	+11	18 25	-4	31-4	33-3
Zagreb	61-1	311	e 10 12	0	e 18 30	0	e 34-6	38-8
Graz	61-2	314	i 10 14	+1	i 18 43	+11	26-3	40-3
Lund	61-7	324	10 16	0	18 37	-1	28-3	—
Trenta	62-0	305	i 10 31	+13	i 19 1	+19	—	40-3
Laibach	62-1	313	e 10 21	+2	e 18 52	+9	e 35-8	—
Potsdam	62-2	319	i 10 20	0	i 19 3	+18	e 29-3	41-3
Copenhagen	62-2	324	10 20	0	18 40	-5	29-3	—
Perth	62-7	156	e 10 16	-7	18 51	0	30-4	—
Messina	62-8	303	10 19	-5	—	—	—	—
Cheb	62-9	319	e 10 25	0	e 18 52	-2	e 31-3	40-5
Benevento	63-2	307	e 11 7	(+1)	—	—	—	—
Naples	E. 63-2	307	e 10 47	+20	e 19 20	+23	46-3	—
Jena	63-2	319	e 10 25	-2	e 18 53	-4	e 30-1	40-8
Catania	63-3	302	i 10 28	+1	i 18 59	0	e 42-2	43-9
Casamicciola	63-5	307	10 39	+10	—	—	—	—
Venice	63-6	312	i 10 32	+3	i 19 13	+11	—	—
Mineo	63-7	301	10 39	+9	—	—	—	—
Treviso	63-8	312	i 10 32	+1	19 3	-2	—	—
Hamburg	63-8	321	i 10 31	0	e 19 8	+3	e 35-3	42-0
Innsbruck	64-0	315	e 10 33	+1	19 16	+9	—	41-8
Padova	64-0	312	e 10 35	+3	i 19 12	+5	—	—
Göttingen	64-1	319	i 10 31	-2	e 19 8	-1	e 29-3	42-3
Rocca di Papa	64-2	308	i 10 33	-1	e 19 5	-5	e 34-5	44-1
Rome	64-3	308	e 10 32	-2	i 18 10	-61	e 37-5	45-0
Florence	64-8	309	i 10 33	-4	19 16	-1	35-3	42-8
Stuttgart	65-2	316	i 10 39	-1	i 19 11	-11	e 31-8	36-7
Feldberg	65-3	318	i 10 41	0	e 19 26	+2	e 35-5	41-7
Bergen	65-3	329	10 47	+6	e 19 57	+33	e 27-3	40-3
Ohur	65-4	315	e 10 40	-1	—	—	—	—
Livorno	65-5	310	9 16?	?	17 44	?	—	—

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	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Karlsruhe	65.6	316	10 44	+ 2	19 24	- 3	e 34.3	—
Piacenza	65.7	312	e 10 46	+ 3	i 19 28	- 1	34.3	46.5
Zurich	65.9	315	e 10 43	- 2	e 19 30	- 1	—	—
Strasbourg	66.1	317	i 10 45	- 1	i 19 38	+ 4	30.3	42.8
De Bilt	67.0	320	i 10 53	+ 1	19 44	- 1	e 31.3	40.5
Neuchatel	67.0	315	e 10 50	- 2	e 19 38	- 7	—	—
Besançon	67.6	315	10 55	- 1	19 59	+ 7	36.3	—
Uccle	67.7	319	i 10 56	0	19 52	- 1	30.3	43.2
Marselles	69.1	311	e 11 12	+ 7	e 20 29	+ 19	31.3	—
Paris	69.4	318	i 11 6	- 1	i 20 16	+ 2	28.3	37.3
Dyce	69.7	326	11 23	+ 14	20 13	- 5	33.6	41.3
Puy deDôme	70.0	316	i 10 41	- 30	—	—	26.3	—
Durham	70.1	323	11 18	+ 7	20 21	- 1	31.3	38.3
Kew	70.4	320	i 11 14	+ 1	i 20 23	- 3	36.3	42.0
Edinburgh	70.7	325	11 22	+ 7	19 26	- 64	26.3	47.4
Oxford	70.9	320	11 16	0	i 20 30	- 2	e 31.9	47.6
Stonyhurst	70.9	322	11 26	+ 10	e 20 34	+ 2	36.3	49.0
Bidston	71.4	321	e 11 16	- 3	i 20 41	+ 3	e 33.3	45.9
Barcelona	71.9	310	11 25	+ 3	21 25	+ 41	—	—
Bagnères	72.6	312	11 34	+ 8	20 58	+ 6	35.3	—
Algiers	72.7	305	i 11 26	- 1	20 47	- 6	36.3	47.3
Scoresby Sund	72.8	342	11 29	+ 1	20 55	+ 2	—	—
Tortosa	73.2	310	i 11 29	- 1	20 54	- 5	e 32.3	49.6
Alicante	74.8	309	e 11 39	0	i 21 25	+ 7	e 36.5	52.4
Adelaide	76.1	141	11 46.7	- 1	i 21 29	- 4	33.8	40.0
Almeria	76.7	308	11 53	+ 3	i 21 30	- 9	42.8	49.6
Toledo	76.8	310	e 11 57	+ 7	21 40	- 1	e 26.2	44.4
Granada	77.5	308	i 11 55	0	i 21 39	- 9	41.3	54.1
Malaga	78.3	308	11 59	0	21 49	- 8	26.8	52.4
Johannesburg	79.3	235	12 16	+ 12	22 16	+ 8	41.3	—
San Fernando	79.8	308	12 20	+ 13	22 16	+ 2	40.3	54.8
Malbourne	81.7	140	12 16	- 1	22 32	- 2	37.9	45.9
Riverview	83.1	134	e 12 22	- 2	e 22 38	- 10	e 36.3	50.4
Sydney	83.1	134	e 12 22	- 2	i 22 58	+ 10	e 53.3	61.3
Ivigtut	86.0	342	12 42	+ 4	e 22 58	- 20	38.3	—
Sitka	88.7	24	i 12 51	0	23 16	[- 8]	i 43.6	—
Cape Town	90.5	233	—	—	23 28	[- 8]	46.6	49.5
Dakar	98.9	291	e 18 4	?	e 24 19	[- 1]	28.3	56.3
Honolulu T.H.	99.0	61	—	—	24 41	[+ 20]	41.3	—
Victoria	100.0	23	13 56	+ 12	24 7	[- 19]	38.1	62.1
Wellington	102.9	130	—	—	24 30	[- 10]	45.8	51.3
Ottawa	107.7	350	e 14 19	- 1	24 54	[- 9]	e 45.3	—
Berkeley	109.4	27	e 18 57	PP	e 28 25	PS	e 52.5	—
Harvard	109.7	346	e 14 24	- 6	e 25 18.7	[+ 4]	e 45.3	—
Toronto	N. 109.9	353	e 14 37	+ 6	i 28 44	PS	46.3	—
Lioik	110.1	27	e 18 45	PP	21 44	PPP	e 61.3	65.7
Ann Arbor	111.7	355	e 19 10	PP	—	—	e 50.6	69.8
Fordham	111.8	349	e 17 32	[- 51]	i 29 2	PS	e 50.3	—
Chicago	112.5	359	—	—	25 10	[- 14]	43.0	—
Denver	N. 112.9	13	—	—	e 31 6	?	—	61.3
Georgetown	Z. 114.2	350	e 14 51	0	—	—	55.3	—
Charlottesville	115.3	351	—	—	e 27 11	{+ 27}	e 47.3	—
Florissant	115.4	1	e 14 53	- 4	—	—	e 52.3	64.3
St. Louis	115.6	1	e 14 59	+ 1	e 25 24	[- 12]	e 48.9	63.4
Tucson	118.6	20	—	—	26 0	[+ 14]	—	—
Port au Prince	132.5	338	e 19 49	[+ 38]	e 23 4	PKS	—	—
Tacubaya	133.9	13	19 5	[- 8]	—	—	68.8	—
Rio de Janeiro	E. 137.6	265	e 19 25	[+ 6]	e 31 54	SKSP	e 56.6	74.3
	N. 137.6	265	e 19 24	[+ 5]	e 31 50	SKSP	e 56.4	78.3
La Plata	151.1	244	19 50	[+ 7]	—	—	62.3	—
Sucre	156.4	282	20 14	[- 14]	—	—	—	—
La Paz	167.8	290	i 20 1	[+ 10]	26 51	?	73.0	91.7

For Notes see next page.

NOTES TO JULY 2d. 21h. 3m. 44s.

Additional readings :-

Calcutta ($\Delta = 3^{\circ}7'$), PN = 21h. 0m. 26s.
Andijan PPP = +5m.8s.
Hong Kong PP = +5m.6s.
Medan I = +5m.34s. = PP + 3s.
Zi-ka-wei PPE = +6m.43s., iE = +11m.14s., SSN = +13m.1s., SSSN? = +13m.45s., SSSSN? = +14m.21s.
Manila ISEN = +10m.53s.
Nagasaki PPE = +8m.21s., PPPE = +8m.32s., eSSN = +14m.35s.
Hukuoka ePP = +8m.14s., eSS = +15m.4s.
Batavia I = +7m.11s., +7m.26s., +8m.43s., and +8m.59s.
Malabar I = +9m.25s.
Koti eEZ = +7m.28s., PcPE = +8m.44s., PcSEN = +13m.3s., eE = +16m.1s., SSE = +18m.4s.
Toyooka ePPN = +7m.38s., ePPE = +7m.40s.
Kobe I = +7m.42s., PPE = +9m.3s.
Ksara PPPE = +10m.40s., PPPPE = +11m.59s.
Lemberg eSE = +17m.22s.
Helsingfors I₁CP = +10m.43s., ePP = +11m.53s., iPPP = +12m.51s., iP₂S = +14m.33s., iPS = +17m.35s., iS₂S = +19m.16s., eSKS = +19m.34s., iSS = +21m.22s., eSSS = +23m.5s.
Konigsberg iE = +10m.0s., iEN = +10m.6s., iSE = +17m.52s., iN = +17m.56s., eE = +18m.10s.
Belgrade e = +10m.29s., i = +11m.48s.
Upsala PPE = +12m.24s., PPPE = +13m.43s., iPSN = +18m.22s.
Vienna PP = +12m.49s., SS = +22m.44s., SSS = +25m.50s.
Tananarive ePP = +11m.16s., PPE = +12m.57s., SN = +18m.28s., iPSE = +18m.44s., PPPE = +19m.37s., PPPSN = +19m.40s., eSS = +20m.36s., SSE = +23m.9s., SSN = +23m.12s., SSSE = +25m.4s., SSSSE = +26m.10s., SSSSN = +26m.15s.
Zagreb I = +10m.30s. and +10m.39s., iNW = +11m.5s. = PcP + 7s., iNE = +11m.46s., iNW = +12m.26s. = PP + 6s. and +12m.51s., eNE = +13m.34s., = PPP - 7s., iNW = +14m.11s. = PPPP + 3s., +14m.57s. and +16m.32s., iNE = +18m.47s. = PS + 10s. and +19m.31s., eNW = +19m.43s., iNE = +20m.14s. = S₂S + 14s., eNW = +21m.30s., eNE = +21m.37s.
Lund +10m.26s., +10m.31s., +22m.46s. = SS + 11s., e = +18m.51s. = PS + 6s.
Laibach e = +10m.36s. and +13m.6s.
Potsdam iE = +10m.33s., +12m.27s. = PP - 2s. and +13m.6s., eN = +13m.40s. = PPP - 12s., eE = +14m.31s. = PPPP + 9s. and +15m.22s., iE = +16m.11s., +16m.49s., and +17m.0s., iN = +17m.45s., iE = +18m.25s. and +18m.41s., iN = +18m.47s., iE = +18m.54s. = PS + 2s., iPSE = +19m.30s.
Copenhagen +12m.54s. and +22m.34s. = SS - 9s.
Chef ePP = +12m.53s., eSS = +23m.11s.
Jena eZ = +10m.33s., iP = +10m.36s., ePPN = +12m.51s., ePPEZ = +13m.1s., ePPPN = +14m.40s., ePPPE = +14m.43s., iS = +19m.8s., eN = +19m.16s., eSS = +23m.10s.
Innsbruck I = +11m.55s.
Göttingen ePZ = +10m.40s., iPEZ = +10m.43s., ePPEZ = +13m.9s., ePPPE = +14m.46s., iPSN = +19m.35s., eSSSE = +23m.28s.
Rocca di Papa iS = +19m.18s.
Florence PPP = +13m.13s., PPPP = +14m.36s., PS = +19m.31s., SS = +24m.3s.
Stuttgart iP = +10m.54s. and +11m.7s. = PcP - 7s., iZ = +12m.27s., iEZ = +12m.59s. = PP + 3s., iPPZ = +13m.21s., iPPPEZ = +14m.28s. and +15m.2s., = PPPP + 1s., iS = +19m.22s., iSSN = +24m.4s.
Feldberg iE = +10m.44s., +10m.58s., eN = +13m.22s., iN = +31m.51s.
Bergen PP? = +13m.16s.
Piacenza P = +10m.58s.
Strasbourg PP = +13m.30s., PPP = +15m.8s., PPPP = +15m.37s., iPS = +20m.6s.
De Bilt iPPZ = +13m.35s.
Uccle I = +11m.11s. = PcP - 13s. and +12m.38s., PP = +13m.28s., PPP = +15m.40s.
Marselles ePS = +21m.29s.
Durham PPPP = +16m.40s., PS = +20m.56s., SS = +25m.16s., SSS = +27m.43s.
Kew I = +11m.24s., PP = +14m.4s., PPP = +15m.34s., SS = +25m.22s., SSS = +28m.34s.
Oxford iPP? = +14m.6s.
Stonyhurst PPPP = +16m.53s.
Bidston I = +11m.34s.
Scoresby Sund +14m.16s. = PP + 14s., +16m.12s., and +17m.6s., iN = +21m.10s. = PS - 5s., SS = +25m.22s., SSS = +29m.16s.
Adelaide iSS = +26m.52s.
Toledo I = +12m.5s. and +12m.12s., iS = +21m.52s. = PS - 16s.
Granada I = +12m.9s., PS = +21m.57s.
Melbourne SS = +27m.58s.

Continued on next page.

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Riverview $i = +12m.38s.$, $PPP = +17m.39s.$; $T_1 = 21h.3m.46s.$
 Ivrigtut $i = +12m.57s.$, $e = +22m.58s.$, $eN = +23m.28s.$; also without phase
 +16m.10s. and +29m.22s.
 Sitka $iPP = +16m.21s.$, $SS = +29m.50s.$, $SSS = +35m.6s.$
 Honolulu T.H., $PP = +18m.4s.$, $SS = +31m.46s.$
 Wellington $PP = +17m.48s.$; $T_1 = 21h.3m.28s.$
 Ottawa $PP = +18m.58s.$, $PS = +28m.24s.$, $SS = +34m.28s.$, $SSSN = +39m.42s.$
 Berkeley $eE = +24m.33s.$, $eN = +28m.33s.$, $=PS + 11s.$, $eE = +28m.53s.$ and
 +37m.25s.
 Harvard $e = +19m.1s.$, $=PP + 6s.$, $eN = +20m.40s.$, $i = +28m.44s.$, $=PS + 19s.$,
 $eN = +29m.54s.$, +34m.16s. $\neq SS + 1s.$ and +41m.46s. $=SSSS + 15s.$
 Toronto $eN = +19m.3s.$, $=PP + 7s.$
 Lick $e = +19m.4s.$, $=PP + 6s.$, $eE = +19m.14s.$, $e = +19m.18s.$, $eE = +19m.29s.$,
 $e = +21m.38s.$, $=PPP + 27s.$, and +28m.46s. $=PS + 18s.$
 Ann Arbor $eN = +18m.40s.$, $eE = +19m.28s.$, and +27m.16s., $eN = +28m.40s.$
 $=PS - 5s.$, $eE = +29m.22s.$, $eN = +33m.34s.$, $eE = +37m.28s.$, $iN = +$
 $+40m.22s.$, $eE = +41m.16s.$
 Fordham $ePPP = +25m.46s.$, $=SKS + 25s.$, $eSS = +35m.32s.$
 Chicago $PP = +19m.7s.$, $PPP = +21m.50s.$, $i = +27m.8s.$, $iPS = +28m.48s.$,
 $SS = +35m.3s.$
 Georgetown $ePKPZ = +18m.38s.$, $iPPZ = +19m.39s.$, $iZ = +29m.29s.$, $=PS + 21s.$
 Charlottesville $ePP = +19m.52s.$, $ePS = +29m.40s.$
 Florissant $eZ = +19m.16s.$, $iPPZ = +20m.9s.$, $iZ = +22m.16s.$, $iE = +27m.39s.$,
 $iPSN = +29m.38s.$, $iN = +30m.49s.$, $eSSN = +35m.48s.$, $eE = +39m.46s.$
 St. Louis $ePKPE = +18m.21s.$, $iPPE = +19m.36s.$, $eE = +27m.39s.$, $ePS =$
 $+29m.38s.$, $eE = +35m.45s.$, $=SS + 11s.$
 Tucson $PP = +19m.6s.$, $e = +20m.6s.$, $=PP + 7s.$, $PPP = +22m.22s.$, $ePS =$
 $+29m.48s.$, $eSS = +36m.56s.$, $eSSS = +41m.40s.$
 La Paz $iPP = +23m.53s.$, $PPS = +37m.9s.$, $iE = +53m.22s.$

July 2d. Readings also at: 1h. (near Batavia and Malabar), 2h. (near Lick), 5h. (Tyrosi), 14h. (near Nagoya), 20h. (Wellington), 21h. (Catania, Rocca di Papa, Rome, Treviso, and near Matuyama).

July 3d. 0h. 19m. 5s. Epicentre $25^{\circ}8'N. 90^{\circ}2'E.$ (as on 2d.).

R.2.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	\circ	\circ	m. s.	s.	m. s.	s.	m.	m.
Agra	E. 10-9	280	1 53	-40	3 48	-48	5-1	5-7
	N. 10-9	280	1 52	-41	3 54	-42	5-2	5-7
Dehra Dun	11-6	295	2 45	+ 2	4 35	-18	6-1	6-9
Hyderabad	13-7	235	5 30	S	(5 30)	-14	(7-2)	
Phu-Lien	15-9	105	e 3 38	- 2	e 6 32	- 4	8-4	
Bombay	17-4	250	e 4 2	+ 3	7 15	+ 4		
Almata	20-5	332	e 4 33	- 2	8 21	+ 5		
Andijan	21-0	320	4 43	+ 3	8 36	+10		
Hong Kong	22-1	94	4 15	-37	8 51	+ 3	11-4	12-6
Tashkent	23-2	317	1 5 3	0	1 9 7	- 1	e 12-4	14-9
Samarkand	23-8	311	1 5 8	0				
Irkutsk	28-5	18	e 5 53	+ 1	9 55	-45	16-9	17-4
Baku	36-4	307	e 7 4	+ 3				
Ekaterinburg	37-5	334	1 7 12	+ 1	1 12 57	- 2	18-9	27-4
Vladivostok	38-0	50	e 8 42	PP	e 12 57	- 9		
Kucno	48-0	325	e 8 32	- 4	15 26	- 7	e 21-0	29-3
Pulkovo	52-9	329	9 13	0	16 37	- 4	e 23-9	30-3
Helsingfors	55-6	329	1 9 30	- 3	e 17 10	- 7	e 26-5	
Copenhagen	62-2	324	10 27	+ 7	18 40	- 5	32-9	
Hamburg	63-8	321	e 10 28	- 3			35-9	
Gottingen	64-1	319	e 10 25	- 8				
Rocca di Papa	64-2	308	e 10 28	- 6			e 27-0	39-6
Rome	64-3	308	e 10 58	+24				
De Bilt	67-0	320	10 49	- 3			e 36-9	39-4
Kew	70-4	320	e 11 10	- 3			e 29-9	
Scoresby Sund	72-8	342			20 49	- 5		

Additional notes :-

Hyderabad gives S as P and L as S.

Long waves were also recorded at Kodaikanal and Florissant.

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July 3d. 6h. 1m. 21s. Epicentre 25°·8N. 90°·2E. (as at 0h.).

X.

		Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Calcutta	E.	3·7	207	0 46	- 7	(1 36)	+ 1	1·6	—
	N.	3·7	207	0 54	+ 1	(1 41)	+ 6	1·7	—
Andijan		21·0	320	e 4 44	+ 4	—	—	—	—
Tashkent		23·2	317	—	—	e 9 15	+ 7	i 14·8	16·8
Samarkand		23·8	311	e 5 6	- 2	—	—	—	—
Ekaterinburg		37·5	334	e 7 9	- 2	—	—	15·6	—

Additional reading :—

Tashkent i = +14m.20s.

Long waves were also recorded at Irkutsk.

July 3d. Readings also at 0h. (Rocca di Papa and near Tyosi), 2h. (Andijan), 3h. (Baku and Ekaterinburg), 5h. (La Paz, Calcutta, and Kodaikanal), 7h. (Medan), 8h. (near Manila), 9h. (Apia, Christchurch, Wellington, and Riverview), 10h. (near Tacubaya), 11h. (Samarkand, Bombay (2), and near Calcutta), 12h. (Ekaterinburg and Tashkent), 14h. (Kew), 17h. (Riverview, Sydney, Christchurch, Wellington, and Tyosi (2)), 18h. (Rio de Janeiro, Sucre, La Paz, and La Plata), 19h. (Florissant, Ksara, and near Tacubaya), 20h. (La Paz), 21h. (Bombay, Tyosi, St. Louis, and near Florissant), 22h. (Bombay), 23h. (near Tacubaya).

July 4d. 13h. 38m. 22s. Epicentre 33°·7N. 135°·2E. (as on 1930 May 10d.). R.3.

A = -·590, B = +·586, C = +·555.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Sumoto	0·7	338	0 11	+ 1	0 21	+ 3	—	0·4
Kobe	1·0	359	e 0 13	- 1	i 0 26	0	—	0·4
Osaka	1·0	12	0 13	- 1	(0 25)	- 1	0·4	0·4
Nagoya	2·0	45	0 30	+ 1	0 55	+ 4	—	—

No additional readings.

July 4d. 16h. 33m. 43s. Epicentre 36°·0N. 141°·0E. (as on 1922 Nov. 8d.).

X.

A = -·629, B = +·509, C = +·588; D = +·629, E = +·777;

G = -·457, H = +·370, K = -·809.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Tyosi	0·3	204	0 20	+16	—	—	0·5	—
Tukuba	0·7	282	0 5	- 5	—	—	—	—
Tokyo	1·1	253	0 12	- 4	—	—	—	—
Mizusawa	3·1	1	0 35	- 9	1 8	-12	—	—
Nagoya	3·4	256	0 53	+ 4	1 43	+16	—	—
Osaka	4·7	256	1 10	+ 3	(2 14)	+14	2·2	2·7
Kobe	5·0	256	e 1 18	+ 7	—	—	—	—
Sumoto	5·3	252	e 2 17	S	(e 2 17)	+ 2	—	2·5

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July 4d. 18h. 54m. 44s. (I) } Epicentre 25°-8N. 90°-2E. X.
 21h. 34m. 0s. (II) } X.

(as at 3d.).

		Δ	Az	P.	O-C.	S.	O-C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
I Calcutta	E.	3.7	207	1 1	+ 8	—	—	2.0	—
I	N.	3.7	207	1 3	+10	—	—	2.1	—
II	E.	3.7	207	0 55	+ 2	2 1	+26	—	—
II	N.	3.7	207	0 53	0	2 5	+30	—	—
I Bombay		17.4	250	e 4 0	+ 1	e 7 16	+ 5	8.8	9.3
II		17.4	250	e 4 14	+15	e 7 25	+14	9.1	9.2
I Andijan		21.0	320	e 4 32	- 8	—	—	—	—
II		21.0	320	e 4 35	- 5	—	—	—	—
II Tashkent		23.2	317	—	—	i 9 7	- 1	e 12.5	14.1
II Ekaterinburg		37.5	334	e 7 1	-10	—	—	18.0	—
II Pulkovo		52.9	329	i 9 0?	-13	i 19 0?	(- 4)	—	—

Long waves were also recorded for shock I at Ekaterinburg and Tashkent; for shock II at Irkutsk.

July 4d. 21h. 6m. 48s. Epicentre 44°-6N. 7°-7E. (as on 1927 Dec. 12d.). R.2.

A = +.706, B = +.095, C = +.702; D = +.134, E = -.991;
 G = +.696, H = +.094, K = -.712.

		Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Piacenza		1.5	72	—	—	e 0 40	+ 1	(1.0)	2.4
Marseilles		2.1	232	e 0 51	S	(e 0 51)	- 3	—	—
Neuchatel		2.5	347	e 0 25	-11	e 0 47	-17	—	—
Chur		2.6	30	e 0 42	+ 5	i 1 17	S*	—	—
Florence		2.7	108	—	—	e 1 7	- 2	e 2.1	2.9
Zurich		2.9	13	e 0 42	+ 1	—	—	—	—
Besançon		2.9	336	e 0 31	-10	i 0 57	-17	—	—
Padova		3.1	73	e 1 47	S _r	e 2 21	?	—	—
Venice		3.4	75	e 1 47	S _r	—	—	—	—
Ravensburg		3.5	22	e 0 57	+ 7	i 1 47	S _r	—	—
Puy de Dôme		3.5	294	e 0 44	- 6	—	—	—	—
Strasbourg		4.0	1	e 1 1	+ 4	e 1 40	- 2	—	—
Stuttgart		4.3	13	e 1 17	P*	i 2 5	S*	12.3	—
Karlsruhe		4.5	6	1 56	S	(1 56)	+ 1	—	—
Paris		5.5	322	e 0 55	-23	—	—	2.2	2.2
Feldberg	N.	5.6	5	e 1 19	- 1	e 2 14	- 9	—	2.7
Zagreb		6.0	75	—	—	e 2 45	+12	e 3.0	—
Uccle		6.6	341	e 2 6	P _r	e 2 56	+ 8	—	—
Jena	E.	6.8	21	—	—	e 3 12	S _r	e 3.5	3.6
Vienna	Z.	7.0	56	e 3 9	S*	—	—	—	—
Göttingen	N.	7.1	12	e 1 48	+ 7	—	—	—	—
Granada		11.3	233	e 3 12?	P*	—	—	—	7.2
Helsingfors	E.	18.7	27	e 6 6	?	—	—	—	—

Additional readings and note:—

Piacenza gives S as e and L as S.

Neuchatel eP_r = +28s.

Chur iP_r = +46s.

Ravensburg e = +1m.24s.

Puy de Dôme e = 21h.6m.15s. and 21h.7m.2s.

Strasbourg e = +1m.46s., i = +1m.53s., +2m.1s., and +2m.6s.

Stuttgart iEN = +2m.18s., iNZ = +2m.26s.

Zagreb eNE = +3m.12s.

Long waves were also recorded at Ekaterinburg, Pulkovo, Copenhagen, Hamburg, De Bilt, and Kew.

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July 4d. Readings also at 0h. (Andijan, Baku, Ekaterinburg, Tashkent, Tananarive, near Manila and near Tacubaya (2)), 1h. (De Bilt, Ekaterinburg, Granada, and Scoresby Sund.), 5h. (Catania, Copenhagen, Rocca di Papa, Rome, Stuttgart, Trenta, Zagreb, and De Bilt), 7h. (near Zagreb), 9h. (near Batavia), 14h. (Almeria and near Granada), 15h. (La Paz), 16h. (near Manila), 17h. (near Mizusawa), 18h. (Ekaterinburg and Tashkent), 21h. (Zurich, near Chur, and Neuchatel), 22h. (Copenhagen and near Santiago), 23h. (Florissant, near La Paz, near Mizusawa (2), and near Sumoto).

July 5d. 8h. 57m. 6s. Epicentre 37°·3N. 141°·7E. (as on June 18d.). R.3.

$$A = -\cdot624, B = +\cdot493, C = +\cdot606.$$

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Tyosi	1·7	204	e 0 21	- 3	(e 0 39)	- 5	e 0·6	—
Mizusawa	1·9	346	0 29	+ 1	0 56	+ 7	—	—
Nagoya	4·4	242	1 4	+ 1	1 51	- 2	—	—
Osaka	5·6	243	1 22	+ 2	(2 34)	+11	2·6	3·1
Sumoto	6·3	243	e 2 40	S	(e 2 40)	- 1	—	—
Irkutsk	30·0	312	—	—	e 11 54†	+50	—	—
Ekaterinburg	54·9	319	—	—	(15 54†)	?	15·9	—

Long waves were also recorded at Kobe.

July 5d. 17h. 56m. 46s. Epicentre 5°·7S. 151°·8E. (as on 1930 Jan. 18d.). R.3.

$$A = -\cdot877, B = +\cdot470, C = -\cdot099; \quad D = +\cdot473, E = +\cdot881; \\ G = +\cdot088, H = -\cdot047, K = -\cdot995.$$

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Riverview	28·2	181	e 5 53	+ 4	10 38	+ 3	e 13·9	16·1
Sydney	28·2	181	e 7 2	+73	1 11 8	+33	15·5	17·2
Adelaide	31·7	200	e 7 32	+72	e 13 35	?	17·5	21·0
Melbourne	32·7	189	e 5 26	-63	11 43	- 3	17·4†	20·5
Manila	z. 36·7	305	1 6 57	- 7	1 13 29	+42	—	—
Wellington	41·1	153	e 7 34	- 7	14 12	+19	22·2	—
Sumoto	42·0	340	e 7 59	+10	—	—	—	—
Osaka	43·2	341	7 38	-20	(14 26)	+ 2	14·4	15·2
Nagoya	43·2	343	e 8 10	+12	—	—	—	—
Kobe	43·3	340	8 3	+ 4	14 47	+22	—	—
Batavia	44·7	268	e 8 33	+23	—	—	—	—
Hong Kong	46·3	309	8 19	- 4	14 42	-27	—	19·7
Phu-Lien	51·7	304	8 14†	-50	—	—	—	—
Vladivostok	52·0	341	e 8 18†	-48	e 16 1†	-27	e 21·0	—
Medan	53·9	278	e 9 45	+24	1 17 9	+15	—	—
Irkutsk	70·6	332	11 14	0	e 20 13	-15	e 34·2	38·4
Andijan	85·8	312	e 12 49	+12	—	—	—	—
Tashkent	88·2	314	1 12 47	- 2	1 23 16	[- 5]	e 41·2	47·7
Ekaterinburg	95·4	327	e 13 24	+ 2	e 24 16	[+13]	40·2	54·4
Kucino	108·0	327	e 18 40	[+29]	e 25 9	[+ 5]	e 32·5	34·4
Pulkovo	110·3	333	e 18 48	[+29]	25 30	[+15]	41·2	—
Helsingfors	112·5	335	e 17 16	?	e 28 46	PS	e 42·0	—
Scoresby Sund	115·1	358	19 14†	PP	29 14†	PS	57·2	—
Florissant	115·1	49	e 19 34	PP	e 27 19	{+36}	e 56·2	—
St. Louis	r. 115·2	49	e 20 13	PP	e 27 23	{+40}	—	56·2
Copenhagen	120·5	335	20 9	PP	—	—	57·2	—
Hamburg	123·0	333	e 20 14†	PP	—	—	e 63·2	—
Edinburgh	126·0	341	—	—	e 26 14†	[+ 6]	—	—
De Bilt	126·1	335	e 20 59	PP	e 23 41	PPP	e 63·2	75·3
Stuttgart	126·6	330	21 0	PP	—	—	e 61·2	72·2

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Uccle	127.4	335	e 21 8	PP	—	—	e 50.2	—
Strasbourg	127.4	330	e 21 14?	PP	—	—	e 49.2	—
Florence	128.6	324	e 21 29	PP	e 33 14?	?	—	73.2
Piacenza	128.7	325	e 21 14	PP	—	—	—	74.2
Kew	128.7	337	e 21 18	PP	—	—	e 59.2	—
Oxford	128.8	338	e 21 18	PP	—	—	e 63.2	74.2
Rocca di Papa	128.8	321	—	—	e 30 2	?	e 38.3	51.7
Paris	129.6	333	e 21 14?	PP	—	—	e 66.2	81.2
La Paz	134.7	121	e 19 40	[+26]	22 22	PP	23.2	23.8
Granada	141.3	328	e 22 36	PP	—	—	e 70.2	83.2

Additional readings:—

Riverview PP = +6m.38s., i = +10m.54s.; T₀ = 17h.56m.22s.

Adelaide eSS = +16m.17s.

Hong Kong +10m.43s.

Kucino ePS = +28m.17s.

Pulkovo PS = +28m.30s.

Helsingfors eN = +19m.33s. = PP + 18s.

Stuttgart ePPZ = +23m.41s., ePS = +31m.6s., ePPS = +32m.34s.

Long waves were also recorded at Harvard, Gottingen, Konigsberg, and Lund.

July 5d. 23h. 11m. 52s. Epicentre 37°-6N. 4°-6W. N.I.

Probable error of epicentre ± 0.3 .

A = +.790, B = -.064, C = +.610; D = -.080, E = -.997;
G = +.608, H = -.049, K = -.792.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Granada	0.9	118	i 0 13	0	i 0 25	+ 2	0.5	—
Malaga	0.9	170	i 0 10	- 3	0 25	+ 2	—	—
San Fernando	1.7	228	0 26	+ 2	0 42	- 2	—	1.6
Almeria	1.9	114	0 28	0	i 0 56	+ 7	—	1.3
Toledo	2.3	11	i 0 31	- 2	1 5	+ 6	1 1.6	—
Alicante	3.3	76	0 47	0	1 39	+15	—	2.5
Tortosa	5.1	50	1 10	- 3	2 22	+12	—	2.5
Algiers	6.2	95	e 1 34	+ 6	2 32	- 6	—	3.6
Barcelona	6.5	51	2 22	S	(2 22)	-24	3.4	3.9
Bagnères	6.6	34	i 2 29	S	(12 29)	-19	13.4	—
Besançon	12.4	36	—	—	e 5 5	- 8	(6.6)	—
Paris	12.4	23	—	—	e 5 8?	- 5	6.1	7.1
Neuchatel	12.7	38	e 2 54	- 4	e 5 8	-12	—	—
Piacenza	13.0	51	—	—	e 5 32	+ 5	(6.8)	9.7
Florence	13.5	58	3 8	- 1	e 6 3	+24	—	7.1
Rome	13.8	67	e 3 28	+15	—	—	e 7.0	—
Zurich	13.8	41	e 3 9	- 4	—	—	—	—
Rocca di Papa	13.9	67	e 3 11	- 3	—	—	e 6.4	8.7
Chur	14.0	43	e 3 8	- 7	e 7 22	?	—	—
Kew	14.2	11	—	—	e 6 10	+14	—	7.9
Oxford	14.4	8	—	—	i 6 23	+22	e 7.7	9.2
Uccle	14.7	23	—	—	e 6 17	+ 9	e 8.1	—
Karlsruhe	14.8	35	e 6 13	S	(e 6 13)	+ 3	e 8.1	10.0
Stuttgart	15.0	38	e 3 35	+ 7	e 6 34	+19	17.7	9.9
Catania	15.6	84	e 4 11	+35	—	—	—	17.1
Feldberg	15.7	32	e 3 34	- 4	e 6 36	+ 5	—	9.7
Bidston	15.9	3	e 6 53	S	(e 6 53)	+17	e 9.1	—
De Bilt	16.0	22	—	—	e 6 53	+15	e 8.6	9.4
Gottingen	17.3	32	e 3 57	- 1	—	—	e 8.6	—
Zagreb	17.4	55	e 3 56	- 3	e 7 21	+10	e 9.0	—
Edinburgh	18.3	3	—	—	e 7 38	+ 7	—	10.9
Hamburg	18.9	28	e 4 20	+ 3	e 7 56	+12	e 9.2	12.6
Copenhagen	21.4	27	—	—	e 8 44	+10	12.1	—
Konigsberg	24.3	36	e 4 50	-23	—	—	e 17.1	—
Pulkovo	31.3	34	e 6 26	+ 9	e 11 20	- 4	13.1	20.6
Kucino	33.6	44	—	—	e 13 42	SS	e 16.4	22.7
Ekaterinburg	46.2	44	8 25	+ 3	—	—	22.1	—

For Notes see next page.

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NOTES TO JULY 5d. 23h. 11m. 52s.

Additional readings and notes:—

Granada $i = +16s.$, $+18s.$, and $+19s.$
 Almeria $iP_s = +30s.$, $PP = +33s.$, $+38s.$, and $+42s.$, $PPS = +51s.$, $PPPS = +53s.$, $SS = +1m.0s.$, $SSS = +1m.10s.$
 Toledo $P_s = +37s.$, $PP = +39s.$, $i = +53s.$, $PPS = +59s.$, $PS = +1m.4s.$
 Alicante $P_s = +59s.$, $PP = +1m.29s.$
 Tortosa $PN = +1m.33s.$
 Algiers $PPS = +2m.42s.$, $PSS = +3m.19s.$
 Besançon and Piacenza give S as e and L as S.
 Rocca di Papa $i = +3m.38s.$
 Uccle $e = +5m.57s.$ and $+6m.55s.$
 Karlsruhe $S = +7m.43s.$
 Stuttgart $eSS = +6m.58s.$
 Bidston $eS_i = +8m.38s.$
 Göttingen $eNZ = +9m.44s.$
 Zagreb $e = +7m.40s.$
 Ekaterinburg $e = +18m.39s. = S_cS + 19s.$

Long waves were also recorded at Baku, Irkutsk, Tashkent, Scoresby Sund, and several European stations.

July 5d. Readings also at 1h. (Bombay (2), Tashkent, and near Calcutta (2)), 2h. (Ekaterinburg (2), Irkutsk, Tashkent, Bombay, near Calcutta, and near Hyderabad), 4h. (Wellington), 5h. (Wellington and near Christchurch), 6h. (near Taihoku), 7h. (Scoresby Sund, near Tyosi (2), and Mizusawa), 8h. (Bombay and near Calcutta), 10h. (Florissant), 11h. (Simferopol, near Sebastopol, Theodosia, and Yalta), 17h. (Wellington), 18h. (Bombay and near Calcutta), 19h. (near Sumoto), 20h. (Feldberg and near Malabar), 21h. (Cheb), 22h. (Florissant and St. Louis).

July 6d. Readings at 0h. (Besançon, Strasbourg, Chur, near Neuchâtel, Zurich, and near Manila), 1h. (near Malabar and Mizusawa), 4h. (Samarkand), 7h. (Samarkand), 9h. (Kobe and near Sumoto), 10h. (Hong Kong and near Manila), 11h. (Phu-Lien and near Taihoku (2)), 12h. (near Sumoto), 14h. (Ekaterinburg and Tashkent), 15h. (near Sumoto), 16h. (Ekaterinburg, Phu-Lien, and Tashkent), 17h. (near Kobe, Sumoto, and Toyooka), 20h. (near Sumoto), 21h. (Stonyhurst and Strasbourg), 23h. (near Manila).

July 7d. 13h. 33m. 11s. Epicentre $13^{\circ}9N.$ $91^{\circ}2W.$ (as on 1929 July 30d.). R.2.

A = -020, B = -071, C = +240; D = -1000, E = +021;
 G = -005, H = -240, K = -071.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	.	.	m. s.	s.	m. s.	s.	m.	m.
Oaxaca	6.2	302	(1 52)	+24	(3 22)	+44	(3.8)	(5.0)
Vera Cruz	7.1	319	(1 49)	+8	(3 29)	+28	—	(5.4)
Merida	7.2	12	(1 22)	-20	(2 54)	-10	(2.9)	(5.1)
Puebla	8.5	309	1 44	-16	3 30†	-6	3.7	4.1
Tacubaya	9.5	307	(1 49)	-25	(4 12)	+11	(4.7)	(6.6)
Port au Prince n.w.	18.7	73	e 4 13	-2	e 9 31	?	e 12.2	—
St. Louis	24.8	2	e 5 19	+1	e 19 40	+3	e 12.1	14.4
Florissant	25.0	2	1 5 17	-3	1 9 40	-1	—	13.3
Tucson	25.7	319	e 5 29	+3	e 9 51	-2	—	—
Charlottesville	26.6	23	e 4 49	-46	e 8 55	-14	e 10.4	—
Georgetown	28.0	24	e 5 14	-33	e 10 42	+10	1 14.7	—
Chicago	28.1	6	—	—	e 11 29	-5	e 12.2	—
Ann Arbor	29.2	11	e 5 55	-3	e 10 49	-2	e 14.3	16.3
Fordham	30.9	26	e 6 21	+8	e 11 17	-1	1 15.0	—
Toronto	N. 31.4	17	e 6 4†	-13	e 11 9†	-17	1 14.1†	—
Harvard	33.4	28	—	—	e 11 5	-52	15.8	—
Ottawa	34.1	20	e 6 49†	+8	e 11 49†	-19	—	—
La Paz	38.0	143	1 7 19	+4	1 13 7	+1	17.3	23.8
Victoria	E. 43.5	330	8 13†	+12	14 42	+14	23.0	28.4
Sitka	54.6	333	1 17 14	S	(1 17 14)	+10	1 31.4	—

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Rio de Janeiro	E.	59.7	129	—	—	e 18 1	-11	e 28.0	—
Scoresby Sund		70.1	20	—	—	20 13	-9	e 32.8	—
Malaga		79.2	54	—	—	e 21 42	-25	—	—
Granada		79.8	54	e 12 41	+34	i 22 33	+19	e 33.3	38.8
Almeria		80.8	54	—	—	e 22 13	-11	e 36.4	43.9
Paris		82.0	42	e 12 49?	+31	—	—	e 37.8	41.8
Strasbourg		85.4	41	e 13 49?	+74	e 23 49?	+37	e 34.8	—
Hamburg		85.4	36	—	—	e 28 49?	SS	e 41.8	51.8
Copenhagen		86.0	34	—	—	23 7	-11	e 38.8	—
Stuttgart		86.3	40	e 15 43	PP	e 23 19	-1	e 42.3	45.3
Upsala		87.2	29	—	—	e 23 14	-15	—	—
Cheb		88.5	39	e 18 49?	?	—	—	e 40.8	50.8
Helsingfors	E.	90.3	27	—	—	e 24 2	+3	e 36.8	—
Rome		90.7	47	—	—	e 34 16	?	—	—
Rocca di Papa		90.8	47	—	—	e 23 27	[-10]	e 46.3	52.8
Zagreb		91.6	43	—	—	e 36 4	SSSS	e 45.4	—
Pulkovo		92.7	25	e 14 3	+53	24 11	-10	e 36.8	54.1
Trenta		94.3	48	—	—	e 33 19	SSS	—	—
Kucino		98.3	26	—	—	e 24 41	{+1}	e 45.2	51.2
Ekaterinburg		105.5	15	e 18 38	[+35]	—	—	e 39.8	58.1
Irkutsk		112.5	350	e 18 49?	[+23]	e 29 49?	?	49.8	63.4
Baku		114.8	31	—	—	e 29 35	?	e 50.3	83.7
Tashkent		121.9	16	—	—	e 26 49?	[+53]	e 52.8	69.5

Additional readings and notes :—

Oaxaca readings have been *increased* by 6m.

Vera Cruz readings have been *increased* by 3m.

Merida readings have been *diminished* by 8m.

Tacubaya readings have been *increased* by 1m.

St. Louis ePN = +3m.47s., iN = +8m.4s., iSN = +8m.12s., iN = +8m.20s., and +9m.49s.

Florissant PNZ = +3m.47s., iSN = +8m.18s., eSN = +9m.48s.

Georgetown eN = +5m.57s. and +8m.30s., eZ = +11m.1s., iN = +12m.30s.

Chicago e = +4m.54s. and +8m.50s. = P_CP - 14s., iS = +10m.54s.

Ann Arbor e?N = +6m.55s., ePE = +8m.25s., eN = +9m.13s. = P_CP + 5s., eE = +11m.43s. and +12m.19s. = SS - 6s.

Fordham ePP = +7m.8s.

La Paz IPZ? = +6m.49s.

Sitka eS = +23m.55s.

Rio de Janeiro eN = +18m.9s.

Stuttgart eN = +25m.52s., e = +29m.19s., eN = +40m.29s.

Rome e = +35m.40s.

Rocca di Papa e = +34m.33s., i = +35m.37s.

Kucino e = +26m.23s. = PS + 4s., and +31m.33s. = SS - 5s.

Tashkent e = +32m.49s. ?

Long waves were also recorded at Ivigtut, Vladivostok, Phu-Lien, Hong Kong, Kodaikanal, Lick, Honolulu T.H., La Plata, Wellington, and other European stations.

July 7d. 20h. 42m. 52s. Epicentre 13°.9N. 91°.2W. (as at 13h.).

X.

		Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Merida		7.2	12	(1 10)	-32	(2 21)	-43	(2.4)	(3.5)
Tacubaya		9.5	307	2 17	+3	4 25	+24	4.8	5.6
St. Louis	N.	24.8	2	15 18	0	e 9 45	+8	—	—
Florissant		25.0	2	e 5 18	-2	e 9 42	+1	e 13.7	—
Tucson		25.7	319	—	—	e 10 18	+25	e 14.3	—
Ann Arbor		29.2	11	—	—	e 9 38	-73	e 16.5	—

Additional reading and note :—

Merida readings have been *diminished* by 10m.

Tucson ePP = +6m.15s.

Ann Arbor eN = +13m.8s., eE = +13m.38s., eN = +15m.38s.

Long waves were also recorded at Scoresby Sund, Harvard, Kew, De Bilt, and the Russian stations.

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July 7d. Readings also at 0h. (Baku and near Mizusawa), 2h. (Tucson, Florissant, St. Louis, Merida, Oaxaca, Puebla, Vera Cruz, Tacubaya, and La Paz), 5h. (near Sucre and La Paz), 6h. (near Andijan), 9h. (Ekaterinburg, near Almata, Andijan, and Tashkent), 12h. (La Paz, Sucre, Tucson, and La Plata), 13h. (Balboa Heights, Scoresby Sund, Andijan, Matuyama, and near Sumoto), 16h. (near Granada), 19h. (Baku, Ekaterinburg, Kobe, Nagasaki, near Sumoto, and near Ksara), 20h. (Baku, Ekaterinburg (2), Tashkent, Granada, Tucson, and La Paz, Hong Kong, Phu-Lien, Vladivostok, Irkutsk, Zagreb, Rocca di Papa, Copenhagen, Cheb, Stuttgart, Kew, De Bilt, Uccle, Paris, and Strasbourg), 21h. (Bombay and Calcutta), 22h. (La Paz), 23h. (Andijan, Tashkent, Ekaterinburg, Bombay, near Calcutta, near Taihoku, and near Sucre and La Paz).

July 8d.		4h.	32m.	24s. (I)	Epicentre 25°·8N. 90°·2E.				R.3.	
		9h.	43m.	0s. (II)	(as on 4d.).				R.3.	
			Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
			°	°	m. s.	s.	m. s.	s.	m.	m.
I	Calcutta	E.	3·7	207	(1 8)	+15	(1 48)	+13	(2·2)	—
I		N.	3·7	207	(0 56)	+ 3	—	—	(1·9)	—
II		N.	3·7	207	(0 55)	+ 2	—	—	(1·9)	—
I	Agra	E.	10·9	230	(2 25)	- 8	(e 4 5)	-31	e 4·1	—
II			10·9	230	2 8	-25	4 31	- 5	5·2	—
I	Hyderabad		13·7	235	5 41	S	(5 41)	- 3	7·2	7·4
II			13·7	235	5 35	S	(5 35)	- 9	(6·8)	8·3
II	Phu-Lien		15·9	105	3 0?	-40	—	—	—	—
I	Bombay		17·4	250	7 10	S	(7 10)	- 1	9·2	9·3
II			17·4	250	7 10	S	(7 10)	- 1	9·2	9·5
I	Almata		20·5	332	e 6 36	?	—	—	—	—
II			20·5	332	e 6 30	?	—	—	—	—
I	Andijan		21·0	320	e 4 47	+ 7	e 8 35	+ 9	—	—
II			21·0	320	4 44	+ 4	e 8 35	+ 9	—	—
II	Hong Kong		22·1	94	8 50	S	(8 50)	+ 2	—	12·4
I	Tashkent		23·2	317	4 54	- 9	19 6	- 2	12·9	14·6
II			23·2	317	15 1	- 2	19 13	+10	e 12·5	15·6
I	Irkutsk		28·5	18	e 5 57	+ 5	e 10 27	-13	15·1	17·3
II			28·5	18	e 5 47	- 5	10 38	- 2	15·0	17·4
I	Ekaterinburg		37·5	334	7 15	+ 4	13 8	+ 9	17·6	—
II			37·5	334	1 7 11	0	—	—	17·0	—
II	Vladivostok		38·0	50	e 7 9	- 6	e 13 3	- 3	23·3	—
I	Pulkovo		52·9	329	e 9 16	+ 3	16 46	+ 5	22·6	—
II			52·9	329	9 9	- 4	16 37	- 4	25·0	27·9
I	Helsingfors		55·6	329	e 9 21	-12	e 18 24	+67	—	—

Additional readings and notes:—

Calcutta readings for Shocks I and II have been *diminished* by 4m.

Agra I P is given as S and S as L, II SE = +4m.3s.

Hyderabad I S = +6m.59s., II S is given as P and L as S.

Bombay I S = +8m.40s., II S = +8m.40s.

Ekaterinburg II e = +7m.18s. and +11m.58s.

Vladivostok II e = +8m.39s.

Long waves were also recorded for Shock I at Phu-Lien and Vladivostok, for Shock II at Baku, Kucino, Copenhagen, Kew, Strasbourg, and Scoresby Sund.

July 8d. 17h. 15m. 42s. Epicentre 28°·7N. 51°·9E. (as on 1930 Feb. 15d.). R.3.

A = +·541, B = +·690, C = +·480; D = +·787, E = -·617;

G = +·296, H = +·378, K = -·877.

			Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
			°	°	m. s.	s.	m. s.	s.	m.	m.
	Baku		11·8	353	e 2 44	- 2	e 5 2	+ 4	6·1	8·5
	Ksara	E.	14·6	295	e 3 38	+15	7 52	+107	10·8	—
	Tashkent		18·9	44	1 4 15	- 2	17 50	+ 6	10·6	13·7
	Andijan		20·6	49	e 4 36	0	—	—	—	—
	Almata		24·8	47	e 7 13?	+120	—	—	—	—
	Ekaterinburg		28·8	8	5 51	- 3	10 42	- 3	15·3	19·0
	Pulkovo		34·3	341	e 7 53	PP	12 1	-10	14·3	22·4
	Irkutsk		45·0	43	e 8 9	- 4	—	—	28·3	28·9

Irkutsk gives also e = +14m.18s. and +21m.18s. ?

Long waves were also recorded at Copenhagen, Scoresby Sund, De Bilt, Stuttgart, and Granada.

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July 8d. Readings also at 1h. (La Paz), 5h. (Scoresby Sund), 12h. (near Toyooka), 14h. (Zagreb and near La Paz), 15h. (Hong Kong), 18h. (Irkutsk, Tashkent, and Phu-Lien), 19h. (Ekaterinburg and near Sucre and La Paz (2)), 21h. (La Paz (2)), 22h. (Hong Kong and Taihoku).

July 9d. 4h. 35m. 49s. Epicentre 37°·0N. 44°·0E. (as on 1930 May 21d.). R.3.

A = +·574, B = +·555, C = +·602; D = +·695, E = -·719;
G = +·433, H = +·418, K = -·799.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Baku	5·7	51	e 1 25	+ 4	e 2 17	- 8	3·0	—
Ksara	7·8	247	2 43	+59	4 58	+112	5·6	—
Kucino	19·2	350	—	—	e 7 11?	-39	e 11·2	—
Tashkent	20·0	67	4 28	- 2	i 8 8	+ 2	e 12·2	15·7
Andijan	22·3	71	e 5 1	+ 7	—	—	—	—
Zagreb	22·6	302	e 5 11?	+14	—	—	—	—
Ekaterinburg	22·7	24	i 4 58	0	8 53	- 6	11·2	—
Pulkovo	24·4	343	5 18	+ 4	9 34	+ 4	12·2	14·8

Long waves were also recorded at Irkutsk, Scoresby Sund, Copenhagen, De Bilt, Stuttgart.

July 9d. Readings also at 0h. (Hong Kong), 1h. (Sumoto, near Matuyama and Toyooka), 2h. (near Almata, Andijan, and Tashkent), 4h. (near Granada), 6h. (Baku, Ekaterinburg, near Ksara, and Sucre, La Paz (2)), 7h. (near Zagreb), 8h. (La Paz and Sumoto), 12h. (Tashkent, Baku, Ekaterinburg, Sucre, and La Paz), 15h. (Ekaterinburg, Irkutsk, Tashkent, Vladivostok, Phu-Lien, Medan, Bombay, Florissant, and near Mizusawa), 16h. (Ekaterinburg, Irkutsk, Vladivostok, near Merida, and near Tyosi), 18h. (Wellington), 19h. (Andijan), 21h. (Ekaterinburg and Irkutsk).

July 10d. 12h. 34m. 30s. Epicentre 33°·6N. 138°·4E. (as on 1930 May 16d.). R.3.

A = -·623, B = +·553, C = +·553; D = +·664, E = +·748;
G = -·414, H = +·367, K = -·833.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.	
	°	°	m. s.	s.	m. s.	s.	m.	m.	
Nagoya	2·0	323	0 30	+ 1	0 49	- 2	—	0·9	
Osaka	2·7	293	0 31	- 8	(e 0 56)	-13	e 0·9	1·7	
Kobe	2·9	292	e 0 42	+ 1	1 12	- 2	—	1·6	
Sumoto	3·0	284	0 38	- 5	1 34	+17	—	1·8	
Tyosi	3·0	43	e 0 49	+ 6	e 1 18	+ 1	e 1·3	—	
Toyooka	E.	3·5	305	i 0 51	+ 1	i 1 29	- 1	—	1·7
	N.	3·5	305	i 0 56	+ 6	i 1 32	+ 2	—	1·8
	Z.	3·5	305	e 0 42	- 8	1 28	- 2	—	1·8
Matuyama		4·7	275	e 0 55	-12	—	i 2·8	2·8	
Mizusawa		6·0	18	e 1 25	0	2 36	+ 3	—	

Additional readings:—

Nagoya 1P = +16s.

Kobe SZ = +1m.16s., S_gE = +1m.27s.

Toyooka fE = +1m.2s., iEN = +1m.26s.

Long waves were also recorded at Irkutsk, Tashkent, and Ekaterinburg.

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July 10d. 13h. 0m. 44s. Epicentre 41°·3N. 14°·4E. (as given by Laibach). N.3.

A = +·728, B = +·187, C = +·660; D = +·249, E = -·969;
G = +·639, H = +·164, K = -·751.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Venice	4·4	341	i 1 14	+11	i 1 39	-14	2·5	3·3
Padova	4·5	337	e 1 14	+10	e 1 39	-16	—	—
Zagreb	4·7	14	i 1 4	- 3	i 1 21	-39	—	1·4
Treviso	4·7	340	i 1 14	+ 7	i 1 37	-23	—	1·7
Laibach	4·8	1	i 0 54	-14	(1 50)	-13	—	1·8
Piacenza	5·1	319	—	—	e 2 12	+ 2	(2·5)	—
Graz	5·8	8	i 1 14	- 8	i 1 39	-49	—	1·8
Innsbruck	6·4	342	e 1 52	+21	—	—	—	—
Chur	6·6	329	e 1 42	+ 8	e 2 47	- 1	—	—
Vienna	7·1	11	1 33	- 8	(1 2 31)	-30	i 2·5	2·9
Ravensburg	7·4	334	e 2 6	+21	i 2 59	-10	—	—
Zurich	7·4	328	e 1 52	+ 7	—	—	—	—
Stuttgart	8·3	336	e 2 36	+38	i 3 26	- 5	—	—
Strasbourg	8·7	329	e 2 16?	+13	—	—	e 19·3	—
Jena	E. 9·8	350	e 3 4	+46	—	—	e 3·9	4·0
Feldberg	9·8	337	e 3 4	+46	—	—	—	4·3
Copenhagen	14·5	356	—	—	5 16?	?	—	—

Additional readings and notes:—

Zagreb IPP = +1m.12s. and +1m.17s.

Laibach IPP +1m.7s.

Piacenza gives S as e and L as S.

Stuttgart i = +3m.30s.

Jena eE = +3m.16s.

Long waves were also recorded at Mostar, Rocca di Papa, and Rome.

July 10d. Readings also at 3h. (near Scoresby Sund, Matuyama, near Chur, and near Sucre and La Paz), 4h. (near Koti, near Sumoto, and near Matuyama), 6h. (Matuyama), 7h. (Taihoku), 10h. (near Taihoku), 11h. (Ekaterinburg, Irkutsk, Kobe, near Tyosi, Nagoya, Toyooka, and Osaka), 12h. (Koti), 13h. (Vladivostok), 14h. (Rocca di Papa, Rome, and Zagreb), 15h. (Nagoya, near Mizusawa, and near Tyosi), 17h. (Kew, Uccle, Strasbourg, Stuttgart, near Medan, and near La Paz), 18h. (near Sucre (2) and La Paz (4)), 19h. (La Paz), 20h. (Baku, De Bilt, Uccle, Zagreb, Strasbourg, Stuttgart, Copenhagen, Pulkovo, and Rocca di Papa), 21h. (Bombay and near Tyosi), 22h. (Rocca di Papa and Guadalajara).

July 11d. 7h. 6m. 34s. Epicentre 25°·0N. 93°·5E. N.2.

A = -·055, B = +·905, C = +·423; D = +·998, E = +·061;
G = -·026, H = +·422, K = -·906.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Calcutta	5·3	243	1 7	- 8	—	—	1·8	—
Phu-Lien	12·8	107	e 2 52	- 7	—	—	6·4	—
Agra	E. 14·0	282	2 47	-28	5 22	-29	6·7	—
Hyderabad	N. 14·0	282	2 55	-20	5 23	-28	6·6	—
	15·9	245	6 11	S	(6 11)	-25	—	—
Hong Kong	19·1	94	4 15	- 5	7 45	- 3	—	12·2
Bombay	20·1	257	4 29	- 2	7 52	-16	9·4	11·1
Kodalkanal	21·2	229	8 44	S	(8 44)	+14	—	—
Medan	22·0	166	5 14	+23	1 8 33	-13	—	—
Colombo	22·3	218	3 45	-69	(8 40)	-12	8·7	9·2
Almata	22·7	328	e 5 5	+ 7	9 11	+12	—	—
Andijan	23·6	317	e 4 38	-28	—	—	—	—
Tashkent	25·8	315	e 5 27	0	1 8 43	P ₀ P	e 13·4	16·3
Irkutsk	28·5	14	e 5 54	+ 2	e 10 43	+ 3	15·4	—
Vladivostok	36·2	49	—	—	e 14 13	?	—	—

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Baku	39.3	305	e 7 28	+ 2	e 13 32	+ 6	18.6	—
Ekaterinburg	39.6	333	i 7 33	+ 4	e 13 34	+ 4	19.4	23.0
Kucino	50.4	324	—	—	16 3	- 3	e 22.6	29.3
Pulkovo	55.2	329	9 32	+ 2	17 10	- 2	25.4	34.7
Helsingfors	57.9	329	—	—	e 17 34	-14	—	—
Copenhagen	64.6	322	—	—	19 12	- 3	—	—
Hamburg	66.4	320	—	—	e 19 26?	-11	—	—
Stuttgart	67.9	316	e 11 11	+13	e 19 50	- 6	e 36.4	—
Scoresby Sund	74.4	342	—	—	21 15	+ 2	—	—

Additional readings:—

Copenhagen +23m.32s. = SS +12s.

Stuttgart eSEN = +24m.11s.

Long waves were also recorded at Kew, De Bilt, Paris, and Strasbourg.

July 11d. Readings also at 1h. (near Sumoto), 4h. (Tyosi and near Mizusawa), 5h. (near Taihoku (2)), 11h. (Rocca di Papa, Trenta, near Sumoto, and near Reykjavik), 12h. (La Paz and near Lick), 13h. (Samarkand, near Hokoto, and near Sucre and La Paz), 15h. (Kew), 17h. (Baku, Ekaterinburg, Bombay, Ksara, and Andijan), 20h. (Samarkand and near Sucre and La Paz), 21h. (Tyosi).

July 12d. Readings at 0h. (near Denver), 1h. (Perth), 2h. (Samarkand), 6h. (Andijan and Bombay), 8h. (Samarkand), 10h. (Bombay), 11h. (Baku, Ekaterinburg, Irkutsk, and Bombay), 12h. (Adelaide, Andijan, and near Calcutta), 13h. (La Paz and Bombay), 14h. (Adelaide, near Batavia, and Malabar), 15h. (Bombay, Hong Kong, Phu-Lien, Kobe, Sumoto, and near Samarkand (2)), 16h. (3) and 17h. (near Samarkand), 18h. (near Andijan (2)), 22h. (near Sucre and La Paz), 23h. (Samarkand, Bombay, and near Calcutta).

July 13d. 0h. 59m. 24s. Epicentre 47°-5N. 112°-0W. N.2.

A = -.253, B = -.626, C = +.737; D = -.927, E = +.375;

G = -.276, H = -.684, K = -.676.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Victoria	7.6	282	2 6	+18	—	—	3.7	5.3
Berkeley	12.2	222	e 3 6	+15	e 5 34	+26	i 7.0	—
Lick	12.4	218	e 2 53	- 1	e 5 7	- 6	i 6.1	—
Tucson	15.2	176	3 23	- 8	6 19	- 1	7.5	—
Sitka	17.0	313	e 3 25	-29	i 7 12	+10	i 8.8	—
Florissant	18.0	111	14 3	- 4	e 7 8	-17	e 7.4	8.9
St. Louis	18.1	111	e 4 4	- 4	i 7 19	- 8	i 9.2	9.9
Chicago	18.2	99	—	—	e 7 25	- 4	i 9.1	—
Ann Arbor	20.6	94	e 4 42	+ 6	e 8 24	+ 6	i 10.9	11.2
Toronto	E. 23.0	87	e 5 2	+ 1	9 15	+10	11.7	13.7
Ottawa	24.8	81	—	—	9 48	+11	14.7	—
Georgetown	26.6	96	e 10 6	—	(e 10 6)	- 3	15.1	—
Fordham	27.8	89	e 10 54	—	S (e 10 54)	+26	i 14.6	—
Harvard	29.0	85	—	—	e 11 2	+14	e 14.6	—
Scoresby Sund	46.0	28	—	—	15 36?	+32	22.6	—

Additional readings:—

Berkeley i = +5m.58s.

Lick eE = +2m.55s., e = +2m.57s. and +3m.6s., eSE = +6m.3s.

Tucson S? = +6m.9s., eL(S) = +7m.2s.

Florissant iPEZ = +4m.7s.

St. Louis eN = +7m.0s.

Chicago e? = +7m.11s.

Ann Arbor e?N = +7m.54s., eE = +8m.36s., eN = +9m.48s., e = +10m.24s., i = +10m.48s.

Ottawa PPEE = +5m.24s., SSS = +12m.36s.

Georgetown PZ = +10m.14s., iN = +13m.11s., iSZ = +13m.43s., iSN = +13m.46s.

Fordham iS = +13m.40s., iSS = +13m.56s.

Scoresby Sund = +19m.12s.

Long waves were also recorded at Charlottesville and the European stations.

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July 13d. 1h. 12m. 18s. Epicentre 58°·0S. 67°·5W. N.3.

A = +·203, B = -·490, C = -·848; D = -·924, E = -·383;
G = -·325, H = +·783, K = -·530.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
La Plata	24·0	20	5 0	-10	9 4	-19	10·8	—
Santiago	24·6	354	4 50	-26	9 6	-28	12·3	—
Sucre	39·0	3	7 12	-12	—	—	—	—
Rio de Janeiro	39·2	35	e 7 21	-4	i 13 12	-12	e 18·2	—
La Paz	41·5	359	e 7 45	+ 1	i 13 56	-3	e 19·3	25·8
Cape Town	59·7	107	e 18 12	S	(e 18 12)	0	(26·3)	—
Wellington	68·0	226	e 14 42?	PPP	(e 19 42?)	-15	e 31·7	—
Melbourne	80·5	205	—	—	22 22	+ 1	e 35·4	46·3
Riverview	82·7	211	—	—	e 22 42	-2	e 39·2	43·7
Adelaide	84·6	201	—	—	e 30 55	?	44·4?	55·6
Georgetown	97·8	354	e 23 36	SKS	(e 23 36)	[-36]	40·7?	—
St. Louis	N. 98·5	340	—	—	e 23 58	[-20]	—	52·0
Ann Arbor	N. 101·2	347	—	—	e 27 12	PS	e 53·9	—
Malaga	108·3	47	e 19 22	PP	e 29 16	?	—	—
Granada	109·0	48	i 18 46	PP	e 29 19	?	e 49·7	54·5
Almeria	109·3	49	e 18 50	PP	29 10	?	53·1	62·2
Toledo	111·2	45	e 19 2	PP	e 28 31	PS	—	—
Florence	120·8	54	e 21 12	?	28 42	?	—	62·7
Piacenza	121·1	52	e 16 14	?	—	—	—	80·8
Paris	121·2	44	e 19 42?	PP	—	—	61·7	81·7
Strasbourg	123·1	49	i 20 19	PP	i 29 37	?	63·7	—
Uccle	123·6	44	e 19 42?	?	?	?	e 50·7	—
Stuttgart	123·8	49	19 42?	?	e 25 57	[-5]	e 57·7	80·4
Copenhagen	130·4	45	22 32	PKS	—	—	59·7	—
Bombay	131·4	125	e 21 42	PP	—	—	e 61·7	—
Baku	137·3	85	e 19 20	[+ 2]	e 22 47	PKS	—	77·4
Helsingfors	138·3	47	e 20 17	?	e 22 47	PKS	e 52·5	—
Kucino	141·3	60	e 21 42?	?	—	—	e 66·7	74·9
Tashkent	148·2	100	i 19 37	[- 2]	—	—	e 62·7	84·1
Andijan	149·4	105	e 19 38	[- 3]	—	—	—	—
Ekaterinburg	152·7	70	i 19 51	[+ 6]	—	—	66·7	86·3
Irkutsk	172·6	137	e 19 58	[- 7]	—	—	84·7	97·3

Additional readings and note:—

Rio de Janeiro PPN = +8m.37s., PPE = +8m.42s., SSE = +15m.54s.

La Paz SSN = +17m.11s.

Cape Town gives S as P and L as S.

Adelaide e = +38m.56s.

Georgetown IPPN = +26m.3s. = PS - 12s., eSN = +31m.30s. = SS + 7s.

Ann Arbor e?N = +33m.18s.

Malaga eSS = +36m.22s.

Granada i = +21m.10s. = PPP + 6s.

Stuttgart eEN = +27m.37s. = SKKS - 5s., e = +28m.42s.?

Baku e = +34m.50s.

Helsingfors e = +29m.40s.

Tashkent i = +19m.41s. and +19m.43s.

Irkutsk e = +25m.19s. = PP + 0s., +31m.8s., +35m.42s. = SKSP - 14s. and +45m.42s.?

Long waves were also recorded at Hyderabad, Hong Kong, Chicago, Florissant, Tucson, Scoresby Sund, and many other European stations.

July 13d. 14h. 0m. 12s. Epicentre 25°·8N. 90°·2E. (as on 8d.).

R.2.

A = -·003, B = +·900, C = +·435; D = +1·000, E = +·003;
G = -·002, H = +·435, K = -·900.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Calcutta	E. 3·7	207	0 44	- 9	1 30	- 5	1·9	—
	N. 3·7	207	1 11	+18	2 1	+26	2·3	—
Agra	E. 10·9	280	e 1 35	-58	4 20	-16	e 5·8	—
	N. 10·9	280	e 1 40	-53	4 25	-11	5·6	—
Dehra Dun	11·6	295	(2 58)	+15	(4 48)	- 5	(6·3)	(6·8)

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Bombay	17.4	250	7 2	S	(7 2)	- 9	9.1	9.6
Almata	20.5	332	e 4 35	0	—	—	—	—
Andijan	21.0	320	4 40	0	8 33	+ 7	—	—
Hong Kong	22.1	94	8 53	S	(8 53)	+ 5	(11.8)	14.1
Tashkent	23.2	317	1 5 3	0	1 9 11	+ 3	e 11.8	14.0
Samarkand	23.8	311	e 5 9	+ 1	—	—	—	—
Irkutsk	28.5	18	e 5 48?	- 4	e 10 55	+15	15.8	17.4
Baku	36.4	307	1 7 2	+ 1	12 45	+ 3	22.8	—
Ekaterinburg	37.5	334	1 7 14	+ 3	12 50	- 9	17.8	24.2
Theodosia	47.6	311	e 8 33	0	—	—	—	—
Kucino	48.0	325	e 9 18	+42	1 16 36	+63	e 26.0	32.1
Simferopol	48.4	310	e 8 38	- 1	—	—	—	—
Yalta	48.4	310	e 8 39	0	—	—	—	—
Pulkovo	52.9	329	9 12	- 1	16 38	- 3	20.8	31.8
Copenhagen	62.2	324	—	—	19 0	+15	35.8	—
Chur	65.4	315	1 10 47	+ 6	—	—	—	—
Neuchatel	67.0	315	1 10 49	- 3	—	—	—	—
Scoresby Sund	72.8	342	—	—	21 6	+12	41.8	—

Additional readings and notes :-

Dehra Dun readings have been increased by 2m.

Bombay S = +8m.35s.

Hong Kong gives S as P and L as S.

Kucino e = +9m.36s.

Long waves were also recorded at Hyderabad, Kodaikanal, and other European stations.

July 13h. 19h. 27m. 22s. Epicentre 38°1N. 98°4E. N.I.

Probable error of epicentre $\pm 0^{\circ}25$.

A = -115, B = +778, C = +617; D = +989, E = +146;
G = -090, H = +610, K = -787.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.	
	°	°	m. s.	s.	m. s.	s.	m.	m.	
Irkutsk	14.7	14	3 25	0	6 9	+ 1	7.7	—	
Almata	17.0	294	3 54	0	e 7 2	0	—	—	
Calcutta	E. 17.8	212	4 4	0	7 10	-10	9.0	9.8	
Dehra Dun	N. 17.8	212	4 8	+ 4	7 12	- 8	8.4	—	
		18.5	251	2 18	-115	5 28	-128	8.0	9.6
Phu-Lien	18.7	155	4 14	- 1	7 49	+ 9	10.2	10.9	
Zi-ka-wei	20.1	103	4 30	- 1	8 20	+12	10.9	11.7	
Agra	E. 20.2	243	1 4 16	-16	1 8 16	+ 6	i 11.4	12.9	
Andijan	N. 20.2	243	1 4 19	-13	1 8 10	0	i 11.3	12.6	
		20.2	286	4 34	+ 2	9 12	+62	11.1	—
Hong Kong	20.8	135	4 38	0	8 28	+ 6	e 10.6	11.6	
Zinsen	22.2	83	4 57	+ 4	9 1	+11	—	—	
Keizo	22.5	82	5 3	+ 7	9 0	+ 5	—	—	
Tashkent	22.5	287	1 4 55	- 1	1 9 3	+ 8	11.5	12.6	
Taihoku	Z. 23.5	117	—	—	e 9 42	+28	13.9	—	
Samarkand	24.4	283	5 17	+ 3	e 9 43	+13	—	14.2	
Vladivostok	25.8	68	1 5 33	+ 6	1 10 2	+ 7	13.4	18.6	
Nagasaki	26.9	92	—	—	e 10 12	+14	e 13.7	15.6	
Hukuoka	26.2	90	e 2 58	?	—	—	14.0	14.9	
Hyderabad	27.0	226	5 43	+ 5	10 23	+ 8	13.9	17.0	
Hamada	27.1	86	5 43	+ 4	11 21	+64	—	—	
Toyooka	N. 29.1	84	e 6 17	+20	—	—	16.2	—	
Bombay	29.4	236	5 59	- 1	11 2	+ 7	15.5	17.4	
Sumoto	29.5	86	6 5	+ 4	—	—	e 16.5	16.9	
Kobe	29.6	85	6 3	+ 2	—	—	e 16.4	17.3	
Osaka	29.9	85	6 12	+ 8	11 13	+70	16.9	17.8	
Nagoya	30.8	83	6 17	+ 5	16 42	(- 7)	—	—	
Manila	30.8	134	1 6 28	+16	1 11 21	+ 4	—	19.5	
Ekaterinburg	31.0	320	1 6 19	+ 5	1 11 22	+ 2	14.6	22.2	
Kumagaga	32.4	80	7 43	+77	13 43	+122	—	—	

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Mizusawa	E.	33.1	75	6 32	- 1	12 14	+22	—	—
Kodaikanal		33.7	221	13 56	SS	—	—	18.4	18.9
Medan		34.5	180	—	—	i 12 3	-11	(e 19.4)	—
Colombo		35.4	215	12 27	S	(12 27)	0	20.4	24.8
Baku		37.2	290	i 7 10	+ 2	i 13 4	+10	18.6	23.5
Kucino		43.2	315	8 1	+ 3	14 26	+ 2	e 22.3	27.8
Batavia		45.0	169	i 9 10	+57	i 16 2	?	e 22.6	24.6
Theodosia		46.4	301	e 8 25	+ 1	15 17	+ 7	22.6	—
Pulkovo		47.1	321	8 32	+ 3	15 22	+ 2	22.6	27.6
Simferopol		47.3	300	8 32	+ 1	15 28	+ 5	—	—
Yalta		47.4	300	e 8 33	+ 1	15 30	+ 6	e 26.7	—
Sebastopol		47.8	300	—	—	e 15 28	- 2	—	—
Helsingfors		49.7	321	e 8 41	- 8	e 15 47	-10	e 24.2	—
Ksara		49.8	285	8 49	- 1	16 1	+ 3	29.3	—
Lemberg		52.5	309	—	—	e 16 44	+ 9	—	31.7
Konigsberg		53.1	316	e 9 16	+ 1	e 16 45	+ 2	e 28.6	—
Upsala		53.4	322	e 9 16	- 1	i 16 48	+ 1	e 28.6	30.3
Budapest		56.4	308	8 10	-89	16 7	-81	27.6	—
Lund		56.8	319	9 43	+ 1	17 37	+ 3	—	—
Copenhagen		57.2	319	i 9 46	+ 1	17 46	+ 7	26.6	—
Vienna		57.8	310	i 9 49	0	17 54	+ 7	e 28.6	32.2
Potsdam		58.1	315	e 9 54	+ 3	e 18 14?	+23	i 30.1	31.8
Graz		58.8	309	e 9 53	- 3	e 17 31	-29	i 32.0	39.7
Bergen		58.9	325	—	—	e 17 42	-19	30.6	33.6
Zagreb		59.0	307	e 9 48	- 9	e 18 8	+ 5	e 31.0	32.2
Cheb		59.4	312	e 10 3	+ 3	e 18 15	+ 7	e 31.6	32.6
Hamburg		47.8	309	e 10 1	+ 1	e 18 14	+ 6	e 29.7	35.3
Jena		59.6	314	e 10 2	0	e 18 14	+ 3	e 27.6	33.1
Gottingen		60.2	315	e 10 5	- 1	e 18 41	+22	e 32.4	34.6
Innsbruck		61.2	310	e 10 20	+ 7	—	—	31.6	—
Treviso	N.	61.5	308	e 10 16	+ 1	i 18 38	+ 2	37.6	—
Feldberg		61.6	315	i 10 17	+ 1	i 18 44	+ 7	—	52.7
Stuttgart		61.9	313	i 10 16	- 2	i 18 43	+ 2	i 32.6	34.3
Karlsruhe		62.2	313	e 10 17	- 3	19 12	+27	e 33.6	34.2
Chur		62.6	310	e 10 21	- 1	e 18 41	- 9	—	—
De Bilt		62.6	318	10 23	+ 1	18 55	+ 5	e 30.6	34.9
Strasbourg		62.8	313	e 10 21	- 3	18 53	+ 1	28.6	38.9
Zurich		62.9	310	i 10 23	- 2	e 18 55	+ 1	—	—
Florence		62.9	306	10 33	+ 8	18 53	- 1	—	36.0
Rocca di Papa		62.9	303	i 10 22	- 3	i 18 54	0	e 33.7	38.6
Rome		63.0	303	e 10 23	- 2	—	—	—	—
Catania		63.3	299	e 10 26	- 1	e 19 27	+28	e 43.5	—
Piacenza		63.3	309	10 30	+ 3	19 26	+27	25.6	34.8
Scorsby Sund		63.3	341	10 27	0	19 0	+ 1	32.6	—
Uccle		63.7	317	e 10 29	- 1	i 19 7	+ 3	30.6	35.3
Dyoc		63.8	324	10 32	+ 1	i 19 8	+ 3	31.9	40.5
Neuchatel		64.1	311	i 10 31	- 2	—	—	—	—
Besancon		64.5	311	e 10 37	+ 2	—	—	33.6	—
Durham		64.8	321	9 54	-43	19 19	+ 2	35.0	36.0
Edinburgh		65.0	323	e 10 41	+ 2	19 28	+ 8	—	37.4
Paris		65.7	315	e 10 42	- 1	e 19 34	+ 5	35.6	39.6
Stonyhurst		65.7	320	10 40	- 3	19 32	+ 3	34.6	41.7
Kew		65.9	319	e 10 43	- 2	19 31	0	30.6	42.0
Oxford		66.3	319	10 47	0	e 19 34	- 2	e 34.5	46.9
Puy de Dôme		67.0	312	e 10 38?	-14	—	—	34.6	—
Barcelona	N.	69.8	308	—	—	e 20 16	- 3	e 26.8	40.4
Tortosa		71.2	309	11 2	-16	20 39	+ 4	34.6	41.3
Algiers		71.9	303	11 14	- 8	20 43	- 1	37.6	45.6
Alicante		73.3	307	—	—	e 21 27	PS	e 42.6	—
Sitka		74.6	27	e 9 29	-129	—	—	e 26.4	—
Toledo		74.6	310	11 37	- 1	e 21 15	0	e 34.2	45.6
Almeria		75.3	307	e 11 37	- 5	21 20	- 4	39.0	44.4

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	o	o	m. s.	s.	m. s.	s.	m.	m.
Granada	75.9	308	i 11 5	-40	i 20 57	-33	39.0	48.1
Malaga	76.7	308	e 11 55	+5	e 22 1	PS	e 24.6	43.6
San Fernando	78.0	309	21 15	—	(21 15)	-39	41.9	50.4
Adelaide	82.0	147	—	—	e 22 27	-10	37.1?	49.6
Victoria	E. 85.9	26	23 20	S	(23 20)	+3	39.5	46.8
Toronto	N. 98.2	358	—	—	e 24 8	[-9]	46.5	—
Florissant	102.6	7	—	—	e 25 42	-7	e 52.1	—
St. Louis	N. 102.9	7	—	—	e 25 47	-5	—	56.9
La Paz	155.4	328	e 20 41	[+53]	—	—	80.6	91.6

Additional readings and note :—

Toyooka ePE = +6m.26s.
 Medan i = +19m.56s.; S is given as i and L as S.
 Colombo S = +15m.12s.
 Helsingfors eCPE = +10m.6s., iPEZ = +10m.40s., ePPPEN = +11m.22s.,
 eCSE = +13m.53s., PSEN = +15m.55s., iCSEN = +18m.23s., iSSN =
 +19m.21s., iSSSE = +20m.40s., eN = +23m.10s.
 Ksara PPN = +10m.40s.; T₀ = 19h.27m.2s.
 Konigsberg ePSE = +17m.13s., eSSE = +20m.35s., eEN = +20m.56s.
 Upsala SSE = +21m.5s.
 Copenhagen +12m.56s. = PPP-3s., and +21m.32s. = SS+9s.
 Vienna PP = +12m.1s., PPP = +13m.8s., P₀S = +14m.11s.
 Potsdam eEN = +13m.24s., eE = +19m.4s., +24m.44s. and +27m.54s.
 Bergen i = +18m.25s.
 Zagreb e = +9m.59s., i = +10m.10s., e = +10m.23s., ePPNW = +12m.4s.,
 ePPNE = +12m.14s., ePPP = +13m.21s., ePPPPNE = +14m.35s., eNW =
 +15m.0s., eNE = +15m.13s., ePS = +18m.32s., eSSSNW = +24m.26s.,
 eSSSNE = +27m.26s.
 Jena eE = +18m.16s. and +18m.24s., eN = +18m.30s.
 Göttingen ePPEZ = +13m.38s., eSSE = +22m.26s.
 Feldberg eN = +14m.5s. = PPPP-9s.
 Stuttgart iZ = +11m.13s., iPP = +12m.35s. and +12m.53s., iPPP = +14m.5s.,
 iEN = +19m.54s. = S₀S-11s., iSS = +22m.48s. and +23m.23s., iSSSZ =
 +25m.33s.
 Strasbourg PP = +13m.15s., PPP = +14m.12s., SS = +23m.5s., SSS = +25m.22s.
 Rocca di Papa eS = +18m.42s.
 Rome e = +12m.50s. = PP+13s.
 Scoresby Sund +23m.20s. = SS+20s. and +26m.8s. = SSSS-9s.
 Uccle PPP = +14m.28s., SS = +23m.14s.
 Durham +26m.45s., +27m.1s., and +33m.4s.
 Kew iP = +10m.45s., PP = +14m.44s. = PPP+13s., SS = +23m.56s., SSS =
 +26m.32s.
 Oxford e = +14m.47s. = PPP+12s., i = +26m.49s.
 Sitka ePP = +12m.53s., PS = +21m.20s.
 San Fernando SE = +30m.25s.
 Victoria PN = +23m.8s. = SKS+2s., SEN = +28m.58s. = SS+18s.
 Toronto eN = +38m.44s.

Long waves were also recorded at Ootomari, Koti, Tyosi, Tananarive, Wellington, Bagnères, Belgrade, Rio de Janeiro, and several American stations.

July 13d. Readings also at 3h. (near Tacubaya), 4h. (La Paz), 5h. (near Samarkand), 7h. (Ekaterinburg, Tashkent, and near Andijan), 8h. (Adelaide, Riverview, and Strasbourg), 9h. (Baku, Ekaterinburg, Tashkent, Granada, and Harvard), 13h. (De Bilt, Kew, Granada, Sucre, and La Paz), 14h. (Copenhagen, Scoresby Sund, Uccle, Paris, and Strasbourg), 18h. (Perth), 20h. (near Andijan and Samarkand (2)), 21h. (Colombo), 23h. (Bombay).

July 14d. 10h. 24m. 12s. Epicentre 36°·2N. 142°·2E. (as on 1929 June 26d.). X.

A = -·638, B = +·495, C = +·591.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	o	o	m. s.	s.	m. s.	s.	m.	m.
Tyosi	1.1	245	e 0 8	-8	(0 17)	-11	0.3	—
Mizusawa	3.0	344	0 42	-1	1 19	+2	—	—
Nagoya	4.4	258	e 1 4	+1	—	—	—	—
Osaka	5.7	256	e 1 29	+8	—	—	2.8	3.0
Kobe	5.9	257	e 1 28	+4	e 2 32	+1	—	4.1
Sumoto	6.2	255	e 2 28	S	(e 2 28)	-10	—	3.1

Mizusawa gives also PN = +48s.

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July 14d. 20h. 41m. 54s. Epicentre 38° 0'N. 68° 0'E.
(as given by the Central Asian Stations).

N.3.

A = +.295, B = +.731, C = +.616; D = +.927, E = -.375;
G = +.231, H = +.571, K = -.788.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
			m. s.	s.	m. s.	s.	m.	m.
Samarkand	1.8	335	0 34	+ 8	—	—	1.0	1.6
Tashkent	3.4	17	0 41	- 8	(1 28)	+ 1	1.5	2.0
Andijan	4.4	49	0 59	- 4	(e 2 3)	+10	e 2.0	—
Baku	14.2	285	e 4 24	+66	—	—	8.9	—
Ekaterinburg	19.4	348	e 4 30	+ 7	e 8 3	+ 9	10.1	11.4
Kucino	26.8	321	—	—	e 10 42	+30	e 14.2	15.5
Pulkovo	32.3	345	e 6 23	- 2	e 11 41	+ 1	14.1	21.3
Copenhagen	40.6	314	—	—	13 42	- 3	24.1	—

Additional readings:—

Baku e = +8m.22s.

Kucino e = +11m.6s.

Long waves were also recorded at Irkutsk, Scoresby Sund, and several European stations.

July 14d. 22h. 40m. 44s. Epicentre 14° 0'N. 89° 0'W.

R.1.

(as on 1926 Mar. 24d.).

Probable error of epicentre $\pm 0^\circ 45$.

A = +.017, B = -.970, C = +.242; D = -1.000, E = -.017;
G = +.004, H = -.242, K = -.970.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
			m. s.	s.	m. s.	s.	m.	m.
Merida	7.0	356	(1 55)	+16	(3 10)	+11	(3.3)	(4.1)
Oaxaca	8.1	294	(2 1)	+ 6	(3 16)	-10	(3.4)	(4.2)
Vera Cruz	8.6	308	(2 12)	+10	(3 38)	- 1	(3.9)	(5.8)
Puebla	10.2	301	2 40	+16	4 10	- 8	4.3	5.3
Balboa Heights	10.5	117	2 40	+12	5 6	+40	5.8	—
Tacubaya	11.2	300	2 16	-21	(4 36)	- 7	4.6	5.3
Manzanillo	15.5	291	(3 48)	+13	—	—	(7.0)	(8.1)
Port au Prince	16.6	72	1 4 25	+36	1 7 44	+52	19.7	10.5
Mazatlan	18.9	302	(4 6)	-11	(7 34)	-10	(8.3)	(9.9)
Chihuahua	21.6	315	(4 49)	+ 3	(8 38)	0	(9.6)	(13.3)
St. Louis	24.6	358	e 5 14	- 2	1 9 18	-16	e 14.1	15.4
Florissant	24.9	357	e 5 12	- 7	1 9 34	- 5	1 12.3	14.9
Charlottesville	25.8	19	e 5 28	+ 1	1 10 0	+ 5	12.3	—
Georgetown	27.0	21	1 5 38	0	1 10 52	+37	13.3	—
Tucson	27.1	316	5 28	-11	10 8	- 9	13.4	—
Chicago	E. 27.8	2	—	—	1 10 23	- 5	1 14.4	—
Ann Arbor	28.7	8	e 5 52	- 1	1 10 34	- 9	1 13.1	16.5
Denver	29.3	334	e 5 4	-55	e 9 46	-67	e 14.8	18.9
Fordham	29.9	23	1 6 4	0	1 11 11	+ 8	1 14.9	—
Toronto	30.8	14	1 6 8	- 4	1 11 11	- 6	1 14.2	19.1
Harvard	32.3	26	1 6 29	+ 4	1 11 47	+ 7	13.3	—
Ottawa	33.3	18	1 6 31	- 3	1 11 59	+ 4	1 15.7	—
La Paz	36.8	145	1 7 6	+ 1	1 12 57	+ 9	17.3	24.0
Lick	37.2	315	e 6 58	-10	e 12 39	-15	e 18.8	23.8
Berkeley	38.0	315	e 7 28	+13	e 12 49	-17	e 16.5	18.8
Sucre	40.5	144	1 7 35	- 1	—	—	—	—
Saskatoon	40.6	345	e 7 26	-11	e 13 32	-13	—	—
Victoria	E. 44.5	399	8 2	- 7	14 32	-11	23.1	28.4
	N. 44.5	399	8 5	- 4	14 35	- 8	—	—
Sitka	55.4	332	e 9 23	- 9	1 17 10	- 5	1 31.2	—
La Plata	57.1	150	9 39	- 5	17 40	+ 2	27.0	—
Rio de Janeiro	E. 58.1	130	10 36	(-10)	17 38	-13	25.3	36.5
	N. 58.1	130	10 8	+17	e 17 30	-21	25.8	35.5
Azores P.D.	60.5	53	—	—	17 28	-55	—	31.3
Honolulu T.H.	65.5	286	—	—	1 19 16	-10	26.9	—

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.	
	°	°	m. s.	s.	m. s.	s.	m.	m.	
Scoresby Sund	69.2	20	11 2	- 4	20 12	+ 1	—	—	
San Fernando	76.0	56	11 33	-13	21 33	+ 1	32.1	47.1	
Edinburgh	76.1	36	e 11 49	+ 2	21 37	+ 4	35.3	47.4	
Dyce	76.6	34	12 27	+38	21 33	- 5	26.2	42.0	
Stonyhurst	76.7	38	11 53	+ 3	21 42	+ 3	36.0	46.5	
Durham	77.1	35	12 6	+13	21 46	+ 2	—	—	
Toledo	77.3	52	e 11 53	- 1	e 21 46	+ 0	e 32.2	46.6	
Malaga	77.4	55	e 12 0	+ 6	21 50	+ 3	28.4	46.2	
Bidston	77.6	38	—	—	1 21 36	-13	e 32.3	38.4	
Oxford	77.6	40	11 56	+ 1	21 42	- 7	e 35.3	45.7	
	E.	77.6	40	e 12 5	+10	1 21 47	- 2	1 32.9	39.3
	N.								
Granada	78.0	55	i 11 59	+ 2	1 22 3	+ 9	e 32.6	38.9	
Kew	78.3	40	e 11 58	- 1	e 21 54	- 3	36.9	46.0	
Almeria	79.0	55	e 12 5	+ 2	22 8	+ 3	32.9	38.5	
Bergen	80.0	30	—	—	1 22 16	+ 0	35.3	—	
Alicante	80.1	51	e 12 16	+ 8	e 22 24	+ 7	e 33.2	44.4	
Paris	80.5	42	i 12 11	+ 1	e 22 15	- 6	34.3	41.3	
Tortosa	80.6	50	12 28	+17	22 13	- 9	e 33.3	43.5	
Uccle	81.3	40	12 15	0	22 22	- 8	36.3	43.7	
De Bilt	81.5	39	12 17	+ 1	22 27	- 5	e 38.3	42.3	
Barcelona	81.6	49	—	—	e 21 44	-49	e 34.8	44.6	
Besançon	83.1	44	e 17 44	PPP	—	—	39.3	—	
Algiers	83.3	54	e 12 29	+ 4	22 49	- 1	34.3	46.3	
Neuchatel	83.8	43	e 12 26	- 1	e 22 52	- 3	—	—	
Feldberg	83.9	40	e 12 28	0	e 22 46	-10	e 42.8	56.3	
Strasbourg	83.9	42	i 12 29	+ 1	22 47	- 9	39.3	49.8	
Hamburg	84.0	36	e 12 28	0	e 22 53	- 5	e 34.7	54.3	
Karlsruhe	84.2	40	e 13 16†	?	—	—	e 37.3	—	
Göttingen	84.6	38	e 12 33	+ 2	—	—	e 40.4	—	
Copenhagen	84.7	34	12 30	- 2	23 0	[+ 3]	—	—	
Stuttgart	84.8	40	e 12 31	- 1	1 23 0	- 6	e 39.3	45.8	
Zurich	84.8	44	e 12 36	+ 4	e 22 55	-11	—	—	
Lund	85.2	34	12 34	0	23 7	- 3	37.3	—	
Chur	85.5	44	e 12 37	+ 1	e 23 3	-10	—	—	
Jena	85.7	39	e 12 46	+ 9	e 23 16	+ 1	e 35.3	44.3	
Uppsala	86.0	29	e 12 37	- 1	e 23 9	- 9	e 35.5	47.2	
Potsdam	86.1	37	e 12 10	-29	1 23 16	- 2	e 40.7	53.4	
	E.	86.1	37	e 12 58	+19	1 23 16	- 2	e 36.7	48.8
	N.								
Piacenza	86.1	44	e 12 34	- 5	23 12	- 6	31.3	50.3	
Cheb	86.4	39	e 12 47	+ 7	e 23 20	- 1	e 40.3	46.3	
Apia	86.5	257	—	—	e 23 19	- 3	40.3	—	
Innsbruck	86.6	42	e 12 58	+17	—	—	40.5	—	
Treviso	87.6	44	i 12 43	- 3	e 23 16	[- 1]	e 44.3	54.8	
Florence	87.6	45	12 47	+ 1	23 46	+13	36.8	43.3	
Rome	89.0	47	e 14 36	?	—	—	e 46.8	—	
Rocca di Papa	89.2	47	e 12 51	- 3	e 23 46	- 2	e 43.3	49.8	
Hel싱fors	89.2	27	e 12 52	- 2	e 23 53	+ 5	e 34.1	—	
Graz	89.3	41	—	—	e 23 36	-13	33.3	47.0	
Königsberg	89.4	33	e 16 1	PP	1 23 50	- 0	e 38.8	46.4	
Vienna	89.5	40	e 13 6	+11	23 46	- 5	e 37.3	48.3	
Zagreb	90.1	42	e 13 0	+ 2	e 23 44	-13	e 39.0	43.8	
Budapest	91.4	40	(12 53)	-11	(23 24)	[-17]	(43.3)	(48.8)	
Pulkovo	91.6	26	e 13 5	0	24 3	- 8	35.3	56.1	
Catania	92.3	50	e 15 19	?	e 23 57	[+11]	e 43.8	54.1	
Kucino	97.3	27	14 1	+30	24 56	- 7	40.9	44.0	
Wellington	103.8	230	—	—	24 38	[- 8]	48.3	49.3	
Ekaterinburg	104.8	17	14 35	+29	1 26 3	- 6	41.3	57.7	
Ksara	109.0	45	e 19 2	PP	—	—	57.8	—	
Irkutsk	112.7	351	(19 9)	PP	—	—	49.3	—	
Baku	113.6	32	e 19 26	PP	—	—	46.3	—	
Tashkent	121.2	19	i 20 18	PP	e 31 40	?	52.3	65.8	
Samarkand	121.9	21	e 20 24	PP	—	—	55.3	—	
Riverview	122.4	240	e 20 16	PP	—	—	e 56.3	65.3	

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Andijan	122.6	16	e 20 23	PP				
Melbourne	126.8	233	—	—	e 26 16?	[+ 6]	58.7	61.5
Adelaide	132.4	235	e 19 26	[+15]	e 32 46	?	61.2?	86.7
Hong Kong	137.1	327	24 25	PPP	e 30 23	?	e 62.3	79.7
Hyderabad	146.2	20	19 13	[-23]	—	—	70.3	85.3
Kodaikanal	152.3	30	51 22	SSS	—	—	81.4	104.0
Medan	160.8	336	—	—	1 30 37	?	74.3	—

Additional readings and notes :—

Merida readings have been *diminished* by 14m.

Oaxaca readings have been *increased* by 5m.

Vera Cruz readings have been *increased* by 6m.

Manzanillo readings have been *increased* by 5m.

Mazatlan readings have been *increased* by 2m.

Chihuahua readings have been *diminished* by 3m.

St. Louis iN = +5m.17s., iSN = +9m.33s., iE = +9m.38s.

Florissant iPZ = +5m.16s., iSN = +9m.39s. and +9m.47s.

Charlottesville ePP = +7m.6s.

Chicago ePP = +6m.3s., e = +8m.39s., i = +12m.31s.

Ann Arbor ePP = +6m.28s., eN = +7m.16s., e = +8m.46s., iSS = +11m.52s.

Fordham iP_cPP = +8m.36s., iP_cS = +12m.27s., iSS = +13m.5s.

Toronto iN = +10m.35s.; T₀ = 22h.40m.13s.

Harvard ePPP = +7m.31s., i = +10m.39s.; T₀ = 22h.40m.31s.

Ottawa iPPP = +7m.34s., SS = +13m.36s., SSSE = +14m.0s. T₀ = 22h.40m.21s.

La Paz PPE = +8m.37s., SSSE = +15m.47s.

Lick eN = +11m.49s. and +12m.45s.

Berkeley eE = +8m.34s., eN = +8m.36s., +12m.52s., and +13m.46s., eSSSE = +15m.30s.

Saskatoon PPPN = +9m.5s., SSSN = +16m.34s.; T₀ = 22h.40m.27s.

Sitka ePP = +12m.16s., iSS = +21m.8s.

Rio de Janeiro PPN = +12m.35s., PPP = +13m.34s., SSE = +21m.38s., SSN = +21m.55s.

Honolulu T.H. ePPP = +14m.51s., e = +21m.6s.

Scoresby Sund +21m.5s. = S_cS + 6s., and +24m.28s. = SS - 2s.

Durham PP = +15m.11s., SS = +26m.39s., SSS = +30m.14s.

Oxford iN = +24m.21s., +25m.40s., +26m.22s. = SS - 15s., and +27m.0s.

Granada PP = +15m.0s., i = +16m.3s., PPP = +16m.35s., i = +21m.31s., PS = +22m.42s., i = +24m.52s.

Kew PPE = +14m.46s., SSEN = +26m.58s.

Almeria PP = +15m.4s.

Paris PP? = +15m.24s.

Uccle PP = +15m.7s., PPP = +17m.4s.

De Bilt eN = +34m.44s.

Algiers PP = +15m.47s.

Neuchatel ePP = +15m.39s.

Feldberg e?E = +17m.33s., eN = +21m.34s., eE = +24m.3s.

Strasbourg PP = +15m.50s., PPP = +17m.52s., PPPP = +18m.54s., PS = +23m.48s., SS = +28m.33s.

Hamburg iSN = +22m.58s.

Copenhagen PP = +15m.34s., +27m.16s.

Stuttgart ePPE = +15m.39s., iPSE = +23m.56s., iPPS = +24m.14s., iN = +27m.29s., iSS = +28m.46s., e = +29m.56s., iSSS = +31m.56s.

Lund +15m.52s. = PP + 5s.

Jena eE = +23m.6s. = SKS + 2s., and +29m.4s.

Cheb eSS = +29m.4s.

Apia e = +27m.29s. and +37m.0s.

Florence PP = +16m.30s., PPPP = +20m.16s.?, PS = +24m.46s.

Rocca di Papa iS = +25m.3s.

Helsingfors PP = +16m.35s., PPPE = +18m.53s., iSKKSN = +23m.42s., PSE = +24m.42s., PPSE = +25m.13s., SSE = +29m.46s., SSEN = +34m.1s.

Konigsberg iE = +24m.6s., eE = +24m.59s. = PS + 15s.

Vienna PP = +16m.58s., SKS = +23m.40s., PS = +24m.37s., SS = +29m.57s., SSS = +33m.45s.

Budapest readings have been *increased* by 5m.

Pulkovo PP = +16m.43s., SKS = +23m.27s.

Kucino PP = +17m.34s., SKS = +24m.25s.

Wellington e = +33m.16s. = SS + 22s.

Ekaterinburg PP = +18m.29s., PS = +27m.44s.

Ksara PPPP? = +28m.27s. = PS + 9s.

Irkutsk PS = +28m.41s., SS = +34m.58s.

Baku PS = +29m.15s., SS = +35m.28s., SSS = +39m.22s.

Riverview eN = +41m.31s. = SSS + 7s., +47m.6s., and +51m.45s., eE = +53m.18s.

Adelaide i = +22m.33s. = PKS - 11s., +36m.16s. and +41m.1s.

Long waves were also recorded at Perth, Sydney, Batavia, Phu-Lien, Zi-ka-wei, Koti, Sumoto, Dehra Dun, Almata, Reykjavik, Tananarive, Vladivostok, the Crimean and European stations.

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July 14d. Readings also at 0h. (Baku and Ekaterinburg), 1h. (near Batavia), 4h. (Wellington and near Christchurch), 8h. (Medan and near Taihoku), 11h. (near Tyosi), 12h. (near Lick), 14h. (Sebastopol), 21h. (Andijan and near Samarkand).

July 15d. Readings at 0h. (Andijan, Samarkand, and near Sucre and La Paz), 3h. (Catania), 4h. (Tyosi), 6h. (Ekaterinburg and Scoresby Sund), 7h. (Tashkent and Vladivostok), 8h. (near Andijan), 9h. (Kew, Stuttgart, Scoresby Sund, Ekaterinburg, Florissant, Harvard, and near Merida), 10h. (Tashkent, Trenta, La Paz, and near Balboa Heights), 11h. (Bombay), 12h. (Bombay and St. Louis), 13h. (Taranto and Tyosi), 14h. (Suva and Wellington), 15h. (Suva, Kew, and Stuttgart), 16h. (Samarkand), 18h. (near Andijan and Samarkand), 19h. (near Andijan), 20h. (near Samarkand), 22h. (near La Paz, near Oaxaca and near Mizusawa), 23h. (Ekaterinburg, Tashkent, near Lick (2), and near Tacubaya).

July 16d. 16h. 28m. 0s. Epicentre 35°-0N. 135°-5E. N.3.

$$A = -.584, B = +.574, C = +.574.$$

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Osaka	0.4	173	0 4	- 2	(0 12)	+ 2	0.2	0.2
Kobe	0.5	219	0 6	- 1	0 15	+ 2	—	0.3
Toyooka	0.8	314	0 11	0	0 21	0	—	0.4
Sumoto	0.9	212	0 14	+ 1	0 27	+ 4	—	0.5
Nagoya	1.2	82	0 15	- 2	0 28	- 3	—	—

No additional readings.

July 16d. Readings also at 0h. (near Manila), 1h. (Hong Kong, Ekaterinburg, Tashkent, Andijan, and near Samarkand), 2h. (La Paz), 3h. (Baku, Ekaterinburg, Pulkovo, Tashkent, Copenhagen, De Bilt, and Scoresby Sund), 5h. (La Paz and Samarkand), 6h. (Taihoku and near Tyosi), 10h. (St. Louis), 15h. (Ekaterinburg, Irkutsk, Tashkent, and Phu-Lien), 16h. (Messina, Catania, and near Trenta).

July 17d. 14h. 34m. 44s. Epicentre 8°-0N. 94°-0E. (as on 1927 May 17d.). R.3.

$$A = -.069, B = +.988, C = +.139; D = +.998, E = +.070;$$

$$G = -.010, H = +.139, K = -.990.$$

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Medan	6.4	132	1 1 0	-31	1 1 51	-52	—	—
Colombo	14.1	266	3 46	+29	—	—	—	8.8
Calcutta	15.5	340	6 35	S	(6 35)	+ 8	—	—
Phu-Lien	17.7	42	e 4 12	+ 9	—	—	—	—
Hyderabad	17.9	303	4 14	+ 9	7 17	- 5	—	—
Batavia	19.1	138	—	—	1 7 1	-47	—	—
Bombay	23.3	300	5 17	+13	(9 32)	+22	9.5	11.8
Hong Kong	24.1	51	5 19	+ 8	9 47	+22	—	15.9
Andijan	38.0	332	e 7 21	+ 6	13 19	+13	—	—
Almata	38.3	340	7 32	+14	13 32	+21	—	—
Samarkand	39.8	327	e 7 36	+ 6	—	—	—	—
Tashkent	39.9	331	1 7 36	+ 5	1 13 47	+12	e 20.3	27.6
Irkutsk	45.1	9	8 16	+ 2	15 0	+ 8	—	25.3
Baku	50.4	319	1 8 59	+ 5	16 20	+14	25.3	31.2
Ekaterinburg	55.3	340	1 9 39	+ 8	1 17 29	+16	27.3	33.9
Theodosia	62.4	319	e 10 22	+ 1	—	—	—	—
Yalta	63.1	318	e 10 25	- 1	—	—	—	—
Simferopol	63.3	318	e 10 26	- 1	—	—	—	—
Kudino	64.8	330	e 10 34	- 3	19 17	0	e 33.4	40.1
Pulkovo	70.1	332	11 10	- 1	20 33	+11	26.3	45.2

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Helsingfors	72.7	331	e 11 14	-13	e 21 6	+13	—	—
Zagreb	76.0	316	e 11 42	-4	—	—	—	—
Rocca di Papa	78.2	312	e 11 54	-4	—	—	e 19.2	21.1
Rome	78.4	312	e 11 46	-13	—	—	—	—
Copenhagen	78.7	327	11 57	-4	21 55	-7	43.3	—
Florence	79.2	314	12 6	+2	e 17 16	?	—	—
Hamburg	80.1	325	e 14 4	?	e 22 4	-13	30.3	—
Chur	80.4	317	e 12 5	-5	e 22 8	-12	—	—
Stuttgart	80.6	320	i 12 6	-5	i 22 15	-7	—	—
De Bilt	83.0	323	12 21	-2	e 22 40	-7	e 42.3	—
Scoresby Sund	90.2	344	—	—	e 25 16?	PS	49.3	—
La Paz	160.6	242	e 19 53	[- 2]	—	—	—	—

Additional readings:—

Medan i = +2m.7s. and +2m.12s.

Bombay S = +3m.15s.

Stuttgart iEZ = +12m.29s., eE = +22m.46s. = PS - 10s.

Scoresby Sund +30m.16s. ?

Long waves were also recorded at Kodaikanal.

July 17d. 18h. 30m. 16s. Epicentre 15°.6N. 97°.8W. (as on 1928 July 10d.). X.

A = -.131, B = -.954, C = +.269; D = -.991, E = +.136;

G = -.036, H = -.266, K = -.963.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Oaxaca	1.7	35	(0 56)	+32	—	—	1.4	1.6
Puebla	3.4	354	(1 16)	+27	—	—	(1.9)	(2.1)
Vera Cruz	3.9	24	(1 8)	+12	—	—	(2.1)	(2.4)
Tacubaya	4.0	341	0 49	-8	(1 41)	-1	1.7	1.8
Guadalajara	7.4	314	(1 46?)	+1	1 46?	P	1.8	1.9
Tucson	20.4	327	4 31	-3	e 8 10	-4	10.2	—
St. Louis	24.0	15	i 5 13	+3	e 9 26	+3	—	—
Florissant	24.1	15	e 5 14	+3	i 9 38	+13	—	—
Victoria	38.9	333	13 27	S	(13 27)	+7	20.5	21.6
Scoresby Sund	70.6	20	—	—	28 26	?	41.7	—
De Bilt	85.4	37	—	—	e 23 44?	PS	—	—
Copenhagen	88.0	32	—	—	(23 44?)	+7	23.7	—

Notes:—

Oaxaca readings have been *increased* by 2m.

Puebla readings have been *increased* by 1m.

Vera Cruz readings have been *diminished* by 1m.

Long waves were also recorded at Sitka, Chicago, and Ann Arbor.

July 17d. Readings also at 1h. (near Taihoku), 2h. (La Paz), 3h. (La Paz and near Sumoto), 4h. (Andijan, Samarkand, Calcutta, Bombay, and La Paz), 5h. (Calcutta), 6h. and 7h. (Taihoku), 9h. (La Paz), 11h. (Tyosi), 14h. (La Paz), 19h. (Samarkand and near Andijan), 20h. (Ekaterinburg, Irkutsk, Tashkent, Hong Kong, Phu-Lien, and near Tyosi), 21h. (De Bilt), 22h. (near Andijan and Samarkand), 23h. (Catania).

July 18d. Readings at 2h. (Alicante and Bagnères), 3h. (near Mizusawa), 4h. (Andijan and near Samarkand), 9h. (near Hukuoka, Matuyama, Nagasaki, and near Manila), 10h. (Sumoto, near Hukuoka (2), Matuyama, Nagasaki, and near Tyosi), 14h. (near Tyosi), 16h. (Stuttgart, Hohenheim, and near Zurich), 20h. (Ekaterinburg, Tashkent, Medan, Sucre, and La Paz (2)), 23h. (La Paz).

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July 19d. 9h. 5m. 38s. Epicentre 37°5N. 0°5W. N.3.

$$A = +.793, B = -.007, C = +.609; \quad D = -.009, E = -1.000; \\ G = +.609, H = -.005, K = -.793.$$

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Alicante	0.7	1	0 12	+ 2	0 16	- 2	—	—
Almeria	1.6	247	e 0 20	- 3	i 0 47	+ 6	—	—
Granada	2.5	263	i 0 39	+ 3	i 1 2	- 2	—	1.1
Malaga	3.2	256	e 1 23	S	(e 1 23)	+ 1	—	—
Toledo	3.6	312	e 1 17	S	(e 1 17)	- 15	(e 2.3)	—

Additional readings and note:—

Almeria PP = +25s., PPP = +40s., SS = +51s., SSS = +1m.10s., and +1m.20s.
Toledo readings are given as P_r and S_r.

July 19d. 15h. 20m. 48s. Epicentre 6°0S. 113°0E. (as on 1926 Nov. 19d.). R.3.

$$A = -.389, B = +.915, C = -.105; \quad D = +.921, E = +.391; \\ G = +.041, H = -.096, K = -.995.$$

	Δ	Az.	P.	O-C.	S.	O-C.	L.
	°	°	m. s.	s.	m. s.	s.	m.
Malabar	5.5	257	i 1 20	+ 2	2 56	+36	—
Batavia	6.2	267	i 1 28	0	i 2 32	- 6	i 3.5
Amboina	15.3	82	i 2 48	+16	—	—	—
Medan	17.3	304	i 4 40	+42	7 59	+50	—
Manila	22.1	21	i 5 2	+10	i 9 21	SS	11.9
Phu-Lien	27.6	347	5 12?	-32	—	—	—
Irkutsk	58.8	354	e 10 6	+10	e 17 48	-12	e 35.2
Andijan	59.8	325	e 10 3	0	—	—	—
Samarkand	62.3	322	e 10 5	-15	—	—	—
Baku	74.1	316	—	—	e 20 51	-19	e 34.2
Ekaterinburg	75.8	334	e 11 30	-15	i 21 14	-15	30.2
Pulkovo	91.6	330	—	—	e 23 6	-65	—
Copenhagen	101.0	326	21 12?	PPPP	—	—	—

No additional readings.

July 19d. 18h. 33m. 30s. Epicentre 32°9S. 68°3W. (as on 1926 May 5d.). X.

$$A = +.310, B = -.780, C = -.543; \quad D = -.929, E = -.370; \\ G = -.201, H = +.505, K = -.840.$$

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Santiago	2.0	255	0 34	+ 5	1 0	+ 9	1.1	—
La Plata	8.9	105	2 5	- 1	4 1	+15	4.4	—
La Paz	16.4	0	e 3 45	- 1	6 45	- 3	7.0	9.0
Rio de Janeiro	24.3	72	—	—	e 9 30	+ 2	—	—
Florissant	E. 74.6	342	—	—	e 21 6	- 9	—	—

Florissant gives also eEN = +22m.30s., eE = +22m.37s. and +22m.44s., iE = +22m.50s.

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July 19d. 23h. 18m. 54s. Epicentre 42°·3N. 145°·0E. N.2.

A = -·606, B = +·424, C = +·673 ; D = +·574, E = +·819 ;
G = -·551, H = +·386, K = -·740.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Kusiro	0·8	327	0 5	- 6	0 15	- 6	—	—
Nemuro	1·1	23	0 11	- 5	0 23	- 5	—	—
Urakawa	1·7	265	0 23	+ 4	0 58	+14	—	—
Sapporo	2·8	286	0 41	+ 1	1 14	+ 2	—	—
Morioka	3·9	230	0 57	+ 1	1 42	+ 2	—	—
Mizusawa	E. 4·3	224	1 2	+ 1	1 49	- 1	—	—
	N. 4·3	224	1 6	+ 5	1 52	+ 2	—	—
Ootomari	4·7	339	1 15	+ 8	(1 57)	- 3	2·0	—
Sendai	5·2	219	1 12	- 2	2 10	- 3	—	—
Hokusima	5·8	219	1 19	- 3	2 23	- 5	—	—
Tyosai	7·3	207	e 3 0	S	(e 3 0)	- 6	—	—
Nagano	7·7	225	1 49	0	3 23	+ 7	—	—
Nagoya	9·5	224	e 2 39	+25	—	—	—	—
Irkutsk	28·9	305	e 5 50	- 5	e 10 40	- 7	15·1	18·3
Ekaterinburg	52·9	318	1 8 13	-60	e 16 41	0	25·1	32·5
Pulkovo	64·8	330	10 35	- 2	19 31	+14	30·1	41·6
Helsingfors	66·4	332	e 10 39	- 9	e 19 47	+10	—	—
De Bilt	79·4	336	e 16 53	PPP	—	—	e 39·1	—

Additional readings :—

Helsingfors PcPZ = +11m.18s.

Long waves were also recorded at Baku, Copenhagen, Scoresby Sund, Kew, Paris, Uccle, and Strasbourg.

July 19d. Readings also at 0h. (Ekaterinburg and Tashkent), 2h. (near Sumoto), 3h. (Andijan and Samarkand), 5h. (La Paz, Andijan, and near Samarkand), 10h. (Andijan, Samarkand, and Port au Prince), 11h. (Mineo), 13h. (La Paz and near Toyooka), 14h. (near Calcutta), 16h. (Samarkand and Taihoku), 17h. (Andijan and near Samarkand), 21h. (Baku, Ekaterinburg, Ksara (2), and near Sumoto).

July 20d. 5h. 50m. 33s. Epicentre 41°·5N. 142°·7E. (as on 1929 Jan. 2d.). R.3.

A = -·596, B = +·454, C = +·663 ; D = +·606, E = +·795 ;
G = -·527, H = +·402, K = -·749.

	Δ	Az.	P.	O-C.	S.	O-C.	L.
	°	°	m. s.	s.	m. s.	s.	m.
Urakawa	0·7	5	0 1	- 9	0 12	- 6	—
Obhiro	1·5	15	0 22	+ 1	0 40	+ 1	—
Aomari	1·6	245	0 19	- 4	0 38	- 3	—
Kusiro	1·9	49	0 22	- 6	—	—	—
Morioka	2·2	213	0 30	- 1	0 58	+ 1	—
Mizusawa	E. 2·7	208	0 42	+ 3	1 13	+ 4	—
	N. 2·7	208	0 45	+ 6	1 16	+ 7	—
Akita	2·7	227	0 50	+11	1 13	+ 4	—
Hokusima	4·2	206	0 59	- 1	1 45	- 3	—
Kakioka	5·7	201	1 19	- 2	2 23	- 2	—
Kumagaya	6·0	207	1 28	+ 3	2 34	+ 1	—
Tyosai	6·0	194	e 2 29	S	(e 2 29)	- 4	e 2·9
Nagoya	7·8	217	e 2 7	+16	—	—	—
Ekaterinburg	52·3	317	e 9 1	- 8	—	—	26·4

No additional readings.

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July 20d. 11h. 6m. 20s. (I) } Epicentre 14°·5N. 99°·0W. N.3.
 11h. 21m. 15s. (II) } X.
 12h. 54m. 52s. (III) } X.

A = -·151, B = -·956, C = +·250; D = -·988, E = +·156;
 G = -·039, H = -·247, K = -·968.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
I Oaxaca	3·3	41	(1 4)	+17	(1 37)	+12	(1·6)	(1·8)
II	3·3	41	(1 3)	+16	(1 34)	+ 9	(1·6)	(1·6)
III	3·3	41	(1 3)	+16	(1 34)	+ 9	(1·6)	(1·7)
I Puebla	4·6	9	(1 10?)	+ 4	(1 50)	- 8	(1·8)	(2·0)
II	4·6	9	(0 52)	-14	(1 36)	-22	(1·6)	(1·7)
III	4·6	9	(1 32)	S	(1 32)	-26	(2·2)	(2·4)
I Tacubaya	4·9	357	0 58	-12	(1 43)	-22	1·7	1·9
II	4·9	357	0 58	-12	(1 43)	-22	1·7	2·0
III	4·9	357	0 54	-16	(1 43?)	-22	1·7?	2·0
I Vera Cruz	5·4	30	1 11	- 6	(2 2)	-16	2·0	2·2
II	5·4	30	1 5	-12	(1 59)	-19	2·0	2·1
III	5·4	30	1 4	-13	(1 56)	-22	1·9	2·0
I Tucson	20·8	331	4 44	+ 6	e 8 18	- 4	10·3	—
II	20·8	331	e 4 42	+ 4	—	—	e 10·5	—
I St. Louis	25·3	16	e 5 23	0	e 9 47	+ 1	—	—
II	25·3	16	i 5 23	0	e 9 43	- 3	—	—
III	25·3	16	i 5 23	0	e 9 48	+ 2	—	—
I Florissant	25·5	16	i 4 25	-60	i 8 47	-63	—	—
II	25·5	16	i 4 22	-63	e 8 44	-66	—	—
I Georgetown	31·1	34	e 6 18	+ 3	i 11 20	- 1	17·7	—
I Victoria	39·4	334	9 12	PPP	13 37	+10	20·7	21·8

Additional readings and notes :—

Oaxaca readings have been *increased* by 1m.

Puebla readings have been *increased* by 1m.

Georgetown (I) iZ = +13m.ls.

Long waves were also recorded as follows : for shocks (I) Chicago, Harvard, Sitka, Baku, and Ekaterinburg; (II) Tucson; (III) Baku, Ekaterinburg, Irkutsk, Tashkent, and Sitka.

July 20d. Readings also at 2h. (Hukuoka), 3h. (Taihoku), 6h. (La Paz and near Amboina), 9h. (near Sumoto), 10h. (Andijan, Samarkand, Baku, Vladivostok, Irkutsk, Zi-ka-wei, Manila, Phu-Lien, Ekaterinburg (2), Granada, near Taihoku, Hong Kong, and near Hokoto (2)), 11h. (Baku, Copenhagen, Kucino, Pulkovo, Kew, Stuttgart, De Bilt, Uccle, Paris, Scoresby Sund, Strasbourg, Tucson, near Victoria, near Sucre, and La Paz, near Vera Cruz, Oaxaca, Puebla, and Tacubaya), 12h. (near Sucre and La Paz), 13h. (Tucson, Scoresby Sund, Andijan, Samarkand, Kodalkan, near Bombay, Calcutta, near Puebla, Vera Cruz, Oaxaca, and Tacubaya), 14h. (Hong Kong, Phu-Lien, Taihoku, near Hokoto, Ekaterinburg, Bombay, Irkutsk, and near Victoria), 15h. (Tashkent, Pulkovo, Copenhagen, and Stuttgart), 18h. (Pulkovo, Irkutsk, Tashkent, Ekaterinburg, Samarkand, near Almata, Andijan, and near Tyosi), 19h. (Bombay and near Calcutta), 20h. (Ksara).

July 21d. 14h. 6m. 2s. Epicentre 7°·5N. 116°·0E. N.3.

A = -·435, B = +·891, C = +·131; D = +·899, E = +·438;
 G = -·057, H = +·117, K = -·991.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Manila	8·6	35	i 2 35	+33	i 4 38	+59	15·8	8·6
Hong Kong	14·9	354	—	—	6 18	+ 5	7·3	—
Phu-Lien	16·1	327	3 58?	+15	—	—	—	—
Batavia	16·5	214	13 53	+ 5	i 5 55	-55	—	—
Medan	17·7	258	i 5 50	-13	—	—	—	—

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	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	L. m.	M. m.
Vladivostok	38.2	20	—	—	e 12 26	-43	1 16.0	—
Andijan	51.0	318	e 9 6	+ 7	—	—	—	—
Tashkent	53.4	319	1 9 16	- 1	1 17 1	+14	—	24.5
Samarkand	54.3	316	e 9 36	+13	—	—	—	—
Ekaterinburg	65.3	330	1 10 39	- 2	1 19 14	-10	27.0	—
Baku	67.0	313	1 10 53	+ 1	1 19 49	+ 4	—	—
Ksara	E. 77.6	305	11 49	- 6	21 22	-27	—	—
Pulkovo	81.4	329	—	—	1 21 33	-58	—	—
Copenhagen	91.3	328	—	—	22 31	?	—	—

Additional readings :—

Manila PPPPE? = +2m.39s.

Vladivostok e = +15m.21s. = SS - 17s.

Pulkovo i = +21m.52s.

July 21d. Readings also at 4h. (La Paz, Sucre, and near Sumoto), 7h. (Ekaterinburg, Vladivostok, near Lick, Ootomari, and near Mizusawa), 8h. (Irkutsk, Tashkent, Stuttgart, and Pulkovo), 9h. (Nagasaki), 11h. (near Sumoto and Nagasaki), 13h. (Taihoku), 14h. (Sumoto), 16h. (Taihoku), 17h. (near Batavia and Malabar), 18h. (Baku, Ekaterinburg, Tashkent, Andijan, Samarkand, and Ksara), 19h. (Alicante and Andijan), 21h. (Cheb and near La Paz), 23h. (La Paz and near Ksara).

July 22d. 8h. 59m. 42s. Epicentre 7°.2N. 123°.0E. (as on 1928 Dec. 28d.). X.

A = - .540, B = + .332, C = + .125; D = + .839, E = + .545;

G = - .068, H = + .105, K = - .992.

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	L. m.	M. m.
Manila	7.7	345	1 2 8	+19	—	—	—	—
Phu-Lien	20.9	312	4 18 7	-21	—	—	—	—
Batavia	E. 21.0	230	4 52	+12	—	—	—	—
Irkutsk	47.6	346	1 8 19	-14	—	—	—	—
Tashkent	58.4	315	—	—	e 17 53	- 2	e 30.3	41.9
Samarkand	59.5	313	1 17 58	S	(1 17 58)	-11	—	—
Ekaterinburg	69.1	329	1 10 56	- 9	1 19 56	-14	28.3	—
Pulkovo	85.2	330	—	—	1 22 24	-46	—	—

Irkutsk e = +10m.16s. = P_cP + 8s.

Tashkent gives also e = +18m.48s.

July 22d. 19h. 25m. 58s. Epicentre 44°.2N. 147°.4E. N.1.

A = - .604, B = + .386, C = + .697; D = + .539, E = + .842;

G = - .587, H = + .376, K = - .717.

A depth of focus 0.020 has been assumed.

	Corr. for Focus °	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	L. m.	M. m.
Nemuro	+0.5	1.6	237	0 26	- 4	0 47	- 7	—	—
Kuairo	+0.3	2.5	241	0 39	- 1	1 8	- 4	—	—
Ootomari	+0.1	4.1	308	0 55	- 5	(1 37)	-11	1.6	1.9
Sapporo	+0.1	4.5	257	1 7	+ 1	2 0	+ 2	—	—
Sikta	0.0	5.8	331	1 55	+33	(1 55)	-33	3.1	4.0
Morioka	0.0	6.5	229	1 30	- 2	2 29	-17	—	—
Mizusawa	-0.1	6.9	225	1 36	- 1	2 51	- 2	—	—
Sendai	-0.1	7.7	222	1 47	- 1	3 11	- 3	—	—
Hukusima	-0.1	8.3	222	1 56	0	3 26	- 3	—	—
Kakioka	-0.2	9.7	217	2 13	- 1	3 56	- 5	—	—

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	Corr. for Focus	Δ	Az.	P.		O-C.	S.		O-C.	L.	M.
				m.	s.		m.	s.			
Tyosi	-0.2	9.8	213	e 2	15	- 1	(e 4	3)	0	e 4.1	4.2
Nagano	-0.2	10.3	226	2	25	+ 3	4	14	- 2	—	—
Wazima	-0.2	10.5	233	2	31	+ 6	4	29	+ 8	—	—
Numadu	-0.2	11.2	219	2	35	0	4	39	+ 1	—	—
Nagoya	-0.3	12.1	225	2	48	+ 2	4	58	0	—	5.4
Hikone	-0.3	12.4	228	2	54	+ 4	5	11	+ 6	—	—
Toyooka	-0.4	12.9	232	i 2	59	+ 4	5	19	+ 4	e 7.2	—
Osaka	-0.4	13.2	228	2	59	0	(5	55)	+ 33	+ 5.9	6.5
Kobe	-0.4	13.4	229	3	6	+ 4	5	55	+ 28	—	7.7
Sumoto	-0.4	13.8	229	3	10	+ 3	5	36	- 1	e 8.9	9.5
Siomisaki	-0.5	14.0	224	3	9	0	5	43	+ 4	—	—
Hamada	-0.5	15.0	236	3	25	+ 3	6	11	+ 8	—	—
Koti	-0.5	15.1	230	e 3	25	+ 2	6	33	+ 28	8.8	—
Hukuoka	-0.6	16.9	237	3	52	+ 7	7	7	+ 22	—	—
Nagasaki	-0.7	17.8	236	4	1	+ 6	7	26	+ 22	—	—
Zi-ka-wei	N. -1.0	24.2	247	e 5	2	- 1	9	16	+ 8	—	—
Taihoku	E. -1.3	28.4	236	e 5	41	+ 2	(10	37)	+ 20	10.6	—
Irkutsk	-1.4	29.4	301	i 5	46	- 1	10	27	- 5	15.0	19.1
Hong Kong	-1.6	35.0	241	6	42	+ 7	12	5	+ 8	16.0	19.1
Manila	-1.6	37.2	226	i 7	31	+ 37	i 13	29	+ 59	—	—
Phu-Lien	-1.7	41.0	249	e 7	33	+ 7	e 13	34	+ 8	17.0	—
Sitka	-2.0	47.8	45	i 8	22	+ 3	i 15	11	+ 9	18.7	—
Almata	-2.1	49.2	296	8	37	+ 8	15	35	+ 15	—	—
Honolulu T.H.	-2.1	50.3	98	—	—	—	i 15	42	+ 6	19.5	—
Ekaterinburg	-2.2	52.7	318	e 8	59	+ 4	i 16	15	+ 7	22.0	34.8
Andijan	-2.2	53.4	295	9	6	+ 6	16	31	+ 13	27.4	—
Tashkent	-2.3	55.2	298	i 9	16	+ 3	i 16	51	+ 10	24.9	31.5
Agra	N. -2.3	57.1	278	e 11	31	PP	16	46	- 20	20.9	—
Samarikand	-2.3	57.5	297	i 9	36	+ 6	i 17	23	+ 11	—	—
Victoria	-2.4	58.2	51	9	33	- 1	17	22	+ 2	24.9	34.1
Medan	-2.4	59.0	241	e 9	57	+ 17	i 17	48	+ 17	—	—
Batavia	-2.4	62.2	229	e 9	40	- 23	i 18	24	+ 11	—	—
Hyderabad	-2.5	63.0	271	10	44	+ 36	19	10	+ 47	32.2	37.3
Kucino	-2.5	63.8	324	10	14	0	18	42	+ 9	27.6	39.6
Pulkovo	-2.5	64.1	330	i 10	16	0	18	40	+ 3	24.0	34.1
Scoresby Sund	-2.5	65.1	357	i 10	22	0	18	57	+ 7	28.0	—
Helsingfors	-2.5	65.6	332	i 10	17	- 9	i 18	47	- 9	e 24.7	—
Lick	-2.5	65.6	61	e 10	26	0	—	—	—	—	—
Bombay	-2.5	66.0	274	10	37	+ 8	18	43	- 18	31.6	35.5
Baku	-2.6	67.7	306	i 10	43	+ 4	i 19	31	+ 10	33.0	39.2
Upsala	-2.6	68.2	336	i 10	42	0	e 19	26	- 1	e 34.0	39.7
Colombo	-2.6	69.2	261	10	52	+ 3	i 19	47	+ 7	30.9	37.0
Konigsberg	-2.6	71.2	331	i 10	57	- 5	i 20	1	- 3	e 34.0	—
Theodosia	-2.6	72.3	318	i 11	10	+ 1	20	19	+ 1	30.0	—
Lund	-2.6	72.9	335	i 11	11	- 2	20	25	0	—	—
Simferopol	-2.6	73.0	318	i 11	14	+ 1	20	31	+ 5	—	—
Copenhagen	-2.6	73.1	335	e 11	12	- 2	20	27	0	34.0	—
Yalta	-2.6	73.3	318	i 11	15	0	20	34	+ 4	—	—
Sebastopol	-2.6	73.5	318	e 12	45	+ 89	—	—	—	—	—
Ivigtut	-2.6	73.8	8	i 11	16	- 2	20	42	+ 7	34.0	—
Dyce	-2.6	75.5	345	i 11	25	- 3	20	48	- 6	e 36.0	44.0
Tucson	-2.6	75.6	59	e 11	28	- 1	e 20	59	+ 2	e 31.5	—
Hamburg	-2.6	75.7	336	i 11	26	- 3	e 21	0	+ 2	e 37.0	42.0
Potsdam	-2.6	75.8	334	i 11	28	- 2	i 20	55	- 4	e 38.0	43.0
Edinburgh	-2.6	76.9	345	i 11	35	- 1	21	9	- 3	43.0	—
Gottingen	-2.6	77.4	336	e 11	35	- 4	e 21	17	- 1	e 38.0	—
Jena	-2.7	77.5	333	e 11	36	- 3	e 21	14	- 4	e 35.0	43.5
Cheb	-2.7	77.6	333	e 11	42	+ 2	e 21	19	0	e 37.0	43.5
Budapest	-2.7	77.7	329	i 11	42	+ 2	21	24	+ 4	31.0	52.0
Vienna	-2.7	78.0	330	i 11	42	0	21	25	+ 1	e 37.0	50.0
Riverview	-2.7	78.1	176	e 11	43	0	21	19	- 6	e 36.3	41.7
De Bilt	-2.7	78.4	338	i 11	43	- 1	21	28	0	e 35.0	41.8
Stonyhurst	-2.7	78.6	343	i 11	47	+ 2	21	30	0	—	45.0
Feldberg	N. -2.7	79.1	337	i 11	44	- 4	e 14	44	PP	—	45.2
Graz	-2.7	79.4	330	i 11	51	+ 1	i 21	39	0	34.0	45.0

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	Corr. for Focus	Δ	Az.	P.		O-C.		S.	O-C.		L.	M.
				m.	s.	s.	m.		s.	m.		
Adelaide	-2.7	79.5	187	e 12	9 $\frac{2}{2}$	+19	i 21	44	+3	33.1	40.6	—
Uccle	-2.7	79.7	338	i 11	49	-3	e 21	32	-11	36.0	—	—
Karlsruhe	-2.7	80.1	334	i 11	55	+1	—	—	—	—	—	—
Stuttgart	-2.7	80.1	334	i 11	52	-2	i 21	42	-5	e 40.0	45.4	—
Kaara	-2.7	80.2	310	i 11	55	0	i 21	48	0	38.0	—	—
Zagreb	-2.7	80.2	328	e 11	2 $\frac{2}{2}$	-53	e 21	2 $\frac{2}{2}$	-46	—	—	—
Kew	-2.7	80.3	341	e 11	52	-3	i 21	49	0	35.0	45.2	—
Oxford	-2.7	80.3	342	i 11	49	-6	i 21	50	+1	e 41.0	43.5	—
Innsbruck	-2.7	80.7	333	i 11	57	0	—	—	—	—	—	—
Strasbourg	-2.7	80.8	335	e 11	56	-2	i 21	53	-2	39.0	—	—
Chicago	-2.7	80.9	39	e 11	53	-5	e 21	47	-9	—	—	—
Zurich	-2.7	81.6	334	e 12	0	-2	e 22	2	-2	—	—	—
Chur	-2.7	81.7	334	e 12	1	-2	e 22	2	-3	—	—	—
Treviso	-2.7	81.8	330	i 12	2	-1	i 22	12	+6	—	—	—
Florissant	-2.7	82.0	42	i 12	1	-3	i 22	2	-6	—	—	—
Melbourne	-2.7	82.0	182	—	—	—	e 22	10	+2	39.0	—	—
Paris	-2.7	82.0	339	i 12	1	-3	i 22	5	-3	28.0	44.0	—
Padova	-2.7	82.1	330	e 12	1	-4	i 22	5	-4	—	—	—
Ann Arbor	-2.7	82.1	35	i 12	2	-3	i 22	14	+5	e 39.2	—	—
St. Louis	-2.7	82.2	42	e 12	2	-3	e 22	4	-6	e 36.4	—	—
Neuchatel	-2.7	82.3	335	e 12	3	-3	e 22	6	-5	—	—	—
Besancon	-2.7	82.5	335	i 12	7	0	e 22	10	-4	42.0	—	—
Ottawa	-2.7	82.6	29	e 12	2	-5	e 22	5	-10	e 37.0	—	—
Toronto	N. -2.7	82.7	32	i 12	7	-1	i 22	12	-4	38.6	—	—
Piacenza	-2.7	83.2	332	i 12	10	0	i 22	36	+15	—	45.2	—
Florence	-2.7	83.7	330	i 12	12	-1	i 22	32	+6	40.0	46.0	—
Rocca di Papa	-2.7	85.0	328	i 12	18	-2	e 22	32	-8	e 45.1	48.6	—
Rome	-2.7	85.0	328	e 12	15	-5	i 22	32	-8	—	—	—
Naples	N. -2.7	85.1	326	e 12	27	+7	e 22	42	+1	—	—	—
Trenta	-2.7	85.6	325	e 12	22	-1	e 22	22	-24	—	—	—
Helwan	-2.7	85.8	310	i 12	22	-2	i 22	44	-4	—	—	—
Harvard	-2.7	86.8	27	e 12	40	+11	i 22	50	-9	39.0	—	—
Fordham	-2.7	87.2	30	i 12	26	-5	i 22	45	-18	e 39.3	—	—
Catania	-2.8	87.6	325	i 12	57	+25	i 22	57	-9	e 55.0	—	—
Georgetown	-2.8	87.7	34	i 12	32	-1	i 23	2	-5	e 39.5	—	—
Charlottesville	-2.8	87.9	35	e 12	33	-1	i 23	2	-7	—	—	—
Bagnères	-2.8	88.0	337	e 12	23	-11	—	—	—	42.0	—	—
Wellington	-2.8	89.0	160	—	—	—	22	47	-32	42.5	47.0	—
Tortosa	N. -2.8	90.0	336	e 12	39	-5	i 23	4	-25	42.0	51.1	—
Toledo	-2.8	92.1	339	e 12	47	-7	e 23	43	-6	—	—	—
Alicante	-2.8	92.6	336	e 12	48	-8	e 23	18	-36	e 36.2	—	—
Algiers	-2.8	92.8	333	i 12	53	-4	i 23	48	-8	46.0	50.0	—
Almeria	-2.8	94.4	337	i 13	4	-1	i 24	3	-8	47.4	49.6	—
Granada	-2.8	94.4	338	i 13	2	-3	i 24	10	-1	e 48.5	54.8	—
Malaga	-2.8	95.2	338	e 13	3	-6	e 24	7	-11	31.4	—	—
La Paz	—	139.2	59	e 19	16	[-4]	—	—	—	—	—	—
Rio de Janeiro	E. —	157.0	25	e 19	2	[-46]	—	—	—	—	—	—

Additional readings and notes :-

Koti iP = +3m.31s., e = +4m.6s.

Zi-ka-wei SSN = +10m.10s.

Victoria SN = +17m.26s.; T₀ = 19h.25m.36s.

Scoresby Sund eNZ = +11m.2s. = P₀P - 11s., eE = +14m.50s., eN = +15m.8s., +19m.50s., +20m.18s. = S₀S - 9s., +21m.2s., and +24m.35s., eE = +27m.14s.

Helstings iPPPE = +14m.16s., iN = +19m.13s.

Lick eN = +10m.29s., eE = +10m.38s., and +10m.54s., e = +11m.0s. = P₀P - 15s., eN = +11m.3s., and +11m.7s.

Konigsberg ePSN = +20m.49s., eE = +21m.46s., iSSEN = +25m.21s.

Lund +16m.8s. = PPPP + 3s., +21m.8s. = PS - 8s., and +22m.2s.

Copenhagen +16m.8s. = PPPP + 0s., +21m.8s., and e = +22m.2s.

Potsdam iE = +16m.41s. = PPPP + 0s., iN = +22m.22s.

Gottingen iN = +11m.41s.

Jena eE = +22m.2s., eN = +22m.36s.

Cheb e = +15m.23s.

Vienna P₀P = +11m.57s., PP = +15m.28s., PS = +22m.21s.

Riverview iP₀PNZ = +12m.11s.

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De Bilt iZ = +12m.25s.
 Uccle e = +18m.31s.
 Stuttgart iP = +12m.27s., iEZ = +13m.34s., iZ = +13m.46s., iPP = +14m.55s.,
 and +15m.38s., ePPP = +16m.38s., iSN = +21m.47s., iPSN = +22m.32s.,
 iPS = +23m.26s., iEZ = +26m.24s., eSS = +27m.22s., iN = +27m.58s.
 Zagreb e = +12m.2s. ?
 Kew iPaP = +12m.25s.
 Florissant iN = +15m.11s. = PP +13s., and +22m.53s.
 Ann Arbor iPPN = +15m.14s., iPS = +23m.2s., eSSN = +28m.32s.
 St. Louis iPE = +12m.47s., iPP = +15m.12s., eSN = +22m.49s.
 Ottawa iE = +23m.6s. = PS -16s.; T₀ = 19h.25m.55s.
 Harvard iPS = +24m.0s.
 Fordham iPP = +15m.55s., iSSS = +32m.19s.
 Georgetown eN = +22m.43s.; T₀ = 19h.26m.2s.
 Charlottesville eSS = +29m.2s.
 Wellington +30m.38s. and +38m.19s.
 Toledo iP = +12m.52s.
 Almeria PS = +23m.24s.
 Granada i = +16m.54s. = PP +16s., +21m.15s., +25m.46s. = PS +3s., and +26m.19s.
 La Paz e = +21m.51s.
 Long waves were also recorded at Belgrade and Kodaikanal.

July 22d. Readings also at 1h. (Bombay), 2h. (Apia), 3h. (La Paz), 4h. (near Irkutsk)
 5h. (Graz and near Lick), 7h. (La Paz), 8h. (La Paz and Rio de Janeiro), 9h.
 (near Neuchatel and Zurich), 11h. (Stuttgart, Paris, Strasbourg, Uccle,
 Kew, Catania, Florence, Rocca di Papa, Rome, Tunis, Granada, and near
 Algiers), 12h. (Copenhagen and Hamburg), 13h. (Samar kand), 16h. (near
 Tacubaya), 17h. (near Tyosi), 19h. (La Paz), 22h. (Cape Town).

July 23d. 0h. 8m. 43s. Epicentre 41°1N. 15°4E. N.1.

Probable error of epicentre ±0°26.

(De Bilt gives 41°3'31"N. 15°25'15"E.).

A = +.726, B = +.200, C = +.657; D = +.266, E = -.964;
 G = +.634, H = +.175, K = -.754.

	Δ	Az.	P. m. s.	O-C. m. s.	S. m. s.	O-C. s.	L. m.	M. m.
Benevento	0.8	272	-0 20	-31	—	—	—	-0.2
Naples	0.9	253	1 0 15	+ 2	—	—	—	—
Barl	1.1	88	0 4	-12	0 53	+25	1.5	—
Casamicciola	1.2	253	-0 2	-19	—	—	—	—
Taranto	1.6	114	0 22	- 1	—	—	—	—
Trenta	2.0	159	0 27	- 2	—	—	—	—
Rocca di Papa	2.1	288	1 0 32	+ 2	—	—	—	—
Rome	2.3	290	0 37	+ 4	—	—	1.3	—
Messina	2.9	178	0 40	- 1	—	—	—	—
Catania	3.6	184	0 53	+ 2	1 34	+ 2	1.8	2.4
Mineo	3.9	188	0 36	-20	—	—	—	—
Florence	4.1	313	1 0 3	-55	—	—	—	—
Livorno	4.5	306	0 37	-27	1 42	-13	—	—
Zagreb	4.7	5	e 1 9	+ 2	12 34	S _z	—	2.9
Venice	4.9	333	1 1 15	+ 5	12 54	S _z	—	—
Lalbach	5.0	353	e 1 8	- 3	e 2 19	+11	e 2.5	3.0
Padova	5.0	331	e 1 13	+ 2	1 1 41	-27	—	—
Treviso	5.1	333	1 1 17	+ 4	2 53	S _z	—	4.0
Belgrade	5.2	43	1 1 1	- 3	12 18	+ 5	—	5.3
Piacenza	5.7	316	1 25	+ 4	12 53	+28	13.3	4.3
Carloforte	5.8	252	1 1 14	- 8	12 21	- 7	—	5.1
Graz	6.0	1	1 1 26	+ 1	12 44	+11	—	3.4
Innsbruck	6.8	337	1 40	+ 3	—	—	13.6	5.6
Budapest	6.9	21	1 1 29	- 9	3 47	+51	4.8	5.3
Chur	7.2	325	1 1 41	- 1	13 6	+ 2	—	—
Vienna	7.2	6	1 40	- 2	—	—	13.8	—
Marselles	7.7	290	12 0	+11	3 38	+22	5.3	—
Ravensburg	7.9	330	e 1 57	+ 5	13 21	0	13.9	4.9
Zurich	7.9	324	1 1 52	- 0	e 3 34	+13	—	—
Neuchatel	8.4	316	e 1 57	- 2	e 3 50	+16	—	—

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Stuttgart	8-8	332	i 2 4	- 1	i 3 42	- 2	i 4-2	7-0
Besançon	9-1	315	e 2 13	+ 4	e 4 21	+30	e 4-8	5-3
Cheb	9-2	348	e 1 59	-11	e 4 6	+12	e 4-8	6-0
Straasbourg	9-2	327	e 1 53	-17	e 3 59	+ 5	e 5-3	6-9
Karlsruhe	9-3	330	e 2 18	+ 7	e 4 41	L	5-0	—
Barcelona	10-0	277	e 2 19	- 2	(4 22)	+ 9	4-4	6-1
Jena	10-1	346	i 2 23	+ 1	i 4 21	+ 5	i 4-9	7-8
N.	10-1	346	e 2 17	- 5	i 4 31	+15	i 4-8	7-9
Puy de Dôme	10-1	303	i 2 21	- 1	e 4 19	+ 3	e 5-3	6-3
Feldberg	E. 10-3	334	e 2 39	+14	i 4 18	- 3	—	7-9
N.	10-3	334	e 2 23	- 2	—	—	i 6-4	7-5
Algiers	10-5	250	e 2 25	- 3	e 4 30	+ 4	e 5-0	7-0
Lemberg	10-6	32	e 2 29	0	e 4 41	+13	e 6-1	10-0
N.	10-6	32	e 2 33	+ 4	e 4 47	+19	e 5-9	8-1
Gottingen	11-1	342	e 2 38	+ 2	e 4 28	-13	e 6-0	—
Tortosa	11-2	274	e 2 38	+ 1	e 4 55	+12	e 5-7	6-3
Bagnères	11-3	285	e 2 39	0	e 4 47	+ 2	e 5-3	8-3
Potsdam	11-4	353	e 2 47	+ 7	i 4 45	- 3	i 5-8	6-5
Paris	11-9	315	e 2 49	+ 2	e 5 49	+49	e 6-3	7-3
Uccle	12-3	326	e 2 53	+ 1	i 5 32	+22	e 6-3	8-1
Alicante	12-5	263	i 3 3	+ 8	i 5 30	+15	e 6-7	13-9
De Bilt	13-0	331	e 3 6	+ 4	e 5 38	+11	e 6-5	8-2
Hamburg	13-0	346	e 3 1	- 1	e 5 24	- 3	e 5-9	7-7
Sebastopol	13-7	69	e 3 15	+ 4	—	—	—	—
Königsberg	14-1	12	i 3 20	+ 3	e 6 4	+11	—	—
Simferopol	14-2	68	e 3 21	+ 3	—	—	e 8-3	—
Yalta	14-2	70	e 3 17	- 1	e 6 22	+26	12-3	—
Almeria	14-4	259	i 3 25	+ 4	i 6 17	+16	e 6-9	8-1
Lund	14-6	355	e 3 21	- 2	e 6 21	+16	—	—
Copenhagen	14-7	354	e 3 23	- 2	e 6 20	+12	—	—
Toledo	14-8	272	e 3 25	- 1	e 6 20	+10	i 6-8	11-9
Kew	14-9	319	e 3 28	+ 1	i 6 24	+11	e 8-1	10-7
Theodosia	15-1	68	e 3 28	- 2	e 6 39	+22	e 9-3	11-6
Granada	15-2	261	i 3 35	+ 4	i 6 36	+16	e 7-3	9-5
Oxford	15-6	319	i 3 37	+ 1	i 6 52	+23	e 8-2	11-3
Malaga	16-0	261	e 3 43	+ 2	e 6 55	+17	e 8-8	11-1
Helwan	17-1	126	e 3 49	- 6	i 7 19	+15	—	—
San Fernando	17-4	262	e 3 47	-12	e 7 11	0	e 8-6	9-4
Stonyhurst	17-5	323	i 4 6	+ 6	i 7 27	+14	e 8-9	14-3
Durham	17-7	326	e 4 7	+ 4	e 7 23	+ 6	e 8-4	10-4
Ksara	17-8	107	e 4 5	+ 1	e 7 32	+12	e 9-8	—
Uppsala	18-8	3	e 4 15	- 1	i 7 47	+ 5	e 9-4	13-3
Edinburgh	19-1	327	e 4 21	+ 1	i 8 18	+30	—	15-0
Dyce	19-6	331	i 4 25	0	i 8 2	+ 4	e 10-4	15-2
Helsingfors	19-9	14	e 4 20	- 9	i 8 4	0	e 10-9	—
Bergen	20-3	346	e 4 37	+ 4	e 8 15	+ 3	e 9-8	15-1
Kucino	20-8	38	i 4 40	+ 2	e 8 30	+ 8	10-1	15-1
Pulkovo	20-8	22	i 4 39	+ 1	i 8 21	- 1	10-8	16-5
Baku	28-0	80	e 5 30	+ 1	i 10 4	+ 6	11-3	22-8
Azores P.D.	31-6	278	—	—	11 17	-12	—	24-9
Ekaterinburg	32-8	45	e 6 33	+ 3	i 11 52	+ 4	15-3	20-4
Scoresby Sund	34-9	340	e 6 53	+ 5	12 29	+ 9	—	—
Samarkand	38-7	75	e 7 22	+ 1	e 13 24	+ 7	—	—
Dakar	38-8	239	e 8 56	PP	e 13 30	+12	15-2	30-7
Tashkent	39-9	72	i 7 29	- 2	i 13 30	- 5	20-3	30-6
Andijan	42-2	72	e 7 54	+ 4	—	—	—	—
Iyigtut	42-5	320	—	—	14 14	+ 1	—	—
Akmeta	44-6	65	e 8 17	+ 7	—	—	—	—
Bombay	53-4	97	e 8 47	-30	e 16 51	+ 4	29-5	36-5
Irkutsk	58-0	46	e 9 54	+ 4	e 17 41	- 8	28-3	37-9
Hyderabad	58-5	95	e 9 58	+ 4	e 18 1	+ 5	28-7	33-5
Harvard	61-5	305	e 10 24	+ 9	e 18 42	+ 6	e 29-3	—
Kodalkanal	62-3	101	e 23 23	?	—	—	—	—
Ottawa	62-8	810	—	—	e 19 0	+ 8	e 28-3	—

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	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Fordham	64.0	304	e 10 26	- 6	e 19 6	- 1	e 31.0	—
Toronto	N. 65.9	310	e 10 51	+ 6	19 32	+ 1	e 31.3	—
Colombo	66.3	103	10 22	-25	19 49	PS	35.1	43.8
Tananarive	67.0	147	—	—	20 15	+30	—	40.2
Georgetown	67.2	304	e 10 52	- 1	i 19 45	- 2	e 31.0	—
Charlottesville	68.6	304	—	—	e 20 9	+ 5	e 33.3	—
Ann Arbor	69.2	310	e 10 59	- 7	e 19 59	-12	e 31.8	42.1
Chicago	71.8	311	—	—	20 35	- 8	e 42.6	—
Florissant	75.3	310	e 11 42	0	e 21 18	- 6	e 34.3	44.8
Phu-Lien	77.3	74	11 17?	-37	—	—	—	—
Sitka	78.8	345	—	—	i 21 57	- 6	e 35.9	—
Hong Kong	81.8	69	12 21	+ 4	22 25	-10	—	52.1
Victoria	83.3	335	12 17	- 8	23 14	PS	38.8	49.9
Rio de Janeiro	E. 83.9	234	e 11 45	-43	e 21 17	?	e 38.6	—
	N. 83.9	234	e 11 44	-44	e 21 32	?	e 38.8	—
Akita	84.8	40	12 38	+ 6	22 59	- 7	—	—
Koti	86.1	48	e 11 37	-62	e 23 27	+ 9	e 51.1	—
Osaka	86.4	46	e 22 50	SKS	(e 22 50)	[-19]	47.0	52.0
Batavia	95.1	95	13 48	+27	24 49	+ 6	—	—
Sucre	95.1	250	e 13 50	+29	—	—	—	—
La Paz	96.1	255	e 13 37	+11	e 25 3	+11	45.8	60.0
Honolulu T.H.	117.3	353	14 47	-19	—	—	e 61.3	—

Additional readings and note :-

Zagreb eP* = +1m.13s., eP_g = +1m.27s., iPPP = +1m.34s., iPS = +1m.46s.

and +2m.4s., iPPSS = +2m.13s., iSS = +2m.39s.

Laibach PP = +1m.30s., e = +1m.37s., +1m.44s., +1m.56s., and +2m.8s.

Belgrade iP* = +1m.23s., eP_g = +1m.29s., iPPS = +1m.56s., iPS = +2m.14s.

and +3m.34s., iS_g = +3m.44s.

Graz iP = +1m.31s.

Innsbruck P* = +1m.59s., P_g = +2m.11s.

Vienna P* = +1m.45s. and +1m.59s., P_g? = +2m.24s., PS = +2m.59s., SS = +4m.0s.

Marselles SS = +4m.26s., SSS = +4m.34s.

Ravensburg i = +2m.5s., iE = +2m.25s., i = +2m.38s., and +3m.43s.

Stuttgart i = +2m.23s., +2m.57s., +4m.4s., iS_g = +4m.39s.

Strasbourg PPP = +2m.49s., SSS = +5m.12s.

Jena iE = +2m.46s.

Feldberg iN = +2m.32s., iE = +3m.34s., iN = +3m.36s.

Algiers iP = +2m.30s.

Göttingen e = +5m.10s.

Potsdam eE = +3m.24s. and +4m.5s., iN = +4m.51s., i = +4m.59s., iN = +5m.10s., i = +5m.32s.

Uccle i = +3m.51s. and +5m.51s.

Hamburg ePN = +3m.3s., ePE = +3m.5s., eSE = +5m.41s.

Königsberg iN = +3m.25s., iPPN = +3m.37s., eE = +5m.54s., eSSE = +6m.37s.

Copenhagen SN = +6m.32s.

Toledo iS = +6m.32s., i = +6m.49s.

Kew i = +3m.33s., iZ = +6m.17s., iEZ = +7m.24s.

Granada iP = +3m.44s., i = +4m.51s., +6m.43s., and +6m.58s.

Malaga iPZ = +3m.46s.

Durham PP = +4m.20s., PPP = +4m.24s., PPPP = +4m.29s., SS = +7m.51s.

Uppsala iN = +4m.23s. = PP - 2s.

Edinburgh i = +4m.27s. = PP - 2s., +7m.59s. = S + 11s., and +8m.34s.

Heisingfors iP = +4m.25s., PP = +4m.42s., iPPPNZ = +4m.54s., SSEZ = +8m.34s., iSSSEN = +8m.48s., P_gSE = +12m.16s.

Bergen PP? = +5m.17s.?

Scoreby Sund PP = +8m.11s., +9m.53s. = P_gP + 28s., +10m.23s. and +12m.5s., S_g = +14m.35s.

Harvard eE = +23m.17s. and +25m.17s.?

Fordham ePN = +10m.37s.

Tananarive S_gS = +20m.51s., SS = +25m.37s.

Georgetown ePN = +10m.54s. and +10m.58s., iPZ = +11m.1s.

Charlottesville ePPP = +15m.53s., eSS = +25m.17s.

Ann Arbor e?E = +20m.29s., eN = +20m.47s.

Chicago e = +20m.58s. = PS - 3s. and +32m.15s.

Florissant eE = +14m.17s. = PP + 7s., eS?N = +21m.51s. = PS + 3s.

Koti S is given as ePSE.

Osaka S = +33m.6s.

Batavia PP = +17m.37s., SKS = +24m.4s., i = +25m.48s. = PS - 3s.

La Paz PPE = +17m.39s., eSE = +25m.8s., SSE = +31m.29s., iSSSE = +35m.15s.

Long waves were also recorded at Reykjavik, La Plata, Tucson, Taihoku, Sumoto, Toyooka, Nagasaki, Kobe, and Wellington.

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July 23d. 5h. 30m. 38s. Epicentre 41°·1N. 15°·4E. (as at 0h.)										X.
	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.		
	°	°	m. s.	s.	m. s.	s.	m.	m.		
Benevento	0·8	272	-0 5	-16	0 1	-20	—	—	0·2	
Casamicciola	1·2	253	-0 16	-33	—	—	—	—	0·3	
Taranto	1·6	114	0 57	+34	1 22	+41	—	—	—	
Trenta	2·0	159	e 1 2	S _g	—	—	—	—	—	
Rocca di Papa	2·1	288	e 0 16	-14	—	—	—	—	1·4	
Messina	2·9	178	0 52	P*	—	—	—	—	—	
Catania	3·6	184	e 1 6	P _g	—	—	—	—	1·8	
Florence	4·1	313	e 0 57	-1	—	—	—	—	2·3	
Zagreb	4·7	5	e 1 14	+7	e 2 2	+2	e 2·3	—	—	
Belgrade	5·2	43	e 0 49	-25	—	—	—	—	—	
Piacenza	5·7	316	e 1 52	P _g	—	—	—	—	5·7	
Upsala	N. 18·8	3	e 1 18	†	—	—	—	—	—	
Pulkovo	20·8	22	4 28	-10	8 16	-6	10·4	—	—	

Additional readings :-

Belgrade e = +1m.35s. = P* and +1m.44s. = P_g.

Long waves were also recorded at Ekaterinburg, Kucino, and other European stations.

July 23d. 13h. 53m. 20s. Epicentre 41°·1N. 15°·4E. (as at 5h.)										R.2.
	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.		
	°	°	m. s.	s.	m. s.	s.	m.	m.		
Benevento	0·8	272	-10 6	-17	—	—	—	—	0·3	
Naples	N. 0·9	253	e 1 12	+59	e 1 16	+53	—	—	—	
Casamicciola	1·2	253	-0 2	-19	—	—	—	—	0·6	
Taranto	1·6	114	0 15	-8	—	—	—	—	0·6	
Trenta	2·0	159	10 25	-4	10 55	+4	—	—	—	
Rocca di Papa	2·1	288	e 0 29	-1	—	—	1·2	1·5	—	
Rome	2·3	280	e 0 35	+2	—	—	1·3	1·9	—	
Catania	3·6	184	e 1 34	S	(e 1 34)	+2	(1·7)	2·7	—	
Florence	4·1	313	e 0 10	†	—	—	—	2·2	—	
Zagreb	4·7	5	e 1 23	P*	12 8	+8	—	3·0	—	
Laibach	5·0	353	e 1 46	P _g	e 2 53	S _g	—	—	—	
Padova	5·0	331	e 1 46	P _g	e 3 16	†	—	—	—	
Treviso	5·1	333	e 1 20	+7	2 30	S*	—	—	—	
Piacenza	5·7	316	e 1 48	+27	—	—	—	—	4·3	
Graz	6·0	1	11 35	+10	12 58	S*	—	—	4·0	
Innsbruck	6·8	337	1 40†	+3	—	—	—	—	—	
Budapest	6·9	21	2 45	S	(2 45)	-11	4·7	—	—	
Vienna	7·2	6	e 1 58	+16	—	—	—	—	4·7	
Chur	7·2	325	1 44	+2	—	—	—	—	—	
Zurich	7·9	324	e 1 53	+1	—	—	—	—	—	
Neuchatel	8·4	316	1 57	-2	e 3 32	-2	—	—	—	
Stuttgart	8·8	332	—	—	e 3 50	+6	—	—	—	
Strasbourg	9·2	327	—	—	e 4 17	+23	6·7	—	—	
Jena	10·1	346	—	—	e 4 10	-6	e 5·2	6·1	—	
Uccle	12·3	326	e 2 46	-6	—	—	e 6·7	—	—	
Pulkovo	20·8	22	4 37	-1	8 26	+4	10·7	13·9	—	
Kucino	20·8	38	—	—	e 8 34	+12	e 13·0	14·6	—	
Ekaterinburg	32·8	45	(7 40†)	+70	—	—	7·7	—	—	

Additional readings and notes :-

Catania gives S as P and L as S.

Zagreb eP_g = +1m.29s., iPPPSNE = +1m.53s., iPPPSNW = +1m.59s.,

iPSNE = +2m.1s., eSSNE = +2m.13s., iSSNE = +2m.26s.

Laibach e = +2m.21s., +2m.34s. = S*, and +2m.45s. = S_g.

Budapest S = +3m.45s.

Strasbourg e = +5m.33s.

Tashkent (Δ = 39°·9), e = 13h.51m.24s.

Long waves were also recorded at Irkutsk and several other European stations.

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July 23d. 18h. 53m. 16s. Epicentre 34°4N. 105°8E. N.3.

A = -225, B = +794, C = +565; D = +962, E = +272;
G = -154, H = +544, K = -825.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Phu-Lien	13.6	177	5 44?	S	(5 44?)	+ 3	7.7	—
Hong Kong	14.1	146	6 21	S	(6 21)	+28	8.4	9.6
Irkutsk	17.9	357	e 4 5	0	7 25	+ 3	9.1	10.7
Almata	24.0	300	e 6 17	+67	—	—	—	—
Osaka	24.4	81	(e 5 9)	- 5	e 5 9	P	12.6	15.9
Andijan	27.1	294	e 5 32	- 7	—	—	—	—
Tashkent	29.4	294	—	—	i 11 11	+16	e 15.2	18.0
Ekaterinburg	38.2	322	i 7 13	- 4	e 13 3	- 6	17.7	22.1
Baku	44.1	297	—	—	e 18 6	(- 1)	—	24.0
Pulkovo	53.7	324	9 18	- 1	16 46	- 6	22.7	32.0
Helsingfors	N. 56.3	324	e 9 18	-20	—	—	e 30.3	—

Additional readings:—

Hong Kong S = +7m.50s.

Ekaterinburg e = +15m.37s. =SS - 1s.

Long waves were also recorded at Taihoku, Zi-ka-wei, Bombay, Kucino, Scoresby Sund, and the European stations.

July 23d. Readings also at 0h. (near Casamicciola (5), Naples (2), and Rome), 1h. (Casamicciola (4), Rocca di Papa (3), Florissant, near Oaxaca, Vera Cruz, Puebla, and Tacubaya), 2h. (Casamicciola (4), Rocca di Papa (3), Benevento, Florence, Piacenza, Vienna, Zagreb, and Tucson), 3h. (Casamicciola (6), Rocca di Papa (3), and Paris), 4h. (Casamicciola (2), Rocca di Papa (2), and near Malabar), 7h. (Benevento), 8h. (Casamicciola and Rocca di Papa (2)), 9h. (Casamicciola, Rocca di Papa, Rome, Naples, Florence, Trenta, Stuttgart, Zagreb, and Taihoku), 10h. (near Sumoto), 11h. (near Andijan), 12h. (Casamicciola, Naples, and Wellington), 13h. (Cheb, Hong Kong, Phu-Lien, and near Manila), 14h. (Tashkent), 15h. (Casamicciola and Rio de Janeiro), 17h. (Tucson, Florissant, La Paz, Paris, Strasbourg, Almata, Andijan, Irkutsk, Tashkent, and near Tacubaya, Vera Cruz), 18h. (Kew, Scoresby Sund, Copenhagen, Ekaterinburg, and Pulkovo), 19h. (Taihoku), 21h. (Scoresby Sund and near Calcutta (2)), 23h. (Casamicciola, Taranto, Trenta, Benevento (2), Ekaterinburg, and Tashkent).

July 24d. 8h. 18m. 24s. Epicentre 41°1N. 15°4E. (as on 23d.). X.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Benevento	0.8	272	-e 0 6	-17	—	—	—	—
Naples	0.9	253	e 0 17	+ 4	e 0 21	- 2	—	—
Casamicciola	1.2	253	- 0	-26	—	—	—	1.4
Taranto	1.6	114	e 1 16	f	—	—	—	—
Trenta	2.0	159	e 0 36	+ 7	1 6	S*	—	—
Rocca di Papa	2.1	288	10 36	+ 6	—	—	11.1	1.4
Rome	2.3	290	e 0 43	+10	—	—	11.3	2.2
Florence	4.1	313	e 1 21	P*	—	—	—	2.5
Zagreb	4.7	5	1 28	P*	12 31	S*	—	2.8
Piacenza	5.7	316	2 4	P*	—	—	—	—

Additional readings:—

Zagreb eNE = +1m.46s., e = +2m.10s., eNW = +2m.26s. =S*.

Long waves were also recorded at De Bilt, Kew, Stuttgart, and Copenhagen.

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July 24d. 12h. 3m. 37s. Epicentre 41°·1N. 15°·4E. (as at 8h.). X.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Benevento	0·8	272	-1 1 29	-100	—	—	—	—
Naples	0·9	253	e 0 8	- 5	e 0 11	-12	—	—
Taranto	1·6	114	0 28	+ 5	—	—	—	—
Trento	2·0	159	e 0 23	- 6	0 53	+ 2	—	—
Rocca di Papa	2·1	288	i 0 28	- 2	—	—	—	1·1
Rome	2·3	290	e 0 37	+ 4	1 0 52	- 7	—	1·3
Zagreb	4·7	5	1 16	+ 9	e 2 0	0	—	—
Piacenza	5·7	316	—	—	e 2 23	- 2	—	—

Additional readings :—

Zagreb eNE = +2m.5s., eNW = +2m.13s.

Long waves were also recorded at Bombay and several other European stations.

July 24d. Readings also at 4h. (near Andijan (2), and near Tyosi), 5h. (Ekaterinburg, Irkutsk, Tashkent, near Batavia, Malabar, and near Sucre and La Paz), 7h. (near Tacubaya), 10h. (near Tyosi), 12h. (Strasbourg), 13h. (Casamicciola, Rocca di Papa, Naples, Strasbourg, and Venice), 14h. (Ekaterinburg, Irkutsk, Tashkent, and near Mizusawa), 15h. (Copenhagen, Scoresby Sund, and Naples), 17h. (near Hukuoka), 18h. (Casamicciola and Naples), 20h. (Sebastopol, Simferopol (2), Theodosia (2), Kudino, Pulkovo, Budapest, Strasbourg, Cheb, Zagreb, Stuttgart, Ekaterinburg, Florence), 21h. (De Bilt, Uccle, Hamburg, and Copenhagen), 22h. (near Sumoto).

July 25d. 9h. 9m. 32s. Epicentre 42°·5S. 172°·0E. (as on 1929 March 9d.). X.

A = -·730, B = +·103, C = -·676; D = +·139, E = +·990;
G = +·669, H = -·094, K = -·737.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Christchurch	1·1	168	0 14	- 2	0 36	+ 8	—	—
Wellington	2·4	80	0 37	+ 3	1 2	0	—	1·2
Riverview	18·5	291	e 4 15	+ 2	e 7 47	+11	e 8·7	10·8
Sydney	18·5	291	(e 3 58)	-15	—	—	e 8·9	11·3
Melbourne	21·1	274	—	—	1 8 57	SS	—	13·8
Adelaide	26·9	275	e 5 54	+17	e 11 2	SS	13·1	13·7

Additional readings and note :—

Riverview 1 = +4m.25s. and +8m.12s.

Sydney P has been increased by 3m.

July 25d. 15h. 51m. 28s. Epicentre 41°·1N. 15°·4E. (as on 24d.). X.

A = +·726, B = +·200, C = +·657.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Benevento	0·8	272	1 0 13	+ 2	—	—	—	—
Naples	0·9	253	e 0 19	P _g	—	—	—	—
Casamicciola	1·2	253	0 17	0	—	—	—	—
Taranto	1·6	114	0 7	-16	—	—	—	—
Trento	2·0	159	e 0 27	- 2	0 52	+ 1	—	—
Rocca di Papa	2·1	288	1 0 25	- 5	—	—	—	1·3
Florence	4·1	313	-e 0 32	?	3 17	?	—	7·8
Zagreb	4·7	5	—	—	e 2 2	+ 2	—	—
Treviso	5·1	333	—	—	1 48	-22	—	—

Rocca di Papa gives also e₁ = 15h.50m.51s.

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July 25d. 19h. 46m. 33s. Epicentre 34°·1N. 32°·2E. (as on 1930 May 9d.). R.2.

A = +·701, B = +·441, C = +·561; D = +·533, E = -·846;
G = +·474, H = +·299, K = -·828.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Ksara	3·1	95	0 39	- 5	1 4	-16	—	—
Helwan	4·3	190	1 12	+11	2 12	+22	—	—
Yalta	10·5	8	e 2 24	- 4	—	—	—	—
Sebastopol	10·6	5	e 2 27?	- 2	—	—	—	—
Simferopol	10·9	7	e 2 30	- 3	—	—	—	—
Theodosia	11·2	11	e 2 33	- 4	—	—	—	—
Trenta	13·7	296	—	—	e 5 27	-17	—	—
Baku	15·4	61	e 3 31	- 3	6 21	- 3	8·6	10·6
Budapest	16·6	328	e 3 27?	-22	—	—	10·0	—
Zagreb	17·0	318	e 3 57	+ 3	e 7 15	SS	—	—
Rocca di Papa	17·1	302	13 2	-53	14 11	PP	—	13·6
Graz	18·0	321	e 4 10	+ 3	—	—	—	—
Florence	18·8	307	e 4 21	+ 5	—	—	—	7·4
Treviso	19·1	313	13 2	-56	8 17	+29	—	—
Piacenza	20·4	309	4 37	+ 3	8 41	+27	—	15·2
Chur	21·3	313	e 4 46	+ 3	e 8 49	+17	—	—
Kucino	22·0	9	e 4 48	- 3	e 8 46	0	e 10·2	15·2
Zurich	22·1	314	e 4 54	+ 2	—	—	—	—
Stuttgart	22·5	318	e 4 57?	+ 1	e 9 2	+ 7	—	14·2
Neuchatel	23·0	312	e 4 1	-60	e 9 11	+ 6	—	—
Strasbourg	23·2	316	5 6	+ 3	9 18	+10	13·4	—
Feldberg	N. 23·6	320	15 10	+ 4	i 9 28	+12	—	14·6
Hamburg	25·0	328	e 5 18	- 2	—	—	—	17·4
Copenhagen	25·5	334	5 27	+ 2	9 57	+ 7	14·4	—
Pulkovo	25·7	358	5 32	+ 6	9 52	- 1	13·4	17·6
Uccle	26·2	318	—	—	e 9 57	- 5	e 13·4	—
Helsingfors	26·5	352	e 5 31	- 3	e 9 59	- 8	e 13·8	—
Granada	29·1	286	—	—	e 11 27?	+37	—	18·0
Ekaterinburg	29·8	32	16 0	- 3	e 10 53	- 8	14·4	—
Tashkent	30·0	65	—	—	e 10 18	-46	e 17·4	20·0
Scoresby Sund	46·3	339	8 27?	+ 4	—	—	25·4	—

Additional readings:—

Zagreb e = +4m.16s., +4m.59s.

Feldberg eN = +4m.31s.

Ekaterinburg i = +11m.15s.

Tashkent e = +14m.21s.

Long waves were also recorded at Paris, De Bilt, Kew, Lund, and Irkutsk.

July 25d. 21h. 34m. 12s. Epicentre 18°·5N. 104°·5W. (as on 1928 April 27d.). X.

A = -·237, B = -·918, C = +·317; D = -·968, E = +·250;
G = -·079, H = -·307, K = -·948.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Denver	N. 21·2	359	e 5 49	+67	—	—	—	—
Florissant	23·7	28	15 11	+ 4	19 24	+ 6	—	12·3
Lick	E. 24·1	325	e 5 4	- 7	—	—	—	—
Berkeley	E. 24·9	325	e 5 12	- 7	—	—	—	—
Chicago	27·3	28	—	—	e 10 5	-15	i 13·3	—
Charlottesville	29·9	44	—	—	e 13 30	?	e 16·0	—
Georgetown	E. 31·3	45	e 11 59	S	(e 11 59)	+35	18·6	—
Toronto	N. 32·8	35	—	—	e 11 48	0	e 16·3	—
Victoria	33·6	339	5 0	?	(11 2)	-58	11·0	13·9
Harvard	37·0	42	—	—	e 13 18?	+27	—	—
Sitka	44·9	338	—	—	e 18 0	+71	i 19·6	—
Honolulu T.H.	50·0	282	—	—	e 18 48	(+ 4)	20·6	—
Feldberg	N. 89·5	36	—	—	e 27 59	?	—	—
Ekaterinburg	103·6	8	—	—	e 24 23	[-20]	43·8	—

For Notes see next page.

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NOTES TO JULY 25d. 21h. 34m. 11s.

Additional readings :—

Florissant ePE = +5m.14s.
 Lick e = +5m.10s., eE = +5m.24s. and +5m.33s., eN = +5m.48s., +5m.51s.,
 and +6m.17s., eE = +7m.50s., and +8m.22s., eN = +8m.10s., iN = +8m.13s.
 Berkeley eN = +5m.30s.
 Georgetown eEZ = +16m.18s., eSE = +17m.2s.
 Toronto eN = +14m.33s.
 Long waves were also recorded at Ann Arbor, Scoresby Sund, and several European and Russian stations.

July 25d. Readings also at 0h. (Andijan), 2h. (Benevento), 5h. (near Mizusawa), 6h. (Benevento, Rocca di Papa, Vladivostok, and near Sumoto), 7h. (Baku, Ekaterinburg, Irkutsk, and Tashkent), 8h. (Benevento, Rocca di Papa, and Taranto (2)), 9h. (Taihoku), 10h. (Granada and Wellington), 13h. (Benevento (2), Rocca di Papa, Taranto, and Wellington (2)), 15h. (Ekaterinburg, Irkutsk, and Tashkent), 16h. (Apia and Riverview), 17h. (Ksara, Benevento, Casamicciola, Naples, Rocca di Papa, Taranto, Trenta, and Zagreb), 19h. (Ksara), 22h. (La Paz and Scoresby Sund), 23h. (near La Paz).

July 26d. Readings at 0h. (Benevento, Naples, Samarkand, and near Andijan), 3h. (near Tyosi), 4h. (near Manila), 5h. (Wellington), 7h. (near Tacubaya), 9h. (near Ksara), 11h. (Göttingen, Graz, Benevento, Casamicciola, Taranto, and Naples), 13h. (Adelaide, Riverview, Wellington, and Granada), 14h. (Benevento and near Andijan), 15h. (Benevento, near Oaxaca, Tacubaya, and near Tyosi), 16h. (Benevento, Naples, and near Amboina), 17h. (Taihoku, Riverview, near Oaxaca, and Tacubaya), 18h. (Harvard and Scoresby Sund), 23h. (Andijan and Samarkand).

July 27d. 15h. 1m. 30s. Epicentre 15°·5N. 92°·5W. (as on 1929 Dec. 20d.). R.3.

A = -·042, B = -·963, C = +·267; D = -·999, E = +·044;
 G = -·012, H = -·267, K = -·964.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	m. s.
Tacubaya	7·5	302	1 51	+ 5	3 38†	+27	—	4·6
Florissant	23·4	4	e 5 0	- 5	—	—	—	—
Tucson	23·7	318	e 5 6	- 1	e 9 42	SS	e 12·9	—
Georgetown	27·1	27	e 5 50	+11	1 10 27	+10	14·5	—
Ann Arbor	n. 27·9	14	—	—	e 9 36	-54	e 13·4	—
Harvard	32·6	30	e 6 41	+13	e 12 11	+26	e 18·5	—
Ottawa	33·1	23	—	—	e 12 0	+ 8	e 17·5	—
La Paz	40·0	144	e 7 40	+ 8	—	—	18·5	—
Victoria	41·5	330	7 41	- 3	14 6	+ 7	25·2	31·6
Scoresby Sund	69·0	20	—	—	19 30†	-39	34·5	—
Granada	79·9	55	1 12 0	- 7	e 23 9	PS	e 39·5	—
De Bilt	82·4	39	e 12 14	- 6	—	—	e 49·5	—
Copenhagen	85·3	33	—	—	22 54	[- 7]	46·5	—
Pulkovo	91·8	25	e 16 36	PP	1 23 34	[- 9]	48·5	—
Ekaterinburg	104·3	15	—	—	e 27 36	PS	54·5	—
Irkutsk	110·7	350	e 18 30†	[+10]	—	—	e 73·5	—

Additional readings :—

Ann Arbor iE = +12m.30s.
 Harvard e = +8m.2s.
 Victoria SE = +14m.21s.
 Pulkovo e = +25m.20s. = PS +7s.
 Ekaterinburg e = +34m.42s.
 Long waves were also recorded at Port au Prince, Paris, Strasbourg, Uccle, Baku, and Tashkent.

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July 27d. 18h. 58m. 44s. Epicentre 13°·9N. 91°·2W. (as on July 7d.). R.2.

A = -·020, B = -·971, C = +·240; D = -1·000, E = +·021;
G = -·005, H = -·240, K = -·971.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	(m.)	(m.)
Vera Cruz	7·1	319	(1 17)	-24	(3 5)	+ 4	(3·2)	(5·6)
Merida	7·2	12	(2 7)	+25	(3 41)	+37	(3·9)	(5·4)
Tacubaya	9·5	307	2 6	- 8	3 52	- 9	4·0	4·7
Balboa Heights	12·4	112	e 3 16?	+22	—	—	—	—
Port au Prince	18·7	73	e 4 46	+31	e 8 17	+37	e 12·9	—
Florissant	25·0	2	1 5 18	- 2	1 9 51	+10	—	—
Tucson	25·7	319	5 22	- 4	9 49	- 4	13·2	—
Charlottesville	26·6	23	e 5 56	+21	e 10 16	+ 7	e 15·8	—
Georgetown	28·0	24	1 5 51	+ 4	e 10 42	+10	16·3	—
Ann Arbor	29·2	11	e 9 28	(+20)	e 11 28	+37	e 18·0	—
Fordham	30·9	26	e 6 18	+ 5	1 11 33	+15	15·6	—
Toronto	31·4	17	6 19	+ 2	1 11 27	+ 1	e 14·7	—
Ottawa	34·1	20	e 6 39	- 2	e 12 14	+ 6	e 16·3	—
La Paz	38·0	143	e 7 14	- 1	1 13 20	+14	18·3	25·3
Victoria	e. 43·5	330	7 59	- 2	14 35	+ 7	23·8	32·0
Sitka	54·6	333	1 9 22	- 4	1 17 8	+ 4	e 27·3	—
Ivigtut	56·5	24	—	—	20 28	?	31·3	—
Rio de Janeiro	59·7	129	e 18 16	S	(e 18 16)	+ 4	e 30·0	—
Scoresby Sund	70·1	20	—	—	20 25	+ 3	37·3	—
Oxford	79·1	40	12 2	- 1	22 28	PS	e 43·3	50·8
Kew	79·7	40	e 12 14	+ 8	e 22 27	+15	38·3	—
Granada	79·8	54	1 12 11	+ 4	23 36	PS	37·8	40·0
Paris	82·0	42	e 12 21	+ 3	e 22 45	+ 8	39·3	51·3
Uccle	82·7	40	e 12 26	+ 4	e 22 46	+ 2	e 39·3	—
De Bilt	82·9	38	12 25	+ 2	e 22 50	+ 4	e 40·3	56·3
Hamburg	85·4	36	e 12 42	+ 7	e 23 9	- 3	e 48·8	50·3
Strasbourg	85·4	41	e 12 39	+ 4	e 23 9	- 3	e 31·3	—
Copenhagen	86·0	34	12 40	+ 2	23 13	- 5	43·3	—
Stuttgart	86·3	40	1 12 41	+ 1	e 23 14	- 6	e 41·3	50·8
Lund	86·5	34	13 16?	+35	—	—	—	—
Piacenza	87·7	44	e 12 46	0	23 24	-10	—	63·3
Cheb	87·9	39	—	—	e 23 30	- 6	e 46·3	53·3
Florence	89·2	45	e 12 16?	-38	e 21 16?	?	44·3	91·3
Helsingfors	90·3	27	e 16 19	PP	e 23 25	[- 9]	e 41·1	—
Pulkovo	92·7	25	13 8	- 2	23 48	[0]	41·3	52·6
Kucino	98·3	26	—	—	e 24 19	[+ 2]	e 47·1	54·5
Ekaterinburg	105·5	15	—	—	e 24 56	[+ 4]	49·3	64·7
Irkutsk	112·5	350	e 19 19	PP	e 26 27	{+ 2}	69·3	73·6
Baku	114·8	31	e 12 24	?	e 25 39	[+ 6]	e 56·3	68·7
Tashkent	121·9	16	1 20 27	PP	1 26 1	[+ 5]	e 59·3	82·5

Additional readings and note:—

Vera Cruz readings have been *increased* by 12m.

Merida readings have been *diminished* by 2m.

Florissant iPPNZ = +6m.1s., iSN = +9m.55s., iSSN = +11m.10s.

Tucson eSS = +11m.10s.

Ann Arbor eIE = +9m.46s., eN = +10m.10s., eE = +12m.40s. and +15m.28s., e = +16m.40s. = S₀S + 1s.

Fordham ePP = +7m.18s., ePPPP = +7m.55s.

Ottawa iE = +15m.0s.; T₀ = 18h.58m.20s.

Copenhagen +15m.58s. = PP + 5s.

Stuttgart ePSEN = +24s.20s.

Pulkovo PP = +16m.56s., PS = +25m.40s.

Kucino e = +26m.44s. = PS + 17s.

Ekaterinburg e = +27m.51s. = PS + 8s.

Baku e = +29m.27s. = PS + 13s.

Tashkent e = +27m.31s. = SKKS + 2s., +30m.23s. = PS + 4s., and +36m.58s. = SS + 1s.

Long waves were also recorded at Berkeley, La Plata, and Edinburgh.

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July 27d. Readings also at 2h. (Adelaide and Riverview), 3h. (Benevento, Baku, Ksara, and Tashkent), 4h. (Bombay), 5h. (Benevento and Bombay), 7h. (near Baku), 8h. (Florissant, Harvard, and La Paz), 9h. (Scoresby Sund and Wellington), 12h. (Harvard, Florissant (2), La Paz, Port au Prince, near Merida, and Tacubaya), 13h. (Ekaterinburg, Granada, Scoresby Sund (2), Baku, and near Merida), 14h. (Harvard, Tucson, and Vera Cruz), 15h. (Benevento, near Oaxaca, Vera Cruz, and Tacubaya), 16h. (Naples, Rocca di Papa, and Casamicciola), 17h. (Benevento and Mizusawa), 19h. (Kobe and near Sumoto), 20h. (La Plata and near Port au Prince), 21h. (Sucre and La Paz).

July 28d. Readings at 1h. (Benevento), 4h. (Baku and Tashkent), 9h. (Florissant), 12h. (Samarkand), 14h. (Rocca di Papa and near Ksara), 15h. (near Ksara), 17h. (Copenhagen), 18h. (Melbourne, Riverview, Wellington, La Paz, Vladivostok, Andijan, Ekaterinburg, Baku, Tashkent, Pulkovo, Copenhagen, De Bilt, and Granada), 20h. (Copiapo, La Plata, La Paz, and near Santiago), 21h. (Naples).

July 29d. 6h. 24m. 6s. Epicentre 12°·7N. 86°·7W. N.2.

A = +·056, B = -·974, C = +·220; D = -·998, E = -·058;
G = +·013, H = -·219, K = -·976.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	s.	m. s.	m. s.	s.	m. s.	s.	m.	m.
Balboa Heights	7·9	116	e 2 54?	+62	—	—	—	—
Merida	8·7	342	(2 27)	+24	(4 6)	+25	(4·2)	(5·5)
Vera Cruz	11·2	307	2 11	-26	4 14	-29	4·4	6·9
Tacubaya	13·7	301	3 12	+1	5 58?	+14	6·1	—
Port au Prince	15·0	65	1 3 57	+29	1 6 9	- 6	e 9·2	9·5
Charlottesville	26·4	15	5 50	+17	—	—	—	—
Georgetown	27·6	16	1 5 47	+ 3	i 10 29	+ 4	13·3	—
Chicago	29·1	359	—	—	e 10 38	-12	e 13·9	—
Tucson	29·5	305	e 5 54	- 7	e 11 3	+ 7	e 16·5	—
Ann Arbor	29·7	4	e 6 0	- 2	e 10 54	- 5	e 17·7	—
Fordham	30·3	20	e 6 9	+ 1	i 11 10	+ 1	e 14·8	—
Toronto	31·6	10	e 6 19	0	i 11 22	- 7	15·4	18·1
Ottawa	34·0	15	e 6 39	- 1	e 12 1	- 5	e 15·9	—
La Paz	34·5	147	e 6 47	+ 2	e 12 7	- 7	15·5	17·7
Sucre	38·1	146	e 7 7	- 9	—	—	—	—
Lick	39·7	316	e 7 25	- 4	—	—	—	—
Victoria	46·8	328	8 36	+ 9	15 4	-12	25·4	30·8
La Plata	54·9	150	9 25	- 3	17 1	- 7	—	—
Rio de Janeiro	55·6	130	e 13 36	?	—	—	—	—
Ivigtut	55·9	22	12 54?	?	—	—	23·9	—
Granada	76·9	55	i 11 49	- 2	21 36	- 6	e 35·9	38·5
Almeria	77·9	55	e 12 7	+10	—	—	e 35·6	39·6
Kew	77·9	39	—	—	e 22 6	+13	36·9	—
Paris	80·0	42	e 11 2	-66	—	—	37·9	41·9
De Bilt	81·1	39	e 12 14	0	—	—	e 35·9	39·6
Stuttgart	83·0	41	—	—	e 22 54?	+ 7	e 39·9	—
Copenhagen	84·6	34	e 12 48	+17	22 42	[-14]	35·9	—
Piacenza	85·5	44	e 17 54	PP	—	—	—	42·9
Pulkovo	91·9	26	12 58	- 8	—	—	38·9	53·6
Ekaterinburg	105·4	18	—	—	24 41	[-11]	49·9	58·3
Irktak	114·3	353	e 18 54?	[+23]	e 28 54?	PS	e 55·9	64·0
Tashkent	121·6	21	20 17	PP	—	—	e 57·9	67·5

Additional readings and notes:—

Merida readings have been diminished by 3m.

Chicago e = +9m.44s., and +11m.34s.

Tucson eSS = +13m.32s.

Ann Arbor eR = +10m.30s. and +12m.0s., eN = +12m.30s., eE = +13m.6s., i = +14m.18s.

Fordham ePP = +7m.2s., SSSZ = +13m.30s.

Toronto iN = +6m.36s.; T₁ = 6h.23m.46s.

Continued on next page.

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Ottawa eN = +14m.42s. ; T₀ = 6h.23m.58s.
 Lick iE = +7m.37s.
 Granada iP = +12m.13s., PS = +22m.39s.
 Copenhagen +15m.48s. = PP + 6s.
 Pulkovo PP = +16m.46s., PS = +25m.16s., SS = +30m.24s.
 Ekaterinburg PP = +18m.28s., PS = +27m.54s.
 Tashkent PS = +30m.31s., PPS = +32m.0s.
 Long waves were also recorded at Baku and other European stations.

July 29d. Readings also at 0h. (Florissant), 9h. (Casamicciola, near Andijan, and near Mizusawa), 17h. (Benevento, Naples, Rocca di Papa, Zagreb, Reykjavik, and near Florissant), 22h. (Taihoku).

July 30d. 6h. 41m. 36s. Epicentre 37° 0N. 137° 0E. (as on 1928 Feb. 7d.). X.

A = - .584, B = + .545, C = + .602.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Nagoya	1.8	182	0 34	+ 8	1 7	+21	—	—
Toyooka	2.2	230	e 0 23	—	e 0 54	- 3	—	0.9
Osaka	2.6	208	e 0 29	- 8	(1 15)	+ 8	1.2	1.5
Kobe	2.8	212	e 0 50	+10	1 17	+ 5	(1.3)	1.3
Sumoto	3.2	213	e 0 45	- 1	e 1 28	+ 6	—	1.6

No additional readings.

July 30d. Readings also at 0h. (Samarkand and near Tashkent), 2h. (Hong Kong and Manila), 3h. (near Tacubaya), 9h. (Batavia and Malabar), 12h. (Baku, Ekaterinburg, Tashkent, Irkutsk, Graz, and near Zagreb), 13h. (Venice), 14h. (Taihoku and near Ksara), 15h. (near Santiago), 17h. (Taihoku), 18h. (Port au Prince, La Paz, and near Balboa Heights), 22h. (Benevento, Casamicciola, Naples, Rocca di Papa, and Florissant), 23h. (near Manila).

July 31d. 0h. 7m. 30s. Epicentre 37° 6N. 72° 6E. (as on 1929 March 13d.). R.3.

A = + .237, B = + .756, C = + .610 ; D = + .954, E = - .299 ;
 G = + .182, H = + .582, K = - .792.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Andijan	3.2	357	0 40	- 6	(1 1 5)	-17	1.1	1.9
Samarkand	4.8	297	1 37	P _g	—	—	2.9	3.4
Almata	6.6	29	1 29	- 5	(1 2 38)	-10	1.2	2.7
Baku	17.8	286	—	—	e 7 49	+29	—	—
Ekaterinburg	20.8	341	1 4 38	0	1 8 22	0	1 10.3	11.9
Kucino	29.4	319	—	—	e 11 24	+29	e 15.8	—
Pulkovo	34.7	323	e 6 51	+ 5	e 12 29	+12	16.5	20.7

Long waves were also recorded at Irkutsk, Copenhagen, De Bilt, and Kew.

July 31d. 5h. 24m. 25s. Epicentre 41° 1N. 15° 4E. (as on 25d.). X.

A = + .726, B = + .200, C = + .657.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Benevento	0.8	272	-10 15	-26	—	—	—	0.1
Naples	0.9	253	e 0 20	+ 7	—	—	—	—
Casamicciola	1.2	253	0 13	- 4	—	—	—	—
Trenta	2.0	159	—	—	e 0 55	+ 4	—	—
Rocca di Papa	2.1	288	1 0 14	-16	1 0 55	+ 1	—	1.2
Zagreb	4.7	5	e 0 49	-18	e 2 5	+ 5	—	2.3
Placenza	5.7	316	—	—	e 2 35	+10	—	5.8

Additional readings :-

Rocca di Papa I = +23s.

Zagreb eNE = +59s.

Long waves were also recorded at Budapest, Copenhagen, De Bilt, and Stuttgart.

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July 31d. Readings also at 0h. (La Paz), 1h. (Graz), 3h. (La Paz and near Santiago (3)), 4h. (Rocca di Papa), 5h. (Taranto, near La Paz, and near Sumoto), 6h. (Benevento, Casamicciola, Naples, and Rocca di Papa), 12h. (Ekaterinburg, Pulkovo, and La Paz), 19h. (near Sumoto), 20h. (near Toyooka), 21h. (Ekaterinburg and Irkutsk), 22h. (Baku and Florence).

Aug. 1d. Readings at 0h. (Ekaterinburg, Pulkovo, Irkutsk, Kucino, Tashkent, Baku, Florence, Copenhagen, Granada, Stuttgart, De Bilt, Uccle, Kew, Phu-Lien, La Paz, Nagasaki, Zi-ka-wel, Hong Kong, and near Tacubaya), 1h. (Graz), 4h. (near Santiago), 5h. (near Tacubaya), 6h. (La Paz), 7h. (Honolulu T.H., Andijan, Florissant, Georgetown, Tucson, La Paz, Tacubaya, and Ekaterinburg), 8h. (De Bilt, Strasbourg, Paris, Baku, Tashkent, Pulkovo, Irkutsk, and Vladivostok), 11h. (Alicante and Zagreb), 21h. (Riverview, Sydney, Ekaterinburg, Tashkent, Florissant, and La Paz), 22h. (Baku, De Bilt, Strasbourg, and Granada).

Aug. 2d. 16h. 6m. 9s. Epicentre 58°-0S. 135°-0W.

N.3.

A = -375, B = -375, C = -848; D = -707, E = +707;
G = +600, H = +600, K = -530.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Christchurch	35.0	273	e 6 43	-6	1 12 37	+16	—	17.0
Wellington	35.4	277	e 7 51?	+58	12 41	+14	15.4	16.8
Santiago	48.8	87	—	—	(19 51?)	?	19.8	—
Suva	52.4	300	e 11 51?	?	14 51?	?	21.8	—
Riverview	53.5	266	e 9 18	0	e 17 14	+25	e 24.2	29.4
Sydney	53.5	266	—	—	1 16 57	+8	26.8	30.9
Melbourne	53.7	258	—	—	1 17 23	+31	26.9	29.2
La Plata	54.4	100	9 28	+4	17 4	+3	23.2	—
Adelaide	59.1	255	e 12 39	PP	1 18 36	+32	29.4	33.6
Sucre	63.3	84	9 26	-61	—	—	—	—
La Paz	E. 63.9	79	10 30	-1	1 18 58	-8	29.8	38.3
Rio de Janeiro	E. 71.7	103	e 11 21	0	e 20 41	0	e 33.8	35.2
Honolulu T.H.	81.5	339	—	—	e 22 31	-1	33.8	—
Cape Town	85.5	159	i 23 45	S	(1 23 45)	+32	41.8	50.0
Tucson	92.2	20	12 59	-9	e 23 38	[-8]	e 37.4	—
Victoria	106.8	8	25 35	SKKS	(25 35)	[-9]	42.8	51.5
Manila	109.8	267	i 18 17	[0]	1 24 11	[-61]	1 29.4	32.1
Toronto	N. 111.6	39	—	—	e 24 59	[-21]	48.4	—
Ottawa	114.4	41	e 25 13	SKS	(e 25 13)	[-18]	48.8	—
Sitka	115.0	0	—	—	(e 28 31)	?	1 51.2	—
Hong Kong	119.8	265	30 8	PS	36 51	SS	—	64.4
Vladivostok	126.9	295	—	—	e 26 3	[-7]	66.2	—
Bombay	135.9	220	—	—	e 51 34	?	—	78.0
Granada	142.4	99	e 22 34	PP	—	—	e 57.8	71.2
Almeria	142.8	101	e 23 38	PKS	—	—	—	71.4
Algiers	145.4	107	(19 40)	[+5]	—	—	59.8	107.8
Irkutsk	146.8	285	e 19 39	[+2]	—	—	61.8	86.2
Tortosa	N. 147.2	109	19 43	[+6]	—	—	e 57.8	108.9
Scoresby Sund	150.3	38	19 40	[-2]	—	—	71.8	—
Oxford	153.2	83	e 20 33	[+47]	—	—	e 75.6	80.4
Kew	153.6	84	e 16 51?	?	—	—	e 72.8	—
Paris	153.6	92	e 19 56	[+9]	—	—	73.8	78.8
Rocca di Papa	154.0	114	e 19 55	[+8]	—	—	—	—
Florence	154.8	110	19 33	[-15]	24 3	PP	78.8	85.8
Piacenza	154.9	105	19 7	[-41]	—	—	—	82.8

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Ksara	155.1	162	e 20 7	[+19]	e 24 10	PP	—	—
Uocle	155.7	89	e 19 52	+ 31	e 23 21	PP	e 71.8	—
Strasbourg	156.2	97	e (19 44)	- 51	(e 30 53)	{- 4}	(77.8)	—
Venice	156.6	108	19 2	-481	—	—	—	—
De Bilt	156.8	87	e 19 51	[+ 11]	—	—	e 77.8	101.2
Stuttgart	157.0	98	e 19 54	[+ 4]	—	—	e 69.8	80.8
Tashkent	157.3	233	20 53	{+21}	—	—	e 63.8	102.4
Feldberg	N. 157.5	94	e 19 51	{ 0}	i 26 15	?	e 70.6	—
Zagreb	158.6	112	e 20 31	- 7	e 24 6	PP	—	—
Cheb	159.5	99	—	—	e 30 51?	{-25}	e 77.8	84.8
Hamburg	160.1	88	e 20 45	{ 0}	—	—	e 78.8	87.8
Budapest	161.3	113	e 20 51?	+ 1	e 24 31	PP	e 86.4	—
Baku	162.1	189	20 8	{+12}	—	—	e 71.8	90.8
Copenhagen	162.2	83	20 3	[+ 7]	—	—	e 71.8	—
Lund	162 6	84	—	—	24 27	PP	83.8	—
Ekaterinburg	171.5	269	20 13	[+ 8]	31 16	{-63}	69.8	96.4
Pulkovo	172.2	71	20 1	- 4	e 31 53	{-30}	69.8	93.8
Kucino	175.5	116	20 16	[+ 9]	e 32 24	{-16}	e 64.0	88.6

Additional readings and notes :-

Riverview iZ = +9m.32s., i = +17m.32s.
 Melbourne i = +23m.31s. and +26m.9s.
 Adelaide, e = +22m.23s. and +25m.56s.
 La Paz iE = +11m.9s. = P_oP + 0s., PPPE = +14m.30s., PSE = +19m.56s.,
 iE = +25m.24s. = SSS - 13s.
 Cape Town S = +29m.36s.
 Tucson e = +16m.43s. = PP + 0s. and +17m.56s.
 Manila PPZ = +19m.41s., PPPPE = +20m.17s.
 Toronto iN = +34m.14s. = SS - 26s.
 Ottawa eS = +34m.32s. = SS - 46s.
 Sitka ePS = +34m.7s.
 Vladivostok e = +37m.56s. = SS - 5s.
 Granada i = +22m.37s. = PP + 1s., +24m.30s., +25m.12s. = PPP = -25s., and
 +40m.50s. = SS - 21s.
 Almeria e = +24m.29s.
 Algiers gives PKP as PP.
 Strasbourg eSKP = +23m.36s., ePP = +23m.55s., PSKP = +34m.35s.
 De Bilt iZ = +23m.55s. = PP - 4s., eE = +30m.47s. = SKKS - 14s.
 Stuttgart eE = iZ = +20m.22s., PKP', -9, +23m.59s. = PKS + 25s., +24m.31s. =
 PP + 31s., eE = +30m.47s. = SKKS - 15s., eZ = iN = +43m.57s. = SS - 2s.,
 eZ = +44m.56s., eN = +49m.51s. = SSS + 12s., eE = +55m.21s.
 Tashkent e = +27m.52s. = PPP + 23s., +31m.0s. = SKKS - 4s., and +44m.15s. =
 SS + 13s.
 Feldberg iN = +20m.36s. = PKP, +3s.
 Baku e = +24m.50s. = PP + 23s., +28m.50s. = PPP + 45s., +37m.54s., and
 +45m.30s.
 Copenhagen eEZ = +24m.21s. = PP - 6s., and +24m.45s., eE = +31m.15s. =
 SKKS - 15s., and +34m.45s. = SKSP - 12s.
 Ekaterinburg PP = +25m.10s., SKSP = +35m.35s., SS = +46m.12s.
 Pulkovo e = +25m.1s. = PP - 16s. and +30m.5s., i = +36m.3s. = SKSP + 9s.,
 e = +39m.15s. and +46m.1s. = SS - 36s.
 Kucino e = +36m.3s. = SKSP - 8s., SS = +46m.39s.
 Long waves were also recorded at Perth, Colombo, Tananarive, Chicago, Floris-
 sant, Ivigtut, Gottingen, Stonyhurst, Toledo, and Alicante.

Aug. 2d. Readings also at 2h. (La Paz), 3h. (Baku, Ekaterinburg, Pulkovo, Samar-
 kand, Tashkent, Simferopol, Theodosia, Yalta, Copenhagen, Vienna, De
 Bilt, Tucson, and La Paz), 4h. (Samar kand), 11h. (Andijan and Samar kand),
 14h. (Andijan), 15h. (Almata, Irkutsk, Ekaterinburg, and Vladivostok), 16h.
 (Strasbourg), 17h. (near La Paz and near Toyooka), 18h. (La Paz and near
 Tacubaya), 19h. (Ekaterinburg), 20h. (Tashkent), 21h. (near Tacubaya),
 22h. (Adelaide, Melbourne, Riverview, Ekaterinburg, Pulkovo, Wellington,
 Christchurch, and Florissant), 23h. (Baku, Tashkent, Copenhagen, and De
 Bilt).

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Aug. 3d. 22h. 5m. 51s. Epicentre 37°·3N. 44°·8E. (as on 1930 May 8d.). R.2.

A = +·564, B = +·561, C = +·606; D = +·705, E = -·710;
G = +·430, H = +·427, K = -·795.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Baku	5·0	51	1 17	+ 6	i 2 22	+14	—	4·8
Ksara	8·1	247	2 10	+15	4 10	+44	—	—
Theodosia	10·5	320	e 2 32	- 2	—	—	—	—
Yalta	10·8	315	e 2 32	0	—	—	—	—
Simferopol	11·1	317	e 2 35	- 1	—	—	—	—
Sebastopol	11·2	314	e 2 36	- 1	—	—	—	—
Samarkand	17·5	75	e 4 9?	+ 9	—	—	—	—
Kucino	19·0	348	e 4 18	- 1	7 44	- 2	10·0	—
Tashkent	19·3	71	1 4 27	+ 5	1 8 11	+19	i 11·8	17·4
Budapest	21·4	306	e 4 49	+ 5	—	—	12·2	—
Andijan	21·6	72	e 5 3	+17	—	—	—	—
Ekaterinburg	22·2	24	1 4 52	- 1	1 8 48	- 2	11·2	13·2
Pulkovo	24·3	342	1 5 11	- 2	9 25	- 3	12·2	14·8
Almata	25·0	66	e 5 33	+13	—	—	—	—
Rocca di Papa	25·0	290	e 5 27	+ 7	—	—	e 14·2	16·6
Florence	26·1	295	5 38	+ 8	—	—	—	14·2
Helsingfors	26·1	337	e 5 24	- 6	e 9 46	-14	—	—
Cheb	26·4	309	—	—	i 10 4	- 1	e 16·2	18·2
Placenza	27·3	298	e 6 41	+60	—	—	—	19·2
Chur	27·6	302	e 5 44	0	—	—	—	—
Lund	28·1	321	6 9?	+21	—	—	—	—
Stuttgart	28·2	305	—	—	e 10 57	+22	—	17·4
Zurich	28·3	302	e 5 50	0	—	—	—	—
Copenhagen	28·5	321	5 50	- 2	—	—	24·2	—
Hamburg	28·9	315	—	—	e 11 9?	+22	—	—

Rocca di Papa gives $iP = +5m.51s. = PP + 1s.$
Long waves were also recorded at European stations.

Aug. 3d. Readings also at 0h. (Baku, Ekaterinburg, Tashkent, and near Sumoto), 1h. (Ekaterinburg, Pulkovo, Tashkent, Calcutta, Bombay, and Florissant), 2h. (Copenhagen and Tucson), 4h. (Stonyhurst, Sitka, and Tucson), 5h. (Ksara), 7h. (near Rocca di Papa), 9h. (Andijan and Samarkand), 11h. (Ksara, Zagreb, near Benevento, Casamicciola, Naples, Rocca di Papa, and Taranto), 12h. (Zagreb, Benevento, Casamicciola, Naples, Rocca di Papa, Taranto, and Trenta), 13h. (Wellington and near Ksara), 14h. (Ekaterinburg and Vladivostok), 15h. (Tashkent), 19h. (near Rocca di Papa), 21h. (near Lick), 22h. (near Ksara, near Sumoto, and near Tacubaya), 23h. (Florissant, La Paz, and near Sumoto).

Aug. 4d. 5h. 4m. 38s. Epicentre 8°·0S. 68°·0W. N.1.

A = +·371, B = -·918, C = -·139; D = -·927, E = -·375;
G = -·052, H = +·129, K = -·990.

A depth of focus 0·080 has been assumed.

	Corr. for Focus	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	s.	m. s.	s.	m.	m.
La Paz	-0·3	8·5	181	i 1 56	0	i 3 30	+ 1	i 3·9	5·1
Sucre	-1·2	11·3	167	2 25	+ 3	—	—	—	—
Port au Prince	-4·3	26·9	351	e 5 6	+ 9	i 9 1	+ 4	—	9·9
Rio de Janeiro	-4·6	28·1	125	e 4 34	-31	e 9 12	- 2	e 12·1	—
La Plata	-4·6	28·4	163	4 56	-12	—	—	—	—
Tacubaya	-6·1	41·2	313	6 48	- 2	12 12	-11	—	—
Georgetown	-6·9	47·6	351	i 7 41	+ 3	i 13 54	+ 7	20·4	—
Fordham	-7·1	49·1	355	i 7 56	+ 7	i 14 20	+14	e 20·7	—
St. Louis	-7·3	51·0	338	e 8 0	- 2	i 14 28	- 3	—	—
Florissant	-7·3	51·2	338	i 8 1	- 3	i 14 31	- 3	—	—

Continued on next page.

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	Corr. for Focus	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
		Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
		Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
Ann Arbor		52.3	347	e 8 10	-2	i 14 52	+ 3	—	—
Toronto	N.	52.6	350	i 8 18	+ 4	i 14 51	- 3	—	—
Tucson		57.3	318	8 42	- 6	15 48	- 7	—	—
Lick		67.5	317	9 49	-10	e 17 55	-10	—	—
Berkeley	E.	68.2	317	9 49	-14	e 18 1	-12	—	—
Ivigtut		70.9	10	i 10 20	- 1	i 18 52	+ 5	—	—
Victoria		74.3	325	e 10 27?	-15	(19 12)	-14	19.2	23.0
Malaga		74.3	47	10 45	+ 3	19 43	+17	25.4	—
Granada		75.1	47	10 55	+ 8	i 19 57	+21	e 23.4	24.4
Toledo		75.8	45	10 55	+ 3	i 20 2	+17	e 32.3	—
Almeria		75.9	47	10 56	+ 4	i 20 0	+15	—	—
Alicante		77.8	47	e 13 25	PP	i 20 25	+18	e 26.4	—
Tortosa	E.	79.4	45	e 11 7	- 5	20 35	+11	—	—
	N.	79.4	45	e 11 14	+ 2	20 40	+16	—	—
Algiers		80.0	50	11 17	+ 1	20 39	+ 8	34.4	39.4
Oxford		82.4	35	i 11 27	- 2	i 20 47	-11	—	—
Stonyhurst		82.6	33	i 13 44	PP	e 20 49	-11	—	—
Kew		82.8	35	e 11 29	- 3	20 51	-12	23.4	—
Edinburgh		83.1	30	e 13 44	PP	i 20 50	-16	—	—
Durham		83.3	31	—	—	i 21 5	- 3	—	—
Paris		83.5	39	i 13 49	PP	e 21 15	+ 4	22.4	27.4
Scoresby Sund		84.4	14	i 11 33	- 7	21 15	- 5	—	—
Besancon		85.2	41	e 13 58	PP	e 21 7	-22	—	—
Ueule		85.3	37	e 11 40	- 5	i 21 7	-23	—	—
Neuchatel		85.8	41	e 11 43	- 5	e 21 8	-28	—	—
De Bilt		86.2	36	i 11 46	- 4	e 21 38	- 1	—	—
Strasbourg		86.7	40	e 11 48	- 5	21 18	-27	30.4	—
Zurich		86.9	42	e 11 49	- 5	e 21 44	- 3	—	—
Piacenza		87.0	43	e 14 2	PP	21 19	-29	—	—
Chur		87.4	42	e 11 51	- 6	e 21 22	-31	—	—
Feldberg	N.	87.6	38	i 11 53	- 4	i 21 47	- 7	—	27.3
Stuttgart		87.7	40	e 11 53	- 5	i 21 20	-35	—	—
Florence		87.9	46	e 11 50	- 9	21 52	- 5	26.4	39.4
Rocca di Papa		88.4	48	e 11 57	- 4	21 27	-36	e 28.0	—
Innsbruck		89.0	41	12 22?	+18	—	—	—	—
Catania		89.4	51	—	—	21 34	?	e 75.1	—
Naples	N.	89.4	49	e 13 22	?	e 20 22	?	—	—
Jena	E.	89.7	38	—	—	e 21 22	?	—	—
Cheb		90.1	39	e 14 22?	?	i 21 37	?	—	—
Copenhagen		91.2	34	12 9	- 7	22 22	-10	e 34.8	—
Lund		91.7	34	14 28	?	21 45	?	—	—
Vienna	Z.	92.3	41	e 12 15	- 6	—	—	—	—
Budapest		94.5	42	e 14 22?	?	i 21 53	?	—	—
Uppsala		94.7	30	—	—	e 21 54	?	—	—
Helsingfors	N.	98.4	30	—	—	i 23 13	-29	—	—
Pulkovo		101.3	30	12 56	- 8	23 44	-25	—	—
Kucino		105.6	34	—	—	e 23 46	-62	—	—
Baku		116.3	46	e 19 20	PP	e 23 37	?	e 43.4	—
Ekaterinburg		117.1	29	e 17 38	[-60]	e 25 0	[-41]	—	—
Samarband		128.9	43	e 18 2	[-63]	—	—	—	—
Tashkent		129.7	40	i 20 30	PP	—	—	e 38.4	49.6
Andijan		132.1	40	e 18 15	[-55]	—	—	—	—
Almsta		133.3	35	e 18 10	[-62]	—	—	—	—
Irkutsk		135.3	5	e 18 22?	[-53]	—	—	—	—
Vladivostok		140.8	336	i 18 14	[-69]	—	—	24.4	—
Nagoya		144.5	323	e 18 25	[-68]	—	—	—	—
Osaka		145.7	324	e 18 25	[-70]	—	—	—	—
Kobe		145.9	324	i 18 22?	[-74]	—	—	—	—
Sumoto		146.3	324	e 18 27	[-69]	—	—	—	—
Koti		147.6	323	e 18 32	[-66]	—	—	—	—
Phu-Lien		166.2	22	—	—	29 22?	?	—	—
Manila		169.0	308	i 18 54	[-69]	i 23 58	?	—	—

For Notes see next page.

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NOTES TO AUG. 4d. 5h. 4m. 38s.

Additional readings :-

La Paz iE = +2m.3s.
 Georgetown eE = +10m.39s., iN = +10m.42s., iZ = +10m.44s., eN = +12m.21s., eZ = +12m.24s.
 St. Louis iPE = +8m.7s., iE = +8m.13s., +8m.19s., and +16m.46s. = SS-40s.
 Florissant iZ = +9m.7s., e = +10m.2s., iZ = +11m.3s.
 Ann Arbor e?E = +8m.16s., eN = +10m.28s., e?E = +12m.58s., eN = +18m.22s., e?E = +35m.4s., eN = +35m.16s., eE = +36m.52s.
 Toronto iN = +11m.19s.
 Tucson e = +10m.46s. = PP +10s., and +19m.27s. = SS +12.
 Lick eE = +9m.59s., eN = +10m.2s., eE = +10m.10s., eN = +10m.31s., and +17m.53s.
 Berkeley eN = +9m.53s. and +17m.57s.
 Ivigtut +23m.22s. ?
 Granada iP = +13m.1s. = PP - 5s., PP = +14m.7s. = PPP - 28s.
 Toledo PP = +13m.4s.
 Almeria PP = +13m.7s., i = +20m.54s.
 Algiers PP = +13m.32s.
 Stonyhurst SS = +21m.2s.
 Kew eZ = +13m.44s. = PP - 25s., iEN = +21m.4s., eNZ = +22m.11s.
 Edinburgh i = +21m.6s.
 Durham +25m.2s. = SS - 41s.
 Scoresby Sund +13m.47s.
 Uccle iPP = +13m.56s., PPP = +15m.1s.
 De Bilt iZ = +14m.1s. = PP - 35s., eZ = +15m.4s., and +18m.28s., eE = +21m.13s.
 Zurich e = +14m.5s. = PP - 37s.
 Feldberg iN = +12m.30s. and +21m.25s.
 Stuttgart iE = +14m.8s. = PP - 40s., i = +21m.49s., iE = +23m.6s. = [S] - 12s., iSS = +25m.44s.
 Florence PP = +14m.17s.
 Rocca di Papa i = +14m.14s. = PP - 40s.
 Copenhagen pPEZ = +14m.25s., eEZ = +19m.6s., S = +21m.40s., eEZ = +23m.40s., sSE = +26m.4s., eEN = +26m.28s., eN = +29m.5s. and +30m.58s., eE = +32m.34s.
 Lund +22m.26s. and +26m.34s.
 Upsala e = +22m.47s.
 Helsingfors iE = +22m.7s.
 Pulkovo SKS = +23m.10s., SS = +30m.28s.
 Kucino e = +15m.39s., +19m.48s., +20m.58s., and +31m.53s.
 Baku e = +31m.46s.
 Ekaterinburg e = +19m.2s., i = +21m.9s., e = +22m.17s., i = +27m.59s.
 Tashkent i = +21m.33s. and +23m.53s.
 Irkutsk e = +21m.22s. ? and +24m.22s. ?
 Vladivostok e = +20m.45s. and +21m.29s., i = +21m.58s.
 Manila iE = +25m.23s.

Aug. 4d. 12h. 20m. 30s. Epicentre 40° 5N. 43° 8E. N.3.

A = +549, B = +526, C = +649; D = +692, E = -722;
 G = +469, H = +450, K = -760.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Baku	4.7	90	e 1 20	P*	—	—	2.8	—
Theodosia	7.6	308	e 1 52	+ 4	—	—	—	—
Yalta	8.1	303	e 1 54	- 1	—	—	—	—
Simferopol	8.4	305	e 2 2	+ 3	—	—	—	—
Sebastopol	8.6	302	—	—	e 3 29	-10	—	—
Ksara	9.1	226	—	—	5 20	S _r	6.6	—
Tashkent	19.2	79	4 24	+ 3	17 36	-14	e 10.3	11.5
Ekaterinburg	19.7	28	4 18	- 8	8 2	+ 2	10.5	—
Pulkovo	21.0	341	4 41	+ 1	8 27	+ 1	10.5	12.7
Copenhagen	25.5	317	—	—	(9 30?)	-20	9.5	—

Ekaterinburg gives also i = +4m.27s.

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Aug. 4d. 15h. 2m. 33s. Epicentre 42°4N. 11°1E. (as on 1921 July 5d.). X.

A = +.725, B = +.142, C = +.674.

	Δ	P.	O-C.	S.	O-C.	L.	M.
	°	m. s.	s.	m. s.	s.	m.	m.
Rocca di Papa	1.3	0 16	- 2	0 35	+ 2	—	0.9
Florence	1.4	e 0 29	P*	—	—	i 0.8	1.2
Padova	3.1	e 0 59	P _g	1 23	+ 3	—	—
Chur	4.6	e 1 2	- 4	e 1 54	- 4	—	—
Zagreb	4.9	0 54	-16	i 1 32	-33	—	—
Zurich	5.3	e 1 14	- 1	—	—	—	—

Additional readings:—

Zagreb iNW = +1m.44s.

Long waves were also recorded at Piacenza and Stuttgart.

Aug. 4d. Readings also at 5h. (La Plata and Neuchatel), 8h. (Almata, near Andijan, and Samarkand), 10h. (Florissant, Tucson, La Paz, near Guadalajara, Manzanillo, Tacubaya, and near Rocca di Papa), 14h. (Ksara), 15h. (Rio de Janeiro, Wellington, Ekaterinburg, Feldberg, Vienna, and Taranto), 16h. (Baku, Kucino, Copenhagen, Kew, Granada, Taranto, near Kobe, and Sumoto), 18h. (near Mizusawa).

Aug. 5d. 0h. 11m. 0s. Epicentre 38°5N. 128°5W. (as on 1915 May 6d.). R.3.

A = -.487, B = -.612, C = +.623; D = -.783, E = +.623;
G = -.388, H = -.487, K = -.783.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°		m. s.	s.	m. s.	s.	m.	m.
Berkeley	4.9	95	i 1 16	+ 6	12 8	+ 3	—	—
Victoria	E. 10.6	19	—	—	(4 1)	-27	4.0	7.2
Tucson	15.7	108	3 49	+11	e 6 48	+17	e 8.3	—
Sitka	19.1	349	e 4 23	+ 3	—	—	i 9.0	—
Florissant	29.6	77	e 6 2	+ 1	e 10 59	+ 1	e 14.5	16.4
St. Louis	29.9	76	e 6 3	- 1	e 11 0	- 3	14.8	15.7
Chicago	31.1	71	—	—	e 11 50	+29	e 16.1	—
Ann Arbor	N. 33.9	69	—	—	e 14 48	?	e 17.7	—

Additional readings:—

Berkeley iN = +1m.27s., iE = +1m.51s., eN = +2m.49s., iE = +3m.11s.

Victoria PEN 0h.7m.19s.

St. Louis eN = +6m.9s., +13m.44s., and +14m.11s.

Chicago e = +14m.13s. and +18m.30s.

Long waves were also recorded at Honolulu T.H., Baku, and European stations.

Aug. 5d. 0h. 22m. 55s. Epicentre 41°1N. 15°4E. (as on July 31d.). X.

A = +.726, B = +.200, C = +.657; D = +.266, E = -.964;
G = +.634, H = +.175, K = -.754.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°		m. s.	s.	m. s.	s.	m.	m.
Benevento	0.8	272	-10 2	-13	—	—	—	0.3
Naples	N. 0.9	253	e 0 10	- 3	e 0 13	-10	—	—
Barl	1.1	88	0 20	+ 4	e 0 45	+17	—	0.8
Casamicciola	1.2	253	-0 5	-22	0 4	-27	—	0.5
Taranto	1.6	114	1 22	+59	1 40	+59	—	1.7
Trenta	2.0	159	e 0 25	- 4	0 50	- 1	—	—
Rocca di Papa	2.1	288	e 0 33	+ 3	1 16	+22	—	1.6
Florence	4.1	313	—	—	e 2 5	—	—	3.1
Zagreb	4.7	5	e 1 26	P*	e 2 12	—	—	2.9
Piacenza	5.7	316	—	—	3 5	—	—	6.1
Budapest	6.9	21	—	—	e 3 45	S _g	—	—
Vienna	Z. 7.2	6	e 3 6	S	(e 3 6)	+ 2	—	—
Feldberg	N. 10.3	334	e 0 41	?	—	—	e 6.1	—
Ekaterinburg	32.8	45	—	—	e 11 8	-40	33.1	—

Additional readings:—

Rocca di Papa eP = +36s. = P*.

Long waves were also recorded at other European stations.

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Aug. 5d. 23h. 23m. 0s. Epicentre 34°·0N. 27°·0E. N.3.

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.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Ksara	7·4	89	e 1 54	+ 9	3 12	+ 3	3·3	—
Trenta	10·0	305	e 2 10	-11	4 10	- 3	—	—
Taranto	10·1	313	3 30	?	—	—	—	4·1
Catania	10·2	294	e 3 28	?	—	—	—	4·7
Mineo	10·5	292	1 42	-46	—	—	—	—
Sebastopol	11·8	23	e 2 39	- 7	—	—	—	—
Yalta	11·9	26	e 2 43	- 4	—	—	—	—
Belgrade	11·9	337	e 2 45	- 2	e 5 48	+48	—	8·1
Simferopol	12·2	24	e 2 48	- 3	—	—	—	—
Theodosia	12·8	28	e 3 0	+ 1	—	—	—	—
Rocca di Papa	13·6	309	e 3 46	+36	5 31	-10	—	6·4
Zagreb	14·5	328	3 29	+ 7	e 6 17	+14	—	6·8
Florence	15·6	314	—	—	e 6 30	+ 1	—	8·0
Vienna	16·3	334	e 3 46	+ 1	—	—	—	—
Piacenza	17·3	315	e 4 0	+ 2	8 8	+59	—	14·0
Chur	18·4	319	e 4 12	+ 1	e 7 46	+13	—	—
Zurich	19·2	320	e 4 21	0	—	—	—	—
Baku	19·3	64	e 4 28	+ 6	e 7 59	+ 7	10·5	12·0
Cheb	19·3	331	e 4 0?	-22	—	—	—	11·0
Stuttgart	19·8	323	e 4 45	+18	—	—	—	12·8
Neuchatel	19·9	316	e 4 27	- 2	e 8 2	- 2	—	—
Strasbourg	20·4	321	e 4 33	- 1	e 8 22	+ 8	10·0	—
Feldberg	21·1	325	1 4 39	- 2	e 8 24	- 4	—	11·7
Kucino	23·0	16	e 6 11	+70	e 10 0	+55	e 11·5	15·3
Pucino	23·4	317	e 5 0?	- 5	—	—	13·0	—
Uccle	23·5	322	e 5 5	0	—	—	—	—
Copenhagen	23·9	339	—	—	9 15	- 6	13·0	—
De Bilt	24·2	326	—	—	e 10 0	SS	e 12·0	15·7
Granada	24·9	286	—	—	e 10 48	SS	—	15·5
Pulkovo	25·9	4	5 26	- 2	9 44	-13	13·0	14·8
Kew	26·3	320	—	—	e 10 0?	- 3	—	—
Ekaterinburg	32·3	35	e 6 34	+ 9	—	—	15·0	—

Additional readings :-

Belgrade e = +6m.38s.

Zagreb eE = +5m.46s.

Feldberg eN = +3m.54s., iN = +4m.44s.

Long waves were also recorded at Gottingen, Lund, Scoresby Sund, and Hamburg.

Aug. 5d. Readings also at 0h. (Pulkovo and near La Paz), 1h. (Strasbourg, Almata, and near Andijan), 3h. (Nagasaki), 4h. (Taihoku), 5h. (near Taranto), 8h. (near Algiers), 10h. (Bombay), 11h. (Florissant and Tucson), 13h. (near Sumoto), 17h. (La Paz (2)), 20h. (Chur, Neuchatel, Zurich, and near Manila).

Aug. 6d. 7h. 28m. 30s. Epicentre 25°·5N. 98°·0E. (as on 1930 June 5d.). X.

A = -·126, B = +·894, C = +·431; D = +·990, E = +·139;
G = -·060, H = +·426, K = -·903.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Phu-Lien	9·2	119	—	—	3 30?	-24	—	—
Hong Kong	15·1	99	—	—	6 5	- 8	8·1	9·1
Zi-ka-wei	21·3	69	e 4 34	- 9	—	—	1 12·5	15·3
Manila	24·1	112	e 3 41	-90	—	—	—	—
Bombay	24·2	259	9 57	S	(9 57)	+30	(13·1)	19·5
Almata	24·7	321	e 5 18	+ 1	—	—	—	—
Irkutsk	27·2	8	e 5 40	0	e 10 26	+ 8	14·5	16·2
Ekaterinburg	41·1	380	e 7 40	- 1	13 54	+ 1	20·5	—

For Notes see next page.

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NOTES TO AUG. 6d. 7h. 28m. 30s.

Additional readings and note :—

Hong Kong e = +7m.38s.

Bombay gives S as P and L as S.

Ekaterinburg e = +16m.55s.

Long waves were also recorded at Calcutta, Taihoku, Vladivostok, Baku, Pulkovo, Copenhagen, and Cheb.

Aug. 6d. Readings also at 0h. (Budapest), 2h. (Matuyama), 3h. (Alicante, near Almeria, Granada, Malaga, and near Taihoku), 4h. (Baku, Ekaterinburg, Ksara, and near Tyosi), 5h. (Toledo), 6h. (near Toyooka), 7h. (near Medan), 11h. (Tyosi), 13h. (Sumoto), 15h. (Nagoya), 18h. (near Tyosi), 20h. (near La Paz), 21h. (Nagoya, near Osaka, Kobe, and Sumoto), 22h. (Tyosi and near Rocca di Papa), 23h. (Nagoya and near Tyosi).

Aug. 7d. 23h. 47m. 41s. Epicentre 23°·2N. 120°·6E. (as on 1929 Oct. 22d.). R.2.

A = -·468, B = +·791, C = +·394; D = +·861, E = +·509;
G = -·201, H = +·339, K = -·919.

		Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Hokoto		1·0	289	0 9	- 5	0 29	+ 3	—	—
Taihoku	E.	2·0	25	0 26	- 3	0 36	-15	0·9	1·3
Hong Kong		6·0	262	1 28	+ 3	2 58	+25	3·4	4·4
Zi-ka-wei	N.	8·0	5	e 2 17	+24	1 5 29	?	—	—
Manila		8·6	178	i 2 3	+ 1	1 3 42	+ 3	—	—
Phu-Lien		13·2	262	e 3 8	+ 3	—	—	8·6	8·8
Irkutsk		31·6	342	e 6 20	+ 1	e 11 24	- 5	17·3	20·3
Tashkent		46·3	308	i 8 21	- 2	i 15 14	+ 5	e 25·7	32·0
Baku		60·9	307	e 10 10	- 1	e 18 38	+10	33·8	—
Pulkovo		70·3	329	e 11 13	0	e 20 24	- 1	36·3	45·6
Feldberg	N.	85·4	324	—	—	e 28 16	SS	—	48·3
Rocca di Papa		87·1	315	—	—	e 25 6	?	e 41·6	55·5

Additional readings :—

Baku e = +23m.21s.

Rocca di Papa e = +29m.10s. =SS+12s.

Long waves were recorded at Scoresby Sund and many European stations.

Aug. 7d. Readings also at 0h. (La Paz, Ekaterinburg, Irkutsk, Tashkent, Hong Kong, Phu-Lien, Zi-ka-wei, near Manila, and Taihoku), 2h. (La Paz and Wellington), 4h. (Lick), 5h. (Honolulu T.H., Wellington, and near Santiago), 6h. (Baku, Florissant, Ekaterinburg, Tashkent, and near Manila), 7h. (near Tyosi), 8h. (La Paz), 9h. (Wellington), 10h. (near Lick), 11h. (near Taihoku), 12h. (near Rocca di Papa), 15h. (Taranto), 18h. (Benevento, Piacenza, Taranto, Trenta, and Rocca di Papa), 19h. (La Paz).

Aug. 8d. Readings at 0h. (near Taihoku), 2h. (La Paz), 3h. (Alicante, Granada, Tortosa, De Bilt, Edinburgh, Feldberg, Stuttgart, and Ekaterinburg), 6h. (Scoresby Sund), 7h. (Kobe, near Toyooka, and near Lick), 9h. (near Matuyama), 10h. (near Tashkent), 11h. (near Baku), 13h. (near Medan), 16h. (Andijan), 17h. (Barcelona, Toledo, near Almeria, Alicante, Granada, Tortosa, near Sumoto, and near Almeria), 22h. (Tucson), 23h. (Helsingfors and Irkutsk).

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Aug. 9d. 18h. 9m. 23s. Epicentre 33°·6N. 6°·2W. N.I.

Probable error of epicentre $\pm 0^{\circ}\cdot 25$.

A = +·828, B = -·090, C = +·553; D = -·108, E = -·994;
G = +·550, H = -·060, K = -·833.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	'	m. s.	s.	m. s.	s.	m.	m.
San Fernando	2·9	0	1 0	+19	1 32	+18	2·0	2·6
Malaga	3·5	24	0 43	-7	1 33	+3	—	—
Granada	4·2	29	1 1 1	+1	1 1 42	-6	—	2·4
Toledo	6·5	15	e 1 18	-14	e 2 29	-17	—	—
Alicante	6·6	42	e 1 33	-1	e 2 50	+2	e 3·6	5·5
Algiers	8·2	64	e 1 58	+2	4 11	+42	4·8	5·3
Tortosa	N. 9·0	35	2 4	-3	4 12	+23	4·8	5·9
Barcelona	10·3	37	e 2 17	-8	e 4 50	+29	e 5·5	7·7
Paris	16·6	21	e 3 47	-2	—	—	9·6	10·6
Neuchatel	16·7	32	e 3 40	-10	e 10 56	?	—	—
Florence	17·0	48	-0 23	?	2 37	?	—	6·6
Strasbourg	18·2	31	e 4 6	-3	e 7 25	-4	e 10·6	—
Kew	18·4	12	e 4 13	+2	—	—	9·6	—
Oxford	18·5	10	i 4 9	-4	1 7 36	0	10·1	13·2
Karlsruhe	18·9	31	4 19	+2	—	—	e 12·3	—
Uccle	18·9	21	i 4 17	0	e 7 45	+1	e 9·6	—
Stuttgart	19·0	32	e 4 18	-1	e 7 45	-1	e 10·1	11·3
Innsbruck	19·1	39	e 4 19	-1	—	—	—	—
Feldberg	N. 19·8	29	i 4 27	0	—	—	e 9·2	13·8
De Bilt	20·2	21	i 4 35	+3	e 8 13	+3	e 9·6	11·8
Stonyhurst	20·5	6	—	—	e 8 18	+2	—	12·6
Durham	21·4	7	4 47	+3	8 40	+6	e 11·9	14·3
Edinburgh	22·4	4	—	—	e 8 37?	-16	—	—
Vienna	Z. 22·4	42	4 53	-2	—	—	—	—
Hamburg	N. 23·1	25	e 5 8	+6	e 13 5	L	(e 13·1)	25·9
Copenhagen	25·6	25	5 24	-1	9 49	-2	13·6	—
Lund	25·9	25	5 31	+3	—	—	13·6	—
Helsingfors	N. 33·4	28	e 7 25	PP	—	—	—	—
Pulkovo	35·4	31	e 7 20	+27	e 14 4	SS	16·6	24·1
Baku	44·6	64	—	—	e 17 51	SS	25·1	—
Ekaterinburg	50·1	40	i 8 56	+4	e 15 58	-4	24·6	—
Tashkent	58·5	59	—	—	e 17 37?	-19	e 32·6	42·2
Florissant	65·6	304	—	—	e 22 2	?	—	38·1

Additional readings:—

Granada $i = +1m.23s.$
Toledo $P_1 = +1m.44s., S_1 = +2m.59s.$
De Bilt $eN = +3m.22s. -SS -9s.$

Long waves were also recorded at Irkutsk, Scoresby Sund, Cheb, Gottingen, and Puy de Dôme.

Aug. 9d. 21h. 54m. 30s. Epicentre 33°·6N. 6°·2W. (as at 18h.). X.

A = +·828, B = -·090, C = +·553; D = -·108, E = -·994;
G = +·550, H = -·060, K = -·833.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	'	m. s.	s.	m. s.	s.	m.	m.
San Fernando	2·9	0	(1 0)	+19	(1 35)	+21	(2·0)	(2·2)
Malaga	3·5	24	1 3	P ²	1 54	S ₁	—	—
Granada	4·2	29	1 0 56	-4	1 1 34	-14	—	2·2
Almeria	4·5	42	e 0 55	-9	1 1 40	-15	—	3·2
Toledo	6·5	15	e 1 33	+1	3 6	+20	—	—
Alicante	6·6	42	e 2 44	S	(e 2 44)	-4	(e 3·6)	—
Algiers	8·2	64	(e 2 10)	+14	(3 15)	-14	(4·2)	—
Tortosa	N. 9·0	35	e 3 35	S	(e 3 35)	-14	—	5·8

Additional readings and notes:—

San Fernando readings have been *diminished* by 3m.
Granada $iZ = +1m.2s., i = +1m.10s., +1m.23s. = P_1$, and $+1m.28s.$
Almeria $P_1 = +1m.0s., SS = +1m.46s., SSS = +1m.57s.$

Toledo $eS_1 = +3m.18s.$

Alicante gives S as P and L as eS.

Algiers readings have been *diminished* by 2m.

Long waves were also record at the European stations.

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Aug. 9d. 22h. 41m. 9s. Epicentre 39°·2N. 73°·6E. N.3.
(as given by Central Asia stations).

A = +·219, B = +·743, C = +·632; D = +·959, E = -·282;
G = +·178, H = +·606, K = -·775.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Andijan	1·8	328	i 0 29	+ 3	—	—	10·9	2·6
Tashkent	3·9	304	i 0 53	- 3	—	—	11·9	2·4
Almata	4·8	30	1 10	+ 2	—	—	12·4	2·6
Samarkand	5·1	277	1 16	+ 3	—	—	12·6	4·2
Baku	18·2	282	e 4 11	+ 2	e 7 36	+ 7	9·8	—
Ekaterinburg	19·5	338	4 20	- 4	7 59	+ 3	110·2	12·6
Bombay	20·3	182	4 34	+ 1	8 34	+22	11·0	13·1
Hyderabad	22·2	168	5 23	+30	9 23	+33	12·6	14·0
Pulkovo	33·9	322	e 6 38	- 1	e 12 2	- 2	13·8	20·4
Helsingfors	36·5	321	e 7 25	+23	—	—	e 14·8	—
Copenhagen	42·9	313	—	—	17 9	SS	22·8	—
Strasbourg	46·9	304	—	—	e 17 51?	SS	e 28·8	—

Additional readings:—

Almata i = +1m.21s. = P*.

Samarkand i = +1m.32s. = P*.

Long waves were recorded at other European stations.

Aug. 9d. Readings also at 0h. (Pulkovo, Ekaterinburg, Tashkent, and Strasbourg), 3h. (near Mizusawa), 5h. (Medan), 7h. (near Tananarive), 9h. (Ekaterinburg, Tashkent, and Phu-Lien), 10h. (Granada), 14h. (Wellington), 15h. (De Bilt, Feldberg, and Ksara), 16h. (Florissant), 18h. (near Andijan), 19h. (Baku, Ekaterinburg, Tashkent, Irkutsk, Vladivostok, La Paz (2), Rio de Janeiro, and Florissant), 20h. (Scoresby Sund, Florissant, Granada, Florence, Strasbourg, Stuttgart, De Bilt, Uccle, Feldberg, Paris, Kew, Cheb, Copenhagen, Pulkovo, Ekaterinburg, and Baku), 21h. (Baku and Tashkent), 23h. (Melbourne, La Paz (2), and near Andijan (2)).

Aug. 10d. 13h. 10m. 54s. Epicentre 34°·5N. 137°·2E. (as on 1929 June 2d.). X.

A = -·605, B = +·560, C = +·566.

The depth of focus 0·050 used on 1929 June 2d. is retained.

	Corr. for Focus	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	s.	m.	m.
Nagoya	+1·8	0·7	345	e 1 0	+24	(e 1 0)	- 4	—	—
Osaka	+1·6	1·4	276	0 44	+ 1	(1 8)	- 9	1·1	2·2
Kobe	+1·4	1·7	276	i 0 44	0	i 1 23	+ 3	—	1·4
Sumoto	+1·4	1·9	266	0 46	- 1	1 25	0	—	1·4
Iyos	+0·9	3·3	67	e 1 4	+ 4	(1 51)	+ 3	1·9	—
Mizusawa	e +0·2	5·6	33	(1 38)	+16	1 38	P	—	—

No additional readings.

Aug. 10d. Readings also at 0h. (Baku, Tashkent, Irkutsk, Andijan (2), Kew, De Bilt, Uccle, Paris, Strasbourg, Stuttgart, Florence, Tortosa, Adelaide, Wellington, Granada, Scoresby Sund, and Florissant), 1h. (Ekaterinburg, Copenhagen, Feldberg, Stonyhurst, Tortosa, Almeria, and near Granada), 2h. (Baku, Ekaterinburg, Tashkent, De Bilt, and near Mizusawa), 3h. (near Lick), 6h. (Tashkent and near Calcutta), 7h. (Irkutsk), 8h. (Ekaterinburg, Tashkent, Taranto, near Andijan (2), Almata, and Samarkand), 11h. (Samarkand), 12h. (Almata, Tashkent (2), Samarkand, and Andijan), 15h. (near Almata and Andijan), 17h. (Tshoku), 18h. (Samarkand), 21h. (Tacubaya), 22h. (Bombay and near Calcutta).

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Aug. 11d. Readings at 0h. (La Paz and Sucre), 1h. (La Paz (2), Andijan (3), and Samarkand (3)), 5h. (Almata, Ekaterinburg, Tashkent, near Andijan, and Samarkand), 6h. (Samarkand and near Andijan), 8h. (Christchurch and near Wellington), 10h. (La Paz), 12h. (Tyosi), 13h. (near Lick), 16h. (Ekaterinburg, Tashkent, and near Medan), 19h. (Lick), 20h. (Baku, Ekaterinburg, Samarkand, Tashkent, and near Lick (2)), 21h. (Alicante), 23h. (near Manila and near La Paz).

Aug. 12d. Readings at 0h. (Bombay, La Paz, and Naples), 5h. (Ekaterinburg, Tashkent, Samarkand, and near Andijan), 6h. (Almeria and near Malaga), 7h. (Melbourne and Wellington), 12h. (La Plata and near Santiago), 17h. (Florissant), 20h. (Andijan), 21h. (near La Paz), 22h. (Florissant).

Aug. 13d. 3h. 19m. 47s. Epicentre 33°-6N. 6°-2W. (as on 9d.). X.

A = +.828, B = -.090, C = +.553; D = -.108, E = -.994;
G = +.550, H = -.060, K = -.833.

	Δ	Az.	P.	O-C.	S.	O-C.	M.
	°	°	m. s.	s.	m. s.	s.	m.
Malaga	3.5	24	0 59	+ 9	1 43	+13	—
Granada	4.2	29	10 58	- 2	1 44	- 4	1.9
Almeria	4.5	42	0 58	- 6	1 39	-16	3.7
Toledo	6.5	15	e 1 28	- 4	e 3 1	-15	—
Alicante	6.6	42	e 1 39	+ 5	—	—	—

Additional readings :-

Granada I = +1m.1s., +1m.17s., and +1m.36s.

Almeria I = +1m.56s.

Long waves were recorded at De Bilt and Uccle.

Aug. 13d. 21h. 27m. 11s. Epicentre 53°-5N. 158°-5E. (as on 1929 Oct. 5d.). X.

A = -.553, B = +.218, C = +.804; D = +.367, E = +.930;
G = -.748, H = +.295, K = -.595.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Irkutsk	31.9	290	e 6 29	+ 7	e 11 36	+ 2	15.8	—
Ekaterinburg	51.0	317	1 8 58	- 1	e 16 18	+ 3	24.8	32.4
Andijan	56.2	295	e 9 40	+ 3	—	—	—	—
Tashkent	57.5	299	1 9 38	- 9	1 18 50	+67	e 29.8	35.9
Pulkovo	59.4	333	9 58	- 2	e 18 0	- 8	32.8	38.9
Samarkand	59.9	298	10 7	+ 3	—	—	—	—
Copenhagen	67.3	340	—	—	19 43	- 5	38.8	—
Theodosia	70.1	322	e 12 10	+59	—	—	—	—

Long waves were also recorded at Florissant, Scoresby Sund, Baku, and several European stations.

Aug. 13d. Readings also at 0h. (Ekaterinburg, Samarkand, and near Andijan), 1h. (Florissant), 2h. (Tashkent, Ksara, Ekaterinburg, and Samarkand), 3h. (Strasbourg and Irkutsk), 4h. (Wellington, Irkutsk, and Manila), 5h. (Ekaterinburg, Copenhagen, De Bilt, Strasbourg, Ootomari, and Florissant), 6h. (Rocca di Papa, Taranto, Granada (2), Paris, Copenhagen, and Ootomari), 7h. (near Manila), 8h. (Ekaterinburg and Tashkent), 9h. (Paris), 10h. (Wellington), 11h. (La Paz), 12h. (Tyosi and near Manila), 16h. (Ekaterinburg, Konigsberg, and Zagreb), 17h. (Tashkent and St. Louis), 19h. (Bombay, Ekaterinburg, Irkutsk, and Florissant).

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Aug. 14d. Readings at 4h. and 5h. (Tucson), 7h. (near Zagreb), 13h. (Naples and Samarkand), 17h. (near Manila), 19h. (near Andijan and near Osaka), 20h. (Andijan), 23h. (Bombay, Tashkent, Samarkand, near Almata (2), and Andijan (3)).

Aug. 15d. 13h. 34m. 54s. Epicentre 41°·1N. 15°·4E. (as on 5d.). X.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Benevento	0·8	272	e 0 16	+ 5	0 26	+ 5	—	0·6
Taranto	1·6	114	e 0 19	- 4	0 36	- 5	—	0·7
Trenta	2·0	159	e 0 31	+ 2	—	—	—	—
Rocca di Papa	2·1	288	0 52	S	(0 52)	- 2	(1·2)	1·6

Rocca di Papa gives S as P and L as S.

Aug. 15d. Readings also at 1h. (near Batavia and Malabar), 2h. (Kobe, Toyooka, Sumoto, Tokyo, near Nagoya, Osaka, and Tyos), 3h. (Mizusawa), 5h. (Kobe, near Osaka, and Sumoto), 10h. (Vienna), 12h. (near Tacubaya), 13h. (Baku, Ekaterinburg, Manila, Andijan, Samarkand, and near Taranto), 15h. (Bombay), 16h. (near La Paz), 18h. (Ekaterinburg, Irkutsk, Tashkent, Sumoto, Wellington, and La Paz), 19h. (Samarkand), 20h. (near Laibach and near Tananarive), 22h. (near Tyos), 23h. (Andijan, Tashkent, Ekaterinburg, Phu-Lien, near Medan, near Batavia, Malabar, and near Sumoto).

Aug. 16d. 20h. 44m. 12s. Epicentre 45°·6N. 16°·4E. (as on 1918 Jan. 29d.). R.2.
 A = +·671, B = +·198, C = +·715; D = +·282, E = -·959;
 G = +·685, H = +·202, K = -·700.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Zagreb	0·3	300	10 2	- 2	10 9	+ 1	—	0·4
Graz	1·6	338	10 20	- 3	10 53	S _g	—	1·2
Vienna	2·6	0	0 39	+ 2	11 22	S _g	11·6	2·1
Venice	2·9	268	e 0 42	+ 1	1 9	- 5	—	4·0
Treviso	3·0	271	10 47	+ 4	11 11	- 6	—	1·3
Padova	3·2	266	e 0 29	-17	e 1 7	-15	—	—
Florence	4·1	246	e 0 42	-16	—	—	—	1·5
Rocca di Papa	4·7	212	1 7	0	1 31†	-29	—	2·2
Piacenza	4·8	266	e 1 24	P*	—	—	—	3·9
Ravensburg	5·2	298	—	—	e 2 13	0	—	—
Stuttgart	5·8	306	—	—	e 2 28	0	—	—
Jena	6·2	331	—	—	e 2 42	+ 4	e 3·3	3·7
Strasbourg	6·6	300	—	—	e 2 38	-10	e 3·2	—
Gottingen	7·3	327	e 1 36	- 8	13 15	+ 9	—	4·1
Besançon	7·3	285	—	—	e 2 48†	-18	—	—

Additional readings:—

Zagreb eP = +4s., iP* = +6s., iS*_{NW} = +11s., iPP = +13s., iS = +18s., iPPP = +21s., iPPS = +22s.

Rocca di Papa P = +1m.18s.

Ravensburg iE = +2m.32s.

Stuttgart i = +3m.0s.

Gottingen iP_gN = +2m.13s., iN = +3m.4s.

Long waves are recorded at Budapest and Karlsruhe.

Aug. 16d. Readings also at 0h. (Bombay and near Ksara), 1h. (Paris and near La Paz and Suore), 2h. (Samarkand), 3h. (near Tyos), 5h. (near Andijan), 6h. (Matuyama), 9h. (near La Paz and Suore), 10h. (Andijan), 13h. (near Gottingen and near Tacubaya), 15h. (Bombay and La Paz), 16h. (Ekaterinburg, Hong Kong, Tashkent, Vienna, near Manila, and near Tyos), 21h. (near Tananarive), 23h. (Bombay),

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Aug. 17d. 9h. 28m. 30s. Epicentre 35°·2N. 140°·7E. N.2.

A = -·632, B = +·518, C = +·576; D = +·633, E = +·774;
G = -·446, H = +·365, K = -·817.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Tyosi	0·6	12	e 0 17	+ 8	0 29	+14	0·5	0·7
Mera	0·7	248	0 15	+ 5	0 23	+ 5	—	—
Tokyo	0·9	302	0 15	+ 2	0 22	- 1	—	—
Yokohama	0·9	285	0 14	+ 1	0 21	- 2	—	—
Tukuba	1·1	336	0 18	+ 2	0 33	+ 5	—	—
Kumagaya	1·4	312	0 22	+ 2	0 37	+ 1	—	—
Misima	1·5	267	0 20	- 1	0 31	- 8	—	—
Hatidyozima	2·2	199	0 36	+ 5	1 2	+ 5	—	—
Nagano	2·5	306	0 36	0	1 6	+ 2	—	—
Hamamatu	2·5	259	0 32	- 4	1 0	- 4	—	—
Hukusima	2·6	355	0 42	+ 5	1 15	+ 8	—	—
Nagoya	3·0	270	0 43	0	1 17	0	—	1·5
Wazima	3·8	306	0 55	+ 1	1 26	-11	—	—
Mizusawa	4·0	5	1 2	+ 5	1 49	+ 7	—	—
Kyoto	4·0	270	0 58	+ 1	1 53	+11	—	—
Osaka	4·2	264	0 59	- 1	—	—	1·9	2·5
Kobe	4·5	265	1 4	0	1 51	- 4	2·1	2·4
Akita	4·6	353	1 13	+ 7	2 19	S*	—	—
Sumoto	4·8	261	1 9	+ 1	2 7	+ 4	—	2·5
Toyooka	4·8	276	1 9	+ 1	2 14	+11	—	2·4
Koti	6·1	256	1 29	+ 2	2 41	+ 5	3·0	—
Matuyama	6·6	261	1 41	+ 7	2 41	- 7	13·7	3·8
Miyazaki	8·3	249	2 2	+ 4	3 40	+ 9	—	—
Hukuoka	8·6	262	2 17	+15	4 13	S*	—	5·0
Nagasaki	9·3	258	2 13	+ 2	—	—	—	—
Zi-ka-wei	z. 16·5	261	3 50	+ 2	6 56	+ 6	—	—
Irkutsk	30·9	316	e 6 9	- 4	e 11 13	- 5	15·5	—
Phu-Lien	33·1	255	e 6 30†	- 3	—	—	—	—
Andijan	52·7	299	e 9 15	+ 3	e 16 37	- 1	—	—
Tashkent	54·8	300	9 30	+ 3	i 16 59	- 7	e 24·3	33·5
Ekaterinburg	55·9	321	1 9 33	- 2	i 17 15	- 6	29·5	36·0
Pulkovo	69·3	330	e 11 5	- 1	—	—	34·6	—
Scoresby Sund	73·6	355	—	—	21 6	+ 2	—	—
Copenhagen	79·0	334	—	—	21 58	- 7	43·5	—
De Bilt	84·5	335	—	—	e 22 53	[- 2]	e 43·5	49·5
Strasbourg	86·3	331	—	—	(e 23 30†)	+10	e 23·5	—
Florence	88·6	326	23 30	S	(23 30)	[+ 6]	—	45·5
Florissant	92·2	39	—	—	e 23 30	[-16]	—	—

Additional readings:—

Tyosi P₂EN = +24s.

Kobe SN = +2m.3s.

Toyooka iPZ = +1m.14s., iPN = +1m.20s., iPE = +1m.21s.

Zi-ka-wei PPZ = +4m.4s.

Long waves were also recorded at Hong Kong and several European stations.

Aug. 17d. 12h. 29m. 32s. Epicentre 27°·5N. 55°·0E. (as on 1930 May 13d.). R.1.

Probable error of epicentre $\pm 0^{\circ}·28$.

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

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Samarkand	15·7	36	e 3 30	- 8	—	—	—	—
Ksara	17·6	297	4 0	- 2	7 16	+ 1	11·1	—
Tashkent	18·1	37	1 4 1	- 7	17 30	+ 3	i 10·0	11·0
Bombay	18·5	114	4 11	- 2	8 1	+25	10·3	18·0
Andijan	19·5	43	4 26	+ 2	e 8 50	+54	12·5	—

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Agra	E. 20.5	85	e 4 52	+17	—	—	—	—
Helwan	20.9	282	4 42	+3	8 33	+ 9	—	12.5
Theodosia	23.5	323	5 4	-1	9 16	+ 2	—	—
Hyderabad	23.8	110	5 10	+2	9 33	+14	13.6	19.8
Yalta	23.8	321	5 5	-3	9 21	+ 2	—	—
Simferopol	24.1	322	5 9	-2	9 29	+ 4	—	—
Sebastopol	24.2	321	e 5 15	+3	e 9 28	+ 1	—	—
Kodaikanal	27.3	125	7 40	?	—	—	—	—
Ekaterinburg	29.6	6	i 5 55	-6	10 50	- 8	14.5	19.0
Colombo	31.3	128	11 18	S	(11 18)	- 6	—	21.1
Budapest	34.3	316	6 43	0	14 20	SS	e 20.5	23.5
Zagreb	35.8	311	e 6 56	0	e 12 24	- 9	e 19.0	—
Pulkovo	36.4	340	6 58	-3	e 12 35	- 7	18.5	23.1
Konigsberg	37.0	327	—	—	e 16 28†	(-56)	e 24.5	—
Rocca di Papa	37.2	304	e 4 54	?	i 12 52	- 2	e 24.7	27.3
Helsingfors	38.5	336	e 7 2	-17	e 12 50	-24	e 22.1	—
Florence	38.6	306	7 20	0	13 8	- 7	—	25.5
Cheb	39.4	317	—	—	e 13 26	- 1	e 25.5	28.5
Potsdam	39.8	320	e 7 28†	-2	e 13 28†	- 5	—	26.5
Piacenza	39.9	310	e 7 44	+13	13 36	+ 1	16.8	29.7
Stuttgart	41.0	314	e 7 38	-2	e 13 46	- 5	e 23.0	28.6
Upsala	41.1	333	e 7 36	-5	e 13 42	-11	e 22.5	33.3
Zurich	41.1	311	e 7 36	-5	i 13 45	- 8	—	—
Gottingen	41.3	318	e 7 39	-4	e 13 52	- 4	e 23.5	—
Copenhagen	41.5	326	7 40	-4	13 56	- 3	—	—
Feldberg	41.8	316	i 7 46	-1	e 14 4	+ 1	—	29.3
Strasbourg	41.9	313	e 7 44	-4	e 13 53	-12	e 21.5	—
Hamburg	42.0	321	e 7 50	+1	—	—	e 21.5	33.0
Neuchatel	42.1	312	e 7 44	-5	—	—	—	—
Irkutsk	44.0	41	e 8 3	-2	14 29	- 7	23.5	28.0
De Bilt	44.3	318	8 10	+3	14 41	+ 1	22.5	30.9
Algiers	44.4	296	e 8 5	-3	14 37	- 4	28.5	29.2
Uccle	44.7	316	e 8 5	-5	14 44	- 2	e 24.5	—
Tortosa	46.2	302	e 7 25	-57	14 6	-61	—	31.3
Tananarive	47.0	190	—	—	19 33	SSSS	e 25.6	—
Alicante	47.1	299	e 8 36	+7	e 15 16	- 4	e 22.3	—
Phu-Lien	47.2	87	—	—	14 28†	-53	—	—
Kew	47.5	318	i 8 34	+2	e 15 23	- 3	26.5	—
Oxford	48.2	316	—	—	15 27	- 9	e 26.9	37.5
Almeria	48.7	296	8 41	0	15 37	- 6	e 28.4	32.1
Granada	49.7	296	i 8 54	+5	15 57	0	e 27.5	34.4
Toledo	49.8	300	e 8 42	-8	15 57	- 1	e 21.8	—
Malaga	50.4	296	9 2	+8	16 2	- 4	21.5	—
Hong Kong	53.4	82	16 46	S	(16 46)	- 1	—	30.5
Scoresby Sund	59.9	339	10 28†	(-25)	18 16	+ 1	36.5	—
Vladivostok	62.5	52	—	—	e 24 8	†	25.8	—
Florisant	106.2	333	—	—	e 18 28	PP	e 27.8	—

Additional readings: —

Rocca di Papa e† = +3m.52s.

Helsingfors iPPFEN = +8m.44s., ePcPEN = +8m.59s., iSSSEN = +15m.54s.

Florence i = +9m.11s. = P_cP - 26s.

Cheb e = +19m.12s.

Stuttgart ePPEZ = +9m.14s.

Upsala PPE = +9m.12s.

Copenhagen +9m.29s., and +17m.16s.

Feldberg iN = +8m.56s., eN = +11m.44s., and +17m.22s.

De Bilt PPZ = +10m.0s.

Kew eSSN = +18m.23s.

Granada PP = +11m.3s.

Long waves were also recorded at Paris, Stonyhurst, and La Paz.

Aug. 17d. Readings also at 1h. (Bombay), 3h. (Bombay and near Kodaikanal), 6h. (Ekaterinburg, Irkutsk, Tashkent, and Taranto), 9h. (Ekaterinburg, Tashkent, Medan, Phu-Lien, Vladivostok, and near Tyosil), 11h., 12h., and 16h. (Tyosil), 17h. (Irkutsk, Tashkent, and Tyosil), 18h. (Lick, near Sumoto, and near Toyooka), 19h. (near Andijan and near Tyosil), 22h. (Dehra Dun, Samarkand, near Almata, and Andijan), 23h. (near Medan).

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Aug. 18d. 9h. 53m. 45s. Epicentre 55°-0S. 27°-5W. R.1.

(as on 1930 March 30d.).

Probable error of epicentre ±0°.8.

A = +.509, B = -.265, C = -.819; D = -.462, E = -.887;

G = -.727, H = +.378, K = -.574.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
La Plata	29-0	301	6 2	+ 6	10 47	- 1	13-6	—
Rio de Janeiro	34-2	335	1 6 41	- 1	1 12 7	- 2	1 15-9	19-5
Santiago	36-8	289	7 27	+ 22	12 59	+ 11	15-6	—
Cape Town	38-0	75	1 7 13	- 2	e 13 24	+ 18	—	17-6
Sucre	45-9	306	8 24	+ 4	—	—	—	—
Johannesburg	49-3	78	6 45	?	—	—	13-9	22-2
La Paz	49-5	305	1 8 55	+ 8	1 15 58	+ 4	23-4	29-9
Tananarive	66-1	89	10 45	- 1	1 19 35	+ 1	31-9	34-5
Dakar	70-2	10	e 11 8	- 4	e 20 13	- 11	31-9	—
Christchurch	80-0	193	e 12 18	+ 10	—	—	—	51-6
Wellington	81-9	196	12 10	- 8	22 33	- 3	35-2	40-3
Port au Prince	82-8	318	e 12 50	+ 28	e 22 34	- 11	43-9	—
Melbourne	87-0	173	12 52	+ 9	23 25	- 2	40-2	48-9
Perth	87-6	149	23 0	SKS	(23 0)	[-17]	—	—
Adelaide	89-3	169	i 12 47	- 7	1 23 46	- 3	e 40-3	49-0
Riverview	91-3	179	e 12 57	- 6	e 23 35	[- 5]	e 43-6	52-6
San Fernando	93-3	15	13 15	+ 2	23 45	[- 7]	43-3	45-9
Malaga	93-8	18	13 11	- 4	23 51	[- 3]	32-1	50-2
Almeria	94-4	20	i 13 15	- 3	1 23 48	[- 10]	42-4	48-9
Granada	94-4	19	i 13 10	- 8	24 10	{ 0 }	i 43-8	49-8
Algiers	95-4	24	e 13 26	+ 4	24 42	- 4	42-2	49-2
Alicante	96-2	21	e 13 1	- 25	e 23 39	[- 28]	e 43-8	49-6
Toledo	96-9	17	e 13 27	- 2	e 24 2	[- 8]	e 30-6	51-3
Helwan	98-6	49	e 13 35	- 2	24 7	[- 12]	—	56-4
Tortosa	98-7	20	e 13 28	- 10	24 10	[- 9]	41-4	51-6
Catania	99-4	33	e 15 3	?	24 13	[- 10]	e 49-3	57-8
Barcelona	99-7	22	e 16 18	?	—	—	e 41-7	52-9
Naples	N. 102-2	30	e 18 15	PP	—	—	48-2	—
Rocca di Papa	102-6	29	e 13 50	- 5	27 8	PS	e 49-1	57-4
Charlottesville	102-7	322	e 14 15	+ 19	e 23 45	[- 54]	e 47-6	—
Georgetown	103-0	322	i 14 5	+ 8	1 24 23	[- 17]	—	—
Fordham	103-7	325	e 13 11	- 50	e 24 55	[- 11]	e 47-2	—
Ksara	104-0	49	18 4	PP	29 46	?	50-2	—
Florence	104-1	27	14 1	- 1	27 45	PS	48-9	52-2
Piacenza	104-9	26	e 14 3	- 3	24 31	[- 18]	43-2	58-8
Colombo	105-6	100	10 19	?	26 0	{ +25 }	43-4	44-2
Padova	105-8	27	e 18 21	PP	e 24 32	[- 22]	—	—
Besançon	106-0	23	—	—	e 24 42	[- 13]	44-2	54-2
Neuchâtel	106-0	22	e 18 18	[+13]	e 24 42	[- 13]	—	—
Venice	106-0	27	e 15 50	?	23 48	?	—	—
Treviso	106-1	28	16 3	?	24 43	[- 12]	49-2	57-2
Chur	106-5	23	e 18 33	PP	e 28 15	PS	—	—
Zurich	106-7	24	e 18 38	PP	e 28 34	PS	—	—
Paris	106-8	20	e 14 14	- 1	(27 15)	PS	27-2	51-2
Kodakkanal	106-9	94	27 45	PS	—	—	51-6	62-2
Zagreb	107-3	30	e 17 31	[- 38]	e 27 58	PS	44-6	—
Innsbruck	107-4	25	e 18 27	PP	28 3	PS	—	56-8
Strasbourg	107-7	23	14 16	- 4	24 52	[- 11]	49-2	57-2
Belgrade	107-7	34	e 19 50	PP	e 28 52	PS	—	49-5
St. Louis	107-8	313	e 14 23	+ 3	1 24 53	[- 10]	47-1	60-4
Florissant	108-0	313	e 14 25	+ 4	1 24 45	[- 19]	e 49-2	—
Toronto	108-0	323	e 14 33	+ 12	1 24 51	[- 13]	50-6	—
Batavia	108-1	131	i 18 37	[+25]	1 25 14	[+10]	64-2	—
Karlsruhe	108-2	23	e 18 57	PP	28 47	PS	e 56-2	—
Stuttgart	108-2	23	e 14 18	- 4	1 24 55	[- 10]	51-2	57-8

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Ottawa	108.3	327	e 14 39	+16	1 28 23	PS	e 44.2	—
Ann Arbor	108.4	319	e 17 57	[-16]	e 25 9	[+ 3]	52.9	57.1
Kew	108.8	17	e 14 24	- 1	e 26 38	{+40}	44.2	54.1
Oxford	108.9	16	e 14 27	+ 1	1 25 13	[+ 5]	e 41.2	55.5
Uccle	109.1	20	e 14 25	- 2	1 24 56	[-13]	e 44.2	58.3
Feldberg	N. 109.4	23	e 14 22	- 6	e 24 59	[-12]	e 46.2	57.2
Chicago	109.4	316	e 17 43	[-33]	e 24 51	[-20]	e 45.1	—
Vienna	109.6	29	e 18 16	[0]	28 28	PS	e 44.2	59.2
Budapest	109.7	31	e 18 57	[+40]	25 59	[+47]	45.2	59.2
Cheb	110.2	27	e 19 4	PP	e 28 34	PS	e 45.2	58.2
De Bilt	110.5	21	e 14 31	- 2	e 25 6	[-10]	e 46.2	55.3
Jena	110.8	25	e 19 15	PP	e 28 15	PS	e 45.2	56.2
Stonyhurst	110.8	15	e 18 45	PP	1 25 20	[+ 3]	—	59.2
Göttingen	111.0	23	—	—	e 28 21	PS	e 52.2	59.6
Bombay	111.2	87	18 23	[+ 2]	26 58	?	41.2	59.6
Durham	111.8	14	19 11	PP	29 2	PS	52.6	59.7
Sebastopol	112.2	41	e 19 11	PP	—	—	—	—
Yalta	112.3	41	e 19 11	PS	—	—	—	—
Potsdam	112.5	25	e 18 21	- 4	1 28 57	PS	e 51.3	59.8
Edinburgh	112.6	13	e 19 18	PP	1 29 13	PS	48.2	63.9
Simferopol	112.7	41	e 18 47?	+21	—	—	—	—
Hamburg	112.9	22	e 19 15	PP	1 29 52	?	e 47.1	55.2
Medan	112.9	120	e 18 50	[+23]	1 25 50	[+24]	55.2	—
Theodosia	113.2	41	e 19 23	PP	29 5	PS	64.2	—
Hyderabad	113.3	90	19 5	PP	28 32	PS	48.1	59.6
Dyce	114.1	13	e 14 57	+ 6	1 25 9	[-21]	e 47.2	55.3
Copenhagen	115.4	23	14 55	- 2	25 23	[-12]	47.2	—
Königsberg	116.7	29	i 19 46	PP	1 29 32	PS	e 49.2	63.2
Uppsala	120.3	25	e 20 5	PP	e 25 32	[-19]	e 49.2	59.8
Helsingfors	122.4	28	e 18 40	[-11]	25 39	[-19]	e 52.2	—
Kuoino	122.9	37	—	—	25 50	[- 9]	e 49.7	67.5
Pulkovo	123.6	30	15 32	- 5	25 50	[-11]	56.2	66.0
Samarkand	123.8	66	e 18 54	[0]	—	—	56.2	—
Scoresby Sund	125.5	2	21 3	PP	30 39	SKSP	54.2	—
Tashkent	126.2	66	e 15 36	-14	1 27 39	{-18}	54.2	76.1
Andijan	127.6	70	e 18 59	[- 3]	—	—	57.2	—
Honolulu T.H.	130.0	249	e 20 15	?	1 31 35	PS	60.2	—
Victoria	130.6	299	19 35	[+27]	31 21	PS	56.3	64.2
Phu-Lien	131.6	115	19 15?	[+ 5]	—	—	—	—
Almata	131.8	70	e 19 15	[+ 5]	—	—	—	—
Ekaterinburg	132.5	46	i 19 8	[- 3]	1 28 13	[-13]	—	—
Manila	132.8	137	i 22 6	PP	—	—	—	—
Hong Kong	136.7	123	16 50	?	34 3	?	e 54.2	71.6
Sitka	141.5	305	i 19 20	[- 3]	—	—	e 62.5	—
Taihoku	E. 142.4	130	—	—	e 36 15?	?	—	—
Zi-ka-wei	Z. 147.6	125	19 31	[- 7]	1 34 3	?	—	79.1
Irkutsk	151.9	75	e 19 40	[- 4]	26 57	PPP	76.2	91.1
Koti	154.8	140	e 19 34	[-14]	—	—	—	—
Osaka	156.5	143	18 59	?	23 55	PP	—	—
Sapporo	166.1	144	19 57	[- 3]	—	—	—	—

Additional readings:—

La Paz PPE = +10m.53s., PPEE = +11m.18s., iPSE = +16m.20s.
 Tananarive P_P = +11m.30s., PPE = +13m.11s., E = +13m.38s., PPN =
 +14m.44s., PPEE = +14m.56s., PSN = +19m.54s., PSE = +19m.56s.,
 PPSN = +20m.5e., ISKN = +20m.46s., S₀SE = +21m.6s., N = +23m.44s.,
 E = +23m.59s., SSE = +24m.38s., SSN = +26m.44s., SSE = +27m.8s.,
 SSSN = +28m.59s.
 Wellington PP = +15m.31s.
 Melbourne PPP = +18m.20s., i = +23m.5s., PS = +24m.15s., SS = +29m.17s.
 Adelaide IPP = +16m.17s., IS = +23m.13s. = SKS-15s., i = +24m.6s., SS =
 +20m.8s.
 Riverview PP = +16m.33s., SKKS = +23m.53s., +25m.37s., eE = +37m.31s.
 Granada PP = +16m.46s., PPP = +18m.21s., SPS = +23m.45s., SS = +29m.38s.,
 SSS = +33m.19s.

Continued on next page.

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Algiers PS = +23m.53s.
Rocca di Papa iPP = +18m.6s.
Charlottesville ePP = +17m.57s., eSS = +32m.55s.
Georgetown eE = +13m.9s., eZ = +13m.57s. and +17m.22s., iZ = +18m.7s.,
iPP = +18m.24s., ePPPE = +20m.33s., ePPPPZ = +20m.39s.
Fordham iPP = +17m.21s., iSS = +31m.58s.
Ksara PPPE? = +24m.33s.
Piacenza P = +18m.29s. = PP + 10s.
Chur e = +33m.15s. = SS - 16s.
Paris e = +18m.33s. = PP - 1s.
Zagreb e = +18m.41s. = PP + 3s., eNW = +24m.49s. = SKS - 12s. and +25m.42s.,
e = +28m.49s. and +33m.50s.
Strasbourg PKP = +17m.52s., PP = +18m.39s., iPS = +27m.50s., PPS =
+28m.30s., P_cSS_cP = +28m.50s., PSSS = +37m.55s. = SSS - 11s.
Belgrade e = +19m.57s.
St. Louis eN = +14m.38s. and +14m.53s., iN = +18m.26s. and +19m.1s., iEN =
+21m.13s., and +21m.18s., iPSN = +28m.8s., iN = +28m.59s., iE =
+29m.8s., iSSN = +34m.8s.
Florissant iPZ = +14m.29s., ePKPZ = +17m.11s., iPPZ = +18m.46s., iZ =
+20m.55s., iPSEZ = +28m.1s., iZ = +29m.11s., iSSEN = +34m.5s.,
iSSSE = +39m.10s.
Toronto iPP = +18m.51s., iPS = +28m.16s., iSS = +34m.5s.
Batavia i = +20m.6s. and +24m.48s., iE = +25m.24s., i = +26m.20s.
Stuttgart ePPZ = +18m.13s. = PKP + 1s., iNZ = +18m.48s. = PP + 4s., and
+19m.41s., iPPPPZ = +21m.3s., i = +25m.43s., iSZ = +26m.25s., iSEN =
+26m.39s., i = +28m.3s. = PS - 7s., iPPSNZ = +28m.25s., iSS = +33m.25s.,
iE = +33m.51s. = SS - 3s., iN = +34m.11s., iSSS = +38m.5s.
Ottawa i = +19m.3s., +34m.23s., and +38m.15s.
Ann Arbor e = +19m.9s., eE = +21m.21s., eN = +24m.57s. and +29m.15s.,
eE = +34m.15s.
Kew ePPZ = +18m.57s., iSKSN = +24m.53s., ePPS = +28m.35s., SSN =
+34m.45s.
Oxford e = +18m.33s., i = +22m.58s., +24m.33s., +25m.52s. = SKKS - 7s.,
and +28m.23s. = PS - 6s.
Ucle ePP = +18m.54s., i = +28m.21s. = PS + 2s., SS = +34m.21s.
Feldberg iN = +18m.53s. = PP + 0s., eN = +28m.23s. = PS + 1s., e?N =
+30m.38s.
Chicago ePP = +18m.57s., ePPP = +21m.5s., e = +26m.25s., ePS = +28m.9s.,
eSS = +33m.57s.
Vienna PP = +21m.22s., PS = +29m.7s., PSS = +33m.58s. = SS - 15s., SSS =
+37m.23s.
De Bilt ePPZ = +19m.2s., eEN = +26m.51s., e = +28m.37s. = PS + 5s.
Jena eZ = +28m.45s. = PS + 10s.
Stonyhurst i = +26m.40s., PPS = +28m.50s.
Göttingen ePPNZ = +19m.3s., ePPPNZ = +21m.9s., eSSE = +34m.39s.,
eSSSE = +38m.39s.
Potsdam iN = +19m.21s. = PP + 6s.
Hamburg iN = +29m.2s. = PS + 8s.
Medan i = +34m.14s.
Dyce iPP = +19m.37s., i = +26m.17s. = SKKS - 19s. and +29m.21s. = PS + 14s.
Copenhagen PKP = +18m.51s., PP = +19m.37s., eE = +24m.35s., SKKS =
+26m.40s., SE = +27m.51s., PS = +29m.25s., SS = +35m.9s., SSS =
+39m.27s.
Königsberg i = +20m.10s.
Upsala eN = +30m.4s. and +41m.15s.
Helsingfors eZ = +14m.49s., ePP = +19m.52s., PPPE = +22m.50s., SKKS =
+26m.42s., PKKP = +28m.56s., SKSPEN = +30m.20s., SKKSEN =
+36m.56s., iSSS = +41m.10s.
Kucino PP = +20m.23s., SKSP = +30m.30s., SS = +37m.27s.
Pulkovo PKP = +19m.7s., SS = +37m.15s.
Tashkent iPKP = +19m.16s., iPP = +20m.55s., SS = +38m.15s.
Ekaterinburg eP = +16m.7s., PP = +21m.29s., PPS = +33m.7s.
Manila iEN = +23m.52s.
HongKong PP = +22m.19s., SS = +39m.58s.
Sitka iPP = +22m.49s., iSS = +41m.6s., eSSS = +45m.28s., e = +54m.10s.
Zi-ka-wei iZ = +19m.42s., +20m.7s., and +20m.49s.
Irkutsk PKS = +23m.15s., PS = +33m.40s., SS = +42m.15s.
Long waves were recorded at Sydney.

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Aug. 18d. 19h. 42m. 11s. Epicentre 36°·5N. 141°·5E. (as on 1929 April 16d.). R.3.

A = -·629, B = +·500, C = +·595; D = +·623, E = +·783;
G = -·466, H = +·370, K = -·804.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Mito	0·8	262	0 6	- 5	0 17	- 4	—	—
Tyosi	0·9	214	0 13	0	(0 25)	+ 2	0·4	0·6
Kakioka	1·1	256	0 11	- 5	0 25	- 3	—	—
Hukusima	1·5	325	0 18	- 3	0 35	- 4	—	—
Tokyo	1·7	240	0 22	- 2	0 43	- 1	—	1·1
Mera	2·1	220	0 32	+ 2	0 58	+ 4	—	—
Misima	2·3	236	0 35	+ 2	0 49	- 10	—	—
Mizusawa	2·6	354	0 34	- 3	1 4	- 3	—	—
Morioka	3·2	356	0 39	- 7	1 17	- 5	—	—
Hamamatu	3·6	242	0 51	0	1 43	S*	—	—
Nagoya	4·0	252	1 0	+ 3	1 53	+ 11	—	2·2
Osaka	5·3	252	1 24	+ 9	—	—	2·6	3·3
Kobe	E. 5·5	253	—	—	e 2 1	- 19	—	—
Toyoooka	5·5	262	1 18	0	e 2 28	+ 8	—	2·7
Sumoto	5·8	250	—	—	e 2 28	0	(e 2·9)	3·2
Tashkent	54·8	299	—	—	e 14 49?	?	—	34·6

Additional readings and notes:—

Tyosi P₂ = +18s.

Mizusawa SN = +1m.7s.

Sumoto gives S as e and L as S.

Koti ($\Delta = 7^{\circ}·2$) gives eE = 19h.41m.31s.

Long waves were also recorded at Irkutsk and Ekaterinburg.

Aug. 18d. Readings also at 0h. (Hong Kong, Manila, Vladivostok, Tashkent, and Ekaterinburg), 1h. (Irkutsk, Kucino, De Bilt, Uccle, Feldberg, Granada, and La Paz (2)), 2h. (Copiapo, Phu-Lien, Hong Kong, Taihoku, and Zi-kawei), 4h. (Ekaterinburg and La Paz), 5h. (Feldberg and Tashkent), 7h. (Ekaterinburg, Tashkent, and Scoresby Sund), 8h. (Wellington), 10h. (La Paz), 11h. (Samarkand, La Plata, La Paz, Sucre, Manila, near Algiers, and near Batavia), 12h. (Hamburg), 13h. (near Lick), 15h. (Chur), 21h. (Ekaterinburg, Tashkent, and Ksara), 22h. (Ekaterinburg and Irkutsk), 23h. (Wellington).

Aug. 19d. 12h. 40m. 22s. Epicentre 35°·0N. 139°·5E. (as on 1930 May 12d.). R.2.

A = -·623, B = +·532, C = +·574; D = +·649, E = +·760;
G = -·436, H = +·372, K = -·819.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Tokyo	0·7	16	0 9	- 1	0 22	+ 4	—	2·4
Tukuba	1·3	25	0 17	- 1	—	—	—	—
Tyosi	1·3	56	e 0 16	- 2	(0 34)	+ 1	0·6	—
Nagoya	2·1	274	0 31	+ 1	0 57	+ 3	—	1·0
Osaka	3·4	266	0 47	- 2	(1 34)	+ 7	1·6	2·0
Kobe	E. 3·6	266	e 0 51	0	1 32	0	—	1·8
	N. 3·6	266	e 0 58	+ 7	1 36	+ 4	—	1·9
Sumoto	3·8	261	—	—	e 1 29	- 8	(e 1·8)	2·0
Toyoooka	3·8	279	2 6	+ 72	2 51	+ 74	—	2·9
Mizusawa	E. 4·3	17	0 51	- 10	2 7	+ 17	—	—
Koti	5·2	255	—	—	e 2 18	+ 5	(2·7)	—

Additional readings and notes:—

Sumoto gives S as e and L as S.

Toyoooka SE = +2m.55s.

Koti gives S as e and L as S.

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Aug. 19d. 17h. 41m. 36s. Epicentre 35°·6N. 140°·8E. R.3.

(Given by Nagoya and in Geophy. Mag., Tokyo, Vol. IV, No. 4, and as on 1930 May 20d.)

A = -·630, B = +·514, C = +·582; D = +·632, E = +·775;
G = -·451, H = +·368, K = -·813.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Tyosi	0·2	17	0 1	- 2	—	—	0·1	0·1
Tukuba	0·8	316	0 11	0	—	—	—	—
Kakioka	0·8	322	0 12	+ 1	0 23	+ 2	—	—
Tokyo	0·9	276	0 18	P*	0 31	S*	—	0·7
Mera	1·0	229	0 21	P*	0 37	S*	—	—
Yokohama	1·0	260	0 19	P*	0 34	S*	—	—
Kumagaya	1·3	296	0 23	P*	0 45	S*	—	—
Misima	1·5	252	0 27	+ 6	0 35	- 4	—	—
Nagano	2·4	297	0 38	+ 4	1 5	+ 3	—	—
Hadidyoizima	2·6	199	0 40	+ 3	—	—	—	—
Sendai	2·6	1	0 36	- 1	1 7	0	—	—
Nagoya	3·2	262	0 52	+ 6	1 42	+20	—	1·9
Gihu	3·3	267	0 52	+ 5	1 46	S*	—	—
Mizusawa	3·5	4	0 54	+ 4	1 31	+ 1	—	—
Kyoto	4·1	264	1 15	P*	2 25	S*	—	—
Akita	4·2	352	1 2	+ 2	2 0	S*	—	—
Osaka	4·4	259	1 20	P*	—	—	2·4	3·0
Kobe	4·7	260	1 24	P*	2 29	S*	—	2·7
Toyooka	4·8	271	e 1 23	P*	2 33	S*	2·6	2·8
Sumoto	5·0	257	1 26	P*	2 41	S*	—	3·2
Koti	6·3	256	—	—	3 22	S*	3·5	—
Tashkent	54·7	299	—	—	e 17 13	+ 8	e 27·4	33·7
Ekaterinburg	55·7	319	9 31	- 3	17 16	- 3	26·4	—

Additional readings:—

Toyooka gives also $i = +1m.28s.$

Long waves were also recorded at Vladivostok, Irkutsk, Pulkovo, and several European stations.

Aug. 19d. Readings also at 0h. (near Tyosi), 1h. (Granada, Ekaterinburg, Tashkent, Adelaide, Melbourne, near Christchurch, and Wellington), 2h. (Granada), 4h. (Ekaterinburg, Samarkand, Tashkent, and near Almata), 5h. (Ekaterinburg, Tashkent, Copenhagen, Kew, De Bilt, Feldberg, Granada, Ivigtut, Florissant, and Sitka), 6h. (Bombay, Port au Prince, and Scoresby Sund), 9h. (near Lick), 11h. (Copiapo and near Santiago (2)), 13h. (Nagoya), 14h. (Kew and near Manila), 16h. (Wellington (2) and near Sumoto), 18h. and 19h. (near Tyosi), 21h. (Florissant and near Tyosi).

Aug. 20d. 20h. 54m. 12s. Epicentre 24°·5N. 122°·2E. N.1.

Probable error $\pm 0\cdot5$ (epicentre given by Nagoya).

A = -·485, B = +·770, C = +·415; D = +·846, E = +·533;
G = -·221, H = +·351, K = -·910.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Karenko	0·7	227	0 3	- 7	0 13	- 5	—	—
Taihoku	0·8	311	0 4	- 7	0 12	- 9	—	0·3
Isigakizima	1·8	95	0 28	+ 2	0 51	+ 5	—	—
Taito	2·0	209	0 9	- 20	0 27	- 24	—	—
Hokoto	2·7	248	0 43	+ 4	1 13	+ 4	—	—
Naha	5·2	69	1 11	- 3	2 29	S*	—	—
Zi-ka-wei	6·7	354	1 23	- 12	3 23	S*	(3·4)	5·4
Hong Kong	7·7	255	1 14	- 9	13 28	+12	4·0	5·1
Manila	10·0	187	12 17	- 4	14 14	+ 1	5·1	9·0
Nagasaki	10·6	37	2 31	+ 2	4 51	+23	5·6	6·5

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Hukuoka	11.6	37	12 44	+ 1	5 18	+25	e 5.9	7.0
Matuyama	13.1	42	e 3 29	+26	7 14	?	10.1	11.7
Kofu	13.4	45	2 58	- 9	(e 5 48)	+11	e 5.8	10.7
Zinsen	13.5	15	3 12	+ 3	5 56	+17	—	—
Sumoto	14.8	45	e 3 10	- 7	6 59	+49	9.3	9.7
Phu-Lien	14.9	259	3 18	- 9	e 6 36	+23	7.8	9.6
Kobe	15.1	45	e 3 34	+ 4	7 1	+44	e 7.5	10.1
Osaka	15.4	46	3 13	-21	(6 16)	- 8	6.3	12.0
Toyouka	15.5	42	3 31	- 4	—	—	e 7.1	11.8
Nagoya	16.6	47	e 4 5	+16	e 8 29	L	10.3	—
Titizima	18.2	78	4 5	- 4	7 40	+13	—	—
Nagano	18.3	45	4 16	+ 6	—	—	—	—
Tyosii	E. 19.6	51	e 4 57	+32	—	—	e 13.5	—
Vladivostok	20.2	21	4 24	- 8	8 27	+17	e 9.9	14.8
Akita	21.4	40	5 9	PP	8 52	+18	—	—
Mizusawa	E. 21.6	43	4 49	+ 3	9 13	+35	13.8	—
N. 21.6	43	4 48	+ 2	9 22	+44	—	14.3	—
Medan	30.8	232	6 30	+18	—	—	i 15.7	—
Irkutsk	30.9	340	e 6 8	- 5	11 18	0	15.8	19.7
Calcutta	E. 31.0	275	e 9 15	(+ 2)	—	—	18.0	19.9
N. 31.0	275	e 9 25	(+12)	—	—	—	17.8	19.8
Batavia	34.2	210	6 37	- 5	i 12 38	+29	16.8	—
Dehra Dun	39.4	290	13 18	S	(13 18)	- 9	20.3	21.8
Agra	F. 39.6	286	e 7 17	-12	e 13 17	-13	22.3	25.4
N. 39.6	286	e 6 35	-54	e 13 19	-11	—	21.0	22.8
Almata	41.3	310	e 7 54	+11	—	—	22.3	—
Hyderabad	41.3	273	7 22	-21	13 30	-26	20.1	26.1
Colombo	44.2	257	8 7	+ 1	14 37	- 2	26.8	28.2
Andijan	44.3	306	e 8 9	+ 2	e 15 32	+52	22.8	—
Kodaikanal	44.8	263	e 14 0	S	(e 14 0)	-47	i 26.0	30.2
Bombay	46.0	275	8 24	+ 3	15 8	+ 4	23.5	27.0
Tashkent	46.7	308	8 25	- 1	15 10	- 4	18.8	27.5
Ekaterinburg	54.2	325	e 9 10	-13	i 16 48	-10	21.8	34.4
Adelaide	61.5	165	e 10 9	- 6	i 18 21	-15	28.2	37.1
Riverview	64.5	153	e 10 24	-11	e 19 12	- 2	e 31.5	39.9
Sydney	64.5	153	e 18 36	S	(e 18 36)	-38	33.8	34.8
Melbourne	65.9	161	—	—	19 23	- 8	32.0	34.3
Pulkovo	69.9	330	11 7	- 3	20 10	-10	32.8	41.5
Theodosia	70.8	314	11 15	- 1	e 21 48	+77	e 38.8	—
Simferopol	71.7	314	10 48†	-33	—	—	—	—
Yalta	71.8	314	e 11 19	- 3	—	—	40.8	—
Sebastopol	72.1	314	e 11 20	- 3	—	—	—	—
Helsingfors	72.4	330	e 11 15	-10	e 20 33	-17	e 34.7	—
Honolulu T.H.	72.7	74	—	—	e 20 48	- 5	34.8	—
N. 73.8	300	e 11 32	- 1	21 5	- 1	—	35.8	—
Ksara	75.9	331	e 11 36	- 9	e 21 15	-15	e 35.8	42.2
Upsala	—	—	—	—	—	—	—	—
Sitka	76.0	34	—	—	e 21 14	-18	e 39.2	—
Konigsberg	76.5	326	—	—	e 21 44	+ 7	e 36.8	42.4
Copenhagen	80.2	329	12 6	- 3	22 9	- 9	36.8	—
Budapest	80.4	320	12 3	- 7	e 22 18	- 2	31.8	46.3
Potsdam	81.6	325	e 12 12	- 4	e 22 18	-15	e 40.0	45.3
Vienna	81.7	322	12 13	- 4	22 40	+ 6	e 39.8	44.8
Scoresby Sund	81.7	350	12 48†	+31	22 33	- 1	39.8	—
Wellington	81.9	143	12 22	+ 4	22 13	-23	34.8	—
Hamburg	82.6	328	e 12 25	+ 4	e 22 0	-43	e 39.8	45.4
Graz	82.8	321	e 12 24	+ 2	e 22 34	-11	40.8	46.7
Zagreb	83.1	319	e 12 24	0	e 22 34	-14	e 40.8	44.5
Cheb	83.1	324	e 22 41	S	(e 22 41)	- 7	e 42.8	47.8
Gottingen	83.6	326	e 12 18	- 8	e 22 44	- 9	e 39.3	46.8
Tananarive	84.7	247	—	—	e 22 46	-19	e 35.6	49.3
Innsbruck	85.1	322	12 48†	+14	—	—	—	46.8

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Feldberg	85.2	326	—	—	i 23 4	- 6	e 42.7	47.7
Treviso	85.5	320	11 39	-57	e 21 8	?	e 41.8	58.5
Stuttgart	85.6	324	e 12 34	- 2	e 23 3	-11	e 42.8	48.9
De Bilt	85.8	328	12 39	+ 2	e 23 15	- 1	e 37.8	47.5
Padova	85.8	320	e 10 42	-115	e 22 3	?	—	—
Dyce	86.0	335	e 12 36	- 2	i 23 6	[0]	e 33.4	47.8
Chur	86.5	322	e 12 36	- 5	—	—	e 44.5	—
Strasbourg	86.5	325	e 12 48?	+ 7	e 22 48?	[-22]	e 35.8	48.3
Victoria	86.6	38	13 16	+35	23 23	0	e 42.1	53.3
Uccle	87.0	327	e 12 48?	+ 5	e 23 16	[+ 3]	e 37.8	48.3
Florence	87.0	319	12 40	- 3	23 18	[+ 5]	35.3	40.8
Rocca di Papa	87.2	317	e 12 23	-21	—	—	e 45.7	57.4
Edinburgh	87.3	334	—	—	i 24 13	PS	41.8	48.5
Placenza	87.3	320	e 12 18	-27	23 8	-22	30.8	50.0
Durham	87.4	332	23 26	S	(23 26)	- 5	e 39.8	50.6
Catania	87.7	312	e 15 52	PP	24 25	PS	e 46.3	54.0
Neuchatel	87.8	323	e 12 49	+ 2	—	—	e 45.7	46.8
Stonyhurst	88.2	331	e 12 36	-13	23 23	[+ 2]	41.8	50.8
Kew	88.8	330	e 12 54	+ 2	23 41	- 4	40.8	48.7
Paris	89.1	326	e 12 48?	- 5	e 25 0	?	43.8	47.8
Oxford	89.2	330	—	—	i 23 32	[+ 4]	e 39.6	49.4
Ivigtut	94.0	355	—	—	23 48?	[- 7]	e 47.8	—
Almeria	99.4	320	—	—	e 24 13	[-10]	49.8	56.1
Granada	100.0	320	e 14 37	?	e 25 57	+31	e 47.8	57.6
Chicago	108.2	24	—	—	e 29 24	?	e 51.8	—
Toronto	108.4	16	e 18 27	[+14]	e 28 18	PS	68.0	—
Ann Arbor	N. 109.0	20	—	—	e 23 36	?	e 51.0	—
Florissant	109.7	26	e 18 51	[+34]	e 28 8	PS	e 49.8	63.3
St. Louis	109.9	28	—	—	e 24 59	[-14]	49.7	56.3
La Paz	167.4	53	20 12	[+11]	—	—	79.8	103.8

Additional readings:—

Zi-ka-wel iN = +2m.2s., +2m.18s. = P_s, and +3m.41s. = S_s, iE = +3m.55s.
 Medan i = +13m.33s. and +19m.51s.
 Batavia P = +6m.40s.
 Dehra Dun S = +16m.28s. = SS + 26s.
 Adelaide i = +18m.48s. = PS + 5s.
 Riverview PS = +19m.44s., eSSS = +26m.26s.
 Helsingfors PPN = +14m.21s., PPPE = +15m.53s., PSE = +21m.5s., eSSE = +25m.17s., eSSN = +25m.21s., SSSE = +28m.43s.
 Honolulu T.H. e = +30m.48s.
 Upsala SSS = +30m.8s.
 Sitka eSSS = +30m.3s., e = +30m.52s.
 Potsdam iZ = +12m.19s., iN = +22m.33s.
 Vienna iN = +13m.43s.
 Scoresby Sund +18m.18s. and +24m.6s., SS = +29m.48s.
 Wellington e = +27m.48s. † = SS + 7s.
 Hamburg eZ = +12m.34s.
 Zagreb ePS = +24m.11s.
 Cheb eS = +32m.28s.
 Tananarive eN = +23m.19s., eE = +23m.52s. = PS + 4s., and +27m.4s.
 Feldberg e†N = +10m.12s., iN = +16m.0s. = PP + 12s.
 Stuttgart ePPPEZ = +15m.55s., eSSS = +32m.53s., eZ = +34m.48s., eEN = +35m.18s.
 De Bilt ePPZ = +15m.44s.
 Victoria SE = +23m.1s. = SKS - 10s.
 Uccle ePP = +16m.6s., eSS = +29m.2s.
 Kew SS = +29m.28s.
 Granada i = +15m.36s. and +18m.9s.
 Ann Arbor eN = +28m.12s., e†E = +28m.48s., eN = +42m.18s.
 Florissant eNZ = +21m.38s., eN = +38m.58s., eEN = +43m.48s.
 St. Louis eN = +26m.23s. = SKKS + 17s., +28m.33s. = PS + 6s., and +34m.53s.
 Long waves were also recorded at Charlottesville, La Plata, Rio de Janeiro, and other European stations.

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Aug. 20d. Readings also at 0h. (Feldberg, Granada, and Stuttgart), 3h. (near Tyosi), 4h. (Batavia, Christchurch, and Wellington), 5h. (Bombay), 9h. (Florissant, St. Louis, and Scoresby Sund), 10h. (Ekaterinburg and Tashkent), 11h. (near Andijan and near Samarkand), 12h. (Ekaterinburg, Tashkent, and near Santiago), 13h. (Port au Prince), 15h. and 17h. (La Paz), 18h. (Ekaterinburg and La Paz), 19h. (Florissant and Tashkent), 20h. (Wellington), 22h. (Mizusawa and near La Paz), 23h. (La Paz).

Aug. 21d. 1h. 33m. 5s. Epicentre 39°·0N. 14° 5E. N.3.

A = +.752, B = +.195, C = +.629.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Messina	1·2	134	0 5	-12	—	—	—	—
Trenta	1·4	79	i 0 20	0	i 0 40	S*	—	—
Catania	1·6	163	e 0 28	P*	0 51	S*	1·1	1·2
Mineo	1·8	171	0 26	0	—	—	—	—
Casamicciola	1·8	345	0 25	- 1	1 1	S*	—	2·0
Rocca di Papa	3·1	334	e 0 44	0	—	—	—	3·7

Long waves were also recorded at Zagreb.

Aug. 21d. 6h. 55m. 20s. Epicentre 37°·0N. 44° 0E. (as on July 9d.). X.

A = +.574, B = +.555, C = +.602; D = +.695, E = -.719;
G = +.433, H = +.418, K = -.799.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Ksara	N. 7·3	247	e 2 12	+28	4 27	+81	5·2	—
Tashkent	20·0	67	4 29	- 1	18 8	+ 2	e 11·7	15·4
Pulkovo	24·4	343	5 16	+ 2	e 9 34	+ 4	12·7	—
Helsingfors	N. 26·1	338	e 5 34	+ 4	e 10 0	0	—	—
Copenhagen	28·3	321	—	—	11 40	+63	15 7	—

Additional readings:—

Tashkent e = +5m.4s.

Long waves were recorded at Stuttgart and Strasbourg.

Aug. 21d. 10h. 44m. 8s. Epicentre 41°·2N. 143°·4E. N.3.

A = -.604, B = +.449, O = +.659; D = +.596, E = +.803;
G = -.529, H = +.393, K = -.752.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Urakawa	1·1	334	0 5	-11	0 19	- 9	—	—
Kusiro	1·9	23	0 29	+ 1	0 48	- 1	—	—
Aomari	2·0	259	0 29	0	0 57	+ 6	—	—
Morioka	2·3	229	0 32	- 1	1 4	+ 5	—	—
Sapporo	2·4	309	0 34	0	1 0	- 2	—	—
Nemuro	2·6	37	0 39	+ 2	1 33	S*	—	—
Mizusawa	2·7	220	0 39	0	1 20	S*	—	—
Akita	2·9	239	0 47	+ 6	1 20	+ 6	—	—
Sendai	3·6	214	0 53	+ 2	1 33	+ 1	—	—
Hukusima	4·2	215	0 58	- 2	1 46	- 2	—	—
Tyosi	5·8	201	e 1 25	+ 3	—	—	e 3·0	—
Nagoya	7·9	222	e 1 59	+ 7	—	—	—	—
Osaka	9·0	226	2 18	+11	—	—	4·3	5·3
Irkutsk	28·6	306	e 5 45	- 8	e 10 34	- 8	15·9	18·5
Ekaterinburg	52·9	317	—	—	16 31	-10	23·9	32·8
Tashkent	53·9	297	—	—	e 16 40	-14	e 27·9	34·0

Additional readings:—

Tyosi eP₂ = +1m.51s.

Long waves were also recorded at Koti, Kucino, Pulkovo, and the European stations.

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Aug. 21d. 15h. 6m. 0s. Epicentre 41°·6N. 146°·9E. N.3.

A = -·626, B = +·408, C = +·664; D = +·546, E = +·838;
G = -·556, H = +·363, K = -·748.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Kusiro	2·3	307	0 7	-26	0 45	-14	—	—
Urakawa	3·1	280	0 31	-13	1 21	+ 1	—	—
Muroran	4·5	281	0 57	- 7	1 59	+ 4	—	—
Morioka	4·8	249	1 6	- 2	2 15	S*	—	—
Mizusawa	E. 5·1	242	1 20	+ 7	2 30	S*	—	—
Akita	5·5	252	1 24	+ 6	2 42	S*	—	—
Sendai	5·7	236	1 26	+ 5	2 41	S*	—	—
Hokusima	6·3	235	1 30	0	2 59	S*	—	—
Kumagaya	8·0	230	2 1	+ 8	3 45	+21	—	—
Irkutsk	30·4	305	—	—	11 0?	-10	17·0	18·8
Ekaterinburg	54·3	318	e 8 40	-43	e 20 35	SS	29·0	—

Mizusawa gives also SN = +2m.18s.

Long waves were also recorded at Tashkent and Copenhagen.

Aug. 21d. Readings also at 1h. (Catania, Messina, near Trenta, and near La Paz), 2h. (Ekaterinburg, Irkutsk, Tashkent, Vladivostok, and near Taihoku), 3h. (Copiapo), 6h. (near Taihoku), 7h. (Messina and near Trenta), 8h. (near Manila), 9h. (Paris), 10h. and 11h. (near Trosi), 14h. (Vladivostok), 16h. (Feldberg), 17h. (Christchurch and near Wellington), 18h. (Port au Prince), 19h. (Ekaterinburg, Pulkovo, Florissant, and Sitka), 20h. (Irkutsk, Tashkent, and Honolulu T.H.).

Aug. 22d. 0h. 44m. 54s. Epicentre 35°·0N. 27°·5E. (as on 1930 Jan. 23d.). 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.
Ksara	N. 7·0	95	e 1 46	+ 7	3 0	+ 1	—	—
Trenta	9·8	299	1 11	-67	2 51	-77	—	—
Sebastopol	10·7	24	e 2 26	- 5	—	—	—	—
Yalta	10·8	26	e 2 28	- 4	e 4 7	-26	—	—
Simferopol	11·1	25	e 2 36	0	—	—	—	—
Rocca di Papa	13·4	304	e 3 0	- 7	—	—	—	5·9
Budapest	13·9	336	e 3 6?	- 8	—	—	—	—
Zagreb	13·9	324	e 3 16	+ 2	—	—	—	—
Ohur	17·9	317	e 4 11	+ 6	e 7 38	SS	—	—
Neuchatel	19·9	313	e 4 26	- 3	—	—	—	—
Copenhagen	23·1	338	—	—	9 4	- 3	14·1	—
Pulkovo	24·8	3	e 5 17	- 1	e 9 38	+ 1	13·1	—
Ekaterinburg	31·2	35	e 7 3	PP	e 11 21	- 2	15·1	—

Additional readings:—

Rocca di Papa eP = +3m.21s. = PP + 2s.

Long waves recorded by Stuttgart.

Aug. 22d. 9h. 44m. 57s. Epicentre 44°·0N. 84°·0E. N.3.

A = +·075, B = +·715, C = +·695; D = +·995, E = -·105;
G = +·073, H = +·691, K = -·719.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Almata	5·1	264	1 16	+ 3	2 18	+ 8	12·5	3·1
Andijan	9·2	253	e 2 16	+ 6	e 3 38	-16	e 4·5	5·1
Tashkent	11·2	261	e 2 43	+ 6	(4 3?)	-40	4·1	—
Samarkand	13·4	257	e 2 54	-13	e 4 57	-40	—	—
Irkutsk	15·8	52	e 3 38	0	e 6 52	+18	8·4	11·4

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Agra	17.5	197	e 2 57	-63	8 17	+64	11.5	—
Ekaterinburg	19.4	319	e 4 18	-5	18 1	+7	110.4	12.0
Bombay	26.8	204	5 33	-3	10 14	+2	13.7	17.1
Kucino	31.2	309	—	—	(e 12 57)	SS	e 13.0	19.0
Vladivostok	34.2	74	(8 39)	PPPP	—	—	8.6	—
Pulkovo	35.4	316	e 6 51	-2	12 33	+6	20.0	21.8
Helsingfors	E. 38.1	316	e 7 0	-16	e 12 58	-10	—	—
	N. 38.1	316	e 7 4	-12	e 13 2	-6	—	—
Feldberg	N. 49.5	306	—	—	e 13 39	?	e 25.9	30.6

Additional readings:—

Agra eN = +3m.2s.

Helsingfors SSSN = +15m.52s.

Feldberg eN = +20m.26s. and +22m.57s.

Long waves were also recorded at Hong Kong and several European stations.

Aug. 22d. Readings also at 0h. (near Manila), 1h. (near Mizusawa, Nagoya, Tyosi, and near Taihoku), 4h. (Rocca di Papa, Copiapo, and near Nagasaki), 5h. (near Budapest, Graz, and Vienna), 7h. (near Nagasaki), 10h. (near Tyosi), 12h. (Samarkand, near Almata, and Andijan), 15h. (Ann Arbor), 18h. (Andijan, near Almata, and near Manila), 19h. (Ekaterinburg, Irkutsk, Tashkent, and near Ksara), 22h. (Dehra Dun).

Aug. 23d. 10h. 53m. 18s. Epicentre 27° 5N. 55° 0E. R.1.

(as on 17d.).

Probable error of epicentre $\pm 0^{\circ} 27$.

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

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Ksara	N. 17.6	297	4 3	+1	7 32	+17	9.2	—
Tashkent	18.1	37	1 4 6	-2	e 8 6	+39	9.4	12.7
Bombay	18.5	114	4 16	+3	8 11	+35	10.6	16.0
Andijan	19.5	43	4 22	-2	8 19	+23	11.5	—
Agra	E. 20.5	85	1 4 21	-14	18 22	+6	11.5	13.9
	N. 20.5	85	4 42	+7	8 14	-2	11.8	13.1
Helwan	20.9	282	e 4 35	-4	18 35	+11	—	14.5
Theodosia	23.5	323	5 6	+1	9 18	+4	11.7	—
Almata	23.7	43	5 13	+6	9 58	SS	12.7	—
Yalta	23.8	321	e 5 7	-1	9 25	+6	—	—
Hyderabad	23.8	110	4 50	-18	9 2	-17	11.5	15.6
Simferopol	24.1	322	e 5 8	-3	e 9 28	+3	—	—
Sebastopol	24.2	321	5 11	-1	9 32	+5	—	—
Kodalkanal	27.3	125	e 10 6	S	(e 10 6)	-14	116.3	18.6
Ekaterinburg	29.6	6	e 5 51	-10	i 10 44	-14	13.7	—
Calcutta	E. 30.6	90	6 7	-3	11 29	+15	15.8	20.0
	N. 30.6	90	6 14	+4	11 31	+17	15.8	19.9
Colombo	31.3	128	6 18	+1	11 23	-1	20.7	26.0
Trenta	34.1	301	1 6 32	-9	11 52	-16	—	—
Budapest	34.3	316	6 36	-7	12 4	-7	18.7	24.2
Catania	34.8	299	e 6 49	+2	12 20	+2	e 26.2	32.1
Zagreb	35.8	311	e 6 57	+1	e 12 32	-1	e 20.4	21.3
Naples	N. 35.9	304	e 6 42	-15	e 12 22	-13	19.7	—
Vienna	36.3	317	7 2	+2	12 33	-8	—	35.9
Pulkovo	36.4	340	7 0	-1	12 37	-5	17.7	23.6
Graz	36.5	314	e 6 4	-58	1 12 40	-4	e 19.7	22.4
Leibach	N. 36.8	315	e 7. 8	+3	e 12 51	+3	e 21.9	26.0

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Konigsberg	37.0	327	18 10	PP	i 12 53	+ 2	e 24.7	—
Rocca di Papa	37.2	304	17 8	0	i 12 55	+ 1	e 21.9	27.0
Venice	38.1	310	e 7 17	+ 1	—	—	—	—
Treviso	38.3	312	17 19	+ 1	i 13 10	- 1	22.7	27.4
Helsingfors	38.5	336	17 16	- 3	i 13 8	- 6	—	—
Padova	38.5	310	e 7 19	0	i 13 13	- 1	e 22.7	24.2
Florence	38.6	306	7 21	+ 1	13 12	- 3	18.2	22.2
Innsbruck	39.2	313	e 7 24	- 1	—	—	—	—
Cheb	39.4	317	e 7 27	0	e 13 33	+ 6	e 22.7	27.7
Potsdam	39.8	320	17 34	+ 4	i 13 36	+ 3	e 18.0	27.5
Piacenza	39.9	310	7 38	+ 7	i 13 39	+ 4	i 16.9	30.5
Jena	40.1	318	e 7 30	- 3	e 13 40	+ 2	e 21.7	27.5
Chur	40.4	311	e 7 29	- 6	e 13 39	- 3	—	—
Stuttgart	41.0	314	17 39	- 1	i 13 49	- 2	e 23.7	29.2
Zurich	41.1	311	17 36	- 5	e 13 48	- 5	—	—
Upsala	41.1	333	e 7 40	- 1	i 13 48	- 5	—	28.0
Gottingen	41.3	318	e 7 37	- 6	i 13 56	0	e 22.2	25.2
Copenhagen	41.5	326	7 44	0	13 58	- 1	—	—
Karlsruhe	41.6	315	e 7 42?	- 3	—	—	e 31.7	—
Feldberg	N. 41.8	316	17 40	- 7	i 13 43	- 20	—	27.5
Strasbourg	41.9	313	e 7 43	- 5	i 14 1	- 4	19.7	29.3
Hamburg	42.0	321	e 7 48	- 1	i 14 6	0	—	29.4
Neuchatel	42.1	312	17 43	- 6	i 14 1	- 7	—	—
Besançon	42.8	310	e 7 53	- 2	14 19	+ 1	22.7	—
Irkutsk	44.0	41	8 5	0	14 33	- 3	23.7	28.1
De Bilt	44.3	318	18 9	+ 2	14 41	+ 1	e 21.7	26.9
Tananasrive	44.4	296	8 8	0	i 14 45	+ 4	21.7	33.7
Uccle	44.7	316	18 8	- 2	i 14 43	- 3	e 21.7	—
Paris	45.3	313	18 15	0	e 14 48	- 7	18.7	36.7
Tortosa	46.2	302	8 21	- 1	15 6	- 1	e 24.7	29.0
Bergen	46.8	330	12 9	?	—	—	i 22.7	—
Tananasrive	47.0	190	8 33	+ 4	15 16	- 3	e 22.5	26.2
Alicante	47.1	299	e 8 32	+ 3	i 15 21	+ 1	e 27.5	—
Phu-Lien	47.2	87	8 32	+ 2	e 15 25	+ 4	23.7	—
Kew	47.5	318	18 33	+ 1	i 15 24	- 2	22.7	27.4
Medan	48.0	111	e 9 0	+ 24	—	—	e 28.7	—
Oxford	48.2	316	8 37	- 1	i 15 32	- 4	e 25.7	33.1
Almeria	48.7	296	8 44	+ 3	15 45	+ 2	—	28.5
Durham	48.8	320	—	—	i 15 42	- 2	e 22.7	32.2
Stonyhurst	49.1	319	8 46	+ 2	15 51	+ 3	—	33.7
Dyce	49.6	324	8 50	+ 2	i 15 49	- 6	e 23.3	30.6
Granada	49.7	296	i 8 52	+ 3	i 16 6	+ 9	29.5	35.1
Toledo	49.8	300	8 50	0	i 15 55	- 3	e 21.6	34.0
Edinburgh	49.9	321	8 52	+ 1	16 0	+ 1	26.7	37.3
Malaga	50.4	296	8 54	0	15 58	- 8	20.7	—
San Fernando	51.9	296	16 27	S	(16 27)	0	31.0	32.2
Hong Kong	53.4	82	i 9 17	0	16 48	+ 1	24.9	34.7
Zi-ka-wai	z. 57.1	68	i 9 44	0	i 17 46	+ 8	—	36.9
Soerobay Sund	59.9	339	10 0	- 4	i 18 22	+ 7	—	—
Batavia	60.4	117	i 10 6	- 1	i 19 54	(- 1)	—	—
Manila	62.3	86	i 10 21	+ 1	i 18 50	+ 4	30.1	—
Vladivostok	62.5	52	e 6 38	?	—	—	e 23.7	—
Koti	66.3	63	10 41	- 6	19 32	- 4	—	38.4
Nagoya	68.4	60	e 11 3	+ 2	—	—	—	—
Mizusawa	E. 70.3	55	(11 14)	+ 1	11 14	P	—	—
Cape Town	70.5	213	9 0	?	i 20 28	+ 1	38.0	44.7
Ivigtut	72.1	330	11 18	- 5	20 43	- 3	—	—
Ann Arbor	N. 100.5	330	—	—	24.54	{- 3}	e 51.5	—
Chicago	102.6	333	—	—	e 34 33	?	e 55.0	—
Florissant	106.2	333	e 14 2	- 10	e 26 15	?	—	63.0
St. Louis	106.3	333	e 22 14	PPPP	e 27 0	?	—	65.4
La Paz	126.6	269	e 19 10	[+10]	26 14	[+ 4]	62.7	77.9

For Notes see next page.

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NOTES TO AUG. 23d. 10h. 53m. 18s.

Additional readings:—

Vienna PP = +8m.18s., PPP = +8m.56s., S_cS? = +16m.50s.
 Laibach e = +8m.7s. = PP - 16s.
 Königsberg eSS = +14m.47s.
 Helsingfors iPPP = +8m.49s. = PP + 6s., eSSEN = +15m.18s., eSSSZ = +15m.55s.
 Cheb ePP = +9m.2s., eSS = +16m.46s.
 Potsdam eE = +13m.31s.
 Jena eN = +17m.36s. = S_cS - 6s.
 Stuttgart iPPEZ = +9m.20s., iEZ = +13m.30s., eSSEZ = +16m.26s., iE = +18m.33s., iN = +18m.47s.
 Upsala PP = +9m.13s., SS = +16m.40s., SSS = +17m.40s.
 Göttingen iPZ = +7m.42s.
 Copenhagen +9m.29s. = PP + 14s. and +17m.18s. = SSS - 3s.
 Feldberg iN = +10m.35s. and +10m.40s., eE = +14m.32s., iN = +17m.26s.
 Strasbourg PP = +9m.28s., iSS = +17m.27s. = SSS - 4s.
 Hamburg eE = +13m.37s.
 De Bilt PPZ = +9m.56s. = P_cP + 0s., eSS = +18m.0s. = S_cS - 8s.
 Algiers SS = +18m.6s. = S_cS - 2s.
 Uccle SS = +18m.2s. = S_cS - 8s.
 Tananarive P_cPE = +9m.0s., iPSE = +15m.24s., iPSN = +15m.27s., iSS = +18m.33s., eSSN = +19m.55s., eSSSSE = +20m.15s.
 Kew ePPEZ = +10m.33s., eSSEN = +18m.24s.
 Medan i = +18m.29s. = S_cS - 2s. and +18m.39s. = SS - 7s.
 Oxford i = +18m.25s. = S_cS - 8s.
 Durban ? = +18m.32s. = S_cS - 7s.
 Dyce iSS = +18m.33s. = S_cS - 9s.
 Granada i = +16m.2s.
 San Fernando SN = +17m.12s.
 Hong Kong SS = +20m.37s.
 Scoresby Sund +19m.54s. = S_cS + 3s., and +24m.12s. = SSS - 6s.
 Manila PPE = +13m.0s., PPPZ = +14m.12s., PPPPN = +15m.5s., PSE = +19m.9s., SSE = +23m.32s.
 Ann Arbor eN = +27m.18s. and +33m.18s.
 Florissant iZ = +18m.42s., iEZ = +22m.35s., iZ = +27m.51s. = PS + 1s., eEZ = +33m.20s. = SS - 7s.
 St. Louis eN = +28m.4s.
 La Paz PPE = +22m.24s., iE = +24m.2s.
 Long waves were also recorded at Johannesburg, Melbourne, Wellington, Rio de Janeiro, and Dakar.

Aug. 23d. 15h. 7m. 28s. Epicentre 3°·0N. 65°·0E. (as on 1926 Dec. 2d.). X.

A = +·422, B = +·905, C = +·052; D = +·906, E = -·423;
 G = +·022, H = +·047, K = -·999.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	m. s.	m. s.	m. s.	m. s.	s.	m.	m.
Colombo	15·3	75	3 38	+ 6	—	—	—	11·5
Bombay	17·7	25	(4 27)	+24	(7 55)	+38	7·9	12·4
Hyderabad	19·6	42	4 25	0	8 28	+30	9·8	17·0
Tashkent	38·5	5	7 20	+ 1	i 13 1	-13	e 20·9	22·4
Ekaterinburg	54·0	358	e 9 21	0	e 16 21	-35	22·5	32·9
Pulkovo	62·7	341	e 10 8	-15	e 18 8	-43	30·5	—

Additional reading and notes:—

Bombay gives P as S and S as L, also P = 15h.7m.13s.
 Long waves were also recorded at Kodakanal, Manila, Irkutsk, and Copenhagen.

Aug. 23d. Readings also at 4h. (Ksara), 6h. (Sumoto), 11h. (near Andijan), 13h. (near Tyosi), 14h. (Granada, Kew, Ksara, and Tashkent), 15h. (Ekaterinburg), 17h. (Tokyo), 18h. (near Algiers), 20h. (Tyosi (2)).

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Aug. 24d. 9h. 8m. 40s. Epicentre 8°0S. 157°0E. (as on 1926 Nov. 6d.). R.3.

A = -.911, B = +.387, C = -.139; D = +.391, E = +.921;
G = +.128, H = -.054, K = -.990.

	Δ	Az.	P. m. s.	O-C. s.	S. m. s.	O-C. s.	L. m.	M. m.
Riverview	26.4	191	e 5 29	- 4	e 10 6	+ 1	e 14.0	15.7
Sydney	26.4	191	—	—	1 10 2	- 3	13.8	14.3
Adelaide	31.8	209	—	—	1 11 30	- 2	14.8	19.9
Melbourne	31.8	198	—	—	1 11 35	+ 3	15.1	17.1
Wellington	36.9	157	e 8 38	PP	e 13 3	+13	18.3	24.3
Christchurch	38.1	163	e 8 41	PP	e 13 17	+ 9	1 18.8	25.6
Manila	42.3	302	e 7 54	+ 3	1 14 20	+10	1 22.0	—
Perth	45.0	232	e 11 25	?	e 18 10	(- 2)	24.3	—
Batavia	49.8	270	e 9 8	+18	1 15 55	- 3	—	—
Hong Kong	51.7	307	8 59	- 5	(16 31)	+ 7	16.5	27.1
Phu-Lien	57.2	301	9 20?	-25	—	—	—	—
Irkutsk	75.1	330	e 11 44	+ 3	e 21 18	- 3	e 37.3	—
Bombay	87.1	290	e 12 48	+ 4	—	—	—	—
Victoria	89.2	41	23 55	S	(23 55)	+ 7	41.3	44.9
Tashkent	93.6	311	13 22	+ 8	1 24 26	- 3	e 43.3	54.2
Ekaterinburg	100.2	327	e 13 46	+ 2	24 22	[- 5]	*41.3	56.4
Florissant	112.6	50	e 20 17	?	e 28 55	PS	—	59.3
Kucino	112.7	323	—	—	e 25 25	[0]	e 54.4	97.2
Pulkovo	114.7	334	—	—	25 39	[+ 6]	54.3	69.6
Zagreb	129.5	326	e 22 35	?	—	—	—	—
Edinburgh	129.6	345	22 20?	?	—	—	—	—
De Bilt	130.3	337	e 21 32	PP	—	—	e 64.3	—
Stuttgart	131.1	333	e 21 36	PP	e 22 45	PKS	e 71.3	—
Strasbourg	131.9	334	21 42	PP	22 53	PKS	e 41.3	—
Florence	133.4	326	21 55	PP	—	—	—	61.3
Rocca di Papa	133.8	323	e 20 40	?	—	—	—	—
Paris	133.9	338	e 21 20?	PP	—	—	70.3	78.3
Granada	145.9	332	e 19 39	[+ 3]	1 23 10	PKS	e 73.6	102.8

Additional readings:—

Riverview i_PC_S = +8m.27s., i_{EN} = +10m.24s., i_E = +11m.37s.

Manila i_{EN} = +10m.18s. and +11m.36s.

Batavia i_N = +16m.0s.

Tashkent SKS = +23m.49s., PS = +25m.33s.

Ekaterinburg PS = +26m.41s., SS = +32m.8s.

Florissant e_E = +36m.10s.

Pulkovo PP = +19m.27s., PS = +29m.20s.

Granada i = +19m.46s.

Long waves were also recorded at Honolulu T.H., Kodalkanal, Vladivostok, and other European stations.

Aug. 24d. 10h. 51m. 20s. Epicentre 30°0N. 100°0E. N.3.

A = -.150, B = +.853, C = +.500; D = +.985, E = +.174;
G = -.087, H = +.492, K = -.866.

	Δ	Az.	P. m. s.	O-C. s.	S. m. s.	O-C. s.	L. m.	M. m.
Phu-Lien	10.9	146	e 4 29	S	(e 4 29)	- 7	5.7	6.6
Calcutta	12.8	237	e 5 20	S	(e 5 20)	- 2	7.8	—
Hong Kong	14.9	118	—	—	6 5	- 8	7.5	8.0
Agra	19.4	267	8 3	S	(8 3)	+ 9	14.4	15.2
Irkutsk	22.5	7	4 53	- 3	e 8 58	+ 3	11.7	12.1
Almata	22.6	312	5 4	+ 7	—	—	—	—
Hyderabad	23.3	243	5 0	- 4	9 16	+ 6	12.5	18.3
Manila	24.7	124	e 5 20	+ 3	19 17	-19	11.5	13.5
Andijan	24.8	302	5 25	+ 7	9 42	+ 5	—	—
Bombay	27.0	262	10 39	S	(10 39)	+24	16.6	17.3

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Tashkent	27.2	303	e 5 46	+ 6	10 28	+10	e 13.7	17.8
Ekaterinburg	38.3	325	e 7 10	- 8	13 8	- 3	18.7	20.9
Kucino	50.1	320	e 10 28	PP	e 14 58	SS	e 26.9	—
Pulkovo	54.3	325	e 9 23	0	e 17 3	+ 4	e 28.7	34.1
Helsingfors	57.0	325	e 9 41	- 2	i 13 58	?	e 29.4	—

Additional readings :—

Agra PE = +8m.9s., eSN = +11m.44s., eSE = +12m.21s.

Bombay S = +14m.35s.

Pulkovo i = +24m.9s.

Long waves were also recorded at Kodaikanal, Taihoku, and several European stations.

Aug. 24d. Readings also at 0h. (Ekaterinburg, Tashkent, and Ksars), 1h. (Manila and Sumoto), 2h. (Ekaterinburg, near Mizusawa, and Osaka), 3h. (Andijan), 8h. (Hong Kong, Barcelona, and near La Paz), 10h. (La Paz), 11h. (Andijan, Ekaterinburg, and Strasbourg), 13h. (Tokyo and Tyosi), 19h. (near Manila), 21h. (near Medan).

Aug. 25d. Readings at 0h. (Ekaterinburg, Tashkent, and near Lick), 1h. (near Manila and near Sumoto), 2h. (La Plata and near Malabar), 3h. (Wellington), 5h. (near Port au Prince), 8h. (Florissant, Pulkovo, Reykjavik, near Merida, Oaxaca, and Tacubaya), 9h. (Ekaterinburg and Tashkent), 12h. (Irkutsk, Tashkent, and Reykjavik), 13h. (Ekaterinburg and near Tacubaya), 15h. (Reykjavik (6), Scoresby Sund (3), Tashkent, Ekaterinburg, Edinburgh, Kew, De Bilt (2), Uccle, Paris, Strasbourg, and Stuttgart), 16h. (Granada and near Reykjavik and near Matuyama), 17h. (Ekaterinburg, Tashkent, and near Zagreb), 18h. (La Paz, Scoresby Sund (2), and Reykjavik (3)), 20h. (Ekaterinburg, Irkutsk, Tashkent (2), and Ksars (2)), 21h. (near Reykjavik), 22h. (Scoresby Sund), 23h. (Irkutsk and Kucino).

Aug. 26d. 12h. 39m. 22s. Epicentre 42° 0'N. 144° 4'E. N.3.

A = -604, B = +433, C = +669; D = +582, E = +813;

G = -544, H = +389, K = -743.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Obihiro	1.3	316	0 17	- 1	0 31	- 2	—	—
Nemuro	1.6	33	(0 31)	P*	(0 44)	+ 3	—	—
Sapporo	2.5	295	0 34	- 2	1 2	- 2	—	—
Aomori	2.9	246	0 43	+ 7	1 22	+ 8	—	—
Morioka	3.4	228	0 52	+ 3	1 32	+ 5	—	—
Mizusawa	3.8	223	0 49	- 5	1 46	S*	—	—
Sendai	4.6	218	1 11	+ 5	2 2	+ 4	—	—
Ootomari	4.8	346	e 0 33	-35	—	—	—	—
Hukusima	5.2	218	1 17	+ 3	2 19	+ 6	—	—
Kakloka	6.6	210	1 37	+ 3	2 54	+ 6	—	—
Tyosi	6.8	205	e 1 44	+ 7	(e 2 58)	+ 5	e 3.0	—
Tokyo	7.3	211	1 48	+ 4	3 11	+ 5	—	—
Nagoya	8.9	224	e 2 19	+13	—	—	—	—
Osaka	10.0	226	2 29	+ 8	—	—	4.6	5.6
Irkutsk	28.7	305	5 45	- 8	10 28	-15	e 16.6	—
Ekaterinburg	52.8	317	18 59	-13	1 16 21	-18	19.6	—
Pulkovo	64.8	329	10 23	-14	—	—	35.6	—

Nemuro readings have been increased by 1m.

Long waves were recorded at Tashkent.

Aug. 26d. Readings also at 0h. (near Sumoto), 1h. (Ekaterinburg and Tashkent), 2h. (Reykjavik), 3h. (near Batavia and Malabar), 4h. (Granada, Florissant, Ekaterinburg, Tashkent, Medan, and near Reykjavik), 11h. (Ksars and Tashkent), 12h. (Ekaterinburg and Vladivostok), 14h. (Ksars and Ekaterinburg), 19h. (Ekaterinburg, near Irkutsk, near Tyosi, and Mizusawa).

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Aug. 27d. Readings at 0h. (Mizusawa), 1h. (Reykjavik), 4h. (Mizusawa), 5h. (Simferopol and Theodosia), 7h. (Phu-Lien, Ekaterinburg, Irkutsk, and Tashkent), 11h. (near Reykjavik), 12h. (Ekaterinburg, Irkutsk, and Vladivostok), 14h. (Suva, Christchurch, Wellington, Adelaide, Melbourne, River-view, Manila, Vladivostok, and Irkutsk; these and the readings for 15h. appertain to a shock near New Hebrides, but they give no approximate determination, 15h. (Sydney, Honolulu T.H., La Paz, Tashkent, Ekaterinburg, Scoresby Sund, Copenhagen, De Bilt, Uccle, Paris, and Strasbourg), 16h. (Granada), 17h. (La Paz), 21h. (Manila), 23h. (Hong Kong, Phu-Lien, Bombay, Medan, Tashkent, and Ekaterinburg).

Aug. 28d. Readings at 2h. (Irkutsk and Scoresby Sund), 3h. (Bombay), 4h. (Bombay and Manila), 5h. (Berkeley and near Lick (2)), 6h. (Rocca di Papa), 7h. (Ksara and Mizusawa), 8h. (La Paz), 11h. (near Santiago), 12h. (Ekaterinburg, Irkutsk, and near Andijan), 13h. (Pulkovo, Tucson, Florissant, St. Louis, near Oaxaca, Vera Cruz, and Tacubaya), 19h. (Andijan), 21h. (near La Paz).

Aug. 29d. 8h. 27m. 40s. Epicentre 8°·7N. 83°·0W. (as on 1925 Jan. 28d.). R.2.

A = +·120, B = -·981, C = +·151; D = -·993, E = -·122;
G = +·018, H = -·150, K = -·989.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Balboa Heights	3·4	84	(0 32)	-17	(1 4)	-23	(1·2)	—
Tacubaya	19·0	306	4 20	+ 1	8 20	+34	—	—
La Paz	29·1	150	e 5 45	-12	1 11 31	+41	14·9	17·9
Charlottesville	29·6	7	—	—	e 11 4	+ 6	e 16·6	—
St. Louis	30·6	350	e 6 8	- 2	e 11 15	+ 1	13·6	21·7
Georgetown	30·7	9	16 10	- 1	e 11 10	- 6	e 14·3	—
Florissant	30·8	350	e 6 12	0	e 11 21	+ 4	e 12·3	—
Chicago	33·3	354	—	—	e 12 7	+12	e 17·9	—
Ann Arbor	N. 33·6	359	—	—	e 12 8	+ 8	e 16·9	—
Tucson	34·9	316	e 6 53	+ 5	—	—	e 16·3	—
Toronto	N. 35·1	4	e 6 47	- 3	e 12 20	- 3	15·9	—
Lick	45·1	318	e 8 17	+ 3	—	—	—	—
Rio de Janeiro	50·2	130	e 10 45	PP	e 17 41	?	e 25·6	—
Victoria	52·2	327	9 10	+ 2	16 39	+ 8	27·8	34·2
Scoresby Sund	72·4	19	—	—	20 44	- 6	32·3	—
Malaga	75·7	56	e 11 47	+ 3	21 33	+ 5	—	—
Toledo	76·0	51	e 11 42	- 4	e 21 25	- 7	—	—
Granada	76·3	55	1 11 48	0	1 21 33	- 2	e 35·4	37·9
Edinburgh	77·1	34	e 16 20?	PPP	—	—	—	—
Oxford	78·1	40	—	—	e 21 40	-15	e 40·5	42·3
Kew	78·7	39	e 11 59	- 2	—	—	e 37·3	—
Paris	80·5	42	e 12 6	- 4	—	—	36·3	41·3
De Bilt	82·0	38	12 20	+ 2	e 22 31	- 6	e 40·3	42·9
Strasbourg	84·0	44	e 12 28	0	e 22 47	-11	40·3	—
Hamburg	84·8	37	e 12 29	- 3	—	—	e 45·3	—
Stuttgart	84·9	41	e 12 27	- 6	—	—	—	—
Lund	86·3	35	12 36	- 4	—	—	—	—
Rocca di Papa	88·5	49	e 12 50	0	—	—	e 34·5	35·8
Zagreb	90·0	44	12 59	+ 2	—	—	—	—
Pulkovo	93·8	28	13 11	- 4	23 28	[-26]	42·3	53·3
Kucino	99·3	30	—	—	e 23 53	[-29]	e 46·3	56·4
Ekaterinburg	108·0	21	e 18 42	PP	e 24 54	[-10]	47·3	61·3
Tashkent	123·9	25	—	—	e 24 20	?	e 59·3	67·5
Manila	146·7	316	19 39	[+ 2]	1 24 1	?	—	—

For Notes see next page.

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NOTES TO AUG. 29d. 8h. 27m. 40s.

Additional readings and note :—

- Balboa Heights readings have been *increased* by 1m.
- La Paz iN = +5m.55s., iE = +6m.31s.
- Charlottesville e = +13m.20s.
- St. Louis iPEN = +6m.13s.
- Georgetown ePPZ = +7m.5s.
- Florissant iPNZ = +6m.15s., eZ = +7m.7s. = PP + 0s.
- Chicago eSS = +14m.26s.
- Ann Arbor eN = +13m.56s. and +14m.44s., eE = +15m.14s.
- Lick eN = +8m.19s., eE = +8m.23s., eSN = +8m.30s.
- Pulkovo PP = +16m.59s., PPS = +26m.20s.
- Tashkent e = +42m.20s.
- Long waves were also recorded at Irkutsk, Copenhagen, Kew, Cheb, and Uccle.

Aug. 29d. 20h. 2m. 36s. Epicentre 44°·2N. 146°·7E. N.2.

$$A = -.599, B = +.394, C = +.697; \quad D = +.549, E = +.836; \\ G = -.583, H = +.383, K = -.717.$$

A depth of focus 0°·020 has been assumed.

	Corr. for Focus	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	°	m. s.		m. s.	s.	m.	m.
Nemuro	+0.5	1.2	222	(0 28)	+ 4	(0 52)	+ 8	—	—
Urakawa	+0.2	3.5	236	(0 52)	- 1	(1 41)	+ 6	—	—
Otomari	+0.2	3.7	312	i 1 47	S	(i 1 47)	+ 7	2.5	2.6
Sapporo	+0.1	4.0	256	0 59	+ 1	1 46	+ 1	—	—
Aomori	0.0	5.5	235	1 18	0	2 21	+ 1	—	—
Morioka	0.0	6.1	225	1 24	- 3	2 31	- 5	—	—
Mizusawa	E. -0.1	6.5	221	1 30	- 1	2 43	0	—	—
	N. -0.1	6.5	221	1 33	+ 2	2 45	+ 2	—	—
Akita	-0.1	6.6	230	1 34	+ 2	2 49	+ 3	—	—
Hokusima	-0.1	8.0	219	1 50	- 2	3 17	- 4	—	—
Kakioka	-0.2	9.4	214	2 6	- 4	3 51	- 3	—	—
Tyosi	-0.2	9.6	210	e 2 18	+ 5	(e 3 56)	- 3	e 3.9	—
Nagano	-0.2	9.9	224	2 18	+ 1	4 6	0	—	—
Tokyo	-0.2	10.0	214	2 18	0	4 9	+ 1	—	—
Wazima	-0.2	10.0	231	2 29	+ 11	4 22	+ 14	—	—
Nagoya	-0.3	11.7	223	e 2 42	+ 2	—	—	—	—
Osaka	-0.4	12.8	226	e 2 53	- 1	—	—	6.1	6.5
Kobe	-0.4	13.0	227	i 2 55	- 1	—	—	—	—
Almata	-2.1	48.8	296	e 8 26	0	—	—	—	—
Ekaterinburg	-2.2	52.3	319	e 8 42	- 10	i 15 54	- 8	23.4	—
Andijan	-2.2	53.0	294	e 8 56	- 1	e 16 15	+ 3	—	—
Tashkent	-2.3	54.7	298	9 9	0	i 16 36	+ 2	—	28.9
Kucino	-2.5	63.5	324	—	—	e 18 12	- 17	—	—
Scoresby Sund	-2.5	65.0	356	—	—	18 48	0	—	—
Copenhagen	-2.6	72.9	335	—	—	20 24	- 1	33.4	—
De Bilt	-2.7	78.1	338	—	—	e 21 15	- 10	e 39.4	—
Florissant	N. -2.7	82.4	41	—	—	e 21 56	- 16	—	—

Additional readings and notes :—

- Nemuro readings have been *increased* by 1m.
- Urakawa readings have been *increased* by 1m.
- Kobe l = +3m.2s.
- Kucino e = +18m.41s. = PS + 5s.

Aug. 29d. Readings also at 0h. (Riverview), 4h. (Tyosi), 6h. (near Florissant, St. Louis, and near Tananarive), 7h. (Florissant, St. Louis, Edinburgh, Kew, Uccle, De Bilt, Paris, Strasbourg, Zagreb, Granada, Copenhagen, Pulkovo, Ekaterinburg, and Kucino), 8h. (Tashkent, Feldberg, and near Balboa Heights), 9h. (La Paz, Rio de Janeiro, Toronto, Tucson, Florissant (2), St. Louis, Granada, Malaga, and De Bilt), 11h. (Riverview, Melbourne, Wellington, near Algiers, and near Manila), 13h. (Ekaterinburg and Tashkent), 15h. (near Andijan), 18h. (Sebastopol, Simferopol, Theodosia, and Yalta), 19h. (Tyosi), 20h. (near Manila (2)), 21h. (Bombay, Zurich, and near Chur), 22h. (Ekaterinburg and Scoresby Sund), 23h. (Tashkent and near Andijan).

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Aug. 30d. 10h. 3m. 49s. Epicentre 8°-5S. 67°-0E. (as on 1929 Feb. 17d.). R.3.

$$A = +.386, B = +.910, C = -.148; \quad D = +.920, E = -.391; \\ G = -.058, H = -.136, K = -.989.$$

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Colombo	20.0	40	4 30	0	(8 25)	+19	8.4	11.8
Bombay	28.0	12	5 48	+1	10 39	+7	14.5	21.4
Hyderabad	28.3	23	8 11	?	11 24	?	13.1	15.2
Agra	E. 37.3	17	e 17 9	S _c S	e 19 4	L	19.5	20.1
	N. 37.3	17	e 17 24	S _c S	e 19 19	L	20.1	21.0
Manila	58.3	68	i 14 22	?	i 18 4	+11	—	—
Ekaterinburg	65.5	356	e 10 42	0	e 19 22	-4	28.2	—
Kucino	68.7	344	—	—	e 20 5	0	e 35.4	38.1
Vienna	Z. 72.1	330	20 24	S	(20 24)	-22	—	—
Padova	73.1	324	e 21 34	IS	(e 21 34)	+36	—	—

Kucino gives also $e = +24m.17s.$ = SS-6s. and $+27m.56s.$

Long waves were also recorded at Hong Kong, Irkutsk, and Medan.

Aug. 30d. Readings also at 2h. (Rocca di Papa), 4h. (Taihoku), 12h. (Ekaterinburg, Ksara, Andijan, Tashkent, and near Lick), 13h. (near Bombay), 14h. (near Osaka), 15h. (near Ksara), 16h. (near Andijan), 22h. (Andijan, Oaxaca, and near Tacubaya), 23h. (Irkutsk, Hong Kong, and Phu-Lien).

Aug. 31d. 0h. 40m. 40s. Epicentre 33°-9N. 118°-6W. N.3.

(as given by Gutenberg, Richter, and Wood; see Bull. Seim. Soc. America, Vol. 22, No. 2, p. 138).

$$A = -.397, B = -.729, C = +.558; \quad D = -.878, E = +.479; \\ G = -.267, H = -.490, K = -.830.$$

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Lick	4.2	326	e 1 0	0	i 1 56	+8	—	—
Berkeley	E. 5.0	324	e 1 10	-1	e 2 1	-7	e 2.8	—
Tucson	6.6	101	e 2 15	+41	—	—	13.6	—
Florisant	23.1	69	e 5 6	+4	—	—	—	13.2
St. Louis	23.2	70	e 4 35	-28	—	—	—	11.8

Additional readings:—

Lick iSN = +1m.8s., iN = +1m.20s.

Berkeley e = +1m.18s., eEN = +1m.25s.

Long waves were also recorded at Ann Arbor and De Bilt.

Aug. 31d. 1h. 14m. 24s. Epicentre 15°-5N. 122°-0E. (as on 1928 Nov. 21d.). X.

$$A = -.511, B = +.817, C = +.267; \quad D = +.848, E = +.530; \\ G = -.142, H = +.227, K = -.964.$$

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Manila	1.4	227	0 26	+6	0 52	+16	—	—
Hong Kong	10.1	314	i 2 20	-2	4 10	-6	4.8	5.8
Andijan	49.7	311	e 12 27	?	—	—	—	—
Ekaterinburg	61.5	327	10 41	+26	1 17 58	-38	28.6	—
Pulkovo	77.5	330	—	—	1 21 4	-44	—	—

Long waves were also recorded at Irkutsk, Phu-Lien, and Tashkent.

Aug. 31d. Readings also at 0h. (Ekaterinburg, Tashkent, Phu-Lien, and Zi-ka-wei), 2h. (near Malabar), 3h. (Bombay, Medan, Manila, Phu-Lien, Irkutsk, Hong Kong, Tashkent, and near Andijan), 4h. (Copenhagen, Kucino, and De Bilt), 5h. (Kongsberg), 7h. (Tyos), 8h. (near Batavia and Malabar), 10h. (Tan-arive, Ekaterinburg, near Andijan, and Tashkent), 11h. and 13h. (La Paz), 14h. (Almata, Andijan, and Tyos), 16h. (Rocca di Papa), 20h. (Andijan), 21h. (near Zagreb), 23h. (La Paz).

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Sept. 1d. 5h. 18m. 3s. Epicentre 25°·5N. 98°·0E. (as on 1930 Aug. 6d.). R.2.

A = -·126, B = +·894, C = +·431; D = +·990, E = +·139;
G = -·060, H = +·426, K = -·903.

		Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Phu-Lien		9·2	119	e 1 57	-13	—	—	5·0	—
Hong Kong		15·1	99	—	—	6 26	+ 9	7·8	8·1
Agra	E.	17·9	280	3 37	-28	7 12	-10	9·4	12·1
	N.	17·9	280	e 3 7	-58	7 2	-20	9·2	10·4
Hyderabad		19·9	250	4 17	-12	7 59	- 5	10·0	13·4
Zi-ka-wei	E.	21·3	69	e 4 35	- 8	—	—	—	—
Medan		21·9	178	14 51	+ 1	e 11 40	L	(e 11·7)	—
Manila		24·1	112	i 5 11	0	i 9 36	+11	i 12·5	24·1
Bombay		24·2	259	5 20	+ 8	9 42	+15	13·0	13·5
Almata		24·7	321	5 22	+ 5	9 48	+12	—	—
Andijan		26·2	311	e 5 30	- 1	e 10 20	+18	—	—
Irkutsk		27·2	8	e 5 38	- 2	e 10 8	-10	14·4	16·2
Tashkent		28·5	311	i 5 53	+ 1	e 9 34	-66	e 15·0	15·8
Ekaterinburg		41·1	330	i 7 41	0	i 13 51	- 2	20·0	23·2
Baku		42·5	305	e 7 53	0	e 14 19	+ 6	22·0	30·6
Kucino		52·5	321	—	—	e 16 34	- 1	27·6	31·4
Pulkovo		57·0	326	9 44	+ 1	e 17 37	+ 1	31·0	—
Copenhagen		66·8	323	—	—	19 45	+ 3	36·0	—

Additional readings:—

Manila iN = +5m.34s.

Kucino SS = +20m.39s.

Long waves were also recorded at Calcutta, Kodaikanal, Batavia, and other European stations.

Sept. 1d. 17h. 43m. 17s. Epicentre 35°·2N. 81°·1E. N.1.

Probable error of epicentre $\pm 0^{\circ}25$.

A = +·126, B = +·807, C = +·576; D = +·988, E = -·155;
G = +·089, H = +·569, K = -·817.

		Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Dehra Dun		5·5	209	0 33	-45	1 23	-57	2·7	3·7
Agra	E.	8·4	200	1 40	-19	13 23	-11	4·1	4·6
	N.	8·4	200	1 39	-20	3 19	-15	4·2	5·1
Almata		8·7	340	2 4	+ 1	4 34	+53	5·8	7·3
Andijan		8·8	312	e 2 6	+ 1	—	—	4·7	5·7
Tashkent		11·1	307	12 39	+ 3	4 41	0	—	6·7
Samarkand		12·0	296	e 2 47	- 1	—	—	—	4·6
Calcutta	E.	14·2	152	3 22	+ 4	—	—	7·8	—
	N.	14·2	152	3 20	+ 2	—	—	7·7	—
Hyderabad		17·9	188	4 2	- 3	7 55	+33	10·2	12·1
Bombay		17·9	206	4 3	- 2	7 33	+11	9·6	10·9
Irkutsk		23·7	37	5 6	- 1	9 30	+12	11·7	16·5
Baku		25·1	292	15 25	+ 4	19 56	+13	e 13·2	16·5
Ekaterinburg		25·7	334	15 24	- 2	9 55	+ 2	11·7	15·0
Phu-Lien		26·6	116	e 5 35	0	—	—	—	—
Colombo		28·3	183	5 54	+ 4	12 2	SS	14·8	19·2
Hong Kong		31·5	106	6 18	0	11 27	- 1	e 17·1	20·2
Medan		35·5	148	e 9 24	(- 3)	i 13 30	?	—	—
Kucino		35·7	319	6 56	+ 1	12 34	+ 2	e 17·7	22·1
Ksara		37·0	280	e 7 15	+ 9	12 54	+ 3	18·0	—
Pulkovo		40·7	325	7 39	+ 1	13 51	+ 4	20·7	27·2
Manila		41·2	110	7 43	+ 1	i 13 55	+ 1	22·3	28·9
Helstingfors		43·4	325	e 8 0	0	i 14 31	+ 4	e 21·9	—
Upsala		47·0	324	e 8 28	- 1	e 15 24	+ 5	e 21·7	26·2
Zagreb		49·2	304	e 8 43?	- 2	e 22 0	?	e 27·7	e 29·2

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Lund	49.5	317	—	—	16 0	+ 6	25.7	—
Copenhagen	49.9	317	8 53	+ 2	16 5	+ 6	25.7	—
Potsdam	N. 50.0	314	—	—	e 20 25	?	e 26.3	30.9
Cheb	50.8	310	—	—	e 15 43?	-29	—	32.7
Hamburg	51.6	315	e 8 55	- 8	e 20 43?	?	e 29.7	33.0
Venice	51.8	304	e 9 11	+ 6	e 20 4	SS	—	—
Göttingen	N. 52.0	314	—	—	e 16 43?	+15	e 27.7	—
Rocca di Papa	52.6	300	e 9 6	- 5	20 7	SS	e 31.1	37.8
Florence	53.0	302	9 10	—	16 52	+61	—	36.2
Stuttgart	53.1	310	e 9 15	0	e 16 48	+ 5	e 29.9	34.2
Bergen	53.1	325	10 43?	PP	—	—	26.7	—
Feldberg	N. 53.2	311	—	—	e 16 46	+ 1	e 29.2	30.3
Piacenza	53.7	305	e 9 43	+24	17 3	+11	—	36.8
Strasbourg	54.1	309	9 14	- 8	16 52	- 5	e 29.7	—
De Bilt	54.8	314	9 28	+ 1	17 13	+ 7	e 27.7	35.6
Paris	57.3	311	—	—	e 17 43?	+ 3	30.7	34.7
Dyce	57.5	321	—	—	17 49	+ 6	e 28.4	30.9
Durham	58.0	318	17 56	S	(17 56)	+ 7	e 29.7	39.7
Kew	58.2	315	e 9 52	0	e 17 58	+ 6	29.7	32.7
Stonyhurst	58.7	317	—	—	e 18 9	+10	34.6	78.7
Oxford	58.7	315	—	—	1 18 6	+ 7	e 29.4	35.4
Bidston	59.2	317	—	—	1 19 15	(-31)	—	—

Additional readings:—

Samarkand $i = +3m.42s.$

Manila $iN = +10m.9s., iSEN = +14m.45s., m = +18m.0s. = S_0S + 11s.$

Helsingfors $iSSE = +17m.50s. = S_0S - 12s.$

Upsala $SS = +18m.54s.$

Copenhagen $+10m.49s. = PP + 10s. and +19m.43s.$

Stuttgart $ePSNZ = +16m.54s., eSSE = +20m.35s., e = +20m.59s.$

Feldberg $eN = +21m.1s.$

Strasbourg $SS = +21m.23s.$

Durham $S = +24m.3s.$

Kew $eZ = +23m.49s. = SSS + 4s.$

Oxford $SS = +23m.23s.$

Long waves were also recorded at Kodaikanal, Kobe, and several other European stations.

Sept. 1d. Readings also at 0h. (La Paz and Victoria), 6h. (near Andijan), 13h. (La Paz), 14h. (Wellington, Melbourne, and near Manila), 15h. (Ekaterinburg, Almata, near Andijan, Samarkand, and Tashkent), 16h. (Manila), 17h. (Adelaide, Melbourne, Riverview, and Wellington), 18h. (near Tyosá), 19h. (Andijan), 20h. (near Florissant), 21h. (Andijan), 22h. (Andijan, Samarkand, and near La Paz).

Sept. 2d. 15h. 51m. 14s. Epicentre $12^\circ 3'N. 93^\circ 8'W.$ (as on 1929 April 27d.). X.

$A = -.065, B = -.975, C = +.213; D = -.998, E = +.066;$

$G = -.014, H = -.213, K = -.977.$

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Tacubaya	8.8	324	2 0	- 5	8 30	-14	3.6?	4.5
Tucson	25.4	325	5 26	+ 2	e 9 51	+ 3	13.0	—
Georgetown	N. 30.5	26	e 6 4	- 5	e 11 4	- 8	e 14.8	—
Toronto	N. 33.7	20	—	—	e 11 31	-30	1 16.2	—
Scoresby Sund	72.4	20	—	—	20 46?	- 4	38.8	—
De Bilt	85.7	38	12 41	+ 4	—	—	e 40.8	—
Stuttgart	89.1	40	e 12 56	+ 3	—	—	e 44.8	50.8

Additional readings:—

Georgetown $ePEZ = +6m.10s., iSE = +11m.11s., eSZ = +11m.34s.$

Long waves were also recorded at Ann Arbor, Victoria, Ekaterinburg, Irkutsk, Pulkovo, Tashkent, and other European stations.

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Sept. 2d. 18h. 58m. 52s. Epicentre 29°4N. 51°4E. N.1.

Probable error of Epicentre $\pm 0^{\circ}.25$.

A = +.544, B = +.681, C = +.491; D = +.782, E = -.624;
G = +.306, H = +.384, K = -.871.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Baku	11.0	354	e 2 28	- 7	—	—	7.6	9.2
Ksara	13.9	293	3 22	+ 8	6 7	+18	7.3	—
Samarkand	16.4	47	3 40	- 6	—	—	8.4	9.5
Helwan	17.4	276	4 3	+ 4	i 7 32	+21	—	—
Tashkent	18.8	46	i 4 14	- 2	i 7 47	+ 5	10.1	14.1
Theodosia	20.1	325	e 4 28	- 3	8 8	0	11.1	—
Yalta	20.3	323	4 33	0	8 22	+10	—	—
Andijan	20.5	51	e 4 36	+ 1	8 27	+11	10.6	13.0
Simferopol	20.7	323	e 4 36	- 1	8 25	+ 5	—	—
Sebastopol	20.8	322	e 4 46	+ 8	i 8 46	+24	—	—
Bombay	22.2	114	4 55	+ 2	9 11	+21	12.0	21.0
Agra	23.6	89	i 6 3	+57	9 13	- 3	12.8	14.7
Almata	24.7	49	5 24	+ 7	—	—	11.1	14.7
Hyderabad	27.5	110	5 15	-28	10 28	+ 4	16.3	20.2
Kucino	28.1	344	5 49	+ 1	10 27	- 7	e 13.9	16.6
Ekaterinburg	28.2	11	e 5 45	- 4	10 20	-15	13.1	17.8
Budapest	30.7	317	6 8	- 3	—	—	20.6	—
Zagreb	32.1	312	e 6 22	- 2	e 11 36	- 1	—	18.5
Rocca di Papa	33.5	304	6 37	+ 1	—	—	—	20.9
Pulkovo	33.6	341	6 34	- 3	11 53	- 7	17.6	21.9
Calcutta	E. 33.8	93	6 39	0	—	—	16.7	—
	N. 33.8	93	6 47	+ 8	—	—	16.9	—
Florence	34.9	307	6 52	+ 4	12 22	+ 2	16.6	18.5
Colombo	35.0	126	12 26	S	(12 26)	+ 5	—	23.7
Helsingfors	35.5	338	—	—	e 12 7	-22	e 18.3	—
Cheb	35.8	319	—	—	e 12 29	- 4	e 23.6	25.1
Piacenza	36.2	309	7 6	+ 6	12 40	+ 1	—	24.3
Potadam	N. 36.3	321	e 7 2	+ 2	e 12 14	-27	—	24.4
Chur	36.7	310	e 7 2	- 2	i 12 41	- 6	—	—
Stuttgart	37.4	315	e 7 8	- 2	e 12 48	- 9	—	24.6
Zurich	37.5	310	e 7 5	- 6	e 12 52	- 7	—	—
Lund	37.7	326	—	—	12 55	- 7	21.1	—
Upsala	38.0	334	e 8 37	PP	—	—	e 21.1	—
Copenhagen	38.1	326	7 15	- 1	13 2	- 6	21.1	—
Feldberg	N. 38.2	316	—	—	e 13 4	- 5	—	—
Strasbourg	38.3	314	7 19	+ 1	—	—	e 18.1	—
Hamburg	38.5	321	e 7 20	+ 1	e 16 44	?	—	—
Uccle	40.9	316	e 7 39	- 1	13 45	- 5	e 22.1	—
Paris	41.7	314	i 7 46	0	e 14 0	- 2	20.1	27.1
Tortosa	N. 42.5	300	7 52	- 1	14 13	0	e 24.1	30.2
Alicante	43.4	298	7 47	-13	—	—	—	—
Kew	43.9	317	18 5	+ 1	e 14 31	- 3	e 26.1	—
Oxford	44.6	317	8 14	+ 4	114 38	- 6	e 23.1	31.1
Irkutsk	44.8	44	8 12	+ 1	e 14 35	-12	22.9	—
Almeria	45.0	295	8 15	+ 2	—	—	—	42.1
Stonyhurst	45.6	319	—	—	e 14 48	-11	—	—
Granada	46.0	295	19 4	+43	115 41	+37	e 22.2	31.6
Edinburgh	46.4	322	—	—	e 15 8f	- 2	—	—
Hong Kong	56.3	83	17 22	S	(17 22)	- 5	e 31.6	36.8
Scoresby Sund	56.9	338	9 44	+ 2	17 38	+ 3	31.1	—
Manila	65.3	87	e 10 50	+ 9	i 13 29	PP	—	—

Additional readings :—

Agra eN = +3m.58s.

Zagreb e = +6m.27s.

Helsingfors eN = +13m.44s., iZ = +14m.47s. =PS+9s., iE = +14m.51s., iN =

+16m.21s.

Cheb e = +18m.9s.

Continued on next page.

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Stuttgart eN = +17m.24s. = S_cS - 2s.
 Kew e = +17m.50s. = S_cS - 15s.
 Oxford iSN = +14m.34s., i = +17m.58s. = S_cS - 12s.
 Almeria m = +9m.56s. = P_cP - 2s.
 Granada i = +16m.18s. and +16m.22s.
 Scoresby Sund +13m.2s.
 Long waves were recorded at Kodaikanal.

Sept. 2d. Readings also at 0h. (Almata, Andijan (2), Tashkent, Samarkand (3), and Ekaterinburg), 4h. (La Paz, near Tacubaya, and near Sumoto), 5h. (La Paz), 7h. (Andijan), 10h. (Ekaterinburg and Tashkent), 12h. (near Manila), 13h. (Bagnères, Lick, and near Tacubaya), 14h. (near Nagasaki), 17h. (Alicante), 22h. (near Santiago).

Sept. 3d. 9h. 59m. 46s. Epicentre 38°1N. 1°2W. N.3.
 (given by the Spanish stations).

A = +.787, B = -.016, C = +.617.

	Δ	Az.	P.	O-C.	S.	O-C.	M.
	°	°	m. s.	s.	m. s.	s.	m.
Alicante	0.6	66	0 12	+ 3	0 21	+ 6	—
Almeria	1.5	219	e 0 25	+ 4	0 48	+ 9	—
Granada	2.1	244	i 0 27	- 3	i 1 0	+ 6	1.5
Toledo	2.8	309	0 40	0	1 25	+13	—
Malaga	2.9	242	1 5	+24	1 41	+27	—
Tortosa	N. 3.0	26	e 0 37	- 6	e 1 25	+ 8	—

Additional readings:—

Alicante PP = +23s., PS = +31s.
 Almeria PP = +29s., PPP = +33s., PS = +44s., SS = +53s. and +1m.1s.,
 SSS = +1m.15s. and +1m.26s.
 Granada PP = +31s., +36s., and +49s., SS = +1m.2s. and +1m.7s.
 Toledo P_r = +43s., SS = +1m.28s.
 Long waves were also recorded at De Bilt.

Sept. 3d. Readings also at 3h. (near Tacubaya), 8h. (Tyosi), 9h. (Andijan), 10h. (near La Paz), 11h. (Alicante, Tokyo, and near Tyosi), 14h. (Alicante), 16h. (La Paz, De Bilt, Edinburgh, Granada, Kew, Paris, Rocca di Papa, Strasbourg, Stuttgart, Uccle, Alicante, and near Algiers), 20h. (La Paz and near Andijan), 21h. (near Irkutsk).

Sept. 4d. 4h. 17m. 52s. Epicentre 38°5N. 143°0E. (as on 1927 Aug. 29d.). R.2.

A = -.625, B = +.471, C = +.623; D = +.602, E = +.799;
 G = -.497, H = +.375, K = -.783.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Iainomaki	1.4	267	0 21	+ 1	0 31	- 5	—	—
Mizusawa	E. 1.6	307	0 24	+ 1	0 36	- 5	—	—
	N. 1.6	307	0 26	+ 3	0 39	- 2	—	—
Sendai	1.7	263	0 26	+ 2	0 39	- 5	—	—
Morioka	1.9	310	0 27	- 1	0 43	- 6	—	—
Hukusima	2.2	250	0 29	- 2	0 51	- 6	—	—
Akita	2.6	298	0 40	+ 3	1 13	S*	—	—
Kakioka	3.2	225	0 44	- 2	1 17	- 5	—	—
Tyosi	3.3	211	e 0 47	0	1 26	+ 1	e 1.6	—
Tokyo	3.9	224	0 56	0	1 46	+ 6	—	—
Nagano	4.3	246	1 1	0	1 46	- 4	—	—
Misima	4.7	224	1 7	0	2 0	0	—	—
Sapporo	4.7	346	1 15	P*	2 19	S*	—	—
Nagoya	5.9	238	1 27	+ 3	2 27	- 4	—	—
Hikone	6.3	241	1 28	- 2	2 40	- 1	—	—
Osaka	7.2	240	1 26	-16	(3 1)	- 3	3.0	4.2
Kobe	7.4	241	e 2 16	+31	3 31	+22	—	—
Sumoto	7.8	240	—	—	e 3 13	- 6	(e 3.8)	3.9

Sumoto gives S as e and L as S.

Long waves were also recorded at Baku and Ekaterinburg.

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Sept. 4d. Readings also at 9h. (near Taranto), 10h. (Catania and Messina), 13h. (Alicante and Feldberg), 18h. (La Paz), 20h. (near Florence and Rocca di Papa), 22h. (near Tacubaya).

Sept. 5d. 10h. 13m. 56s. Epicentre 37°-0N. 72°-0E. (as on May 24d.) R.3.

A = +.247, B = +.760, C = +.602; D = +.951, E = -.309;
G = +.186, H = +.572, K = -.799.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Andijan	3.8	4	e 0 54	0	—	—	i 1.5	1.7
Almata	7.3	30	e 1 45	+ 1	3 0	- 6	3.3	3.9
Dehra Dun	8.3	141	3 4	S	(3 4)	-27	—	—
Baku	17.5	288	e 5 6	+66	—	—	—	—
Bombay	18.1	177	4 15	+ 7	7 45	+18	9.7	12.1
Calcutta	N. 20.2	131	e 8 8	S	(e 8 8)	- 2	—	—
Ekaterinburg	21.2	343	14 37	- 5	18 16	-14	10.1	—
Irkutsk	27.2	46	e 6 7	+27	10 55	+37	—	—
Kucino	29.6	320	—	—	e 12 22	SS	e 17.2	—
Pulkovo	34.9	324	e 6 44	- 4	e 13 56	SS	20.0	—
De Bilt	48.1	311	—	—	15 22	-12	e 23.1	—
La Plata	139.8	257	20 5	[+44]	—	—	—	—

No additional readings.

Sept. 5d. 16h. 20m. 38s. Epicentre 27°-5N. 55°-0E. (as on Aug. 23d.) R.2.

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

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Baku	13.5	343	e 3 11	+ 2	e 5 43	+ 4	6.9	10.9
Ksara	17.6	287	4 5	+ 3	7 39	+24	—	—
Tashkent	18.1	37	14 7	- 1	1 7 25	- 2	i 10.1	12.3
Bombay	18.5	114	e 4 13	0	—	—	—	14.8
Andijan	19.5	43	e 4 24	0	e 8 13	+17	e 10.4	—
Dehra Dun	20.3	77	7 42	S	(7 42)	-30	11.9	12.4
Agra	E. 20.5	85	e 4 17	-18	8 12	- 4	e 12.0	13.5
Almata	23.7	43	e 5 9	+ 2	—	—	—	—
Yalta	23.8	321	e 5 8	0	e 9 20	+ 1	—	—
Simferopol	24.1	322	e 5 12	+ 1	e 9 27	+ 2	—	—
Ekaterinburg	29.6	6	e 5 59	- 2	i 10 52	- 6	14.4	18.2
Kucino	30.8	341	e 6 10	- 2	e 11 10	- 7	e 14.8	26.0
Pulkovo	36.4	340	7 3	+ 2	12 38	- 4	19.4	—
Rocca di Papa	37.2	304	7 26	+18	—	—	—	—
Helisingtors	38.5	336	e 7 17	- 2	i 13 12	- 2	—	—
Florence	38.6	306	7 55	+35	e 13 22	+ 7	—	22.4
Placenza	39.9	310	9 14	PP	—	—	—	24.6
Zurich	41.1	311	1 7 36	- 5	e 13 46	- 7	—	—
Copenhagen	41.5	326	—	—	14 16	+17	21.4	—
Straasbourg	41.9	313	—	—	e 16 22	SS	—	—
Irkutsk	44.0	41	e 7 58	- 7	e 14 33	- 3	23.4	—
De Bilt	44.3	318	e 8 8	+ 1	—	—	e 22.4	—
Uccle	44.7	316	—	—	e 14 22	-24	e 24.4	—
Paris	45.3	313	e 8 14	- 1	—	—	27.4	—

Additional readings :-

Ksara PPE = +4m.25s.

Agra eSN = +11m.12s.

Long waves were also recorded at Scoresby Sund and the other European stations.

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Sept. 5d. 20h. 1m. 36s. Epicentre 34°·9N. 134°·1E. N.3.

$$A = -\cdot571, B = +\cdot589, C = +\cdot572.$$

	Δ	Az.	P. m. s.	O-C. s.	S. m. s.	O-C. s.	L. m.	M. m.
Kobe	0·9	104	0 12	- 1	0 20	- 3	—	0·4
Sumoto	0·9	130	0 13	0	0 24	+ 1	—	0·4
Toyooka	0·9	43	0 11	- 2	0 19	- 4	—	0·3
Osaka	1·2	102	e 0 24	+ 7	(0 31)	0	0·5	0·5

Sept. 5d. 21h. 23m. 49s. Epicentre 41°·1N. 15°·4E. (as on 1930 Aug. 15d.). X.

$$A = +\cdot726, B = +\cdot200, C = +\cdot657; D = +\cdot266, E = -\cdot964; \\ G = +\cdot634, H = +\cdot175, K = -\cdot754.$$

	Δ	Az.	P. m. s.	O-C. s.	S. m. s.	O-C. s.	L. m.	M. m.
Naples	E. 0·9	253	(e 0 20)	+ 7	(e 0 24)	+ 1	—	—
Casamicciola	1·2	253	0 22	+ 5	0 43	+ 12	—	—
Taranto	1·6	114	0 27	+ 4	0 43	+ 2	—	0·8
Trenta	2·0	159	e 0 21	- 8	0 51	0	—	—
Rocca di Papa	2·1	288	e 0 36	+ 6	1 0 54	0	i 1·2	2·3
Florence	4·1	313	0 11	-47	—	—	—	2·2
Zagreb	4·7	5	e 1 34	+27	e 2 6	+ 6	e 2·3	2·6

Naples readings have been *diminished* by 9m.

Long waves were also recorded at Piacenza, De Bilt, Strasbourg, and Stuttgart.

Sept. 5d. Readings also at 1h. (near Algiers), 2h. (near Barcelona), 15h. (Tyest), 17h. (near Manila), 19h. (Andijan), 20h. (near Manila), 21h. (Ekaterinburg and Tashkent), 22h. (La Paz, Hohenheim, Ravensburg, Stuttgart, near Padova, Venice, Zagreb, and Zurich), 23h. (near Lick).

Sept. 6d. 21h. 36m. 5s. Epicentre 31°·2N. 61°·6E. (as on 1923 Nov. 29d.). X.

$$A = +\cdot407, B = +\cdot752, C = +\cdot518; D = +\cdot880, E = -\cdot476; \\ G = +\cdot246, H = +\cdot456, K = -\cdot855.$$

	Δ	Az.	P. m. s.	O-C. s.	S. m. s.	O-C. s.	L. m.	M. m.
Tashkent	11·8	30	2 46	0	4 58	0	e 5·2	9·0
Andijan	12·9	40	e 4 5	S	(e 4 5)	-80	(e 9·0)	—
Baku	13·2	313	e 3 5	0	(5 31)	- 1	5·5	—
Ksara	N. 21·8	284	—	—	8 38	- 4	—	—
Ekaterinburg	25·6	359	e 5 10	-15	e 9 18	-33	11·9	—

Additional readings and note :—

Andijan gives S as P and L as S.

Baku e = +4m.41s.

Ekaterinburg i = +5m.16s.

Long waves were also recorded at Irkutsk.

Sept. 6d. Readings also at 3h. (La Paz), 4h. (near Taihoku), 6h. (Adelaide, Melbourne, and Riverview), 7h. (Wellington), 12h. (Catania and Messina), 13h. (near Sumoto), 17h. (Adelaide, Riverview, La Paz, Andijan, Ekaterinburg, Tashkent, and Manila), 19h. (near Andijan), 22h. (Andijan, Tashkent, and Irkutsk), 23h. (Baku, Tashkent, and Granada).

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Sept. 7d. 10h. 56m. 23s. Epicentre 37°·8N. 25°·0E. (as on 1929 April 17d.). X.

A = +·716, B = +·334, C = +·613; D = +·423, E = -·906;
G = +·555, H = +·259, K = -·790.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Yalta	9·6	43	e 2 12	- 4	—	—	—	—
Simferopol	9·9	41	e 2 19	0	—	—	—	—
Rocca di Papa	10·2	297	e 2 56	+32	—	—	—	—
Theodosia	10·6	43	e 2 30	+ 1	—	—	—	—
Baku	19·4	75	—	—	e 8 7	+13	9·9	—
Pulkovo	22·2	7	4 57	+ 4	e 8 58	+ 8	12·1	13·6
Ekaterinburg	30·2	39	—	—	e 11 14	+ 7	14·6	—

Long waves were also recorded at Kucino and other European stations.

Sept. 7d. Readings also at 0h. (Ksara and near Andijan), 2h. (near Manila), 3h. (La Paz), 4h. (Ksara), 5h. (La Paz), 10h. (Florence), 13h. (Samarkand, near Andijan, near Chur, and Zurich), 14h. (Kew), 18h. (Nagoya and near Malabar), 19h. (Sumoto).

Sept. 8d. Readings at 2h. (near Santiago), 3h. (Samarkand and near Andijan), 4h. (near Phu-Lien), 5h. (Baku, Ekaterinburg, Pulkovo, Ksara, and Granada), 7h. (Tyosi), 8h. (Bombay, Tashkent, and La Paz), 11h. (near Tacubaya), 12h. (near Algiers), 13h. (near Santiago), 14h. (Nagoya, near Tyosi, and near Manila), 18h. (La Paz), 19h. (Tyosi), 20h. (Baku, Ekaterinburg, Irkutsk, Kucino, and Tashkent), 21h. (Tucson).

Sept. 9d. 15h. 30m. 54s. Epicentre 33°·7N. 3°·0W. N.3.

A = +·831, B = -·044, C = +·555; D = -·052, E = -·999;
G = +·554, H = -·029, K = -·832.

	Δ	Az.	P.	O-C.	S.	O-C.	M.
	°	°	m. s.	s.	m. s.	s.	m.
Almeria	3·2	9	e 0 46	0	1 21	- 1	2·7
Malaga	3·2	339	0 47	+ 1	1 51	+29	—
Granada	3·5	352	i 0 49	- 1	1 28	- 2	1·8
Alicante	5·1	22	—	—	e 2 11	+ 1	—
Toledo	6·2	353	e 1 49	+21	—	—	—

Additional readings:—

Almeria i = +1m.9s., +1m.45s., and +2m.23s.
Granada iP = +55s., PS = +1m.13s., SS = +1m.40s.

Sept. 9d. Readings also at 4h. (Sydney), 8h. (Christchurch and Wellington), 10h. (Ekaterinburg, Irkutsk, Hong Kong, Phu-Lien, near Manila, and Taihoku), 11h. (Scoresby Sund, Baku, Tashkent, Kucino, Pulkovo, Copenhagen, De Bilt, Uccle, Strasbourg, and Stuttgart), 12h. (near Santiago), 13h. (Andijan), 15h. (near Mizusawa), 18h. (Baku and Ksara), 19h. (Andijan, Ekaterinburg (3), Irkutsk, Tashkent, Phu-Lien, Hong Kong, Zi-ka-wei, near Manila (2), and Taihoku), 20h. (Tashkent and near Sumoto), 23h. (Bombay).

Sept. 10d. 22h. 23m. 30s. Epicentre 34°·0N. 142°·5E. (as on 1924 Mar. 12d.). X.

A = -·658, B = +·505, C = +·559; D = +·609, E = +·793;
G = -·444, H = +·340, K = -·829.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Tyosi	2·2	322	e 0 24	- 7	(e 0 42)	-15	e 0·7	—
Nagoya	4·7	286	1 0	- 7	1 49	-11	—	—
Mizusawa	E. 5·2	348	1 27	+13	2 3	-10	—	—
Osaka	5·9	279	1 34	+10	(2 43)	+12	2·7	5·1
Kobe	6·1	279	e 2 32	S	(e 2 32)	- 4	—	—
Sumoto	6·3	275	e 1 56	+26	—	—	e 4·9	—
Zi-ka-wei	Z. 17·9	269	—	—	e 7 30	+ 8	—	12·4
Manila	N. 27·5	230	e 8 20	?	—	—	—	—
Ekaterinburg	57·8	320	e 10 11	+22	—	—	29·5	—

Long waves were also recorded at Irkutsk, Tashkent, Baku, Kucino, Pulkovo, Copenhagen, and De Bilt.

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Sept. 10d. Readings also at 2h. (near Andijan and Samarkand), 4h. (Manila), 6h. (Andijan), 7h. (near Manila), 9h. (Bombay), 11h. (near Catania), 12h. (Baku, Tashkent, and Ksara), 13h. (Ekaterinburg), 14h. (Rocca di Papa and Trento), 15h. (Copenhagen and De Bilt), 16h. (Nagoya and near Tyosoi), 17h. (Sumoto), 18h. (Wellington), 23h. (Andijan, Samarkand, Feldberg, near Florissant, and St. Louis).

Sept. 11d. 12h. 36m. 49s. Epicentre 37°5N. 31°3E. N.1.

Probable error of epicentre $\pm 0^{\circ}.26$.

A = +.678, B = +.412, C = +.609; D = +.520, E = -.854;
G = +.520, H = +.316, K = -.793.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°		m. s.	s.	m. s.	s.	m.	m.
Ksara	E. 5.2	133	i 1 5	- 9	2 10	- 3	2.2	—
Sebastopol	7.3	12	1 48	+ 4	3 14	+ 8	—	—
Yalta	7.3	16	1 46	+ 2	3 11	+ 5	3.8	—
Helwan	7.6	180	1 41	- 7	2 57	- 17	—	—
Simferopol	7.7	15	1 51	+ 2	—	—	7.2	—
Theodosia	8.1	20	2 0	+ 5	3 32	+ 6	13.2	—
Belgrade	10.9	315	e 2 40	+ 7	e 4 57	+ 21	6.2	7.6
Taranto	11.3	289	2 45	+ 6	4 47	+ 2	5.1	7.0
Trenta	11.8	283	i 2 41	- 5	6 31	L	(6.5)	—
Messina	12.4	278	2 47	- 7	—	—	—	—
Catania	12.8	275	3 19	+ 20	—	—	—	4.3
Mineo	13.2	274	2 23	- 42	—	—	—	—
Budapest	13.4	321	i 3 11?	+ 4	6 4	+ 27	7.2	11.5
Lemberg	13.4	339	e 3 7	0	—	—	e 7.7	8.4
Casamicciola	13.8	290	3 24	+ 11	6 3	+ 17	8.6	—
Zagreb	14.1	311	e 3 21	+ 4	e 6 6	+ 13	e 7.6	8.3
Baku	14.7	73	i 3 27	+ 2	16 27	+ 19	8.2	10.1
Rocca di Papa	14.9	292	3 23	- 4	16 29	+ 16	e 9.4	10.2
Graz	15.0	314	i 3 7	- 21	16 2	- 13	17.0	8.4
Laibach	15.1	310	e 4 21	+ 51	e 6 17	0	e 8.2	10.7
Rome	15.1	293	e 3 35	+ 5	e 6 35	+ 18	—	—
Vienna	15.2	319	e 3 37	+ 6	8 34	L	(8.6)	9.3
Venice	16.2	305	e 3 57	+ 13	e 7 51	L	(e 7.9)	11.2
Treviso	16.4	306	i 3 49	+ 3	7 3	+ 15	9.4	11.2
Padova	16.5	305	e 3 54	+ 6	e 7 0	+ 10	—	—
Innsbruck	17.6	310	e 4 5	+ 3	7 41	L	(7.7)	10.3
Piacenza	17.8	302	4 11	+ 7	17 31	+ 11	9.4	13.3
Cheb	18.4	319	e 4 12	+ 1	e 7 44	+ 11	e 10.2	11.2
Chur	18.5	307	e 4 15	+ 2	e 7 52	+ 16	—	—
Kucino	18.7	12	4 17	+ 2	7 48	+ 8	9.3	13.7
Königsberg	18.8	340	14 25	+ 9	17 55	+ 13	e 10.7	—
Jena	E. 19.3	320	e 4 26	+ 4	18 14	+ 22	e 10.2	11.5
	N. 19.3	320	14 31	+ 9	18 10	+ 18	e 10.2	11.5
	Z. 19.3	320	e 4 28	+ 6	e 8 11	+ 19	e 10.8	13.2
Zurich	19.3	308	e 4 21	- 1	e 7 52	0	—	—
Stuttgart	19.6	312	e 4 23	- 2	18 7	+ 9	i 10.7	13.7
Karlsruhe	20.1	312	4 28	- 3	8 20	+ 12	e 11.0	11.9
Neuchatel	20.3	305	14 31	- 2	18 19	+ 7	—	—
Strasbourg	20.3	311	4 33	0	8 26	+ 14	11.2	12.0
Göttingen	20.5	320	e 4 38	+ 3	18 31	SS	e 10.7	16.4
Besançon	20.9	306	e 4 38	- 1	8 37	+ 13	12.2	—
Hamburg	21.8	320	e 4 47	- 2	18 52	+ 10	e 13.1	15.2
Lund	21.8	332	4 49	0	8 54	+ 12	12.2	—
Copenhagen	22.2	331	14 52	- 1	9 0	+ 10	12.2	—
Pulkovo	22.3	359	4 54	0	9 4	+ 12	11.7	14.6

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	e	•	m. s.	s.	m. s.	s.	m.	m.
Algiers	22.4	276	4 50	- 5	8 57	+ 4	10.8	17.7
Barcelona	22.7	289	e 3 58	-60			e 12.8	—
Helsingfors	23.0	352	i 5 0	- 1	i 9 22	+17	e 11.9	—
Uccle	23.2	314	i 5 3	0	9 17	+ 9	11.2	13.4
De Bilt	23.4	317	5 3	- 2	9 25	+13	e 12.2	13.4
Paris	23.6	308	i 5 6	0	e 9 20	+ 4	11.2	12.2
Tortosa	24.0	288			e 9 56	SS	14.3	16.9
Upsala	24.0	343	i 5 8	- 2	i 9 36	+13	e 13.2	17.2
Alicante	25.0	282	e 5 26	+ 6	e 9 43	+ 2	e 12.4	—
Kew	26.2	312	e 5 29	- 2	e 10 30	+28	12.2	15.0
Almeria	26.7	279	5 36	+ 1	9 57	-13	—	18.1
Oxford	26.9	312	e 5 33	- 4	i 10 11	- 3	e 11.2	15.7
Ekaterinburg	27.4	36	i 5 40	- 2	10 25	+ 3	13.2	18.5
Toledo	27.5	286	e 5 39	- 4	e 10 23	- 1	e 14.2	18.2
Granada	27.6	280	i 5 41	- 3	i 10 32	+ 7	e 16.2	19.6
Bergen	28.2	333	—	—	e 10 41	+ 6	—	—
Durham	28.2	318	5 53	+ 4	i 10 32	- 3	13.5	16.3
Malaga	28.3	279	e 5 40	-10	e 11 6	+29	e 14.8	—
Stonyhurst	28.3	316	e 5 47	- 3	e 11 5	+28	—	19.6
Bidston	28.5	315	—	—	i 10 41	+ 1	e 14.2	—
Edinburgh	29.4	320	—	—	e 10 59	+ 4	—	20.9
Tashkent	29.4	71	i 5 57	- 3	i 11 15	+20	17.2	19.6
Dyce	29.5	323	—	—	10 53	- 3	e 14.2	20.6
Andijan	31.8	72	6 20	- 1	12 13	+41	21.0	—
Bombay	40.6	106	7 40	+ 3	14 4	+19	21.5	28.7
Scoresby Sund	42.9	338	7 51	- 5	14 41	+22	23.2	—
Hyderabad	45.8	103	8 18	- 1	15 18	+16	24.7	31.8
Dakar	48.7	259	e 10 32	PP	e 15 22	-21	17.3	32.8
Kodaikanal	49.6	111	19 35	SS	—	—	—	—
Irkutsk	51.4	49	9 1	- 1	16 25	+ 5	27.2	—
Colombo	53.6	113	8 31	-47	—	—	—	37.8
Hong Kong	71.2	76	20 21	S	(20 21)	-14	—	46.7
Manila	80.9	79	i 12 15	+ 2	i 14 20	?	—	—
Tyosi	82.0	51	e 12 40	+22	—	—	—	—
Victoria	E. 91.2	346	25 10	PS	—	—	48.2	53.1

Additional readings :

Belgrade e = +2m.45s., +3m.28s., and +4m.9s.
 Zagreb e = +3m.52s., eNW = +6m.38s., i = +7m.50s.
 Rocca di Papa i = +3m.34s.
 Laibach e = +6m.41s. and +8m.6s.
 Vienna PPP = +5m.17s., P₀P = +6m.39s.
 Königsberg ePPN = +4m.44s., eSSE = +8m.17s., eSSSE = +8m.27s.
 Jena iSN = +8m.19s.
 Stuttgart i = +4m.30s. = PP - 6s., eE = +6m.6s. and +6m.51s., iE = +9m.16s. and +9m.31s.
 Besançon iE = +4m.45s. = PP - 10s.
 Hamburg iSE = +8m.56s.
 Lund +9m.3s. = SS - 8s.
 Copenhagen +4m.59s.
 Algiers SSS? = +10m.11s.
 Helsingfors PPN = +5m.29s., PPPEN = +5m.44s., iN = +6m.19s., P₀PEN = +8m.31s., SS = +10m.6s., iSSS = +10m.30s., P₀SN = +12m.14s., P₀SE = +12m.17s., iS₀SE = +15m.58s.
 Upsala SS = +10m.23s.
 Almeria i = +6m.2s.
 Oxford i = +6m.29s.
 Granada i = +6m.42s. and +8m.21s.
 Durham PP = +6m.37s., PPP = +6m.47s., PPPP = +6m.49s., i = +11m.11s., SS = +11m.57s., SSS = +12m.23s., SSSS = +12m.36s.
 Long waves were also recorded at La Paz.

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Sept. 11d. 17h. 20m. 10s. Epicentre 36°·5N. 70°·5E. X.

(given by the Russian stations and as on 1929 Dec. 10d.).

A = +·268, B = +·758, C = +·595; D = +·943, E = -·334;
G = +·199, H = +·561, K = -·804.

A depth of focus 0·025 used on previous occasions with this epicentre has been retained.

	Corr. for Focus	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	L. m.	M. m.
Samarkand	+0·2	4·2	320	i 1 3	0	(i 1 47)	- 6	i 1·8	4·0
Andijan	+0·2	4·5	21	1 8	+ 1	1 55	- 5	2·0	2·1
Tashkent	0·0	4·9	350	i 1 11	+ 1	(i 2 8)	+ 3	i 2·1	2·9
Baku	-0·8	16·6	290	3 46	+ 8	6 52	+18	e 8·8	—
Bombay	-0·8	17·7	173	3 52	- 1	7 3	+ 4	8·7	—
Ekaterinburg	-1·1	21·4	345	e 4 24	- 9	i 8 15	+ 3	10·8	—
Theodosia	-1·5	27·7	299	e 6 10	PP	—	—	—	—
Irkutsk	-1·6	28·4	46	e 5 42	+ 6	e 9 50?	-22	—	—
Simferopol	-1·6	28·6	298	e 7 32	?	—	—	—	—
Kucino	-1·6	29·2	322	e 5 25	-19	e 9 29	-56	10·8	—
Pulkovo	-1·9	34·6	327	6 34	+ 5	11 53	+ 7	17·3	—
Helsingfors	-2·0	37·2	324	e 8 17	PP	e 12 29	+ 5	—	—
Zagreb	-2·2	41·3	301	e 8 29	+65	—	—	—	—
Copenhagen	-2·2	43·1	316	—	—	14 3	+13	—	—
Lund	-2·2	43·1	316	9 51	(- 1)	17 14	SSSS	—	—
Hamburg	-2·3	44·5	315	e 7 50?	0	—	—	—	—
Stuttgart	-2·4	45·5	309	e 10 2	PcP	e 14 34	+12	—	19·2
De Bilt	-2·5	47·6	312	e 10 50?	?	—	—	—	—

Additional readings:—

Zagreb e = +9m.37s. = P_cP - 9s.

Copenhagen +9m.50s. = P_cP - 2s. and +17m.32s.

Stuttgart eN = +15m.35s.

Sept. 11d. Readings also at 1h. (near Lick and near Rocca di Papa), 2h. (La Paz and Sucre), 3h. (Hong Kong, Manila, Phu-Lien, Almata, Samarkand, Ekaterinburg, Copenhagen, De Bilt, Uccle, Kew, La Paz, and Rio de Janeiro), 4h. (Bombay, Medan, Pulkovo, Copenhagen, La Paz (2), De Bilt, Uccle, near Kobe, Sumoto, and Osaka), 6h. (Tananarive and near Tacubaya), 7h. (near La Paz), 8h. (Catania, Messina, Trenta, and near Tyosi), 10h. (Ekaterinburg, Tashkent, and De Bilt), 11h. (Hong Kong, Manila, Phu-Lien, Tashkent, Ekaterinburg, Irkutsk, near Taihoku, near Nagoya, and Osaka), 12h. (Wellington), 15h. (Zagreb), 16h. (Nagoya, near Osaka, and near Tyosi), 18h. (Andijan, Samarkand, Ekaterinburg, Tashkent, and Manila), 19h. (Andijan, Tashkent, Ekaterinburg, Taihoku, La Plata, near La Paz, and Santiago), 23h. (Taihoku).

Sept. 12d. 8h. 18m. 33s. (I) } Epicentre 37°·1N. 23°·2E.
9h. 22m. 27s. (II) }
13h. 33m. 54s. (III) } (as on 1930 April 17d.).

R.3.
R.3.
X.

A = +·733, B = +·314, C = +·603; D = +·394, E = -·919;
G = +·554, H = +·238, K = -·798.

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	L. m.	M. m.
I Trenta	5·8	295	e 1 2	-20	—	—	—	—
II	5·8	295	e 0 33	-49	—	—	—	—
I Catania	6·4	277	i 0 32	-59	—	—	—	—
II	6·4	277	e 2 37	S	(e 2 37)	- 6	—	—
I Naples	E. 7·9	302	e 3 42	S	(e 3 42)	+21	—	—
II	E. 7·9	302	e 3 43	S	(e 3 43)	+22	(e 4·4)	—

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
I Belgrade	8-0	346	e 2 40	+47	e 3 13	-11	e 4-4	4-6
II	8-0	346	e 2 2	+9	e 3 4	-20	e 3-8	4-4
I Rocca di Papa	9-3	304	e 3 7	+56	e 4 7	+11	e 4-8	7-6
II	9-3	304	e 2 57	+46	1 3 37	-19	—	7-6
III	9-3	304	e 0 21	?	—	—	—	7-1
I Rome	9-5	304	e 4 31	S	(e 4 31)	+30	—	6-7
II	9-5	304	e 2 45	+31	—	—	—	—
I Zagreb	10-2	330	e 3 3	+39	e 5 40	L	(e 5-7)	6-9
II	10-2	330	e 2 48	+24	e 4 56	+38	—	e 6-9
III	10-2	330	e 3 6?	+42	e 4 51	+33	e 5-7	—
I Ksara	10-8	104	e 3 27	+55	—	—	—	—
I Graz	11-5	333	—	—	e 4 31	-19	6-4	—
II	11-5	333	—	—	(e 4 33?)	-17	e 4-6	—
I Padova	11-9	318	e 5 17	S	(e 5 17)	+17	—	—
I Piacenza	12-9	313	—	—	e 5 57	+32	—	10-4
II	12-9	313	—	—	e 5 33	+8	—	10-5
I Zurich	14-9	318	e 3 26	-1	—	—	e 7-4	—
II Stuttgart	15-5	323	—	—	e 6 33?	+6	e 8-4	10-1
I Strasbourg	16-1	321	e 3 27?	-16	1 8 58	L	10-4	—
II	16-1	321	e 3 33?	-10	e 6 33	-8	e 10-5	—
I Hamburg	18-8	335	—	—	e 7 27?	-15	—	—
I Paris	19-0	315	e 4 15	-4	—	—	10-4	10-4
II	19-0	315	e 4 17	-2	—	—	10-6	10-6
III	19-0	315	e 4 6?	-13	—	—	—	—
II Uccle	19-2	321	e 4 18	-3	e 7 48	-2	e 9-6	—
III	19-2	321	e 4 18	-3	—	—	e 10-1	—
I De Bilt	19-6	325	4 21	-4	e 8 0	+2	e 10-4	12-7
II	19-6	325	4 25	0	e 8 2	+4	e 10-1	12-8
III	19-6	325	4 24	-1	e 8 6	+8	e 10-1	12-8
I Copenhagen	20-0	342	4 21	-9	—	—	11-4	—
II	20-0	342	—	—	8 9	+3	10-5	—
III	20-0	342	—	—	8 6?	0	—	—
I Baku	21-0	73	—	—	e 8 50	+24	12-4	—
II	21-0	73	e 5 36	+56	e 8 53	+27	—	—
I Kucino	21-1	24	—	—	e 8 27	-1	e 12-1	13-1
II	21-1	24	e 4 40	-1	e 8 27	-1	e 10-7	13-2
III	21-1	24	—	—	e 8 24	-4	—	13-5
I Kew	21-9	318	—	—	e 8 27?	-17	—	—
II	21-9	318	e 2 33?	?	—	—	—	—
I Oxford	22-6	318	—	—	9 0	+3	e 12-4	14-7
I Helsingfors	23-1	2	—	—	e 9 1	-6	—	—
II	23-1	2	—	—	e 8 58	-9	—	—
I Pulkovo	23-1	9	e 5 2	0	e 9 6	-1	12-4	13-8
II	23-1	9	e 5 0	-2	e 9 10	+3	12-0	13-9
III	23-1	9	e 5 3	+1	e 9 5	-2	13-1	14-5
I Ekaterinburg	31-7	39	e 6 17	-3	e 11 26	-5	16-4	—
II	31-7	39	e 6 21	+1	e 11 26	-5	15-5	—
I Tashkent	35-5	68	—	—	e 14 27?	SS	—	22-8
II	35-5	68	e 2 35	?	—	—	—	27-6

Additional readings:—

Helsingfors I eE = +8m.40s. = P₀P - 9s., II eN = +8m.54s. = P₀P + 5s.

Long waves were also recorded for shock III at Baku, Ekaterinburg, also for all three shocks at Scoresby Sund and many European stations.

Sept. 12d. Readings also at 0h. (Samarkand and near Andijan), 1h. (Ekaterinburg (2), Tashkent, La Paz, La Plata, near Santiago (2), and near Ksara), 2h. (Baku, Kucino, Tashkent, and Bombay), 3h. (La Paz), 4h. (Wellington Andijan, and near Tashkent), 5h. (near La Paz), 8h. (Andijan), 11h. (near Sumoto, near Batavia, and Malabar), 14h. (Tashkent, Sumoto, and near Nagasaki), 15h. (La Paz, Ekaterinburg, and Pulkovo), 16h. (Alicante), 17h. (Sumoto and Taihoku), 19h. (Bombay), 21h. (La Paz), 23h. (Ekaterinburg, Pulkovo, Kucino, Stuttgart, Rocca di Papa, Piacenza, Trenta, and Taranto).

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Sept. 13d. 17h. 58m. 58s. Epicentre 23°·0N. 96°·0E. N.3.

A = -·096, B = +·915, C = +·391; D = +·995, E = +·105;
G = -·040, H = +·389, K = -·920.

	Δ	Az.	P.		O-C.		S.		O-C.		L.	M.
			m. s.	s.	s.	m. s.	s.	m.	m.			
Phu-Lien	10·1	103	2	2?	-20	(4 2?)	-14	4·0	—	—	—	—
Bombay	22·0	263	9	42	S	(9 42)	+56	15·5	—	—	—	—
Manila	25·0	105	15	21	+1	19 44	+3	12·5	16·9	—	—	—
Andijan	26·6	317	5	46	+11	e 10 31	+22	—	—	—	—	—
Tashkent	28·9	316	—	—	—	e 10 48	+1	e 15·6	18·5	—	—	—
Samarkand	29·6	311	e 6	2	+1	—	—	—	—	—	—	—
Irkutsk	29·9	10	—	—	—	e 10 2?	-61	15·0	—	—	—	—
Ekaterinburg	42·4	332	17	48	-4	14 2	-9	21·0	—	—	—	—
Kucino	53·3	325	—	—	—	e 16 38	-8	e 28·7	—	—	—	—
Pulkovo	58·1	329	e 10	33	(-13)	e 17 46	-5	32·0	—	—	—	—

Additional readings :—

Bombay S = +13m.22s.

Tashkent e = +10m.27s., i = +12m.11s. = SS + 7s.

Kucino e = +20m.44s.

Long waves were also recorded at Hong Kong, Medan, Baku, Copenhagen, and De Bilt.

Sept. 13d. 20h. 5m. 46s. Epicentre 37°·1N. 23°·2E. (as on 12d.). R.2.

A = +·733, B = +·314, C = +·603; D = +·394, E = -·919;
G = +·554, H = +·238, K = -·798.

	Δ	Az.	P.		O-C.		S.		O-C.		L.	M.
			m. s.	s.	s.	m. s.	s.	m.	m.			
Taranto	5·7	308	-0	28	-109	1 40	-45	—	—	—	—	3·0
Mineo	6·8	274	2	39	S	(2 39)	-14	—	—	—	—	—
Belgrade	8·0	246	e 2	18	+25	e 4 9	+45	—	—	—	—	4·4
Rocca di Papa	9·3	304	e 2	20	+9	e 3 57	+1	e 5·7	—	—	—	—
Zagreb	10·2	330	e 2	28	+4	e 4 57	+39	—	—	—	—	5·9
Budapest	10·8	345	—	—	—	e 4 14?	-19	5·2	—	—	—	—
Padova	11·9	318	e 4	48	SS	(e 4 48)	-12	(e 6·7)	—	—	—	—
Vienna	12·2	338	e 4	32	—	(e 4 32)	-36	—	—	—	—	8·2
Piacenza	12·9	313	—	—	—	e 5 14	-11	—	—	—	—	10·2
Chur	14·0	318	e 3	15	0	—	—	—	—	—	—	—
Zurich	14·9	318	e 3	24	-3	—	—	—	—	—	—	—
Stuttgart	15·5	323	—	—	—	e 6 14?	-13	e 8·4	11·1	—	—	—
Strasbourg	16·1	321	e 3	45	+2	—	—	e 8·6	—	—	—	—
Besançon	16·2	314	e 3	43	-1	—	—	—	—	—	—	—
Hamburg	18·8	335	—	—	—	e 7 14?	-28	—	—	—	—	12·6
Paris	19·0	315	14	21	+2	—	—	10·2	10·2	—	—	—
Ucole	19·2	321	e 4	19	-2	—	—	e 9·2	—	—	—	—
De Bilt	19·8	325	4	25	0	8 3	+5	e 10·2	11·8	—	—	—
Copenhagen	20·0	342	4	27	-3	8 3	-3	10·2	—	—	—	—
Baku	21·0	73	—	—	—	e 8 54	SS	11·2	13·2	—	—	—
Kucino	21·1	24	4	41	0	8 32	+4	e 9·6	13·0	—	—	—
Helingsfors	23·1	2	—	—	—	e 8 34	P _c P	—	—	—	—	—
Pulkovo	23·1	9	5	2	0	9 9	+2	12·7	13·9	—	—	—
Ekaterinburg	31·7	39	e 6	19	-1	11 28	-3	15·2	—	—	—	—
Tashkent	35·5	68	—	—	—	e 16 15	?	—	—	—	—	23·1

Additional readings and notes :—

Belgrade ePP = +2m.59s.

Zagreb eNW = +3m.1s., e = +3m.43s.

Padova gives S as P and L as S.

Tashkent e = +15m.2s.

Long waves were also recorded at several other European stations.

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Sept. 13d. 23h. 17m. 20s. Epicentre 23°-8S. 172°-5E. (as on 1926 Aug. 25d.). R.3.

A = -·907, B = +·119, C = -·404; D = +·130, E = +·992;
G = +·400, H = -·053, K = -·915.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°		m. s.	s.	m. s.	s.	m.	m.
Christchurch	19·7	180	e 5 47	+81	9 45	L	11·5	15·6
Riverview	21·2	237	i 4 44	+2	18 38	+ 8	e 10·5	11·8
Sydney	21·2	237	—	—	18 52	SS	12·0	13·1
Melbourne	27·3	233	i 5 42	+ 1	10 25	+ 5	12·8	15·9
Adelaide	31·4	241	—	—	i 11 13	-13	i 13·8	18·3
Perth	50·2	248	—	—	16 0	- 4	i 24·7	—
Honolulu T.H.	53·6	35	—	—	e 16 40	-10	24·0	—
Manila	63·4	302	10 26	- 2	i 18 45	-15	129·6	37·8
Victoria	E. 92·2	36	—	—	25 9	PS	42·1	46·0
	N. 92·2	36	—	—	23 59	{+ 6}	38·0	47·5
Irkutsk	96·4	325	e 12 40?	-47	e 23 40?	[-28]	46·7	—
Ekaterinburg	121·7	323	e 19 46	PP	e 27 27	{- 1}	48·7	57·7
Baku	129·6	304	—	—	e 34 8	?	57·7	80·1
Pulkovo	135·5	334	e 19 40	[+25]	e 32 20	PS	64·7	79·4
Copenhagen	144·9	340	19 40?	[+ 6]	—	—	66·7	—
De Bilt	150·1	344	i 19 35	[- 7]	—	—	e 73·7	—
Zagreb	151·0	325	e 19 49	[+ 6]	—	—	—	—
Uccle	151·5	344	e 19 34	[-10]	—	—	e 72·7	—
Kew	151·8	352	e 19 40	[- 4]	—	—	e 82·7	—
Stuttgart	151·8	337	e 19 37	[- 7]	e 43 38	SS	e 82·7	—
Strasbourg	152·5	338	e 19 40?	[- 5]	—	—	e 76·7	—
Chur	153·3	334	e 19 48	[+ 2]	—	—	—	—
Paris	153·8	345	e 19 40?	[- 7]	—	—	83·7	—

Additional readings and notes:—

Riverview i = +4m.48s. and +4m.58s. = PP-1s., iE = +9m.8s. = SS+12s.

Honolulu T.H. e = +21m.40s.

Pulkovo i = +22m.32s. = PKS-18s.

Zagreb e = +20m.2s.

Long waves were also recorded at Hong Kong, Bombay, Kodaikanal, and Scoresby Sund.

Sept. 13d. Readings also at 0h. (Ekaterinburg), 1h. (Phu-Lien, De Bilt, Paris, Strasbourg, and Tashkent), 3h. (Andijan, Samarkand, and near Mizusawa), 5h. (Tucson, near Oaxaca, Vera Cruz, Puebla, Tacubaya, and near Belgrade), 7h. (Ekaterinburg, Irkutsk, Tashkent, and Phu-Lien), 8h. (near Andijan), 10h. (Vienna), 13h. (Perth and Wellington), 14h. (Graz), 20h. (Taihoku), 22h. (near Manila), 23h. (Samarkand).

Sept. 14d. 3h. 1m. 0s. Epicentre 61°-0S. 150°-0E. N.3.

A = -·420, B = +·242, C = -·875; D = +·500, E = +·866;
G = +·757, H = -·437, K = -·485.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°		m. s.	s.	m. s.	s.	m.	m.
Christchurch	22·0	48	—	—	9 25	SS	—	—
Melbourne	23·4	350	5 5	0	9 5	- 7	11·8?	12·7
Wellington	24·8	49	5 43	PP	9 39	+ 2	—	12·0
Adelaide	27·1	339	1 5 36	- 3	i 10 15	- 2	i 12·0	16·2
Riverview	27·2	2	e 5 36	- 4	i 10 13	- 5	13·3	14·5
Batavia	63·6	312	i 11 25	(+18)	i 19 6	+ 4	—	—
Medan	75·7	309	e 11 45	+ 1	i 21 45	+17	e 38·0	—
Manila	79·1	333	i 12 2	- 7	i 21 53	-13	—	—
Tananarive	79·4	252	—	—	e 22 27	+18	33·7	e 40·2
C Colombo	86·7	290	—	—	32 46	SSSS	—	46·2

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	.	.	m. s.	s.	m. s.	s.	m.	m.
Hong Kong	88.3	329	—	—	23 30	[+ 8]	35.4	35.6
Hyderabad	96.7	295	16 40	PP	26 22	PS	44.5	57.1
La Paz	96.7	143	e 14 9	+41	i 24 31	{+ 3}	47.0	54.9
Bombay	100.4	291	24 37	SKS	(24 37)	{+ 9]	42.2	52.2
Irkutsk	119.0	330	19 35	PP	—	—	57.0	70.5
Tashkent	121.2	300	e 18 16	[-32]	e 27 42	{+18}	58.0	69.6
Baku	129.2	284	21 21	PP	—	—	56.0	68.9
Ekaterinburg	136.8	306	19 27	{+ 9]	e 40 0?	SS	—	—
Georgetown	143.7	103	e 20 0	{+30]	e 29 52	{+ 6]	e 49.0	—
Rocca di Papa	148.0	254	e 19 58	{+19]	—	—	—	—
Algiers	148.1	237	e 20 46	{+67]	36 5	?	81.0	85.0
Zagreb	149.6	262	e 20 0?	{+19]	—	—	—	—
Granada	151.0	227	i 20 4	{+ 1]	—	—	e 78.4	83.4
Pulkovo	151.3	295	e 19 56	{+13]	—	—	74.0	84.7
Piacenza	152.0	254	e 18 20	[-84]	—	—	—	104.3
Chur	153.4	256	20 0	{+14]	—	—	—	—
Helsingfors	E. 153.8	293	—	—	e 29 34	PPPP	e 85.3	—
Cheb	154.2	264	—	—	e 31 0?	{+14]	e 79.0	106.0
Stuttgart	154.9	259	e 20 25	{+ 4]	e 40 0?	?	e 69.0	94.0
Strasbourg	155.4	257	e 20 0	{+12]	—	—	89.0	—
Hamburg	157.6	269	—	—	e 30 0?	PPPP	e 84.0	100.0
Copenhagen	157.6	275	20 6	{+15]	—	—	77.0	—
Paris	158.1	251	e 20 0?	{+ 9]	—	—	87.0	95.0
Uccle	158.6	253	e 20 0?	{+ 8]	—	—	e 86.0	—
De Bilt	159.0	260	e 20 18	{+26]	—	—	e 85.0	105.0
Kew	161.2	253	e 20 0?	{+ 5]	—	—	e 86.0	—

Additional readings :—

Melbourne i = +6m.3s.
 Adelaide i = +6m.9s., =SS - 10s. and +10m.41s.
 Riverview IPNZ = +5m.39s., iPP = +6m.12s.
 Batavia i = +12m.18s. and +19m.58s., =S_cS - 20s.
 Manila iN = +13m.30s., iE = +13m.53s. and +19m.44s.
 Tananarive eN = +22m.45s. =PS +4s., and +39m.15s.
 Hong Kong S = +29m.4s.
 Bombay eS = +31m.57s. =SS - 10s.
 Irkutsk PPS = +30m.45s., SS = +36m.12s.
 Tashkent e = +23m.7s. and +36m.49s. =SS +1s.
 Baku PPS = +34m.8s., SS = +39m.12s.
 Georgetown iZ = +22m.7s., eN = +22m.12s., iZ = +25m.57s., iN = +26m.3s.,
 iN = +28m.52s., iZ = +29m.11s., eN = +29m.30s.?, iN = +32m.9s., eN =
 +35m.48s., iE = +35m.46s., iN = +37m.6s., eE = +38m.42s., i = +42m.2s.
 Rocca di Papa e = +20m.6s.
 Granada i = +21m.38s.
 Stuttgart eSSE = +43m.45s.
 Long waves were also recorded at Sydney, Scoresby Sund, Kodaikanal, Rio de Janeiro, La Plata, Victoria, Tucson, Honolulu T.H., and several other European stations.

Sept. 14d. 17h. 13m. 24s. Epicentre 14°3S. 163°5E.

N.2.

A = -.929, B = +.275, C = -.247; D = +.284, E = +.959;
 G = +.237, H = -.070, K = -.969.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	.	.	m. s.	s.	m. s.	s.	m.	m.
Riverview	22.5	208	e 4 50	- 6	19 3	+ 8	—	13.5
Melbourne	28.7	212	1 5 65	+ 2	10 25	-18	13.8?	16.3
Adelaide	30.5	223	1 6 9	0	i 11 18	+ 4	i 14.3	16.8
Manila	51.1	304	1 9 2	+ 2	i 16 18	+ 2	—	—
Honolulu T.H.	52.0	47	e 9 6	0	i 16 18	-12	19.9	—
Batavia	56.2	274	1 9 38	+ 1	1 17 36	+11	—	—
Hong Kong	60.6	307	18 24	S	(18 24)	0	—	26.9
Vladivostok	64.2	335	e 10 17	-17	e 18 47	-23	—	—
Medan	66.7	281	e 10 48	- 2	i 19 51	+10	—	—
Irkutsk	83.8	323	12 8	-19	22 17	-38	e 45.6	—

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Colombo	85.6	278	22 42	S	(22 42)	-32	—	29.1
Victoria	E. 89.9	40	22 35	?	—	—	44.4	50.4
Bombay	95.2	289	e 19 36	?	—	—	—	—
Andijan	100.1	309	e 20 20	?	—	—	—	—
Tashkent	102.5	310	i 14 3	+ 8	e 27 36?	PS	e 36.6	48.5
Ekaterinburg	109.0	325	18 3	[-12]	24 29	[-40]	44.6	55.1
Baku	117.1	309	18 24	[-14]	e 29 31	PS	e 51.6	65.6
Kucino	121.4	327	e 20 7	PP	25 15	[-40]	e 53.2	61.5
Pulkovo	123.2	334	i 18 29	[-24]	i 25 18	[-42]	55.6	72.2
Theodosia	126.7	316	e 18 41	[-19]	—	—	—	—
Simferopol	127.6	316	e 18 42	[-20]	—	—	—	—
Yalta	127.7	316	e 18 43	[-19]	—	—	—	—
Sebastopol	128.1	316	e 18 40	[-23]	—	—	—	—
Upsala	N. 128.1	339	e 21 36	PP	—	—	—	—
Lund	132.7	338	22 6	PKS	—	—	—	—
Copenhagen	133.0	338	18 47	[-25]	—	—	64.6	—
Hamburg	135.5	338	e 18 50	[-19]	—	—	—	—
Vienna	136.6	329	e 18 59	[-18]	—	—	—	—
De Bilt	138.5	340	e 18 59	[-21]	—	—	e 74.6	—
Stuttgart	139.6	334	e 18 55	[-26]	—	—	e 40.6	—
Innsbruck	139.7	331	18 54	[-27]	—	—	—	—
Uccle	139.8	340	e 18 48	[-33]	—	—	—	—
Strasbourg	140.4	335	e 18 57	[-25]	—	—	e 36.6	—
Kew	140.6	345	e 18 36?	[-46]	—	—	—	—
Zurich	141.0	332	e 18 57	[-26]	—	—	—	—
Neuchatel	141.9	334	e 19 3	[-21]	e 22 23	PP	—	—
Paris	142.1	340	e 19 1	[-23]	—	—	—	—
Casamicciola	142.6	320	17 59	?	—	—	—	—
Rocca di Papa	142.7	323	i 19 6	[-20]	—	—	—	—
Catania	143.6	316	19 9	[-20]	—	—	—	—
Algiers	151.5	326	e 19 21	[-21]	—	—	73.6	—

Additional readings:—

Riverview i = +4m.54s., iNZ = +5m.43s., iE = +9m.8s., and +9m.22s.
 Melbourne i = +6m.47s.
 Manila PPE = +11m.8s., PPPPE = +12m.16s., iE = +13m.22s.
 Honolulu T.H. i = +15m.11s.
 Batavia iZ = +9m.39s., iP = +9m.41s., i = +10m.24s. = P_cP - 15s., +18m.22s.,
 and +19m.2s. = S_cS - 23s.
 Medan i = +20m.41s. = S_cS + 0s.
 Irkutsk ePP = +15m.43s., PPS = +23m.33s.
 Victoria PN = +21m.35s.
 Tashkent e = +7m.0s., i = +7m.58s., +16m.30s., and +23m.39s.
 Ekaterinburg SKKS = +25m.26s.
 Kucino SKKS = +26m.51s., SS = +36m.30s.
 Pulkovo iPP = +20m.18s., ePS = +29m.57s.
 Upsala i = +22m.0s.
 Copenhagen +22m.6s.
 Hamburg iZ = +22m.11s.
 Vienna i = +22m.34s.
 De Bilt eZ = +21m.55s., iZ = +22m.21s.
 Stuttgart eZ = +19m.39s., e = +21m.59s., iZ = +22m.24s.
 Strasbourg ePP = +22m.8s.
 Paris e = +22m.17s.
 Algiers e? = +24m.21s.

Sept. 14d. Readings also at 1h. (Taranto, Nagoya, near Mizusawa (2), and Tyosi), 2h. (near Ksara, near Sumoto, and near Tananarive), 4h. (Manila), 5h. (near Tacubaya), 6h. (La Paz), 7h. (Sebastopol), 8h. (Tyosi), 9h. (Bombay), 10h. (Strasbourg), 13h. (Kew), 15h. (Kew and Sumoto), 16h. (La Paz), 17h. (Christchurch and near Wellington), 19h. (near Manila), 21h. (Mizusawa), 23h. (La Paz).

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Sept. 15d. Readings at 0h. (Granada and Paris), 1h. (Ekaterinburg, Kucino, and near Nagasaki), 2h. (near Mizusawa), 3h. (Melbourne, La Plata, La Paz, near Santiago and near Wellington), 7h. (Tyosi and near Mizusawa), 16h. (Samarkand, Tashkent, near Almata, and Andijan), 17h. (Andijan, Samarkand, and Pulkovo), 18h. (La Paz), 19h. (Baku, Ekaterinburg, Tashkent, and Ksara), 20h. (near Medan), 22h. (Riverview, Melbourne, and Wellington), 23h. (Riverview, Sydney (2), Melbourne (2), Ekaterinburg (2), Pulkovo, Irkutsk, and Tashkent).

Sept. 16d. Readings at 0h. (Bombay (2), Baku, Copenhagen, De Bilt, Pulkovo, Uccle, Kew, Strasbourg, Rocca di Papa, Alicante, Malaga, near Almeria, and Granada), 1h. (near Taihoku), 3h. (Paris), 4h. (Nagoya), 10h. (Adelaide, Melbourne, Riverview, and Pulkovo), 11h. (Calcutta, Bombay, Medan, Phu-Lien, Hong Kong, Manila, Baku, Ekaterinburg, Irkutsk, Tashkent, and Nagoya), 15h. (Nagoya), 20h. (near Tacubaya), 22h. (Andijan and Samarkand).

Sept. 17d. 3h. 14m. 43s. Epicentre 49°·5N. 130°·5W. (as on 1930 April 16d.). R.3.

A = -·422, B = -·494, C = +·760; D = -·760, E = +·649;
G = -·494, H = -·578, K = -·649.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Victoria	4·8	101	1 0	- 8	(2 18)	+15	2·5	2·9
Sitka	8·1	340	—	—	e 3 17	- 9	i 4·7	—
Berkeley	13·0	150	13 1	- 1	17 28	L	(i 7·5)	—
Tucson	22·6	133	4 55	- 2	9 11	+14	12·6	—
Chicago	30·5	89	—	—	e 11 7	- 5	15·1	—
St. Louis	N. 30·5	95	e 6 15	+ 6	e 11 15	+ 3	—	—
Ann Arbor	32·8	85	—	—	e 13 41	SS	e 17·5	—
Toronto	N. 34·9	80	e 5 46	-62	e 10 46	-94	14·5	17·3
Georgetown	38·8	85	i 13 11	S	(i 13 11)	- 7	e 16·3	—
Pulkovo	69·7	10	—	—	e 25 13	?	40·3	—
Ekaterinburg	73·3	355	e 11 26	- 5	—	—	34·3	—

Additional readings and note :—

Victoria gives S as LE.

Sitka i = +4m.17s.

Berkeley iN = +3m.29s., i = +3m.39s., and +5m.40s., iN = +7m.30s., iE = +7m.44s.

Ann Arbor e? = +15m.23s., eN = +16m.47s. = S₆S - 13s., eE = +17m.5s.

Georgetown eSEN = +15m.47s. = SS - 3s.

Long waves were also recorded at Charlottesville, Baku, Irkutsk, and European stations.

Sept. 17d. 10h. 54m. 36s. Epicentre 37°·9N. 141°·8E. (as given by Tokyo). N.2.

A = -·620, B = +·488, C = +·614; D = +·618, E = +·786;
G = -·483, H = +·380, K = -·789.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Isinomaki	0·7	324	0 9	- 1	0 18	0	—	—
Sendai	0·8	298	0 13	+ 2	0 24	+ 3	—	—
Hukusima	1·1	262	0 15	- 1	0 28	0	—	—
Mizusawa	1·3	337	0 19	+ 1	0 37	+ 4	—	—
Morioka	1·9	344	0 28	0	0 54	+ 5	—	—
Kakioka	2·1	218	0 29	- 1	0 54	0	—	—
Tyosi	2·3	199	0 34	+ 1	(1 2)	+ 3	1·0	—
Tokyo	2·8	216	0 41	+ 1	1 9	- 3	—	—
Mera	3·4	209	0 49	- 0	1 48	+21	—	—
Gihu	4·7	239	1 1	- 6	2 0	0	—	—
Nagoya	4·8	236	1 10	+ 2	2 12	+ 9	—	—
Osaka	6·0	240	e 1 34	+ 9	—	—	2·9	3·5

Long waves were also recorded at Ekaterinburg, Irkutsk, and Tashkent.

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Sept. 17d. Readings also at 0h. (near Sumoto), 3h. (Florissant), 4h. (Andijan, Samarkand, Nagoya, and near Tyosi), 5h. (near Santiago), 11h. (Baku, Tashkent, and near Ksara), 12h. (Ekaterinburg, Tokyo, and near Tyosi), 14h. (near Toyooka), 15h. (near Tyosi), 16h. (Ekaterinburg, Tashkent, Hong Kong, Manila, Taihoku (2), and Irkutsk (2)), 17h. (Baku, Ekaterinburg, Pulkovo, Tashkent, Copenhagen, De Bilt, Uccle, Paris, Strasbourg, Kobe, and near Sumoto), 18h. (near Tyosi), 19h. (near Samarkand), 21h. (near Batavia and near Manila).

Sept. 18d. Readings at 1h. (Baku, Ekaterinburg, Tashkent, Kucino, and Ksara), 2h. (near Lick (2), and near Zagreb), 4h. (Sumoto), 5h. (Ekaterinburg and Tashkent), 6h. (near Barcelona and Tortosa), 7h. (near Sumoto and near Tacubaya), 13h. (near Sumoto), 18h. (Scoresby Sund, near Tucson, and near Tyosi), 21h. (near Tyosi).

Sept. 19d. 8h. 0m. 20s. Epicentre 34° ·0N. 135° ·5E. (as on 1929 July 3d.). R.3.

$$A = -\cdot591, B = +\cdot581, C = +\cdot559.$$

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Sumoto	0·6	304	10 7	- 2	0 12	- 3	—	0·2
Kobe	0·7	339	0 10	0	0 13	0	—	0·4
Osaka	0·7	355	0 11	+ 1	0 21	+ 3	0·4	0·7
Koti	1·7	255	0 23	+ 4	0 47	+ 3	—	—
Nagoya	1·7	45	0 33	P _r	0 57	S _r	—	—

No additional readings.

Sept. 19d. Readings also at 1h. (Nagoya), 2h. (Baku, Tashkent, and Manila), 4h. (Phu-Lien and near Taihoku), 5h. (Irkutsk and Tashkent), 7h. (La Paz), 9h. (La Paz (2), and near La Plata), 12h. (near Almeria, and near La Paz), 15h. (near Sumoto), 17h. (Baku, Ekaterinburg, Wellington, near Neuchatel, and Zurich), 18h. (near Lick), 22h. (Baku, Ekaterinburg, and Tashkent).

Sept. 20d. Readings at 0h. (Baku, Ekaterinburg, Irkutsk, and Kucino), 1h. (near Casamicciola, Naples, Rocca di Papa, and Rome), 2h. (Scoresby Sund, Victoria, near Manila, and near Sumoto), 3h. (Samarkand), 4h. (Bombay, Phu-Lien, Tashkent, Vladivostok, Ekaterinburg, Irkutsk, Kucino, and near Medan), 6h. (near Andijan), 8h. (Samarkand), 12h. (Irkutsk, Kucino, Naples, and near Casamicciola), 13h. (Baku, Ekaterinburg, Pulkovo, Almata, Andijan, Tashkent, Vladivostok, Chiufeng, Copenhagen, Bombay, Phu-Lien, Hong Kong, Manila, and Sumoto), 18h. (Irkutsk), 19h. (Tashkent and Wellington), 20h. (La Paz and Casamicciola), 22h. (Andijan and La Paz), 23h. (near Tacubaya).

Sept. 21d. 8h. 34m. 13s. Epicentre 35° ·2S. 179° ·5W. (see Sept. 22d.). X.

$$A = -\cdot817, B = -\cdot007, C = -\cdot576; \quad D = -\cdot009, E = +1\cdot000;$$

$$G = +\cdot576, H = +\cdot005, K = -\cdot817.$$

Although this epicentre has not been used previously, the paucity of the material barely justifies its association with the well determined shock of Sept. 22d., and explains the classification X.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Wellington	7·6	215	1 44	- 4	2 39	- 35	—	3·8
Christchurch	10·3	214	3 25	+60	4 34	+13	—	—
Riverview	24·1	265	1 5 17	+ 6	e 9 23	- 2	e 10·9	12·3
Sydney	24·1	265	(5 47?)	PP	—	—	—	5·8
Melbourne	28·5	254	1 5 52	0	i 10 47	+ 7	13·2	16·4
Adelaide	34·0	260	—	—	e 9 9	P _o P	—	13·3

Riverview gives also ePN = +5m.20s.

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Sept. 21d. 23h. 4m. 17s. Epicentre 25°·5N. 98°·5E. R.1.

Probable error of epicentre $\pm 0^{\circ}\cdot 3$ (as on 1929 Oct. 18d.).

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

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Phu-Lien	8·9	120	e 2 4	- 2	4 6	+20	4·5	4·9
Calcutta	E. 9·7	254	1 59	-18	3 35	-31	4·2	6·0
	N. 9·7	254	2 10	- 7	3 45	-21	4·4	6·0
Hong Kong	14·7	99	i 3 22	- 3	i 6 23	+15	i 7·7	9·0
Agra	E. 18·4	280	(3 48)	-23	(i 7 28)	- 5	(i 9·4)	(10·0)
	N. 18·4	280	(e 4 4)	- 7	(i 7 23)	-10	(i 9·3)	(12·1?)
Dehra Dun	18·7	290	4 3	-12	7 23	-17	9·9	10·7
Hyderabad	20·3	251	4 18	-15	8 4	- 8	—	—
Chiufeng	20·7	41	4 34	- 3	8 34	+14	10·9	13·2
Taihoku	20·9	86	4 43	+ 4	8 38	+14	10·8	13·2
Zi-ka-wei	21·0	69	e 4 38	- 2	8 32	+ 6	11·3	12·2
Medan	21·9	179	14 53	+ 3	i 9 0	+16	i 11·6	—
Manila	23·7	113	i 5 14	+ 7	i 9 20	+ 2	i 11·9	16·2
Bombay	24·6	260	5 22	+ 6	9 45	+11	13·0	13·5
Almata	24·9	321	5 22	+ 3	9 56	+17	14·7	—
Kodakanal	25·1	236	6 7	?	(i 10 25)	SS	i 10·4	23·3
Naha	26·2	82	5 33	+ 2	—	—	—	—
Andijan	26·5	312	5 30	- 4	10 19	+12	15·2	—
Zinsen	26·7	56	5 39	+ 4	10 4	- 6	—	—
Irkutsk	27·1	8	5 38	- 1	10 17	0	14·4	16·5
Nagaasaki	28·2	68	5 39	-10	10 50	+15	14·5	15·7
Tashkent	28·8	311	i 5 52	- 2	10 42	- 3	14·7	19·7
Hukuoka	28·8	66	e 4 43?	-11	e 10 11	-34	e 15·5	18·3
Kumamoto	29·0	68	6 3	+ 7	11 17	+29	—	—
Samarkand	29·8	306	6 3	0	e 11 9	+ 8	16·7	—
Hamada	30·3	63	6 3	- 5	11 18	+ 9	—	—
Vladivostok	32·4	48	6 43	+17	e 11 57	+16	—	—
Sumoto	32·6	65	e 3 54	?	i 11 41	- 4	e 18·1	18·6
Toyooka	32·7	63	6 32	+ 3	e 11 51	+ 5	e 17·7	19·4
Batavia	32·8	165	i 6 29	- 1	i 11 54	+ 6	—	—
Kobe	32·8	64	e 7 44	PP	e 11 55	+ 7	16·1	19·0
Osaka	33·2	64	6 17	-17	12 16	+22	17·6	21·2
Malabar	33·9	166	e 6 45	+ 6	—	—	—	—
Nagoya	34·3	64	e 12 23	S	(e 12 23)	+12	18·9	23·1
Hukushima	37·4	60	7 8	- 2	13 4	+ 7	—	—
Tyosi	37·6	63	e 8 38	PP	—	—	e 19·3	—
Mizusawa	N. 38·1	58	7 28	+12	15 55	SSS	—	—
Ootomari	40·8	47	e 9 42	(- 2)	e 17 5	SSS	22·5	25·8
Ekaterinburg	41·4	330	i 7 43	- 1	13 48	- 9	20·7	25·5
Baku	42·8	304	i 7 58	+ 3	i 14 24	+ 6	24·7	—
Theodosia	53·6	310	e 9 21	+ 3	e 16 50	0	18·7	—
Ksara	E. 54·2	295	e 9 18	- 5	17 1	+ 3	29·7	—
Yalta	54·5	310	e 9 22	- 3	e 17 2	0	24·7	—
Simferopol	54·5	310	e 9 26	+ 1	—	—	—	—
Sebastopol	54·9	310	e 9 32	+ 4	—	—	—	—
Pulkovo	57·3	327	i 9 47	+ 2	i 17 40	0	30·7	35·3
Helwan	58·8	291	e 9 13	-43	18 0	0	—	—
Perth	59·8	163	9 54	- 9	18 18	+ 5	25·7	31·7
Helsingfors	59·9	328	e 9 50	-14	i 18 14	- 1	e 31·0	—
Königsberg	62·5	320	e 10 19	- 3	e 18 49	+ 1	e 34·1	41·5
Upsala	63·6	327	e 10 30	+ 1	e 19 2	0	e 31·7	35·6
Belgrade	64·2	310	e 10 25	- 9	e 19 8	- 2	e 33·0	37·3
Budapest	64·6	314	10 23	-13	19 15	0	28·7	40·7
Vienna	66·2	315	10 50	+ 3	19 36	+ 1	e 27·8	38·7
Lund	66·6	323	10 49	0	19 40	0	31·7	—
Zagreb	67·0	312	10 43?	- 9	e 19 42	- 3	e 34·2	—

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	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Copenhagen	67-0	323	10 50	- 2	19 41	- 4	31-7	—
Potsdam	67-4	320	e 10 43	-11	i 19 50	0	e 21-7	33-1
Cheb	68-3	317	e 11 1	+ 1	e 20 2	+ 1	e 37-7	42-7
Trenta	68-4	306	e 10 43	-18	—	—	—	—
Jena	68-6	318	e 11 7	+ 5	e 20 2	- 2	e 33-7	37-8
Göttingen	69-4	319	e 11 6	- 1	e 20 8	- 6	e 35-7	38-7
Bergen	69-5	330	—	—	e 21 13	(+11)	33-7	38-7
Treviso	69-6	314	10 59	- 9	i 20 17	+ 1	39-7	44-4
Innsbruck	69-7	316	10 49	-20	—	—	—	—
Catania	69-8	304	11 3	- 6	19 43	-36	41-8	51-5
Padova	69-9	314	e 10 43	-27	i 20 26	+ 6	e 39-7	45-7
Rocca di Papa	70-4	308	i 11 11	- 2	i 20 26	0	e 36-4	45-7
Stuttgart	70-7	318	e 11 14	- 1	e 20 23	- 7	e 36-7	—
Chur	71-0	314	e 11 16	- 1	e 20 28	- 5	—	—
Karlsruhe	71-1	318	11 19	+ 2	e 20 43?	+ 9	e 38-7	—
Adelaide	71-4	145	e 11 19	0	i 20 40	+ 2	33-4	46-1
Piacenza	71-5	314	11 3	-17	i 21 21	PS	—	42-2
Zurich	71-5	315	e 11 18	- 2	e 20 43	+ 4	—	—
Strasbourg	71-6	317	e 11 20	0	20 44	+ 4	35-7	—
De Bilt	72-1	320	11 22	- 1	20 46	0	e 34-7	40-4
Neuchatel	72-7	315	e 11 25	- 2	e 20 51	- 2	—	—
Uccle	73-0	319	11 27	- 2	20 54	- 3	e 34-7	40-9
Besançon	73-2	315	e 11 29	- 1	20 55	- 4	39-7	—
Dyce	74-2	327	11 15	-21	20 49	-22	e 35-1	40-9
Paris	74-8	319	i 11 39	0	e 21 13	- 5	29-7	40-7
Durham	74-9	325	e 10 56	-44	21 10	- 9	e 36-7	43-8
Edinburgh	75-3	325	—	—	i 21 23	- 1	39-7	41-4
Scoresby Sund	75-4	344	11 45	+ 2	21 23	- 2	—	—
Kew	75-4	320	e 11 44	+ 1	21 23	- 2	34-7	41-9
Stonyhurst	75-7	322	11 49	+ 5	e 21 27	- 1	39-7	49-7
Oxford	75-9	320	11 37	- 8	i 21 28	- 2	34-3	45-6
Bidston	76-2	322	i 21 43	S	(i 21 43)	+ 9	e 36-7	44-6
Rivervlew	77-6	137	e 11 54	- 1	i 21 49	0	e 38-0	52-2
Sydney	77-6	137	e 21 43	S	(e 21 43)	- 6	53-2	57-0
Barcelona	77-9	312	e 10 39	-78	—	—	e 26-9	45-2
Algiers	79-1	307	12 4	+ 1	21 55	-11	37-7	44-7
Tortosa	79-2	311	e 12 3	- 1	22 5	- 2	e 40-7	46-1
Alicante	81-0	310	e 12 8	- 5	e 22 30	+ 4	e 35-2	47-2
Toledo	82-8	311	e 12 16	- 6	22 50	+ 5	—	53-6
Almeria	83-0	310	i 12 25	+ 2	22 45	- 2	44-6	46-7
Granada	83-7	310	i 12 28	+ 1	22 48	- 6	e 43-7	50-6
Malaga	84-5	310	12 32	+ 1	22 58	- 5	32-2	—
Ivigtut	89-2	345	12 55	+ 1	23 25	[- 3]	37-7	—
Victoria	E. 97-1	26	13 46	+16	24 15	[+ 3]	44-7	55-2
	N. 97-1	26	13 40	+10	24 15	[+ 3]	45-6	55-7
Wellington	97-1	132	—	—	24 3	[- 9]	44-7	61-7
Ottawa	108-8	355	e 18 51	PP	e 26 25	{+26}	e 44-7	—
Toronto	N. 110-1	359	e 18 7	[-11]	e 28 29	PS	36-7	—
Ann Arbor	112-1	2	—	—	e 28 49	PS	e 50-4	70-1
Florissant	115-1	7	—	—	e 25 18	[-16]	54-7	64-5
St. Louis	N. 115-3	7	e 24 25	?	e 29 30	PS	—	65-7
Río de Janeiro	E. 145-0	266	e 20 31	[+57]	e 33 21	SKSP	e 57-1	—
	N. 145-0	266	e 20 34	[+60]	e 33 29	SKSP	e 57-0	—
La Plata	157-6	240	31 2	SKKS	(31 2)	{- 3}	80-2	—
La Paz	164-6	301	e 20 4	[+ 5]	i 32 27	{+44}	77-0	98-4

Additional readings and note:—

Agra readings have been increased by 1m.

Zi-ka-wel iE = +4m.49s. and +5m.34s., SSN = +9m.28s.

Sumoto iE = +9m.27s. = P₀P + 9s., iZ = +12m.41s., eS = +14m.54s.

Toyooka ePN = +6m.34s., iE = +7m.35s. = PP + 3s.

Batavia iZ = +6m.33s., iN = +8m.7s., iZ = +14m.41s., iE = +15m.42s., i = +18m.4s., iN = +19m.48s.

Malabar i = +7m.50s., +18m.40s., +19m.10s., and +19m.31s.

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Perth PP = +13m.3s., PPP = +13m.43s., SS = +22m.13s., SSS = +22m.43s.
Helsingfors iPE = +10m.5s., iE = +12m.17s. = PP + 8s., PPP = +13m.31s.,
PSE = +13m.37s., iScSN = +19m.53s., iE = +22m.17s. = SS + 10s., SSE =
+22m.39s., SSS = +24m.35s.
Königsberg eE = +20m.59s., eN = +22m.1s.
Uppsala SSE = +23m.7s., SSSN = +25m.56s.
Belgrade e = +11m.10s. = P_cP + 0s.
Vienna PP = +13m.12s., PPP = +14m.55s., P_cS? = +15m.10s., PS = +20m.2s.,
S_cS = +20m.50s., SS = +24m.3s., SSS = +27m.9s.
Lund +23m.55s. and +27m.13s.
Zagreb eE = +27m.37s.
Copenhagen PPZ = +13m.23s., PPP = +14m.56s., eN = +20m.55s. = S_cS + 12s.,
SS = +24m.1s., SSS = +27m.7s.
Potsdam iN = +15m.17s. = PPP - 12s.
Cheb ePP = +13m.36s., ePPP = +15m.45s., eSS = +24m.32s., e = +27m.33s.
Jena eE = +15m.12s. and +20m.7s., eN = +27m.36s.
Göttingen eSSE = +24m.40s.
Stuttgart ePPE = +13m.52s., ePPE = +15m.35s., iSEN = +20m.31s., iPSEN =
+21m.19s., eE = +24m.43s., eSSN = +25m.18s., eSS = +27m.53s.
Adelaide iSS = +28m.57s.
Straßbourg SS = +25m.28s., SSS = +28m.44s.
De Bilt PPZ = +14m.8s., SS = +25m.12s.
Uccle SS = +25m.34s., SSS = +29m.13s.
Durham SSSS = +29m.55s.
Edinburgh i = +26m.19s. = SS + 17s. and +30m.3s.
Scoresby Sund +14m.37s. = PP + 12s. and +26m.31s. = SS + 27s., PPP =
+16m.31s., eN = +23m.7s., and +24m.31s.
Kew PP = +14m.19s., eZ = +29m.49s.
Stonyhurst iS = +21m.33s., SS = +26m.20s., SSS = +30m.12s.
Oxford SS = +26m.27s.
Bidston eS = +29m.13s.
Toledo iP = +12m.25s.
Almeria PP = +15m.35s.
Granada PP = +15m.41s., i = +23m.5s.
Wellington SS = +31m.25s., e = +36m.43s.
Ottawa eE = +34m.19s.
Ann Arbor eN = +30m.1s. and +39m.19s., e?E = +46m.43s.
Flouissant iPPZ = +19m.42s., iPPPZ = +22m.16s., ePSNZ = +29m.13s.
La Paz iZ = +29m.53s., SS = +35m.11s., SSSN = +41m.31s., SSSSN = +45m.29s.,
eN = +51m.51s.
Long waves were also recorded at Lemberg, Bagnères, Laibach, Zagreb, Berkeley,
Charlottesville, Chicago, Tucson, Cape Town, Dakar, Honolulu T.H., and
Koti.

Sept. 21d. Readings also at 1h. (Nagoya, near Mizusawa, and Tyosi), 4h. (Andijan and near Samarkand), 6h. (Andijan, Samarkand, and Tyosi), 7h. (La Paz and near Tacubaya), 8h. (Irkutsk, Ekaterinburg, Scoresby Sund, and near Manila), 9h. (Nagoya, near Mizusawa, and Tyosi), 11h. (near Mizusawa), 13h. (Alcante), 15h. (Andijan), 16h. (near Almeria), 18h. (Samarkand and near Andijan), 19h. (La Paz), 23h. (Almata, Andijan, and Taihoku).

Sept. 22d. 1h. 31m. 24s. Epicentre 35°2S. 179°5W. N.2.

A = -·817, B = -·007, C = -·576; D = -·009, E = +1·000;
G = +·576, H = +·005, K = -·817.

The shock of 21d. 8h. is referred to this epicentre without independent determination.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	'	m. s.	s.	m. s.	s.	m.	m.
Wellington	7·6	215	1 41	- 7	3 38	+24	—	7·6
Christchurch	10·3	214	2 18	- 7	4 38	+17	—	—
Riverview	24·1	265	15 12	+ 1	9 22	- 3	—	14·6
Sydney	24·1	265	e 5 6	- 5	i 8 54	-31	13·3	15·6
Adelaide	34·0	260	e 6 31	- 9	i 12 6	0	1 14·8	21·8
Perth	53·1	255	—	—	16 36	- 7	—	—
Amboina	57·6	291	i 9 45	- 2	i 17 41	- 3	—	36·6
Honolulu T.H.	60·1	24	i 10 6	+ 1	i 18 24	+ 7	28·6	—
Batavia	73·1	275	i 11 28	- 1	i 20 50	- 8	38·6	48·6
Manila	75·2	300	e 11 52	+11	21 52	PS	—	—
Hong Kong	85·1	302	12 32	- 2	22 54	[- 6]	—	58·1
Medan	85·4	278	12 48	+13	i 22 51	[- 11]	46·6	56·4
Phu-Lien	89·6	296	—	—	22 36?	-76	—	—
Berkeley	90·2	41	i 13 14	+16	e 23 45	-13	—	47·3
Lick	90·2	41	e 12 59	+ 1	e 24 6	+ 8	e 41·5	54·2

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Tucson	90.3	51 e	13 12	+13	e 23 49	-10	e 37.6	—
La Plata	91.3	135	12 54	- 9	e 23 42	[+ 2]	e 47.8	—
La Paz	97.0	115 i	13 30	0	i 24 19	[+ 8]	45.6	70.0
Victoria	E. 97.3	34	24 16	SKS	(24 16)	[+ 3]	50.2	63.4
	N. 97.3	34	24 20	SKS	(24 20)	[+ 7]	50.2	57.4
Kodaikanal	106.5	272 e	37 18	SSS	—	—	e 56.2	64.0
Rio de Janeiro	108.7	137	—	—	e 24 59	[- 8]	e 51.1	60.2
Irkutsk	109.7	321 e	17 36?	[-41]	e 25 3	[- 9]	—	86.7
Florissant	110.6	55 e	17 49	[-31]	e 26 11	{ 0 }	—	60.6
St. Louis	N. 110.6	55 e	21 36	?	e 26 13	{+ 2}	—	59.1
Chicago	113.8	53 i	19 25	PP	e 26 25	{- 9}	e 62.1	—
Bombay	114.9	276 e	19 48	PP	28 18	—	—	75.8
Ann Arbor	116.7	54	—	—	e 25 6	[-34]	e 63.2	—
Charlottesville	118.6	61	—	—	e 29 36	PS	e 63.6	—
Georgetown	120.0	61 e	18 47	[+ 1]	i 30 5	PS	e 48.6	—
Toronto	N. 120.1	54 e	19 55	PP	i 30 1	PS	46.6	—
Ottawa	123.1	53 e	20 36	PP	i 30 36	PS	—	—
Andijan	124.7	299 e	18 57	[+ 1]	—	—	—	—
Tashkent	127.0	300	18 55	[- 6]	—	—	—	84.5
Samarkand	128.2	297 e	19 2	[- 1]	—	—	—	—
Ekaterinburg.	134.8	319 i	19 15	[0]	26 12	[-21]	51.6	84.8
Ivritut	139.9	34	19 24	[+ 3]	—	—	76.6	—
Baku	141.1	295	19 28	[+ 5]	23 2	PKS	70.6	—
Scoresby Sund	142.7	12	19 26	[0]	e 23 18	PKS	76.6	—
Pulkovo	148.8	332	19 40	[0]	30 4	[-12]	55.6	87.2
Helsingfors	150.5	335 i	19 44	[+ 2]	e 23 14	PKS	e 88.6	—
Ksara	151.0	278 e	19 50	[+ 7]	—	—	—	—
Theodosia	151.8	301 e	19 52	[+ 8]	—	—	—	—
Yalta	152.7	300 e	19 48	[+ 3]	—	—	—	—
Simferopol	152.7	301 e	19 36	[- 9]	—	—	—	—
Upsala	N. 153.0	341 e	19 49	[+ 3]	—	—	—	—
Sebastopol	153.2	301 e	19 51	[+ 5]	—	—	—	—
Lund	157.7	341 i	22 36	?	30 54	[-12]	82.6	—
Dyce	157.9	4 e	19 52	[+ 1]	—	—	e 88.2	100.4
Copenhagen	157.9	342	19 51	[0]	—	—	82.6	—
Edinburgh	159.1	6 e	20 36?	[- 4]	—	—	e 82.6	—
Potsdam	160.6	336 e	20 6	[+11]	i 31 11	[-11]	e 98.6	103.1
Stonyhurst	161.2	6 e	21 6	{+16}	—	—	—	95.6
Budapest	161.5	318	20 16	[+21]	—	—	e 102.6	—
Belgrade	162.0	308 e	25 58	?	(e 34 59)	SKSP	e 84.8	—
Göttingen	162.3	340 e	19 48	[- 8]	—	—	e 97.6	—
Vienna	162.4	323	20 0	[+ 4]	31 6	[-25]	—	115.6
De Blit	162.8	350 i	19 57	[0]	e 45 0	SS	e 89.6	104.2
Cheb	162.8	334 e	20 46	[-11]	e 24 46	PP	97.6	111.6
Oxford	163.4	4	20 14	[+17]	e 24 56	PP	e 83.6	103.8
Kew	163.7	2 i	20 0	[+ 2]	e 45 6	SS	90.6	118.3
Uccle	164.1	352 i	19 58	[0]	e 45 11	SS	—	—
Stuttgart	165.0	337 e	19 59	[0]	e 35 11	SKSP	e 86.6	—
Strasbourg	165.6	341 e	20 9	[+ 9]	—	—	78.6	—
Treviso	166.3	323	19 3	[-57]	e 31 7	[-45]	45.6	—
Paris	166.3	354 i	20 41	[+41]	e 24 55	PP	89.6	110.6
Zurich	166.4	336 e	20 2	[+ 2]	—	—	—	—
Chur	166.6	333 e	19 58	[- 3]	—	—	—	—
Neuchatel	167.3	340 e	19 59	[- 2]	—	—	—	—
Piacenza	167.9	328	20 12	[+10]	—	—	—	100.9
Catania	168.0	285	20 1	[- 1]	35 26	SKSP	e 98.6	109.1
Rocca di Papa	168.4	308 e	20 0	[- 2]	—	—	—	—
Barcelona	173.6	349 e	19 52	[-14]	e 25 52	PP	—	101.9
Toledo	174.1	37 e	20 4	[- 2]	—	?	—	—
Tortosa	E. 174.4	0 e	19 53	[-13]	30 54	?	e 94.6	119.9
San Fernando	174.4	75	11 6	?	32 36	{+ 1}	92.7	104.1
Malaga	175.7	68	20 5	[- 2]	25 37	PP	31.6	—
Granada	176.1	59 i	20 6	[- 1]	32 37	[- 7]	e 87.4	103.0
Alicante	176.8	15 e	20 12	[+ 5]	e 25 52	PP	47.6	—
Almeria	177.1	54 i	20 5	[- 2]	i 32 46	[- 3]	e 91.5	97.2
Algiers	177.4	299 e	19 59	[- 8]	32 31	[-19]	63.6	106.6

For Notes see next page.

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NOTES TO SEPT. 22d. 1h. 31m. 24s.

Additional readings :—

Riverview PP = +5m.45s., PPP = +5m.54s., iE = +6m.11s., SS = +10m.27s.,
 SSS = +10m.39s., SSSS = +10m.53s.; T₀ = 1h.31m.12s.
 Perth +13m.36s., i = +20m.16s. = SS + 1s.
 Honolulu T.H. SSS = +24m.56s.
 Batavia i = +11m.35s.
 Medan i = +18m.4s. and +23m.35s.
 Berkeley iE = +15m.16s., eE = +23m.39s. = SKS + 5s., +27m.13s., +38m.18s.,
 +38m.24s., +43m.37s., and +44m.30s., eN = +39m.40s.
 Lick eSE = +20m.54s.
 Tucson e = +16m.56s. = PP + 29s.
 La Paz iPPZ = +17m.23s., PPPE = +20m.6s., iE = +26m.5s., SSE = +30m.30s.,
 SSSE = +33m.25s.
 Victoria SE = +37m.23s., SN = +37m.31s.
 Rio de Janeiro eSN = +25m.3s.
 Florissant iPPZ = +19m.3s., iNZ = +28m.37s. = PS + 5s., eSSN = +34m.33s.
 St. Louis eN = +28m.38s. = PS + 5s.
 Chicago i = +29m.5s. = PS + 0s., e = +51m.15s. and +58m.39s.
 Ann Arbor e = +29m.42s. = PS + 10s., eN = +31m.42s., eE = +36m.0s., eN =
 +39m.30s., +43m.42s., +52m.54s., and +57m.42s.
 Charlottesville e = +36m.36s. and +51m.36s.
 Georgetown iPN = +20m.10s., ePEZ = +20m.0s., ePPZ = +24m.0s., ePPPE =
 +26m.12s., SKSZ = +30m.17s., SSN = +36m.41s., SSE = +36m.43s.,
 SSSE = +40m.51s.
 Toronto ePE = +20m.8s. = PP - 2s., PPPE = +25m.52s. = SKS + 1s., PPPPE =
 +27m.18s. = SKKS + 1s.
 Ottawa e = +37m.30s. = SS + 18s.
 Tashkent i = +22m.35s., SKSP = +31m.39s., PPS = +32m.37s., SS = +39m.0s.
 Ekaterinburg iPP = +21m.44s., PKS = +22m.44s., PS = +32m.0s., SS =
 +39m.30s.
 Scoresby Sund eZ = +19m.48s., eNZ = +22m.36s., eE = +23m.0s., eN =
 +23m.18s., +25m.42s., and +27m.12s., SS = +41m.18s.
 Pulkovo SKS = +26m.45s., PS = +34m.30s., PPS = +37m.6s.
 Helsingfors eN = +23m.24s. = PP + 1s.
 Potsdam eEN = +35m.36s. ?
 Belgrade e = +28m.24s.
 Vienna PS = +32m.10s., eP? = +52m.42s., e = +59m.9s.
 Uccle e = +24m.36s. ? = PP - 1s.
 Stuttgart eN = +21m.11s. = PKP₁ + 4s., ePPP₁ = +31m.34s. = SKKS - 11s.
 Strasbourg ePP = +25m.3s.
 Barcelona eL = +30m.27s., e = +46m.52s. = SS + 2s.
 Toledo i = +21m.36s. = PKP₂ - 12s., e = +32m.28s. = SKKS - 5s.
 Granada +20m.8s., PP = +21m.50s. = PKP₂ - 7s., PPP = +25m.42s. = PP - 6s.,
 i = +26m.18s., +29m.35s. = PPP - 11s., +30m.20s., +35m.24s., +42m.53s.,
 and +50m.11s.
 Almeria PP = +25m.38s., PPP = +29m.15s., i = +35m.46s.
 Algiers +25m.53s. = PP + 11s.
 Long waves were also recorded at Zagreb, Königsberg, Besançon, Dakar, and
 Hyderabad.

Sept. 22d. 4h. 54m. 50s. Epicentre 25°·5N. 98°·5E. (as on 21d.).		R.3.						
	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Phu-Lien	8·9	120	e 2 45	+39	—	—	4·7	—
Calcutta	E. 9·7	254	2 50	+33	—	—	4·9	—
	N. 9·7	254	3 9	+52	—	—	5·1	—
Hong Kong	14·7	99	6 20	S	(6 20)	+12	8·0	8·2
Agra	E. 18·4	280	2 56	-75	6 21	-72	e 8·7	11·2
Dehra Dun	18·7	290	4 40	+25	8 10	+30	11·0	13·2
Hyderabad	20·3	251	4 21	-12	8 8	-4	9·7	13·4
Chiufeng	E. 20·7	41	8 26	S	(8 26)	+6	—	—
Zi-ka-wei	21·0	69	e 4 34	-6	—	—	—	14·0
Medan	E. 21·9	179	e 5 10?	+20	1 9 6	+22	i 11·7	—
Bombay	24·6	260	5 2	-14	9 46	+12	13·2	13·4
Colombo	25·8	227	6 45	+78	10 0	+5	14·4	17·2
Andijan	26·5	312	5 40	+6	10 27	+20	—	—
Irkutsk	27·1	8	e 5 40	+1	e 10 20	+3	14·5	—
Tashkent	28·8	311	5 39	-15	e 10 37	-8	e 16·1	18·5

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	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Samarkand	29.8	306	6 2	- 1	—	—	—	—
Ekaterinburg	41.4	330	e 7 43	+ 1	e 13 56	- 1	20.2	26.2
Pulkovo	57.3	327	9 46	+ 1	17 43	+ 3	26.2	35.6
Copenhagen	67.0	323	—	—	19 48	+ 3	35.2	—

Additional readings:—

Agra SN = +6m.16s.

Medan iS = +12m.32s.

Long waves were also recorded at Taihoku, Batavia, Scoresby Sund, and several European stations.

Sept. 22d. 5h. 2m. 27s. Epicentre 16°0N. 111°0W. N.3.

A = -0.344, B = -0.897, C = +0.276; D = -0.934, E = +0.358;
G = -0.099, H = -0.257, K = -0.961.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Manzanillo	7.0	64	(1 9)	-30	—	—	(2.8)	—
Tacubaya	11.7	72	2 44	0	5 19?	+24	5.5?	6.7
Tucson	16.2	0	3 43	- 1	e 6 50	+ 7	8.8	—
St. Louis	N. 29.0	35	e 5 57	+ 1	e 10 24	-24	—	14.6
Florissant	29.1	35	e 5 58	+ 1	e 10 53	+ 3	—	14.4
Ann Arbor	35.1	36	—	—	e 14 33	SS	e 17.4	—

Additional readings and notes:—

Manzanillo readings have been *increased* by 1m.

Tucson e = +7m.17s.

Long waves were also recorded at Chicago, Honolulu T.H., and De Bilt.

Sept. 22d. 7h. 11m. 27s. Epicentre 25°5N. 98°5E. (as at 4h.). R.3.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Phu-Lien	8.9	120	2 33?	+27	—	—	—	—
Calcutta	N. 9.7	254	(2 19)	+ 2	(4 16)	+10	(4.3)	—
Bombay	24.6	260	9 31	S	(9 31)	- 3	15.4	17.2
Andijan	26.5	312	e 5 41	+ 7	e 10 41	SS	—	—
Irkutsk	27.1	8	e 5 41	+ 2	e 10 17	0	14.4	15.6
Tashkent	28.8	311	—	—	e 10 45	0	e 15.8	17.8
Samarkand	29.8	306	e 6 3	0	—	—	—	—
Ekaterinburg	41.4	330	1 7 43	- 1	e 13 59	+ 2	19.6	—
Pulkovo	57.3	327	—	—	e 17 41	+ 1	29.6	—

Additional readings and notes:—

Calcutta readings have been *diminished* by 4m.

Bombay S = +13m.10s.

Long waves were recorded at Medan, Hong Kong, and De Bilt.

Sept. 22d. 14h. 19m. 14s. Epicentre 25°3N. 93°8E. N.1.

Probable error of epicentre $\pm 0^{\circ}.28$.

A = -0.060, B = +0.902, C = +0.427; D = +0.998, E = +0.066;
G = -0.028, H = +0.426, K = -0.904.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Calcutta	E. 5.8	241	0 37	-45	(1 45)	-43	1.8	—
	N. 5.8	241	e 0 59	-23	(2 3)	-25	2.0	—
Phu-Lien	12.6	108	2 52	- 4	5 34	+17	6.5	8.1
Agra	E. 14.2	281	(3 1)	-17	(5 31)	-25	(6.5)	(8.4)
	N. 14.2	281	(2 41)	-37	(5 26)	-30	(7.7)	(9.1)
Dehra Dun	14.8	294	3 26	0	6 6	- 4	7.8	7.8
Hyderabad	16.3	244	3 7	-38	5 47	-58	—	9.8
Hong Kong	18.9	95	1 4 15	- 2	i 7 43	- 1	9.4	10.5
Bombay	20.4	256	4 35	+ 1	8 16	+ 2	10.4	—
Medan	22.2	187	1 5 41	+48	i 9 42	+52	(19.7)	—

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	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°		m. s.	s.	m. s.	s.	m.	m.
Almata	22.6	327	5 6	+ 9	9 13	+16	—	—
Colombo	22.7	218	4 56	- 2	8 56	- 3	12.6	17.2
Andijan	23.6	316	5 11	+ 5	9 24	+ 8	—	—
Chiufeng	23.8	46	5 15	+ 7	9 20	+ 1	—	—
Zi-ka-wei	25.0	70	i 5 16	- 4	9 46	+ 5	i 14.4	15.8
Taihoku	E. 25.1	85	5 22	+ 1	10 8	+25	14.0	—
Tashkent	25.9	314	i 5 30	+ 2	i 10 56	SS	12.8	14.8
Samarkand	26.6	309	i 5 38	+ 3	—	—	—	—
Isigakizima	27.5	85	5 37	- 6	10 42	+18	—	—
Manila	27.6	107	i 6 4	+20	i 11 2	SS	—	—
Irkutsk	28.1	14	e 5 52	+ 4	e 10 20	-14	15.8	17.6
Nagasaki	32.2	67	e 6 32	+ 8	e 11 56	+18	—	—
Batavia	N. 33.9	156	i 6 33	- 6	i 12 18	+14	—	—
Sumoto	37.5	65	e 12 36	S	(e 12 36)	- 8	e 20.8	22.2
Kobe	N. 36.7	64	e 12 40	S	(e 12 40)	- 7	e 20.3	—
Osaka	37.1	64	7 21	+14	13 9	+16	—	—
Gifu	38.1	63	7 12	- 4	13 1	- 7	—	—
Nagoya	38.2	63	e 7 16	- 1	(13 4)	- 5	13.1	—
Nagano	39.3	61	7 26	- 0	13 22	- 4	—	—
Baku	39.4	305	i 7 30	+ 3	13 34	+ 7	i 16.6	—
Ekaterinburg	39.5	331	i 7 30	+ 2	i 13 30	+ 1	18.8	23.6
Oiwake	39.6	62	7 30	+ 1	13 26	- 4	—	—
Hukushima	41.1	60	7 39	- 2	13 48	- 5	—	—
Ksara	50.4	295	8 58	+ 4	16 13	+ 7	29.8	—
Theodosia	50.4	309	8 58	+ 4	16 9	+ 3	20.8	—
Simferopol	51.3	309	9 3	+ 2	16 20	+ 1	—	—
Yalta	51.3	309	i 9 4	+ 3	16 22	+ 3	—	—
Sebastopol	51.7	308	10 7?	+63	17 29?	+65	—	—
Pulkovo	55.1	327	9 30	0	17 11	0	26.8	35.5
Helsingfors	57.8	327	—	—	i 17 44	- 3	e 22.6	—
Königsberg	60.0	320	e 10 3	- 1	i 18 15	- 1	e 31.8	—
Belgrade	61.0	310	e 10 10	- 1	e 18 26	- 3	e 25.8	37.2
Upsala	61.5	326	e 10 10	- 5	e 18 32	- 4	e 31.8	35.5
Budapest	61.6	313	10 27	+11	18 27	-10	25.8	—
Tananarive	63.1	230	—	—	e 18 47	- 9	e 26.1	33.8
Vienna	63.3	315	10 28	+ 1	19 28	PS	—	44.8
Zagreb	63.9	310	e 10 32	+ 1	e 19 4	- 2	e 26.4	—
Lund	64.1	322	10 34	+ 1	19 6	- 3	34.8	—
Copenhagen	64.7	322	10 36	- 1	19 13	- 3	34.8	—
Potsdam	64.7	319	i 10 37	0	e 19 17	+ 1	e 35.8	38.3
Cheb	65.5	316	e 10 41	- 1	e 19 46	PS	e 36.8	43.8
Jena	65.9	317	i 10 44	- 1	e 19 57	PS	e 30.8	—
Hamburg	66.3	320	e 10 45	- 2	i 20 4	PS	e 33.2	37.4
Göttingen	66.7	319	e 10 48	- 2	e 19 39	- 2	—	38.8
Innsbruck	66.7	313	11 4	+14	—	—	—	—
Padova	66.9	311	e 10 50	- 1	e 19 11	-32	—	—
Rocca di Papa	67.1	307	i 10 50	- 2	(e 19 52)	+ 6	e 19.9	—
Rome	67.3	307	10 53	- 1	—	—	—	—
Bergen	67.5	328	—	—	e 20 16	PS	e 23.3	—
Stuttgart	67.8	315	i 10 54	- 3	i 19 52	- 2	e 34.3	—
Chur	68.1	313	i 10 56	- 3	e 19 53	- 5	—	—
Placenza	68.4	310	10 58	- 3	20 2	0	—	42.6
Zurich	68.6	313	e 10 58	- 4	i 20 23	PS	—	—
Strasbourg	68.8	315	i 11 3	0	e 20 3	- 4	31.8	—
De Blit	69.5	319	11 8	0	e 20 12	- 3	e 32.8	39.6
Neuchatel	69.8	314	e 11 6	- 3	20 15	- 4	—	—
Uccle	70.3	318	e 11 11	- 2	e 20 21	- 4	e 33.8	—
Dyce	72.0	325	—	—	i 20 45	0	e 34.0	37.9
Paris	72.1	316	i 11 22	- 1	e 20 41	- 5	24.8	38.8
Durham	72.6	323	—	—	20 46	- 6	—	40.8

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	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Kew	72.9	320	i 11 28	0	e 20 50	- 6	32.8	41.0
Edinburgh	73.0	324	—	—	e 20 46?	-11	—	—
Stonyhurst	73.3	322	—	—	e 20 56	- 4	—	48.8
Oxford	73.4	320	11 29	- 2	20 55	- 6	e 37.3	43.3
Bidston	73.8	322	—	—	i 21 2	- 4	e 32.8	—
Scoresby Sund	74.3	341	11 36	0	21 11	- 1	e 34.8	—
Barcelona	74.7	309	e 11 47	+ 8	e 22 13	PS	—	—
Algiers	75.7	305	11 43	- 1	(21 18)	-10	—	52.8
Tortosa	N. 76.1	309	11 49	+ 2	21 54	PS	e 40.8	—
Alicante	77.8	308	e 12 1	+ 4	e 22 17	PS	—	—
Almeria	79.7	307	i 12 5	- 1	22 36	PS	—	65.8
Toledo	79.7	310	e 12 4	- 2	e 22 29	+17	e 34.4	—
Granada	80.4	307	i 12 8	- 2	22 13	- 7	e 41.8	52.3
Malaga	81.3	307	e 12 14	- 1	e 22 18	-12	e 31.1	—
Ivigtut	88.2	342	13 10	+21	23 58	+19	—	—
Victoria	99.2	24	24 52	S	(23 52)	{+ 5}	48.2	61.8
La Paz	161.0	294	e 20 9	[+14]	—	—	79.8	91.0

Additional readings and notes :—

Agra readings have been *increased* by 1m.

Hong Kong PP = +4m.29s., SS = +8m.10s.

Medan i = +6m.15s. and +16m.6s. = S_cS + 5s.

Chiufeng SSN ? = +10m.0s.

Zi-ka-wei PPZ = +5m.54s., PPPPZ = +6m.18s., SS?E = +10m.46s., SSZ =

+10m.58s.

Tashkent e = +6m.17s.

Batavia i = +7m.54s. = PP + 7s. and + 8m.58s.

Helsingfors iEN = +18m.16s., iN = +20m.6s.

Königsberg IPSN = +18m.43s.

Belgrade eP_cP = +10m.51s., e = +12m.26s. = PP + 7s., ePPP = +14m.3s.

Upsala iN = +18m.56s. = PS + 13s. and + 20m.27s. = S_cS + 24s.

Tananarive E = +19m.19s. = PS + 14s.

Vienna PP = +13m.18s.

Zagreb eS = +19m.32s. = PS + 17s. ; true S is given as e.

Lund +19m.35s. = PS + 17s.

Copenhagen +10m.53s., +19m.41s. = PS + 15s., and + 23m.28s. = SS + 7s.

Jena eEN = +10m.46s., eN = +27m.34s.

Stuttgart iPEZ = +11m.15s., iPPMZ = +13m.28s., and +13m.49s., ePPPEZ =

+15m.13s., and +15m.33s., iSEN = +20m.18s. = PS + 9s., iEN = +21m.7s.

= S_cS + 18s., eSSEN = +24m.26s., eSSSEN = +27m.36s.

Strasbourg ePS = +20m.30s., eSS = +25m.6s.

De Bilt ePPZ = +13m.43s., eN = +20m.40s. = PS + 9s., eSSS = +28m.14s.

Uccle i = +20m.49s. = PS + 7s., eSS = +24m.46s. ?

Dyce +20m.23s.

Paris iPS = +21m.12s.

Durham i = +21m.12s. = PS + 1s., and + 22m.0s.

Kew e = +21m.18s. = PS + 26s., eSS = +25m.40s.

Oxford i = +26m.7s.

Bidston IPS = +21m.31s.

Scoresby Sund eE = +17m.22s., PS = +21m.34s. ; no phase + 26m.22s. and

+ 29m.28s.

Algiers S = +21m.48s. = PS + 6s. ; true S is given as PS.

Almeria PP = +15m.8s.

Granada S = +22m.41s. = PS - 13s. ; true S is given as SPS.

Long waves were also recorded at Koti, Riverview, and Wellington.

Sept. 22d. 16h. 26m. 45s. Epicentre 38° 8N. 70° 0E. (as on 1926 June 30d.). R.2.

A = +.267, B = +.732, C = +.627 ; D = +.940, E = -.342 ;

G = +.214, H = +.589, K = -.779.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Samarkand	2.4	290	10 31	- 3	—	—	—	—
Tashkent	2.5	348	10 40	+ 4	i 11 16	+12	—	—
Andijan	2.7	51	0 48	+ 9	—	—	1.6	—
Almata	6.9	48	e 1 45	+ 7	—	—	e 3.6	4.2
Dehra Dun	10.9	141	2 15	-18	4 45	+ 9	6.2	6.2

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		Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Agra	E.	13-5	147	e 2 36	-33	4 11	?	5-7	6-8
	N.	13-5	147	e 2 56	-13	5 41	+ 2	e 8-4	—
Baku		15-5	282	e 3 35	0	16 28	+ 1	7-8	—
Ekaterinburg		19-0	344	14 16	- 3	17 50	+ 4	8-2	11-2
Bombay		20-0	172	4 26	- 4	8 10	+ 4	10-2	11-1
Calcutta	E.	22-6	131	8 10	?	9 49	SS	—	—
	N.	22-6	131	8 5	?	9 37	SS	10-4	—
Hyderabad		22-6	158	4 52	- 5	8 26	-31	11-2	15-6
Theodosia		26-2	295	e 5 42	+11	10 8	+ 6	23-2	—
Simferopol		27-1	295	e 5 38	- 1	—	—	—	—
Yalta		27-1	294	e 5 42	+ 3	—	—	—	—
Irkutsk		27-2	49	e 5 44	+ 4	e 10 22	+ 4	14-6	16-0
Sebastopol		27-5	294	e 6 58	?	—	—	—	—
Ksara		27-7	270	5 52	+ 8	10 25	- 2	17-8	—
Pulkovo		32-5	323	6 26	- 1	11 40	- 3	18-2	20-6
Colombo		33-1	162	13 4	?	—	—	—	21-2
Königsberg		36-4	313	—	—	e 12 37	- 5	e 18-2	20-7
Belgrade		36-8	296	—	—	e 12 49	+ 1	e 23-6	25-4
Budapest		37-4	300	e 7 15?	+ 5	—	—	e 22-2	25-2
Upsala		38-6	320	e 8 38	PP	e 15 9	SS	e 20-2	22-9
Vienna		39-1	302	e 7 26	+ 2	e 16 38	?	i 19-4	—
Zagreb		39-7	299	e 7 31	+ 2	e 13 21	-11	e 24-2	—
Lund		40-7	316	9 9	PP	13 47	0	21-2	—
Potsdam		40-9	310	—	—	e 17 15?	(-28)	e 21-8	23-2
Copenhagen		41-1	316	9 15	PP	13 52	- 1	—	—
Cheb		41-4	306	e 18 8	S ₀ S	(e 18 8)	(+18)	e 23-4	27-4
Göttingen		42-8	310	—	—	e 15 15?	?	—	—
Hamburg		42-8	312	—	—	e 14 20?	+ 2	e 22-2	25-2
Stuttgart		43-8	306	—	—	e 14 30	- 3	—	—
Ohur		43-9	301	e 8 2	- 2	—	—	—	—
Piacenza		44-2	300	—	—	e 14 39	0	—	34-4
Zurich		44-5	302	i 8 7	- 2	—	—	—	—
Strasbourg		44-7	304	e 8 8	- 2	e 14 42	- 4	23-2	—
Bergen		44-8	322	i 12 45	?	e 18 45	?	24-2	—
Neuchatel		45-6	303	e 8 15	- 3	—	—	—	—
De Bilt		45-7	310	—	—	e 15 1	+ 1	e 24-2	26-7
Uccle		46-4	308	—	—	e 15 9	- 1	e 25-2	—
Paris		48-1	306	—	—	e 15 15?	-19	27-2	32-2
Dyce		48-9	319	—	—	e 15 22	-23	e 25-3	30-2
Kew		49-0	310	e 15 49	S	(e 15 49)	+ 2	e 26-2	—
Oxford		49-7	310	—	—	15 51	- 6	i 20-4	26-8
Stonyhurst		49-8	312	—	—	e 15 55	- 3	—	—
Scoresby Sund		54-4	337	—	—	21 51	?	27-2	—

Additional readings :—

Andijan i = +54s.

Almata i = +1m.54s.

Königsberg e = +15m.32s., eN = +16m.22s.

Belgrade e = +18m.55s.

Copenhagen +16m.57s.

Hamburg eE = +17m.31s.

Stuttgart eE = +17m.52s.

Long waves were also recorded at Hong Kong, Phu-Lien, Jena, Edinburgh,

Durham, and Granada.

Sept. 22d. Readings also at 0h. (Adelaide, Riverview, Berkeley, and Samarkand), 1h. (Tucson and near Tacubaya), 2h. (near Mizusawa), 3h. (Ekaterinburg, Riverview, Pulkovo, Wellington, Nagoya, Tokyo, Tukuba, Tyosol, Nagoya, and near Mizusawa), 11h. (De Bilt, Pulkovo, Strasbourg, Riverview, Sydney, and near Wellington), 12h. (Granada, Tashkent, La Paz, near Merida, Puebla, Oaxaca, Tacubaya, and near Wellington), 13h. (Riverview, Sydney, Wellington, Pulkovo, Ekaterinburg, Kew, Paris, Strasbourg, Stuttgart, and Scoresby Sund), 14h. (Ootomari, Riverview and Sydney), 15h. (Tahoku), 17h. (Nagoya and near Livorno), 20h. (Andijan, Tashkent, Ekaterinburg (2), Irkutsk (2), and Belgrade), 21h. (Riverview, Baku, Kucino, Pulkovo, Tashkent, Copenhagen, De Bilt, Strasbourg, and Stuttgart), 22h. (Kew).

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Sept. 23d. 10h. 15m. 21s. Epicentre 37°·5N. 70°·5E. (as on 1929 Dec. 29d.). X.

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

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Andijan	3·6	24	e 0 52	+ 1	—	—	1·5	1·9
Tashkent	3·9	347	1 1 0	+ 4	(1 47)	+ 7	1 1·8	2·2
Almata	7·6	39	1 45	- 3	(e 3 5)	- 9	e 3·1	4·1
Baku	16·2	287	e 3 0	-44	—	—	e 5·0	—
Bombay	18·7	173	4 7	- 8	7 46	+ 6	10·0	—
Ekaterinburg	20·4	345	1 4 33	- 1	8 14	0	10·7	12·4
Calcutta	E. 21·4	129	8 22	S	(8 22)	-14	9·9	—
Kucino	28·4	321	—	—	e 10 16	-22	e 16·8	18·0
Pulkovo	33·8	324	6 38	- 1	e 11 33	-30	17·6	—
Copenhagen	42·3	316	—	—	e 9 39†	PF	20·6	—
De Bilt	46·8	310	—	—	e 19 39	?	—	—
Scoresby Sund	55·8	337	—	—	(20 39†)	SS	20·6	—

Additional readings :—
Baku e = +4m.0s.
Kucino e = +12m.54s.
Pulkovo e = +12m.47s.

Sept. 23d. 12h. 5m. 7s. Epicentre 27°·5N. 106°·0E. (as on 1929 Nov. 16d.). X.

A = -·244, B = +·853, C = +·462; D = +·961, E = +·276;
G = -·127, H = +·444, K = -·887.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Calcutta	E. 16·7	257	4 42	+52	—	—	6·2	—
Manila	19·0	130	i 6 23	+124	1 7 58	+12	—	—
Irkutsk	24·8	357	—	—	e 8 53†	-44	14·9	—
Medan	24·9	198	—	—	e 10 33	+54	i 12·5	—
Andijan	30·5	305	e 6 10	+ 1	e 11 24	+12	—	—
Bombay	31·5	264	9 52	?	13 33	?	15·7	18·8
Tashkent	33·0	346	e 10 59	?	e 11 31	-20	e 16·1	19·2
Ekaterinburg	43·3	327	7 59	?	14 16	- 9	20·9	—
Pulkovo	59·4	327	—	—	e 17 59	- 9	—	—
Victoria	E. 92·2	30	—	—	25 56	PS	47·2	56·1

Additional readings :—
Manila iE = +6m.43s., iZ = +8m.18s.
Medan i = +13m.45s.

Long waves were also recorded at Phu-Lien, Hong Kong, Vladivostok, Baku, Kucino, Copenhagen, De Bilt, Uccle, and Kew.

Sept. 23d. 20h. 35m. 38s. Epicentre 36°·7N. 21°·0E. (as on 1920 Dec. 10d.). R.3.

A = +·749, B = +·287, C = +·598; D = +·358, E = -·934;
G = +·558, H = +·214, K = -·802.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Trenta	4·4	307	e 0 57	- 6	1 47	- 6	—	—
Taranto	4·7	323	1 7	0	1 59	- 1	—	2·1
Mineo	5·0	278	9 12	S	(9 12)	+ 4	—	—
Zagreb	9·8	339	e 2 22†	+ 4	e 5 22†	L	(e 5·4)	—
Ohur	13·2	324	e 3 6	+ 1	—	—	—	—
Zurich	14·0	324	13 16	+ 1	—	—	—	—
Neuchatel	14·6	319	e 3 24	+ 1	—	—	—	—
Pulkovo	23·8	12	4 57	-11	9 9	-10	12·4	—
Ekaterinburg	33·1	40	e 6 20	-13	—	—	17·4	—

Long waves were also recorded at De Bilt and Stuttgart.

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Sept. 23d. 23h. 34m. 5s. Epicentre 25°5S. 65°5W. N.3.

A = +.374, B = -.821, C = -.431; D = -.910, E = -.415;
G = -.179, H = +.392, K = -.903.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Santiago	9.1	208	2 6	- 3	4 17	+26	5.2	—
La Paz	9.4	345	12 15	+ 2	14 5	+ 6	15.1	6.6
La Plata	11.4	147	2 38	- 2	4 39	- 9	5.3	—
Río de Janeiro	20.4	87	14 38	+ 4	18 31	+17	110.3	—
Malaga	84.7	45	12 28	- 4	24 16	—	—	—
Granada	85.5	45	12 33	- 3	(23 39)	+26	e 42.9	50.1
Almeria	86.1	45	e 12 30	- 9	—	—	—	67.2
Toledo	86.9	42	e 12 37	- 6	e 24 22	PS	e 25.9	—
De Bilt	99.0	36	—	—	e 21 37	?	e 47.9	—
Copenhagen	104.5	35	—	—	27 37	SS	55.9	—
Pulkovo	114.7	32	e 19 31	[+59]	—	—	57.9	70.8
Baku	125.1	56	—	—	e 30 56	?	57.9	—
Ekaterinburg	130.7	36	19 6	[- 2]	e 22 31	PKS	52.9	—
Tashkent	139.6	55	1 19 22	[+ 1]	—	—	e 60.9	90.6
Irkutsk	152.2	14	e 19 55?	[+11]	—	—	—	—

Additional readings and note :—

Granada S is given as PS.

Tashkent e = +22m.13s. = PP-6s., i = +34m.46s., e = +41m.55s. ? and +47m.49s.

Long waves were also recorded at Kucino and at other European stations.

Sept. 23d. Readings also at 0h. (Mizusawa), 1h. (Perth), 2h. (near Berkeley and Lick), 3h. (Toronto, Victoria, Tucson, De Bilt, and Scoresby Sund), 5h. (Granada, Adelaide, Melbourne, Riverview, Wellington, near Christchurch, Tashkent, Ekaterinburg, Pulkovo, Bombay, and near Calcutta), 6h. (Baku, Copenhagen, De Bilt, and Scoresby Sund), 7h. (Christchurch, Wellington, Melbourne, Paris, and Strasbourg), 8h. (De Bilt, Strasbourg, and Granada), 10h. (Ksara and near Dehra Dun), 11h. (Wellington), 14h. (Calcutta), 15h. (Catania, Taihoku, near Guadalajara, Manzanillo, and Tacubaya), 16h. (Taihoku), 22h. (near La Paz and La Plata), 23h. (Rio de Janeiro).

Sept. 24d. 3h. 22m. 20s. Epicentre 32°3N. 93°0E. N.3.

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

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Almata	16.7	315	e 3 51	+ 1	—	—	—	—
Andijan	18.5	303	e 4 26	+13	—	—	—	—
Tashkent	20.9	302	e 4 38	- 1	18 21	- 3	e 11.1	14.7
Irkutsk	21.6	19	e 4 46	0	e 8 39	+ 1	11.7	—
Samarkand	22.2	296	e 4 52	- 1	—	—	—	—
Bombay	22.5	238	6 59	+123	9 28	+33	10.8	13.1
Ekaterinburg	33.1	328	—	—	(11 40?)	-12	11.7	—
Pulkovo	48.9	324	—	—	e 19 34	SS	28.7	30.3

Long waves were also recorded at Baku, Copenhagen, De Bilt, Uccle, Strasbourg, and Stuttgart.

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Sept. 24d. 7h. 38m. 2s. Epicentre 9°·2N. 127°·5E. (see 12h.). N.3.

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

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Manila	8·4	311	i 2 8	+ 9	13 38	+ 4	4·1	—
Hong Kong	18·3	317	4 4	- 6	(7 28)	- 3	7·5	10·8
Batavia	25·7	234	e 6 1	+35	—	—	—	—
Medan	29·2	261	e 7 58?	?	—	—	20·0	—
Vladivostok	34·1	5	—	—	e 14 3	SS	24·5	—
Irkutsk	47·0	340	e 8 29	0	—	—	29·0	—
Tashkent	60·3	314	e 10 2	- 5	e 18 9	-11	e 30·0	37·9
Samarkand	61·6	311	e 8 14	?	—	—	—	—
Ekaterinburg	69·7	329	e 11 9	0	e 20 10	- 8	31·0	38·7
Baku	74·6	310	—	—	e 21 15	0	36·0	44·2
Pulkovo	85·7	331	12 36	- 1	23 2	-13	42·0	54·3

Additional readings :-

Batavia i = +7m.12s.

Irkutsk e = +10m.13s.

Long waves were also recorded at Phu-Lien, Taihoku, Kodalkanal, and the European stations.

Sept. 24d. 12h. 6m. 51s. Epicentre 9°·2N. 127°·5E. (as at 7h.). R.2.

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

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Manila	8·4	311	(1 55)	- 4	(i 3 29)	- 5	(1 5·6)	—
Isigakizima	15·4	349	3 30	- 4	6 50	+26	—	—
Hong Kong	18·3	317	4 5	- 5	6 39	-52	7·3	9·6
Kagosima	22·6	7	5 2	+ 5	8 52	- 5	—	—
Zi-ka-wei	N. 22·7	347	e 5 0	+ 2	9 4	+ 5	—	12·8
Nagasaki	23·6	5	5 13	+ 7	9 25	+ 9	—	—
Koti	25·0	12	5 26	+ 6	9 52	+11	—	13·6
Batavia	25·7	234	5 31	+ 5	10 3	+10	18·2	—
Sumoto	26·0	14	5 27	- 2	e 12 5	?	e 13·4	16·0
Kobe	26·4	14	e 5 53	+20	—	—	e 13·8	16·4
Osaka	26·5	15	5 46	+12	(10 41)	SS	10·7	13·6
Medan	29·2	261	1 6 9	+11	i 11 17	+26	—	—
Vladivostok	34·1	5	—	—	e 14 3	SS	—	25·1
Adelaide	45·4	167	—	—	i 15 9	+13	20·4	30·9
Irkutsk	47·0	340	e 8 30	+ 1	e 15 12	- 7	24·2	29·6
Colombo	47·2	272	8 14	-16	15 11	-10	25·5	30·6
Hyderabad	48·3	286	8 36	- 2	15 36	- 1	24·4	31·6
Riverview	48·6	152	—	—	e 16 21	+40	e 23·2	37·8
Sydney	48·6	152	—	—	i 16 39	+58	29·8	32·6
Kodalkanal	49·3	275	e 20 27	SSS	—	—	e 23·9	31·2
Melbourne	49·8	162	—	—	i 16 16	+18	27·0	31·9
Bombay	53·7	287	8 30	-49	26 53	?	30·6	34·2
Almata	55·5	318	e 10 9	+37	—	—	—	—
Tashkent	60·3	314	i 10 6	- 1	i 18 13	- 7	e 30·2	34·2
Samarkand	61·6	311	e 10 15	- 1	—	—	—	—
Wellington	66·6	143	—	—	e 20 9?	+29	41·2	46·2
Ekaterinburg	69·7	329	i 11 10	+ 1	1 20 10	- 8	28·2	38·6
Honolulu T.H.	72·5	70	—	—	e 21 9	PS	e 44·2	—
Pulkovo	85·7	331	12 36	- 1	23 1	-14	43·2	49·3
Upsala	91·8	332	—	—	e 24 5	- 8	e 49·2	—

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Copenhagen	96.0	330	—	—	24 9	[+ 3]	47.2	—
Ohb	98.4	325	—	—	e 24 16	[- 2]	e 52.2	60.2
Stuttgart	100.9	325	—	—	e 24 24	[- 6]	e 52.2	—
De Bilt	101.4	329	—	—	e 24 40	[+ 7]	e 49.2	57.6
Strasbourg	101.8	325	(e 18 9†)	PP	—	—	e 18.2	—
Piacenza	102.2	321	—	—	e 22 34	?	—	66.7
Uccle	102.5	328	—	—	e 24 9†	[-29]	e 50.2	—
Paris	104.6	327	e 18 9†	PP	—	—	56.2	70.2
Kew	104.6	330	—	—	e 27 36	PS	e 56.2	62.1
La Paz	163.1	117	e 19 52	[- 5]	e 29 32	?	82.2	89.2

Additional readings and note :—

Manila readings have been increased by 3m.

Batavia P = +5m.35s.

Kobe eNE = +15m.25s.

Riverview eEN = +19m.21s.

Melbourne i = +19m.44s.

Wellington e = +28m.9s. †

Honolulu T.H. e = +34m.39s.

Stuttgart eEN = +25m.27s. = S - 7s., eE = +26m.49s. = PS - 6s.

Long waves were also recorded at Phu-Lien, Taihoku, Berkeley, Tananarive, and the European stations.

Sept. 24d. 15h. 47m. 15s. Epicentre 9°-2N. 127°-5E. (as on 12h.).								X.
	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Manila	8.4	311	e 2 4	+ 5	3 41	+ 7	—	—
Hong Kong	18.3	317	4 5	- 5	—	—	e 8.1	12.4
Tashkent	60.3	314	—	—	e 18 15	- 5	e 29.8	37.8
Ekaterinburg	69.7	329	e 11 8	- 1	e 20 6	- 12	33.8	—
Pulkovo	85.7	331	12 38	+ 1	e 23 0	- 15	48.8	54.0

Long waves were also recorded at Irkutsk, Baku, and other European stations.

Sept. 24d. 19h. 10m. 55s. Epicentre 44°-6N. 10°-6E. (as on 1930 May 24d.). R.3.

A = +.700, B = +.131, C = +.702; D = +.184, E = -.983;
G = +.690, H = +.129, K = -.712.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Piacenza	0.8	304	0 35	+24	(0 35)	S _r	—	—
Padova	1.2	48	e 0 18	+ 1	—	—	—	—
Chur	2.3	342	e 0 38	+ 5	—	—	—	—
Rome	3.0	153	—	—	1 1 12	- 5	—	1.7
Zurich	3.1	334	e 0 41	- 3	—	—	—	—
Rocca di Papa	3.2	150	e 0 48	+ 2	1 1 8	- 14	—	1.7
Neuchatel	3.5	314	e 0 48	- 2	—	—	—	—
Zagreb	4.0	70	e 0 58	+ 1	1 1 34	- 8	1 1.8	—

Long waves were recorded at Stuttgart and Venice.

Sept. 24d. Readings also at Oh. (La Paz, near Kobe, and Toyooka), 2h. (Samarkand, Tashkent, near Almata, and Andijan), 3h. (Ekaterinburg and near Dehra Dun), 4h. (near La Paz and near Tyos), 6h. (Mizusawa), 7h. (near Tyos), 10h. (Manila), 11h. (Chur, Neuchatel, Zurich, and Piacenza), 13h. (Perth), 14h. (Bombay), 15h. (Zagreb and near Lick), 19h. (Konigsberg), 20h. (Taihoku), 21h. (Wellington), 22h. (Samarkand).

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Sept. 25d. 18h. 6m. 23s. Epicentre 34° 58. 179° 2W. N.3.

A = -0.824, B = -0.012, C = -0.566; D = -0.014, E = +1.000;
G = +0.566, H = +0.008, K = -0.824.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Wellington	8.3	213	e 1 51	- 7	3 12	- 19	—	4.1
Christchurch	11.0	212	—	—	5 1	+23	6.1	—
Riverview	24.5	263	1 5 15	0	1 9 37	+ 5	e 12.6	14.6
Sydney	24.5	263	e 5 1	-14	1 9 49	+17	13.4	15.4
Melbourne	29.0	253	e 5 52	- 4	10 41	- 7	13.8	19.4
Adelaide	34.4	259	e 6 37?	- 7	1 12 3	- 9	1 15.4	20.3
Perth	53.5	253	—	—	1 16 37?	-12	—	—
Honolulu T.H.	59.3	23	—	—	1 18 2	- 5	—	—
Manila	E. 75.1	300	1 11 44	+ 3	—	—	—	—
Hong Kong	E. 85.0	302	20 47	?	—	—	—	—
Vladivostok	89.5	328	—	—	e 23 23	[- 7]	e 39.0	49.1
Berkeley	N. 89.5	41	e 38 34	?	—	—	e 45.5	—
Victoria	E. 96.7	34	24 20	SKS	(24 20)	[+11]	50.4	62.9
	N. 96.7	34	24 25	SKS	(24 25)	[+16]	50.7	57.7
La Paz	97.1	115	—	—	1 24 12	[0]	48.6	56.2
Irkutsk	109.3	320	e 18 37?	PP	e 25 4	[- 6]	27.6	—
Florissant	110.0	54	e 19 7	PP	e 27 7	?	e 60.6	—
Bombay	115.1	276	—	—	e 23 37?	—	—	—
Tashkent	127.0	299	e 20 49	PP	1 26 7	[- 4]	—	—
Ekaterinburg	134.5	318	1 19 18	[+ 4]	1 22 45	PKS	—	—
Baku	141.1	294	e 19 34	[+11]	—	—	49.6	52.3
Pulkovo	148.3	332	19 43	[+ 4]	e 30 10	[- 3]	48.6	—
Ksara	151.1	279	e 19 59	[+16]	—	—	73.7	—
Theodosia	151.7	302	e 19 59	[+15]	—	—	—	—
Yalta	152.6	301	e 20 1	[+16]	—	—	—	—
Copenhagen	157.3	343	20 7	[+17]	24 6	PP	65.6	—
De Bilt	162.1	351	e 20 37?	[+41]	—	—	e 66.6	70.0
Cheb	162.3	335	—	—	e 31 37?	{+ 6}	e 68.6	71.6
Uccle	163.5	352	e 24 37?	PP	e 35 47?	SKSP	e 63.6	—
Stuttgart	164.5	339	e 20 2	[+ 3]	—	—	e 65.6	—
Strasbourg	165.0	342	(e 17 37?)	?	—	—	e 17.6	—
Paris	165.6	356	e 17 37?	?	—	—	70.6	86.6
Grenada	175.5	52	1 20 17	[+10]	—	—	e 65.6	91.8
Alicante	176.0	15	e 30 32	?	—	—	—	—
Almeria	176.5	46	e 20 5	[- 2]	—	—	—	106.3

Additional readings :-

Riverview eN = +5m.3s., PZ = +6m.9s., SSN = +10m.51s.

Melbourne i = +6m.37s. = PP -7s.

Adelaide i = +14m.47s.

Honolulu T.H. i = +22m.37s.

Manila iE = +13m.32s. and +14m.59s.

Vladivostok e = +31m.17s.

Berkeley eN = +40m.56s.

La Paz PPZ = +17m.28s., PSN = +26m.18s.

Tashkent i = +22m.26s. and +32m.35s.

Baku e = +23m.13s., +36m.15s., +41m.29s., and +44m.52s.

Pulkovo PP = +23m.37s., e = +30m.10s. = SKKS -3s.

Stuttgart ePKSZ = +24m.7s., ePPP, EN = +31m.33s. = SKKS -10s., eZ =

+32m.7s., eSKSPEN = +35m.42s., eSSE = +47m.37s.

Grenada i = +24m.44s., +25m.17s., and +29m.50s.

Almeria i = +24m.13s., e = +25m.41s. = PP +3s.

Long waves were also recorded at Nagasaki, Kobe, Koti, Sumoto, Upsala, Lund,

Tortosa, Ivigtut, Sitka, Tucson, Chicago, and Tananarive.

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Sept. 25d. 18h. 33m. 40s. Epicentre 25°·5N. 98°·5E. (as on 22d.). R.2.

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

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Phu-Lien	8·9	120	e 2 9	+ 3	—	—	4·3	6·1
Calcutta	E. 9·7	254	2 51	+34	—	—	5·2	—
	N. 9·7	254	3 4	+47	—	—	5·4	—
Hong Kong	14·7	99	6 27	S	(6 27)	+19	7·9	8·4
Agra	E. 18·4	280	3 36	-35	7 6	-27	9·4	12·3
	N. 18·4	280	e 4 22	+11	8 2	+29	10·1	10·5
Dehra Dun	18·7	290	3 40	-35	8 10	+30	10·7	11·3
Hyderabad	20·3	251	3 59	-34	7 43	-29	9·9	13·1
Chinfeng	E. 20·7	41	e 4 35	- 2	8 28	+ 8	—	—
Taihoku	E. 20·9	86	e 4 44	+ 5	—	—	11·2	—
Zi-ka-wei	21·0	69	i 4 38	- 2	8 34	+ 8	i 12·2	12·5
Medan	21·9	179	5 6	+16	i 12 5	L	(i 12·1)	—
Manila	23·7	113	5 42	+35	i 9 40	+22	—	—
Bombay	24·6	260	5 19	+ 3	9 50	+16	13·1	13·4
Almata	24·9	321	5 22	+ 3	9 48	+ 9	—	—
Colombo	25·8	227	5 26	- 1	10 8	+13	13·9	19·2
Andijan	26·5	312	e 5 35	+ 1	10 15	+ 8	16·8	—
Irkutsk	27·1	8	e 5 39	—	10 16	- 1	14·3	14·8
Tashkent	28·8	311	—	—	i 10 43	- 2	16·2	18·5
Samarkand	29·8	306	5 5?	-58	10 3?	-58	26·3	—
Batavia	32·8	165	—	—	e 8 41	?	i 18·8	—
Ekaterinburg	41·4	330	i 7 43	- 1	13 55	- 2	19·3	26·1
Baku	42·8	304	—	—	e 17 35	SS	22·3	25·0
Ksara	54·2	295	17 4	S	(17 4)	+ 6	46·4	—
Pulkovo	57·3	327	19 44	- 1	e 17 37	- 3	32·3	36·7
Kew	75·4	320	e 11 33	-10	e 21 19	- 6	e 39·3	—

Additional readings:—

Hong Kong S = +7m.28s.

Zi-ka-wei PPPZ? = +5m.14s.

Medan i = +6m.14s. and +8m.57s., iN = +13m.42s.

Tashkent i = +12m.2s.

Long waves were also recorded at De Bilt.

Sept. 25d. Readings also at 0h. (near Andijan), 2h. (La Paz), 4h. (Berkeley, Chur, Padova, Rocca di Papa, and near Tyosi), 10h. (Baku, Ksara, and Tashkent), 11h. (La Plata, La Paz, Sucre, Rio de Janeiro, and Ekaterinburg), 12h. (Granada, Paris, Uccle, Kew, De Bilt, Strasbourg, Stuttgart, Copenhagen, Pulkovo, Baku, Tashkent, Wellington, and near Manila), 13h. (Andijan and Bombay), 14h. (Zagreb), 15h. (Nagasaki, near Florissant, and St. Louis), 16h. (Hong Kong, Manila, Phu-Lien, Taihoku, Koti, Zi-ka-wei, Vladivostok, and Irkutsk), 17h. (Granada, Strasbourg, Stuttgart, De Bilt, Kew, Uccle, Paris, Copenhagen, Pulkovo, Ekaterinburg, Baku, Bombay, Tashkent, Samarkand, and near Andijan), 19h. (Andijan and Kodaikanal), 20h. (La Paz), 21h. (Chur), 23h. (near Tananarive).

Sept. 26d. 4h. 22m. 14s. Epicentre 13°·9N. 91°·2W. (as on 1930 July 27d.). X.

A = -·020, B = -·971, C = +·240.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Tacubaya	9·5	307	2 12	- 2	4 2	+ 1	4·1	4·9
St. Louis	N. 24·8	2	e 5 18	0	e 9 42	+ 5	e 16·8	—
Florissant	25·0	2	e 5 21	+ 1	e 9 38	- 3	e 14·8	18·8

Long waves were also recorded at Tucson, Charlottesville, Victoria, Ekaterinburg, Baku, Pulkovo, Tashkent, and Irkutsk.

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Sept. 26d. 19h. 55m. 42s. Epicentre 37°·4N. 137°·9E. N.3.

A = -·589, B = +·533, C = +·607 ; D = +·670, E = +·742 ;
G = -·451, H = +·407, K = -·794.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Nagoya	2·3	199	0 33	0	1 11	S*	—	1·2
Tyosi	2·9	125	e 0 38	- 3	(1 16)	+ 2	1·3	—
Toyooka	3·0	233	e 0 42	- 1	i 1 26	+ 9	—	1·7
Mizusawa	E. 3·1	53	0 44	0	1 15	- 5	—	—
	N. 3·1	53	0 46	+ 2	1 20	0	—	—
Osaka	3·3	215	0 49	+ 2	—	—	1·6	2·4
Kobe	3·5	220	0 48	- 2	1 22	- 8	—	1·5
Sumoto	3·9	219	1 10	P*	1 56	S*	—	2·2
Koti	5·2	224	1 30	P*	2 36	S*	3·0	—
Ekaterinburg	52·8	318	1 9 56	+44	—	—	25·3	—

Additional readings:—

Nagoya P_g = +52s.

Tyosi ePEN = +41s.

Toyooka i = +49s., iE = +1m.0s. = P_g.

Long waves were also recorded at Irkutsk, Baku, and Tashkent.

Sept. 26d. Readings also at 2h. (near Almata and near Bagnères), 3h. (La Paz and Merida), 4h. (Tyosi, near Mizusawa, and near Manila), 5h. (Strasbourg), 8h. (Bombay, Tashkent, Phu-Lien, and Wellington), 9h. (Ekaterinburg, Irkutsk, Vladivostok (2), and near Lick), 10h. (Baku, Ekaterinburg, Tashkent, and Ksara), 14h. (Alicante and Simferopol), 15h. (Ksara), 17h. (near Andjan), 18h. (near La Paz), 19h. (Adelaide, Melbourne, Riverview, Wellington, and near Balboa Heights), 21h. (Adelaide, Melbourne, Riverview, Wellington and Irkutsk), 22h. (Baku, Ekaterinburg, Tashkent, and Pulkovo), 23h. (Wellington).

Sept. 27d. Readings at 1h. (La Paz and La Plata), 2h. (Samarkand), 3h. (Taihoku), 6h. (Samarkand), 7h. (Andijan, Samarkand, Tashkent, Ekaterinburg, and near Baku), 11h. (Taihoku), 12h. (near Medan), 17h. (Adelaide and Manila), 18h. (Riverview), 19h. (Andijan and Samarkand), 23h. (near Balboa Heights).

Sept. 28d. 5h. 57m. 51s. Epicentre 25°·8N. 128°·0E. (as on 1928 May 31d.). X.

A = -·554, B = +·709, C = +·435 ; D = +·788, E = +·616 ;
G = -·268, H = +·343, K = -·900.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Taihoku	5·9	263	e 1 24	0	—	—	—	—
Nagasaki	7·1	13	1 55	+14	3 15	+14	—	—
Zi-ka-wei	8·0	315	1 49	- 4	1 3 9	-15	14·9	—
Manila	13·0	212	2 50	-12	1 6 30	+63	13·4	12·4
Hong Kong	13·1	257	3 19	+16	5 29	0	—	6·6
Mizusawa	17·3	36	—	—	7 45	+36	—	—
Vladivostok	17·6	10	e 4 36	+34	e 7 40	+25	—	—
Irkutsk	31·9	332	e 6 13	- 9	—	—	e 14·1	—
Tashkent	50·3	363	e 8 91	-45	e 15 21	-44	—	26·3
Ekaterinburg	56·3	324	1 9 34	- 4	17 53	+26	27·1	—

Manila gives also iZ = +3m.16s, and +4m.26s,

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Sept. 28d. 9h. 51m. 51s. Epicentre 34°5N. 139°5E. N.2.

(as given in Geophysical Magazine of Tokyo, Vol. IV, No. 4).

A = -0.627, B = +0.535, C = +0.566; D = +0.649, E = +0.760;
G = -0.431, H = +0.368, K = -0.824.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Mera	0.5	33	0 11	+ 4	0 24	+11	—	—
Numadu	0.8	318	0 15	+ 4	0 26	+ 5	—	—
Yokohama	1.0	7	0 15	+ 1	0 31	+ 5	—	—
Tokyo	1.2	10	0 16	- 1	0 34	+ 3	—	—
Kumagaya	1.7	357	0 24	0	0 46	+ 2	—	—
Tyosì	1.7	42	0 18	- 6	(0 37)	- 7	0.6	—
Tukuba	1.8	18	1 22	+56	—	—	—	—
Nagoya	2.2	288	0 33	+ 2	1 11	+14	—	—
Nagano	2.4	334	0 34	0	1 2	0	—	—
Osaka	3.3	274	0 47	0	(1 31)	+ 6	1.5	1.9
Hukushima	3.3	12	0 41	- 6	1 17	- 8	—	—
Kobe	3.6	294	0 54	+ 3	1 38	+ 6	—	1.7
Sumoto	3.8	269	—	—	1 43	+ 6	—	1.9
Mizusawa	E. 4.8	15	1 21	+13	1 51	-12	—	—
Morloka	5.3	13	1 9	- 6	2 2	-13	—	—

Tyosì gives also $P_E = +23s$.

Sept. 28d. Readings also at 1h. (Samarkand and near Manila), 2h. (Andijan and near Almata), 5h. (Andijan and near Samarkand), 9h. (near Sumoto), 13h. (Almata and near Andijan), 17h. (Alicante and Taihoku), 19h. (Hong Kong, Zi-ka-wei, Manila, and near Amboina), 20h. (Ekaterinburg, Irkutsk, Tyosì, and near Mizusawa), 23h. (near Andijan).

Sept. 29d. 4h. 52m. 43s. Epicentre 31°6N. 130°6E. N.2.

(as given in the Geophysical Magazine of Tokyo, Vol. IV, No. 4).

A = -0.554, B = +0.647, C = +0.524; D = +0.759, E = +0.651;
G = -0.341, H = +0.398, K = -0.852.

A depth of focus 0.030 has been assumed.

	Corr. for Focus	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.	m.
Kagosima	+1.0	0.0	—	0 21	+ 7	0 51	+25	—	—
Miyazaki	+0.9	0.8	66	0 25	+ 1	0 57	+13	—	—
Kumamoto	+0.8	1.2	3	0 25	- 4	—	—	—	—
Nagasaki	+0.7	1.3	332	0 23	- 6	0 58	+ 7	—	1.0
Hukuoka	+0.6	2.0	356	0 33	- 4	0 15	+ 8	—	1.4
Matuyama	+0.4	2.9	39	0 43	- 4	(1 32)	+ 8	1.5	1.6
Koti	+0.3	3.2	51	0 49	- 1	0 39	+ 9	—	1.7
Sumoto	+0.1	4.5	51	1 5	- 1	2 9	+11	—	2.2
Kobe	0.0	4.9	50	1 12	+ 2	2 21	+76	—	2.4
Osaka	0.0	5.2	52	1 2	-12	(2 29)	+16	2.5	2.9
Toyooka	-0.1	5.3	41	0 31	+17	2 28	+15	—	2.6
Gihu	-0.1	6.4	52	1 32	+ 2	3 0	+19	—	—
Nagoya	-0.1	6.4	54	0 33	+ 3	—	—	—	—
Numadu	-0.2	7.8	61	1 49	+ 1	—	—	—	—
Zi-ka-wei	n. -0.2	7.8	270	0 47	- 1	3 33	+19	—	—
Tokyo	-0.3	8.7	59	1 59	0	4 0	+26	—	—
Tyosì	-0.4	9.5	61	0 14	+ 5	—	—	4.3	—
Hukushima	-0.4	10.1	49	2 18	+ 1	4 29	+23	—	—
Taihoku	n. -0.4	10.3	233	0 49	-30	0 31	-50	—	—
Sandai	-0.4	10.7	48	2 26	+ 1	4 34	+13	—	—
Mizusawa	-0.5	11.4	46	—	—	4 50	+14	—	—
Manila	-1.1	19.1	210	2 37	?	4 17?	?	—	—

Additional readings:—

Nagasaki $1P_E = +26s$.

Toyooka $0E = +1m.43s$.

Long waves were also recorded at Hong Kong and Phu-Lien.

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Sept. 29d. 9h. 58m. 42s. Epicentre 32°·5N. 97°·5E. (as on 1924 Jan. 26d.). X.

A = -·110, B = +·836, C = +·537; D = +·991, E = +·131;
G = -·070, H = +·533, K = -·843.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Irkutsk	20·4	12	e 4 40	+ 6	e 8 34	+20	11·3	12·1
Andijan	21·7	299	e 4 50	+ 2	—	—	—	—
Tashkent	24·1	300	—	—	e 9 25	0	e 12·3	16·6
Samarkand	25·5	296	e 5 18	- 7	—	—	—	—
Bombay	25·9	244	10 2	S	(10 2)	+ 5	14·5	—
Ekatereburg	35·0	324	e 6 46	- 3	—	—	16·3	19·5

Bombay S = +13m.6s.

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

Sept. 29d. 13h. 29m. 0s. Epicentre 26°·8N. 66°·5E. N.2.

A = +·356, B = +·819, C = +·451; D = +·917, E = -·399;
G = +·180, H = +·413, K = -·893.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Bombay	9·8	142	2 21	+ 3	5 29	+81	6·9	7·8
Agra	E. 10·3	85	2 5	-20	3 50	-31	e 5·0	7·1
	N. 10·3	85	e 2 14	-11	4 3	-18	e 5·2	6·0
Dehra Dun	10·7	68	3 20	+49	—	—	5·5	6·0
Samarkand	12·8	2	2 58	- 1	—	—	—	—
Tashkent	14·7	8	13 19	- 6	e 6 7	- 1	7·3	9·9
Andijan	14·8	17	e 3 30	+ 4	e 7 55	+105	e 11·7	—
Almata	18·5	24	e 4 16	+ 3	—	—	—	—
Baku	19·3	319	4 16	- 6	7 50	- 2	10·5	16·9
Calcutta	E. 20·3	97	8 9	S	(8 9)	- 3	8·4	—
	N. 20·3	97	9 13	S	(9 13)	+61	10·5	—
Colombo	23·6	145	9 32	S	(9 32)	+80	—	15·6
Ksara	27·2	293	5 57	+17	10 30	+12	15·0	—
Ekatereburg	30·3	354	e 6 9	+ 1	11 5	- 4	13·0	18·9
Irkutsk	38·0	37	e 6 0?	-75	e 13 15	+ 9	22·0	24·3
Pulkovo	41·2	334	e 7 50	+ 8	e 14 2	+ 8	22·0	27·5
Zi-ka-wei	Z. 47·8	70	—	—	e 19 27	?	28·6	30·6
Copenhagen	48·1	322	—	—	15 32	- 2	25·0	—

Additional readings:—

Irkutsk e = +8m.0s. ?

Long waves were also recorded at Hong Kong, Manila, Phu-Lien, Kodalkanal, and the European stations.

Sept. 29d. Readings also at 2h. (La Paz), 7h. (near Honolulu T.H.), 14h. (near Kobe, Osaka, and Toyooka), 17h. (Andijan and Samarkand), 19h. (near La Paz), 20h. (Cheb, Andijan, and Samarkand), 21h. (Zurich and near Chur), 22h. (Ksara, near Florissant, and St. Louis), 23h. (near Sumoto).

Sept. 30d. 4h. 55m. 14s. Epicentre 36°·5N. 140°·5E. (as on 1930 June 29d.). X.

A = -·620, B = +·511, C = +·595; D = +·636, E = +·772;
G = -·459, H = +·378, K = -·804.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Tukuba	0·4	219	0 7	+ 1	—	—	—	—
Tyosi	0·9	160	0 8	- 5	0 14	- 9	0·3	0·3
Tokyo	1·1	216	0 13	- 3	—	—	—	—
Misusawa	E. 2·6	10	0 58	+21	1 31	+24	—	—
Nagoya	3·2	245	0 47	+ 1	1 37	+15	—	—
Osaka	4·5	248	1 19	+15	—	—	2·4	2·6

No additional readings.

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Sept. 30d. 13h. 5m. 0s. Epicentre 9°0N. 94°0E. N.3.

A = -069, B = +985, C = +156; D = +998, E = +070;
G = -011, H = +156, K = -988.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Medan	7.1	138	i 2 19	+38	—	—	i 5.0	—
Phu-Lien	16.9	44	3 0?	-53	—	—	—	—
Batavia	19.8	139	—	—	i 6 22	?	i 10.7	—
Bombay	22.8	298	5 1	+ 2	9 17	+16	12.2	—
Hong Kong	23.5	53	5 6	+ 1	9 10	- 4	—	14.5
Irkutsk	44.1	9	e 8 0	- 6	e 17 49	SS	27.0	—
Baku	50.1	316	—	—	e 16 3	+ 1	25.5	33.1
Ekaterinburg	54.4	338	e 9 22	- 2	e 16 50	-11	27.0	—

The only stations giving readings with definite phases are Bombay, Hong Kong, and Ekaterinburg.
Baku gives also e = +19m.51s.

Sept. 30d. 21h. 20m. 48s. Epicentre 4°5S. 146°5E. N.1.

Probable error of epicentre $\pm 0^{\circ}.3$.

A = -831, B = +550, C = -078; D = +552, E = +834;
G = +065, H = -043, K = -997.

	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Palau	16.8	315	3 50	- 2	6 58	+ 1	—	—
Amboina	18.3	272	(i 3 59)	-11	(7 16)	-15	—	—
Riverview	29.7	173	e 6 11	+ 9	e 11 8	+ 9	15.1	17.8
Sydney	29.7	173	e 7 0	PP	i 12 48	SS	15.9	20.2
Adelaide	31.3	192	e 6 18?	+ 1	i 11 42	+18	i 14.7	18.3
Manila	31.7	309	i 6 19	- 1	i 11 26	- 5	i 15.1	—
Titizima	31.8	354	5 7	-74	9 33	PcP	—	—
Melbourne	33.3	182	e 7 32	PP	11 52	- 3	15.1	20.2
Isigakizima	36.1	325	6 46	-13	12 25	-13	—	—
Tahoku	38.2	323	e 6 25	-52	—	—	—	—
Miyazaki	39.1	340	6 49	-35	13 3	-19	—	—
Siomisaki	39.2	347	7 9	-16	13 26	+ 2	—	—
Batavia	39.5	269	i 7 28	0	—	—	19.2	—
Perth	39.7	224	—	—	13 12?	-20	20.9	—
Koti	40.0	345	7 32	0	13 29	- 7	e 20.1	—
Misima	40.2	351	7 34	0	13 34	- 5	—	—
Sumoto	40.3	347	7 28	- 7	13 31	-10	e 16.6	16.6
Nagasaki	40.4	340	7 37	+ 2	13 42	0	—	—
Osaka	40.5	347	7 28	- 8	—	—	13.5	16.6
Tyosi	40.5	355	e 7 38	+ 2	e 13 39	- 5	—	—
Nagoya	40.6	349	e 7 35	- 2	e 13 47	+ 2	e 18.2	—
Kobe	40.6	347	e 7 40	+ 3	13 41	- 4	16.7	17.3
Tokyo	40.6	353	7 48	+11	13 45	0	—	—
Kumagaya	41.2	352	7 41	- 1	13 53	- 1	—	—
Hong Kong	41.4	312	7 42	- 2	13 54	- 3	18.3	18.4
Toyooka	41.5	347	e 8 2	+18	17 14	SS	—	—
Oiwake	41.5	351	7 45	+ 1	13 57	- 2	—	—
Nagano	41.8	351	7 49	+ 2	14 7	+ 4	—	—
Hukusima	42.6	355	7 53	0	14 19	+ 4	—	—
Zi-ka-wel	42.9	329	7 54	- 2	13 34	-45	17.8	21.8
Mizusawa	43.9	356	8 6	+ 2	14 38	+ 4	18.0	—
Morioka	44.5	356	8 12	+ 3	14 43	0	—	—
Wellington	44.7	149	—	—	14 55	+ 9	20.2	24.2
Christchurch	45.4	153	—	—	14 15	-41	19.8	31.6
Phu-Lien	46.6	306	e 8 25	0	e 14 53	-20	21.2	—

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Medan	48.4	280	i 10 46	PP	i 17 44	SS	—	—
Vladivostok	49.3	347	8 46	0	i 15 52	+ 1	—	—
Honolulu T.H.	60.3	62	—	—	e 15 32	? 1	25.2	—
Irkutsk	67.0	334	e 10 49	- 3	19 41	- 4	31.2	34.9
Colombo	67.5	280	11 1	+ 6	19 41	-10	33.0	40.8
Kodaikanal	70.3	284	e 20 18	S	(e 20 18)	- 7	e 43.7	46.4
Agra	73.1	301	e 10 52	-37	20 12	-46	e 36.1	—
Dehra Dun	73.9	305	10 32	-62	15 12	PP	19.7	21.2
Bombay	76.1	291	11 50	+ 3	21 38	+ 5	40.2	50.0
Almata	78.4	317	12 58	+59	—	—	—	—
Andijan	81.1	313	e 12 16	+ 2	e 22 27	0	—	—
Tashkent	83.4	313	i 12 26	+ 1	e 22 24	-27	37.6	47.1
Samarkand	84.8	312	12 34	+ 2	22 58	- 8	—	—
Sitka	87.3	32	—	—	i 23 28	- 2	e 36.3	—
Ekaterinburg	91.5	328	13 5	+ 1	i 23 56	-14	37.2	51.0
Victoria	E. 93.5	42	13 21	+ 7	24 1	{- 2}	43.0	55.6
	N. 93.5	42	13 30	+16	24 26	- 2	38.6	55.9
Tananarive	97.0	250	—	—	24 19	[+ 8]	39.7	53.5
Baku	97.9	311	—	—	24 12	[- 4]	42.8	49.3
Tucson	103.1	58	—	—	e 42 36	? 1	46.4	—
Pulkovo	106.8	333	e 15 28	+73	24 53	[- 5]	49.2	58.7
Theodosia	108.1	317	e 18 58	PP	e 25 7	[+ 3]	58.2	—
Helsingfors	109.1	333	e 19 37	? 1	28 7	PS	e 50.2	—
Ksara	N. 109.6	305	—	—	25 18	[+ 7]	34.2	—
Upsala	112.5	335	—	—	e 30 7	? 1	e 52.2	57.7
Scoresby Sund	113.6	355	—	—	27 12?	{+40}	51.2	—
Lund	116.7	334	—	—	27 12?	{+18}	57.2	—
Copenhagen	117.1	334	21 6	? 1	—	—	57.2	—
Budapest	117.8	322	e 18 12?	[-28]	—	—	e 57.2	73.7
Belgrade	118.1	320	—	—	e 27 53	{+49}	e 57.0	—
Florissant	Z. 118.3	47	i 20 7	PP	i 29 12	PS	—	69.2
Potsdam	118.7	330	i 20 5	PP	e 27 12?	{+ 4}	e 54.1	60.2
Chicago	119.2	43	—	—	e 29 54	PS	e 53.2	—
Hamburg	119.5	332	e 20 43	PP	e 30 12	PS	e 49.2	61.0
Graz	120.2	324	e 21 27	? 1	—	—	57.2	62.5
Cheb	120.3	328	e 21 42	? 1	e 30 38	PS	e 52.2	62.8
Göttingen	120.7	330	e 21 12?	? 1	—	—	e 54.2	61.2
Ann Arbor	N. 121.6	41	e 21 30	? 1	e 30 30	PS	e 64.3	—
Dyce	121.8	340	14 41	? 1	e 36 45	SS	e 52.2	64.4
De Bilt	122.7	333	e 19 12	[+20]	e 27 21	[-14]	e 54.2	62.9
Stuttgart	122.8	329	e 20 32	PP	e 27 23	{-13}	e 55.2	63.6
Edinburgh	123.2	340	—	—	e 35 12?	? 1	51.2	74.2
Durham	123.5	338	21 35	? 1	—	—	59.2	67.4
Strasbourg	123.7	328	e 19 12?	[+18]	(37 12)	SS	37.2	—
Toronto	N. 123.8	38	e 20 57	PP	—	—	51.2	—
Chur	123.8	325	e 18 59	[+ 5]	—	—	—	—
Uccle	123.9	332	e 20 42	PP	e 37 12?	SS	e 51.2	—
Zurich	124.0	325	(e 19 12?)	[+17]	—	—	e 19.2	—
Florence	124.4	322	20 48	PP	28 21	{+36}	49.2	59.2
Rocca di Papa	124.5	320	e 19 13	[+17]	e 31 54	? 1	1.64.6	67.2
Stonyhurst	124.5	337	—	—	26 2	[- 2]	57.2	63.7
Placenza	124.7	324	21 0	PP	30 44	PS	—	63.9
Catania	124.8	314	e 18 58	[+ 1]	—	—	e 62.9	—
Ottawa	125.0	35	e 20 48	PP	i 38 12	? 1	e 51.2	—
Kew	125.5	335	e 21 12?	PP	—	—	e 55.2	64.4
Oxford	125.7	336	e 21 31	PP	i 38 10	SS	58.2	67.1
Paris	126.1	332	e 20 55	PP	—	—	49.2	62.2
Charlottesville	127.1	43	—	—	e 33 12	? 1	e 52.4	—
Georgetown	127.7	41	e 19 12	+10	e 31 6	PS	e 56.2	—
Tortosa	N. 132.6	325	e 22 48	PKS	—	—	e 56.2	68.7
Algiers	133.5	320	e 19 16	+ 3	33 37	? 1	68.2	78.2
La Plata	134.4	151	47 36	? 1	—	—	69.6	—

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	Δ	Az.	P.	O-C.	S.	O-C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Alicante	134.8	324	—	—	e 28 11	{-41}	e 64.4	—
Toledo	135.8	327	e 23 20	PKS	—	—	e 55.1	70.9
Almeria	136.9	323	e 19 24	[+ 6]	—	—	—	86.0
Granada	137.4	324	e 20 48	?	—	—	e 62.2	75.2
Malaga	138.2	324	e 22 25	PP	—	—	—	—
La Paz	139.8	122	i 19 35	[+14]	26 46	?	71.5	79.4
Sucre	140.9	128	e 19 39	[+16]	—	—	—	—
Río de Janeiro	151.1	161	e 20 12	PKKP (e 43 12)	—	SS	e 43.2	—

Additional readings and notes :-

Amboina readings have been *diminished* by 2m.

Riverview ISN = +11m.22s., ISS = +13m.3s.; T_s = 21h.20m.44s.

Adelaide i = +13m.20s.

Batavia i = +9m.12s.

Kotl SSSE = +16m.31s.

Perth PP = +9m.12s. ?

Kobe PPE = +8m.38s.

Toyooka iE = +13m.56s. = S - 3s., iN = +14m.8s., eSZ = +17m.56s. = S_cS + 5s.

Wellington e = +12m.12s.

Christchurch i = +15m.18s.

Medan iE = +11m.32s., iN = +11m.41s.

Honolulu T.H. ISS = +18m.34s. = S + 14s.

Agra eN = +11m.32s. = P + 3s.

Tashkent PP = +15m.43s., e = +27m.24s.

Ekaterinburg SKS = +23m.35s., iPS = +25m.10s., SS = +30m.6s.

Tananarive eE = +18m.54s. and +25m.4s. = S + 4s., P_cS = +27m.15s., E = +32m.10s.

Baku e = +16m.5s., PP = +17m.29s., PS = +26m.13s., SS = +31m.48s.

Tucson ePP = +18m.36s.

Pulkovo PP = +18m.53s., PS = +27m.57s., SS = +34m.0s.

Helsingfors iE = +19m.42s.

Scoresby Sund +35m.18s. = SS + 11s.

Belgrade e = +23m.22s. and +32m.18s.

Potsdam eEN = +36m.24s.

Chicago eS = +28m.12s., eSS = +36m.22s.

Cheb ePP = +24m.13s., eSS? = +36m.56s.

Ann Arbor eE = +31m.54s., e?N = +32m.36s., eN = +36m.18s., e = +37m.12s.

De Bilt iZ = +21m.8s. and +25m.55s. = SKS - 3., eEN = +50m.48s.

Stuttgart eE = +23m.38s., eEN = +36m.57s. = SS - 12s.

Toronto iN = +29m.44s. and +37m.28s. = SS + 7s.

Ottawa e = +32m.12s.

Kew ePPZ = +23m.42s. = PPP + 20s., eSSEN = +37m.54s.

Oxford i = +25m.10s. = PPPP - 1s. + 40m.55s., and +49m.24s.

Georgetown iP = +21m.10s. = PP + 8s., ePP = +24m.36s., ePS = +32m.42s., ISS = +37m.33s.

Algiers PP = +22m.48s. = PKS + 0s.

Almeria PP = +22m.13s.

La Paz iPP = +23m.15s. = PKS + 7s., PS? = +32m.12s.

Long waves were also recorded at Berkeley, Ivigtut, Königsberg, Vienna, Zagreb, and Dakar.

Sept. 30d. Readings also at 2h. (Andijan and Samarkand), 4h. (La Paz), 8h. (near Taihoku), 10h. (La Paz and Messina), 12h. (near Samarkand), 13h. (near Almeria), 17h. (Stuttgart), 19h. (Simferopol, Yalta, near Theodosia, and near Tananarive), 20h. (near Florissant and St. Louis), 21h. (Ootomari), 22h. (La Paz), 23h. (Kodaikanal, La Plata, Tananarive, and Tyosi).