The International Seismological Summary.
1931 January, February, March.

FORMERLY THE BULLETIN OF THE BRITISH ASSOCIATION SEISMOLOGY COMMITTEE.

The present quarter deals with 151 epicentres, 55 being new and 96 repetitions of old epicentres.

Cases of abnormal focus are as follows :—

Date, 1931.	d.	h.	m.	s.	Epicentre.		Focal Depth. (Below Normal).
Jan.	9	1	45	43	39·8N.	140·5E.	+0·020
Jan.	10	16	7	54	39·9N.	140·9E.	+0·010
Jan.	20	9	27	30	37·0N.	72·0E.	+0·030
Feb.	20	5	33	26	44·9N.	135·8E.	+0·045
Mar.	1	14	23	7	46·7N.	142·0E.	+0·050
Mar.	2	2	18	36	21·5S.	172·5E.	+0·020
Mar.	28	12	38	45	7·0S.	129·5E.	+0·013
Mar.	29	17	51	54	42·6N.	144·2E.	+0·010

Observers are most earnestly requested to send their readings as soon as possible (either in MS or print) to the

University Observatory,
OXFORD.

UNIVERSITY OBSERVATORY,
OXFORD.

1935 August 15.

1931 JANUARY, FEBRUARY, MARCH.

Jan. 1d. 23h. 52m. 26s. Epicentre 23°·3N. 122°·0E. (as on 1922 Oct. 27d.). R.2.

A = −·487, B = +·779, C = +·396; D = +·848, E = +·530; G = −·209, H = +·335, K = −·918.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Karenko		0·8	332	−0 1	−12	0 12	− 9	—	—
Taityu		1·5	305	0 32	+11	0 52	+13	—	—
Tainan		1·7	260	0 50	+26	1 18	+34	—	—
Taihoku	Z.	1·8	345	i 0 26	0	0 48	+ 2	—	1·8
Isigakizima		2·2	62	0 29	− 2	0 46	−11	—	—
Hokoto		2·3	276	0 54	+21	1 11	+12	—	—
Hong Kong		7·3	264	1 55	+11	3 31	S*	4·2	5·2
Zi-ka-wei		7·9	356	1 48	− 4	3 28	+ 7	i 4·1	—
Manila		8·8	186	i 2 19	+14	i 4 23	S*	i 6·2	—
Kagosima		11·2	41	2 37	0	4 46	+ 3	—	—
Nagasaki		11·7	34	2 42	− 2	5 6	+11	—	—
Miyazaki		12·0	42	2 48	0	4 59	− 4	—	—
Kumamoto		12·2	37	2 52	+ 1	5 9	+ 1	—	—
Hukuoka		12·6	34	i 2 55	− 1	e 5 37	+20	—	7·4
Koti		14·4	42	3 24	+ 3	6 13	+12	7·0	—
Phu-Lien		14·5	263	3 34	+12	6 34?	+31	7·1	—
Sumoto		15·7	43	3 41	+ 3	7 3	+32	9·3	9·7
Kobe		16·1	42	e 3 38	− 5	7 15	+34	e 9·4	9·9
Osaka		16·3	43	2 44	−61	5 51	−54	7·5	12·1
Hikone		17·2	43	4 5	+ 8	—	—	—	—
Chiufeng		17·5	345	i 4 48	+48	8 42	+89	—	—
Gihu		17·6	43	4 2	0	7 20	+ 5	—	—
Oiwaka		19·4	44	4 28	+ 5	—	—	—	—
Kumagaya		19·7	45	4 43	+17	8 1	+ 1	—	—
Palau		20·0	141	4 35	+ 5	—	—	—	—
Hukusima		21·4	43	4 48	+ 4	8 20	−14	—	—
Vladivostok		21·4	20	4 41	− 3	i 8 35	+ 1	11·0	13·4
Mizusawa		22·6	41	4 52	− 5	8 52	− 5	—	—
Morioka		23·0	40	5 9	+ 8	8 56	− 9	—	—
Calcutta		31·0	275	6 23	+ 9	—	—	13·8	—
Irkutsk		32·0	341	6 20	− 3	11 25	−10	16·6	20·5
Batavia		33·0	210	e 6 30	− 2	i 11 33	−18	—	—
Dehra Dun		39·6	291	8 4	+35	18 4	?	25·9	27·6
Agra	N.	39·8	288	6 43	−47	10 21	?	—	24·6
Hyderabad		41·1	272	7 43	+ 2	14 33	+40	22·4	30·1
Almata		41·9	311	e 7 55	+ 7	—	—	—	—
Colombo		43·7	256	8 8	+ 6	—	—	—	27·0
Andijan		44·8	307	e 8 16	+ 5	—	—	—	—
Bombay		45·9	275	8 31	+11	15 16	+13	23·5	27·5
Tashkent		47·3	308	i 8 36	+ 5	i 15 24	+ 1	e 22·6	30·4
Samarkand		48·9	306	8 50	+ 7	15 52	+ 7	20·1	—
Ekaterinburg		55·1	325	i 9 31	+ 1	e 17 9	− 2	27·9	35·2
Pulkovo		70·9	329	10 54	−22	e 20 0	−32	38·6	44·8
Helsingfors	N.	73·3	330	—	—	e 21 5	+ 5	e 35·6	—
Upsala		76·9	331	—	—	e 21 54	+12	e 41·6	49·3
Königsberg		77·4	325	e 14 34?	PP	e 21 29	−18	e 43·8	49·0
Helwan		79·2	298	12 5	+ 1	22 4	− 3	—	54·6
Copenhagen		81·2	329	—	—	21 34?	−54	37·6	—
Potsdam		82·5	325	—	—	e 22 34?	− 8	e 48·6	52·6
Scoresby Sund		82·9	350	18 58	?	—	—	37·6	—
Zagreb		83·9	319	e 12 34?	+ 6	e 22 49	− 7	e 48·6	52·6
Cheb		84·0	323	—	—	e 22 34?	−24	e 43·6	54·6
Feldberg		86·0	325	—	—	e 23 16	− 2	e 41·8	48·2
Stuttgart		86·4	323	i 12 41	+ 1	—	—	e 49·6	56·2
De Bilt		86·7	326	—	—	e 23 24	0	e 42·6	55·2

Continued on next page.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Strasbourg	87·4	322	e 12 54	+ 9	e 23 34?	+ 3	e 47·6	—
Uccle	87·8	325	—	—	e 23 22	−13	e 41·6	55·4
Florence	87·8	318	e 21 58	S	(e 21 58)	?	46·6	52·6
Paris	90·0	324	—	—	e 25 34?	?	48·6	58·6
Toronto	110·2	15	—	—	e 28 19	PS	59·1	—
Buffalo	111·0	15	—	—	i 29 58	?	e 63·6	—

Additional readings: Mizusawa PN = +4m.58s. Batavia i = +10m.39s. Agra ePE = +5m.22s. Helsingfors ePSN = +21m.32s., ePSE = +21m.39s. Königsberg eEN = +18m.4s. and +27m.29s., eN = +32m.59s. and +39m.19s. Potsdam eZ = +32m.34s.? Zagreb eNE = +21m.49s. Feldberg e = +29m.22s. and +33m.54s. Stuttgart eN = +45m.49s. and +46m.59s., eE = +48m.9s. Strasbourg eP = +10m.26s. Long waves were also recorded at Kodaikanal, Harvard, Ottawa, San Juan, and several European stations.

Jan. 1d. Readings also at 2h. (near Tyosi), 4h. (Graz and near Vienna), 5h. (Tyosi), 6h. (near La Paz), 7h. (Tyosi), 8h. (La Paz (2)), 16h. (near Amboina), 18h. (near Manila), 19h. (Tyosi and near Amboina), 22h. (near Manila), 23h. (near Nagasaki).

Jan. 2d. 9h. 49m. 9s. Epicentre 19°·2N. 107°·0W. N.1.

Probable error of epicentre ±0°·22.

A = −·276, B = −·903, C = +·329; D = −·956, E = +·292; G = −·096, H = −·314, K = −·944.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tucson		13·5	346	i 3 12	+ 3	e 5 51	+12	7·1	—
Riverside		17·4	330	i 4 0	+ 1	—	—	—	—
Mount Wilson		17·9	329	i 4 6	+ 1	—	—	—	—
Pasadena		17·9	328	i 4 6	+ 1	e 7 34	+12	e 8·6	10·5
Santa Barbara	N.	19·0	326	i 4 20	+ 1	—	—	—	—
Haiwee		19·5	332	e 4 23	− 1	e 8 25	+29	—	—
Denver		20·6	4	e 4 29	− 7	e 8 21	+ 3	—	10·8
Lick		22·2	328	4 53	0	9 15	+25	e 12·8	—
Berkeley	E.	22·9	328	i 4 59	− 1	i 9 43	+40	i 11·3	13·1
	N.	22·9	328	e 4 59	− 1	i 9 30	+27	i 11·2	13·3
St. Louis		24·2	33	i 5 13	+ 1	i 9 35	+ 8	e 11·7	12·9
Florissant		24·3	33	i 5 13	0	e 9 36	+ 8	e 12·5	13·1
Chicago		27·9	32	e 5 45	− 1	i 10 33	+ 3	e 13·8	—
Balboa Heights		28·5	107	7 39	?	11 51	SS	—	—
Ann Arbor		30·3	35	e 6 15	+ 7	i 11 9	0	i 14·6	17·2
Victoria	E.	32·0	340	6 13	−10	11 43	+ 8	15·1	21·3
	N.	32·0	340	6 16	− 7	11 40	+ 5	—	—
Georgetown	Z.	32·5	47	6 27	0	11 39	− 4	17·8	—
Port au Prince		32·8	86	e 6 32	+ 2	e 11 51	+ 3	e 16·5	—
Saskatoon		32·9	0	6 36	+ 5	11 56	+ 7	15·8	—
Buffalo		33·6	40	i 6 36	− 1	e 12 51	+51	e 15·8	—
Toronto		33·6	38	i 6 39	+ 2	i 12 6	+ 6	e 16·5	24·1
Fordham		35·6	45	e 6 54	0	i 12 38	+ 8	i 17·6	—
Ottawa		36·8	38	e 7 6	+ 1	i 12 58	+10	e 16·8	24·8
Harvard		38·1	44	i 7 14	− 2	i 13 13	+ 5	e 19·8	—
San Juan		38·6	84	i 7 17	− 3	13 27	+12	19·1	—
Sitka		43·3	339	i 8 0	+ 1	i 14 35	+10	i 21·5	—
Honolulu T.H.		47·5	283	8 30	− 2	e 15 21	− 5	e 21·4	—
La Paz		52·3	131	i 9 7	− 2	i 16 34	+ 1	22·8	27·7
Scoresby Sund		70·3	21	11 15	+ 2	20 26	+ 1	30·8	—
La Plata		71·4	140	11 9	−10	20 33	− 5	36·8	—
Bidston		82·6	35	e 12 18	− 3	i 22 43	0	e 33·9	46·4
Stonyhurst		82·8	36	e 12 24	+ 2	i 22 46	+ 1	—	—
Bergen		84·2	27	—	—	e 21 53	?	43·1	48·2
Oxford		84·3	37	—	—	i 23 7	+ 6	e 35·8	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Kew		84·9	37	i 12 35	+ 2	i 23 12	+ 5	37·6	43·1
San Fernando		87·0	52	23 6	SKS	(23 6)	[− 7]	45·8	62·2
Toledo		87·2	48	12 47	+ 3	i 23 38	+ 9	e 40·5	—
De Bilt		87·6	35	—	—	e 23 20	−13	e 40·9	54·8
Paris		87·7	39	e 15 51?	PP	e 23 39	+ 5	40·8	44·8
Uccle		87·8	36	e 12 50	+ 3	i 23 36	+ 1	35·8	44·5
Malaga		88·1	51	—	—	e 23 23	−15	—	—
Granada		88·6	51	i 13 4	+13	(23 43)	0	e 37·2	49·8
Upsala		89·1	24	—	—	i 23 50	+ 3	e 39·8	53·7
Copenhagen		89·4	29	12 51	− 4	23 57	+ 7	—	—
Hamburg		89·4	31	e 12 51?	− 4	e 23 51?	+ 1	e 47·8	52·8
Almeria		89·6	50	12 38	−18	23 41	−11	e 40·1	44·2
Lund		89·8	29	12 51?	− 5	23 57	+ 3	—	—
Tortosa	N.	90·0	46	—	—	23 34	[+ 1]	e 36·8	57·8
Alicante		90·4	49	—	—	e 26 16	?	e 45·8	—
Feldberg		90·4	36	—	—	e 23 33	[− 2]	—	54·9
Göttingen		90·5	34	—	—	e 23 51?	−10	e 43·1	53·2
Strasbourg		90·9	37	e 13 2	0	i 25 22	PS	40·8	—
Neuchatel	N.	91·2	40	e 13 2	− 1	—	—	—	—
Potsdam		91·6	31	—	—	e 24 51?	+40	e 38·8	42·8
Stuttgart		91·6	36	e 13 6	+ 1	i 24 15	+ 4	e 40·8	—
Helsingfors	N.	91·7	21	—	—	e 23 39	[− 4]	e 36·8	—
Jena		91·7	34	e 13 33	+28	—	—	e 36·8	56·0
Cheb		92·6	34	e 14 5	+56	e 25 7	PS	e 37·8	52·2
Algiers		93·6	49	—	—	24 27	− 2	40·8	47·8
Königsberg		93·6	27	—	—	i 23 41	[−12]	e 40·2	52·8
Piacenza		93·8	40	13 27	+12	—	—	44·1	63·4
Pulkovo		93·8	20	e 12 36	−39	e 23 13	[−41]	36·8	50·6
Wellington		94·2	228	e 13 11	− 6	23 52	[− 4]	42·4	47·8
Treviso		94·9	39	13 25	+ 5	23 53	[− 7]	41·9	46·9
Venice		95·2	38	e 13 21	0	23 45	[−17]	—	—
Florence		95·4	39	16 28	?	23 51?	[−12]	30·7	52·2
Graz		96·0	35	e 13 26	+ 1	e 26 6	PS	e 47·8	58·6
Christchurch		96·4	227	—	—	26 2	PS	48·7	—
Zagreb		97·0	37	—	—	e 23 51	[−20]	e 43·8	47·8
Vladivostok		97·5	322	17 13	PP	24 10	[− 4]	40·8	44·1
Budapest		97·6	34	e 17 51?	PP	—	—	43·8	55·8
Kucino		99·4	20	—	—	24 39	[+16]	47·2	60·4
Taranto		101·0	41	13 29	−19	24 14	[−17]	45·8	63·4
Catania		101·4	44	e 16 18	?	e 26 59	+80	—	62·2
Ekaterinburg		103·2	8	17 36	PP	i 25 43	−12	41·8	57·2
Irkutsk		103·5	341	e 13 58	− 2	27 27	PS	49·8	60·1
Miyazaki		104·2	312	18 9	PP	28 9	?	—	—
Chiufeng	Z.	108·4	328	18 55	PP	—	—	—	—
Riverview		110·1	241	e 19 31	PP	i 28 38	PS	49·8	56·8
Sydney		110·1	241	i 28 9	PS	—	—	57·6	59·3
Melbourne		115·6	237	19 42	PP	e 25 6	[−30]	52·8	58·4
Ksara	N.	116·2	34	e 19 25	PP	—	—	e 49·8	75·8
Almata		117·4	357	e 29 51?	PS	—	—	—	—
Tashkent		119·4	3	18 47	[+ 3]	27 3	{− 9}	52·8	74·9
Andijan		120·0	1	e 19 58	PP	—	—	56·8	—
Adelaide		120·5	241	—	—	i 21 18	?	53·0	65·6
Samarkand		120·9	5	e 19 21	[+33]	—	—	55·3	—
Manila		121·9	304	i 15 7	−11	25 41	[−15]	—	—
Hong Kong		122·2	315	20 21	PP	30 21	PS	48·7	60·8
Dehra Dun		130·2	355	22 21	PKS	25 51	[−29]	30·3	—
Agra	N.	133·3	355	21 28	PP	—	—	—	—
Bombay		141·8	0	19 27	[+ 3]	32 4	SKSP	63·8	89·2
Hyderabad		142·9	351	19 21	[− 6]	—	—	65·8	89·2
Batavia		144·6	288	i 19 1	[−32]	—	—	—	—
Medan		145·9	310	20 57	[+81]	—	—	70·8	—
Kodaikanal		150·3	351	42 33	SS	—	—	83·9	88·3
Colombo		153·0	345	19 59	[+13]	—	—	67·1	96·9
Tananarive		155·9	93	—	—	e 27 54	?	—	98·8

For Notes see next page.

Additional readings and notes :

Tucson iS = +5m.59s.
Haiwee iE = +4m.27s., +4m.30s., and +4m.43s.
Denver iPPN = +4m.59s., iSE = +8m.26s.
Lick eN = +5m.11s., eEN = +11m.27s.
Berkeley eEN = +5m.3s., PPN = +5m.37s., iPPE = +5m.40s., iN = +6m.50s.
St. Louis iPPN = +5m.48s., iPPP = +6m.0s., iSS = +10m.44s.
Florissant iPPEZ = +5m.52s., iSEN = +9m.44s.
Chicago ePP = +6m.42s., SS = +12m.3s., e = +12m.39s.
Balboa Heights SS = +12m.21s.
Ann Arbor ePP = +7m.9s., eSE = +11m.21s., eE = +12m.33s. =SS −4s., e = +13m.15s.
Georgetown PPZ = +7m.21s.
Port au Prince iNW = +6m.59s., PP = +7m.35s.
Toronto PPE = +8m.1s. ; T_0 =9h.48m.40s.
Fordham iPP = +8m.12s., iSS = +15m.8s.
Ottawa iPPP = +8m.37s., eSS? = +15m.21s., eSSSN = +15m.46s.
Harvard iPPP = +8m.44s. =PP +5s.
San Juan iP = +7m.21s.
Sitka iPP = +9m.39s., iSS = +17m.35s.
Honolulu T.H. iS = +15m.31s., iSSS = +19m.51s.
La Paz PPE = +10m.34s.
Scoresby Sund +21m.15s., +24m.27s. =SS −20s.
Bidston PP = +15m.36s., e = +18m.1s. =PPPP −25s.
Kew SKS = +23m.1s., SS = +28m.45s.
San Fernando S = +33m.36s.
Toledo SKS = +23m.13s.
De Bilt eSS = +29m.17s.
Granada i = +18m.42s. and +24m.50s. =PS +15s., S is given as PS.
Copenhagen PP = +17m.9s., SKS = +23m.27s.
Hamburg e = +26m.51s.? eE = +38m.51s.?
Almeria i = +13m.47s., PP = +17m.5s.
Lund +16m.51s. =PP +27s., +24m.58s. =PS +9s.
Feldberg e = +25m.9s. =PS +13s., +29m.59s. =SS +13s.
Göttingen eEN = +39m.33s.
Strasbourg PKP = +16m.38s. =PP +5s., i = +18m.53s. =PPP +30s., PS = +25m.54s.
Neuchatel ePP = +16m.39s.
Potsdam eZ = +16m.21s. =PP −17s., +17m.9s., +17m.51s.?, and +19m.39s. = PPPP −19s., eEN = +20m.51s.?, iEN = +25m.22s. =PS+12s. and +26m.3s.
Stuttgart eEZ = +17m.51s., eSKSEN = +23m.36s., ePS = +25m.21s., eSSEN = +30m.11s., eSSSEN = +33m.51s.?
Helsingfors eEN = +23m.54s. =S −18s., eN = +24m.13s., ePSN = +24m.44s., ePSE = +24m.48s., ePPSN = +25m.46s., eEN = +26m.10s., eSSEN = +30m.10s.
Jena eN = +15m.12s., +21m.32s., and +25m.18s. =PS +7s., eE = +25m.21s.
Algiers PS = +25m.43s.
Königsberg ePPEN? = +17m.31s., iPPP?N = +19m.31s., ePSN = +25m.36s., iN = +26m.21s., ePPSEN = +26m.46s., eEN = +28m.6s., eN = +28m.56s., +29m.33s., +31m.36s., and +33m.57s., eEN = +38m.11s.
Pulkovo iPP = +16m.4s., PPS = +25m.39s., SS = +29m.39s.
Wellington PP = +16m.30s.
Christchurch e = +17m.8s. =PP −7s. and +24m.8s. =SKS +0s.
Vladivostok PP = +17m.52s., PPS = +27m.5s., SS = +31m.39s.
Kucino PP = +17m.9s., SS = +30m.51s.
Ekaterinburg PP = +18m.15s., SKS = +24m.37s., PS = +27m.25s.
Irkutsk PP = +18m.18s., SS = +32m.45s., SSS = +37m.51s.
Riverview i? = +34m.33s. =SS +13s.
Melbourne i = +29m.16s. =PS −6s., e = +35m.51s. =SS +17s.
Ksara PN = +22m.52s., PPN = +24m.50s., PPPN = +27m.56s., PPPPN = +29m.6s., eN = +37m.29s.
Tashkent PP = +20m.13s.
Adelaide i = +30m.9s. =PS +2s., and +35m.51s.
Manila iPSEN = +30m.8s., iPPSEN = +31m.14s.
Hong Kong SS = +37m.12s.
Agra ePE = +21m.35s.
Bombay SEN = +63m.47s.
Batavia i = +19m.5s., +20m.14s., and +28m.29s.
Medan i = +22m.27s. =PP −30s.
Tananarive N = +60m.45s., E = +65m.33s.
Long waves were also recorded at Perth, Phu-Lien, Koti, Kobe, Sumoto, Sebastopol, Simferopol, Theodosia, Yalta, and other European stations.

Jan. 2d. 11h. 12m. 6s. Epicentre 19°·2N. 107°·0W. (as at 9h.). X.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Riverside		17·4	330	e 4 6	+ 7	—	—	—	—
Mount Wilson		17·9	329	e 4 2	− 3	—	—	—	—
Pasadena		17·9	328	e 3 54	−11	—	—	—	—
Haiwee	E.	19·5	332	e 4 27	+ 3	—	—	—	—
St. Louis		24·2	33	e 5 17	+ 5	i 9 46	+19	e 11·2	11·2
Florissant		24·3	33	e 5 13	0	i 9 44	+16	12·4	—
Balboa Heights		28·5	107	—	—	e 10 58	+18	—	—

Additional readings :—
Pasadena eE = +4m.5s.
St. Louis iP = +5m.20s.
Florissant iPEN = +5m.18s.
Long waves were also recorded at Ann Arbor, Harvard, Ottawa, and Toronto.

Jan. 2d. 11h. 29m. 23s. Epicentre 35°·0S. 72°·5W. (as on 1928 Dec. 8d.). X.

A = +·246, B = −·781, C = −·574.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Santiago		2·2	44	0 32	+ 1	0 59	+ 2	—	1·2
La Plata		12·0	94	2 48	0	5 7	+ 4	5·8	—
La Paz	N.	18·9	13	e 4 17	0	i 7 41	− 3	9·4	12·7

No additional readings.

Jan. 2d. Readings also at 5h. (La Paz), 11h. (Pasadena, Mount Wilson, Haiwee, Riverside, Florissant, St. Louis, Sumoto, Andijan, and Samarkand), 12h. (Sydney), 16h. (Samarkand and near Andijan), 18h. (Pasadena, Mount Wilson, Haiwee, Riverside, Phu-Lien, and near Manila), 19h. (Feldberg, Zagreb, Rome, Taranto, and Hong Kong), 20h. (Pasadena, Mount Wilson, and Riverside).

Jan. 3d. Readings at 5h. (Haiwee and Tinemaha), 6h. (Tyosi), 11h. (Berkeley), 12h. (La Paz), 17h. (near Nagasaki), 19h. (Irkutsk and Tashkent), 21h. (La Paz), 23h. (near Neuchatel).

Jan. 4d. 0h. 0m. 50s. Epicentre 38°·0N. 23°·2E. (as on 1928 July 20d.). R.1.

Probable error ±0°·28.

A = +·724, B = +·310, C = +·616 ; D = +·394, E = −·919 ;
G = +·566, H = +·243, K = −·788.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Taranto		5·2	300	e 1 6	− 8	3 0	Sg	—	3·4
Trenta		5·5	285	i 1 25	+ 7	3 5	S_g	—	—
Messina		6·0	274	1 30	+ 5	—	—	—	—
Catania		6·4	268	e 1 34	+ 3	3 1	S*	—	5·6
Mostar		6·6	324	i 1 17	−17	e 3 2	+14	—	3·6
Mineo		6·7	266	1 28	− 7	2 30	−21	—	—
Sarajevo		6·8	330	e 1 31	− 6	3 38	S_g	—	3·9
Belgrade		7·1	344	e 1 40	− 1	e 3 20	S*	—	4·0
Naples	E.	7·4	295	e 1 41	− 4	e 3 54	S_g	—	5·2
Casamicciolo		7·7	294	2 35	P_g	4 39	S_g	6·8	—
Casamari		8·3	299	1 52	− 6	—	—	—	—
Collurania		8·6	308	2 0	− 1	—	—	—	—
Rome		9·1	299	e 2 1	− 8	—	—	e 6·4	6·7
Camerino		9·1	307	1 43	−26	3 23	−28	—	—
Zagreb		9·4	328	2 4	− 9	i 4 37	S*	—	7·2

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Budapest		9·9	344	2 54	P*	5 32	S_g	6·2	7·0
Yalta		10·5	49	e 2 28	0	—	—	—	—
Simferopol		10·7	46	e 2 28	− 3	—	—	—	—
Graz		10·7	330	i 2 30	− 1	i 4 44	+13	5·2	6·8
Florence		10·7	306	2 44	+13	e 5 10?	S*	—	6·2
Prato		10·8	307	e 2 56	+24	5 44	S_g	8·2	10·2
Venice		10·9	316	e 2 36	+ 3	e 6 16	S_g	—	8·7
Ksara		11·1	108	2 34	− 2	5 11	+30	6·8	—
Treviso		11·2	316	e 2 31	− 6	i 6 16	L	(6·3)	6·7
Padova		11·2	315	e 2 48	+11	e 6 10	L	(e 6·2)	—
Vienna		11·3	336	e 2 39	0	5 43	+58	i 6·3	7·7
Theodosia		11·4	48	e 2 41	+ 1	—	—	e 11·2	—
Lemberg		11·8	3	e 2 52	+ 6	—	—	—	10·3
Piacenza		12·2	309	e 2 52	+ 1	5 50	+42	7·2	11·6
Pavia		12·6	309	e 3 11	+15	e 5 12	− 5	—	5·8
Innsbruck		12·7	321	3 4	+ 6	6 4	L	(6·1)	—
Chur		13·4	315	e 3 6	− 1	—	—	e 7·6	—
Ravensburg		13·9	319	e 3 10?	− 4	e 7 39	?	i 8·0	—
Zurich		14·2	316	e 3 24	+ 6	e 6 9	+13	—	—
Stuttgart		14·7	321	e 3 35	+10	—	—	i 8·2	10·1
Neuchatel		14·9	312	e 3 24	− 3	e 6 33	+20	—	—
Jena		15·2	331	e 3 40	+ 9	e 6 39	+19	e 7·7	9·7
Karlsruhe		15·3	321	3 32	0	6 30	+ 8	e 8·2	—
Strasbourg		15·4	319	e 2 10?	−84	i 8 40	L	(i 8·7)	—
Besançon		15·6	312	e 3 32	− 4	e 6 23	− 6	9·2	—
Potsdam		16·0	337	e 3 46	+ 5	i 6 44	+ 6	e 8·2	9·2
Feldberg		16·1	324	e 3 55	+12	e 7 40	+59	—	10·5
Göttingen		16·8	331	i 3 44	− 8	—	—	e 8·0	10·1
Königsberg	N.	16·9	355	e 3 51	− 2	e 7 1	+ 2	e 9·5	10·2
Hamburg		18·0	334	e 3 44	−23	e 8 10	+45	e 10·1	13·5
Uccle		18·4	320	e 4 19	+ 8	e 7 54	+21	9·2	10·5
Paris		18·4	313	e 4 10?	− 1	—	—	10·2	10·2
Lund		18·9	342	4 34	+17	—	—	10·2	—
Copenhagen		19·1	341	4 10?	−10	7 52	+ 4	10·2	—
Almeria		20·3	275	—	—	e 7 25	−47	12·1	13·9
Kucino		20·3	24	e 5 40	+67	e 9 40	+88	e 13·2	15·2
Baku		20·8	75	4 56	+18	8 36	+14	10·6	13·9
Kew		21·2	317	—	—	e 8 46	+16	i 10·3	12·0
Oxford		21·9	317	4 57	+ 7	8 46	+ 2	e 9·0	12·9
Helsingfors		22·1	2	e 4 51	− 1	e 8 49	+ 1	e 11·9	—
Upsala		22·1	353	e 4 53	+ 1	e 8 53	+ 5	e 11·2	13·1
Pulkovo		22·2	9	e 4 54	+ 1	8 54	+ 4	12·2	13·7
Bidston		23·7	319	i 5 20	+13	i 9 35	+17	e 12·5	14·7
Edinburgh		25·0	324	—	—	e 10 20	+39	—	—
Ekaterinburg		30·9	40	e 6 14	+ 1	11 15	− 3	14·2	19·2
Samarkand		33·8	73	e 6 40	+ 1	—	—	—	—
Scoresby Sund		40·0	339	—	—	16 10?	SS	23·2	—
Irkutsk		55·8	48	e 13 36	PP	e 17 10?	−10	32·2	36·6

Additional readings :—
Taranto (Wiechert) P = +1m.44s. = P_g, S = +2m.52s.
Mostar e = +1m.54s. = P* +3m.13s. = S* and +3m.29s.
Sarajevo P_g = +1m.52s.
Belgrade e = +1m.43s., +2m.13s., and +2m.58s.
Camerino eP = +1m.26s.
Zagreb e = +2m.14s. and +3m.49s. = S +0s.
Prato S = +6m.54s.
Vienna PPP? = +3m.16s., i = +3m.39s., +4m 13s , and +5m.17s.
Stuttgart eEN = +7m.30s., iZ = +7m.57s., and +9m.20s.
Königsberg eP_gPN = +8m.56s.
Irkutsk e = +21m.10s.? = SS +9s.
Long waves were also recorded at La Paz, Sebastopol, and many other European stations.

Jan. 4d. 4h. The following phases were recorded in connection with an Asiatic shock which does not give a precise determination :—
Phu-Lien 4h.46m.
Calcutta P =4h.47m.59s., L =50m.13s.
Bombay P =4h.49m.5s., S =53m.33s., L =56m.53s., M =58m.11s.
Andijan eP =4h.49m.19s.
Samarkand eP =4h.49m.48s.
Hong Kong P? =4h.50m.10s., S =51m.27s., L =51m.53s., M =52m.30s.
Agra ePN =4h.50m.37s., ePE =50m.59s., eSN =53m.25s.
Medan e? =4h.54m.48s., i =57m.54s., iS =59m.24s., i =5h.1m.6s.
Long waves were also recorded at Vladivostok, Irkutsk, Ekaterinburg, Pulkovo, Feldberg, and De Bilt.

Jan. 4d. 20h. 10m. 48s. Epicentre 32°·5N. 53°·0E. (as on 1928 Sept. 18d.). R.3.

A = +·508, B = +·674, C = +·537 ; D = +·799, E = −·602 ;
G = +·323, H = +·429, K = −·843.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Baku	8·3	343	e 2 2	+ 4	(i 3 26)	− 5	i 3·4	8·5
Samarkand	13·4	53	3 5	− 2	7 34	+117	—	—
Andijan	17·6	57	e 4 7	+ 5	—	—	e 9·0	—
Almata	21·7	54	e 4 12?	−36	—	—	—	—
Ekaterinburg	24·9	10	i 5 13	− 6	e 9 26	−13	12·2	—
Pulkovo	31·2	338	e 7 4	+48	(11 12?)	−11	11·2	—
Irkutsk	41·5	46	—	—	e 18 12?	?	24·2	25·4

Additional reading :—
Irkutsk e = +21m.12. ?

Jan. 4d. 23h. 56m. 23s. Epicentre 40°·0N. 20°·0E. (as on 1928 May 26d.). X.

A = +·720, B = +·262, C = +·643 ; D = +·342, E = −·940 ;
G = +·604, H = +·220, K = −·766.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Taranto	2·1	283	0 30	0	0 55	+ 1	—	1·0
Bari	2·6	297	0 32	− 5	1 7	0	1·3	—
Trenta	2·9	256	i 0 57	P_g	1 57	S_g	—	—
Messina	3·9	243	0 57	+ 1	—	—	—	—
Naples	4·5	283	e 0 50	−14	e 2 15	S*	—	—
Casamicciola	4·7	281	1 14	+ 7	2 13	S*	—	—
Belgrade	4·8	4	e 1 18	+10	e 2 26	S*	e 2·9	e 3·9
Collurania	5·5	301	1 18	0	—	—	—	—
Rome	5·9	291	e 1 24	0	i 1 41	P*	e 3·2	3·5
Zagreb	6·5	335	e 2 8	P_g	i 3 17	S*	—	i 4·0
Florence	7·5	303	—	—	3 37	S*	—	—

Additional reading :—
Zagreb e = +2m.54s.

Jan. 4d. Readings also at 0h. (near Matuyama and Sumoto), 1h. (La Paz), 4h. (Theodosia), 5h. (La Paz and Melbourne), 6h. (Baku, Ekaterinburg, Irkutsk, and Victoria), 7h. (near Kobe, Osaka, Nagoya, Sumoto, and Toyooka), 8h. (Tashkent Baku, and La Paz), 9h. (Andijan and Samarkand), 11h. (Ekaterinburg and La Paz), 12h. (Baku, Irkutsk, and Tashkent), 13h. (Messina), 15h. (Andijan and near Samarkand), 16h. (near Amboina), 17h. (Andijan), 18h. (Ekaterinburg and near Amboina), 19h. (La Paz), 20h. (Ksara), 23h. (Bombay, Calcutta, Phu-Lien, Hong Kong, Medan, Irkutsk, and Ekaterinburg).

Jan. 5d. 18h. 0m. 28s. Epicentre 1°·0S. 121°·0E. (as on 1925 Dec. 29d.). X.

A = −·515, B = +·857, C = −·017; D = +·857, E = +·515;
G = +·009, H = −·015, K = −1·000.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Manila	15·6	1	i 4 15	+39	i 6 58	+29	i 8·3	—
Perth	31·3	188	e 9 32	(+18)	—	—	—	—
Adelaide	37·7	156	e 10 52?	?	i 13 31	+29	13·8	14·2
Melbourne	42·9	151	i 11 7	?	14 19	0	21·1	—
Riverview	43·3	143	i 11 3	?	14 12	−13	16·0	18·5
Irkutsk	55·1	348	—	—	e 17 32?	+21	—	—
Samarkand	63·8	317	e 10 44	+13	—	—	—	—
Ekaterinburg	75·1	330	e 11 37	− 4	e 21 33	+12	38·5	—
Baku	76·4	315	—	—	e 21 57	PS	—	—

No additional readings.

Jan. 5d. Readings also at 0h. (near Taranto and Stuttgart), 3h. (Zagreb), 7h. (Messina), 8h. (near Tyosi), 9h. (near Berkeley and Lick), 10h. (Stuttgart), 13h. (Bombay, Phu-Lien, Ekaterinburg, and Irkutsk), 14h. (Samarkand), 19h. (Berkeley, Lick, Andijan, and Samarkand), 20h. (near Tyosi), 21h. (Sebastopol, Simferopol, Yalta, near Theodosia, and near Manila), 22h. (Trenta, near La Paz, and near Tyosi).

Jan. 6d. 3h. 22m. 49s. Epicentre 42°·4N. 142°·8E. N.2.
(Given in Geophy. Mag., Tokyo, Vol. IV, No. 4).

A = −·588, B = +·446, C = +·674; D = +·605, E = +·797;
G = −·537, H = +·408, K = −·738.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Urakawa		0·3	183	0 11	+ 7	0 24	+16	—	—
Obihiro		0·6	30	0 15	+ 6	0 26	+11	—	—
Kusiro		1·3	64	0 16	− 2	0 32	− 1	—	—
Sapporo		1·3	302	0 18	0	0 34	+ 1	—	—
Asahigawa		1·4	347	0 21	+ 1	0 37	+ 1	—	—
Muroran		1·4	267	0 23	+ 3	0 41	+ 5	—	—
Hakodate		1·7	248	0 27	+ 3	0 50	+ 6	—	—
Nemuro		2·2	65	0 30	− 1	0 53	− 4	—	—
Aomori		2·2	224	0 34	+ 3	1 2	+ 5	—	—
Morioka		3·0	205	0 43	0	1 17	0	—	—
Akita		3·4	218	0 50	+ 1	1 34	+ 7	—	—
Mizusawa		3·5	201	0 52	+ 2	1 35	+ 5	—	—
Isinomaki		4·1	195	0 57	− 1	1 43	− 2	—	—
Hukusima		5·0	201	1 5	− 6	2 3	− 5	—	—
Mito		6·3	197	1 28	− 2	2 36	− 5	—	—
Kakioka		6·5	199	1 30	− 2	2 40	− 6	—	—
Tukubasan		6·6	199	1 31	− 3	2 42	− 6	—	—
Wazima		6·8	224	1 41	+ 4	—	—	—	—
Tyosi		6·8	193	e 1 35	− 2	e 2 48	− 5	—	—
Nagano		6·8	213	1 38	+ 1	2 38	−15	—	—
Kumagaya		6·8	204	1 38	+ 1	2 54	+ 1	—	—
Oiwake		6·9	209	1 41	+ 3	3 5	+11	—	—
Tokyo		7·1	200	1 43	+ 2	2 59	− 2	—	—
Yokohama		7·4	200	1 48	+ 3	3 6	− 3	—	—
Mera		7·9	198	1 48	− 4	—	—	—	—
Misima		7·9	203	1 49	− 3	3 18	− 3	—	—
Nagoya		8·5	214	e 2 4	+ 4	—	—	—	—
Toyooka	E.	9·2	224	i 2 12	+ 2	e 3 59	+ 5	—	—
	N.	9·2	224	i 2 13	+ 3	e 3 53	− 1	—	—
Osaka		9·6	219	e 2 18	+ 2	(3 57)	− 6	3·9	5·2
Sumoto		10·2	220	e 2 48	+24	e 4 33	+15	—	—
Irkutsk		27·5	304	—	—	e 10 8	−16	16·2	—
Andijan		51·4	293	e 9 19	+17	—	—	—	—
Ekaterinburg		51·7	318	—	—	16 7	−17	24·2	—

Long waves were recorded at Baku.

Jan. 6d. 23h. 28m. 40s. Epicentre 36°·5N. 122°·0W. (as on 1926 Oct. 24d.). X.

A = −·426, B = −·682, C = +·595; D = −·848, E = +·530;
G = −·315, H = −·504, K = −·804.

		△	Az.	P.	O−C.	S.	O−C.
		°	°	m. s.	s.	m. s.	s.
Berkeley	E.	1·4	352	i 0 30	+10	i 0 58	+22
	N.	1·4	352	i 0 26	+ 6	i 1 0	+24
	Z.	1·4	352	i 0 26	+ 6	i 0 55	+19
Santa Barbara	N.	2·7	138	i 0 46	+ 7	i 1 28	S_g
Tinemaha		3·0	81	e 0 41	− 2	i 1 15	− 2
Haiwee		3·2	96	e 0 43	− 3	e 1 18	− 4
Pasadena		4·0	125	e 0 54	− 3	i 1 43	+ 1
Riverside		4·5	122	e 1 5	+ 1	—	—

Berkeley gives also iZ = +38s., iEN = +44s., iZ = +46s., iN = +1m.5s., eE = +1m.40s.

Jan. 6d. Readings also at 0h. (near Neuchatel), 3h. (Nagoya, near Mizusawa, and Tyosi), 11h. (Samarkand and Tyosi), 12h. (near Manila and near Theodosia), 22h. and 23h. (near Manila).

Jan. 7d. 2h. The following are the readings for an Asiatic earthquake not sufficiently well recorded to admit of determination. De Bilt suggests a repetition of the shock at 4d. 4h.
Manila iP = 2h.2m.16s., iSEN = 6m.36s., iL = 9m.10s., M = 11m.30s.
Medan eP = 2h.2m.24s., S = 9m.0s., i = 9m.12s.
Calcutta P = 2h.2m.44s., L = 4m.29s.
Hyderabad PE = 2h.3m.9s., S = 6m.53s., L = 8m.42s., M = 12m.24s.
Andijan eP = 2h.4m.21s.
Samarkand eP = 2h.4m.45s.
Hong Kong P? = 2h.4m.50s., S = 6m.4s., L = 6m.23s., M = 6m.39s.
Agra PE = 2h.5m.4s., SE = 7m.37s.
Dehra Dun P = 2h.6m.0s., S = 14m.40s., L = 23m.20s.
Tashkent e = 2h.6m.12s., eS = 8m.25s., e = 9m., eL = 13m., M = 16m.24s.
Ekaterinburg iP = 2h.6m.22s., e = 7m.58s. and 12m.45s., L = 20m., M = 22m.24s.
Bombay PN = 2h.8m.16s., SN = 11m.55s., LN = 14m.12s., MN = 15m.58s.
Irkutsk e = 2h.9m.0s., L = 13m.36s., M = 13m.54s.
Taihoku eE = 2h.9m.40s.
Zi-ka-wei eE = 2h.9m.50s.
Baku e = 2h.13m.5s., L = 22m.36s., M = 31m.6s.
Pulkovo e = 2h.16m.18s., L = 30m.0s., M = 31m.12s.
Long waves were also recorded at Phu-Lien and other European stations.

Jan. 7d. 3h. 49m. 36s. Epicentre 37°·5N. 70°·5E. (as on 1930 Sept. 23d.). X.

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

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Samarkand	3·4	310	1 0	P*	1 36	S*	i 1·7	2·1
Andijan	3·6	24	0 57?	+ 6	i 1 36	+ 4	1·8?	2·0
Tashkent	3·9	347	e 0 6	−50	—	—	i 1·0	2·2
Almata	7·6	39	e 0 24?	−84	—	—	—	—
Baku	16·2	287	—	—	e 6 50	+ 7	—	—
Bombay	18·7	173	3 48	−27	—	—	—	—
Ekaterinburg	20·4	345	i 4 28	− 6	8 18	+ 4	10·4	—
Pulkovo	33·8	324	i 6 27	−12	—	—	—	—

Additional reading:—
Samarkand i = +1m.16s. = P_g.

Jan. 7d. Readings also at 2h. (Ekaterinburg), 3h. (Baku, Irkutsk, and Tananarive), 7h. (La Paz and Ottawa), 11h. (Ekaterinburg, Irkutsk, Tashkent, Manila, Tyosi, near Mizusawa, and near Taihoku (2)), 12h. (Irkutsk, Manila, Riverview, Sydney, Adelaide, Melbourne, Perth, and Amboina), 13h. (Ekaterinburg (2)), 14h. (Baku), 17h. (Samarkand and near Andijan), 20h. (near Andijan), 21h. (Irkutsk, Taranto, and near Mizusawa), 22h. (Ekaterinburg, Rome, and Casamari).

Jan. 8d. 0h. 13m. 46s. Epicentre 50°·0N. 73°·5W. N.3.

A = +·183, B = −·616, C = +·766; D = −·959, E = −·284; G = +·218, H = −·734, K = −·643.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Ottawa		4·9	198	e 1 1	− 9	i 1 55	−10	i 2·0	—
Toronto		7·5	215	—	—	e 3 1	−10	3·5	—
Harvard	E.	7·8	167	e 2 1	+10	—	—	—	—
Buffalo		8·0	210	—	—	i 3 8	−16	i 3·7	—
Florissant		16·4	234	e 3 42	− 4	e 6 47	− 1	—	8·3
St. Louis		16·5	233	e 3 50	+ 2	i 6 59	+ 9	—	8·5

Additional readings:—
Harvard iE = +2m.32s. =P*.
Florissant eEN = +4m.0s., eSEN = +7m.0s.
St. Louis eN = +6m.47s. and +6m.53s., iN = +7m.8s.

Jan. 8d. 13h. 53m. 1s. Epicentre 35°·0N. 116°·5W. N.3.

A = −·366, B = −·733, C = +·574.

		△	Az.	P.	O−C.	S.	O−C.
		°	°	m. s.	s.	m. s.	s.
Riverside	N.	1·2	216	i 0 18	+ 1	e 0 32	+ 1
Haiwee		1·6	313	e 0 24	+ 1	i 0 43	+ 2
Pasadena		1·6	238	i 0 22	− 1	e 0 39	− 2
Tinemaha	E.	2·5	326	e 0 39	+ 3	e 1 13	+ 9
Santa Barbara		2·7	258	e 0 37	− 2	i 1 11	+ 2

Jan. 8d. 16h. 52m. 51s. Epicentre 42°·4N. 142°·8E. (as on 6d.). R.2.

		△	Az.	P.	O−C.	S.	O−C.	L.
		°	°	m. s.	s.	m. s.	s.	m.
Urakawa		0·3	183	0 4	0	0 12	+ 4	—
Obihiro		0·6	30	0 16	+ 7	0 29	S_g	—
Kusiro		1·3	64	0 18	0	0 35	+ 2	—
Sapporo		1·3	302	0 23	+ 5	0 41	+ 8	—
Muroran		1·4	267	0 23	+ 3	0 40	+ 4	—
Asahigawa		1·4	347	0 26	+ 6	0 45	+ 9	—
Hakodate		1·7	248	0 26	+ 2	0 45	+ 1	—
Nemuro		2·2	65	0 36	+ 5	0 59	+ 2	—
Aomori		2·2	224	0 33	+ 2	0 59	+ 2	—
Mizusawa	E.	3·5	201	0 48	− 2	1 22	− 8	—
	N.	3·5	201	0 51	+ 1	1 24	− 6	—
Hukusima		5·0	201	1 29	P*	2 20	+12	—
Mito		6·3	197	1 25	− 5	2 31	−10	—
Kakioka		6·5	199	1 28	− 4	2 36	−10	—
Tukubasan		6·6	199	1 28	− 6	—	—	—
Nagano		6·8	213	1 29	− 8	3 5	+12	—
Tyosi		6·8	193	e 2 42	S	(e 2 42)	−11	—
Kumagaya		6·8	204	1 37	0	2 52	− 1	—
Oiwake		6·9	209	1 47	+ 9	3 23	S*	—
Tokyo		7·1	200	1 36	− 5	2 56	− 5	—
Ekaterinburg		51·7	318	e 8 59	− 5	—	—	29·2

No additional readings.

Jan. 8d. Readings also at 1h. (Christchurch, Wellington, Melbourne, Sydney, Perth, Baku, Ekaterinburg, Paris, Strasbourg, Neuchatel, and Zurich), 2h. (De Bilt and Tashkent), 3h. (Riverview), 5h. (near La Paz), 10h. (Stuttgart), 11h. (Copenhagen and Lund), 15h. (near Andijan, near Kobe, Osaka, and Sumoto), 16h. (Alicante),

Jan. 9d. 1h. 45m. 43s. Epicentre 39°·8N. 140°·5E. N.1.
(given in Geophys. Mag. of Tokyo, Vol. IV, No. 4.).

A = −·593, B = +·489, C = +·640 ; D = +·636, E = +·772 ;
G = −·494, H = +·407, K = −·768.

A depth of focus 0·020 has been assumed.

		Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Akita		+0·6	0·3	249	0 19	+ 6	0 34	+11	—	—
Morioka		+0·6	0·5	101	0 18	+ 2	0 35	+ 7	—	—
Mizusawa		+0·6	0·8	145	0 20	0	0 37	+ 1	—	—
Aomori		+0·5	1·0	12	0 21	0	0 39	0	—	—
Miyako		+0·5	1·3	98	0 18	− 8	0 32	−14	—	—
Isinomaki		+0·5	1·5	155	0 26	− 3	0 49	− 2	—	—
Yamagata		+0·5	1·5	184	0 31	+ 2	0 54	+ 3	—	—
Sendai		+0·5	1·6	169	0 29	− 1	0 52	− 2	—	—
Hakodate		+0·4	2·0	5	0 35	+ 1	0 59	− 3	—	—
Hukusima		+0·4	2·0	181	0 59	S	(0 59)	− 3	(1·4)	—
Nügata		+0·4	2·2	211	0 37	0	1 5	− 2	—	—
Muroran		+0·4	2·5	8	0 36	− 5	1 3	−11	—	—
Urakawa		+0·3	3·0	36	0 51	+ 4	1 19	− 6	—	—
Sapporo		+0·3	3·4	11	0 49	− 4	1 18	−17	—	—
Mito		+0·3	3·4	180	0 47	− 6	1 21	−14	—	—
Kakioka		+0·3	3·6	184	0 51	− 5	1 31	− 9	—	—
Nagano		+0·3	3·6	210	0 53	− 3	1 39	− 1	—	—
Tukubasan		+0·3	3·6	185	0 52	− 4	1 30	−10	—	—
Wazima		+0·3	3·7	230	0 55	− 2	1 38	− 4	—	—
Oiwake		+0·3	3·7	204	0 56	− 1	1 38	− 4	—	—
Obihiro		+0·3	3·7	32	0 49	− 8	1 33	− 9	—	—
Kumagaya		+0·3	3·7	192	0 56	− 1	1 35	− 7	—	—
Tyosi		+0·2	4·1	175	0 57	− 4	1 38	−12	—	1·7
Tokyo		+0·2	4·1	188	1 3	+ 2	1 46	− 4	—	—
Asahigawa		+0·2	4·2	19	0 55	− 8	—	—	—	—
Kusiro		+0·2	4·3	42	0 56	− 8	1 39	−16	—	—
Yokohama		+0·2	4·4	190	1 15	+ 9	1 54	− 4	—	—
Numadu		+0·1	4·8	196	1 17	+ 7	1 57	− 8	—	—
Misima		+0·1	4·8	195	1 6	− 4	1 36	−29	—	—
Mera		0·0	4·9	186	1 13	+ 3	1 54	−11	—	—
Nemuro		0·0	5·2	46	1 9	− 5	2 5	− 8	—	—
Gihu		0·0	5·3	215	1 14	− 1	2 41	L	(2·7)	—
Nagoya		0·0	5·4	213	e 1 20	+ 3	2 35	+17	—	3·0
Osaka		0·0	6·4	220	1 32	+ 1	—	—	3·2	3·9
Kobe	E.N.	0·0	6·6	222	1 37	+ 3	2 33	−15	—	3·0
	Z.	0·0	6·6	222	1 34	0	2 52	+ 4	—	3·4
Sumoto		−0·1	7·1	221	1 41	+ 2	2 58	− 1	—	3·6
Hamada		−0·1	8·3	236	1 21	−35	3 35	+ 6	—	—
Manila		−1·4	30·4	221	i 6 20	+24	i 6 52	PPP	—	—
Almata		−1·9	46·5	296	e 8 22	+12	e 14 52	+ 8	—	—
Andijan		−2·1	50·6	294	e 8 38	− 2	—	—	—	—
Ekaterinburg		−2·2	52·4	318	i 8 54	+ 1	i 16 9	+ 5	24·3	28·5
Samarkand		−2·2	54·8	296	e 9 13	+ 2	16 19	−18	—	—
Pulkovo		−2·5	65·2	329	—	—	e 18 54	+ 3	—	—
Baku		−2·5	65·9	304	—	—	e 19 1	+ 1	32·3	36·8
De Bilt		−2·7	80·3	334	—	—	e 21 46	− 3	e 42·3	—
Uccle		−2·7	81·6	334	—	—	e 21 57	− 7	41·3	—
Neuchatel		−2·7	83·9	330	e 12 11	− 3	—	—	—	—
La Paz	N.	—	145·9	55	i 19 22	[−14]	—	—	—	—

Additional readings and note :—
Hukusima gives S as P and L as S.
Tyosi eSZ = +1m.40s.
Baku e = +24m.46s., +27m.8s., and +27m.48s.
Long waves were also recorded at Cheb, Copenhagen, and Stuttgart.

Jan. 9d. 7h. 1m. 35s. Epicentre 38°·0N. 38°·5E. N.3.

A = + ·617, B = + ·490, C = + ·616 ; D = + ·623, E = − ·783 ;
G = + ·482, H = + ·383, K = − ·788.

	Δ	Az.	P.	O − C.	S.	O − C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Ksara	4·7	207	—	—	3 7	?	5·4	—
Theodosia	7·4	343	—	—	2 50	−19	—	—
Sebastopol	7·6	332	e 3 6	S	(e 3 6)	− 8	—	—
Simferopol	7·6	336	e 1 53	+ 5	—	—	—	—
Baku	9·2	71	e 1 57	−13	e 4 36	S*	5·6	6·9
Samarkand	22·2	78	e 5 5	+12	—	—	—	—
Pulkovo	22·4	349	e 4 56	+ 1	—	—	e 12·0	—
Stuttgart	23·6	307	—	—	e 9 25?	+ 9	e 13·9	—
Ekaterinburg	23·8	31	e 5 8	0	i 9 19	0	10·4	—
De Bilt	27·1	312	—	—	e 11 1	SS	e 15·4	—

Additional readings :—
Ksara ePEN = 7h.0m.42s.
Yalta (Δ = 7°·2), eP = 7h.0m.46s.
Theodosia eP = 7h.0m.28s.
Long waves were also recorded at Copenhagen, Cheb, and Uccle.

Jan. 9d. Readings also at 0h. (Baku, Ekaterinburg, and Irkutsk), 7h. (Theodosia and near Calcutta), 9h. (Bombay), 10h. (Wellington, Simferopol, near Sebastopol, and Yalta), 11h. (Baku, Irkutsk, Manila, and near Taihoku), 12h. (Copenhagen, De Bilt, Uccle, Strasbourg, and Stuttgart), 15h. (La Paz and La Plata), 18h. (Irkutsk, Tashkent, Tyosi, and near Mizusawa), 19h. (Baku, Ksara, and La Plata), 20h. (La Paz), 22h. (Ksara), 23h. (Theodosia, Yalta, and Ksara).

Jan. 10d. 16h. 7m. 54s. Epicentre 39°·9N. 140°·9E. N.3.
(Given in Geophys. Mag., Tokyo, Vol. IV, No. 4).

A = − ·595, B = + ·484, C = + ·641 ; D = + ·631, E = + ·776 ;
G = − ·498, H = + ·405, K = − ·767.

A *depth* of focus 0·010 is assumed.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.
	°	°	°	m. s.	s.	m. s.	s.
Morioka	+0·3	0·3	135	0 8	− 1	0 19	+ 4
Mizusawa	+0·3	0·8	168	0 16	0	0 29	+ 1
Aomori	+0·3	0·9	354	0 12	− 5	0 24	− 7
Isinomaki	+0·2	1·5	168	0 14	−10	0 41	− 3
Sendai	+0·2	1·6	181	0 26	0	0 49	+ 3
Yamagata	+0·2	1·7	195	0 30	+ 2	0 56	+ 7
Hakodate	+0·2	1·9	356	0 23	− 7	0 47	− 7
Urakawa	+0·1	2·7	31	0 25	−15	0 55	−17
Kakioka	+0·1	3·7	188	0 54	0	1 55	+18
Kumagaya	+0·1	3·9	198	1 6	+ 9	2 1	+19
Oiwake	0·0	4·0	208	1 5	+ 8	2 7	+25
Tyosi	0·0	4·2	180	e 1 15	+15	e 2 11	+23

Mizusawa gives also SE = +32s.

Jan. 10d. Readings also at 0h. (Baku, Ksara, Tashkent, Yalta, De Bilt, Strasbourg, and Stuttgart), 2h. (Baku, De Bilt, Tashkent, Ksara, Stuttgart, and Irkutsk (2)), 4h. and 5h. (near Irkutsk), 6h. (Tashkent), 7h. (Haiwee, Santa Barbara, La Jolla, and Pasadena), 8h. (De Bilt, Simferopol, and Vienna), 9h. (Hong Kong and Phu-Lien), 10h. and 11h. (near Amboina), 13h. (Feldberg), 14h. (near Andijan, Almata, and Samarkand), 20h. (near Santiago), 21h. (Adelaide, Melbourne, Riverview, and Wellington), 22h. (Perth, Tyosi, and La Paz), 23h. (Nagoya).

Jan. 11d. 19h. 19m. 43s. Epicentre 40°·0N. 20°·0E. (as on 4d.). R.3.

A = +·720, B = +·262, C = +·643 ; D = +·342, E = −·940 ;
G = +·604, H = +·220, K = −·766.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Taranto	2·1	283	0 21	− 9	0 44	−10	—	1·2
Bari	2·6	297	−0 58	−95	−0 28	−95	0·1	—
Trenta	2·9	256	e 0 42	+ 1	1 32	S*	—	—
Messina	3·9	243	0 52	− 4	—	—	—	—
Catania	4·5	237	e 0 52	−12	—	—	2·4	3·2
Benevento	4·5	287	—	—	e 1 40	−15	2·7	3·0
Naples	4·5	283	e 1 5	+ 1	e 1 45	−10	—	2·2
Casamicciola	4·7	281	1 28	P*	3 12	?	4·9	—
Belgrade	4·8	4	e 1 8	0	e 2 8	+ 5	—	2·5
Casamari	5·2	290	1 2	−12	—	—	—	—
Collurania	5·5	301	1 7	−11	—	—	—	—
Rome	5·9	291	e 1 23	− 1	2 51	S*	—	3·4
Zagreb	6·5	335	1 45	+13	i 2 55	+ 9	—	4·0
Florence	7·5	303	e 1 58	+12	2 48	−23	—	4·3
Budapest	7·5	355	e 3 17?	S	(e 3 17?)	+ 6	3·8	—
Prato	7·6	304	e 1 45	− 3	4 2	?	—	—
Venice	7·8	316	e 3 55	S*	4 56	L	(4·9)	7·6
Treviso	8·1	317	e 3 17	S	4 42	S_g	—	—
Padova	8·1	314	e 2 5	+10	e 4 17?	S*	—	—
Vienna	8·6	344	e 2 2	0	4 17	S*	—	5·3
Piacenza	9·1	307	e 2 37	P*	5 1	S_g	—	8·5
Zurich	11·0	316	e 2 32	− 3	—	—	—	—
Simferopol	11·5	60	e 2 53	+11	—	—	—	—
Stuttgart	11·7	322	—	—	e 4 42	−13	e 6·1	7·6
Neuchatel	11·8	310	e 2 23	−23	e 4 35	−23	—	—
Strasbourg	12·2	318	e 4 17?	?	—	—	—	7·3
Theodosia	12·4	61	e 2 46	− 8	—	—	—	—
Pulkovo	20·8	15	e 4 32	− 6	e 8 23	+ 1	12·3	—
Ekaterinburg	31·1	44	i 7 6	PP	—	—	15·3	—
Samarkand	35·7	75	e 6 50	− 5	—	—	—	—
Andijan	39·3	71	e 7 44	+18	—	—	—	—

Additional readings :—
Belgrade eP_g = +1m.27s., e = +1m.36s.
Zagreb eNE = +2m.28s., iNE = +3m.6s,
Vienna i = +3m.7s., SSS = +4m.50s.
Long waves were also recorded at Tashkent and other European stations.

Jan. 11d. Readings also at 0h. (near Neuchatel), 1h. (near Taihoku), 2h. (near Tyosi), 4h. (near Sumoto), 5h. (Samarkand), 6h. (Almata and Ekaterinburg), 7h. (Trenta and Balboa Heights), 10h. (Balboa Heights), 12h. (La Paz and Zurich), 14h. (near Zurich), 15h. (near Lick), 17h. (near Tyosi), 18h. (Andijan, Samarkand, Tashkent, Irkutsk, Ekaterinburg (2), and Tyosi (3)), 19h. (La Paz), 20h. (Innsbruck), 22h. (Ekaterinburg, Tashkent, Bombay, Hyderabad, near Neuchatel, and Zurich).

Jan. 12d. 15h. 6m. 15s. Epicentre 38°·5N. 31°·9E. N.2.

$A = +·664$, $B = +·414$, $C = +·623$; $D = +·528$, $E = -·849$; $G = +·528$, $H = +·329$, $K = -·783$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Ksara		5·7	144	1 20	− 1	2 43	S*	—	—
Yalta		6·2	16	e 1 30	+ 2	2 52	+14	—	—
Simferopol		6·6	15	1 30?	− 4	3 6?	S*	3·6?	—
Theodosia		7·0	20	e 1 44	+ 5	3 33	S*	4·6	—
Helwan		8·7	183	e 3 1	P_g	4 14	S*	—	—
Belgrade		10·6	310	3 22	P*	e 5 22	S*	—	6·4
Taranto		11·5	285	2 14	−28	7 0	?	—	8·4
Lemberg		12·6	336	—	—	e 4 33	−44	—	8·2
Messina		12·8	274	2 59	0	6 56	L	(6·9)	—
Naples	E.	13·8	285	e 5 26	S	(e 5 26)	−20	(e 6·8)	—
Zagreb		13·8	307	e 2 21	−52	e 6 12	+26	—	8·7
Vienna		14·8	317	e 3 27	+ 1	6 24	+14	—	10·7
Rome		15·2	289	e 3 46	+15	8 36	?	—	10·9
Venice		16·1	301	e 7 10	S	(e 7 10)	+29	(9·4)	10·2
Treviso		16·3	302	e 6 45?	S	(e 6 45?)	0	—	9·7
Florence		16·3	295	3 16	−29	7 5	+20	—	9·8
Padova		16·4	301	e 7 9	S	(e 7 9)	+21	(e 9·0)	—
Prato		16·5	296	e 3 45?	− 3	7 7	+17	7·8	8·8
Piacenza		17·8	299	3 53	−11	i 7 29	+ 9	—	10·5
Cheb		18·0	316	e 4 9	+ 2	e 7 39	+14	e 11·8	12·8
Königsberg		18·1	338	—	—	e 7 15	−12	e 13·2	—
Jena		18·9	318	e 4 15	− 2	e 7 54	+10	e 10·8	12·8
Potsdam		19·1	323	—	—	i 7 59	+11	i 8·6	13·2
Zurich		19·2	305	e 4 22	+ 1	e 8 0	+10	—	—
Stuttgart		19·3	310	i 4 20	− 2	e 7 59	+ 7	e 10·2	12·6
Göttingen		20·1	317	e 4 28	− 3	i 8 20	+12	—	—
Neuchatel		20·1	303	e 4 27	− 4	e 8 14	+ 6	—	—
Strasbourg		20·1	308	i 4 29	− 2	i 8 17	+ 9	10·8	—
Feldberg		20·3	313	—	—	i 8 22	+10	—	11·8
Hamburg		21·2	322	e 5 4	+22	e 8 45	+15	—	—
Lund		21·2	330	—	—	8 40	+10	11·8	—
Pulkovo		21·3	358	4 41	− 2	8 40	+ 8	13·8	15·8
Copenhagen		21·6	329	4 45	− 1	8 44	+ 6	11·8	—
Helsingfors		22·1	352	e 4 59	+ 7	e 8 58	+10	e 11·8	—
De Bilt		23·0	315	e 5 3	+ 2	—	—	e 11·8	15·7
Uccle		23·0	311	e 5 1	0	i 9 12	+ 7	11·8	15·3
Upsala		23·2	342	e 4 57	− 6	e 9 13	+ 5	—	15·3
Paris		23·4	306	e 5 3	− 2	e 9 26	+14	11·8	—
Kew		25·9	311	—	—	i 10 14	+17	i 14·1	—
Ekaterinburg		26·3	37	i 5 31	− 1	i 10 16	+13	12·8	19·2
Oxford		26·6	311	—	—	e 10 22	+13	—	—
Samarkand		27·1	76	e 5 45	+ 6	—	—	—	—
Granada		27·9	278	—	—	i 10 53	+23	—	14·6
Stonyhurst		27·9	314	—	—	e 10 14	−16	—	18·7
Bidston		28·1	313	e 4 0	−108	8 8	−146	—	—
Tashkent		28·6	72	e 7 23	?	e 10 57	+15	e 18·8	20·2
Andijan		31·0	73	e 6 18	+ 4	—	—	—	—
Almata		33·9	68	e 6 8	−31	—	—	—	—
Bombay		40·4	107	e 7 45	+10	—	—	—	—
Scoresby Sund		42·2	336	—	—	17 45?	SSS	23·8	—

Additional readings and notes :—
Belgrade e = +3m.31s. and +4m.2s. = S − 26s.
Lemberg eE = +4m.39s.
Naples gives S as P and L as S.
Vienna P_gP = +8m.3s.
Venice gives S as P and L as S.
Treviso gives S as P, eS = +9m.40s.
Florence gives S as P, eS = +9m.3s.
Padova gives S as P and L as S.
Long waves were also recorded at Budapest, Almeria, Alicante, Irkutsk, Durham, and Edinburgh.

Jan. 12d. 15h. 55m. 34s. Epicentre 38°·5N. 31°·9E. (as at 15h.6m.). R.3.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Ksara		5·7	144	e 1 15	− 6	2 42	S*	3·2	—
Yalta		6·2	16	e 1 24	− 4	e 2 50	+12	—	—
Simferopol		6·6	15	1 31?	− 3	3 1?	+13	—	—
Theodosia		7·0	20	e 1 46	+ 7	e 3 29	S*	e 20·4	—
Naples	E.	13·8	285	e 5 37	S	(e 5 37)	− 9	—	—
Vienna		14·8	317	3 33	+ 7	6 15	+ 5	—	11·4
Treviso		16·3	302	e 6 26?	S	(e 6 26?)	−19	(9·4)	—
Florence		16·3	295	2 57	−48	13 26	L	(13·4)	—
Piacenza		17·8	299	e 3 46	−18	7 32	+12	—	12·1
Cheb		18·0	316	—	—	e 7 26?	+ 1	—	12·4
Zurich		19·2	305	e 4 26	+ 5	—	—	—	—
Stuttgart		19·3	310	e 4 18	− 4	e 7 56	+ 4	e 10·4	—
Neuchatel		20·1	303	e 4 24	− 7	—	—	—	—
Strasbourg		20·1	308	4 30	− 1	e 8 13	+ 5	11·4	—
Feldberg		20·3	313	—	—	e 8 20	+ 8	—	11·6
Pulkovo		21·3	358	4 37	− 6	e 8 42	+10	13·4	—
Copenhagen		21·6	329	4 44	− 2	8 44	+ 6	12·4	—
De Bilt		23·0	315	—	—	e 9 15	+10	e 12·4	15·6
Uccle		23·0	311	—	—	e 9 8	+ 3	e 12·4	—
Paris		23·4	306	e 4 26?	−39	—	—	11·4	—
Kew		25·9	311	—	—	e 9 26?	−31	—	—
Ekaterinburg		26·3	37	i 5 29	− 3	10 12	+ 9	13·4	—
Oxford		26·6	311	—	—	e 9 52	−17	—	—
Tashkent		28·6	72	—	—	e 10 26	−16	—	21·6

Long waves were recorded at Helsingfors, Zagreb, Belgrade, Padova, and Venice.

Jan. 12d. 20h. 34m. 10s. Epicentre **55°·4N. 162°·7E.** N.1.

Probable error ±0°·24.

A = −·542, B = +·169, C = +·823; D = +·297, E = +·955; G = −·786, H = +·245, K = −·568.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Sapporo		18·4	237	4 15	+ 4	—	—	—	—
Morioka		21·2	231	4 43	+ 1	8 41	+11	—	—
Mizusawa	E.	21·7	231	4 47	− 1	8 47	+ 7	—	—
	N.	21·7	231	4 44	− 4	8 50	+10	10·6	—
Akita		21·7	233	4 48	0	8 48	+ 8	—	—
Isinomaki		22·2	229	4 51	− 2	8 54	+ 4	—	—
Sendai		22·6	230	4 52	− 5	9 0	+ 3	—	—
Hukusima		23·1	230	5 4	+ 2	9 13	+ 6	—	—
Vladivostok		23·2	251	i 4 50	−13	8 36	−32	10·6	13·9
Kakioka		24·6	228	5 18	+ 2	9 40	+ 6	—	—
Tyosi		24·7	226	e 5 28	+11	—	—	—	—
Kumagaya		25·0	229	5 22	+ 2	9 54	+13	—	—
Nagoya		26·8	232	e 5 43	+ 7	—	—	—	—
Kobe	N.	28·1	234	—	—	e 10 34	0	—	17·7
Sumoto		28·5	234	e 10 37	S	(e 10 37)	− 3	—	—
Koti		29·5	235	6 5	+ 4	e 10 54	− 2	—	—
Miyazaki		32·1	236	6 21	− 3	11 35	− 2	—	—
Nagasaki		32·2	240	6 27	+ 3	11 41	+ 3	—	—
Sitka		33·3	61	—	—	e 14 3	SS	i 18·9	—
Irkutsk		33·6	290	6 39	+ 2	e 12 4	+ 4	16·8	21·8
Chiufeng	E.	34·0	266	e 8 9	PP	—	—	—	—
Victoria		44·0	69	14 44	S	(14 44)	+ 8	18·6	22·9
Honolulu T.H.		45·0	125	—	—	e 18 20	(+ 8)	—	—
Hong Kong		48·6	249	8 40	− 1	15 40	− 1	—	31·1
Ekaterinburg		51·4	318	i 9 3	+ 1	16 25	+ 5	21·8	33·6

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Berkeley		51·6	79	e 9 3	0	i 16 31	+ 8	e 24·6	—
Manila		51·9	235	i 9 9	+ 3	(16 28)	+ 1	16·5	—
Almata		53·5	296	9 22	+ 4	16 59	+10	32·8	—
Phu-Lien		54·0	256	e 9 19	− 2	—	—	26·8	—
Scoresby Sund		54·1	2	9 32	+10	17 8	+11	25·8	—
Tinemaha		54·4	76	e 9 23	− 1	—	—	—	—
Haiwee		55·2	77	e 9 27	− 3	—	—	—	—
Santa Barbara		55·5	80	e 9 36	+ 4	—	—	—	—
Pasadena		56·6	79	e 9 36	− 4	—	—	—	—
Riverside		57·1	78	e 9 45	+ 1	—	—	—	—
Andijan		57·6	298	e 9 51	+ 4	e 17 54	+10	e 31·3	—
La Jolla		58·1	79	e 9 51	0	—	—	—	—
Pulkovo		58·8	335	i 9 58	+ 2	18 9	+ 9	28·8	39·6
Tashkent		58·8	300	i 9 59	+ 3	i 18 7	+ 7	e 28·5	37·4
Helsingfors		59·7	338	e 9 58	− 4	i 18 17	+ 5	e 30·8	—
Kucino		60·1	329	i 10 8	+ 3	18 23	+ 6	28·2	39·1
Ivigtut		60·9	18	10 22	+11	—	—	31·8	—
Samarkand		61·2	300	i 10 15	+ 2	i 18 33	+ 1	33·8	—
Upsala		61·4	342	e 10 15	+ 1	e 18 36	+ 2	33·8	41·2
Tucson		62·0	73	e 10 25	+ 7	e 18 50	+ 8	27·8	—
Dehra Dun		62·5	285	9 10	−72	18 30	−18	35·8	37·8
Calcutta		62·8	273	11 39	(+35)	20 6	(− 6)	34·6	—
Agra	E.	65·0	283	9 27	−72	18 7	−73	—	—
Königsberg		65·5	339	e 10 50	+ 8	e 19 16	−10	e 36·6	—
Copenhagen		66·2	344	10 49	+ 2	19 43	+ 8	—	—
Lund		66·2	344	10 50?	+ 3	19 44	+ 9	34·8	—
Florissant		67·2	55	e 10 49	− 4	e 19 48	+ 1	e 31·3	—
Ann Arbor		67·3	47	—	—	e 27 56	?	e 34·7	—
St. Louis		67·4	55	e 10 57	+ 3	e 19 46	− 4	e 29·8	—
Ottawa		67·8	40	—	—	e 19 50	− 4	e 27·8	—
Toronto	E.	67·9	44	—	—	e 22 20	?	33·5	—
Edinburgh		68·1	353	—	—	19 50?	− 8	—	—
Baku		68·6	313	i 10 59	− 3	i 20 12	+ 8	33·3	45·3
Hamburg		68·7	345	e 11 3	0	—	—	e 35·8	45·8
Buffalo		68·8	45	i 11 15	+12	i 18 26	?	e 34·8	—
Durham		69·1	353	20 10	S	(20 10)	0	—	50·8
Potsdam		69·4	341	i 11 23	+16	e 20 20	+ 6	e 38·8	40·8
Stonyhurst		70·0	352	—	—	e 25 29	?	40·8	45·8
Theodosia		70·2	325	e 11 12	0	e 20 30	+ 6	35·8	—
Bidston		70·5	352	e 10 20	−54	e 21 15	+48	—	—
Göttingen		70·7	345	e 11 13	− 2	—	—	e 37·9	46·4
Simferopol		70·7	325	11 15?	0	20 35?	+ 5	35·8	—
De Bilt		70·9	347	e 11 20	+ 4	20 39	+ 7	e 34·8	45·5
Jena		71·0	344	e 11 34	+17	e 20 50	+17	e 39·8	43·5
Yalta		71·1	325	11 18	+ 1	e 20 40	+ 6	—	—
Cheb		71·7	340	e 13 33	PP	e 20 47	+ 6	e 35·8	44·2
Oxford		72·0	351	—	—	e 20 52	+ 7	—	—
Kew		72·2	350	e 11 32	+ 8	—	—	34·8	—
Feldberg		72·2	346	e 10 14	−70	e 20 54	+ 7	—	45·4
Uccle		72·3	348	11 25	0	20 51	+ 3	e 35·8	—
Vienna		72·5	338	11 24	− 2	21 0	+ 9	—	45·8
Hyderabad		72·5	276	11 25	− 1	20 47	− 4	37·1	47·6
Medan		72·5	250	i 8 2	?	—	—	44·3	—
Budapest		72·7	336	11 35	+ 8	20 55	+ 2	40·8	41·8
Georgetown		72·8	46	e 10 32	−56	i 20 47	− 7	e 31·8	—
Charlottesville		73·0	48	—	—	e 29 50	?	e 45·6	—
Stuttgart		73·5	344	e 11 31	− 1	e 21 4	+ 1	e 39·3	48·1
Strasbourg		73·9	345	i 11 31	− 3	e 21 12	+ 5	35·8	—
Bombay		74·4	282	11 40	+ 3	21 25	+12	39·5	44·0
Innsbruck		74·5	341	11 38	+ 1	—	—	—	—
Paris		74·5	349	e 12 54	+77	—	—	34·8	—
Belgrade		74·8	334	e 11 40	+ 1	e 21 23	+ 5	e 42·5	—
Zagreb		74·9	338	e 11 38	− 2	e 19 22	+ 3	e 35·8	40·8
Zurich		75·0	343	e 11 42	+ 2	—	—	—	—
Chur		75·3	343	e 11 47	+ 5	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Neuchatel		75·6	345	i 11 44	0	—	—	e 45·8	—
Treviso		75·9	340	11 46	+ 1	e 21 40	+10	43·8	—
Venice		76·0	340	11 46	0	—	—	—	—
Padova		76·2	340	e 12 15	+28	e 22 3	PS	—	—
Batavia		76·8	239	—	—	i 20 54	−47	—	—
Piacenza		77·0	342	e 11 58	+ 6	21 38	− 5	—	47·8
Florence		77·9	340	11 56	− 1	i 21 53	0	32·8	42·8
Rome		79·5	339	e 11 44	−21	22 13	+ 3	—	—
Taranto		79·7	335	12 14	+ 8	23 20	PS	29·6	36·1
Ksara	N.	79·9	319	12 9	+ 2	23 48	PS	46·2	52·8
Colombo		80·2	270	22 8	S	(22 8)	−10	—	52·1
Messina		82·2	335	16 54	?	27 54	SS	—	—
Tortosa	N.	82·6	348	12 20	− 1	22 50	+ 7	e 43·8	52·4
Toledo		84·1	351	12 28	− 1	e 22 53	− 6	—	—
Alicante		85·1	348	e 12 47	+13	e 23 17	+ 8	e 47·1	—
Granada		86·7	350	i 12 41	− 1	i 23 25	+ 1	43·3	52·1
Almeria		86·8	349	12 43	+ 1	23 27	+ 2	44·6	56·2
Malaga		87·2	350	e 12 54	+10	e 23 28	− 1	—	—
San Fernando		87·7	351	12 15	−31	22 33	−58	—	61·3
Riverview		89·8	190	—	—	e 22 38	−76	e 42·8	—
Sydney		89·8	190	e 22 38	S	(e 22 38)	−76	48·4	53·4
Adelaide		92·7	200	—	—	i 23 29	[−19]	46·0	57·0
Melbourne		94·4	195	—	—	i 24 20	−17	42·8	57·3
San Juan		95·4	46	—	—	e 38 26	?	43·8	—
La Paz		125·3	66	e 19 12	[+14]	—	—	62·8	70·4

Additional readings :—
Berkeley eE = +9m.15s., eN = +9m.18s.
Manila iEN = +10m.59s. = PP + 2s. and +13m.34s.
Scoresby Sund +21m.2s. = SS + 30s.
Tinemaha eN = +9m.28s., eE = +9m.30s.
Haiwee eE = +9m.31s.
Pasadena e = +9m.43s.
Riverside eE = +10m.2s.
Helsingfors ePN = +10m.2s., eN = +12m.24s. and +16m.12s., ePPSN = +19m.25s. = S_cS − 25s., ePPSE = +19m.35s., eE = +21m.58s., eSSN = +22m.33s., eSSSE = +25m.17s., eSSSN = +25m.12s.
Tucson eS = +20m.2s. = S_cS − 4s.
Agra SN = +18m.10s.
Königsberg ePPP?E = +14m.26s.
Ann Arbor e?N = +29m.50s., eN = +32m.26s.
St. Louis iP = +11m.4s.
Toronto eE = +27m.28s.
Hamburg iZ = +11m.19s. = P_cP − 9s.
Göttingen iZ = +11m.30s.
Feldberg e = +25m.27s. = SS + 11s.
Uccle eSS = +25m.30s., i = +29m.57s.
Medan i = +8m.20s.
Georgetown PS = +21m.41s.; T_e = 20h.34m.36s.
Charlottesville eL = +34m.50s. = SS + 23s.
Stuttgart eZ = +11m.45s., ePPNZ = +14m.19s., ePPPNZ = +16m.10s., ePSEN = +21m.46s., eSSEN = +25m.32s., eNZ = +31m.40s., eE = +32m.20s.
Strasbourg iPP = +14m.24s., eSS = +26m.4s., e = +28m.0s.
Belgrade e = +11m.55s. and +11m.58s.
Zagreb i = +12m.4s.
Treviso PP = +12m.5s.
Ksara PPN = +16m.25s., PPPN = +18m.48s., PPPPN = +20m.44s., eN = +22m.13s., PSN = +25m.2s., PPSN = +25m.52s., SSSN = +36m.37s., SSSSN = +38m.25s.
Long waves were also recorded at Kodaikanal, Harvard, Chicago, and Wellington.

Jan. 12d. Readings also at 6h. (near Reykjavik and near Yalta), 7h. (near Manila), 8h. (near Reykjavik), 10h. (Andijan), 13h. (Koti), 16h. (Matuyama), 17h. (Baku, Ekaterinburg, Ksara, Cheb, Stuttgart, De Bilt, and Columbia), 22h. (Andijan and Samarkand), 23h. (La Plata).

Jan. 13d. Readings at 2h. (Andijan and near Almata), 3h. (Phu-Lien), 5h. (La Paz, Wellington, Perth, and Melbourne), 7h. (Tyosi), 8h. (La Paz), 11h. (Hong Kong, Ekaterinburg, Irkutsk, Andijan, and near Manila), 12h. (Hong Kong, near Mizusawa, and near Tyosi), 13h. (Zi-ka-wei, Phu-Lien, Manila, near Hokoto, and Taihoku; Andijan, and near Samarkand), 15h. (near Nagasaki), 19h. (near Kobe, Sumoto, and near Zagreb), 21h. (Batavia), 22h. (Ekaterinburg), 23h. (Kucino).

Jan. 14d. Readings at 0h. (near La Paz), 1h. (Batavia and near Amboina), 3h. (near Mizusawa and Tyosi), 4h. (Tyosi, near Mizusawa, Irkutsk, and near Vladivostok), 8h. (near Manila), 9h. (Berkeley and near Lick), 10h. (Naples, Simferopol, near Theodosia, and Yalta), 12h. (Andijan, La Paz, and Tyosi), 14h. (near Manila), 16h. (Andijan, Christchurch, Wellington, Perth, and Melbourne), 17h. (Medan, Bombay, Phu-Lien, Hong Kong, Irkutsk, Baku, Almata, Andijan, Tashkent, Ekaterinburg, Strasbourg, De Bilt, Uccle, and Paris), 19h. (Baku and Ekaterinburg), 20h. and 23h. (La Paz).

Jan. 15d. 1h. 50m. 49s. Epicentre 16°·4N. 96°·3W. N.1.

Probable error ±0°·2.

A = −·105, B = −·954, C = +·282; D = −·994, E = +·110;
G = −·031, H = −·281, K = −·959.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tacubaya		4·1	317	0 58	0	—	—	—	—
Balboa Heights		17·9	112	4 11	+ 6	7 47	+25	10·0	—
Tucson		20·7	323	i 4 36	− 1	i 8 24	+ 4	10·4	—
Columbia		22·3	35	i 4 57	+ 3	i 9 6	+14	e 11·5	—
St. Louis		22·9	13	i 4 59	− 1	e 9 13	+10	i 13·0	15·2
Florissant		23·0	11	i 4 59	− 2	i 9 12	+ 7	e 12·2	15·2
Port au Prince		23·0	81	i 5 5	+ 4	i 9 11	+ 6	13·0	14·7
Denver		24·5	344	e 5 15	0	i 9 39	+ 7	e 11·6	13·1
La Jolla		25·1	315	i 5 20	− 1	—	—	—	—
Riverside		25·9	317	i 5 27	− 1	i 10 7	+10	—	—
Pasadena		26·4	316	i 5 32	− 1	e 10 15	+10	e 13·0	17·1
Chicago		26·5	15	i 5 32	− 2	i 10 11	+ 4	13·7	—
Charlottesville		26·7	32	i 5 37	+ 2	i 10 18	+ 8	12·5	—
Haiwee		27·6	320	i 5 43	− 1	e 10 20	− 5	—	—
Santa Barbara	N.	27·7	315	e 5 47	+ 3	—	—	—	—
Ann Arbor		28·1	20	i 5 47	− 1	i 10 29	− 5	i 13·6	21·4
Georgetown		28·1	33	i 5 50	+ 2	10 30	− 4	e 13·2	—
Tinemaha		28·4	321	i 5 50	− 1	—	—	—	—
San Juan		28·8	82	i 5 58	+ 4	—	—	—	—
Buffalo		30·4	26	i 6 11	+ 2	i 11 16	+ 6	e 16·2	18·2
Lick	N.	30·7	320	e 6 10	− 1	e 11 17	+ 1	e 15·3	—
Toronto		30·8	24	i 6 13	+ 1	i 11 12	− 5	e 14·5	18·4
Fordham		31·2	34	i 6 17	+ 1	i 11 23	0	i 15·2	—
Berkeley		31·4	320	i 6 16	− 1	i 11 23	− 3	15·4	18·6
Harvard		33·7	34	i 6 39	+ 1	e 11 57	− 4	e 15·2	—
Ottawa		33·7	26	i 6 41	+ 3	i 12 11	+10	e 15·7	24·2
Saskatoon		36·7	350	7 7	+ 3	12 51	+ 4	—	—
Victoria		38·9	332	7 20	− 3	13 20	0	18·0	20·7
Halifax		39·4	37	7 28	+ 1	13 34	+ 7	—	—
La Paz		43·0	138	i 7 54	− 3	i 14 27	+ 6	20·7	23·8
Sitka		50·1	334	i 8 51	− 1	i 16 6	+ 4	i 21·3	—
Santiago		55·5	154	9 37	+ 5	17 25	+ 9	23·1	—
Ivigtut		56 2	26	9 38	+ 1	17 26	+ 1	—	—
Honolulu T.H.		58 1	285	i 9 41	−10	i 17 52	+ 1	24·2	—
La Plata		62·9	145	10 19	− 6	18 40	−14	32·4	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Azores P.D.		64·9	55	i 11 23	−15	20 5	(−22)	—	—
Reykjavik		68·5	26	11 7	+ 6	20 13	+10	29·9	—
Scoresby Sund		69·4	20	i 11 4	− 3	20 14	0	—	—
Dakar		75·5	79	i 11 43	0	i 21 26	0	35·2	40·2
Edinburgh		78·2	35	11 57	− 1	21 52	− 4	38·0	44·0
Bidston		78·8	39	i 12 2	+ 1	i 21 55	− 8	34·1	42·9
Stonyhurst		79·1	39	i 12 3	0	i 22 2	− 4	38·0	51·2
Durham		79·4	37	12 4	− 1	22 6	− 3	34·2	51·2
Oxford	E.	80·3	40	i 12 7	− 2	i 22 14	− 5	—	52·2
	N.	80·3	40	i 12 27	+18	i 22 22	+ 3	e 31·2	49·2
San Fernando		80·4	55	12 16	+ 6	22 16	− 4	36·2	46·2
Kew		80·9	40	i 12 11	− 2	i 22 22	− 3	37·4	45·1
Toledo		81·3	50	i 12 11	− 4	22 40	+10	e 33·3	44·5
Bergen		81·4	29	11 35	−40	21 50	−41	35·4	40·2
Malaga		81·7	54	i 12 19	+ 2	22 46	+12	31·3	41·1
Granada		82·3	53	i 12 17	− 3	i 22 33	− 7	e 35·2	44·5
Almeria		83·3	53	i 12 22	− 3	22 35	[−11]	34·9	45·1
Paris		83·4	41	i 12 25	0	22 43	[− 4]	32·2	51·2
Bagnères		83·6	46	i 12 25	− 1	e 22 46	[− 2]	29·2	—
Uccle		83·9	39	i 12 27	− 1	i 22 49	[− 2]	35·2	44·8
De Bilt		84·0	37	i 12 27	− 1	22 48	[− 4]	e 35·2	45·7
Alicante		84·3	51	i 12 32	+ 2	i 22 55	[+ 1]	e 34·8	42·1
Tortosa	E.	84·4	49	12 27	− 3	22 55	[0]	34·6	45·7
	N.	84·4	49	12 32	+ 2	22 56	− 6	35·1	44·3
Puy de Dôme		84·6	44	12 34	+ 3	23 11	+ 7	30·2	—
Barcelona		85·3	48	12 36	+ 1	23 15	+ 4	34·5	41·4
Besançon		86·1	42	i 12 38	− 1	23 13	− 5	34·2	47·2
Hamburg		86·2	35	i 12 39	0	e 23 1	[− 7]	e 41·8	48·2
Feldberg		86·5	39	i 12 39	− 2	i 23 2	[− 8]	—	—
Copenhagen		86·6	31	i 12 40	− 1	23 15	[+ 4]	36·2	—
Strasbourg		86·7	40	i 12 41	− 1	i 23 14	[+ 3]	36·2	49·2
Neuchatel		86·8	42	e 12 41	− 1	e 23 9	[− 3]	—	—
Göttingen		87·0	36	i 12 41	− 2	i 23 9	[− 4]	i 42·1	56·7
Karlsruhe		87·0	40	i 12 42	− 1	23 26	− 1	46·2	52·6
Lund		87·0	31	i 12 45	+ 2	i 23 8	[− 5]	36·2	—
Marseilles		87·0	45	i 12 45	+ 2	e 23 30	+ 3	30·2	—
Upsala		87·3	27	i 12 41	− 4	i 23 7	[− 8]	e 42·2	45·5
Algiers		87·5	52	12 43	− 2	23 25	− 7	41·2	46·2
Stuttgart		87·5	40	i 12 45	0	i 23 46	+14	e 41·7	48·4
Zurich		87·7	42	e 12 46	0	—	—	—	—
Jena		88·1	36	e 12 48	0	e 23 11	[−10]	e 42·2	57·1
Potsdam		88·3	35	i 12 47	− 2	i 23 56	+16	e 36·2	49·2
Chur		88·5	42	e 12 49	− 1	e 23 18	[− 5]	—	—
Pavia		88·9	43	12 52	0	—	—	—	—
Cheb		88·9	38	e 12 52	0	e 23 21	[− 5]	e 37·2	54·8
Piacenza		89·2	43	12 51	− 3	i 24 3	+15	39·8	52·9
Innsbruck		89·5	40	12 55	0	23 23	[− 7]	37·7	52·5
Helsingfors		90·2	25	e 12 54	− 4	i 23 23	[−11]	e 41·2	—
Prague		90·2	37	e 12 53	− 5	e 23 37	[+ 3]	e 36·2	49·2
Livorno		90·2	45	12 9	−49	22 46	[−48]	—	—
Padova		90·5	41	i 13 32	+32	i 24 11	+10	—	—
Prato		90·7	44	e 13 3	+ 2	23 11†	[−26]	—	43·2
Florence		90·8	44	i 12 58	− 3	i 23 30	[− 7]	—	—
Venice		90·8	41	i 13 10	+ 9	23 41	[+ 4]	29·3	—
Königsberg		91·1	30	e 13 3	0	i 23 37	[− 2]	—	48·7
Treviso		91·2	41	i 12 59	− 4	23 36	[− 4]	43·3	59·2
Laibach		91·9	40	e 13 7	+ 1	e 23 38	[− 6]	e 34·0	54·6
Graz		92·1	39	e 13 7	0	i 23 43	[− 2]	39·2	50·8
Vienna		92·1	38	i 13 6	− 1	23 49	[+ 4]	—	57·2
Rome		92·3	45	13 6	− 2	i 23 50	[+ 4]	e 45·1	53·1
Pulkovo		92·5	24	i 13 8	− 1	23 37	[−10]	43·2	47·4
Collurania		92·8	44	13 18	+ 8	—	—	—	—
Zagreb		92·9	40	e 13 14	+ 3	e 23 34	[−15]	45·8	49·1
Casamicciolo		93·8	45	13 18	+ 3	24 51	+20	35·9	—
Budapest		94·0	38	13 7	− 9	23 59	[+ 4]	30·7	52·2

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Naples	E.	94·0	45	e 13 15	− 1	e 23 45	[−10]	36·2	54·2
Lemberg	E.	95·6	35	e 13 24	+ 1	e 23 46	[−18]	e 42·0	54·0
	N.	95·6	35	e 13 27	+ 4	e 23 24	[−40]	e 42·7	59·1
Belgrade		96·1	40	e 13 26	0	e 24 0	[− 6]	e 46·7	50·8
Catania		96·1	49	13 10	−16	23 40	[−26]	35·1	52·2
Messina		96·1	48	13 21	− 5	23 56	[−10]	31·4	54·9
Trenta		96·1	47	e 13 36	+10	e 24 6	[0]	39·2	51·2
Taranto		96·3	45	i 13 24	− 2	23 59	[− 9]	35·2	58·0
Kucino		98·2	24	e 13 34	− 1	—	—	—	46·2
Wellington		99·9	230	e 13 59	+16	24 11	[−14]	45·4	52·2
Christchurch		102·0	229	i 14 0	+ 7	i 25 56	+12	—	—
Morioka		102·5	319	13 59	+ 4	—	—	—	—
Mizusawa	E.	102·8	319	16 47	?	25 41	−10	32·7	—
	N.	102·8	319	17 29	PP	24 29	[−10]	32·0	—
Simferopol		104·0	34	14 2?	0	(32 59?)	SS	33·0?	—
Hukusima		104·1	318	14 26	+24	—	—	—	—
Ekaterinburg		104·3	12	i 14 0	− 3	i 24 33	[−13]	43·2	53·6
Yalta		104·3	34	e 14 3	0	—	—	—	—
Theodosia		104·6	33	e 14 3	− 2	—	—	e 47·2	—
Tyosi	E.	104·9	315	e 17 48	PP	e 27 40	PS	—	—
Tokyo		105·7	317	e 14 31	+21	—	—	—	—
Kumagaya		105·7	317	13 40	−30	—	—	—	—
Vladivostok		105·9	326	e 14 8	− 3	i 24 58	[+ 4]	—	68·0
Nagano		106·2	319	14 39	+27	—	—	—	—
Toyooka		109·0	319	—	—	e 28 36	PS	i 53·6	65·0
Irkutsk		109·1	347	14 23	− 4	27 59	PS	53·2	63·1
Osaka		109·1	318	17 58	[−17]	29 51	?	46·2	68·7
Kobe		109·4	318	14 22	− 6	28 20	PS	e 45·4	68·9
Sumoto		109·7	317	e 18 33	[+16]	e 28 47	PS	e 42·3	59·6
Koti		111·1	318	18 35	[+14]	28 39	PS	42·7	60·0
Helwan		111·5	47	e 14 36	− 2	26 17	{− 1}	—	65·6
Ksara		112·2	41	18 25	[0]	28 57	PS	51·2	—
Hukuoka		113·1	320	e 19 21	PP	e 28 57	PS	e 43·7	59·2
Nagasaki		114·0	320	19 27	PP	35 26	SS	46·5	—
Baku		115·1	28	14 53	− 3	25 27	[− 7]	—	—
Chiufeng	E.	116·0	334	e 18 17	[−18]	29 8	PS	53·8	63·8
Riverview		117·5	241	19 47	PP	—	—	e 53·2	59·2
Sydney		117·5	241	e 18 47	[+ 8]	i 29 29	PS	53·9	62·7
Almata		120·0	5	18 52	[+ 6]	—	—	—	—
Zi-ka-wei	Z.	120·2	323	i 18 25	[−21]	i 25 3	[−48]	43·3	68·7
Tashkent		120·8	12	e 18 23	[−25]	e 29 11?	PS	—	—
Samarkand		121·8	14	18 58	[+ 8]	—	—	73·2	—
Andijan		121·9	10	e 18 46	[− 4]	—	—	56·2	—
Melbourne		122·5	235	20 14	PP	i 30 36	PS	52·5?	57·1
Taihoku	E.	124·6	319	e 20 4	PP	—	—	—	75·1
Johannesburg		127·6	111	21 11	PP	38 23	SS	55·2	—
Adelaide		127·8	239	—	—	i 22 18	PP	i 52·9	65·5
Hong Kong		131·1	322	19 5	[− 4]	31 44	PS	54·7	75·8
Manila		131·9	310	i 19 11	[+ 1]	—	—	67·2	84·5
Dehra Dun		133·0	6	20 21	?	32 21	PS	51·9	86·2
Amboina		134·5	282	19 13	[− 1]	(39 11?)	SS	39·2	71·2
Agra	E.	136·1	7	18 8	[−68]	—	—	—	—
Calcutta		140·3	352	19 42	[+20]	33 40	PS	66·0	78·5
Bombay		143·1	17	19 24	[− 3]	—	—	75·0	88·9
Tananarive		145·5	98	e 19 35	[0]	26 29	SKS	68·6	87·2
Perth		146·5	236	i 19 36	[0]	—	—	i 61·2	—
Kodaikanal		152·7	13	32 11	?	—	—	76·6	98·9
Malabar		154·9	289	i 20 0	[+12]	—	—	e 75·2	—
Medan		155·1	322	e 20 23	[+35]	—	—	51·2	83·0
Batavia		155·2	292	19 7	[−41]	—	—	e 69·0	—
Colombo		156·4	10	19 50	[0]	—	—	50·6	86·3

For Notes see next page.

NOTES TO JAN. 15d. 1h. 50m. 49s.

Additional readings :—
Tucson e = +8m.32s. = P_cP −10s.
St. Louis i = +5m.28s.
Florissant iEN = +5m.2s., iPPEN = +5m.30s.
Port au Prince PP = +5m.35s., PPP = +5m.50s., SS = +9m.53s.
Denver iEN = +5m.20s., iPPEN = +5m.50s., iSEN = +9m.44s.
Pasadena iN = +9m.59s.
Chicago e = +7m.5s. and +9m.11s. = P_cP +12s.
Charlottesville PP = +6m.4s.
Haiwee eE = +10m.31s.
Ann Arbor i = +6m.5s., iPPE? = +6m.29s., iPPN? = +6m.47s.
San Juan i = +6m.1s.
Lick eN = +6m.25s., eE = +7m.54s., eN = +11m.20s., eSN = +11m.24s., eN = +11m.29s.
Toronto PP = +7m.8s.; T_o = 1h.50m.29s.
Berkeley eN = +6m.27s. and +6m.44s., iPPE = +7m.17s., eE = +8m.17s., eN = +11m.35s., iN = +12m.16s.
Harvard e = +9m.11s.?, iSE = +12m.8s.; T_o = 1h.50m.46s.
Ottawa iZ = +6m.52s., iPPP = +7m.43s. = PP −1s., iSS = +13m.47s., iSSS = +14m.22s.; T_o = 1h.50m.34s.
La Paz PPPE = +9m.54s., iSE = +14m.32s.
Sitka iPP = +10m.56s., iSS = +19m.47s.
Ivigtut PPP = +13m.5s., SS = +21m.23s., eE = +22m.5s., eN = +23m.2s. = SSS +1s.
Azores P.D. SS = +23m.11s.
Reykjavik PP = +14m.5s., PPP = +15m.23s., PPPP = +16m.29s., eN = +16m.46s., e = +17m.26s., PS = +20m.44s. = S_cS −10s., SS? = +24m.41s., SSS? = +28m.16s. = SSSS −2s.
Scoresby Sund SS = +24m.47s., SSSN = +27m.59s.
Edinburgh i = +22m.26s. = PS +0s.
Bidston PP = +14m.23s., PS? = +23m.11s., SS = +27m.19s.
Durham PP = +15m.17s., PPPP = +17m.50s., SS = +27m.34s.
Oxford PPN = +16m.2s., iSSN = +27m.25s.
Kew iPPZ = +15m.33s., iPPE = +15m.48s., iSSE = +27m.35s.
Toledo PP = +15m.45s., PPP = +17m.47s., PPPP = +18m.39s., SKS = +22m.27s., PS = +23m.25s.
Bergen PP = +14m.59s.
Malaga iPP = +15m.42s.
Granada iPE = +12m.23s., iPN = +12m.26s., PS = +23m.1s. (*) = +23m.37s.
Almeria PP = +15m.40s., PPP = +17m.14s., PS = +23m.37s.
Uccle iP_cP = +12m.47s., PP = +15m.59s., i = +23m.6s. = S +10s., iPS = +23m.30s., SS = +28m.19s., SSS = +31m.36s.
Puy de Dôme PP = +16m.11s., SKS = +22m.56s., PS = +23m.48s., SS = +28m.57s.
Hamburg iPPZ = +16m.0s., iPSN = +23m.51s., iPSE = +23m.56s., eSSZ = +28m.29s., eSSE = +28m.47s.
Feldberg i = +12m.59s., +13m.25s., +13m.45s., +16m.13s. = PP +16s. and +18m.21s., e = +19m.11s. = PPPP +4s. and +21m.15s.
Copenhagen PP = +16m.11s., PS = +24m.29s., SS = +28m.29s., SSS = +33m.23s.
Strasbourg iPP = +16m.14s., PS = +24m.15s.
Neuchatel eSKS = +23m.0s.
Göttingen P = +13m.11s., eEZ = +13m.32s., ePPZ = +16m.7s., ePPE = +16m.11s., eLE = +24m.23s. = PS +7s., iSSN = +29m.9s.
Lund iNE = +13m.39s., eNE = +23m.23s. = S −4s., +24m.35s. = PS +19s., SSNW = +28m.41s., SSSNW = +33m.11s.?
Marseilles i = +13m.5s., PP = +16m.25s.
Upsala PPN = +16m.1s., PPE = +16m.5s., iPS = +24m.2s., SS = +29m.9s., SSS = +33m.13s., SSSS = +35m.48s.
Algiers SKS = +23m.9s.
Stuttgart eE = +15m.31s., iPPE = +16m.14s., iSKS = +23m.16s., iN = +24m.2s., eSSN = +29m.16s.
Zurich ePP = +16m.22s.
Jena iE = +16m.2s., eNZ = +16m.5s. = PP −5s., iN = +16m.23s., iE = +19m.41s. = PPPP +18s., i = +23m.57s. = S +19s. and +24m.11s. = PS −18s.
Potsdam iE = +12m.50s., iN = +12m.58s., iPPZ = +16m.21s., iEZ = +19m.49s. = PPPP +24s., iZ = +24m.6s. and +24m.45s., eSSZ = +29m.11s., eSSSEZ = +32m.11s.?
Cheb ePP = +16m.26s., ePS = +24m.19s., eSS = +29m.35s.
Innsbruck P_cP = +13m.12s., PP = +17m.11s., SKKS = +24m.7s., PPS = +26m.9s., PKKP? = +30m.3s., SS = +31m.15s.
Helsingfors iP_cP = +13m.8s., eZ = +15m.51s., ePPEN = +16m.37s., iPP = +16m.45s., eN = +17m.8s., iZ = +17m.12s., eZ = +18m.5s., eEN = +18m.18s., ePPPZ = +19m.2s., eE = +21m.35s., eN = +22m.1s., eEN = +22m.45s., iEZ = +24m.23s., iN = +24m.27s., eZ = +25m.23s., ePPSN = +25m.43s., iSSN = +29m.27s., iSSE = +29m.45s., iSSSE = +33m.18s., iSSSN = +33m.57s., eZ = +37m.40s.

Continued on next page.

Königsberg eE = +13m.53s., PPZ = +16m.47s., PPEN = +16m.51s., eE = +18m.43s. = PPP + 18s., iE = +20m.33s., eN = +21m.53s., SKSE = +23m.28s., iSN = +23m.39s. = SKKS − 5s., E = +24m.25s. = S − 19s., iN = +24m.28s., iPSEN = +24m.38s., ePPS?N = +26m.7s., N = +27m.47s., E = +27m.59s., eN = +30m.3s., eSSSEN = +34m.5s.
Treviso PP = +16m.21s.
Laibach ePP = +16m.47s., e = +21m.28s., and +24m.50s. = PS − 21s.
Graz ePPP = +18m.48s., iPS = +24m.48s.
Vienna iP = +14m.50s., i = +16m.0s., PP = +17m.2s., i = +18m.10s., PPP? = +19m.46s., PS = +24m.56s., SS = +30m.19s.
Rome PP = +17m.5s.
Pulkovo PP = +16m.33s., PPP = +19m.2s., SS = +30m.11s.
Zagreb i = +13m.20s., iNW = +13m.30s., i = +13m.41s., and +13m.52s., iNW = +14m.52s., e = +15m.40s. and +16m.24s., iNW = +17m.24s., iNE = +17m.48s., eNE = +18m.40s. = PPP − 1s., eSKS = +23m.45s., eSKKS = +24m.2s., iPS = +24m.24s., iPPS = +24m.59s., eNW = +25m.48s., e = +29m.59s., eNW = +34m.4s., and +37m.41s.
Belgrade ePE = +13m.30s., eZ = +17m.21s., eE = +17m.26s., eN = +17m.36s., ePPP = +19m.21s.
Catania iPP = +17m.7s.
Kucino ePP = +17m.43s.
Wellington PP = +17m.38s., e = +28m.1s., SS = +30m.41s.
Christchurch iPP = +18m.10s., iSS = +33m.8s.
Ekaterinburg iPP = +18m.21s., iPS = +27m.32s., iSS = +33m.11s.
Vladivostok iPP = +18m.33s., PS = +27m.38s., SS = +33m.47s.
Toyooka i = +28m.43s., eE = +45m.39s.
Irkutsk ePKP = +17m.39s., PP = +18m.38s., SS = +34m.5s.
Kobe PPZ = +18m.16s. = PKP + 0s., PPE = +19m.2s., SZ = +28m.24s., eSN = +28m.40s., SS = +34m.22s., eE = +42m.2s.
Koti PcP? = +19m.3s. = PP − 2s., eN = +26m.35s. = SKKS + 20s., SSE = +34m.49s.
Ksara PPE = +19m.26s., PPPPPE = +25m.25s., PPS = +30m.14s., SSN = +35m.5s.
Nagasaki PPP? = +29m.6s. = PS − 1s.
Baku PP = +19m.21s., PPP = +21m.11s., PS = +28m.57s.
Chiufeng PPE = +19m.57s., PKSE? = +21m.13s., SKSE? = +23m.42s., SSE? = +35m.59s., SSSE? = +40m.15s.
Riverview i?E = +22m.13s. = PPP − 2s. and +22m.39s., iPPP?E = +26m.49s. = SKKS − 10s., iPPPPE = +29m.44s. = PS + 5s., i = +31m.11s., PPPS?E = +35m.57s. = SS − 2s., SS?E = +40m.8s. = SSS − 3s., SSSS?N = +47m.47s.
Sydney iP = +19m.45s. = PP − 6s., SS = +35m.41s., SSS = +39m.47s.
Zi-ka-wei eZ? = +14m.55s., iZ = +19m.31s., +30m.9s. = PS + 5s., +31m.47s. and +37m.7s.
Tashkent e = +14m.11s., i = +19m.21s., e = +24m.11s.?
Melbourne i = +22m.1s., +29m.25s., +37m.24s. = SS + 19s., and +41m.11s. = SSS − 15s., e = +44m.26s. = SSSS − 30s. and +51m.21s.
Johannesburg +22m.29s.
Adelaide i = +26m.38s. and +31m.22s., iSSS = +38m.20s. and +38m.32s., i = +49m.51s.
Hong Kong PP = +22m.31s., SS = +39m.1s.
Manila iEN = +22m.7s., PPPE = +27m.9s., PS = +35m.45s.
Amboina i = +21m.45s. = PP − 2s. and +22m.38s. = PKS − 14s.
Tananarive iE = +19m.38s., iN = +19m.40s., PPE = +23m.2s., PKSN = +23m.35s., PKSE = +23m.38s., N = +24m.53s., PPPE = +26m.0s., E = +27m.11s., PPSN = +29m.2s., SKKSE = +30m.9s., SKKSN = +31m.58s., PSE = +34m.8s., PSN = +34m.26s., PPSE = +35m.44s., PPSN = +36m.29s., SSN = +42m.8s., SSE = +42m.14s., SPSN = +42m.38s., SPSE = +42m.44s., SSSE = +47m.13s., SSSN = +47m.17s., SSSSE = +51m.50s., SSSSSEN = +56m.32s., PSSSN = +62m.31s.
Medan iP = +22m.5s.
Batavia iE = +19m.11s., iN = +20m.13s., iE = +23m.15s.

Jan. 15s. 13h. 39m. 0s. Epicentre 33°·0N. 129°·8E. N.3.

A = −·537, B = +·644, C = +·545; D = +·768, E = +·640;
G = −·349, H = +·418, K = −·839.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Nagasaki	0·3	165	0 4	0	0 13	+ 5	—	—
Hukuoka	0·8	42	i 0 10	− 1	0 20	− 1	—	0·4
Matuyama	2·6	71	i 0 29	− 8	(0 57)	−10	1·0	1·2
Koti	3·2	77	e 0 43	− 3	1 14	− 8	—	1·4
Sumoto	4·5	71	e 1 2	− 2	1 57	+ 2	—	2·1
Kobe	4·7	68	—	—	2 7	+ 7	—	2·3
Toyooka	4·9	57	i 1 19	+ 9	i 2 11	+ 6	—	2·4
Osaka	5·0	69	1 20	+ 9	(2 19)	+11	2·3	3·0

Additional readings:—
Kobe SZ = +2m.11s.
Toyooka iPZ = +1m.21s., eSZ = +2m.23s.

Jan. 15d. 21h. 1m. 42s. Epicentre 28°·6N. 127°·2E. N.1.

Probable error of epicentre ±0°·21.

A = −·531, B = +·699, C = +·479; D = +·797, E = +·605; G = −·289, H = +·381, K = −·878.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Nagasaki	4·7	29	1 10	+ 3	2 16	+16	—	4·6
Hukuoka	5·6	29	1 25	+ 5	i 2 37	+14	3·4	3·8
Zi-ka-wei	5·6	299	i 1 2	−18	2 10	−13	—	3·3
Matuyama	7·0	41	i 0 58	−41	—	—	5·0	6·1
Koti	7·3	46	e 1 47	+ 3	3 20	+14	4·6	5·2
Sumoto	8·7	47	2 4	+ 1	4 32	+51	5·9	6·9
Kobe	9·1	46	2 11	+ 2	5 14	S_g	6·1	7·4
Osaka	9·3	47	2 12	+ 1	—	—	4·5	7·4
Toyooka	9·4	41	e 2 15	+ 2	i 5 4	?	e 6·3	9·0
Hong Kong	13·3	245	3 3	− 3	5 56	+22	8·0	9·0
Tyosi	13·6	55	3 15	+ 5	e 8 0	L	(e 8·0)	—
Chiufeng	14·6	325	3 23	0	e 6 3	− 2	8·5	—
Vladivostok	15·0	14	i 3 35	+ 7	6 23	+ 8	6·9	8·8
Manila	15·2	204	i 3 34	+ 3	i 6 32	+12	i 8·1	—
Mizusawa	15·6	44	3 35	− 1	9 42	L	(9·7)	—
Irkutsk	29·1	331	5 59	+ 2	10 45	− 5	14·3	19·0
Calcutta	35·4	272	7 52	PP	—	—	21·7	—
Batavia	40·0	215	6 53	−39	i 13 52	+16	—	—
Almata	42·5	305	8 9	+16	—	—	26·3	—
Dehra Dun	42·5	285	12 48	?	17 48	(− 9)	23·3	24·3
Agra	43·2	282	e 5 48	?	—	—	i 21·2	—
Andijan	45·9	301	e 8 24	+ 4	e 15 7	+ 4	e 25·1	—
Hyderabad	45·9	269	8 22	+ 2	15 2	− 1	23·6	31·9
Tashkent	48·2	303	i 8 38	0	15 30	− 6	25·3	29·5
Colombo	49·6	256	9 47	+59	—	—	—	33·3
Samarkand	50·1	300	e 8 51	− 1	—	—	—	—
Bombay	50·3	273	8 57	+ 3	16 9	+ 4	26·3	32·0
Ekaterinburg	53·7	322	i 9 21	+ 2	i 16 53	+ 1	26·3	33·3
Perth	61·5	191	i 19 8	S	(i 19 8)	+32	—	—
Adelaide	64·5	169	—	—	e 20 27	(+ 2)	i 32·6	38·8
Riverview	66·4	158	—	—	e 27 54	?	e 34·7	38·0
Sydney	66·4	158	14 24	PPP	—	—	—	39·0
Pulkovo	68·9	329	e 11 1	− 3	e 20 6	− 2	37·3	43·2
Helsingfors N.	71·2	330	—	—	e 20 34	− 1	e 39·1	—
Königsberg	75·8	326	e 10 6	?	—	—	e 41·6	48·8
Scoresby Sund	78·5	350	—	—	27 12	SS	40·3	—
Copenhagen	79·1	329	12 6	+ 3	22 6	0	40·3	—
Budapest	80·3	320	e 12 18?	+ 9	e 22 18?	− 1	43·3	50·8
Potsdam	80·8	326	—	—	e 21 18?	−66	e 44·3	47·3
Vienna	81·4	322	12 14	− 1	22 2	−29	e 32·3	53·3
Cheb	82·5	324	e 12 22	+ 1	e 22 48	+ 6	e 45·3	52·8
Göttingen	82·8	327	i 12 20	− 2	—	—	e 44·9	53·6
Zagreb	83·0	320	e 11 45	−38	e 22 45	− 2	e 40·3	44·3
Strasbourg	83·9	325	i 12 38	+10	—	—	e 40·3	55·9
Feldberg	84·4	327	—	—	i 22 57	− 5	e 40·7	54·8
Neuchatel	84·4	325	e 12 43	+13	—	—	—	—
De Bilt	84·8	329	12 34	+ 2	e 23 7	+ 1	e 44·3	50·4
Stuttgart	85·0	325	e 12 31	− 2	e 23 6	− 2	e 46·3	55·3
Taranto	85·2	315	18 1	?	31 52	SSS	43·0	57·3
Uccle	86·0	329	e 20 18?	?	e 32 56	?	e 45·3	55·7
Chur	86·0	323	e 12 37	− 1	—	—	—	—
Zurich	86·2	323	e 12 43	+ 4	—	—	—	56·3
Florence	86·9	320	12 13	−30	i 23 28	+ 2	33·8	48·3
Piacenza	87·0	321	—	—	23 30	+ 3	45·3	55·8
Kew	87·6	331	—	—	e 34 18?	?	44·3	57·2
Paris	88·2	330	—	—	e 24 18?	PS	47·3	57·3
Catania	88·3	314	e 12 49	0	23 35	− 5	e 30·7	57·3
La Paz	161·4	53	e 20 4	[+ 9]	—	—	82·3	—

For Notes see next page.

NOTES TO JAN. 15d. 21h. 1m. 42s.

Additional readings :—
Zi-ka-wei iZ = +1m.26s., iE = +1m.36s., iNZ = +1m.43s., iEZ = +1m.59s., iE = +2m.8s.
Koti iZ = +4m.0s., eEN = +4m.9s. = S_g.
Kobe eZ = +4m.58s.
Osaka i = +2m.36s., +3m.34s., and +5m.21s.
Toyooka iPZ = +2m.18s., iSZ = +6m.22s.
Tyosi eSE = +8m.21s.
Batavia i = +14m.56s.
Adelaide e = +25m.46s., i = +31m.31s.
Helsingfors eSE = +20m.40s., eN = +36m.16s., eE = +36m.43s.
Königsberg eN = +10m.45s., eE = +14m.42s. = PP +14s., e? = +18m.42s., eN = +24m.24s., and +41m.20s.
Potsdam eNZ = +32m.18s.?
Feldberg e = +28m.39s. = SS + 21s. and +32m.18s., i = +32m.39s.
Stuttgart eSSEN = +28m.38s., e = +33m.18s.?
Long waves were also recorded at Wellington, Kodaikanal, Kucino, Ivigtut, San Juan, and at many other European and American stations.

Jan. 15d. 22h. 43m. 6s. Epicentre 3°·0S. 143°·5E. (as on 1930 Dec. 31d.). R.2.

A = −·803, B = +·594, C = −·052 ; D = +·595, E = +·804 ; G = +·042, H = −·031, K = −·999.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Palau		13·7	319	3 11	0	5 43	− 1	—	—
Amboina		15·3	267	i 3 31	− 1	i 6 42	+20	—	—
Manila		28·4	309	5 52	+ 1	i 10 38	0	i 12·6	—
Riverview		31·7	168	6 18	− 2	11 29	− 2	16·9	19·5
Sydney		31·7	168	i 11 6	S	(i 11 6)	−25	17·3	20·5
Adelaide		32·3	188	i 6 26	+ 1	i 11 44	+ 4	15·6?	21·0
Melbourne		34·8	178	e 7 6	+19	e 12 30	+12	18·5	20·9
Taihoku	E.	35·2	324	e 7 7	+16	—	—	—	15·8
Malabar		36·0	262	11 44	?	i 11 56	?	—	—
Batavia		36·7	264	i 6 28	−36	—	—	—	—
Koti		37·7	348	e 7 5	− 7	12 42	−20	15·9	17·1
Hong Kong		38·2	314	7 14	− 3	(13 5)	− 4	13·1	17·4
Sumoto		38·2	350	e 7 15	− 2	13 2	− 7	17·4	17·9
Misima		38·3	355	7 18	0	12 55	−16	—	—
Osaka		38·4	350	6 55	−23	(11 46)	?	11·8	12·2
Kobe		38·5	350	e 7 9	−10	—	—	e 15·8	18·7
Tokyo		38·8	356	7 26	+ 4	—	—	—	—
Tyosi	E.	38·8	357	e 13 23	S	(e 13 23)	+ 5	—	—
Perth		38·9	219	i 7 34	+11	i 13 34	+14	i 18·7	20·0
Kumagaya		39·3	356	7 25	− 1	13 1	−25	—	—
Zi-ka-wei		40·1	330	e 7 18	−15	13 20	−18	—	22·1
Mizusawa	E.	42·2	357	7 48	− 2	14 24	+15	22·8	—
	N.	42·2	357	7 42	− 8	13 54	−15	23·3	—
Miyazaki		42·4	342	7 3	−49	11 11	?	—	—
Morioka		42·8	358	8 9	+14	—	—	—	—
Vladivostok		47·2	350	i 10 26	PP	i 14 14	?	—	18·2
Wellington		47·5	148	e 8 49	+17	15 27	+ 1	21·9	30·9
Christchurch		48·1	151	e 9 53	PP	(i 15 47)	+13	—	—
Chiufeng		49·8	334	e 8 48	− 2	e 15 56	− 2	—	—
Calcutta		59·5	298	11 18	(+27)	18 50	+41	27·5	—
Colombo		64·3	279	10 31	− 3	19 11	0	31·4	43·4
Irkutsk		64·4	335	e 10 33	− 2	i 19 9	− 3	27·9	32·7
Kodaikanal		67·1	283	19 54	S	(19 54)	+ 8	—	—
Hyderabad		67·3	291	7 58	?	19 53	+ 5	42·4	58·3
Agra		69·8	302	e 8 39	?	(17 55)	?	—	—
Dehra Dun		70·6	305	10 54	−20	(20 44)	+16	20·7	20·9
Bombay		72·8	291	11 33	+ 5	20 52	− 2	37·9	45·4
Almata		75·3	317	e 11 56	+14	e 21 24	0	e 25·4	—
Andijan		77·8	313	e 12 3	+ 6	e 21 53	+ 1	—	—
Tashkent		80·3	313	i 14 10	+121	i 24 32	+133	e 38·9	46·0

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Samarkand		81·6	311	e 12 8	− 8	e 22 26	− 7	—	—
Ekaterinburg		88·6	328	12 56	+ 5	23 32	− 11	35·9	44·4
Victoria		94·4	42	31 22	SS	—	—	43·5	51·1
Berkeley	E.	95·1	52	—	—	e 25 3	+20	e 44·3	—
Pulkovo		104·1	331	—	—	e 25 10	[+25]	51·9	58·8
Helsingfors		106·4	332	—	—	e 25 1	[+ 5]	e 53·9	—
Scoresby Sund		111·8	355	—	—	26 54?	{+34}	52·9	—
Copenhagen		114·4	332	—	—	28 54?	PS	58·9	—
Cheb		117·5	327	e 17 54?	[−46]	—	—	—	57·9
Taranto		118·8	315	25 37	SKS	37 57	?	—	65·6
Feldberg		119·5	329	—	—	e 36 11	SS	e 55·8	62·5
Stuttgart		119·9	327	e 21 9	?	—	—	58·9	—
De Bilt		120·0	332	—	—	e 29 54?	PS	e 58·9	70·8
Chur		120·8	325	e 35 31	?	—	—	—	—
Uccle		121·2	331	—	—	e 24 54?	?	e 49·9	—
Florence		121·4	320	23 23	?	30 52	PS	50·9	84·9
Catania		121·6	313	e 20 37	PP	—	—	—	—
Piacenza		121·7	323	—	—	e 28 18	{+50}	58·4	75·4
Bidston		122·6	336	—	—	e 35 26	SS	e 60·5	—
Ottawa		125·5	33	e 33 24	?	e 37 14	SS	e 51·9	—
La Paz		143·1	123	i 19 38	[+11]	26 52	?	69·5	78·0
San Juan		147·1	57	e 19 54?	[+17]	—	—	—	—

Additional readings and notes :—
Sydney S = +15m.42s.
Melbourne i = +7m.25s., e = +15m.0s.
Batavia i = +7m.52s., iE = +7m.58s., i = +15m.0s. =SS − 5s.
Koti ePZ = +7m.9s.
Hong Kong S = +11m.5s.
Sumoto SE = +13m.47s.
Christchurch S = +20m.3s. true S is given as iPPP.
Agra S is given as PN.
Dehra Dun S = +16m.4s.
Berkeley eN = +39m.21s., eE = +41m.0s., eN = +42m.25s.
Pulkovo e = +33m.25s.
Helsingfors ePPPN = +26m.35s., ePPSN = +33m.43s., eSSSN = +43m.43s., eN = +47m.1s. and +49m.12s.
Scoresby Sund +34m.54s.? =SS +11s.
Feldberg e = +40m.54s. and +42m.48s.
De Bilt eEN = +47m.54s.?
La Paz iZ = +20m.55s., PPE = +23m.30s.
Long waves were also recorded at Toyooka, La Plata, and many other American and European stations.

Jan. 15d. Readings also at 1h. (Nagoya and near Lick), 7h. (Tucson), 8h. (La Paz and near Lick), 12h. (Collurania and Rome), 13h. (Haiwee, La Jolla, Pasadena, Tinemaha, Florissant, and St. Louis), 14h. (Tucson), 16h. (Tyosi), 18h. (Batavia and near Malabar), 19h. (Ivigtut and Tortosa), 20h. (near Santiago), 22h. (Zi-ka-wei), 23h. (Samarkand).

Jan. 16d. 1h. 25m. 28s. Epicentre 19°·5N. 122°·0E. N.3.

A = −·499, B = +·799, C = +·334; D = +·848, E = +·530;
G = −·177, H = +·283, K = −·943.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Manila		5·0	191	e 1 9	− 2	i 2 9	+ 1	—	—
Kobe	Z.	19·1	35	e 4 19	− 1	—	—	—	—
Osaka		19·3	36	4 23	+ 1	(7 18)	−34	7·3	8·1
Irkutsk		35·5	341	e 7 16	+23	—	—	17·5	28·0
Bombay		46·2	277	—	—	e 18 32	(+12)	—	—
Samarkand		50·9	306	e 8 58	0	—	—	—	—
Ekaterinburg		58·2	325	i 9 50	− 2	e 17 53	+ 1	29·5	—

Additional readings :—
Manila eE = +1m.15s., iZ = +1m.22s., iP$_g$E? = +1m.27s., iE = +4m.42s.
Kobe e = +4m.23s.
Long waves were also recorded at Hong Kong.

Jan. 16d. 16h. 52m. 10s. Epicentre 15°·8N. 84°·9W. N.3.

A = +·088, B = −·958, C = +·272; D = −·996, E = −·089; G = +·024, H = −·271, K = −·962.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Port au Prince		12·2	76	i 3 54	+63	e 5 38	+30	—	—
Florissant		23·1	349	i 5 1	− 1	i 9 7	0	—	—
St. Louis		23·3	349	i 5 0	− 4	i 9 4	− 6	—	—
Toronto		28·2	8	e 5 53	+ 4	i 10 45	+10	—	—
Tucson		28·8	310	5 54	0	10 38	− 7	—	—
Denver	E.	29·7	328	e 7 30	+88	—	—	—	—
Ottawa		30·5	13	—	—	i 11 24	+12	e 17·8	—
La Paz		36·2	153	e 7 0	0	i 12 37	− 2	15·5	17·4
Helsingfors	N.	85·7	27	—	—	e 24 29	PS	—	—
Ekaterinburg		101·9	18	i 18 3	PP	i 25 31	−12	30·8	—
Baku		109·8	35	—	—	e 29 8	?	50·8	—

Additional readings :—
Port au Prince i = +4m.2s. and +4m.12s., e = +4m.52s.
Florissant iNZ = +5m.37s. =PP +13s. and +5m.53s., iN = +9m.19s., and +10m.16s.
St. Louis iN = +5m.35s., +5m.55s., +6m.38s., and +9m.15s., iE = +9m.37s. and +10m.15s., iN = +10m.20s.
Toronto i = +12m.13s.
Ekaterinburg i = +24m.19s., e = +28m.7s.

Jan. 16d. 19h. 19m. 59s. Epicentre 16°·4N. 96°·3W. (as on 15d.). R.1.

Probable error of epicentre ±0°·25.

A = −·105, B = −·954, C = +·282; D = −·994, E = +·110; G = −·031, H = −·281, K = −·959.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Balboa Heights		17·9	112	e 4 7	+ 2	—	—	—	—
Tucson		20·7	323	4 35	− 2	8 33	+13	10·8	—
Columbia		22·3	35	4 55	+ 1	9 1	+ 9	11·0	—
St. Louis		22·9	13	i 5 0	0	i 9 14	+11	12·1	16·0
Port au Prince		23·0	81	e 5 1	0	i 9 27	+22	e 14·5	—
Florissant		23·0	11	i 5 1	0	i 9 15	+10	—	—
Denver		24·5	344	e 5 23	+ 8	e 9 56	+24	e 13·0	—
La Jolla		25·1	315	e 5 21	0	e 9 53	+10	—	—
Riverside		25·9	317	e 5 29	+ 1	10 9	+12	—	—
Pasadena		26·4	316	e 5 34	+ 1	—	—	—	—
Chicago		26·5	15	i 5 32	− 2	i 10 16	+ 9	14·0	—
Charlottesville		26·7	32	5 37	+ 2	10 19	+ 9	12·0	—
Haiwee		27·6	320	e 5 42	− 2	e 10 29	+ 4	—	—
Ann Arbor		28·1	20	i 6 1	+13	e 11 13	+39	e 16·5	23·4
Georgetown		28·1	33	e 5 47	− 1	10 51	+17	e 15·0	—
Buffalo		30·4	26	i 6 10	+ 1	i 11 18	+ 8	i 13·0	—
Lick	E.	30·7	320	e 6 11	0	—	—	15·8	—
Toronto	E.	30·8	24	i 6 9	− 3	i 11 18	+ 1	14·4	23·5
Fordham		31·2	34	e 6 18	+ 2	e 11 32	+ 9	15·5	—
Berkeley		31·4	320	e 6 7	−10	i 11 42	+16	e 15·4	20·0
Ottawa		33·7	26	e 6. 39	+ 1	i 12 6	+ 5	e 17·0	—
Harvard		33·7	34	—	—	e 12 12	+11	e 21·0	—
Victoria	E.	38·9	332	7 20	− 3	13 36	+16	19·3	25·0
	N.	38·9	332	7 14	− 9	13 34	+14	—	—
La Paz		43·0	138	i 7 57	0	i 14 21	0	20·6	24·3
Sitka		50·1	334	—	—	e 16 22	+20	e 24·7	—
Ivigtut		56·2	26	9 52	+15	—	—	28·0	—
La Plata		62·9	145	10 24	− 1	18 48	− 6	28·2	—
Scoresby Sund		69·4	20	11 7	0	20 37	+23	34·0	—
Bidston		78·8	39	e 12 7	+ 6	e 21 54	− 9	39·5	—

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
San Fernando	80·4	55	12 11	+ 1	22 41	+21	34·0	45·5
Kew	80·9	40	e 12 13	0	—	—	39·0	—
Toledo	81·3	50	e 12 14	− 1	e 22 35	+ 5	e 37·2	46·0
Malaga	81·7	54	12 16	− 1	22 48	+14	30·9	—
Granada	82·3	53	i 12 14	− 6	22 48	+ 8	e 38·0	42·4
Almeria	83·3	53	12 22	− 3	22 59	+ 9	37·5	44·2
Paris	83·4	51	i 12 23	− 2	23 1?	+10	40·0	45·0
Uccle	83·9	39	i 12 28	0	i 23 7	+11	e 40·0	—
De Bilt	84·0	37	i 12 29	+ 1	e 23 8	+10	e 40·0	46·3
Alicante	84·3	51	e 12 32	+ 2	e 23 8	+ 7	e 40·8	—
Hamburg	86·2	35	e 12 1	−38	e 23 21	+ 2	e 42·0	47·0
Feldberg	86·5	39	—	—	e 23 26	+ 4	—	47·3
Copenhagen	86·6	31	12 41	0	23 24	+ 1	40·0?	—
Strasbourg	86·7	40	e 12 40	− 2	e 23 1?	[−10]	e 41·0	—
Neuchatel	86·8	42	e 12 46	+ 4	—	—	—	—
Göttingen	87·0	36	—	—	e 23 1?	[−12]	e 42·0	49·7
Lund	87·0	31	—	—	24 1?	PS	40·0	—
Upsala	87·3	27	—	—	e 23 31	+ 1	e 45·0	—
Stuttgart	87·5	40	i 12 44	− 1	23 31	− 1	e 43·5	49·4
Algiers	87·5	52	—	—	23 36	+ 4	45·0	46·0
Jena	88·1	36	e 16 1	PP	e 23 30	− 8	e 46·0	59·2
Potsdam	88·3	35	—	—	e 23 31	[+ 9]	e 40·0	49·0
Chur	88·5	42	e 12 58	+ 8	—	—	—	—
Cheb	88·9	38	e 15 1?	?	e 23 30	[+ 4]	e 43·0	54·5
Placenza	89·2	43	23 33	SKS	(23 33)	[+ 5]	45·0	52·3
Helsingfors	90·2	25	—	—	e 23 25	[− 9]	e 45·0	—
Florence	90·8	44	12 50	−11	23 0	[−37]	—	50·0
Treviso	91·2	41	e 13 1	− 2	23 41	[+ 1]	46·0	—
Rome	92·3	45	e 13 27	+19	e 25 36	PS	—	—
Pulkovo	92·5	24	13 12	+ 3	23 41	[− 6]	46·0	55·4
Zagreb	92·9	40	e 13 13	+ 2	e 23 31	[−18]	e 44·0	e 48·0
Kucino	98·2	24	e 22 1?	?	e 30 1?	?	e 39·0	60·0
Wellington	99·9	230	—	—	24 18	[− 7]	46·0	51·0
Ekaterinburg	104·3	12	14 0	− 3	24 40	[− 6]	47·0	65·5
Vladivostok	105·9	326	—	—	e 25 6	[+12]	e 55·8	—
Baku	115·1	28	19 23	[+50]	—	—	55·0	68·1
Sydney	117·5	241	e 26 31	SKKS	(e 26 31)	{−28}	57·4	62·6
Samarkand	121·8	14	e 20 19	PP	—	—	—	—
Andijan	121·9	10	e 19 25	[+35]	—	—	e 66·0	—
Melbourne	122·5	235	—	—	i 37 40	SS	56·3	—
Adelaide	127·8	239	i 22 57	?	e 30 24	SKSP	e 56·1	68·4
Hong Kong	131·1	322	22 31	PKS	—	—	—	73·3
Manila	131·9	310	e 19 9	[− 1]	22 40	PKS	—	—
Agra	136·1	7	e 20 22	[+66]	—	—	—	—
Calcutta	140·3	352	22 40	PP	35 26	?	67·7	—
Bombay	143·1	17	19 31	[+ 4]	32 54	SKSP	68·2	84·7

Additional readings :—
St. Louis i = +5m.28s. =PP +6s., iN = +5m.44s. and +9m.33s. =SS −5s.
Florissant iNZ = +5m.3s., iZ = +5m.19s., iPPNZ = +5m.29s., iN = +9m.35s. = SS −6s., iE = +10m.23s.
Pasadena eZ = +5m.30s.
Ann Arbor ePPN = +6m.49s., eN = +10m.37s. =S +3s., eSSE = +12m.43s., eSSN = +13m.1s.
Toronto PP = +7m.13s. ; T_o =19h.19m.21s.
Berkeley ePE = +6m.27s.
Ottawa eSSS = +14m.19s. ; T_o =19h.19m.46s.
La Paz PP = +9m.1s., iN = +17m.54s. =S_cS −6s.
Bidston PS = +22m.51s.
Granada i = +23m.14s., PS = +23m.38s.
Almeria PP = +15m.7s.
De Bilt ePPZ = +15m.44s.
Feldberg e = +16m.6s. =PP +9s. and +37m.31s.
Strasbourg i = +12m.51s.
Stuttgart ePP = +16m.11s., ePS = +24m.36s., eSSEN = +29m.31s., e = +39m.31s.

Continued on next page.

Jena eN = +23m.49s.
Helsingfors ePPE = +16m.44s., eN = +24m.24s., eE = +24m.31s., ePSN = +24m.55s., ePSE = +25m.10s.
Pulkovo PS = +25m.36s., SS = +30m.31s.
Zagreb eNW = +24m.31s. = S +8s. and +25m.43s. = PS +17s.
Wellington eZ = +21m.46s., e = +26m.39s. = PS −5s., SS = +33m.1s.?, SSS = +36m.1s. ?
Ekaterinburg PP = +18m.20s., PS = +27m.32s., PPS = +28m.40s., SS = +33m.43s.
Vladivostok e = +27m.57s. = PS +10s.
Baku PP = +19m.43s., PS = +29m.37s., PPS = +30m.56s.
Melbourne i = +42m.48s.
Long waves were recorded at Honolulu T.H., Perth, Riverview, Irkutsk, the European and Indian Stations.

Jan. 16d. Readings also at 1h. (Nagasaki, Sumoto, and near Osaka), 2h. (near Lick), 3h. (Andijan and Samarkand), 6h. (Zi-ka-wei, Almata, Andijan, and near Samarkand), 8h. (Tyosi), 9h. (Samarkand).

Jan. 17d. 0h. 52m. 5s. Epicentre 37°·0N. 143°·0E. (as on 1926 Oct. 3d.). R.3.

A = −·638, B = +·481, C = +·602; D = +·602, E = +·799;
G = −·481, H = +·362, K = −·799.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Tyosi	2·1	234	e 0 34	+ 4	—	—	—	—
Mizusawa	2·6	327	0 36	— 1	1 3	− 4	—	—
Nagoya	5·2	251	e 1 8	− 6	—	—	—	—
Osaka	6·5	252	1 36	+ 4	—	—	3·3	4·3
Kobe	6·8	253	1 39	+ 2	—	—	—	4·1
Sumoto	7·1	251	e 1 41	0	e 3 37	S*	—	4·4
Ekaterinburg	55·8	319	i 9 36	+ 2	—	—	28·9	—

Long waves were also recorded at Irkutsk and Baku.

Jan. 17d. 2h. 50m. 21s. Epicentre 26°·2N. 111°·2W. N.1.

Probable error of epicentre ±0°·30.

A = −·324, B = −·837, C = +·442; D = −·932, E = +·362;
G = −·160, H = −·412, K = −·897.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tucson		6·1	3	i 1 19	− 8	e 2 21	−15	3·0	—
La Jolla		8·5	323	i 2 0	0	(e 3 50)	+14	e 3·8	—
Riverside		9·4	327	e 2 12	− 1	(e 3 58)	− 1	e 4·0	—
Pasadena		9·9	325	e 2 19	0	(e 4 23)	+12	e 4·4	—
Santa Barbara	N.	11·1	320	e 2 37	+ 1	—	—	e 5·1	—
Haiwee		11·5	331	e 2 41	− 1	—	—	e 5·1	—
Tinemaha		12·4	333	e 2 54	0	—	—	—	—
Lick	E.	14·2	324	e 3 20	+ 2	i 6 26	+30	e 6·8	8·7
Denver		14·4	20	e 3 26	+ 5	e 6 14	+13	—	7·9
Berkeley	E.	15·0	324	e 3 23	− 5	i 6 30	+15	e 7·0	8·0
	N.	15·0	324	e 3 27	− 1	i 6 44	+29	e 7·7	9·0
	Z.	15·0	324	e 3 28	0	i 6 32	+17	—	—
Florissant		21·5	49	i 4 38	− 7	i 8 33	− 3	i 11·2	12·7
St. Louis		21·5	50	i 4 38	− 7	e 8 32	− 4	10·6	11·6
Victoria	E.	24·1	340	5 9	− 2	9 34	+ 9	12·7	17·5
Chicago		24·8	45	5 33	+15	i 9 39	+ 2	11·6	—
Saskatoon		26·1	6	5 34	+ 4	10 0	0	—	—
Columbia		27·1	66	e 5 46	+ 7	i 10 15	− 2	e 13·1	—
Ann Arbor		27·6	47	e 5 45	+ 1	e 10 9	−16	e 13·2	15·2
Charlottesville		29·9	59	—	—	10 57	− 6	e 14·1	—
Toronto		31·0	48	e 6 7	− 7	i 11 18	− 2	i 15·1	17·4
Georgetown		31·2	58	6 13	− 3	e 11 15	− 8	15·6	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Buffalo		31·2	50	e 6 21	+ 5	i 10 55	−28	e 15·6	—
Fordham		34·0	55	e 6 42	+ 2	i 11 56	−10	i 16·1	—
Ottawa		34·1	47	i 5 46	−55	e 12 1	− 7	e 15·6	18·6
Balboa Heights		34·6	115	—	—	e 14 39	SS	—	—
Sitka		35·3	338	i 8 19	PP	i 12 31	+ 5	i 18·9	—
Harvard		36·4	53	e 6 57	− 4	i 12 26	−16	15·6	—
Port au Prince		36·6	94	e 7 5	+ 2	e 13 4	+19	—	—
Honolulu T.H.		42·8	275	—	—	e 13 39?	−39	19·6	—
Ivigtut		54·3	32	9 48	+25	19 3	(−10)	—	—
La Paz		59·8	131	10 3	0	i 18 12	− 1	25·0	31·8
Scoresby Sund		65·2	21	—	—	19 15	− 7	29·6	—
Oxford		80·9	37	—	—	i 23 15	PS	e 38·0	50·0
Suva		81·5	244	—	—	e 25 9	?	e 41·6	48·7
Kew		81·6	36	—	—	(32 39?)	SSSS	32 6	43·2
Paris		83·1	37	e 12 39?	+15	—	—	35·6	41·6
De Bilt		84·0	34	—	—	e 22 57	− 1	e 35·6	44·0
Upsala		84·3	23	e 12 29	− 1	e 22 52	[− 2]	e 36·6	46·1
Uccle		84·4	35	e 12 27	− 3	23 1	− 1	e 34·6	45·0
Copenhagen		85·1	28	12 40	+ 6	23 2	[+ 2]	33·6	—
Toledo		85·4	47	12 35	0	23 3	[+ 1]	e 37·6	48·9
Lund		85·5	28	—	—	23 9	− 4	33·6	—
San Fernando		85·7	51	12 39	+ 2	23 9	[+ 5]	37·6	45·6
Bagnères		86·5	43	e 12 46	+ 5	—	—	e 35·6	—
Helsingfors	E.	86·5	20	—	—	e 23 11	[+ 1]	e 35·4	—
	N.	86·5	20	—	—	i 23 19	− 3	e 34·6	—
Malaga		86·7	50	12 39	− 3	23 20	− 4	32·6	—
Feldberg		86·8	34	—	—	e 23 20	− 5	—	46·2
Strasbourg		87·5	35	e 12 45	0	—	—	39·6	55·2
Potsdam		87·6	30	—	—	e 27 39?	SS	e 40·6	53·1
Granada		87·6	50	i 12 46	0	i 23 29	− 4	—	48·1
Jena		87·9	30	—	—	e 37 15	SS	e 40·2	42·2
Neuchatel		88·0	37	e 12 48	0	—	—	—	—
Almeria		88·0	49	12 40	− 8	23 14	[− 6]	42·9	46·5
Stuttgart		88·1	35	—	—	e 39 39?	?	e 42·6	45·3
Pulkovo		88·4	18	12 50	0	23 25	[+ 2]	35·6	52·4
Alicante		88·5	47	e 12 31	−19	e 23 19	[− 4]	e 39·7	—
Barcelona		88·5	42	e 12 59	+ 9	e 23 12	[−11]	e 35·3	58·4
Cheb		88·9	31	—	—	e 23 39?	− 7	e 40·6	51·2
Königsberg		89·0	25	e 17 21	PP	e 23 57	+11	e 46·9	49·6
Chur		89·5	37	e 12 51	− 4	—	—	—	—
Vladivostok		89·7	320	13 1	+ 5	i 23 37	[+ 6]	e 37·9	62·3
Piacenza		90·8	37	—	—	e 23 31	[− 6]	38·6	45·9
Algiers		91·7	46	—	—	24 2	−10	40·6	46·6
Florence		92·4	38	—	—	24 9	− 9	39·6	44·6
Zagreb		93·4	34	e 13 9	− 4	—	—	e 40·2	48·6
Kucino		93·9	17	—	—	24 33	+ 1	41·8	50·9
Irkutsk		95·6	340	e 13 18	− 5	24 2	[− 2]	e 42·6	59·1
Wellington		96·1	226	—	—	e 24 51	− 1	45·2	49·6
Ekaterinburg		96·6	5	1 13 32	+ 4	24 51	− 5	40·6	50·1
Christchurch		98·5	225	—	—	e 25 18	+ 5	45·5	—
Almata		110·1	353	—	—	e 29 45	?	e 60·3	—
Baku		111·1	14	—	—	e 26 56	{+41}	47·6	—
Ksara		112·3	29	19 36	PP	24 34	[−49]	56·0	67·6
Andijan		113·0	357	e 19 4	PP	—	—	e 59·6	—
Samarkand		114·1	1	e 18 57	[+27]	e 29 9	PS	e 50·1	—
Hong Kong		114·5	314	14 14	−39	29 0	PS	—	70·1
Manila		114·9	303	21 59	PPP	30 22	PPS	54·4	—
Melbourne		116·1	239	—	—	i 29 39	PS	53·7	57·1
Adelaide		120·5	243	—	—	e 29 57	PS	51·1?	65·1
Dehra Dun		122·8	350	44 19	?	52 49	?	66·8	76·6
Calcutta		127·7	336	21 39	PP	—	—	65·6	—
Bombay		134·7	355	21 40	PP	35 1	?	69·9	85·2
Batavia		138·6	293	e 19 27	[+ 7]	—	—	—	—
Colombo		145·2	340	19 43	[+ 9]	—	—	91·6	—

For Notes see next page.

NOTES TO JAN. 17d. 2h. 50m. 21s.

Additional readings :—
Tucson i = +1m.25s., S* = +2m.44s.
Pasadena ePN = +2m.21s., 3PZ = +2m.23s.
Lick iPPE = +3m.38s., iPPN = +3m.41s., iN = +4m.19s., eE = +4m.29s.
Berkeley iPPN = +3m.32s., iPPE = +3m.35s., iPPZ = +3m.37s., iEN = +3m.38s.
Florissant iNZ = +5m.19s., iN = +10m.47s.
St. Louis iPPN = +5m.3s.
Victoria PE = +5m.12s.
Chicago ePP = +6m.3s.
Ann Arbor eN = +5m.57s., i = +10m.39s.
Toronto e? = +6m.0s., e = +10m.57s., iS = +11m.9s., SS = +13m.24s.
Georgetown iZ = +11m.55s.
Buffalo e = +7m.4s. = PP − 8s.
Harvard e = +14m.39s.? ; T_0 = 2h.50m.23s.
Port au Prince i = +8m.46s. and +9m.15s. = P_cP − 16s.
Honolulu T.H. e = +18m.3s. = S_cS + 4s.
Scoresby Sund +23m.39s. = SS + 10s.
Helsingfors ePSE = +24m.5s., eN = +25m.8s., eE = +25m.11s., eN = +25m.58s., eSSEN = +28m.50s.
Feldberg e = +26m.39s., +27m.54s., and +34m.33s.
Pulkovo PS = +24m.24s., SS = +29m.15s., SSS = +32m.27s.
Königsberg e? = +21m.51s., eE = +41m.15s., eN = +41m.27s.
Vladivostok PP = +16m.33s.
Kucino SKS = +23m.57s., SS = +30m.21s.
Irkutsk ePP = +17m.13s., PS = +25m.50s., SS = +31m.9s.
Wellington e = +31m.39s.? = SS + 32s.
Ekaterinburg iPP = +17m.28s., SKS = +24m.5s., iPS = +26m.16s., eSS = +31m.21s.
Baku ePP = +19m.14s., PS = +28m.42s., SS = +34m.51s.
Ksara eN = +29m.11s., ePPSN = +31m.7s., eN = +34m.32s. = SS − 18s., eSSSSN = +45m.17s.
Adelaide i = +22m.52s. = PPP + 12s., e = +36m.27s. = SS − 12s.
Long waves were also recorded at Riverview, Perth, Koti, Kobe, Sumoto, Hyderabad, Kodaikanal, Simferopol, Theodosia, Yalta, and other European stations.

Jan. 17d. 5h. 36m. 0s. Epicentre 16°·4N. 96°·3W. (as on 16d.). R.2.

		Δ	Az.	P.	O − C.	S.	O − C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tucson	N.	20·7	323	4 33	− 4	8 30	+10	10·8	—
St. Louis		22·9	13	i 5 0	0	i 9 12	+ 9	14·4	16·5
Florissant		23·0	11	i 5 1	0	i 9 15	+10	e 14·0	16·0
La Jolla	E.	25·1	315	e 5 16	− 5	e 9 55	+12	—	—
Riverside		25·9	317	e 5 24	− 4	e 10 0	+ 3	—	—
Pasadena		26·4	316	e 5 30	− 3	—	—	—	—
Chicago		26·5	15	5 35	+ 1	10 24	+17	e 16·0	—
Charlottesville		26·7	32	—	—	10 18	+ 8	e 17·0	—
Haiwee	E.	27·6	320	e 5 41	− 3	e 10 29	+ 4	e 14·5	—
Tinemaha		28·4	321	e 5 49	− 2	—	—	—	—
Buffalo		30·4	26	i 6 10	+ 1	e 11 18	+ 8	e 16·4	—
Toronto		30·8	24	i 6 15	+ 3	11 30	+13	15·8	—
Ottawa		33·7	26	i 6 38	0	i 12 8	+ 7	e 17·0	—
La Paz		43·0	138	e 8 8	+11	16 47	?	23·0	27·1
Sitka		50·1	334	—	—	e 20 30	SSS	29·0	—
Ekaterinburg		104·3	12	i 18 22	PP	e 24 55	[+ 9]	48·0	65·4

Additional readings :—
La Jolla ePN = +5m.19s.
Chicago ePP = +6m.0s., eSS = +11m.0s.
Ekaterinburg e = +27m.39s. = PS + 8s.
Long waves were also recorded at Harvard, Victoria, Ivigtut, Scoresby Sund, Baku, and European stations.

Jan. 17d. 8h. 7m. 20s. Epicentre 38°·5N. 117°·5W. N.3.

A = −·361, B = −·694, C = +·623; D = −·887, E = +·462; G = −·287, H = −·552, K = −·783.

	△	Az.	P.	O−C.	S.	O−C.
	°	°	m. s.	s.	m. s.	s.
Tinemaha	1·6	203	i 0 12	−11	i 0 20	−21
Haiwee	2·4	189	e 0 28	− 6	e 0 50	−12
Lick	3·5	253	i 0 50	0	1 26	− 4
Berkeley	3·9	262	e 0 55	− 1	e 1 44	+ 4
Pasadena	4·4	186	e 1 4	+ 1	e 1 54	+ 1
Santa Barbara	4·5	205	e 1 5	+ 1	i 1 51	− 4
Riverside	4·5	179	e 1 8	+ 4	—	—
La Jolla	5·7	177	e 1 27	+ 6	e 2 33	+ 8

Additional readings :—
Lick iP* = +54s., iP_g = +1m.0s., iS* = +1m.29s.

Jan. 17d. 16h. 54m. 30s. Epicentre 35°·5N. 136°·8E. N.3.

A = −·593, B = +·557, C = +·581.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Nagoya	0·4	156	i 0 6	0	0 12	+ 2	—	0·2
Osaka	1·3	233	0 19	+ 1	0 34	+ 1	0·6	1·5
Kobe	1·6	240	i 0 23	0	0 41	0	—	0·7
Toyooka	1·6	270	i 0 35	P_g	i 1 59	?	—	2·2
Sumoto	2·0	237	e 0 29	0	0 49	− 2	—	0·9
Koti	3·3	237	1 20	S	(1 20)	− 5	—	—

Additional readings :—
Osaka i = +24s. =P*.
Kobe i = +30s. =P*.
Toyooka ePN = +40s.

Jan. 17d. Readings also at 2h. (near Nagasaki), 3h. (La Paz), 6h. (Tucson), 8h. (Almata (2), near Andijan (2), and Samarkand), 9h. (Göttingen, Padova, and Zagreb), 10h. (near Manila), 12h. (Nagasaki), 13h. (Tyosi), 15h. (Manila, near Hokoto and Taihoku), 16h. (Almeria), 19h. (near Taihoku), 21h. (Balboa Heights), 22h. (La Paz and La Plata), 23h. (near La Paz).

Jan. 18d. 5h. 12m. 37s. Epicentre 41°·9N. 143°·7E. (as on 1930 Dec. 2d.). R.2.

Near the position 41°·7N. 143°·6E. given by Wadati in Geophy. Mag. Tokyo, Vol. IV, No. 4.

A = −·600, B = +·441, C = +·668; D = +·592, E = +·806; G = −·538, H = +·395, K = −·744.

	△	Az.	P.	O−C.	S.	O−C.	L.
	°	°	m. s.	s.	m. s.	s.	m.
Urakawa	0·7	290	0 22	+12	0 38	+20	—
Obihiro	1·1	340	0 38	+22	0 59	+31	—
Kusiro	1·2	25	0 36	+19	0 57	+26	—
Nemuro	2·0	44	0 45	+16	1 3	+12	—
Sapporo	2·1	304	0 45	+15	1 7	+13	—
Aomori	2·5	244	0 39	+ 3	1 2	− 2	—
Morioka	2·9	222	0 41	0	1 4	−10	—
Mizusawa	3·4	216	0 47	− 2	1 16	−11	—
Akita	3·5	232	0 54	+ 4	1 25	− 5	—
Isinomaki	3·9	209	0 50	− 6	1 27	−13	—
Sendai	4·3	212	0 58	− 3	1 45	− 5	—
Hukusima	4·9	213	1 7	− 3	1 53	−12	—
Mito	6·0	205	1 25	0	2 23	−10	—
Kakioka	6·3	207	1 31	+ 1	2 42	+ 1	—
Tyosi	6·5	201	1 29	− 3	2 32	−14	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.
		°	°	m. s.	s.	m. s.	s.	m.
Kumagaya		6·6	212	1 32	− 2	2 41	− 7	—
Nagano		6·7	222	1 36	+ 1	3 15	S*	—
Oiwake		6·8	217	1 38	+ 1	3 15	S*	—
Tokyo		6·9	208	1 35	− 3	2 44	−12	—
Wazima		6·9	231	1 41	+ 3	—	—	—
Yokohama		7·2	208	1 42	0	2 49	−15	—
Misima		7·7	210	1 43	− 6	3 6	−10	—
Nagoya		8·5	221	e 2 11	+11	—	—	—
Vladivostok		8·7	281	e 2 22	+19	e 4 14	+33	5·5
Ekaterinburg		52·5	318	i 8 20	−50	—	—	25·4
Samarkand		56·1	298	e 17 32	S	(e 17 32)	+ 8	—
Tinemaha	N.	71·4	56	e 11 31	+12	—	—	—
Haiwee	E.	72·2	57	e 11 35	+11	—	—	—

Additional reading :—
Haiwee eN = +11m.42s.
Long waves were also recorded at Irkutsk and Baku.

Jan. 18d. 13h. 11m. 44s. Epicentre 5°·6S. 105°·3E. (as on 1930 June 19d.). X.

A = −·263, B = +·960, C = −·098 ; D = +·965, E = +·264 ;
G = +·026, H = −·096, K = −·995.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Batavia	1·6	111	i 0 22	− 1	i 0 46	+ 5	—	—
Malabar	2·8	125	i 1 11	S	i 1 42	S_g	—	—
Medan	11·3	325	2 34	− 5	5 46	+61	—	—
Manila	25·5	37	i 4 43	−42	—	—	—	—
Perth	28·1	161	9 46	S	(9 46)	−48	—	—
Colombo	28·3	296	6 18	+28	—	—	—	16·6
Hong Kong	29·3	17	6 30	+31	—	—	—	19·4
Hyderabad	35·2	313	6 52	+ 1	13 6	+42	18·8	24·5
Bombay	40·3	309	7 32	− 3	9 24	P_eP	10·0	18·9
Adelaide	42·4	138	—	—	i 17 9	SS	—	24·6
Melbourne	48·3	138	—	—	i 15 59	+22	25·3	31·3
Riverview	50·9	130	—	—	e 16 24	+11	—	29·0
Sydney	50·9	130	—	—	i 20 28	?	33·6	35·3
Vladivostok	54·4	24	e 10 2	+38	e 19 47	(+34)	34·9	—
Samarkand	57·4	326	e 18 20	S	(18 20)	+38	—	—
Baku	68·5	319	11 43	(+16)	20 44	(−10)	33·3	44·8
Pulkovo	87·4	331	—	—	e 25 30	?	46·3	—
La Paz	157·0	196	e 20 19	[+29]	—	—	80·3	89·8

Additional readings :—
Batavia iZ = +26s.
Medan i = +6m.10s. and +6m.22s.
Manila iEN = +6m.30s. and +12m.34s.
Long waves were also recorded at Wellington, Kodaikanal, Phu-Lien, De Bilt, Paris, and Strasbourg.

Jan. 18d. Readings also at 0h. (La Paz), 2h. (near Andijan and Samarkand), 4h. (Bombay, Andijan, and Samarkand), 8h. (Tyosi and Mizusawa), 9h. (near Ksara), 11h. (near Lick), 13h. (Agra, near Calcutta, Andijan, and Samarkand), 14h. (Baku, Belgrade, Vladivostok, Andijan, and Samarkand), 15h. (Riverview, Perth, Wellington, Ksara, and near Sumoto), 20h. (Riverview and Wellington).

Jan. 19d. 12h. 24m. 14s. Epicentre 7°·4S. 126°·6E. N.2.

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

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Amboina		4·1	24	(1 32)	+34	(i 2 37)	+52	—	—
Batavia		19·6	272	i 4 35	+10	—	—	—	—
Manila		22·7	346	i 4 58	0	i 9 1	+ 2	i 11·2	—
Perth		26·5	201	e 5 31	− 3	—	—	—	—
Adelaide		29·7	160	e 5 58	− 4	i 10 53	− 6	13·4	17·8
Medan		29·7	291	e 5 52	−10	i 11 4	+ 5	i 15·0	—
Hong Kong		32·1	339	6 20	− 4	(11 35)	− 2	11·6	14·8
Phu-Lien		34·4	325	e 6 46	+ 2	—	—	15·8	—
Melbourne		34·6	152	6 48	+ 2	12 14	− 1	16·5?	22·3
Riverview		34·8	142	i 6 46	− 1	i 12 20	+ 2	—	18·4
Miyazaki		39·6	6	7 29	0	13 24	− 6	—	—
Sumoto		42·5	11	7 51	− 2	—	—	—	—
Kobe		42·9	11	e 8 26	+30	—	—	—	—
Hukusima		47·0	16	8 25	− 4	15 17	− 2	—	—
Mizusawa	E.	48·4	16	(8 40)	+ 1	8 40	P	—	—
Colombo		48·8	286	8 37	− 5	15 42	− 2	24·7	29·9
Vladivostok		50·7	5	i 8 53	− 4	i 16 20	+ 9	29·8	—
Kodaikanal		52·0	290	19 28	S_cS	19 28	(+31)	27·3	32·2
Wellington		54·4	136	9 18	− 6	17 27	+26·	29·8	33·8
Agra	N.	58·3	310	—	—	e 16 33	−80	—	—
Bombay		59·1	299	10 1	+ 3	18 1	− 3	31·1	36·7
Irkutsk		62·6	346	i 10 23	+ 1	18 49	− 1	e 42·8	46·9
Almata		67·7	324	e 10 59	+ 3	e 19 50	− 3	—	—
Andijan		69·2	320	e 11 3	− 3	e 20 7	− 4	—	—
Tashkent		71·5	319	i 10 17	−63	i 19 35	−64	e 33·8	46·7
Samarkand		72·3	317	e 11 21	− 4	—	—	—	—
Ekaterinburg		83·5	330	i 12 26	0	i 22 40	−12	38·3	51·8
Pulkovo		99·6	330	e 21 22	?	—	—	55·8	—
Copenhagen		109·6	328	—	—	27 46?	PS	—	—
Alicante		123·3	312	—	—	e 37 32	SS	—	—
La Paz		152·0	149	e 19 56	[+12]	—	—	76·8	92·3

Additional readings and note:—
Amboina readings have been *increased* by 2m.
Batavia eP = +3m.38s., iP = +3m.42s., iE = +8m.57s.
Adelaide iSSS = +12m.26s., i = +12m.41s.
Medan i = +8m.46s.
Hong Kong S = +9m.51s.
Sumoto eNZ = +9m.38s. = P_cP −12s.
Mizusawa PE = +7m.18s.
Long waves were also recorded at Zi-ka-wei, Baku, De Bilt, and Strasbourg.

Jan. 19d. 15h. 54m. 58s. Epicentre 61°·0S. 150°·0E. (as on 1930 Sept. 14d.). R.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	—	—	i 8 46	0	—	—
Melbourne		23·4	350	5 3	− 2	9 7	− 5	11·9	12·6
Wellington		24·8	49	5 17	− 1	9 56	+19	12·0	16·0
Adelaide		27·1	339	i 5 41	+ 2	i 10 12	− 5	i 12·2	13·8
Riverview	N.	27·2	2	5 40	0	e 10 8	−10	11·9	14·2
Sydney		27·2	2	6 14	PP	—	—	12·3	13·9
Perth		36·6	308	12 47	S	(12 47)	+ 2	i 17·3	—
La Paz		96·7	143	e 11 6	?	—	—	47·0	55·3
Bombay		100·4	291	26 25	PS	34 34	?	47·2	56·0
Irkutsk		119·0	330	—	—	e 37 2?	?	e 61·0	—
Tashkent		121·2	300	—	—	e 35 50	?	e 45·0	58·9
Ekaterinburg		136·8	306	e 10 16	?	—	—	55·0	71·7

For Notes see next page.

NOTES TO JAN. 19d. 15h. 54m. 58s.

Additional readings :—
Adelaide i = +6m.13s. =PP −6s., and +10m.44s.
Riverview iPZ = +5m.43s., PE = +5m.47s., eSE = +10m.22s.
Perth i = +14m.47s. =SS −16s.
Long waves were also recorded at Almata, Kodaikanal, Baku, Pulkovo, and European stations.

Jan. 19d. Readings also at 1h. (Algiers), 7h. (Almata and Samarkand), 8h. (Tucson), 14h. (near La Paz), 17h. (Ekaterinburg, Irkutsk, near Almata, Andijan, Samarkand, and Tashkent), 20h. (Ottawa).

Jan. 20d. 9h. 27m. 30s. Epicentre 37°·0N. 72°·0E. (as on 1930 Sept. 5d.). R.2.

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

A *depth* of focus 0°·030 has been assumed here. On 1925 June 20d. and 1924 Oct. 13d., corrections for depths 0·040 and 0·030 respectively were assumed.

		Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Andijan		+0·2	3·8	4	i 1 0	+ 3	(1 52)	+10	1·9	1·9
Samarkand		0·0	4·7	306	i 1 9?	+ 2	(i 1 58?)	− 2	i 2·0?	3·0
Tashkent		0·0	4·8	335	i 2 9	S	(i 2 9)	+ 6	—	—
Almata		−0·2	7·3	30	i 1 54	+13	3 18	+17	3·7	4·0
Dehra Dun		−0·2	8·3	141	2 0	+ 5	2 50	−36	3·7	—
Agra	E.	−0·5	11·1	150	i 1 18	−71	3 9	+41	e 4·1	—
	N.	−0·5	11·1	150	i 1 16	−73	3 14	+46	3·9	—
Baku		−1·0	17·5	288	i 3 47	− 1	i 6 56	+ 6	—	7·2
Bombay		−1·0	18·1	177	3 48	− 7	7 9	+ 5	9·0	9·4
Calcutta		−1·2	20·2	131	4 13	− 6	(7 58)	+12	8·0	—
Hyderabad		−1·2	20·4	162	3 14	+53	6 47	+57	9·1	11·0
Ekaterinburg		−1·3	21·2	343	i 4 31	+ 2	i 8 17	+13	i 11·4	13·8
Irkutsk		−1·8	27·2	46	5 32	+ 8	e 9 52	+ 4	11·5	—
Kodaikanal		−1·8	27·2	168	10 24	S	(10 24)	+36	—	—
Theodosia		−1·9	28·5	298	e 6 32	PP	—	—	—	—
Yalta		−2·0	29·3	297	e 6 46	PP	—	—	—	—
Simferopol		−2·0	29·4	298	6 30	PP	—	—	—	—
Kucino		−2·0	29·6	320	5 42	− 2	10 24	− 1	11·7	14·6
Colombo		−2·0	30·9	165	e 6 35	PP	—	—	18·2	21·1
Phu-Lien		−2·2	34·1	110	7 30?	PP	—	—	—	—
Pulkovo		−2·3	34·9	324	6 29	+ 1	i 11 45	0	14·0	15·5
Helsingfors		−2·4	37·6	323	e 6 50	− 1	12 24	0	e 15·2	—
Königsberg		−2·5	38·9	315	7 0	− 1	12 40	− 2	e 19·1	—
Hong Kong		−2·5	39·1	103	7 7	+ 4	12 49	+ 4	—	16·4
Budapest		−2·5	39·8	305	7 7	− 2	9 45	(+12)	16·5	—
Upsala		−2·6	41·1	323	e 7 15	− 4	e 13 17	+ 3	—	18·3
Medan		−2·6	41·4	139	e 5 36	?	i 10 6	?	—	—
Vienna		−2·6	41·5	307	7 22	− 1	9 43	PcP	—	—
Zagreb		−2·6	42·0	300	e 7 30?	+ 3	i 9 47	PcP	—	—
Lund		−2·6	43·1	317	7 39	+ 3	e 13 47	+ 3	—	—
Potsdam		−2·7	43·3	312	i 7 36	− 1	—	—	—	—
Copenhagen		−2·7	43·5	317	7 40	+ 1	e 13 59	+11	—	—
Cheb		−2·7	43·9	309	e 7 30?	−12	—	—	—	—
Jena		−2·8	44·3	309	e 7 48	+ 4	e 10 30	?	—	—
Venice		−2·8	44·6	300	i 7 44	− 3	i 13 54	− 9	—	—
Innsbruck		−2·8	44·9	306	7 30?	−19	—	—	—	—
Hamburg		−2·8	45·0	314	e 7 51	+ 1	e 10 48	?	e 17·8	23·9
Padova		−2·8	45·0	300	8 51	+61	—	—	—	—
Göttingen		−2·8	45·2	310	e 7 53	+ 1	—	—	e 17·5	—
Rome		−2·8	45·3	296	e 8 15	+22	—	—	—	—

Continued on next page.

		Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Florence		−2·8	45·7	299	8 0	+ 4	—	—	—	—
Stuttgart		−2·9	46·2	308	i 7 59	0	—	—	e 18·1	—
Feldberg		−2·9	46·4	310	—	—	e 14 33	+ 5	—	22·0
Piacenza		−2·9	46·6	300	e 9 14	PP	—	—	—	20·0
Zurich		−2·9	46·8	302	e 8 4	0	—	—	—	—
Strasbourg		−2·9	47·1	306	(8 6)	0	—	—	e 18·5	—
Neuchatel		−3·0	48·0	305	e 7 12	−61	e 11 1	?	—	—
De Bilt		−3·0	48·1	311	i 8 17	+ 3	—	—	e 18·5	19·5
Besançon		−3·0	48·6	306	8 30?	+12	—	—	—	—
Uccle		−3·1	48·8	310	e 9 30	+72	—	—	e 18·5	—
Manila		−3·1	48·8	105	i 8 34	+16	i 11 21	?	i 12·6	—
Paris		−3·1	50·4	308	e 9 41	+70	—	—	20·5	—
Bidston		−3·3	52·7	314	—	—	e 14 50	−62	—	—
Batavia		−3·4	54·1	138	—	—	i 16 6	− 5	—	—
Alicante		−3·4	55·8	296	e 9 12	+ 3	e 18 6	?	—	—
Almeria		−3·5	57·8	295	i 10 33	+70	18 21	?	—	—
Toledo		−3·5	57·8	299	e 9 23	0	e 18 26	?	—	—
Granada		−3·5	58·5	295	i 10 25	+56	i 13 59	?	—	—
Malaga		−3·6	59·4	295	e 9 45	+11	—	—	—	—
Ottawa		−4·5	92·6	339	—	—	e 24 30?	?	43·5	—
Toronto		−4·3	95·3	341	—	—	24 54	+49	—	—
La Paz	z.	—	139·3	290	e 21 34	PP	—	—	—	—

Additional readings and note :—
Hyderabad PP = +4m.17s.
Colombo iP = +12m.23s., S = +16m.19s.
Helsingfors ePPEZ = +7m.59s., eP$_c$PEZ = +9m.11s., eP$_c$PN = +9m.16s., eN = +10m.44s., eE = +11m.20s., iN = +13m.41s., iE = +13m.50s., eSSN = +14m.35s.
Königsberg PPE = +8m.10s., P$_c$PE = +9m.12s., eE = +9m.41s., and +14m.15s. SSE = +15m.10s., eEN = +16m.0s.
Upsala iE = +10m.2s., SSS = +16m.26s.
Vienna i = +8m.30s. = PP − 18s. and +18m.49s., SS = +10m.13s.
Zagreb eNW = +8m.21s., e = +8m.37s., +8m.59s., and +9m.10s., iNE = +9m.38s.
Lund eNE = +8m.25s., e = +8m.47s. = PP − 18s., i = +10m.25s., e = +15m.3s. and +17m.0s.
Potsdam i = +8m.46s. = PP − 20s., iEZ = +10m.6s., i = +10m.28s., iN = +11m.4s. and +11m.9s., eEZ = +11m.12s., iEN = +12m.16s., iN = +17m.7s., iZ = +17m.14s., iE = +17m.26s.
Copenhagen eEZ = +8m.49s. = PP − 19s., iZ = +10m.29s., iE = +10m.33s., eE = +15m.0s. and +17m.25s.
Göttingen iEZ = +9m.2s. and +10m.49s.
Rome e? = +6m.43s.
Stuttgart e = +8m.48s., iEZ = +9m.10s., e = +15m.51s.
Feldberg i = +15m.50s. = +18m.4s.
Strasbourg PPPP = +9m.17s., true P is given as PP.
De Bilt iZ = +9m.26s. and +11m.15s., iE = +11m.18s.
Paris i = +11m.56s.
Bidston e = +17m.25s.
Batavia i = +17m.47s. and +18m.53s.

Jan. 20d. 15h. 26m. 32s. Epicentre 5°·0N. 99°·0E. N.3.

A = −·156, B = +·984, C = +·087 ; D = +·988, E = +·156 ; G = −·014, H = +·086, K = −·996.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Batavia		13·6	144	2 0	−70	3 57	−104	—	—
Phu-Lien		17·4	25	4 17	+18	e 7 47	+36	9·5	—
Colombo		19·2	277	4 14	− 7	7 54	+ 4	9·8	13·0
Calcutta		20·3	330	4 17	−16	(8 11)	− 1	8·2	—
Hong Kong		22·7	39	4 48	−10	9 7	+ 8	—	18·0
Manila		23·6	64	i 5 7	+ 1	i 6 6	?	—	—
Hyderabad		23·7	303	4 10	−57	8 25	−53	10·0	16·0
Bombay		29·1	301	6 0	+ 3	9 27	P$_c$P	10·8	13·2
Agra		29·8	320	e 5 7	−56	e 8 28	?	—	—
Zi-ka-wei	z.	33·6	36	e 6 32	− 5	14 46	?	—	23·5

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Almata		42·9	337	8 5	+ 9	14 31	+12	—	—
Andijan		43·0	330	e 8 1	+ 4	e 14 25	+ 4	—	—
Tashkent		45·0	329	i 8 26	+13	i 15 10	+20	—	28·8
Samarkand		45·1	326	8 17	+ 3	14 52	0	—	—
Irkutsk		47·5	5	e 8 35	+ 3	15 34	+ 8	e 25·5	28·6
Ekaterinburg		60·0	339	i 10 5	+ 1	i 18 15	− 1	29·5	—
Pulkovo		75·1	331	i 11 35	− 6	i 21 8	−13	—	—
Helsingfors	N.	77·8	331	—	—	e 21 38	−14	—	—
Copenhagen		84·0	327	—	—	22 43	−15	—	—
Rome		84·1	313	12 22	− 7	—	—	—	—
Florence		84·9	315	—	—	22 28?	[−30]	—	—
Piacenza		86·0	316	e 12 28	−10	—	—	—	23·0
De Bilt		88·4	323	—	—	e 23 26	−15	—	—
La Paz	Z.	162·9	227	e 19 44	[−13]	—	—	—	—

Additional readings :—
Manila iS$_e$N = +6m.25s.
Florence e = +20m.28s.? and +25m.28s.?

Jan. 20d. 23h. 44m. 8s. Epicentre 7°·0S. 108°·5E. N.3.

A = −·315, B = +·941, C = −·122 ; D = +·948, E = +·317 ;
G = +·039, H = −·116, K = −·993.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Malabar	0·9	256	i 0 22	+ 9	0 37	+14	—	—
Batavia	1·9	296	i −0 7	−35	i 0 26	−23	—	—
Manila	24·9	30	i 5 18	− 1	i 9 38	− 1	12·1	—
Perth	25·8	166	(5 42)	+15	(i 10 22)	+27	i 10·4	—
Phu-Lien	27·9	357	e 5 50	+ 4	e 10 52?	+22	—	—
Hong Kong	29·9	10	6 2	− 2	10 41	−22	13·5	21·5
Colombo	31·8	294	11 39	S	(11 39)	+ 7	—	25·8
Calcutta	35·5	326	7 59	+66	14 17	SS	—	—
Adelaide	39·3	139	—	—	e 13 24	− 2	19·5?	23·1
Zi-ka-wei	40·2	18	7 24	−10	i 13 42	+ 3	25·8	29·1
Bombay	43·7	308	8 3	+ 1	14 48	+17	22·0	—
Melbourne	45·1	138	—	—	e 14 57	+ 5	23·5	29·3
Riverview	47·6	130	—	—	15 43	+16	25·0	29·9
Almata	57·8	333	e 9 55	+ 6	—	—	—	—
Andijan	58·1	329	e 10 4	+13	—	—	—	—
Irkutsk	59·4	356	e 9 59	− 1	18 14	+ 6	e 28·9	—
Tashkent	60·2	326	e 9 34	−32	e 19 46	(− 7)	34·9	40·3
Samarkand	60·4	324	e 10 6	− 1	—	—	—	—
Baku	71·7	316	—	—	e 20 34	− 7	36·9	46·6
Ekaterinburg	74·8	334	i 11 36	− 3	21 11	− 7	36·9	72·6
Pulkovo	90·2	330	—	—	e 25 34	PS	—	—
La Paz	N. 156·3	188	e 20 0	[+11]	—	—	—	—

Additional readings and note :—
Perth gives P as S and S as L, also P =23h.43m.0s.
Adelaide iS = +16m.27s. =SSS −1s.
Zi-ka-wei iZ = +9m.10s. and +22m.28s.
Riverview iE = +12m.14s., iN = +12m.21s., iE = +15m.23s., ?E = +19m.4s.
Tashkent e = +14m.2s.
Baku e = +28m.12s.
La Paz eN = +51m.56s. and +63m.20s.
Long waves also recorded at Wellington and European stations.

Jan. 20d. Readings also at 5h. (near Amboina), 8h. (Collurania and Rome), 9h. (near Tyosi), 10h. (near Santiago), 11h. (Zi-ka-wei), 15h. (Nagoya, near Tyosi, and near Medan), 17h. (La Plata and La Paz), 18h. (Ekaterinburg and Manila),

Jan. 21d. 8h. 58m. 10s. Epicentre 42°·8N. 145°·5E. N.1.

Probable error of epicentre ±0°·2.

Epicentre given by Wadati in "Shallow and Deep Earthquakes," Geophy. Mag. Tokyo, Vol. IV, No. 4.

A = −·605, B = +·416, C = +·679; D = +·566, E = +·824; G = −·560, H = +·385, K = −·734.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Nemuro	0·6	7	0 4	− 5	0 12	− 3	—	—
Kusiro	0·8	283	0 13	+ 2	0 29	S*	—	—
Obihiro	1·7	274	0 17	− 7	0 43	− 1	—	—
Urakawa	2·1	252	0 26	− 4	1 0	S*	—	—
Asahigawa	2·5	293	0 38	+ 2	1 8	+ 4	—	—
Sapporo	3·0	275	0 46	+ 3	1 33	S*	—	—
Hakodate	3·7	256	0 55	+ 2	1 44	+ 9	—	—
Aomori	4·0	242	1 1	+ 4	1 50	+ 8	—	—
Ootomari	4·4	334	0 54	− 9	1 38	−15	—	—
Morioka	4·5	229	1 5	+ 1	2 0	+ 5	—	—
Mizusawa	4·9	224	1 13	+ 3	2 9	+ 4	—	—
Akita	5·1	235	1 17	+ 4	2 14	+ 4	—	—
Isinomaki	5·4	218	1 18	+ 1	2 23	+ 5	—	—
Sendai	5·7	220	1 22	+ 1	2 31	+ 6	—	—
Yamagata	6·0	223	1 27	+ 2	2 35	+ 2	—	—
Hukusima	6·3	220	1 29	− 1	2 44	+ 3	—	—
Utunomiya	7·6	217	1 56	+ 8	3 15	+ 1	—	—
Kakioka	7·7	214	1 50	+ 1	3 15	− 1	—	—
Tukubasan	7·8	215	1 50	− 1	3 16	− 3	—	—
Tyosi	7·9	209	1 52	0	e 3 21	0	—	3·4
Maebasi	8·0	220	1 57	+ 4	3 28	+ 4	—	—
Kumagaya	8·1	218	1 58	+ 3	3 28	+ 2	—	—
Nagano	8·3	225	1 59	+ 1	3 34	+ 3	—	—
Oiwake	8·3	222	2 3	+ 5	3 38	+ 7	—	—
Tokyo	8·4	215	1 58	− 1	3 35	+ 1	—	—
Yokohama	8·6	214	2 9	+ 7	3 42	+ 3	—	—
Kohu	8·8	219	2 3	− 2	3 51	+ 7	—	—
Mera	9·0	211	2 16	+ 9	3 52	+ 3	—	—
Numadu	9·2	217	2 19	+ 9	3 54	0	—	—
Gihu	10·0	225	2 22	+ 1	4 12	− 1	—	—
Nagoya	10·1	224	e 2 25	+ 3	4 20	+ 4	—	—
Hikone	10·4	227	2 31	+ 5	4 27	+ 4	—	—
Toyooka	11·0	233	1 2 35	0	e 3 40	−58	i 4·7	4·8
Osaka	11·2	227	2 39	+ 2	(4 47)	+ 4	4·8	5·8
Kobe	11·4	228	2 38	− 2	4 52	+ 4	—	5·2
z.	11·4	228	2 39	− 1	e 4 45	− 3	—	4·9
Sumoto	11·8	229	e 2 52	+ 6	4 54	− 4	—	5·2
Koti	13·1	229	3 18	+15	5 52	+23	—	—
Kumamoto	15·3	234	3 32	0	—	—	—	—
Miyazaki	15·5	230	3 35	0	6 25	− 2	—	—
Zi-ka-wei z.	22·3	247	e 4 42	−12	8 54	+ 2	—	13·6
Irkutsk	28·9	304	4 57	−58	10 26	−21	—	13·7
Manila	35·2	225	i 6 59	+ 8	12 16	− 8	—	—
Almata	48·7	295	e 8 38	− 3	e 15 26	−17	—	—
Ekaterinburg	52·8	318	8 59	−13	i 16 18	−21	—	23·3
Andijan	52·8	296	e 9 0	−12	16 24	−15	—	—
Tashkent	54·6	298	—	—	e 17 56	+52	e 26·8	30·7
Samarkand	56·9	297	e 9 31	−11	e 17 18	−17	—	—
Baku	67·4	305	—	—	e 19 32	−18	31·8	—
Florissant	84·0	40	e 12 11	−17	e 12 24	†	—	—

Additional readings:—
Tyosi eSZ = +3m.24s.
Irkutsk e = +12m.3s, =SS −1s.
Tashkent e = +29m.26s.

Jan. 21d. Readings also at 2h. (near Manila), 8h. (Messina), 11h. (Andijan and Samarkand), 13h. (near Kobe, Osaka, and Sumoto), 17h. (Andijan), 18h. (Tyosi), 21h. (Granada (2) and near Lick), 22h. (Tananarive), 23h. (Taihoku and Tyosi).

Jan. 22d. 16h. 59m. 2s. Epicentre 37°·7N. 141°·8E. N.1.

Probable error ±0°·20.

Epicentre given by Wadati in "Deep and Shallow Earthquakes," Geophy. Mag., Tokyo, Vol. IV., No. 4.

A = −·622, B = +·489, C = +·612; D = +·618, E = +·786;
G = −·481, H = +·378, K = −·791.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Isinomaki		0·8	332	0 33	+22	0 49	+28	—	—
Sendai		0·9	309	0 18	+ 5	0 36	+13	—	—
Hukusima		1·1	273	0 21	+ 5	0 41	+13	—	—
Onahama		1·1	223	0 16	0	0 31	+ 3	—	—
Mizusawa		1·5	340	0 26	+ 5	0 48	S_g	—	—
Utunomiya		2·0	234	0 29	0	0 53	+ 2	—	—
Kakioka		2·0	221	0 26	− 3	0 50	− 1	—	—
Tukubasan		2·1	222	0 28	− 2	0 50	− 4	—	—
Tyosi		2·1	201	0 25	− 5	0 47	− 7	—	1·2
Morioka		2·1	346	0 32	+ 2	1 1	+ 7	—	—
Niigata		2·2	276	0 44	P_g	1 13	S_g	—	—
Akita		2·4	326	0 46	P*	1 15	S*	—	—
Maebasi		2·6	239	0 39	+ 2	1 10	+ 3	—	—
Tokyo		2·7	219	i 0 36	− 3	i 1 6	− 3	—	3·4
Yokohama		2·9	217	0 38	− 3	1 10	− 4	—	—
Oiwake		2·9	243	0 43	+ 2	1 15	+ 1	—	—
Nagano		3·1	250	0 47	+ 3	1 41	S_g	—	—
Aomori		3·2	345	0 49	+ 3	1 30	S*	—	—
Kohu		3·2	231	0 47	+ 1	1 25	+ 3	—	—
Mera		3·3	210	0 43	− 4	1 18	− 7	—	—
Misima		3·5	222	0 48	− 2	1 19	−11	—	—
Numadu		3·5	223	0 52	+ 2	—	—	—	—
Gihu		4·7	242	1 8	+ 1	2 2	+ 2	—	—
Nagoya		4·7	238	e 1 32	P_g	2 8	+ 8	—	2·6
Hatidyozima		4·9	200	1 2	− 8	1 49	−16	—	—
Hikone		5·1	243	1 20	+ 7	2 27	+17	—	—
Obihiro		5·3	11	1 8	− 7	2 10	− 5	—	—
Sapporo		5·4	356	1 19	+ 2	2 17	− 1	—	—
Osaka		5·9	241	1 18	− 6	—	—	2·8	3·8
Toyooka	z.	6·0	251	e 3 28	S_g	—	—	—	—
Kobe		6·2	243	e 2 10	P_g	e 2 53	+15	—	3·9
Sumoto		6·5	241	e 1 35	+ 3	e 3 3	+17	—	4·2
Koti		7·9	241	—	—	4 4	S*	—	4·5
Vladivostok		9·2	309	2 1	− 9	—	—	5·1	—
Irkutsk		29·8	311	e 6 2	− 1	—	—	e 16·0	18·7
Ekaterinburg		54·6	318	i 9 21	− 5	—	—	27·0	—
Samarkand		56·7	297	e 9 39	− 2	—	—	—	—

Additional readings:—
Toyooka eE = +3m.31s., eSE? = +4m.40s.
Kobe eSN = +3m.8s. = S*
Vladivostok i = +2m.22s.
Long waves were also recorded at Baku, Tashkent, De Bilt, and Paris.

Jan. 22d. 21h. 14m. 59s. Epicentre 33°·5N. 133°·2E. (as on 1929 Jan. 21d.). R.3.

A = −·571, B = +·608, C = +·552.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Koti	0·3	80	i 0 8	+ 4	i 0 14	+ 6	—	0·3
Matuyama	0·5	312	i 0 11	+ 4	0 19	+ 6	—	0·4
Sumoto	1·6	59	0 22	− 1	0 38	− 3	—	0·7
Kobe	2·0	54	0 28	− 1	0 46	− 5	—	0·8
Osaka	2·2	60	0 32	+ 1	(0 55)	− 2	0·9	1·3
Hukuoka	2·3	271	e 0 49	P_g	1 19	S_g	—	—
Toyooka	2·5	33	i 0 32	− 4	i 0 56	− 8	—	1·0
Nagoya	3·5	62	e 1 2	P*	—	—	—	—

Jan. 22d. Readings also at 2h. (Graz, Vienna, and near Zagreb), 3h. (Wellington), 4h. (Andijan, Tashkent, and Vladivostok), 5h. (near La Paz), 6h. (Tyosi, San Juan, and near La Paz), 8h. (San Juan and Samarkand), 9h. (Zi-ka-wei), 12h. (La Paz), 15h. (Samarkand), 23h. (Andijan and near Samarkand).

Jan. 23d. 5h. 52m. 16s. Epicentre 16°·4N. 96°·3W. (as on 17d.). R.2.

A = −·105, B = −·954, C = +·282; D = −·994, E = +·110; G = −·031, H = −·281, K = −·959.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tucson		20·7	323	i 4 41	+ 4	8 26	+ 6	i 10·7	—
Columbia		22·3	35	5 2	+ 8	9 1	+ 9	12·0	—
St. Louis		22·9	13	e 5 0	0	e 9 4	+ 1	e 13·2	—
Florissant		23·0	11	e 4 56	− 5	i 9 11	+ 6	e 12·7	16·1
Riverside		25·9	317	e 5 22	− 6	e 9 56	− 1	—	—
Pasadena		26·4	316	e 5 27	− 6	e 9 58	− 7	—	15·3
Chicago		26·5	15	5 40	+ 6	i 10 5	− 2	16·3	—
Charlottesville		26·7	32	e 6 4	PP	10 12	+ 2	e 13·7	—
Haiwee		27·6	320	e 5 38	− 6	—	—	—	—
Santa Barbara	N.	27·7	315	e 5 45	+ 1	—	—	—	—
Ann Arbor		28·1	20	e 5 56	+ 8	e 10 38	+ 4	e 17·9	—
Georgetown		28·1	33	i 6 3	+15	10 20	−14	e 15·7	—
Tinemaha	N.	28·4	321	e 5 47	− 4	—	—	e 14·6	15·4
San Juan		28·8	82	i 5 55	+ 1	10 44	− 1	e 14·8	—
Buffalo		30·4	26	i 6 9	0	i 11 16	+ 6	e 17·7	—
Lick	N.	30·7	320	e 6 7	− 4	—	—	e 16·3	—
Toronto		30·8	24	e 5 16	−56	i 11 14	− 3	16·2	24·1
Berkeley	E.	31·4	320	—	—	e 11 30	+ 4	e 15·7	—
Ottawa		33·7	26	i 6 37	− 1	i 12 4	+ 3	e 18·7	—
Victoria	E.	38·9	332	17 52	S_cS	(17 52)	(+17)	20·4	24·8
La Paz		43·0	138	i 7 53	− 4	i 14 28	+ 7	20·5	24·0
De Bilt		84·0	37	i 12 26	− 2	e 23 1	+ 3	e 44·7	—
Strasbourg		86·7	40	e 12 44?	+ 2	—	—	e 61·7	—
Ekaterinburg		104·3	12	e 18 36	PP	e 33 20	SS	51·7	65·1
Samarkand		121·8	14	e 20 21	PP	—	—	—	—

Additional readings:—
Tucson iPP = +5m.22s., SS = +9m.29s., e = +9m.50s.
St. Louis iP = +5m.10s., iN = +5m.41s., iSN = +9m.12s., iEN = +9m.16s.
Florissant iN = +5m.1s., iPNZ = +5m.9s.
Riverside eN = +10m.8s.
Pasadena eZ = +5m.37s.
Ann Arbor eE = +11m.26s.
Toronto e = +5m.50s.
Berkeley eE = +14m.17s., eN = +14m.39s.
La Paz iSN = +14m.34s.
Ekaterinburg e = +27m.36s. = PS + 5s.
Long waves were also recorded at Seattle, Sitka, Scoresby Sund, Baku, Tashkent, Irkutsk, and other European stations.

Jan. 23d. 10h. 46m. 55s. Epicentre 33°·5N. 133°·2E. (as on 22d.). X.

A = −·571, B = +·608, C = +·552.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Koti		0·3	80	i 0 8	+ 4	i 0 14	S_g	—	0·3
Matuyama		0·5	312	i 0 9	+ 2	i 0 17	+ 4	—	0·4
Sumoto		1·6	59	0 20	− 3	0 37	− 4	—	0·6
Kobe		2·0	54	0 28	− 1	0 46	− 5	—	0·8
Osaka		2·2	60	0 31	0	(0 55)	− 2	0·9	1·2
Hukuoka		2·3	271	0 48	P_g	1 17	S_g	—	1·4
Toyooka		2·5	33	i 0 32	− 4	i 0 55	− 9	—	1·0

No additional readings.

Jan. 23d. Readings also at 4h. (Tyosi and near Manila), 7h. (Granada), 8h. (near Lick (2)), 9h. (near Manila), 10h. (Theodosia, near Simferopol, and Yalta), 11h. (Hong Kong and near Manila), 12h. (Ekaterinburg and Irkutsk), 13h. (Ekaterinburg and Irkutsk), 18h. (Tashkent, near Manila, near Andijan, and Samarkand), 19h. (Ekaterinburg, Irkutsk, Hong Kong, and near Taihoku), 22h. (near Manila and near Sumoto), 23h. (Ottawa, Toronto, and Tucson (2)).

Jan. 24d. 13h. 41m. 12s. Epicentre 9°·8N. 126°·2E. (as on 1929 Feb. 15d.). R.1.

Probable error of epicentre ±0°·3.

A = −·582, B = +·795, C = +·170; D = +·807, E = +·591;
G = −·101, H = +·137, K = −·985.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Manila		7·0	314	i 1 40	+ 1	i 2 52	− 7	—	—
Amboina		13·6	172	i 4 33	+83	i 7 28	?	11·5	—
Taito		13·8	340	3 24	+11	6 26	+40	—	—
Isigakizima		14·7	356	3 35	+10	6 19	+11	—	—
Taihoku	E.	15·9	344	e 3 32	− 8	(6 34)	− 2	6·6	—
Naha		16·5	5	3 54	+ 6	5 58	−52	—	—
Hong Kong		17·0	319	3 48	− 6	7 6	+ 4	8·3	11·1
Phu-Lien		21·8	302	e 4 48	− 1	e 8 43	+ 1	10·8	—
Zi-ka-wei		21·9	349	i 4 44	− 6	8 48	+ 4	13·1	17·7
Kagosima		22·2	10	4 45	− 8	8 45	− 5	—	—
Nagasaki		23·2	8	5 1	− 2	9 12	+ 4	—	—
Hukuoka		24·1	9	e 5 7	− 4	e 9 25	0	—	—
Koti		24·7	15	5 15	− 2	9 29	− 7	—	—
Batavia		25·0	231	i 5 30	+10	8 21	P_cP	—	—
Malabar		25·2	228	i 7 33	+131	i 9 0	P_cP	—	—
Hamada		25·7	11	5 27	+ 1	9 47	− 6	—	—
Sumoto		25·8	17	5 28	+ 1	10 37	SS	13·7	17·4
Kobe		26·2	17	5 31	0	9 58	− 4	e 13·8	17·2
Osaka		26·3	17	5 8	−24	10 15	+12	14·4	16·2
Gihu		27·4	19	5 42	0	10 9	−13	—	—
Zinsen		27·7	1	5 57	+13	11 0	+33	—	—
Medan		28·0	259	5 44	− 3	i 11 48	SS	—	—
Oiwake		28·8	21	6 0	+ 6	11 39	+54	—	—
Tyosi	E.	29·2	25	—	—	e 12 10	SS	—	—
Chiufeng		31·6	345	e 6 14	− 5	e 10 48?	−41	—	—
Vladivostok		33·7	8	6 35	− 3	i 11 51	−10	e 17·1	25·0
Calcutta		38·4	295	7 50	+32	13 45	+33	19·3	—
Perth		42·9	193	8 8	+12	i 14 28	+ 9	18·8	—
Irkutsk		46·1	343	8 19	− 2	15 1	− 5	23·8	28·3
Adelaide		46·3	166	—	—	i 15 18	+ 9	21·2	30·8

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Hyderabad		46·9	286	8 26	− 2	15 14	− 3	23·6	33·0
Kodaikanal		48·0	275	10 12	(+ 3)	—	—	25·6	29·3
Agra		48·5	300	e 11 51	?	e 17 7	?	—	—
Dehra Dun		49·2	303	16 8	S	(16 8)	+18	28·3	35·8
Sydney		49·6	153	i 16 6	S	(i 16 6)	+11	30·3	31·9
Melbourne		50·7	161	e 9 21?	+24	i 16 24	+13	26·2?	29·0
Bombay		52·3	287	9 6	− 3	16 51	+18	27·6	36·3
Almata		54·2	319	e 11 3	PP	e 18 27	?	29·1	—
Andijan		56·5	314	e 10 17	+38	e 17 28	− 2	28·8	—
Samarkand		60·2	312	e 9 55	−11	—	—	e 28·1	—
Wellington		67·8	143	11 22	(− 2)	20 2	+ 8	34·3	43·8
Ekaterinburg		68·6	328	i 11 0	− 2	i 19 59	− 5	35·8	43·4
Baku		73·3	310	11 34	+ 3	21 5	+ 5	35·8	42·4
Ksara		84·9	304	e 12 36	+ 3	23 4	− 3	46·8	—
Helsingfors		87·0	331	—	—	e 22 52	[−21]	e 46·8	—
Upsala		90·6	332	—	—	e 23 28	[− 8]	e 47·8	—
Copenhagen		94·8	329	—	—	24 0	[0]	42·8	—
Feldberg	N.	99·4	324	—	—	e 24 59	{+10}	e 50·7	58·3
Stuttgart		99·6	323	—	—	e 23 48?	[−35]	e 51·8	—
Berkeley	E.	100·3	49	—	—	e 24 32	[+ 5]	e 48·0	—
De Bilt		100·3	326	—	—	e 24 30	[+ 3]	e 52·8	64·1
Florence		100·5	318	e 24 8	SKS	(e 24 8)	[−20]	(53·8)	65·8
Paris		103·4	325	e 19 48?	?	—	—	56·8	63·8
Bidston		103·6	331	—	—	e 34 5	?	e 57·0	—
Florissant		120·7	31	e 20 19	PP	i 30 9	PS	—	—
Toronto		121·7	21	—	—	27 18?	{−10}	—	—
Buffalo		122·6	21	i 20 35	PP	e 36 16	?	e 64·8	—

Additional readings and note :—
Manila iS_gEN = +3m.22s.
Zi-ka-wei PPZ = +5m.12s., PPPPZ? = +5m.30s., SSZ = +9m.30s., SSSZ? = +9m.50s., SSSSZ = +10m.8s.
Sumoto SE = +11m.16s.
Kobe PN = +5m.34s., PPN = +6m.18s., SZ = +10m.24s.
Medan i = +7m.11s.
Adelaide iSS = +18m.20s.
Hyderabad PP = +10m.10s.
Dehra Dun S = +22m.8s.
Melbourne i = +19m.55s.
Helsingfors eN = +23m.2s.
Feldberg eN = +31m.53s. =SS −1s. and +47m.4s.
Florence gives S as P and L as S.
Bidston e = +47m.23s.
Buffalo e = +50m.8s.
Long waves were also recorded at San Juan, Tashkent, Scoresby Sund, Ottawa, and the European stations.

Jan. 24d. 14h. 39m. 26s. Epicentre 37°·3N. 141°·7E. (as on 1930 July 5d.). X.

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

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Tyosi	1·7	204	e 0 20	− 4	e 0 34	−10	—	0·9
Mizusawa	1·9	346	0 30	+ 2	0 57	P*	—	—
Nagoya	4·4	242	e 1 4	+ 1	2 2	+ 9	—	—
Osaka	5·6	243	1 22	+ 2	—	—	2·6	3·8
Toyooka	5·8	254	1 20	− 2	—	—	—	—
Kobe	5·9	245	e 2 27	S	(e 2 27)	− 4	(e 2·9)	3·3

Tyosi gives also eP_g = +25s., eS_g = +42s.
Kobe gives S as P and L as S.

Jan. 24d. 15h. 23m. 34s. Epicentre 14°·6N. 104°·0W. N.3.

A = −·234, B = −·939, C = +·252; D = −·970, E = +·242;
G = −·061, H = −·245, K = −·968.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tucson		18·8	342	4 15	− 1	i 7 45	+ 3	9·6	—
Haiwee	N.	24·9	332	e 5 18	− 1	—	—	—	—
Tinemaha	N.	25·8	333	e 5 28	+ 1	—	—	—	—
St. Louis		26·9	24	e 5 37	0	e 10 9	− 5	—	15·1
Florissant	N.	27·0	24	e 5 38	0	e 10 11	− 4	—	15·3

Additional readings:—
Haiwee ePE = +5m.28s.
Tinemaha ePE = +5m.31s.
Long waves were recorded at Pasadena, Ann Arbor, and Chicago.

Jan. 24d. 16h. 47m. 34s. Epicentre 24°·0N. 141°·0E. (as on 1914 Nov. 24d.). R.3.

A = −·710, B = +·575, C = +·407; D = +·629, E = +·777;
G = −·316, H = +·256, K = −·914.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Osaka		11·7	337	4 46	S	(4 46)	− 9	5·6	6·0
Kobe	E.	11·8	336	e 5 0	S	(e 5 0)	+ 2	—	—
Irkutsk		39·7	325	—	—	e 13 38	+ 6	e 20·4	—
Tinemaha	N.	83·7	52	e 12 28	+ 1	e 23 0	+ 6	—	—
Haiwee		84·3	53	e 12 31	+ 1	e 23 0	− 1	—	—
Pasadena		85·1	55	e 12 32	− 2	e 23 3	− 6	—	—
Riverside		85·7	55	e 12 36	− 1	—	—	—	—
La Paz		151·7	81	19 29	[−15]	—	—	—	—

Irkutsk e = +15m.26s.?
Long waves were also recorded at Tananarive, Kodaikanal, Melbourne, and European stations.

Jan. 24d. Readings also at 0h. (near Lick), 1h. (La Paz), 2h. (Ekaterinburg and Tashkent), 3h. (Almata, near Andijan, and Samarkand), 4h. (Andijan, Samarkand, and La Paz), 5h. (near Andijan and near Lick), 6h. (near Taihoku), 7h. (Berkeley and Lick), 8h. (near Samarkand), 10h. (Samarkand, near Almata, and Andijan), 11h. (Tyosi), 13h. (near Medan), 14h. (Ottawa), 15h. (Phu-Lien, Chiufeng, Zi-ka-wei, Hong Kong, Manila, near Hokoto, and Taihoku), 16h. (Ekaterinburg), 17h. (La Paz, Colombo, Irkutsk, Cape Town, and Johannesburg), 18h. (Bombay, Hyderabad, Baku, Kucino, Vladivostok, Hong Kong, Stuttgart, and Toledo).

Jan. 25d. 10h. 48m. 26s. Epicentre 44°·6N. 9°·5E. (as on 1928 Aug. 4d.). X.

A = +·702, B = +·118, C = +·702; D = +·165, E = −·986;
G = +·692, H = +·116, K = −·712.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Piacenza		0·5	15	e 0 6	− 1	—	—	0·3	0·7
Pavia		0·6	339	0 8	− 1	—	—	—	—
Livorno		1·2	152	(0 24)	P_g	(0 34)	S^*	—	—
Prato		1·3	122	0 4	−14	—	—	—	0·3
Florence		1·5	123	0 5	−16	—	—	—	0·6
Treviso		2·1	62	i 0 28	− 2	0 48	− 6	—	1·4
Zurich		2·8	347	e 0 44	+ 4	e 1 22	S^*	—	—
Neuchatel		3·0	324	e 0 42	− 1	e 1 23	+ 6	—	—
Innsbruck		3·0	25	—	—	i 1 31	S^*	—	—
Besançon		3·6	319	—	—	1 34?	+ 2	—	—
Strasbourg		4·2	344	e 1 47	P_g	2 45	S_g	—	—
Stuttgart		4·2	356	e 1 19	P^*	—	—	—	—
Zagreb		4·7	73	e 1 10	+ 3	e 2 10	+10	—	2·7
Vienna	Z.	6·0	50	e 1 54	P_g	i 3 10	S^*	—	—

Additional readings and note:—
Livorno readings have been *increased* by 2m.
Strasbourg PP = +1m.51s., iPS = +2m.22s,
Zagreb eS = +1m.48s,

Jan. 25d. 12h. 34m. 30s. Epicentre 15°·0N. 105°·0W. N.2.

A = −·250, B = −·933, C = +·259; D = −·966, E = +·259; G = −·067, H = −·250, K = −·966.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tucson		18·1	344	4 10	+ 2	7 40	SS	9·2	—
Riverside	E.	22·0	332	e 4 55	+ 4	e 9 9	SS	—	—
Pasadena	E.	22·5	331	5 1	+ 5	9 24	SS	—	—
	N.	22·5	331	4 58	+ 2	9 16	SS	—	—
Haiwee		24·1	334	e 5 16	+ 5	—	—	—	—
Denver		24·7	0	e 6 23	?	—	—	—	e 12·7
Lick	N.	26·8	330	e 5 38	+ 2	—	—	—	—
St. Louis		27·0	26	e 5 37	− 1	e 10 13	− 2	—	14·5
Florissant		27·1	26	e 5 36	− 3	e 10 12	− 5	—	i 15·2
Berkeley		27·5	329	—	—	e 10 26	+ 2	e 13·5	16·2
Columbia		28·8	44	(6 2)	+ 8	(10 44)	− 1	(e 14·2)	—
Chicago		30·7	26	—	—	11 15	− 1	14·1	—
Ann Arbor		32·9	29	—	—	e 14 12	?	e 17·5	18·7
Georgetown		34·2	40	i 6 41	− 1	e 11 42	−27	e 15·5	—
Buffalo		35·8	33	i 6 57	+ 1	—	—	e 21·5	—
Toronto		36·0	31	e 6 56	− 2	e 12 5	−31	15·7	—
Victoria	E.	36·6	340	13 2	S	(13 2)	+17	20·6	22·7
San Juan		37·3	78	e 7 18	+ 9	i 8 30	PP	17·7	—
Fordham		37·4	40	e 8 58	PP	e 13 36	+39	e 16·5	—
Ottawa		39·1	32	e 8 53	PP	i 13 25	+ 3	e 16·5	—
Harvard		39·9	39	e 7 30	− 1	e 13 15	−20	e 20·5	—
La Paz		48·1	130	i 8 37	0	i 15 37	+ 3	21·5	26·2
Paris		89·8	39	—	—	e 25 30?	?	48·5	54·5
Feldberg		92·7	36	—	—	e 30 24	SS	—	—
Wellington		92·7	228	—	—	e 36 57	SSSS	43·5	—
Florence		97·4	41	e 31 2	SS	—	—	—	50·0
Ekaterinburg		107·2	9	—	—	e 33 57	SS	e 41·0	—
Irkutsk		108·1	341	—	—	28 30?	PS	e 54·5	—
Melbourne		114·9	235	—	—	(32 30?)	?	32·5	—
Baku		119·9	21	—	—	(e 28 30?)	?	e 28·5	—

Additional readings and note :—
Lick eE = +5m.50s.
St. Louis iSN = +10m.21s.
Berkeley eE = +13m.24s., eZ = +13m.31s.
Columbia PP = (+6m.32s.), e = (+7m.41s.); all readings have been *increased* by 3m.
Georgetown PP = +7m.30s.; T_o = 12h.34m.18s.
Buffalo e = +8m.1s. = PP − 10s.
Toronto i = +12m.26s.
Victoria PN = +12m.54s.
Harvard ePP = +8m.53s.; T_o = 12h.34m.45s.
Feldberg e = +34m.31s. and +39m.35s.
Long waves were also recorded at Honolulu T.H., Scoresby Sund; and other European stations.

Jan. 25d. Readings also at 2h. (La Paz and Tyosi (2)), 5h. (Zi-ka-wei, near Hokoto, and Taihoku), 6h. (Andijan and near Samarkand), 10h. (Andijan and near Samarkand), 13h. (Tyosi), 14h. (Sebastopol, Simferopol, Yalta, and near Theodosia), 17h. (Manila, Perth, Messina, and near Andijan), 18h. (Baku, Ekaterinburg, Irkutsk, Hong Kong, Copenhagen, and Paris), 19h. (Feldberg), 23h. (Almata, Andijan, and Samarkand).

Jan. 26d. **Two local Spanish shocks were recorded which probably had their origin at or near 38°·1N. 1°·2W., which was the epicentre of the small shock of 1930 Sept. 3d. The few readings available do not fit a determination and are merely quoted below:**

Shock I: 3h.
Alicante (Δ =0°·6), P_g =16m.26s., S_g =16m.34s.
Almeria (Δ =1°·5), P =16m.50s., P_g =16m.53s., 16m.59s., and 17m.11s., iPPPS =17m.16s., S_g =17m.22s., 17m.25s., PPPSS =17m.30s., S_g=17m.44s., and 17m.54s.
Granada (Δ =2°·1), iP =17m.9s., i =17m.11s., 17m.13s., 17m.16s., 17m.19s., 17m.25s., 17m.30s., iS =17m.39s., 17m.44s., 17m.49s., 17m.53s., 18m.4s., 18m.8s.
Toledo (Δ =2°·8), eP =16m.59s., PS =17m.22s., S_g =17m.32s., SS = 17m.36s.
Malaga (Δ =2°·9), eP =17m.37s., eS =18m.13s.
Tortosa (Δ =3°·0), ePN =18m.7s.

Shock II: (16h.).
Alicante P_g =59m.0s., S_g =59m.7s.
Almeria PP =59m.41s., S_g =59m.51s., PPPSS =60m.2s.
Granada P =59m.38s., i =59m.33s., and 60m.6s.
Toledo eP =59m.30s., iPS =60m.0s., S_g =60m.14s.

Jan. 26d. **Readings also at 1h. (La Paz and Tyosi), 4h. (Baku, Bombay, Ksara, Samarkand, and La Paz), 5h. (Prato), 6h. (Catania), 7h. (Prato), 9h. (near Irkutsk), 11h. (Samarkand), 12h. (Andijan and Samarkand), 13h. (La Paz, near Andijan, and Samarkand), 14h. (Almata), 22h. (Hong Kong, Manila, Phu-Lien, Bombay, Calcutta, Vladivostok, Irkutsk, Ekaterinburg, Almata, Andijan, Samarkand, Baku, and Copenhagen).**

Jan. 27d. 14h. 29m. 8s. Epicentre 61°·0N. 149°·0W. N.3.

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

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Victoria		19·2	119	4 25	+ 4	(8 7)	SS	8·1	—
Lick	N.	29·2	132	e 5 57	− 1	—	—	—	—
Tinemaha		30·7	127	e 6 11	0	e 11 15	− 1	—	—
Haiwee		31·6	128	e 6 20	+ 1	—	—	—	—
Santa Barbara	N.	32·5	132	e 6 31	+ 4	—	—	—	—
Pasadena		33·4	131	e 6 33	− 2	—	—	—	—
Riverside	N.	33·8	129	e 6 40	+ 1	—	—	—	—
La Jolla		34·8	129	e 6 44	− 3	—	—	—	—
Chicago		40·9	89	—	—	e 17 16	(−31)	—	—
Florissant		41·8	95	e 7 45	− 2	i 14 15	+12	23·9	—
Ann Arbor		42·4	85	—	—	e 19 46	?	e 22·8	—
Ottawa		43·9	77	—	—	e 20 1	?	26·9	—
Buffalo		44·3	82	i 8 28	+21	e 18 10	(+ 2)	e 22·9	—
Irkutsk		52·7	315	e 9 13	+ 1	e 16 41	+ 3	28·9	—
Pulkovo		59·3	1	i 10 0	0	—	—	—	—
Ekaterinburg		59·9	344	e 10 4	0	i 18 36	PS	25·9	—
Andijan		72·8	330	e 11 17	−11	—	—	—	—
Tashkent		73·1	331	—	—	e 19 13	?	e 33·9	47·2
Samarkand		75·2	333	e 11 45	+ 4	—	—	—	—

Additional readings:—
Lick eE = +6m.3s.
Ann Arbor eE = +20m.34s., eN = +22m.28s.
Ottawa e = +22m.2s., i = +23m.9s.
Tashkent e = +30m.40s.
Long waves were also recorded at Toronto and Vladivostok.

Jan. 27d. 20h. 9m. 21s. Epicentre **25°·4N. 96°·8E.** **N.1.**

Probable error of epicentre ±0°·32.

A = −·107, B = +·897, C = +·429; D = +·993, E = +·118; G = −·051, H = +·426, K = −·903.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Calcutta		8·2	251	1 55	− 1	—	—	3·4	4·2
Phu-Lien		10·1	115	e 2 21	− 1	i 4 22	+ 6	4·6	—
Hong Kong		16·2	97	3 39?	− 5	6 39?	− 4	7·6	10·2
Agra		16·9	280	2 30	−83	5 40	−79	7·6	—
Dehra Dun		17·3	291	4 29	+31	7 19	+10	9·2	13·6
Hyderabad		18·8	249	4 13	− 3	—	—	—	35·3
Hokoto		20·8	91	4 29	− 9	10 55	L	(10·9)	—
Tainan		21·4	92	4 42	− 2	8 42	+ 8	—	—
Taityu		21·7	88	4 52	+ 4	8 52	+12	—	—
Chiufeng		21·8	43	i 4 48	− 1	i 8 40	− 2	11·0	12·3
Medan		21·9	175	4 54	+ 4	9 1	+17	—	—
Taito		22·4	92	4 58	+ 3	9 14	SS	—	—
Taihoku	E.	22·4	86	4 59	+ 4	9 1	+ 8	11·6	12·4
Zi-ka-wei		22·4	69	i 4 56	+ 1	9 0	+ 7	11·6	13·6
Bombay		23·1	258	4 54	− 8	8 54	− 7	11·3	14·5
Kodaikanal		23·8	234	(4 45)	−23	—	—	4·7	20·1
Almata		24·1	323	e 5 15	+ 4	i 9 37	+12	i 13·7	14·9
Colombo		24·6	224	5 13	− 3	9 48	+14	16·3	17·3
Isigakizima		24·8	87	5 26	+ 8	9 53	+16	—	—
Manila		25·1	111	i 5 25	+ 4	i 10 0	+17	i 13·1	—
Andijan		25·4	313	e 5 25	+ 1	e 9 59	+11	13·4	16·9
Irkutsk		27·4	10	5 39	− 3	10 21	− 1	13·6	—
Naha		27·7	82	5 46	+ 2	10 35	+ 8	—	—
Tashkent		27·8	312	5 42	− 3	10 2	−26	14·4	16·6
Samarkand		28·7	307	5 53	0	i 10 40	− 3	14·6	16·4
Nagasaki		29·7	68	6 3	+ 1	11 7	+ 8	15·2	17·6
Unzendake		30·0	68	6 2	− 3	11 0	− 4	—	—
Hukuoka		30·2	66	6 8	+ 1	i 11 8	+ 1	16·3	19·3
Kumamoto		30·4	68	6 9	0	11 11	+ 1	—	—
Miyazaki		31·0	70	6 13	− 1	11 19	− 1	—	—
Hamada		31·8	64	6 21	0	11 30	− 2	—	—
Matuyama		32·2	67	6 18	− 6	11 29	− 9	18·4	20·0
Koti		32·8	67	6 29	− 1	11 48	0	16·6	20·7
Batavia		33·1	163	e 6 33	0	—	—	16·2	—
Muroto		33·3	51	6 37	+ 3	11 57	+ 2	—	—
Vladivostok		33·6	49	6 28	− 9	11 52	− 8	—	24·9
Sumoto		34·0	65	6 39	− 1	12 8	+ 2	18·4	19·4
Toyooka		34·1	64	e 6 40	− 1	e 12 7	− 1	19·5	20·1
Kobe	N.	34·2	65	6 36	− 6	12 14	+ 5	18·1	19·6
Osaka		34·6	65	6 42	− 4	12 7	− 8	17·9	22·8
Siomisaki		34·7	67	6 46	0	12 19	+ 2	—	—
Nagoya		35·7	64	e 7 57	+62	13 35	+63	20·7	21·7
Hamamatu		36·4	67	6 54	− 7	12 42	0	—	—
Hukusima		38·8	60	7 18	− 4	13 17	− 1	—	—
Tyosi		39·0	64	e 13 22	S	(e 13 22)	+ 1	(19·3)	28·7
Sendai		39·1	60	7 23	− 1	13 22	0	—	—
Mizusawa	E.	39·5	59	7 27	− 1	13 29	0	20·1	—
	N.	39·5	59	7 31	+ 3	13 23	− 6	19·9	—
Sapporo		40 2	51	7 31	− 3	13 31	− 8	—	—
Ekaterinburg		40·7	330	i 7 35	− 3	i 13 38	− 9	—	—
Baku		41·6	304	e 7 46	+ 1	—	—	—	—
Amboina		42·1	129	8 51	+62	i 15 14	+66	18·2	—
Theodosia		52·5	310	9 15	+ 5	i 16 35	0	30·0	—
Ksara		52·9	295	9 16	+ 3	16 49	+ 8	27·9	30·5
Yalta		53·3	309	e 9 16	0	16 43	− 3	—	—

Continued on next page.

		Δ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
Sebastopol		53·8	309	—	—	16 53	0	27·6	—
Pulkovo		56·5	327	i 9 35	− 4	i 17 22	− 8	27·6	29·4
Helwan		57·4	290	i 9 46	0	i 17 44	+ 2	—	38·4
Helsingfors	E.	59·2	327	e 9 52	− 7	i 18 0	− 5	i 27·2	—
	Z.	59·2	327	e 9 59	0	18 2	− 3	e 27·6	—
Lemberg	E.	60·0	315	e 9 17	−47	e 18 16	0	e 24·9	40·8
	N.	60·0	315	e 9 9	−55	e 18 21	+ 5	e 25·4	35·6
Perth		60·2	161	e 10 9	+ 3	18 9	−10	28·6	34·6
Königsberg		61·7	320	e 10 16	0	e 18 21	−17	e 28·9	35·6
Upsala		62·9	327	e 10 20	− 5	i 18 44	−10	31·6	36·0
Belgrade		63·0	310	e 10 24	− 1	e 18 35	−20	e 32·6	38·2
Budapest		63·5	314	10 29	0	18 50	−11	32·6	36·1
Vienna		65·2	315	e 10 35	− 5	(19 38)	+16	i 31·9	40·2
Tananarive		65·3	232	10 44	+ 3	e 19 23	− 1	30·5	40·6
Lund		65·7	322	10 44	+ 1	19 22	− 7	—	—
Zagreb		65·9	312	e 10 23	−22	e 19 7	−24	e 32·1	37·5
Graz		66·0	315	e 10 45	0	i 19 24	− 8	30·6	36·9
Prague		66·1	318	e 10 44	− 2	19 27	− 7	e 27·6	—
Copenhagen		66·1	322	10 43	− 3	i 19 31	− 3	—	37·7
Taranto		66·2	306	10 45	− 2	19 30	− 5	—	52·7
Bari		66·3	307	11 30	+43	19 27	− 9	33·0	—
Potsdam		66·4	320	e 10 41	− 7	i 19 31	− 6	e 31·1	39·4
Laibach	E.	66·9	314	e 10 57	+ 6	e 19 43	0	e 27·9	37·7
Trenta		67·2	304	i 10 34	−19	i 19 9	−38	32·6	40·6
Cheb		67·3	318	e 10 49	− 5	e 19 45	− 3	e 34·9	39·9
Jena		67·6	319	e 10 54	− 2	i 19 52	0	e 34·4	36·6
Hamburg		68·0	321	10 58	0	i 19 48	− 9	e 33·1	38·0
Messina		68·1	303	11 9	+10	19 49	− 9	23·3	41·1
Naples	E.	68·3	307	e 10 47	−13	e 20 39	+38	40·6	48·6
Venice		68·4	312	e 10 59	− 2	i 20 3	+ 1	37·6	41·7
Treviso		68·5	311	i 11 0	− 1	20 0	− 3	31·6	40·6
Göttingen		68·5	320	i 10 54	− 7	i 19 56	− 7	e 30·6	38·6
Camerino		68·5	309	12 17	+76	—	—	—	—
Monte Cassino		68·5	308	—	—	20 39?	+36	—	—
Catania		68·6	302	11 5	+ 3	19 5	−59	37·7	46·5
Innsbruck		68·7	315	e 11 3	0	e 19 51	−14	e 27·9	40·6
Padova		68·8	311	e 11 2	− 1	i 19 59	− 8	—	—
Bergen		68·8	329	11 3	0	20 4	− 3	34·6	42·6
Rome		69·3	308	e 11 22	(− 8)	i 20 15	+ 2	e 35·3	45·3
Florence		69·7	310	i 11 16	+ 7	20 13	− 5	30·6	38·6
Prato		69·7	310	e 10 39?	−30	20 8	−10	34·6	40·6
Feldberg		69·7	318	e 11 15	+ 6	i 20 12	− 6	—	37·7
Stuttgart		69·7	317	e 11 3	− 6	i 20 13	− 5	38·1	—
Chur		70·0	315	e 11 5	− 6	e 20 21	0	—	—
Karlsruhe		70·1	317	11 21	+10	20 20	− 2	e 35·6	41·5
Livorno		70·4	310	11 49	+36	19 51	−35	—	—
Piacenza		70·4	312	11 11	− 2	20 19	− 7	28·6	42·6
Zurich		70·5	315	e 11 11	− 3	e 20 16	−11	—	—
Pavia		70·7	312	e 11 26	+11	—	—	—	—
Strasbourg		70·7	317	11 10	− 5	i 20 26	− 4	31·6	46·1
De Bilt		71·2	320	11 14	− 4	20 30	− 5	e 35·6	40·0
Neuchatel		71·6	315	e 11 15	− 5	e 20 31	− 9	—	—
Uccle		72·1	319	e 11 19	− 4	i 20 39	− 7	35·6	40·3
Besançon		72·2	315	11 31	+ 7	20 42	− 5	38·6	—
Paris		73·8	317	11 34	+ 1	e 20 55	−11	28·6	39·6
Marseilles		73·9	312	e 11 39	+ 5	e 21 6	− 1	30·6	—
Durham		74·1	323	12 48	+68	20 58	−12	33·6	43·1
Edinburgh		74·5	325	11 48	+11	21 18	+ 4	30·6	42·4
Kew		74·6	320	e 11 38	0	i 21 8	− 7	35·6	37·0
Puy de Dôme		74·7	315	e 11 37	− 2	21 9	− 8	29·6	—
Stonyhurst		74·9	322	i 11 41	+ 1	i 21 11	− 8	34·6	48·6
Scoresby Sund		75·0	342	i 11 41	+ 1	21 13	− 7	—	—
Oxford		75·1	321	—	—	i 21 14	− 7	e 34·6	47·6
Bidston		75·4	322	e 11 49	+ 6	i 21 19	− 6	e 30·0	41·8
Barcelona		76·8	310	11 53	+ 3	e 21 32	− 9	e 30·6	44·5

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Bagnères		77·4	313	e 11 55	+ 1	i 21 45	− 2	26·6	—
Melbourne		77·7	143	11 57	+ 1	21 54	+ 3	37·9?	47·2
Algiers		77·9	306	11 56	− 1	21 43	−10	35·6	53·6
Tortosa		78·1	310	e 11 59	+ 1	e 21 53	− 2	35·4	46·6
Riverview		78·6	137	e 11 35	−25	i 22 2	+ 2	38·0	47·6
Sydney		78·6	137	e 11 33	−27	i 21 39	−21	49·6	58·2
Alicante		79·8	309	e 12 9	+ 2	e 21 57	−17	e 33·1	48·3
Toledo		81·7	310	e 12 15	− 2	i 22 22	−12	e 37·1	46·2
Almeria		81·8	309	i 12 19	+ 2	i 22 27	− 8	43·0	50·3
Granada		82·6	309	i 12 22	+ 1	i 23 44	PS	43·6	50·2
Malaga		83·4	309	e 12 0	−25	22 47	− 4	32·6	50·1
Johannesburg		84·0	237	12 27?	− 1	22 51	− 7	33·6	—
Serra do Pilar		84·2	315	—	—	22 46	[− 7]	—	—
San Fernando		84·8	309	11 39	−53	22 39	[−19]	41·6	56·2
Sitka		86·6	26	—	—	i 23 8	[− 3]	e 38·6	—
Ivigtut		88·9	344	—	—	23 39	− 7	—	—
Honolulu T.H.		93·9	64	—	—	23 57	[+ 2]	41·6	—
Victoria		97·9	26	13 45	+11	21 25	?	40·9	52·8
Wellington		98·2	132	18 39	?	24 9	[− 8]	46·6	59·6
Dakar		104·5	295	e 18 30	PP	e 25 5	[+18]	38·3	58·6
Berkeley		106·8	31	e 17 42	[−25]	e 24 18	[−40]	—	65·5
Lick		107·6	31	e 18 54	PP	—	—	e 54·0	—
Ottawa		108·9	354	e 18 57	PP	e 29 14	PS	e 48·6	62·6
Tinemaha	E.	109·3	29	e 18 6	[−10]	—	—	e 52·3	—
Haiwee		110·2	29	e 18 59	PP	e 26 5	{− 3}	e 52·3	—
Santa Barbara	N.	110·8	31	e 19 48	PP	—	—	—	—
Toronto		110·9	357	e 14 30	− 5	i 25 6	[−11]	49·5	59·6
Harvard		111·3	350	—	—	i 25 9	[−10]	50·6	—
Buffalo		111·6	356	e 14 39	+ 1	i 28 39	PS	e 54·6	—
Denver		111·8	18	e 16 47	?	e 28 42	PS	—	57·6
Pasadena		111·9	30	e 19 19	PP	e 28 27	PS	55·8	—
Riverside	N.	112·3	30	e 19 30	PP	—	—	—	—
Ann Arbor		112·3	1	e 19 21	PP	i 28 57	PS	e 49·0	68·6
Chicago		112·7	4	—	—	26 15	{−11}	e 45·6	—
Fordham		113·2	353	e 19 16	PP	i 29 6	PS	—	—
La Jolla	E.	113·3	30	e 18 25	[− 3]	—	—	—	—
Georgetown		115·4	355	—	—	25 28	[− 7]	e 53·6	—
Florissant		115·4	6	e 14 59	+ 2	i 29 18	PS	e 51·1	63·2
St. Louis		115·7	6	—	—	i 25 25	[−11]	e 52·1	60·1
Charlottesville		116·4	356	—	—	e 25 27	[−12]	51·4	—
Tucson		116·6	26	—	—	26 43	{−10}	49·6	—
San Juan		133·1	338	e 22 39	PKS	—	—	—	—
Port au Prince		134·8	345	e 22 12	PP	—	—	71·9	—
La Plata		156·2	240	24 31	PP	—	—	64·6	—
La Paz		163·4	299	i 20 3	[+ 6]	27 13	?	76·0	90·6

Additional readings and note :—

Agra SN = +5m.10s.
Chiufeng pPE = +5m.58s., iE = +8m.18s., iSSN = +9m.47s.
Medan iP = +4m.57s.
Zi-ka-wei iE = +5m.4s., PPE? = +5m.24s., PPPE = +5m.50s., PPPPE = +6m.0s., PSE = +9m.6s., SSE = +9m.42s., SSSE = +10m.2s., SSSSE? = +10m.36s.
Manila PPE = +6m.5s., PPPE = +6m.17s., SSN = +11m.25s., SSSE = +11m.47s.
Koti PPE = +7m.33s., eN = +15m.0s.
Toyooka iPEZ = +6m.43s., eSZ = +11m.59s., eSN = +12m.9s.
Kobe ePZ = +6m.40s., iP = +6m.44s., PPE = +7m.56s., eN = +9m.34s. = P_gP +11s., SE = +12m.3s., iN = +14m.43s.
Osaka i = +9m.33s. = P_gP +9s.
Tyosi gives S as P and L as S.
Helsingfors ePN = +10m.5s., iPPEZ = +12m.11s., ePPPZ = +13m.26s., PPPEN = +13m.28s., iSSE = +21m.52s., eZ = +23m.51s., iSSSN = +24m.25s., iSSSE = +24m.44s.
Perth PP = +13m.54s., S = +18m.54s., SS = +22m.34s., SSS = +25m.9s.

Continued on next page.

Königsberg ePcPN = +11m.9s., PPZ = +12m.39s., PPP = +13m.56s., e = +14m.24s., eE? = +15m.41s., iSEN = +18m.34s., PSEN = +19m.14s., e = +19m.34s. = ScS − 15s., SPS? = +20m.29s., SSE = +22m.39s., e = +23m.29s., SSS = +25m.9s., e = +25m.49s.
Upsala PPPE = +14m.12s., PPPPE = +15m.9s., iPS = +19m.32s., SSE = +23m.9s., SSSN = +25m.41s., SSSS = +26m.52s.
Belgrade eE = +12m.55s. = PP + 18s., ePPPPN = +14m.3s., eE = +15m.1s.
Vienna iPZ = +10m.47s., PKP = +12m.47s. = PP − 9s., PP = +15m.55s., SKKS = +22m.51s., i = +24m.11s., PPS = +31m.4s., SS = +33m.29s.; true S is given as PPP.
Tananarive PcPE = +11m.13s., PPE = +14m.39s., PPE = +15m.27s., eN = +19m.12s., PSEN = +19m.43s., PSE = +20m.0s., ScSE = +20m.51s., ScSN = +20m.57s., SSEN = +24m.7s., SSSE = +26m.45s.
Lund eNW = +19m.30s. and +20m.0s., eNE = +20m.8s., i = +20m.38s. = ScS + 5s., +23m.27s. = SS − 10s.
Zagreb iPcP = +10m.53s., iPP = +13m.15s., ePPPNW = +14m.45s., ePPPNE = +15m.19s., iPS = +19m.25s., ePPS = +19m.57s., iSKSNE = +20m.31s. = ScS − 3s., iScSNE = +20m.53s., +21m.21s., eSSNW = +24m.8s., iNE = +24m.25s., eSSS = +26m.53s., eSSSS = +27m.47s., iNE = +28m.20s., iPKKP = +32m.27s.
Graz iPS = +20m.35s. = ScS + 0s., iPSS = +22m.55s., iSSS = +27m.31s.
Copenhagen iP = +10m.47s., iSKS = +20m.47s., SS = +23m.51s.
Potsdam iEN = +10m.49s., iZ = +10m.57s., iEN = +11m.5s., eEN = +11m.21s. = PcP + 2s., iPPEZ = +13m.10s., iPPPEN = ePPPZ = +14m.54s., iNE = +18m.41s., iEN = +19m.52s. = PS + 2s., iE = +20m.8s., eEN = +20m.57s. = ScS + 19s.
Laibach eE = +13m.19s. = PP + 8s. and +15m.26s.
Cheb ePP = +13m.34s., ePPP = +15m.9s., eSS = +24m.23s., e = +27m.25s.
Jena eP = +11m.1s., iE = +11m.43s. and +13m.26s., iN = +13m.28s., iZ = +13m.33s., eSNZ = +19m.39s., eSE = +19m.48s., ePSN = +20m.30s., ePSZ = +20m.33s., ePSE = +20m.39s., eE = +23m.39s.
Hamburg iPPZ = +13m.36s., iSN = +19m.52s., eZ = +27m.51s.
Göttingen iPZ = +11m.2s., iPcPZ = +11m.46s., iEN = +13m.10s., ePPE = +13m.30s., ePPPE = +15m.10s., ePSN = +20m.24s., iScSEN = +20m.53s., iEN = +22m.2s., iSSEN = +24m.9s., iSSSEN = +27m.37s., iE = +28m.35s.
Innsbruck eSS = +24m.27s.
Bergen SS = +24m.18s., SSS = +27m.39s. ?
Feldberg i = +12m.19s., e = +23m.39s.
Stuttgart iP = +11m.9s., e = +13m.9s., ePPP = +15m.29s., ePS = +20m.54s., eSSN = +24m.35s., iSSSN = +28m.15s.
Zurich ePP = +14m.23s.
Strasbourg PP = +13m.57s., PS = +21m.4s., iSSS = +28m.39s.
De Bilt iZ = +11m.19s., iPP = +14m.4s.
Uccle PP = +14m.10s., iPS = +21m.26s., SS = +25m.17s., SSS = +28m.56s.
Durham ? = +15m.54s. = PPP + 4s.
Edinburgh PS = +21m.59s.
Kew i = +11m.44s., iPcPE = +12m.10s., iPP = +14m.24s., ePPP = +16m.16s.
Puy de Dôme PP = +14m.33s., SS = +25m.43s.
Stonyhurst PP = +14m.33s., PPP = +16m.8s., PPP = +17m.13s., PS = +21m.48s., SS = +26m.56s., SSS = +29m.50s., SSSS = +31m.25s.
Scoresby Sund +14m.33s. = PP + 12s., P = +16m.15s. = PPP + 15s., SS = +25m.33s., SSS = +29m.15s.
Oxford iPP = +14m.34s., iSSS = +29m.41s.
Melbourne i = +22m.13s. = PS + 19s., eSS = +26m.54s.
Tortosa iSN = +21m.46s.
Riverview iPZ = +12m.1s., iN = +26m.50s. = SS − 1s.
Toledo PP = +15m.32s., SKS = +22m.7s., PS = +23m.11s., SS = +27m.41s.
Almeria PP = +14m.45s., SS = +23m.45s.
Granada i = +14m.50s., PP = +15m.48s., i = +18m.59s., +29m.11s.
Sitka ePP = +16m.1s., iSS? = +32m.31s.
Ivigtut SKS = +23m.17s., +29m.33s. = SS + 9s.
Honolulu T.H. PS = +25m.39s., SS = +30m.48s.
Victoria SE = +21m.28s.
Wellington SS = +31m.39s., SSS = +36m.9s.
Berkeley eZ = +18m.13s. = PKP + 6s., iE = +18m.18s., +23m.26s., and +33m.18s. = SS − 2s.
Lick eE = +18m.58s. and +19m.30s.
Ottawa ePPP = +25m.6s., ePPS = +33m.14s., eSS = +38m.4s.
Tinemaha eN = +18m.21s., eE = +19m.9s. = PP + 17s.
Haiwee eN = +19m.9s. = PP + 10s.
Toronto eN = +14m.39s., ePKPE = +18m.14s., ePKP = +18m.20s., iPP = +19m.5s., iPPP = +21m.19s., iE = +26m.44s., iPS? = +28m.53s., i = +29m.41s., iSS = +34m.8s., iSS = +34m.37s., i = +34m.46s.
Harvard iPP = +19m.9s., iPPP = +21m.24s., iPS = +28m.35s., iSS = +34m.43s., iSSS = +38m.38s., e = +42m.39s.; T_0 = 20h.9m.15s.
Buffalo i = +19m.13s. = PP + 4s.

Continued on next page.

Denver eN = +19m.4s. =PP −6s.
Pasadena eN = +19m.23s. =PP +12s., eE = +19m.35s., eN = +28m.48s.
Riverside eE = +19m.49s.
Ann Arbor ePPPN = +21m.51s., iSS = +35m.3s., iSSS = +39m.21s., eN = +43m.57s.
Chicago P = +19m.27s., eSKS = +25m.21s., iPS = +28m.56s., PPS = +29m.58s., SS = +35m.2s., SSS = +38m.56s.
Fordham iPPS = +30m.6s., iSS = +34m.57s.
La Jolla eN = +19m.39s. =PP +18s.
Georgetown PPNZ = +19m.34s., PS = +29m.9s., SSNZ = +35m.39s.
Florissant iPPZ = +19m.38s., iZ = +22m.11s., iN = +25m.25s. =SKS −10s., iSSEN = +35m.15s.
St. Louis ePPN = +19m.31s., ePPPN = +22m.8s., iN = +26m.35s. =SKKS −12s. eEN = +27m.23s., ePSEN = +29m.9s., iN = +29m.25s., eSS = +35m.13s.
Charlottesville ePP = +19m.45s., e = +22m.9s., S = +26m.39s. =SKKS −13s., ePS = +29m.9s.
Tucson PP = +20m.6s., PPP = +22m.15s., PS = +29m.37s., SS = +36m.3s., e = +47m.15s.
Port au Prince i = +24m.22s. =PPP −14s. and +25m.2s.
La Paz PPE = +24m.45s., iE = +29m.3s., SSN = +45m.43s., SSSN = +52m.3s.

Jan. 27d. Readings also at 4h. (Algiers), 6h. (De Bilt and near Amboina), 9h. (Almata, Andijan, and Samarkand), 10h. (Koti, near Kobe, and Sumoto), 19h. (near Andijan and Samarkand), 21h. (La Paz).

Jan. 28d. 5h. 55m. 15s. Epicentre 40°·1N. 20°·5E. N.1.

Probable error of epicentre ±0°·27.

A = +·716, B = +·268, C = +·644 ; D = +·350, E = −·937 ;
G = +·603, H = +·226, K = −·765.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Taranto		2·5	280	i 0 40	+ 4	i 1 12	S*	—	2·0
Bari		2·9	296	0 41	0	0 56	−18	1·2	—
Trenta		3·3	257	e 0 50	+ 3	1 45	S*	—	—
Sarajevo		4·1	339	i 0 22	−36	1 16	−29	—	1·7
Messina		4·3	245	1 22	P*	2 55	S_g	—	3·2
Belgrade		4·7	0	e 1 1	− 6	e 1 59	− 1	—	2·4
Naples	E.	4·8	281	e 1 20	P*	e 2 13	S*	—	3·7
Benevento		4·8	285	i 1 14	+ 6	—	—	—	3·7
Catania		4·9	240	2 7	S	2 39	S*	3·6	4·8
Casamicciola	.	5·1	280	1 0	−13	2 27	S*	—	—
Montecassino		5·2	287	1 13	− 1	2 18	+ 5	—	—
Collurania		5·7	300	1 21	0	—	—	—	—
Camerino		6·2	301	i 2 7	P_g	i 3 55	S_g	—	—
Rome		6·3	289	i 1 32	+ 2	i 2 41	0	3·2	4·3
Zagreb		6·6	332	e 1 27	− 7	i 2 41	− 7	i 3·3	3·6
Budapest		7·4	353	1 40	− 5	3 1	− 8	3·7	4·7
Laibach	N.	7·4	326	1 39	− 6	i 3 2	− 7	—	4·3
Florence		7·8	301	1 45	− 6	—	—	—	—
Graz		7·8	334	e 1 20	−31	i 2 53	−26	—	4·2
Prato		7·9	302	e 1 45	− 7	3 45	S*	—	4·5
Venice		8·0	314	i 1 50	− 3	i 4 21	L	(i 4·3)	6·9
Padova		8·3	313	1 50	− 8	4 25	L	(4·4)	—
Treviso		8·3	315	1 50	− 8	3 40	+ 9	—	5·5
Vienna		8·6	342	1 57	− 5	3 32	− 7	4·5	5·8
Piacenza		9·4	305	e 2 13	0	4 9	+10	—	8·6
Pavia		9·7	306	e 2 8	− 9	—	—	—	—
Innsbruck		9·8	321	2 15	− 3	i 3 57	−11	i 5·0	5·4
Lemberg		10·0	13	e 1 51	−30	—	—	—	5·7
Chur		10·4	314	e 2 23	− 3	—	—	—	—
Sebastopol		10·6	61	2 28	− 1	—	—	4·7	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Prague		10·8	339	e 2 31	− 1	e 4 38	+ 5	e 5·2	5·7
Ravensburg		11·0	318	e 2 30	− 5	e 4 30	− 8	e 5·3	—
Yalta		11·0	62	e 2 40	+ 5	—	—	—	—
Simferopol		11·1	60	e 2 35	− 1	—	—	—	—
Zurich		11·3	314	e 2 32	− 7	e 4 51	+ 6	—	—
Cheb		11·5	333	e 4 42	S	(e 4 42)	− 8	—	—
Stuttgart		11·8	321	e 2 37	− 9	—	—	e 5·5	—
Neuchatel		12·0	309	e 2 42	− 6	—	—	—	—
Theodosia		12·0	61	e 4 17	?	—	—	—	—
Jena		12·4	333	e 2 45	− 9	—	—	e 5·7	7·2
Karlsruhe		12·4	320	3 10	+16	5 33	+20	—	6·9
Strasbourg		12·4	317	e 2 47	− 7	e 5 11	− 2	6·7	7·3
Besançon		12·6	309	2 52	− 4	—	—	i 6·2	—
Feldberg		13·2	324	—	—	i 5 42	+10	i 6·9	7·3
Potsdam		13·3	340	e 2 45?	−21	i 6 24	+50	—	8·3
Göttingen		13·5	331	e 3 15	+ 6	5 37	− 2	e 6·4	7·6
Ksara	E.	13·8	112	e 3 13	0	5 56	+10	—	—
Algiers		14·0	262	e 3 21	+ 6	e 6 8	+17	e 9·0	10·1
Barcelona		14·0	282	e 3 19	+ 4	—	—	e 7·1	9·6
Königsberg		14·7	0	—	—	6 20	+12	e 7·4	9·9
Hamburg		15·2	336	e 3 24	− 7	e 6 24	+ 4	e 8·0	8·8
Tortosa	N.	15·2	279	—	—	(e 5 45)	−35	e 5·7	9·9
Paris		15·5	311	e 3 33	− 2	(5 45)	−42	5·7	7·7
Uccle		15·5	319	e 3 35	0	e 6 29	+ 2	8·1	8·7
De Bilt		16·0	324	i 3 48	+ 7	6 50	+12	7·7	9·0
Alicante		16·3	271	e 3 45	0	e 7 2	+17	—	—
Lund		16·3	345	3 51	+ 6	6 45	0	8·7	—
Copenhagen		16·5	344	3 45	− 3	6 45	− 5	7·7	—
Almeria		18·1	268	4 11	+ 3	i 7 38	+11	10·8	13·1
Kew		18·3	316	i 4 12	* + 2	i 7 36	+ 5	i 9·6	10·3
Toledo		18·8	277	e 4 17	+ 1	e 7 51	+ 9	e 8·9	—
Granada		19·0	269	i 4 25	+ 6	i 8 0	+14	10·0	12·4
Malaga		19·8	268	e 4 38	+11	e 8 8	+ 6	—	—
Upsala		19·8	356	e 4 12	−15	e 7 44	−18	e 11·1	13·2
Helsingfors		20·3	7	e 4 27	− 6	e 7 57	−15	10·4	—
Pulkovo		20·6	14	4 27	− 9	e 8 1	−17	10·7	13·4
Stonyhurst		20·7	320	e 4 32	− 5	8 22	+ 2	—	—
Bidston		20·8	318	—	—	e 8 21	− 1	e 10·4	12·2
Baku		22·3	80	—	—	9 1	+ 9	12·4	14·4
Bergen		22·4	340	—	—	e 11 7	?	e 12·4	—
Ekaterinburg		30·8	42	i 8 11	PP	e 11 24	+ 7	15·7	20·1

Additional readings :—
Sarajevo $P_g = +27$s.
Belgrade eNZ = +1m.7s., e = +1m.13s., eN = +1m.16s., iN = +1m.40s.; epicentre 41°·1N. 20°·8E.
Zagreb i = +1m.31s., +1m.38s., +1m.49s., +2m.8s., +2m.18s., +2m.20s., +2m.24s., +2m.27s., and +2m.37s., iNE = +3m.0s., i = +3m.7s. and +3m.12s.
Laibach iPPS = +2m.8s., i = +2m.4s., and +3m.33s.
Graz iP = +1m.48s.
Treviso S = +4m.32s. $=S_g$.
Vienna P* = +2m.20s., P_g = +2m.42s., PPS = +3m.20s., S* = +3m.44s.; epicentre 40°·7N. 20°·8E.
Innsbruck PP = +2m.28s.
Lemberg eN = +1m.57s.
Cheb eS = +6m.8s.
Strasbourg SS = +6m.20s.
Potsdam ePE = +4m.15s., eZ = +5m.45s. ?
Königsberg SS = +6m.35s.
Hamburg eE = +6m.33s.
Granada i = +4m.27s. and +5m.23s.
Helsingfors eSN = +8m.12s.
Ekaterinburg e = +8m.30s.
Long waves are also recorded at Irkutsk, Scoresby Sund, and La Paz.

Jan. 28d. 21h. 24m. 10s. Epicentre 11°·1N. 145°·0E. N.1.

Probable error of epicentre ±0°·25.

A = −·804, B = +·563, C = +·193; D = +·574, E = +·819; G = −·158, H = +·110, K = −·981.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Amboina		22·3	229	i 4 53	− 1	—	—	—	—
Manila		23·7	281	i 5 7	0	i 9 24	+ 6	12·4	—
Mera		24·2	350	5 17	+ 5	9 38	+11	—	—
Muroto		24·2	338	5 13	+ 1	9 38	+11	—	—
Miyazaki		24·3	332	5 13	0	9 31	+ 3	—	—
Numadu		24·6	348	5 17	+ 1	9 47	+13	—	—
Misima		24·6	348	5 13	− 3	9 35	+ 1	—	—
Yokohama		24·8	350	5 18	0	9 51	+14	—	—
Tyosi		24·9	352	e 5 21	+ 2	9 45	+ 6	—	14·0
Koti		24·9	337	5 16	− 3	e 9 38	− 1	e 11·6	13·6
Tokyo		25·0	350	5 20	0	8 53	−48	—	—
Sumoto		25·0	340	5 18	− 2	9 49	+ 8	e 11·3	14·6
Nagoya		25·1	344	e 5 23	+ 2	9 50	+ 7	12·1	—
Osaka		25·1	342	5 11	−10	10 4	+21	12·9	14·5
Kobe		25·2	341	5 20	− 2	9 54	+10	e 12·2	12·4
Matuyama		25·3	336	i 5 23	0	9 27	−19	16·1	17·5
Kakioka		25·5	351	5 24	− 1	10 0	+10	—	—
Nagasaki		25·7	330	4 26	−60	9 13	−40	12·4	—
Oiwake		25·7	348	5 28	+ 2	10 4	+11	—	—
Toyooka		26·1	341	5 33	+ 3	e 10 13	+13	i 12·7	15·4
Hukuoka		26·1	331	5 30	0	9 45	−15	—	11·4
Taihoku	E.	26·2	305	5 38	+ 7	—	—	10·1	12·6
Hukusima		26·9	352	5 36	+ 1	10 23	+ 9	—	—
Wazima		27·2	346	5 46	+ 6	10 32	+14	—	—
Sendai		27·4	353	5 42	0	10 25	+ 3	—	—
Mizusawa	E.	28·2	354	5 49	0	10 55	+20	—	—
Morioka		28·8	354	5 54	0	10 46	+ 1	—	—
Akita		28·9	352	6 0	+ 5	10 57	+10	—	—
Zi-ka-wei		29·6	316	6 2	+ 1	10 58	0	—	19·8
Hong Kong		31·5	295	6 19	+ 1	9 56	?	11·4	13·6
Sapporo		32·1	354	6 26	+ 2	11 44	+ 7	—	—
Nemuro		32·2	1	6 28	+ 4	12 14	+36	—	—
Vladivostok		33·9	344	6 50	+11	i 12 21	+17	—	—
Phu-Lien		38·1	290	e 7 16	0	13 12	+ 4	17·8	18·7
Chiufeng		38·6	324	i 7 19	− 1	i 13 20	+ 5	16·7	—
Batavia		41·8	248	i 7 42	− 5	i 17 50	(− 3)	e 20·3	—
Riverview	E.	45·4	173	i 8 19	+ 3	i 14 56	0	—	27·4
	N.	45·4	173	i 8 13	− 3	14 38	−18	21·7	27·6
Sydney		45·4	173	e 8 14	− 2	i 14 38	−18	21·2	25·2
Adelaide		46·5	188	i 8 19	− 6	i 15 20	+ 8	i 22·6	33·5
Medan		46·5	265	e 8 20	− 5	i 15 10	− 2	—	—
Melbourne		48·9	180	8 57	+14	15 45	0	21·5	27·4
Perth		51·3	212	9 10	+ 9	16 20	+ 1	28·0	30·2
Irkutsk		52·7	330	9 9	− 3	16 37	− 1	23·8	28·7
Calcutta		55·1	290	9 27	− 3	16 59	−12	28·3	—
Honolulu T.H.		55·6	70	i 9 53	+20	i 17 23	+ 6	22·9	—
Wellington		59·2	154	9 57	− 2	18 22	+17	27·1	30·8
Christchurch		60·2	158	—	—	i 17 43	−36	—	—
Colombo		64·4	273	10 34	− 1	19 8	− 4	27·0	34·2
Hyderabad		64·5	285	10 41	+ 6	18 56	−18	26·7	30·8
Agra	E.	64·6	296	i 9 16	−80	17 55	−80	31·9	—
	N.	64·6	296	e 8 38	−118	i 17 45	−90	30·8	32·4
Dehra Dun		64·6	299	6 0	?	19 10	− 5	26·5	36·8
Kodaikanal		66·2	277	9 50	−57	—	—	33·5	40·3
Almata		66·4	313	10 54	+ 6	—	—	e 27·3	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Andijan		69·6	310	e 11 10	+ 2	e 20 13	− 3	e 32·8	—
Bombay		69·7	287	11 9	0	20 9	− 9	36·2	36·5
Samarkand		73·7	310	e 11 34	+ 1	e 20 57	− 8	e 26·4	—
Sitka		75·0	34	e 12 0	+20	i 21 33	+13	29·5	—
Ekaterinburg		77·6	327	i 11 56	+ 1	i 21 41	− 8	30·8	41·8
Victoria		82·8	42	12 35	+13	22 45	0	38·6	45·7
Berkeley		85·3	52	e 12 3	−32	i 23 25	+14	—	35·7
Lick		86·0	52	e 12 43	+ 5	e 23 28	+10	e 45·0	—
Baku		86·7	312	i 12 53	+11	i 23 19	− 5	35·8	—
Santa Barbara	N.	88·0	55	e 12 53	+ 5	e 23 36	− 1	—	—
Haiwee	E.	89·0	53	13 8	+15	e 23 33	−13	—	—
Pasadena	E.	89·3	55	e 12 59	+ 5	24 2	+13	—	—
Riverside		90·0	55	e 13 3	+ 6	24 6	+10	—	—
Kucino		90·2	328	13 2	+ 4	23 37	[+ 3]	39·7	52·9
La Jolla	E.	90·3	56	e 13 0	+ 1	e 24 8	+ 9	—	—
Pulkovo		92·3	333	13 12	+ 4	23 48	[+ 2]	38·8	49·1
Helsingfors		94·4	335	e 13 23	+ 5	i 24 1	{− 9}	42·9	—
Theodosia		95·5	320	e 17 15	PP	—	—	44·8	—
Tucson		95·7	55	13 4	−20	24 53	+ 5	—	—
Simferopol		96·4	319	e 17 8	PP	—	—	45·8	—
Yalta		96·5	319	e 17 5	PP	—	—	41·8	—
Upsala		97·6	337	16 46	?	24 19	[+ 5]	e 42·8	52·9
Scoresby Sund		97·8	355	—	—	25 11	+ 4	—	—
Ksara		99·2	309	17 40	PP	e 24 28	[+ 6]	47·2	—
Königsberg		99·4	331	16 35	?	25 10	−11	e 44·8	52·8
Tananarive		100·6	253	—	—	24 22	[− 7]	49·2	—
Bergen		101·6	341	e 14 50?	+59	—	—	44·8	50·8
Lund		102·0	335	17 20	PP	24 44	[+ 9]	41·8	—
Copenhagen		102·4	335	14 8	+13	i 24 46	[+ 9]	—	—
Helwan		104·2	306	e 17 32	?	i 24 50	[+ 4]	—	—
Budapest		104·3	325	17 46	[−14]	24 46	[0]	33·3	54·3
Potsdam		104·3	331	e 14 8	+ 5	i 24 51	[+ 5]	e 45·8	55·8
Hamburg		104·8	334	—	—	i 24 57	[+ 8]	e 43·8	55·6
Belgrade		105·0	322	e 14 9	+ 3	e 24 47	[− 3]	e 44·2	53·7
Prague		105·2	330	12 28	?	—	—	e 46·3	57·8
Vienna		105·3	328	e 13 11	?	25 2	[+11]	e 36·8	56·8
Jena		106·0	331	e 13 20	?	e 25 6	[+11]	e 45·8	54·4
Cheb		106·1	330	e 14 28	+16	e 25 18	[+23]	e 46·8	57·8
Göttingen		106·3	332	e 17 32	?	i 24 56	[0]	i 53·3	54·8
Graz		106·5	327	e 18 46	PP	e 28 54	?	46·8	55·1
Ivigtut		106·9	5	18 52	PP	26 26	?	—	—
Zagreb		107·0	325	e 14 25	+ 9	e 25 6	[+ 7]	e 54·7	58·2
Feldberg		107·9	334	e 18 35	PP	i 25 15	[+11]	e 49·3	64·0
Edinburgh		107·9	341	—	—	e 33 50	SS	48·8	—
De Bilt		108·0	335	e 14 32	+11	e 25 18	[+14]	48·8	55·0
Florissant		108·3	41	e 14 43	+20	e 25 5	[0]	e 44·8	51·7
Durham		108·3	340	18 59	PP	34 34	?	50·0	63·8
Chicago		108·4	38	15 2	+39	i 26 39	{+43}	44·6	—
Innsbruck		108·5	329	e 19 2	PP	e 28 2	PS	e 52·2	56·6
St. Louis		108·5	41	—	—	i 25 4	[− 2]	e 44·6	59·8
Stuttgart		108·5	331	e 14 29	+ 5	e 26 40	?	e 49·8	57·3
Karlsruhe		108·8	331	e 18 50?	PP	—	—	e 55·8	—
Uccle		109·2	335	—	—	25 20	[−10]	48·8	53·7
Venice		109·2	326	i 17 0	[−76]	—	—	—	—
Treviso		109·2	327	e 15 50	+83	i 25 18	[+ 8]	e 51·8	67·8
Strasbourg		109·4	331	e 14 7	−21	25 16	[+ 5]	52·8	70·2
Stonyhurst		109·4	339	18 31	[+15]	28 11	PS	49·3	60·7
Padova		109·5	326	19 9	PP	e 25 30	[+19]	—	—
Zurich		109·8	330	e 18 49	PP	e 28 26	PS	—	—
Chur		109·8	330	e 18 39	[+22]	e 28 39	PS	—	—
Bidston		109·9	339	e 16 14	?	29 44	PS	e 46·8	61·9
Ann Arbor		110·4	35	—	—	e 25 26	[+11]	e 45·3	61·2
Kew		110·6	338	—	—	e 26 28	{+17}	46·8	56·1
Oxford		110·7	339	i 19 14	PP	34 40	SS	—	61·2
Trenta		110·8	319	e 18 10	[−10]	26 50	{+37}	—	52·8

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Florence		110·9	325	e 13 50	?	28 50?	PS	—	75·8
Prato		110·9	325	e 19 23	PP	28 12	PS	39·8	—
Neuchatel		110·9	331	e 18 39	[+18]	e 20 19	?	—	—
Piacenza		110·9	329	19 22	PP	28 50	PS	51·0	70·3
Besançon		111·2	331	e 19 22	PP	28 54	PS	54·8	—
Rome		111·4	323	e 18 59	PP	e 31 37	?	e 53·5	59·8
Livorno		111·5	324	19 16	PP	28 12	PS	—	—
Paris		111·5	335	e 14 50?	+12	—	—	34·8	53·8
Messina		111·7	319	19 25	PP	—	—	—	—
Toronto		112·0	31	e 14 27	−13	i 26 29	{+ 8}	51·2	60·1
Catania		112·5	318	19 29	PP	28 57	PS	52·1	70·9
Ottawa		112·6	29	—	—	e 26 33	{+ 8}	e 45·8	—
Buffalo		112·8	32	i 19 16	PP	i 29 7	PS	e 55·8	—
Puy de Dôme		113·6	332	e 18 32	[+ 4]	—	—	e 45·8	—
Charlottesville		116·2	36	—	—	25 44	[+ 6]	46·8	—
Georgetown		116·5	35	—	—	i 25 43	[+ 4]	e 50·8	—
Fordham		116·8	31	e 19 59	PP	—	—	—	—
Harvard		117·1	29	—	—	e 27 2	{+ 5}	e 47·3	—
Barcelona		117·3	329	e 19 53	PP	e 29 40	PS	e 53·4	62·5
Tortosa	N.	118·6	330	e 20 14	PP	29 50	PS	53·8	72·8
Algiers		120·2	324	e 20 8	PP	30 16	PS	49·8	61·8
Alicante		121·0	329	e 20 32	PP	e 30 50	PS	e 45·5	—
Toledo		121·5	332	e 18 52	[+ 3]	e 30 27	PS	e 47·1	66·1
Almeria		123·0	329	e 18 54	[+ 1]	i 30 36	PS	59·1	74·6
Granada		123·4	330	i 19 9	[+15]	30 21	PS	60·6	64·0
Malaga		124·2	330	e 19 14	[+19]	e 31 14	?	e 42·2	64·3
San Fernando		125·2	332	20 50	PP	—	—	—	—
San Juan		137·5	45	i 23 14	PKS	—	—	55·9	—
La Paz		147·4	101	i 19 48	[+10]	27 2	?	69·2	83·3
La Plata		148·4	140	i 19 54	[+14]	—	—	62·8	—
Dakar		148·9	325	i 18 46	[−54]	—	—	—	—

Additional readings :—
Manila SSE = +10m.34s.
Koti i = +5m.29s., eSN = +9m.44s.
Sumoto SEZ = +9m.53s.
Osaka i = +5m.32s. and +5m.49s. =PP − 2s.
Kobe iZ = +5m.24s. and +5m.31s., PPN = +6m.8s., PPE = +6m.18s. SZ = +9m.56s., SE = +10m.1s.
Matuyama iPE = +5m.26s.
Toyooka eSZ = +10m.26s., iSE = +10m.54s. =SS − 2s.
Zi-ka-wei iPZ = +6m.9s., PPZ = +6m.54s., PPPZ = +7m.6s., PPPPN = +7m.16s., SSE = +12m.34s., SSSE = +13m.12s., SSSSZ? = +13m.18s.
Phu-Lien iSS = +15m.40s.
Chiufeng PPE = +8m.54s., SSN = +14m.25s.
Batavia i = +9m.18s. =PP +0s.
Riverview SSE? = +18m.11s., S_0SN = +18m.19s., SSSSE? = +19m.56s.
Adelaide iPP = +10m.3s., iSS = +18m.32s., i = +21m.1s.
Melbourne +19m.20s. =SS +18s.
Perth e = +21m.50s.
Honolulu T.H. i = +17m.30s.
Wellington e = +21m.50s.? =SS − 5s.
Sitka iSS = +25m.52s.
Victoria PN = +12m.40s. ; T_0 = 21h.24m.33s.
Berkeley iPZ = +12m.7s., eN = +12m.14s., eEN = +12m.19s., eN = +12m.26s. iE = +22m.30s., eE = +22m.38s., iN = +22m.44s., and +35m.21s., iE = +35m.27s.
Lick eEN = +12m.59s.
Riverside eSN = +24m.9s.
Kucino PP = +16m.33s., SS = +30m.32s.
La Jolla eN = +13m.3s.
Pasadena eE = +23m.31s. =SKS − 6s., iE = +24m.0s.
Haiwee ePN = +13m.10s., eN = +23m.49s. =SKS +10s.
Pulkovo PP = +16m.54s., PS = +25m.25s., SS = +30m.26s.
Helsingfors ePZ = +13m.27s., eZ = +13m.47s., +14m.7s., and +16m.37s. ePPN = +17m.11s., ePPZ = +17m.18s., ePPPZ = +19m.9s., ePPPN = +19m.16s., ePSN = +25m.55s., iSSN = +31m.15s., eN = +34m.37s. and +38m.0s., ePPPNZ = +39m.46s.
Tucson P = +13m.56s., PP = +17m.34s., SKS = +24m.14s., PS = +26m.16s., SS = +31m.2s.

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Upsala PP = +17m.36s., PS = +26m.25s., SS = +31m.27s.
Scoresby Sund +17m.40s. =PP +14s., SKS = +24m.32s., SS = +31m.56s.
Ksara eN = +17m.50s., and +29m.18s., eE = +29m.25s.
Königsberg ePPEN = +17m.50s., ePPPEN = +20m.0s., eE = +23m.50s., eEN = +24m.20s. =SKS −3s., iS$_c$S?EN = +25m.35s., iPSEN = +26m.35s., and +27m.30s.
Tananarive SKKSE = +23m.53s., E = +27m.16s., SS = +32m.10s., SSSE = +36m.40s.
Lund PP = +18m.16s., PPP = +20m.20s., eNE = +25m.20s. =SKKS −12s., and +25m.40s. =S −4s., PSNE = +27m.25s., SS = +32m.56s.
Copenhagen PKP = +17m.14s., PP = +18m.16s., PPP = +20m.20s., iPS = +27m.28s., SS = +33m.2s.
Potsdam iPPZ = +17m.25s., iPPN = +17m.27s., iPPE = +17m.34s., eZ = +18m.21s., iE = +18m.24s. and +18m.27s., iZ = +18m.32s., iN = +18m.39s., iPPPZ = +20m.28s., iPPPEN = +20m.34s., eEN = +22m.20s., iN = +22m.41s., eE = +24m.20s., iE = +24m.57s., eNZ = +27m.38s., iPSE = +28m.8s.
Hamburg eZ = +17m.6s., iZ = +17m.26s., eZ = +18m.26s. =PP +7s., and +20m.41s., iN = +25m.1s. =SKKS −28s., iE = +27m.37s., eE = +33m.40s.
Belgrade e = +14m.21s., eN +18m.40s. =PP +20s.
Prague ePPP? = +17m.7s., eSS? = +28m.44s., eSSS? = +33m.56s.
Vienna PP = +17m.25s., PPP = +20m.2s., SKS? = +22m.58s., PS = +26m.1s., PPS = +26m.59s., PKKP = +30m.2s., PSS = +33m.7s.
Jena e = +17m.50s. =PKP −15s., i = +18m.42s. =PP +14s., eE = +25m.14s., eN = +27m.40s. =PS −8s. and +28m.46s., eE = +28m.50s., eN = +33m.50s. =SS +26s.
Cheb ePP? = +18m.44s., ePS? = +27m.58s., eSS? = +34m.4s.
Göttingen iPP = +18m.39s., iPSEN = +27m.55s., iPPSEN = +28m.54s., iSSEN = +34m.0s.
Ivigtut SKS = +25m.8s., PSN = +28m.8s., SS = +33m.50s.
Zagreb ePKP = +18m.9s., ePPNE = +18m.39s., ePPPNE = +21m.22s., ePPPPNE = +22m.56s., eSKKS = +26m.11s., ePS = +28m.9s., ePPSNW = +28m.50s.?, eSS = +34m.5s., eNW = +36m.9s., eSKPS'NW = +37m.50s.?, ePPP' = +38m.15s., eSSSS = +42m.23s., ePPPP' = +44m.16s., ePPPPP' = +46m.20s., eNE = +48m.15s., eNW = +49m.21s., eNE = +50m.11s.
Feldberg e = +22m.40s. =PPPP +8s., i = +26m.37s. and +28m.28s. =PS +21s., e = +33m.45s. =SS −5s., and +37m.40s.
De Bilt iPP = +18m.53s., e = +28m.24s. =PS +16s., eN = +34m.25s.
Florissant ePKPZ = +18m.16s., iPPNZ = +19m.2s., iZ = +21m.53s., iEN = +25m.36s. and +26m.37s., iPSEZ = +28m.30s., iSSEN = +34m.18s.
Chicago PPS = +28m.20s., SS = +34m.12s., SSS = +38m.14s.
Innsbruck e = +34m.32s.
St. Louis ePPEN = +19m.1s., ePSEN = +28m.17s., iSSEN = +34m.18s.
Stuttgart eEZ = +17m.42s., iPPEZ = +18m.55s., iPPPEZ = +21m.24s., eEZ = +22m.50s., eSKS = +25m.15s., ePS = +28m.20s., ePPS = +29m.20s., eSSEN = +34m.20s.
Uccle PP = +19m.1s., iPS = +28m.21s., PPS = +29m.30s., SS = +34m.29s.
Treviso PP = +18m.25s.
Strasbourg ePKP = +18m.2s., iPP = +19m.5s., PS = +28m.30s., PPS = +29m.37s., SS = +34m.53s., SSSS = +42m.59s.
Stonyhurst PP = +19m.4s., PPPP? = +25m.4s., PPS? = +29m.24s., SS = +34m.24s.
Bidston PP = +19m.13s., PPP = +23m.27s., PPPP = +25m.32s. =SKS +19s., i = +34m.50s., SS = +38m.40s., SSS = +42m.20s., SSSS = +46m.10s.
Ann Arbor e = +26m.14s. =SKKS +5s., eN = +28m.26s. =PS −5s., eE = +28m.44s., i = +34m.50s., eN = +38m.50s.
Kew iPPZ = +19m.6s., eS = +26m.57s., iPS = +28m.50s., ePPS = +29m.52s., iSS = +34m 47s.
Florence i = +18m.5s. =PKP −15s., iPP = +19m.20s.
Neuchatel ePP = +18m.53s.
Paris PP = +19m.19s., i = +21m.27s. =PPP +3s.
Toronto ePKPE = +17m.15s., ePP = +19m.24s., iN = +26m.29s. and +27m.9s., PPS = +29m.25s., SS = +35m.1s.
Ottawa ePPE = +19m.45s., eN = +21m.1s., ePS = +29m.4s., eSS = +35m.15s.
Charlottesville ePP = +20m.38s., S = +27m.26s., PS = +29m.38s., SS = +35m.50s.
Georgetown PP = +19m.56s., iPS = +29m.54s.; T_o =21h.24m.0s.
Fordham iPPS = +30m.11s., iSS = +36m.5s.
Harvard ePP = +20m.22s., ePS = +29m.41s., eSS = +36m.22s.
Algiers PP = +20m.25s., SS? = +37m.21s.
Toledo i = +20m.33s. =PP +14s., PP = +22m.17s. =PPP −32s., e = +37m.0s. = SS +8s.
Almeria i = +20m.40s. =PP +10s., PP = +23m.12s. =PPP +11s., PPP = +25m.55s. =SKS −4s.
Granada PP = +20m.42s., PPP = +23m.20s., PPPP = +25m.41s. =SKS −19s., SPP = +30m.39s., i = +32m.21s., +38m.12s., and +48m.18s.
San Juan iPP = +22m.19s., iSS = +40m.30s., eSSS = +45m.14s.
La Paz PPE = +23m.24s., iE = +40m.54s., iSSE = +42m.54s.
Long waves were also recorded at Bagnères, Laibach, Marseilles, and Sebastopol,

Jan. 28d. 22h. 15m. 0s. Epicentre 11°·1N. 145°·0E (as at 21h). R.3.

A = − ·804, B = + ·563, C = + ·193 ; D = + ·574, E = + ·819 ;
G = − ·158, H = + ·110, K = − ·981.

	Δ	Az.	P.	O − C.	S.	O − C.	M.
	°	°	m. s.	s.	m. s.	s.	m.
Miyazaki	24·3	332	5 13	0	9 29	+ 1	—
Koti	24·9	337	5 12	− 7	9 31	− 8	—
Nagoya	25·1	344	e 5 20	− 1	—	—	—
Osaka	25·1	342	5 2	−19	10 0	+17	11·6
Kobe	25·2	341	5 26	+ 4	e 10 25	SS	—
Gihu	25·4	344	5 25	+ 1	9 50	+ 2	—
Kakioka	25·5	351	5 22	− 3	9 45	− 5	—
Oiwake	25·7	348	5 24	− 2	9 59	+ 6	—
Almata	66·4	313	e 10 56	+ 8	e 19 40	+ 3	—
Andijan	69·6	310	e 11 12	+ 4	e 20 12	− 4	—
Samarkand	73·7	310	e 11 30	− 3	e 20 58	− 7	—

No additional readings.

Jan. 28d. Readings also at 0h. (Montecassino and Phu-Lien), 1h. (Almata), 2h. (La Paz, Melbourne, Sydney, and Wellington), 3h. (Granada, Messina, and Paris), 4h. (Tucson and near La Paz), 7h. (Tananarive), 9h. (near Irkutsk), 11h. (Phu-Lien), 14h. (Feldberg), 16h. (Andijan), 17h. (near Wellington), 20h. (Alicante, Samarkand, Hong Kong, Bombay, and near Calcutta), 21h. (near Sumoto), 22h. (Kobe).

Jan. 29d. 2h. 53m. 53s. Epicentre 30°·5N. 131°·0E. (as on 1929 Sept. 20d.). X.

A = − ·565, B = + ·650, C = + ·508 ; D = + ·755, E = + ·656 ;
G = − ·333, H = + ·383, K = − ·862.

	Δ	Az.	P.	O − C.	S.	O − C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Nagasaki	2·4	337	0 54	P_g	—	—	—	—
Koti	3·7	34	0 53	0	1 38	+ 3	—	2·7
Sumoto	5·0	40	1 10	− 1	2 29	S*	—	3·8
Kobe	5·4	39	i 1 16	− 1	—	—	—	—
Osaka	5·6	41	e 1 15	− 5	(2 2)	−21	2·0	2·1
Irkutsk	29·2	326	e 6 15	+17	e 10 53	+ 2	e 17·1	—
Ekaterinburg	54·3	322	e 9 34	+11	—	—	26·2	—

Additional reading :—
Kobe iN = +1m.24s.
Long waves were recorded at Baku, Pulkovo, Vladivostok, and Phu-Lien.

Jan. 29d. 17h. 10m. 18s. Epicentre 14°·3N. 96°·5W. N.2.

A = − ·110, B = − ·963, C = + ·247 ; D = − ·994, E = + ·113 ;
G = − ·028, H = − ·245, K = − ·969.

		Δ	Az.	P.	O − C.	S.	O − C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tucson		22·2	326	4 51	− 2	8 56	+ 6	10·9	—
St. Louis		25·0	12	e 5 17	− 3	e 9 33	− 8	—	—
Florissant		25·1	9	e 5 17	− 4	i 9 39	− 4	12·2	16·2
La Jolla	N.	26·5	318	e 5 31	− 3	—	—	—	—
Riverside		27·3	320	e 5 41	0	—	—	—	—
Pasadena		27·8	319	e 5 47	+ 2	e 10 38	+10	—	—
Chicago		28·5	14	5 51	− 1	i 10 33	− 7	e 16·0	—
Santa Barbara	N.	29·1	318	e 6 0	+ 3	—	—	—	—
Haiwee		29·1	322	e 5 58	+ 1	—	—	—	—
San Juan		29·4	78	6 24	+24	11 38	+43	16·5	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Georgetown		30·0	31	6 9	+ 4	e 10 36	−28	e 14·2	—
Ann Arbor	N.	30·1	19	—	—	e 11 0	− 6	e 17·6	20·1
Lick	N	32·1	322	e 6 22	− 2	—	—	e 16·8	—
Buffalo		32·4	25	i 6 28	+ 2	e 13 27	SS	e 16·6	—
Berkeley		32·8	322	—	—	e 14 7	?	e 16·3	—
Toronto		32·8	24	i 6 29	− 1	—	—	23·1	—
Ottawa		35·7	26	e 6 56	+ 1	e 12 29	− 3	e 18·7	—
La Paz		41·6	137	e 7 46	+ 1	i 14 46	+46	20·7	25·0
De Bilt		85·7	37	—	—	e 23 20	+ 5	e 41·7	—
Feldberg	N	88·3	38	—	—	e 23 57	+17	—	59·8
Copenhagen		88·4	31	—	—	23 54	+13	42·7	—
Florence		92·4	44	—	—	e 22 42?	?	34·7	64·7
Pulkovo		94·5	24	e 17 16	PP	e 30 0	?	46·7	52·2
Ekaterinburg		106·4	13	i 18 39	PP	—	—	47·7	59·4
Irkutsk		111·0	346	—	—	e 27 42?	?	e 58·7	—
Tashkent		122·9	12	—	—	e 30 29	PS	e 36·4	39·5

Additional readings :—
Florissant iPZ = +5m.22s., iE = +9m.59s.
La Jolla eE = +5m.36s.
Chicago ePP = +7m.4s., SS = +11m.29s.
Lick eE = +6m.27s.
Berkeley eN = +15m.7s.
Ottawa eSN = +13m.17s., eSE = +13m.23s., eSS? = +15m.19s., eSSS = +16m.46s.
La Paz iPZ = +8m.14s.
Feldberg eN = +38m.48s.
Tashkent e = +32m.0s.
Long waves were also recorded at Victoria, Charlottesville, Harvard, La Plata, Scoresby Sund, Baku, and European stations.

Jan. 29d. 17h. 10m. 31s. Epicentre 31°·0N. 96°·0E. (as on 1927 July 7d.). **X.**

A = −·090, B = +·852, C = +·515 ; D = +·995, E = +·105 ;
G = −·054, H = +·512, K = −·857.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Calcutta	E.	10·9	222	2 31	− 2	—	—	5·5	—
	N.	10·9	222	2 28	− 5	4 14	−22	5·4	—
Phu-Lien		13·9	134	3 29?	+15	—	—	4·5	—
Andijan		21·4	304	e 4 50	+ 6	—	—	—	—
Irkutsk		22·1	14	e 4 48	− 4	—	—	13·5	—
Tashkent		23·8	303	e 5 46	+38	e 9 36	+17	e 13·5	16·9
Bombay		24·2	245	e 7 58	?	—	—	—	16·0
Samarkand		25·1	298	e 5 23	+ 2	—	—	—	—
Medan	N.	27·5	174	—	—	i 10 56	+32	—	—
Manila		28·1	120	i 9 1	(− 3)	i 10 34	0	—	—

Medan gives also iE = +12m.27s.
Long waves were also recorded at Hong Kong and Baku.

Jan. 29d. Readings also at 0h. (Riverview, Ekaterinburg, Irkutsk, near Manila, and near Samarkand), 1h. (Kew, Trenta, Copenhagen, and near Ksara (2)), 2h. (near Manila and near Wellington), 3h. (near Samarkand), 4h. (near Ksara and near Samarkand), 5h. (near Wellington), 11h. (Rome, Ekaterinburg, Irkutsk, Tashkent, and Manila), 12h. (Andijan, near Samarkand, and near Calcutta), 13h. (Manila and near Victoria), 14h. (Irkutsk, Tashkent, Hong Kong, Zagreb, and near Mizusawa), 16h. (Tyosi, La Paz, Tucson St. Louis, Pasadena, Haiwee, and Toronto), 17h. (Bombay, Medan, Phu-Lien, Calcutta, and near Manila), 18h. (Cheb), 20h. (Andijan and near Samarkand), 23h. (near La Paz and near Lick),

Jan. 30d. 1h. 40m. 24s. Epicentre 36°·1N. 140°·0E. (as on 1930 Jan. 25d.). R.3.

A = − ·619, B = + ·519, D = + ·589.

		Δ	Az.	P.	O − C.	S.	O − C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tokyo		0·5	206	i 0 6	− 1	i 0 15	+ 2	—	0·3
Tyosi		0·8	118	0 11	0	0 20	− 1	—	—
Nagoya		2·7	249	e 0 39	0	1 11	+ 2	—	—
Mizusawa	E.	3·0	16	1 0	P_g	1 24	+ 7	—	—
Osaka		3·9	250	0 51	− 5	—	—	1·9	2·3
Kobe		4·3	251	e 1 16	P*	2 7	S*	—	2·2
Sumoto		4·5	248	e 1 26	P*	2 18	S*	—	2·6

No additional readings.

Jan. 30d. 3h. 32m. 38s. Epicentre 25°·4N. 96°·8E. (as on 27d.). X.

	Δ	Az.	P.	O − C.	S.	O − C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Calcutta	8·2	251	3 36	S	(3 36)	+ 7	5·3	—
Medan	21·9	175	i 4 57	+ 7	12 21	L	(12·4)	—
Bombay	23·1	258	5 3	+ 1	9 18	+11	12·1	17·4
Almata	24·1	323	e 5 34	PP	—	—	—	—
Manila	25·1	111	5 16	− 5	9 42	− 1	12·4	—
Andijan	25·4	313	e 5 26	+ 2	e 9 41	− 7	e 12·9	—
Irkutsk	27·4	10	e 5 34?	− 8	e 10 18?	− 4	14·3	—
Tashkent	27·8	312	e 6 28	PP	i 11 35	SS	16·2	17·2
Samarkand	28·7	307	e 5 40	−13	—	—	—	—
Ekaterinburg	40·7	330	e 7 31	− 7	e 16 40	SS	21·4	—
Baku	41·6	304	—	—	e 17 22	SSS	22·0	—

Additional readings:
Calcutta S = +4m.50s.
Tashkent e = +12m.28s.
Long waves were also recorded at Phu-Lien, Hong Kong, Pulkovo, Kucino, Copenhagen, and De Bilt.

Jan. 30d. Readings also at 5h. (Irkutsk), 6h. (Baku, Ekaterinburg, and Tashkent), 10h. (Honolulu T.H.), 13h. (Andijan, near Samarkand, and near Sumoto), 14h. (La Paz), 15h. (Ekaterinburg, Irkutsk, near Koti, Matuyama, and Sumoto), 20h. (Lick (2)).

Jan. 31d. 20h. 42m. 50s. Epicentre 25°·0N. 100°·5E. (as on 1930 Dec. 12d.). X.

A = − ·165, B = + ·891, C = + ·423; D = + ·983, E = + ·182;
G = − ·077, H = + ·416, K = − ·906.

	Δ	Az.	P.	O − C.	S.	O − C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Calcutta	11·4	260	3 8	+28	5 4	+16	6·1	—
Manila	21·9	115	i 4 37	−13	i 9 45	+61	13·5	—
Bombay	26·3	260	5 28	− 4	9 55	− 8	12·9	14·3
Irkutsk	27·4	5	e 5 48	+ 6	e 10 31	+ 9	14·8	—
Andijan	28·2	311	e 5 56	+ 7	—	—	—	—
Tashkent	30·5	311	e 7 44	+95	e 10 56	−16	e 16·1	17·5
Samarkand	31·6	306	e 6 12	− 7	—	—	—	—

Tashkent i = +12m.10s.
Long waves were also recorded at Hong Kong, Phu-Lien, Medan, Baku, Ekaterinburg, and Strasbourg.

Jan. 31d. Readings also at 0h. (Berkeley), 3h. (Phu-Lien), 4h. (near Wellington), 6h. (Catania), 7h. (Samarkand and near Reykjavik), 10h. (near Tokyo and Tyosi), 12h. (near Andijan and Samarkand), 17h. (Strasbourg), 19h. (Almata, Andijan, Samarkand, Tashkent, Ekaterinburg, near Irkutsk, near Lick, and near Manila), 20h. (near Almata, Andijan, Samarkand, and near Tyosi), 23h. (Tyosi),

Feb. 1d. 1h. 41m. 32s. Epicentre 40°·1N. 20°·5E. (as on Jan. 28d.). R.3.

A = +·716, B = +·268, C = +·644 ; D = +·350, E = −·937 ;
G = +·603, H = +·226, K = −·765.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Bari		2·9	296	0 46	+ 5	1 8	− 6	1·8	—
Trenta		3·3	257	0 58	P*	1 58	S_g	—	—
Mostar		3·8	330	e 1 34	S	(e 1 34)	− 3	—	2·7
Messina		4·3	245	1 31	P_g	—	—	—	—
Belgrade		4·7	0	e 1 7	0	e 2 6	+ 6	—	2·5
Naples	E.	4·8	281	e 1 45	P_g	e 2 35	S*	—	—
Catania		4·9	240	e 1 56	S	(e 1 56)	− 9	—	3·6
Collurania		5·7	300	1 20	− 1	—	—	—	—
Rome		6·3	289	e 1 27	− 3	2 44	+ 3	—	4·1
Zagreb		6·6	332	e 1 39	+ 5	i 2 57	+ 9	—	3·9
Budapest		7·4	353	3 5	S	(3 5)	− 4	4·0	—
Florence		7·8	301	e 2 9	+18	—	—	—	4·5
Graz		7·8	334	e 1 58	+ 7	—	—	—	4·3
Prato		7·9	302	e 3 28	S	(3 28)	+ .7	—	—
Venice		8·0	314	e 3 29	S	(e 3 29)	+ 5	(i 5·1)	—
Treviso		8·3	315	e 3 28	S	(e 3 28)	− 3	—	—
Vienna		8·6	342	e 2 0	− 2	4 40	L	(4·7)	—
Piacenza		9·4	305	—	—	e 3 52	−7	—	8·7
Innsbruck		9·8	321	2 16	− 2	e 5 16	S*	—	—
Zurich		11·3	314	e 2 35	− 4	—	—	—	—
Pulkovo		20·6	14	e 4 22	−14	—	—	11·5	—

Additional readings and notes :—
Mostar e = +2m.10s. = S_g and +2m.18s., eS = +2m.30s.
Belgrade eP*Z = +1m.15s., eP_gE = +1m.22s., e = +1m.45s.
Prato gives S = +5m.28s.
Venice gives S as P and L as S.
Treviso S = +4m.46s., SS = +5m.38s.
Vienna i = +2m.36s. = P*
Long waves were also recorded at Baku, Ekaterinburg, Tashkent, and European stations.

Feb. 1d. 21h. 7m. 24s. Epicentre 34°·8N. 132°·9E. (as on 1930 Dec. 21d.). X.

A = −·559, B = +·602, C = +·571.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Matuyama	1·0	187	i 0 13	− 1	0 28	+ 2	—	0·6
Sumoto	1·7	105	0 28	+ 4	0 49	+ 5	—	0·9
Toyooka	1·8	65	e 0 24	− 2	i 0 46	0	—	0·9
Kobe	1·9	94	e 0 28	0	0 54	+ 5	—	0·9
Osaka	2·2	94	0 29	− 2	(1 3)	+ 6	1·0	1·1

Toyooka gives also iPEN = +28s.

Feb. 1d. Readings also at 0h. (near Zagreb), 1h. (Tyosi), 3h. (Zurich (2), Prato, and Livorno), 4h. (Prato), 5h. (Ekaterinburg, Irkutsk, Tashkent, Hong Kong, Phu-Lien, Samarkand, Bombay, and near Calcutta), 6h. (near Malabar), 7h. (Ekaterinburg, Irkutsk, and Manila), 11h. (near Mizusawa), 15h. (Tyosi), 19h. (Baku), 20h. (Ekaterinburg), 22h. (Andijan).

Feb. 2d. 22h. 46m. 49s. Epicentre **39°·5S. 176°·9E.** N.1.

Probable error of epicentre ±0°·4.

As given by C. Dahm in "Epicentre of the Hawke Bay (New Zealand) Earthquake," and "Report of the Hawke's Bay Earthquake," Bulletin No. 43, Wellington.

A = −·770, B = +·042, C = −·636; D = +·054, E = +·999; G = +·635, H = −·034, K = −·772.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Arapuni		1·7	324	0 31?	+ 7	0 52?	+ 8	—	—
Wellington		2·4	223	0 31	− 3	—	—	—	—
Takaka		3·4	246	0 41?	− 8	1 34?	+ 7	—	2·7
Christchurch		5·1	217	i 1 13	0	i 1 49	−21	—	—
Riverview		21·3	277	i 4 55	+12	i 8 52	+20	—	—
Sydney		21·3	277	i 4 17	−26	i 8 17	−15	10·6	11·2
Suva		21·4	4	4 59	+15	9 11	SS	11·7	—
Melbourne		24·9	264	e 5 16	− 3	9 42	+ 3	13·2	18·5
Adelaide		30·6	269	i 6 15	+ 5	i 11 25	+11	14·2?	16·0
Perth		49·2	260	i 8 51	+ 6	i 15 51	+ 1	e 20·2	25·7
Amboina		56·7	297	i 8 37	−64	i 17 21	−11	23·8	34·4
Palau		61·1	311	10 12	0	18 57	+27	—	—
Honolulu T.H.		65·2	26	i 10 44	+ 4	i 19 21	− 1	31·7	—
Malabar		69·5	278	i 11 9	+ 1	i 20 9	− 6	28·2	35·2
Batavia		70·7	278	i 11 10	− 5	i 20 26	− 4	29·7	40·3
Manila		75·0	305	i 11 34	− 6	21 15	− 5	33·4	41·2
Hatidyozima		80·3	330	12 14	+ 5	22 10	− 9	—	—
Kôsyun		80·8	310	11 20	−52	—	—	—	—
Tyosi		82·2	332	12 23	+ 4	e 22 31	− 8	34·7	44·3
Siomisaki		82·2	327	12 16	− 3	22 28	−11	—	—
Taihoku	E.	82·6	312	12 23	+ 2	22 36	− 7	e 32·0	46·1
Miyazaki		82·9	324	12 23	0	22 35	−11	—	—
Medan		83·2	280	12 16	− 8	23 2	+13	41·2	44·7
Nagoya		83·2	329	e 12 23	− 1	(28 54)	SS	28·9	—
Kumagaya		83·2	330	12 19	− 5	22 33	−16	—	—
Koti		83·3	326	e 12 19	− 6	e 22 33	−17	—	42·8
Sumoto		83·4	327	12 22	− 3	23 4	+13	35·8	45·2
Osaka		83·4	327	12 24	− 1	22 36	−15	35·7	45·6
Gihu		83·5	329	12 23	− 3	22 37	−15	—	—
Kobe		83·6	327	12 25	− 1	22 41	−12	e 35·3	45·4
Santiago		83·9	130	12 57	+29	23 37	−19	31·8	—
Kumamoto		84·0	324	12 25	− 3	22 44	−14	—	—
Hukusima		84·2	332	12 27	− 2	22 47	−13	—	—
Toyooka		84·4	328	i 12 30	0	e 22 46	[− 9]	i 35·7	46·0
Nagasaki		84·4	323	12 26	− 4	22 47	[− 8]	32·2	—
Sendai		84·5	332	12 31	0	22 49	[− 6]	—	—
Hukuoka		84·8	324	12 28	− 4	22 38	[−20]	—	43·0
Hong Kong		85·1	305	12 27	− 7	22 51	[− 9]	—	46·1
Mizusawa	E.	85·2	334	12 34	0	22 51	[−10]	35·4	—
	N.	85·2	334	12 18	−16	22 54	[− 7]	35·6	—
Morioka		85·7	334	12 38	+ 1	23 1	[− 3]	—	—
Zi-ka-wei		87·4	317	12 43	− 2	23 31	0	30·3	46·3
Phu-Lien		89·0	299	e 13 0	+ 7	e 22 58	[−28]	43·2	54·2
La Plata		90·0	139	12 59	+ 2	23 30	[− 3]	38·2	—
Vladivostok		92·1	330	i 13 3	− 4	23 56	{+ 4}	39·5	47·6
Santa Barbara	E.	94·3	48	e 13 21	+ 4	i 24 45	+ 9	—	—
	N.	94·3	48	e 13 33	+16	i 24 39	+ 3	—	—
Pasadena	E.	95·0	49	e 13 23	+ 3	i 24 45	+ 3	e 38·8	58·9
Riverside		95·4	50	e 13 25	+ 3	i 24 46	0	—	—
Berkeley		95·4	44	e 13 21	− 1	(i 24 43)	− 3	e 45·4	50·7
Lick		95·4	44	e 13 23	+ 1	(e 24 43)	− 3	e 45·4	51·0
Haiwee	N.	96·5	48	e 13 30	+ 3	e 25 1	+ 5	—	—
Chiufeng		97·0	319	e 13 33	+ 3	e 23 55	[−16]	43·2	—
Tinemaha	E.	97·0	47	e 13 30	0	e 25 2	+ 2	—	—
La Paz		97·6	119	i 13 33	+ 1	24 27	[+13]	45·2	73·1

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tucson		98·1	55	13 41	+ 6	25 17	+ 7	e 46·1	—
Colombo		99·8	271	17 45	PP	27 38	?	50·3	58·0
Calcutta		103·0	290	14 11	+14	24 43	[+ 3]	45·4	65·4
Kodaikanal		103·7	274	16 17	?	—	—	30·7	58·0
Cape Town		104·0	199	18 26	PP	31 35	?	54·3	59·0
Tananarive		104·9	230	e 14 15	+ 9	26 13	+ 3	48·9	57·4
Balboa Heights		106·1	91	—	—	e 25 11	[+16]	—	—
Denver		106·5	51	e 17 28	?	e 28 21	PS	e 44·5	48·4
Hyderabad		107·4	279	16 5	?	26 46	+58	47·9	57·7
Johannesburg		108·2	210	—	—	25 11?	[+ 6]	59·2	—
Irkutsk		111·2	321	e 14 27	− 9	25 3	[−16]	47·2	54·1
Little Rock		111·8	63	e 18 32	[+ 9]	e 26 15	{− 5}	e 51·4	60·5
Bombay		112·6	276	17 52	[−34]	28 48	PS	49·9	65·8
Agra	E.	113·3	286	e 17 48	[−40]	27 41	?	e 46·4	66·1
	N.	113·3	286	e 17 47	[−41]	27 22	?	45·0	65·3
Dehra Dun		115·1	290	21 11	?	31 11	?	42·5	66·2
St. Louis		115·3	60	e 14 48	− 9	e 25 48	[+13]	46·9	61·5
Florissant		115·3	60	i 14 42	−15	i 26 38	{− 6}	—	61·2
Port au Prince		117·6	87	20 3	PP	i 29 46	PS	55·1	—
Chicago		118·7	59	e 19 41	PP	e 27 47	{+39}	e 59·2	—
Columbia		119·3	70	14 36	−40	27 18	{+ 6}	57·0	—
Ann Arbor		121·5	60	e 20 35	PP	e 30 23	PS	e 53·4	76·0
Almata		122·2	303	e 30 49	PS	—	—	e 46·3	73·2
San Juan		122·2	91	19 4	[+13]	e 25 51	[− 6]	i 58·1	—
Charlottesville		123·1	66	—	—	e 25 11	[−49]	e 49·2	—
Andijan		124·2	299	e 18 57	[+ 2]	e 30 45	PS	56·2	—
Georgetown		124·5	66	19 4	[+ 8]	i 30 46	PS	—	—
Toronto		124·9	60	15 42	− 1	—	—	52·2	66·8
Buffalo		125·0	61	i 19 1	[+ 4]	i 26 11	[+ 6]	—	—
Tashkent		126·5	298	e 15 38	−13	27 47	{−12}	50·2	74·6
Samarkand		127·4	295	e 19 1	[− 1]	—	—	42·2	—
Fordham		127·5	65	i 19 2	[0]	—	—	59·8	—
Ottawa		127·9	59	e 19 5	[+ 2]	e 27 7	{−61}	e 53·2	—
Harvard		130·0	64	i 19 15	[+ 8]	i 28 22	{ 0}	—	—
Ekaterinburg		136·0	316	i 19 21	[+ 5]	28 45	{−14}	—	—
Baku		140·0	290	i 19 27	[+ 6]	—	—	—	—
Ivigtut		145·1	38	19 26	[− 8]	—	—	—	—
Scoresby Sund		147·5	13	e 19 36	[− 2]	33 34	SKSP	—	—
Ksara		148·5	272	19 51	[+11]	—	—	68·2	—
Helwan		150·3	262	19 46	[+ 4]	33 43	SKSP	—	89·6
Pulkovo		150·9	325	i 19 39	[− 4]	30 11	{−16}	75·2	90·4
Theodosia		151·3	294	e 19 55	[+12]	29 12	?	48·2	—
Yalta		152·1	293	19 54	[+10]	—	—	43·2	—
Simferopol		152·2	294	e 19 55	[+11]	—	—	48·2	—
Dakar		152·2	149	e 19 31	[−13]	e 35 4	?	76·2	88·0
Helsingfors		152·9	329	e 19 47	[+ 1]	e 30 9	{−30}	79·2	—
Upsala		155·9	334	e 19 56	[+ 7]	27 16	?	e 67·2	86·9
Königsberg		158·0	322	20 2	[+11]	27 17	?	e 68·2	70·2
Lemberg		158·3	307	e 19 59	[+ 8]	36 0	?	49·2	91·5
Bergen	Z.	158·4	349	—	—	i 67 49	?	72·0	—
Lund		160·6	332	19 59	[+ 4]	38 11	?	85·2	—
Copenhagen		160·8	333	19 57	[+ 2]	—	—	—	—
Belgrade		161·8	295	e 19 59	[+ 4]	e 33 55	?	e 45·4	—
Budapest		162·1	304	20 9	[+13]	e 30 41	?	45·2	52·7
Azores		162·3	89	21 53	?	33 11	?	—	—
Potsdam		163·0	324	e 19 41	[−16]	—	—	51·2	96·7
Hamburg		163·4	332	e 19 57	[0]	i 30 55	{−42}	73·2	96·6
Vienna		163·5	309	i 20 0	[+ 3]	28 35	PPP	?	94·2
Edinburgh		163·6	1	e 20 31	[+33]	i 31 29	{− 9}	74·2	99·7
Prague		163·8	317	e 19 51	[− 7]	28 11	PPP	e 69·2	88·2

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
De Bilt		164·2	338	e 19 59	[+ 1]	e 35 7	SKSP	e 76·2	96·4
Graz		164·5	305	e 20 1	[+ 2]	35 11	SKSP	70·2	99·3
Zagreb		164·6	300	e 19 59	[0]	e 31 27	{−16}	e 72·5	97·4
Jena		164·7	323	e 19 59	[0]	e 35 11	SKSP	e 65·2	96·7
Durham		164·7	357	18 0	?	32 10	{+27}	—	89·2
Cheb		164·8	320	e 20 7	[+ 8]	e 35 51	SKSP	e 70·7	97·7
Trenta		165·0	276	i 20 1	[+ 2]	29 21	?	51·2	101·2
Göttingen		165·0	327	i 20 1	[+ 2]	i 32 13	{+28}	e 70·5	99·2
Messina		165·4	271	20 11	[+10]	35 52	SKSP	44·3	95·5
Laibach		165·5	303	e 20 10	[+10]	—	—	e 93·7	—
Catania		165·6	268	20 2	[+ 2]	30 22	?	e 78·0	104·6
Stonyhurst		165·6	359	20 3	[+ 3]	—	—	83·2	93·9
Feldberg		166·6	327	e 20 5	[+ 4]	—	—	—	—
Naples	N.	166·7	281	e 20 11	+10]	e 31 11	{−43}	76·2	100·2
Innsbruck		166·9	311	e 20 5	[+ 4]	35 59	SKSP	59·4	100·6
Treviso		167·2	304	i 20 3	[+ 2]	30 51	PPPP	e 78·2	—
Venice		167·2	303	i 20 3	[+ 2]	—	—	88·5	102·2
Stuttgart		167·2	321	e 19 58	[− 3]	e 31 41	{−15}	e 51·2	97·4
Karlsruhe		167·4	323	20 4	[+ 3]	—	—	83·2	98·2
Padova		167·5	303	e 20 6	[+ 5]	—	—	91·2	103·2
Uccle		167·6	338	i 20 3	[+ 1]	i 26 50	SKS	70·2	89·3
Oxford		167·7	355	i 20 9	[+ 7]	e 31 30	{−29}	e 75·2	93·2
Kew		167·9	352	i 20 4	[+ 2]	i 31 43	{−17}	i 70·6	94·5
Rome		168·0	287	i 20 7	[+ 5]	—	—	e 49·7	104·1
Strasbourg		168·1	323	19 58	[− 4]	27 14	SKS	73·2	—
Chur		168·3	313	e 20 3	[+ 1]	—	—	—	—
Prato		168·5	297	e 20 9	[+ 7]	45 11	SS	51·2	96·2
Zurich		168·5	317	e 20 3	[+ 1]	—	—	—	—
Florence		168·5	297	20 3	[+ 1]	i 27 31	?	76·2	—
Piacenza		169·1	305	20 9	[+ 6]	29 25	PPP	47·2	99·3
Livorno		169·2	297	18 41	?	31 31	PPPP	—	—
Neuchatel		169·6	319	e 20 2	[− 2]	—	—	—	—
Besançon		169·9	323	e 20 7	[+ 3]	—	—	72·2	—
Paris		169·9	339	e 20 5	[+ 1]	e 37 29	?	45·2	80·2
Puy de Dôme		172·3	328	e 19 13	[−53]	i 36 12	SKSP	47·2	—
Marseilles		172·6	305	e 19 42	[−23]	—	—	39·2	—
Algiers		174·4	243	20 11	[+ 5]	36 11	SKSP	74·2	97·2
Serra do Pilar		175·5	66	23 8	PKS	—	—	—	—
Barcelona		175·6	299	e 20 7	[+ 1]	—	—	e 53·2	101·7
San Fernando		176·1	139	20 16	[+ 9]	—	—	—	94·7
Tortosa		176·9	296	e 20 11	[+ 4]	—	—	e 58·2	105·3
Malaga		177·0	159	19 55	[−12]	i 36 55	SKSP	—	97·1
Almeria		177·3	190	20 7	[0]	i 32 48	{− 2}	81·6	99·7
Granada		177·6	170	i 20 5	[− 2]	32 36	{−15}	i 84·5	100·1
Alicante		177·7	241	e 20 22	[+15]	e 37 36	?	e 47·9	97·7
Toledo		179·2	62	e 20 9	[+ 2]	32 32	{−27}	—	110·6

Additional readings and notes :—
Arapuni P_g = +41s. ?
Wellington P* = +35s., P_g = +47s.
Takaka P* = +56s. ?, P_g = +1m.11s. ?, S_g = +1m.56s. ?
Suva e = +7m.11s. ?
Melbourne iP = +5m.23s.
Adelaide iSN = +11m.11s., i = +11m.49s. and +13m.1s.
Perth ePP = +10m.41s.
Amboina i = +8m.41s.
Malabar i = +19m.11s.
Batavia iP = +11m.15s., i = +12m.52s. and +21m.11s.
Manila P_cPE? = +11m.59s., PSEN = +21m.46s., S_cSE = +22m.17s., SSEN = +26m.30s.
Taihoku iPPN = +16m.6s., PPPN = +16m.50s., PPPPN = +17m.49s., SSE = +26m.37s., SSSE = +27m.55s. =SS +4s., SSSSE = +30m.42s.
Medan i = +26m.14s.
Koti iZ = +12m.23s., PP = +15m.42s., eSN = +22m.41s.
Sumoto PNZ = +12m.25s., eSZ = +23m.21s. =PS −10s.
Kobe iN = +23m.19s. =PS −15s.

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Toyooka iPZ = +12m.23s., eSZ = +24m.2s.
Hong Kong PP = +16m.1s., SS = +29m.21s.
Zi-ka-wei iZ = +13m.1s. and +24m.29s. =PS +8s.
Phu-Lien eSS = +29m.25s.
Vladivostok PP = +16m.25s., SS = +30m.11s.
Pasadena eE = +13m.52s., ePP = +17m.11s., ePPE = +17m.16s., SKS = +23m.51s., eSN = +24m.40s., eE = +26m.52s.
Riverside iSN = +24m.51s.
Berkeley iP = +13m.24s., iPP = +17m.16s., eE = +26m.52s. ; S is given as PS.
Lick eE = +13m.31s., ePP = +17m.10s., eSS = +31m.10s. ; S is given as PS.
Haiwee ePN = +13m.33s., ePPE = +17m.23s., ePPN = +17m.30s., eN = +24m.10s. =SKS +2s.
Tinemaha eE = +24m.28s. =SKKS −2s.
La Paz PPZ = +17m.39s., PPE = +17m.41s., PPN = +17m.51s., PPPE = +19m.37s., PPPN = +20m.7s., SKSN = +24m.33s., PSN = +26m.9s., PSE = +26m.15s., SSN = +31m.0s.
Tucson PP = +17m.37s., SKS = +24m.7s.
Tananarive PKPN = +18m.24s., PPE = +18m.33s., PPPN = +20m.57s., SKSE = +24m.56s., SKKSEN = +25m.21s., E = +32m.51s., SSE = +33m.21s., SSSE = +38m.3s., N = +38m.12s. and +44m.12s.
Denver ePPN = +19m.6s., eN = +21m.8s. and +37m.4s.
Irkutsk ePKP = +18m.6s., iPS = +28m.45s., SS = +34m.41s.
Little Rock ePPEN = +19m.8s., ePSN = +28m.34s., iEN = +29m.26s., iSSN = +34m.28s.
St. Louis eN = +18m.29s. =PKP −4s., iPP = +19m.40s., iEN = +19m.58s., eEN = +22m.16s., iE = +26m.41s. =SKKS −3s., iPSEN = +29m.18s., iSSEN = +35m.19s.
Florissant iZ = +14m.59s., PKPZ = +18m.30s., iPPZ = +19m.40s., and +19m.58s., iN = +28m.37s., iPS = +29m.23s., iSSEN = +35m.40s., iSSSN = +39m.23s.
Chicago PP = +20m.5s., PS = +29m.41s., eSS = +35m.47s., eSSS = +39m.51s.
Columbia PP = +20m.6s., eSKS = +26m.5s., PS = +30m.0s., SS = +36m.33s.
Ann Arbor eE = +22m.47s. =PPP −2s., iSS = +37m.23s., iSSSN = +41m.47s., eSSSE = +42m.17s.
San Juan iPP = +20m.22s., PS = +29m.55s., iSS = +37m.18s.
Charlottesville PP = +20m.36s., PS = +30m.24s., ePPS = +32m.5s.. eSS = +38m.11s.
Georgetown iPPEN = +20m.43s.
Toronto iPKP = +18m.49s., iPKPE = +19m.3s., PP = +20m.43s., SS = +37m.45s., SSE = +38m.4s. ; T_o = 22h.46m.25s.
Buffalo iPP = +20m.47s., iPS = +31m.5s.
Tashkent PKP = +19m.4s., PP = +21m.3s., PS = +30m.41s., SS = +37m.47s.
Fordham iPP = +21m.6s., iSS = +38m.21s., iSSS = +43m.6s.
Ottawa iPP = +21m.14s., ePKS = +22m.31s., eN = +28m.49s. and +29m.29s., eSKSP = +31m.22s. =PS +12s., ePPS = +32m.53s., eN = +34m.15s., ePPP = +34m.38s., e = +35m.59s., iSS = +38m.29s., iPSS = +39m.31s., eN = +40m.48s. and +41m.11s., eE = +42m.51s. =SSS +11s., iSSS = +43m.16s., eN = +45m.53s., iN = +50m.14s., eN = +50m.50s.
Harvard iPKPN = +19m.23s., ePPE = +21m.18s., iPPE = +21m.26s., i?E = +22m.15s., SKP = +22m.31s. and +22m.40s., iPPPE = +24m.4s., iE = +24m.34s., eS?N = +30m.7s., iSKSP = +31m.28s., iSS = +38m.50s., iPPSS = +40m.1s., i = +43m.27s. =SSS +10s.
Ekaterinburg eP = +16m.30s., PS = +31m.54s. =SKSP −4s., PPS = +34m.13s., SS = +39m.41s.
Baku iPP = +22m.34s., PS = +32m.36s.
Ivigtut +19m.33s. and +19m.42s., PP = +22m.55s.
Scoresby Sund i = +19m.49s., eZ = +20m.58s. and +21m.47s., PPN = +23m.5s., e = +28m.5s. =PPP −16s., eN = +30m.59s., eE = +35m.11s., PPSN = +36m.41s., SS = +42m.11s.
Ksara PPN = +23m.45s., PPPE = +26m.40s., PPPP = +30m.12s., PPPPPE = +31m.41s., PPS = +36m.45s., SSN = +42m.21s., SSE = +42m.30s., SSSN = +48m.12s., SSSSN = +53m.30s., SSSSSN? = +57m.14s.
Pulkovo PP = +23m.29s., PPS = +36m.39s., SS = +41m.59s.
Helsingfors iPKPN = +19m.50s., iPKPEZ = +19m.53s., eN = +22m.59s., ePKSE = +23m.19s., ePPZ = +23m.37s., PPEN = +23m.40s., eEN = +24m.12s. iE = +24m.57s., eN = +25m.29s., ePPPE = +27m.12s., eE = +28m.29s., eSKKSE = +30m.12s., ePPPEE = +33m.2s., eSKSPE = +33m.50s., eSKSPN = +33m.58s., eSKSPPEN = +38m.56s., eE = +40m.0s. and +41m.19s., eSSEN = +43m.7s., eN = +44m.17s., eSSSN = +48m.59s., iSSSE = +49m.44s.
Upsala PP = +24m.10s., SKKS = +30m.17s., SKSP = +34m.10s., PPS = +37m.27s., SSN = +43m.35s.
Königsberg ePKPE = +20m.5s., PKPPEN = +20m.33s., PPE = +24m.9s., ePPN = +24m.13s., eE = +24m.48s., PPPN = +28m.17s., eN = +30m.52s. =SKKS −12s., and +31m.51s., PPPN = +32m.55s., PKPcS = +34m.28s. = SKSP −3s., PPSN = +38m.22s., eN = +40m.21s., SS = +44m.29s., PSS = +45m.1s., SSS = +49m.41s.

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Lemberg eSN = +36m.5s.
Lund PKP_3 = +20m.45s., e = +23m.36s., PP = +24m.20s., e = +25m.41s., PPP = +27m.29s., SSEN = +45m.17s.
Copenhagen +19m.47s., PKP_2 = +20m.46s., PP = +24m.26s., PPP = +27m.34s., PPS = +38m.16s., e = +39m.32s., SS = +45m.11s.
Belgrade eN = +20m.38s., eZ = +20m.52s. = PKP_2 +4s., eE = +21m.30s., eN = +22m.59s., ePP = +24m.35s., ePPS = +35m.11s.
Azores PP = +27m.47s., PPP = +29m.23s., SS = +37m.35s.
Potsdam eZ = +19m.53s., i = +19m.59s., and +20m.55s., iN = +21m.55s., iE = +22m.20s. and +24m.33s. = PP +2s., iZ = +24m.41s., iE = +26m.50s., iZ = +27m.18s., iE = +27m.26s., iZ = +30m.3s., iNZ = +33m.59s., iEN = +35m.43s., iN = +36m.24s. and +39m.11s. ?, iEN = +41m.4s., +41m.40s., and +45m.53s., iNZ = +46m.16s.
Vienna PKP=+21m.26s.=PKP_2+26s., SKP=+24m.38s., PP=+25m.40s., PPP= +30m.12s., SKKS = +32m.14s., SKKS′ = +35m.13s. =SKSP +9s., ePSS = +47m.11s. ?, SSS? = +52m.15s.
Hamburg iZ = +20m.1s. and +20m.58s. = PKP_3 − 2s., ePPZ = +24m.36s., eSKSZ = +27m.18s., iN = +37m.48s., eSSZ = +44m.52s., eSSSN = +50m.11s. ?
Edinburgh i = +23m.55s. = PKS +17s., +41m.5s., +46m.51s., +52m.49s., and +68m.31s.
Prague ePKS = +23m.54s., ePP = +24m.45s., ePPP = +29m.11s., eSKSP = +35m.23s., eSS = +44m.11s., eSSS = +51m.41s.
De Bilt iZ = +21m.10s. = PKP_3 +7s., eZ = +33m.12s., eEN = +37m.38s.
Graz iPKP = +21m.20s., ScPP = +25m.1s., PP = +26m.4s., SKS = +28m.35s., PPP = +29m.46s., SKSP = +36m.20s., and +39m.9s., SS = +45m.56s., PSS = +46m.52s.
Zagreb e? = +20m.37s., ePP = +24m.49s., ePKS = +25m.47s., eSKSP = +27m.19s., SKKS′ = +35m.45s., SKSP′ = +38m.1s., ePPS = +42m.3s., ePPSS′ = +46m.47s., eSPS′ = +52m.29s., e = +56m.53s.
Jena e = +20m.53s. = PKP_3 − 12s., eN = +24m.35s. = PP − 5s., eE = +24m.41s., eZ = +27m.17s., eN = +27m.23s., eZ = +32m.11s., eN = +32m.41s., eE = +33m.55s., eN = +36m.11s., and +36m.41s., eEN = +46m.11s. and +51m.41s. = SSS +31s., eE = +58m.11s., eN = +59m.11s.
Durham PKP_3 = +21m.2s., PP = +23m.40s. = PKS +1s., PP′ = +24m.21s., PPP = +27m.23s., PPP′ = +28m.40s.
Cheb eE = +24m.55s., +27m.24s., +31m.21s. = SKKS − 23s., +46m.16s., +53m.2s., +58m.40s., and +62m.20s., eN = +24m.50s., +28m.37s., +35m.15s., +40m.1s., +45m.24s., +53m.18s., +56m.48s., and +63m.40s.
Göttingen iPKPE = +20m.8s., iPKP$_2$ = +20m.59s., iPP = +24m.46s., eN = +26m.12s., iSKSE = +27m.18s., ePPPE = +28m.52s., eEN = +31m.3s., and +34m.13s., iEN = +35m.41s. = SKSP +29s., ePSEN = +37m.47s., iEN = +41m.47s., eSSEN = +44m.18s., ePSSEN = +46m.11s., iSSSEN = +51m.41s., iEN = +52m.41s., eE = +57m.11s., iEN = +59m.22s.
Stonyhurst PKS = +23m.32s., PP = +25m.49s., SPS = +48m.4s., i = +51m.51s. = SSS +15s., SSS = +53m.43s., i = +56m.4s., SSSS = +58m.33s., SSSSS = +63m.6s.
Feldberg i = +21m.16s. = PKP_3 +2s. and +25m.3s. = PP +13s.
Innsbruck PP = +24m.59s., PPP = +31m.47s., SS = +46m.29s., e = +51m.53s. = SSS +3s.
Treviso PP = +20m.19s.
Venice iPP = +24m.39s.
Stuttgart iPKPZ = +20m.4s., iPP = +25m.3s., iSKS = +27m.11s., eSKSP = +35m.41s., eSSEN = +46m.11s.
Uccle PKP_3 = +21m.2s., iPKS = +22m.57s., iPP = +25m.1s., iPPP = +28m.24s., PPP′ = +31m.21s., i = +31m.44s., iSKSP = +35m.39s., iSKSP′ = +37m.42s., iPPS = +39m.1s., i = +40m.22s., +41m.34s., and +44m.26s., iSS = +45m.45s., iPSS = +47m.19s., i = +47m.56s., iSSS = +51m.26s., i = +58m.16s.
Oxford iE = +21m.7s. = PKP_3 − 12s.
Kew PKP_3 = +21m.16s., PKSN = +23m.8s., iPPNZ = +25m.2s., eSKSEZ = +27m.18s., ePPPEN = +29m.1s., iSKSP = +35m.17s., iSSE = +45m.38s., iN = +48m.9s., iSSE = +50m.1s., iN = +51m.55s. = SSS − 12s., iSSSE = +53m.9s., and +56m.49s.
Rome PP = +25m.19s.
Strasbourg i = +21m.18s. = PKP_3 − 3s., PP = +24m.57s., PPP = +28m.47s. i = +29m.40s., PPPP = +31m.30s., SS = +45m.29s.
Chur ePP = +25m.15s.
Zurich ePKP = +21m.19s., ePP = +25m.9s.
Florence iP = +25m.11s. ?, PP = +29m.51s., SS = +46m.11s. ?
Piacenza PP = +25m.14s.
Neuchatel ePP = +25m.8s.
Paris PP? = +32m.19s. = SKKS +8s., eSS = +41m.41s.
Puy de Dôme PP = +24m.22s., e = +26m.30s., and +28m.28s., PPPP? = +30m.24s., i = +31m.24s.
Marseilles ePP = +25m.34s.

Continued on next page.

Algiers PP = +29m.11s., ? = +51m.11s. ?, and +61m.11s. ?
Barcelona PP = +25m.45s.
Malaga PKP = +21m.57s., PP = +25m.41s., i = +32m.49s. =SKKS +8s., e = +46m.19s., i = +48m.27s.
Almeria iPKP = +20m.13s., i = +21m.28s., $iPKP_2$ = +21m.58s., iPP = +25m.51s., i = +26m.58s., ? = +36m.22s. =SKSP +1s., SS = +47m.2s.
Granada iPKP = +20m.12s., i = +21m.50s., $iPKP_3$ = +22m.1s., i = +25m.27s., iPPZ = +25m.48s., i = +26m.17s., SS = +47m.52s., PSPS = +48m.24s., PPSS′ = +50m.25s., SSS = +54m.32s.
Toledo $iPKP_2$ = +22m.4s., PP = +26m.1s., iZ = +29m.2s., PPP = +30m.31s., SKKS = +32m.44s., PPPP = +33m.38s., SS = +36m.29s. =SKSP −1s., iSSS = +40m.9s., SSSS = +47m.19s.
Long waves were also recorded at Reykjavik and Sitka.

Feb. 2d. The following repetitions from the origin 39°·5S. 176°·9E. of 22h. were recorded at the New Zealand stations. The time for P phase is recorded.

Arapuni.

h.	m.	
23	56	—

Wellington.

h.	m.	s.	h.	m.	s.	h.	m.	s.	h.	m.	s.
22	52	38	22	57	42	23	53	10	23	56	47

Takaka.

h.	m.	s.	h.	m.	s.
23	54	0?	23	57	0?

Feb. 2d. Readings also at 1h. (Andijan and Phu-Lien), 2h. (Baku, Ekaterinburg, Tashkent, Irkutsk, Bombay, and Hong Kong), 3h. (Baku, Ekaterinburg, Irkutsk, Tashkent, Samarkand, Andijan, Medan, Bombay, Calcutta, Phu-Lien, (2), and Hong Kong), 6h. (Catania), 8h. (near Berkeley and Lick), 12h. (near Almata, Andijan, and Samarkand), 13h. (Andijan), 16h. (Cheb, Jena, and Göttingen), 23h. (La Paz).

Feb. 3d. 8h. 41m. 6s. Epicentre 39°·5S. 176°·9E. (as on 2d.). X.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Arapuni	1·7	324	0 24?	0	0 51?	S*	—	—
Wellington	2·4	223	0 23	−11	0 56	− 6	—	1·9
Takaka	3·4	246	0 54?	+ 5	1 37?	S*	—	—
Christchurch	5·1	217	1 40	P_g	—	—	—	—
Riverview	21·3	277	i 5 1	+18	i 9 1	+29	e 11·0	12·9
Melbourne	24·9	264	e 5 9	−10	9 32	− 7	12·1	15·5
Adelaide	30·6	269	—	—	(i 13 37)	SSSS	i 13·6	16·2
Manila	75·0	305	i 18 5	?	i 21 8	−12	i 22·7	—
La Paz	97·6	119	11 38	?	—	—	47·9	55·4
Tashkent	126·5	298	—	—	e 31 54?	PS	e 67·9	75·3
Ekaterinburg	136·0	316	e 19 25	[+ 9]	e 22 20	PP	62·9	—
Baku	140·0	290	—	—	e 36 8	?	75·9	—

Additional readings :—
Arapuni P_g = +36s. ?
Wellington P* = +33s., P_g = +38s., S* = +1m.7s.
Takaka P* = +1m.3s.?, P_g = +1m.16s.?, S_g = +2m.10s. ?
Baku e = +42m.8s. and +46m.46s.
Long waves were also recorded at Perth, Ottawa, Toronto, De Bilt, Paris, and Strasbourg.

Feb. 3d. The following repetitions from the origin 39°·5S. 176°·9E. of 2d. 22h. and 3d. 8h. were recorded at :—

Arapuni.

h.	m.	s.	h.	m.	s.
8	41	30?	12	34	0?

Wellington.

h.	m.	s.	h.	m.	s.	h.	m.	s.	h.	m.	s.
0	11	43	2	33	35	7	0	24	12	13	58
0	15	28	3	10	38	7	11	12	12	28	18
0	23	35	3	37	52	7	35	39	12	34	29
0	29	29	3	40	10	7	43	30	13	24	49
0	41	43	3	59	33	7	46	41	14	16	17
0	48	12	4	49	1	7	56	44	15	10	49
0	52	35	4	56	19	8	26	40	16	6	25
1	26	13	5	5	14	8	37	39	16	37	51
1	28	34	5	30	42	8	41	29	17	25	19
1	31	45	5	36	9	9	11	28	18	56	19
1	52	3	5	40	9	9	13	6	19	21	32
1	55	54	5	46	33	9	24	22	20	24	43
2	9	29	6	8	40	9	59	40	20	56	38
2	10	49	6	29	41	10	1	32	21	5	35
2	26	31	6	56	44	11	48	16	21	27	21

Takaka.

h.	m.	s.	h.	m.	s.	h.	m.	s.	h.	m.	s.
0	12	0?	2	11	0?	6	30	0?	12	35	0?
1	32	0?	5	47	0?	8	42	0?	14	17	0?

Christchurch.

h.	m.	s.	h.	m.	s.	h.	m.	s.	h.	m.	s.
2	12	58	6	31	46	12	36	31	20	56	39
5	48	46	8	42	46						

Feb. 3d. Readings also at 0h. (Florissant, Haiwee, Little Rock, Pasadena, Riverside, and Tinemaha), 1h. (Kobe, St. Louis, and Perth), 2h. (near Manila), 5h. (Ottawa, Toronto, and San Juan), 6h. (Riverview), 8h. (near Matuyama), 9h. (near Mizusawa), 12h. (Adelaide and Riverview), 15h. (Riverview), 16h. (Ekaterinburg, Tashkent, near Andijan (2), near Samarkand, Almata, and near Irkutsk), 17h. (Baku), 20h. (Wellington (2)), 23h. (near Tyosi).

Feb. 4d. 18h. 55m. 4s. Epicentre 34°·7N. 134°·5E. (as on 1928 Aug. 25d.). X.

A = −·576, B = +·586, C = +·569.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Sumoto	0·5	—	0 4	− 3	0 11	− 2	—	0·2
Kobe	0·5	—	i 0 10	+ 3	0 20	+ 7	—	0·4
Osaka	0·8	—	0 12	+ 1	(0 22)	+ 1	0·4	0·9
Koti	1·4	—	e 0 18	− 2	0 37	+ 1	—	—
Matuyama	1·7	—	e 0 28	+ 4	—	—	0·9	1·0

Feb. 4d. Repetitions from the epicentre 39°·5S. 176°·9E. of 3d. 8h. were recorded at :—

Arapuni.

h.	m.	s.	h.	m.	s.	h.	m.	s.
4	46	0?	14	5	40?	23	16	0?

Wellington.

h.	m.	s.	h.	m.	s.	h.	m.	s.	h.	m.	s.
1	41	22	8	15	29	14	5	38	18	11	43
2	30	12	8	26	24	14	49	53	18	17	52
4	45	47	9	5	44	16	43	25	18	59	57
6	2	33	12	37	30	16	48	10	23	16	6
6	43	33	13	30	48	18	10	2			

Takaka

h.	m.	s.	h.	m.	s.	h.	m.	s.
4	46	0?	14	6	0?	23	17	0?

Christchurch.

h.	m.	s.	h.	m.	s.	h.	m.	s.
4	47	22	14	7	43	23	19	36

Feb. 4d. Readings also at 1h. (Sydney), 2h. (Ekaterinburg, Tashkent, Manila, and Sydney), 4h. (Adelaide, Melbourne, Riverview, Tyosi, near Kobe, and Toyooka), 5h. (Ekaterinburg, Tashkent, and La Paz), 6h. (Baku (2), Ekaterinburg, Tashkent, Phu-Lien, Bombay, Medan, Irkutsk, Calcutta, and Samarkand), 8h. (Hong Kong), 9h. (near Andijan), 10h. (Manila), 11h. (Baku, Ekaterinburg, Irkutsk, Phu-Lien, and Calcutta), 12h. (Riverside and near Tucson), 13h. (Haiwee and Tinemaha), 14h. (Riverview, Sydney, and Melbourne), 15h. (Baku, Ekaterinburg, and Tashkent), 18h. (Sumoto), 20h. (Samarkand, Andijan, near Almata, near Sumoto and Kobe), 22h. (Andijan), 23h. (near La Paz and near Sumoto).

Feb. 5d. 6h. 42m. 6s. Epicentre 46°·1N. 7°·3E. N.3.

A = +·688, B = +·088, C = +·721.

	△	Az.	P.	O−C.	S.	O−C.
	°	°	m. s.	s.	m. s.	s.
Neuchatel	0·9	344	e 0 8	− 5	e 0 15	− 8
Besançon	1·4	322	0 21	+ 1	0 39	+ 3
Zurich	1·5	34	e 0 20	− 1	0 34	− 5
Chur	1·7	64	e 0 24	0	i 0 48	+ 4
Ravensburg	2·3	43	e 0 34	+ 1	e 0 59	0
Strasbourg	2·5	7	e 0 45	P*	e 1 32	S_g
Stuttgart	2·9	26	e 0 44	+ 3	e 1 16	+ 2

Additional readings :—
Strasbourg ePP = +1m.2s., ePPP = +1m.6s., eSS = +1m.45s.

Feb. 5d. 8h. 57m. 12s. Epicentre 39°·5S. 176°·9E. (as on 3d.). X.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Arapuni	1·7	324	0 48?	S	(0 48?)	+ 4	—	—
Wellington	2·4	223	0 34	0	1 16	S*	—	1·8
Takaka	3·4	246	0 48?	− 1	1 36?	S*	—	—
Christchurch	5·1	217	2 9	S	(2 9)	− 1	—	—
Riverview	21·3	277	i 4 45	+ 2	i 8 46	+14	10·8	—
Sydney	21·3	277	(i 5 0)	+17	i 5 0	P	11·3	14·5
Suva	21·4	4	(4 36)	− 8	(6 48)	?	(7·4)	—
Melbourne	24·9	264	e 5 26	+ 7	e 9 44	+ 5	13·7	14·3
Adelaide	30·6	269	—	—	i 11 34	+20	14·8?	18·6

Additional readings and note :—
Arapuni P* = +54s.?, P_g = +1m.0s.?, S = +1m.12s. ?, S_g = +1m.27s. ?
Wellington P* = +42s., P_g = +49s.
Takaka P* = +57s. ?, P_g = +1m.6s. ?
Sydney iP = 8h.55m.42s.
Suva readings have been *increased* by 10m.
Long waves were also recorded at Perth, La Paz, Tashkent, Irkutsk, Baku, Ekaterinburg, Paris, and Strasbourg.

Feb. 5d. Repetitions from the epicentre 39°·5S. 176°·9E. of 5d. 8h. were recorded at :—

Wellington.

h.	m.	s.	h.	m.	s.	h.	m.	s.	h.	m.	s.
0	53	13	7	42	51	12	1	41	15	30	57
2	31	26	†8	57	46	12	27	30	20	34	6
2	37	45	9	34	2	14	30	11	22	32	45
7	38	0	10	39	20	14	33	2			

Arapuni, Takaka, and Christchurch only record the 8h. shock for Feb. 5d.
† Separately computed.

Feb. 5d. Readings also at 1h. (Azores P.D., Baku, Ekaterinburg, Tashkent, Samarkand, near Almata and Andijan), 3h. (near La Paz), 4h. (Tucson), 5h. (Manila), 6h. and 7h. (La Paz), 9h. (Wellington), 10h. (Andijan and near Manila), 11h. (Andijan and near Samarkand), 13h. (near Granada), 17h. (Port au Prince, San Juan, and near Sumoto), 19h. (near Port au Prince and San Juan).

Feb. 6d. Repetitions from the epicentre 39°·5S. 176°·9E. of 5d. 8h. were recorded at :—

Wellington.

h.	m.	s.	h.	m.	s.	h.	m.	s.
3	9	55	10	8	32	17	2	37
3	54	10	11	31	24	21	31	2
7	1	26	13	45	10	21	58	26
7	46	20	15	1	12	23	28	14

Hastings gives P_g =7h.46m.0s.?

Feb. 6d. Readings also at 0h. (Wellington), 2h. (Andijan), 5h. (Baku, Ekaterinburg, Irkutsk, Pulkovo, Ksara, Andijan, Samarkand, and Tashkent), 6h. (near Tokyo), 9h. (near Manila and near Wellington), 15h. (Osaka, Kobe, Sumoto, Koti, and Matuyama), 16h. (Tashkent and near Wellington), 17h. (Baku and Ksara), 19h. (Samarkand and near Sumoto), 20h. (Baku and Ekaterinburg), 22h. (near Wellington), 23h. (Baku, Ekaterinburg, Simferopol Theodosia, Yalta, Copenhagen, Cheb, De Bilt, Uccle, near Andijan (2), and near Samarkand (2)).

Feb. 7d. 3h. 30m. 23s. Epicentre 11°·0N. 88°·0W. (as on 1919 Oct. 14d.). X.

A = +·034, B = −·982, C = +·191 ; D = −·999, E = −·035 ;
G = +·007, H = −·191, K = −·982.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Balboa Heights		8·6	104	—	—	e 3 37	− 2	—	—
San Juan		22·4	68	4 55	0	8 49	− 4	14·5	—
Columbia		23·9	14	i 5 9	0	e 9 12	− 9	e 12·9	—
Georgetown		29·6	17	i 6 0	− 1	10 55	− 3	e 14·6	—
Buffalo		32·9	12	i 6 30	− 1	e 14 37	?	e 20·8	—
Toronto		33·5	11	e 6 48	+12	e 11 48	−10	17·3	—
La Paz		33·8	144	7 12	+33	14 38	?	18·3	20·9
Harvard		34·7	22	e 8 2	PP	e 11 44	−33	e 17·9	—
Riverside	E.	35·3	316	e 7 1	+ 9	—	—	—	—
Pasadena		35·9	316	e 7 8	+11	—	—	—	—
Ottawa		35·9	16	e 6 53	− 4	e 13 18	+43	e 16·6	—
Haiwee	E.	37·0	319	e 7 25	+19	—	—	—	—

Additional readings and notes :—
Georgetown PP = +6m.51s. ; T_o =3h.29m.54s.
Pasadena eN = +7m.11s.
Ottawa e = +8m.7s. =PP −5s.
Haiwee eN = +7m.34s.
Many readings are given without phase.
Long waves are also recorded at Baku, Tashkent, Irkutsk, and other American and European stations.

Feb. 7d. 15h. 3m. 14s. Epicentre 25°·8N. 90°·2E. (as on 1930 July 13d.). R.3.

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 46	− 7	—	—	1·9	2·5
	N.	3·7	207	0 44	− 9	1 20	−15	1·9	2·1
Agra	E.	10·9	280	e 1 1	−92	e 3 7	−89	—	—
	N.	10·9	280	e 0 48	−105	3 11	−85	e 4·1	—
Hyderabad		13·7	235	5 33	S	(5 33)	−11	7·7	8·2
Bombay		17·4	250	4 7	+ 8	7 14	+ 3	8·6	9·3
Almata		20·5	332	e 4 39	+ 4	e 8 24	+ 8	e 11·3	—
Andijan		21·0	320	e 4 41	+ 1	e 8 28	+ 2	—	—
Hong Kong		22·1	94	8 50	S	(8 50)	+ 2	—	14·1
Tashkent		23·2	317	e 4 55	− 8	1 9 8	0	12·7	14·2
Irkutsk		28·5	18	e 6 5	+13	e 10 36	− 4	14·8	17·4
Ekaterinburg		37·5	334	e 7 11	0	—	—	e 20·2	—

For Notes see next page.

NOTES TO FEB. 7d. 15h. 3m. 14s.

Additional readings :—
Hyderabad S = +7m.3s.
Tashkent i = +10m.26s.
Long waves were also recorded at Phu-Lien and Baku.

Feb. 7d. Repetitions from the epicentre 39°·5S. 176°·9E. of 5d. 8h. were recorded at :—

Hastings.

h.	m.	s.
4	5	0?

New Plymouth.

h.	m.	s.	h.	m.	s.
10	8	35?	13	41	40?

Wellington.

h.	m.	s.	h.	m.	s.	h.	m.	s.	h.	m.	s.
0	13	54	4	45	39	12	27	27	15	26	53
4	5	52	10	8	34	13	41	41			

Takaka.

h.	m.	s.
4	6	0?

Christchurch.

h.	m.	s.	h.	m.	s.
4	8	34	7	37	15

Feb. 7d. Readings also at 0h. (Tashkent (2)), 1h. (Baku, Ekaterinburg, Irkutsk, Tashkent, Medan, Phu-Lien, Hong Kong, Bombay, Calcutta, Haiwee, Riverside, Tinemaha, Chicago, Harvard, Ottawa, Toronto, and near Tucson), 3h. (Tyosi, near Berkeley (2) and Lick (2)), 5h. (Manila), 6h. (Manila, near Berkeley and Lick), 8h. (Baku, Ekaterinburg, Almata, near Andijan, and Samarkand (3)), 9h. (Andijan (2), Samarkand (2), and Irkutsk), 10h. (Samarkand and near Andijan), 13h. (Göttingen), 15h. (Ekaterinburg, Tashkent, Hong Kong, Irkutsk, and near Manila), 16h. (Baku, Ekaterinburg, Irkutsk, Tashkent, and De Bilt), 19h. (Samarkand), 22h. (La Paz), 23h. (Piacenza (2), La Plata, and near La Paz).

Feb. 8d. 0h. 19m. 38s. Epicentre 44°·6N. 9°·5E. (as on Jan. 25d.). R.3.

A = +·702, B = +·118, C = +·702 ; D = +·165, E = −·986 ;
G = +·692, H = +·116, K = −·712.

		Δ	Az.	P.	O−C.	S.	O−C.	M.
		°	°	m. s.	s.	m. s.	s.	m.
Piacenza		0·5	15	0 2	− 5	—	—	0·2
Pavia		0·6	339	0 5	− 3	—	—	0·5
Prato		1·3	122	0 22	P*	0 40	S_g	—
Padova		1·8	64	e 0 32	+ 6	0 50	+ 4	—
Chur		2·2	1	e 0 31	0	e 0 55	− 2	—
Zurich		2·8	347	e 0 39	− 1	e 1 11	− 1	—
Neuchatel		3·0	324	e 0 43	0	e 1 18	+ 1	—
Ravensburg		3·2	359	e 0 52	+ 6	e 1 33	S*	—
Besançon		3·6	319	—	—	i 1 34	+ 2	—
Stuttgart		4·2	358	e 1 11	+11	e 1 59	+11	—
Strasbourg		4·2	344	e 1 39	P_g	i 1 43	− 5	—
Plaisance		6·8	265	0 2	?	—	—	—
Göttingen	N.	6·9	3	e 1 58	+20	—	—	3·7

Additional readings :—
Chur eP_g = +34s.
Zurich eP_g = +47s.
Neuchatel eP_g = +53s.

Feb. 8d. 1h. 43m. 54s. Epicentre 39°·5S. 176°·9E. (as on 5d.). R.3.

A = −·770, B = +·042, C = −·636; D = +·054, E = +·999; G = +·635, H = −·034, K = −·772.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Arapuni		1·7	324	0 36?	+12	1 2?	S_g	—	—
Wellington		2·4	223	0 36	+ 2	1 6	+ 4	—	—
Takaka		3·4	246	1 6?	P_g	1 54?	S_g	—	—
Christchurch		5·1	217	1 13	0	2 13	+ 3	—	—
Riverview		21·3	277	i 4 44	+ 1	i 8 56	+24	—	12·8
Sydney		21·3	277	e 4 42	− 1	i 8 54	+22	12·3	13·1
Melbourne		24·9	264	i 5 16	− 3	9 50	+11	11·8	13·9
Adelaide		30·6	269	—	—	e 11 6	− 8	i 14·1	18·4
Perth		49·2	260	16 6?	S	(16 6?)	+16	—	—
Batavia		70·7	278	i 11 10	− 5	i 21 36	+66	—	—
Manila		75·0	305	i 11 35	− 5	21 10	−10	33·9	39·4
Medan		83·2	280	e 12 16	− 8	i 22 50	+ 1	—	—
Hong Kong		85·1	305	23 4	S	(23 4)	− 5	—	49·6
Vladivostok		92·1	330	e 12 56	−11	e 23 42	[− 3]	47·0	—
Santa Barbara		94·3	48	e 13 34	+17	e 24 34	− 2	—	—
Pasadena		95·0	49	e 13 21	+ 1	e 24 39	− 3	—	—
Riverside		95·4	50	e 13 20	− 2	i 24 43	− 3	—	—
Haiwee	E.	96·5	48	e 13 41	+14	—	—	—	—
Tinemaha	E.	97·0	47	e 13 35	+ 5	e 24 56	− 4	—	—
La Paz		97·6	119	i 13 46	+14	i 24 12	[− 2]	46·1	49·5
Colombo		99·8	271	17 44	PP	27 42	?	48·0	53·6
Irkutsk		111·2	321	e 18 0	[−22]	e 24 56	[−23]	e 48·1	57·8
Bombay		112·6	276	e 19 26	PP	—	—	—	66·1
Georgetown		124·5	66	18 53	[− 3]	30 50	PS	e 63·1	—
Buffalo		125·0	61	e 17 32	?	—	—	e 62·3	64·6
Tashkent		126·5	298	e 20 11	?	i 30 58	PS	e 50·8	76·8
Samarkand		127·4	295	e 19 5	[+ 3]	—	—	—	—
Ottawa		127·9	59	—	—	e 38 46	SS	e 62·1	—
Ekaterinburg		136·0	316	e 19 15	[− 1]	i 22 46	PKS	64·1	78·8
Baku		140·0	290	—	—	e 29 20	{− 4}	64·1	83·4
Ivigtut		145·1	38	i 19 29	[− 5]	—	—	—	—
Scoresby Sund		147·5	13	19 37	[− 1]	—	—	70·1	—
Kucino		148·6	316	—	—	e 42 0	SS	e 65·9	84·2
Pulkovo		150·9	325	i 17 46	?	—	—	80·1	—
Stuttgart		167·2	321	e 24 52	PP	—	—	e 90·1	—
Rome		168·0	287	e 25 17	PP	34 17	?	—	—
Strasbourg		168·1	323	i 21 8	{−13}	—	—	76·1	—
Piacenza		169·1	305	e 25 6	PP	—	—	—	97·1
Paris		169·9	339	e 29 6?	PPP	e 42 6?	?	89·1	96·1
Malaga		177·0	159	e 20 7	[0]	—	—	—	—
Almeria		177·3	190	i 20 4	[− 3]	37 27	?	e 86·7	92·8
Granada		177·6	170	i 20 8	[+ 1]	33 5	{+14}	e 85·5	91·0
Alicante		177·7	241	e 28 20	?	—	—	—	—
Toledo		179·2	62	e 20 13	[+ 6]	i 32 42	{−17}	—	—

Additional readings:—
Arapuni P_g = +48s. ?, S_g = +1m.14s. ?
Wellington P* = +45s.
Takaka P* = +1m.15s. ?, P_g = +1m.33s. ?, S* = +2m.6s. ?, S_g = +2m.30s. ?
Riverview i = +4m.48s.
Pasadena eZ = +17m.13s. =PP +8s., iSN = +24m.42s.
Riverside e = +23m.52s., i = +25m.3s.
Haiwee eN = +13m.45s., e = +17m.26s. =PP +10s.
La Paz PSN = +26m.16s.
Irkutsk ePS = +28m.14s., SS = +34m.0s.
Georgetown PPEZ = +20m.54s.
Buffalo iPP = +20m.56s., e = +38m.29s.
Tashkent e = +24m.12s.
Ekaterinburg iPP = +21m.50s.
Baku ePP = +22m.30s., ePPS = +35m.1s., SSS = +47m.6s.

Continued on next page.

Kucino e = +60m.2s.
Stuttgart eZ = +29m.51s., eE = +38m.36s., and +51m.6s. ?
Strasbourg i = +24m.56s. = PP − 1s.
Almeria PKP_2 = +21m.47s., PP = +25m.42s., i = +28m.50s.
Granada $iPKP_2$ = +21m.57s., PP = +25m.58s., SKS = +28m.50s., PPP = +32m.45s. = SKKS − 6s.
Toledo PP = +25m.50s.
Long waves were also recorded at Phu-Lien, Kodaikanal, La Plata, San Juan, and other American and European stations.

Feb. 8d. Repetitions from the epicentre 39°·5S. 176°·9E. of 8d. 1h. were recorded at :—

Hastings

h.	m.	s.
5	17	0?

Arapuni

h.	m.	s.	h.	m.	s.
†1	44	30	10	11	0?

New Plymouth

h.	m.	s.
7	21	30?

Wellington

h.	m.	s.	h.	m.	s.	h.	m.	s.	h.	m.	s.
0	20	38	5	17	14	10	11	39	20	41	43
†1	44	30	7	21	33	18	23	27			

Takaka

h.	m.	s.	h.	m.	s.
†1	45	0?	10	12	0?

Christchurch

h.	m.	s.	h.	m.	s.
†1	45	7	10	12	18

† Separately computed.

Feb. 8d. Readings also at 1h. (Chicago, Toronto, and Tucson), 2h. (Tucson, Buffalo, La Paz and near Manila), 9h. (Rome and Collurania), 10h. (Andijan (2), Almata, Samarkand, Melbourne, and Riverview), 11h. (Baku, Ekaterinburg, Tashkent, Zagreb, and near Taihoku), 12h. (Tyosi, Cheb, Copenhagen, Strasbourg, Stuttgart, De Bilt, Uccle, Belgrade, Vienna, Ekaterinburg, and Baku), 15h. (La Paz), 17h. (Koti, Matuyama, Nagasaki, near Sumoto, and near La Paz), 18h. (La Paz), 19h. (Andijan and Samarkand), 20h. (Trenta (2) and La Paz), 21h. (Ekaterinburg and Tyosi), 22h. (Baku).

Feb. 9d. 2h. 11m. 3s. Epicentre 15°·3S. 75°·8W. (as on 1930 June 25d.). R.3.

A = +·237, B = −·935, C = −·264 ; D = −·969, E = −·245 ;
G = −·065, H = +·256, K = −·965.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
La Plata		25·3	144	5 24	+ 1	10 33	SS	—	—
Georgetown		54·2	359	9 22	− 1	16 41	−17	e 24·0	—
Riverside	N.	63·3	322	e 10 34	+ 7	—	—	—	—
Pasadena	Z.	63·8	322	e 10 22	− 9	—	—	—	—
Haiwee		65·1	323	e 10 39	0	—	—	—	—
Tashkent		140·2	41	e 45 57?	SSS	—	—	e 69·4	81·8

Additional readings :—
Pasadena ePE = +10m.26s., e = +10m.29s.
Tashkent e = +64m.45s.?
Long waves were also recorded at San Juan, Harvard, Ottawa, Toronto, Paris, Kew, Kucino, Baku, and Irkutsk.

Feb. 9d. 14h. 44m. 46s. Epicentre 34°·0N. 139°·5E. (as on 1930 May 21d.). X.

A = −·630, B = +·538, C = +·559; D = +·649, E = +·760;
G = −·425, H = +·363, K = −·829.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tyosi		2·1	33	e 0 36	+ 6	1 2	+ 8	—	—
Nagoya		2·4	299	e 0 35	+ 1	1 1	− 1	—	—
Osaka		3·4	278	0 43	− 6	(1 24)	− 3	1·4	1·8
Kobe		3·7	282	e 0 51	− 2	1 31	− 4	—	1·5
Sumoto		3·8	276	0 54	0	1 35	− 2	—	1·6
Mizusawa	E.	5·3	14	1 17	+ 2	2 7	− 8	—	—

Osaka gives also i = +46s.

Feb. 9d. Repetition from the epicentre 39°·5S. 176°·9E. of 8d. 1h. were recorded at :—

New Plymouth

h.	m.	s.	h.	m.	s.	h.	m.	s.
11	54	0?	16	30	0?	20	14	0?

Wellington

h.	m.	s.	h.	m.	s.	h.	m.	s.	h.	m.	s.
1	37	44	15	8	25	16	30	7	20	14	7
3	36	0									

Feb. 9d. Readings also at 0h. (Andijan and Samarkand), 1h. (Lick), 4h. (Florissant), 11h. (Wellington), 12h. (near Sumoto), 15h. (Tyosi), 23h. (near Andijan and Samarkand).

Feb. 10d. 1h. 22m. 54s. Epicentre 25°·5N. 98°·0E. (as on 1930 Sept. 1d.). R.3.

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 3 6?	+56	e 5 9	S_g	5·6	6·0
Calcutta		9·3	254	2 7	− 4	3 35	−21	4·5	7·6
Hong Kong		15·1	99	3 48	+18	7 6	+49	8·4	9·2
Agra	E.	17·9	280	2 44	−81	6 4	−78	7·9	—
	N.	17·9	280	e 3 15	−50	5 55	−87	7·4	8·8
Dehra Dun		18·3	290	6 16	?	8 56	?	11·8	12·1
Hyderabad		19·9	250	4 22	− 7	8 0	− 4	10·3	11·7
Chiufeng		21·0	42	e 5 14	+34	e 9 4	+38	11·3	—
Zi-ka-wei		21·3	69	e 6 5	+82	9 17	+45	13·0	14·7
Medan		21·9	178	4 46	− 4	9 3	+19	i 12·8	—
Manila		24·1	112	i 5 34	+23	i 9 56	+31	i 12·6	—
Bombay		24·2	259	5 12	0	9 22	− 5	12·0	13·1
Almata		24·7	321	5 26	+ 9	9 43	+ 7	14·4	—
Kodaikanal		24·8	236	e 9 24	S	(9 24)	−13	—	—
Colombo		25·5	226	5 26	+ 1	9 46	− 4	16·2	20·4
Andijan		26·2	311	5 35	+ 4	e 10 4	+ 2	14·7	—
Irkutsk		27·2	8	e 5 45	+ 5	10 35	+17	14·9	16·9
Tashkent		28·5	311	e 5 39	−13	i 10 30	−10	15·2	17·3
Nagasaki		28·6	68	—	—	e 11 31	SS	—	—
Samarkand		29·5	306	6 1	0	e 11 8	+12	16·3	16·4
Batavia		32·9	165	e 7 42	PP	—	—	i 17·2	—
Ekaterinburg		41·1	330	7 45	+ 4	14 3	+10	19·1	24·4
Kucino		52·5	321	—	—	e 17 13	+38	27·2	31·1
Pulkovo		57·0	326	e 9 42	− 1	e 17 36	0	28·1	34·4
Florence		70·5	310	e 26 6?	?	—	—	—	40·6
De Bilt		71·8	320	—	—	e 28 48	SSS	e 36·1	42·2
La Paz		164·3	302	e 20 47	[+49]	—	—	82·6	101·8

Additional readings :
Zi-ka-wei 1E = +9m.46s.
Kucino SS = +21m.36s.
Long waves were also recorded at Melbourne, Sitka, Ottawa, Toronto, Koti, Kobe, Vladivostok, and the European stations.

Feb. 10d. 5h. 58m. 42s. Epicentre 5°·3S. 102°·5E. X.
(adopted as a preliminary to 6h. shock).

A = −·216, B = +·972, C = −·092; D = +·976, E = +·216;
G = +·020, H = −·090, K = −·996.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Batavia	4·4	102	1 0	− 3	1 47	− 6	—	—
Malabar	5·4	111	e 1 18	+ 1	2 8	−10	—	—
Medan	9·7	337	e 2 27	+10	—	—	—	—
Irkutsk	57·6	1	e 9 42	− 5	—	—	e 33·3	37·5

Long waves are also recorded at Kodaikanal and Ekaterinburg.

Feb. 10d. 6h. 34m. 32s. Epicentre 5°·3S. 102°·5E. N.1.

(Probable error ±0°·3. See also 5h.).

A = −·216, B = +·972, C = −·092; D = +·976, E = +·216;
G = +·020, H = −·090, K = −·996.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Batavia		4·4	102	i 1 5	+ 2	i 1 54	+ 1	—	—
Malabar		5·4	111	i 1 20	+ 3	—	—	—	—
Medan		9·7	337	i 2 5	−12	i 4 19	+13	—	—
Amboina		25·6	87	e 5 19	− 6	—	—	14·9	—
Colombo		25·7	298	5 30	+ 4	9 48	− 5	17·5	18·5
Phu-Lien		26·4	9	e 5 33	0	e 10 6	+ 1	12·5	16·9
Manila		27·0	42	i 5 38	0	i 10 42	+27	i 14·5	—
Kodaikanal		29·4	302	—	—	(12 52)	?	12·9	18·3
Perth		29·4	156	i 5 58	− 2	10 53	− 2	i 12·2	12·3
Hong Kong		29·9	23	6 11	+ 7	11 4	+ 1	14·2	19·4
Calcutta		31·0	334	6 10	− 4	11 31	+11	21·6	25·4
Hyderabad		32·9	314	6 29	− 2	11 49	0	16·8	23·5
Palau		34·3	69	6 42	− 1	—	—	—	—
Taihoku		35·5	30	e 4 36	−137	10 52	−97	e 19·9	24·3
Isigakizima		36·3	35	7 3	+ 3	13 38	+57	—	—
Bombay		37·9	310	7 19	+ 5	13 6	+ 1	18·6	23·3
Agra		40·2	325	6 29	−65	12 34	−65	20·3	21·7
Zi-ka-wei		40·7	25	i 7 35	− 3	13 49	+ 2	23·1	25·4
Adelaide		44·6	137	e 8 23	+13	i 14 46	+ 2	i 20·4	26·0
Nagasaki		46·0	31	8 22	+ 1	15 44	+40	26·6	31·5
Miyazaki		46·3	34	8 26	+ 3	15 32	+23	—	—
Hukuoka		47·0	32	8 30	+ 1	e 15 42	+23	e 21·4	29·4
Chiufeng	Z.	47·1	15	e 8 28	− 1	—	—	—	30·5
Matuyama		48·4	35	e 8 19	−20	—	—	—	—
Koti		48·7	36	8 39	− 2	15 33	−10	—	32·1
Sumoto		50·0	36	8 52	+ 1	e 18 6	(−39)	e 29·9	31·5
Kobe		50·4	35	8 52	− 2	e 16 28?	+22	e 25·5	33·5
Melbourne		50·4	137	i 8 59	+ 5	16 7	+ 1	25·6?	28·7
Osaka		50·6	35	8 44	−12	15 55	−14	29·3	31·9
Toyooka		50·9	34	—	—	i 16 33	+20	e 27·6	32·5
Gihu		51·8	36	9 5	0	16 23	− 2	—	—
Nagoya		51·8	36	e 9 6	+ 1	—	—	31·4	—
Riverview	E.	53·3	129	i 9 15	− 1	i 16 46	0	24·5	32·3
	N.	53·3	129	9 18	+ 2	i 16 44	− 2	24·6	30·5
	Z.	53·3	129	9 18	+ 2	i 16 48	+ 2	28·6	31·5
Sydney		53·3	129	i 9 10	− 6	i 16 46	0	32·1	38·3
Andijan		53·7	332	e 9 19	0	16 52	0	—	—
Almata		53·7	338	i 9 23	+ 4	i 17 6	+14	23·8	—
Kumagaya		53·9	37	9 34	+13	17 6	+12	—	—
Tyosi		54·6	39	e 9 50	+24	—	—	—	—

Continued on next page,

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Vladivostok		55·2	26	i 9 41	+11	e 17 21	+ 9	29·7	36·1
Tananarive	E.	55·2	251	e 9 38	+ 8	e 17 14	+ 2	25·7	27·9
	N.	55·2	251	e 9 48	+18	17 17	+ 5	25·9	—
Samarkand		55·6	328	9 32	− 1	17 36	+19	26·8	—
Mizusawa	E.	56·9	36	9 44	+ 2	17 44	+ 9	28·2	—
	N.	56·9	36	9 47	+ 5	17 34	− 1	29·5	—
Morioka		57·3	35	9 48	+ 3	17 50	+10	—	—
Irkutsk		57·6	1	i 9 47	0	17 43	− 1	31·5	39·2
Muroran		59·0	32	9 58	+ 1	18 13	+10	—	—
Ekaterinburg		70·8	338	i 11 15	− 1	i 20 25	− 6	31·5	40·3
Christchurch		72·0	135	11 17	− 6	i 20 41	− 4	—	—
Wellington		73·2	132	11 20	−10	20 44	−15	36·4	41·5
Arapuni		73·5	128	11 28?	− 4	20 52?	−11	33·5	38·5
Johannesburg		73·7	245	—	—	21 4	− 1	35·1	38·5
Ksara		73·9	309	11 38	+ 4	21 4	− 3	34·9	—
Helwan		76·6	303	11 43	− 6	21 30	− 8	—	44·3
Yalta		78·6	319	12 1	+ 1	21 53	− 7	e 25·5	—
Simferopol		78·8	319	12 2	+ 1	e 21 54	− 9	e 35·5	—
Kucino		80·6	329	13 17	+66	23 11	+49	38·5	54·7
Pulkovo		85·8	332	i 12 36	− 1	i 22 55	[−10]	40·5	52·1
Lemberg	E.	86·7	320	e 12 44	+ 2	e 23 14	−10	e 47·1	—
	N.	86·7	320	e 12 50	+ 8	e 23 16	− 8	e 47·2	—
Belgrade	E.	88·1	315	e 12 52	+ 4	e 23 23	−15	e 43·1	—
	N.	88·1	315	e 12 49	+ 1	e 23 26	−12	e 48·9	—
Budapest		89·5	318	12 56	+ 1	23 43	− 8	36·5	56·5
Königsberg		89·7	325	e 13 3	+ 7	e 23 43	−10	e 45·5	56·2
Taranto		89·8	310	11 56	−60	22 56	−58	48·0	—
Trenta		90·4	310	e 12 58	− 1	i 23 38	[+ 3]	—	—
Messina		90·9	309	13 11	+ 9	i 24 52	PS	30·3	61·5
Catania		91·2	309	12 59	− 4	23 54	−13	e 67·4	85·6
Zagreb		91·4	315	e 12 56	− 8	i 24 0	− 9	e 42·5	52·3
Vienna		91·4	320	i 13 5	+ 1	—	—	e 40·5	59·5
Graz		91·8	318	13 3	− 3	24 3	−10	e 36·5	58·0
Upsala		92·0	331	—	—	e 23 28?	[−16]	—	—
Naples	E.	92·2	311	e 13 13	+ 5	e 24 28	+11	59·5	90·5
Prague		92·8	320	e 13 18	+ 8	e 24 10	−12	e 43·5	59·5
Rome		93·5	313	e 14 2	+48	e 23 45	[− 8]	—	—
Potsdam		93·8	322	i 13 15	0	24 17	−14	e 45·5	60·5
Venice		93·9	315	i 15 5	?	e 24 26	− 6	—	—
Treviso		94·0	316	13 17	+ 1	e 24 9	{+ 2}	53·5	70·5
Lund		94·0	326	—	—	e 24 28	− 5	—	—
Cheb		94·1	320	e 24 34	S	(e 24 34)	0	e 45·5	60·5
Padova		94·2	316	12 59	−18	24 33	− 2	—	—
Copenhagen		94·4	326	13 24	+ 6	24 17	{+ 7}	—	—
Innsbruck		94·6	318	13 16	− 3	e 23 52	[− 7]	e 41·4	—
Jena		94·6	321	e 13 20	+ 1	e 24 28	−10	e 43·5	66·0
Florence		94·6	314	13 25	+ 6	25 58	PS	45·5	63·5
Prato		94·7	314	e 12 58	−21	25 28	PS	55·5	—
Livorno		95·2	314	e 22 48	?	—	—	—	—
Göttingen		95·7	322	e 13 16	− 8	i 24 37	−11	e 40·5	65·0
Hamburg		95·7	324	e 13 20	− 4	i 24 38	−10	e 46·5	47·5
Piacenza		95·7	315	14 8	+44	24 8	[+ 4]	46·5	77·6
Chur		95·9	316	e 13 26	+ 1	e 23 58	[− 7]	—	—
Stuttgart		96·2	319	e 13 30	+ 4	e 24 39	−14	e 41·5	62·7
Zurich	N.	96·6	316	e 13 28	0	—	—	—	—
Feldberg		96·7	320	—	—	e 24 41	−16	e 47·1	61·2
Strasbourg		97·1	319	13 30	0	e 24 50	−11	42·5	71·0
Neuchatel		97·6	317	e 13 34	+ 2	e 24 1	[−13]	—	—
Besançon		98·3	317	17 44	PP	24 30	[+13]	48·5	63·5
De Bilt		98·7	322	e 13 41	+ 3	e 25 3	−12	e 45·5	62·8
Uccle		99·3	320	—	—	24 42	{− 6}	e 47·5	72·3
Paris		100·6	319	e 13 28?	−18	e 36 28?	?	38·5	63·5
Algiers		100·7	307	e 17 28?	PP	24 38	[+ 9]	46·5	62·5
Honolulu T.H.		100·9	70	15 28?	?	—	—	42·5	—
Barcelona		101·3	312	e 16 4	?	e 27 4	PS	e 55·4	74·4
Kew		102·1	323	e 14 0	+ 7	e 25 32	−13	51·5	76·7
Tortosa	N.	102·5	311	e 17 55	PP	e 25 38	−10	—	76·5

Continued on next page.

		△ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
Oxford		102·6	323	—	—	i 24 10	[−28]	e 48·8	67·8
Alicante		103·5	310	e 17 25	?	e 25 44	−13	e 33·2	—
Almeria		105·1	308	e 16 56	?	26 57	?	48·0	72·7
Granada		106·0	308	i 18 37	PP	i 28 1	PS	e 48·2	65·0
Scoresby Sund		106·0	343	18 16	PP	24 46	[− 9]	—	—
Toledo		106·1	311	e 17 43	[−22]	e 25 58	{+19}	—	69·4
Malaga		106·7	308	e 18 12	[+ 5]	e 26 20	?	e 33·8	—
San Fernando		108·2	309	18 53	PP	29 53	?	58·5	73·5
Sitka		111·4	30	—	—	e 25 3	[−16]	e 49·3	—
Ivigtut		120·0	344	—	—	30 4	PS	—	—
Victoria		121·9	34	20 28	PP	30 19	PS	60·5	131·0
Berkeley	N.	127·9	44	e 18 54	[− 9]	—	—	e 62·9	—
Haiwee	E.	131·7	44	e 19 13	[+ 3]	e 22 38	PP	—	—
Pasadena		132·6	46	e 19 16	[+ 5]	—	—	e 62·0	75·1
La Plata		135·8	203	22 0?	PP	—	—	61·5	—
Tucson		138·8	45	19 28	[+ 8]	—	—	e 57·3	—
Ottawa		139·9	358	e 19 28	[+ 7]	29 13	{−10}	—	—
Toronto		141·6	3	19 19	[− 5]	—	—	66·6	78·1
Buffalo		142·3	2	i 19 25	[0]	—	—	—	83·2
Chicago		142·4	12	19 22	[− 3]	29 46	{+ 8}	62·6	—
Harvard		142·5	352	e 19 27	[+ 1]	—	—	e 58·5	—
Ann Arbor		142·6	7	e 19 28	[+ 2]	—	—	e 48·1	113·3
Fordham		144·3	354	i 19 36	[+ 4]	—	—	e 77·5	—
Florissant		144·5	16	i 19 32	[− 1]	—	—	—	83·5
Georgetown		146·4	0	i 19 40	[+ 4]	—	—	—	—
Charlottesville		147·2	1	e 19 40	[+ 3]	—	—	e 62·0	—
Little Rock		147·5	23	e 19 38	[0]	—	—	—	84·5
Columbia		151·1	6	e 20 8	[+25]	—	—	e 60·7	—
La Paz		156·4	203	i 19 55	[+ 6]	30 33	{−26}	74·5	82·5
San Juan		162·8	321	e 20 4	[+ 7]	—	—	e 67·5	—
Port au Prince		165·8	339	e 20 4	[+ 4]	—	—	89·5	—
Balboa Heights		175·8	28	—	—	e 45 28	SS	—	—

Additional readings :—
Malabar i = +1m.27s.
Medan i = +3m.7s.
Manila iPE = +5m.41s.
Kodaikanal P = 6h.16m.18s.
Perth i = +7m.13s., PS = +11m.13s.
Taihoku iE = +8m.7s. and +16m.58s.
Adelaide iPPP = +10m.41s., i = +16m.40s.
Koti PP = +10m.46s., SE = +15m.28s., eE = +19m.42s.
Kobe PPE = +10m.50s.
Tananarive PPE = +11m.42s., EN = +12m.29s., PS = +17m.29s., SSEN = +21m.9s., E = +21m.29s., N = +21m.32s. and +22m.26s., E = +22m.47s., SSSE = +23m.14s., N = +24m.23s.
Wellington SS = +26m.12s.
Arapuni PP = +15m.52s.?, SS = +27m.4s.
Johannesburg +29m.28s.
Ksara PPN = +14m.38s., PPPN = +16m.23s., PPPPN = +17m.23s., PSN = +21m.31s., SSN = +26m.33s., SSSE = +29m.56s., SSSSN = +31m.19s.
Königsberg iZ = +14m.13s., PPE = +16m.33s., eE = +18m.13s. = PPP +1s., iE = +20m.8s. and +21m.18s., eE = +21m.38s., iSEN = +23m.58s., iE = +24m.23s., iPSE = +24m.58s., iPPSE = +25m.43s., iEN = +29m.34s. = SS −2s., iSSEN = +30m.23s., +33m.22s., and +33m.38s.
Zagreb i = +13m.8s. and +13m.46s., ePP = +16m.3s., e = +23m.43s. = SKS +2s., i = +24m.22s., iPS = +25m.6s., eNW = +25m.30s. and +26m.16s., e = +27m.46s., eSSNW = +30m.54s., eSSSS = +36m.43s., eNW = +37m.14s., eNE = +37m.46s., e = +39m.40s.
Vienna iN = +15m.15s., PKP = +15m.39s., PPP = +20m.54s., iEZ = +24m.30s. SKKS = +25m.4s., SKSP = +28m.20s., PS = +28m.59s., PPP′ = +31m.16s. SKKS′ = +31m.58s.
Graz iPP = +16m.57s., iPS = +25m.9s., iPPS = +25m.46s., iPSS = +30m.13s., iSSS = +34m.24s.
Potsdam e = +16m.32s. = PP −23s., iN = +19m.7s., iEZ = +23m.57s. = SKS +3s.
Treviso PP = +14m.8s., PPP = +17m.4s.
Lund eNW = +24m.31s., eNE = +24m.42s.
Cheb eS? = +36m.59s.

Continued on next page.

Copenhagen PP = +17m.16s., eN = +24m.31s. =S −6s., iN = +24m.51s., SS = +31m.4s.
Jena eN = +37m.8s.
Göttingen ePPNZ = +17m.16s., iE = +24m.16s. =SKS +12s.
Hamburg ePPPZ = +19m.45s.
Stuttgart ePPEZ = +17m.21s., ePPPEZ = +19m.45s., eSKSE = +24m.18s., ePS = +26m.8s., ePPSN = +26m.40s., ePPPSZ = +26m.50s., eZ = +27m.20s., eSSN = +31m.13s.
Feldberg eN = +29m.34s., +36m.34s., and +40m.20s.
Strasbourg ePP = +17m.29s.
De Bilt ePP = +18m.3s., eE = +24m.36s. =SKKS −7s.
Uccle ePP = +18m.4s., iPS = +26m.41s.
Paris e = +3m.28s.?
Honolulu T.H., PE? = +17m.28s.?
Kew eE = +25m.0s. =SKKS −9s. and +27m.41s., eSSE = +34m.7s., eE = +40m.10s. and +45m.34s.
Oxford i = +27m.35s. =PS +22s.
Almeria PP = +18m.23s., i = +19m.29s., and +28m.42s., SS = +30m.7s.
Granada PP = +10m.14s., PPP = +13m.28s. Some error ?
Scoresby Sund eN = +28m.28s., SS = +33m.52s.
Sitka ePS = +28m.43s., eSS = +35m.14s.
Victoria SN = +30m.26s.
Berkeley eZ = +19m.10s., eE = +21m.4s. =PP +1s., and +22m.8s., eN = +22m.54s. and +23m.40s., eE = +31m.4s., eN = +31m.46s.
Pasadena ePZ = +18m.58s., ePKPN = +19m.20s., eZ = +20m.39s. and +21m.14s., iPPZ = +21m.39s., eZ = +22m.26s., iZ = +22m.39s., iPKS = +22m.45s., iPPP = +24m.31s., eE = +31m.13s., iZ = +31m.17s., eZ = +39m.53s.
Tucson ePP = +22m.34s.
Ottawa iPP = +22m.22s., iPKS = +23m.6s., eSKSP = +32m.47s., ePPS = +36m.7s., eN = +38m.10s., eSS = +40m.57s., eSSS = +47m.10s.
Toronto PP = +22m.28s.?, PPP = +25m.39s., i = +36m.23s., SS = +40m.52s., iSSS = +47m.11s.
Buffalo iPP = +22m.38s., iPPP = +25m.52s.
Chicago PP = +23m.23s., PS = +32m.48s., eSS = +41m.34s., eSSS = +46m.58s.
Harvard ePPN = +22m.44s., ePPE = +23m.7s., eSS = +41m.48s., eSSS = +45m.28s.?
Ann Arbor ePPP = +22m.46s., eE = +28m.16s., eN = +35m.58s., eSS = +37m.28s., eSSS = +42m.52s.
Fordham iPPN = +22m.50s., eSSN = +42m.14s.
Florissant iPPNZ = +22m.48s., iZ = +23m.32s. =PKS +13s., iEN = +32m.33s., eEN = +37m.20s., iN = +42m.28s., iEN = +48m.8s.
Georgetown PPNZ = +23m.2s.
Charlottesville PP = +23m.2s., PPP = +26m.28s.
Little Rock iEN = +20m.4s., iPPN = +22m.32s.
Columbia ePPP = +25m.56s., eSSS = +50m.4s.
La Paz PPN = +23m.35s., PPZ = +24m.1s., iN = +25m.33s., iSKS = +27m.29s., SKSP = +34m.25s., PPSN = +37m.23s., SSN = +44m.19s., SSSN = +49m.13s.
San Juan iPP = +24m.32s., iSS = +44m.56s.
Port au Prince ePNW = +20m.12s., iNW = +20m.27s., iNE = +21m.31s., iNW = +21m.38s., eNW = +24m.38s. =PP −8s., eNE = +24m.49s., iNW = +24m.57s., and +26m.3s., iNE = +26m.17s., iNW = +26m.36s.
Long waves were also recorded at Kodaikanal, Cape Town, Bagnères, Edinburgh, Stonyhurst, and Durham.

Feb. 10d. Repetitions from the epicentre 39°·5S. 176°·9W. of 8d. 1h. and 9d. were recorded at :—

Hastings

h.	m.	s.	h.	m.	s.	h.	m.	s.	h.	m.	s.
8	7	0?	17	15	0?	17	21	0?	19	27	0?
16	3	0?									

Arapuni

h.	m.	s.
17	21	0?

New Plymouth

h.	m.	s.	h.	m.	s.
17	15	20?	17	21	20?

Wellington

h.	m.	s.	h.	m.	s.	h.	m.	s.	h.	m.	s.
7	5	3	8	7	23	17	21	18	21	29	56
7	31	18	17	15	20	20	51	44	22	46	24

Feb. 10d. Readings also at 0h. (Samarkand), 1h. (Phu-Lien), 3h. (Kodaikanal, Andijan, Tyosi, Kobe (2), Nagoya (2), Mizusawa, near Osaka (2), and Sumoto (2)), 5h. (near Sumoto), 8h. (Berkeley, Lick, and Sitka), 9h. (Karlsruhe and Phu-Lien), 10h. (Wellington and near Sitka), 17h. (Riverview), 18h. (La Paz, Andijan, and near Tyosi), 19h. (near Matuyama), 21h. (Tyosi).

Feb. 11d. 9h. 15m. 25s. Epicentre 30°·2N. 140°·3E. (as on 1930 Jan. 11d.). X.

A = −·665, B = +·552, C = +·503 ; D = +·639, E = +·769 ;
G = −·387, H = +·321, K = −·864.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tyosi		5·6	5	1 38	P*	2 44	S*	—	—
Nagoya		5·7	331	e 1 27	+ 6	2 32	+ 7	—	—
Osaka		6·1	317	1 28	+ 3	(2 35)	− 1	2·6	3·0
Sumoto		6·2	313	i 1 23	− 5	2 31	− 7	—	2·5
Kobe		6·3	318	i 1 26	− 4	2 33	− 8	—	2·6
Mizusawa	E.	8·9	5	3 5	P_g	3 45	− 1	—	—

Tyosi gives also eP = +2m.39s.

Feb. 11d. 17h. 2m. 51s. Epicentre 39°·5S. 176°·9E. (as on 8d.). X.

A = −·770, B = +·042, C = −·636 ; D = +·054, E = +·999 ;
G = +·635, H = −·034, K = −·772.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Arapuni		1·7	324	0 29?	+ 5	0 53?	+ 9	—	—
Wellington		2·4	223	0 29	− 5	1 0	− 2	—	1·6
Takaka		3·4	346	1 9?	P_g	1 49?	S*	—	2·0
Christchurch		5·1	217	2 1	S	(2 1)	− 9	(3·1)	—
Riverview	E.	21·3	277	i 4 37	− 6	i 8 57	+25	10·2	12·2
	N.	21·3	277	4 40	− 3	i 8 56	+24	10·2	12·2
Sydney		21·3	277	e 4 39	− 4	i 8 51	+19	11·4	13·4
Melbourne		24·9	264	5 11	− 8	9 48	+ 9	11·7	13·8
Adelaide		30·6	269	e 7 4?	PP	i 11 23	+ 9	i 13·3	18·5
Perth		49·2	260	e 15 49	S	(e 15 49)	− 1	—	—
Manila		75·0	305	e 10 35	−65	i 21 30	+10	33·4	40·2
Medan		83·2	280	e 12 45	+21	e 20 9	?	44·2	48·2
Nagasaki		84·4	323	6 9	?	—	—	—	—
La Paz		97·6	119	e 13 39	+ 7	i 24 9	[− 5]	45·2	49·1
Hyderabad		107·4	279	27 53	S	(27 53)	PS	—	60·0
Irkutsk		111·2	321	e 15 9?	+33	—	—	e 48·2	57·6
Bombay		112·6	276	28 53	S	(28 53)	PS	—	65·8
Florissant		115·3	60	e 11 14	?	e 26 34	{−10}	—	61·2
Tashkent		126·5	298	—	—	e 30 32	SKSP	—	76·2
Baku		140·0	290	e 22 52	PKS	e 35 2	?	e 63·2	82·8
Pulkovo		150·9	325	—	—	e 49 33	?	86·2	—

Additional readings and note :—
Arapuni P_g = +41s.?, S_g = +1m.11s.?
Wellington P* = +39s., P_g = +45s., S_g = +1m.21s.
Takaka P_g = +1m.27s.?, S* = +2m.0s.?
Christchurch readings are given as P and S.
Riverview PZ = +4m.50s.
Irkutsk e = +20m.9s.?, +23m.9s.?, and +28m.9s.? = PS − 31s.
Florissant eE = +29m.24s. = PS + 5s.
Tashkent e = +32m.49s.
Baku e = +40m.54s. and +45m.28s.
Long waves were also recorded at Colombo, Kodaikanal, Vladivostok, San Juan, Ottawa, Toronto, Buffalo, and several European stations.

Feb. 11d. 19h. 47m. 41s. Epicentre 25°·4N. 96°·8E. (as on Jan. 30d.). R.3.

A = −·107, B = +·897, C = +·429; D = +·993, E = +·118; G = −·051, H = +·426, K = −·903.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Phu-Lien		10·1	115	e 2 19?	− 3	—	—	5·3	—
Agra	E.	16·9	280	e 3 19	−34	e 6 28	−31	—	—
	N.	16·9	280	e 3 13	−40	e 6 26	−33	e 8·1	—
Dehra Dun		17·3	291	5 19	?	7 9	0	9·6	10·3
Hyderabad		18·8	249	4 9	− 7	7 39	− 3	10·0	11·9
Zi-ka-wei	Z.	22·4	69	4 56	+ 1	9 10	+17	—	13·8
Bombay		23·1	258	5 3	+ 1	9 18	+11	12·0	12·9
Almata		24·1	323	5 15	+ 4	9 33	+ 8	14·0	—
Manila		25·1	111	i 5 50	+29	10 5	+22	i 13·0	—
Andijan		25·4	313	e 5 19	− 5	e 9 49	+ 1	—	—
Irkutsk		27·4	10	e 5 52	+10	e 10 27?	+ 5	14·7	15·0
Tashkent		27·8	312	i 5 45	0	i 10 22	− 6	e 14·7	17·2
Samarkand		28·7	307	5 49	− 4	—	—	16·8	—
Ekaterinburg		40·7	330	e 7 33	− 5	13 42	− 5	20·3	—
Baku		41·6	304	—	—	e 14 14	+14	21·8	24·3

Additional readings:
Calcutta (Δ = 8°·2), P = 19h.46m.1s., S = 19h.47m.25s.
Chiufeng (Δ = 21°·8), ePE = 19h.47m.5s.
Baku e = +17m.10s.
Long waves were also recorded at Vladivostok, Kucino, Pulkovo, and Feldberg.

Feb. 11d. Repetitions from the epicentre 39°·5S. 176°·9E. of 11d. 17h. were recorded at :—

Hastings

h.	m.	s.	h.	m.	s.	h.	m.	s.
0	15	0?	17	30	0?	19	29	0?

Wellington

h.	m.	s.	h.	m.	s.
0	15	53	†17	3	20

† Separately computed.

Feb. 11d. Readings also at 1h. (Irkutsk), 2h. (Baku), 4h. (Riverview), 8h. (Nagoya, near Mizusawa, and Tyosi), 10h. and 13h. (Zi-ka-wei), 14h. (Irkutsk and Tashkent), 15h. (Andijan and near Samarkand), 17h. (near Zi-ka-wei), 18h. (Hong Kong, Andijan, near Samarkand, near Chur, Neuchatel, and Zurich), 20h. (near Lick), 21h. (Andijan), 22h. (Hong Kong), 23h. (Ekaterinburg, Kucino, Irkutsk, Tashkent, Andijan, Bombay, Calcutta, and Phu-Lien).

Feb. 12d. 5h. 44m. 4s. Epicentre 5°·3S. 102°·5E. (as on 10d.). R.1.
Probable error of epicentre ±0°·3.

A = −·216, B = +·972, C = −·092; D = +·976, E = +·216; G = +·020, H = −·090, K = −·996.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Batavia	4·4	102	0 4	−59	0 54	−59	—	—
Malabar	5·4	111	1 15	− 2	2 26	+ 8	—	—
Medan	9·7	337	2 18	+ 1	4 37	S*	—	—
Amboina	25·6	87	5 43	+18	—	—	13·9	—
Colombo	25·7	298	5 30	+ 4	10 10	+17	13·2	15·4
Phu-Lien	26·4	9	e 5 33	0	9 56?	− 9	13·4	18·0
Manila	27·0	42	i 5 40	+ 2	i 10 36	+21	i 14·2	—
Kodaikanal	29·4	302	11 8	S	(11 8)	+13	i 16·2	18·7
Perth	29·4	156	e 5 56	− 4	i 10 41	−14	e 13·6	—
Hong Kong	29·9	23	6 0	− 4	11 28	+25	14·9	19·9

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Calcutta		31·0	334	6 11	− 3	11 17	− 3	15·3	25·8
Hyderabad		32·9	314	6 32	+ 1	11 51	+ 2	16·4	20·7
Bombay		37·9	310	7 21	+ 7	13 7	+ 2	19·0	24·1
Agra	E.	40·2	325	7 26	− 8	13 38	− 1	e 20·4	—
	N.	40·2	325	7 19	−15	13 19	−20	e 19·0	—
Zi-ka-wei	Z.	40·7	25	i 7 36	− 2	14 0	+13	20·5	25·2
Dehra Dun		42·6	329	7 36	−17	14 6	− 9	23·4	26·9
Adelaide		44·6	137	e 8 50	+40	i 14 34	−10	21·0	28·9
Nagasaki		46·0	31	8 20	− 1	—	—	—	—
Chiufeng	N.	47·1	15	e 8 26	− 3	—	—	—	—
Koti		48·7	36	8 49	+ 8	15 37	− 6	—	24·4
Sumoto		50·0	36	e 8 51	0	e 18 56?	(+11)	e 25·9	—
Kobe		50·4	35	i 8 52	− 2	—	—	—	33·3
Melbourne		50·4	137	9 8	+14	16 6	0	24·4	28·9
Osaka		50·6	35	8 37	−19	16 11	+ 2	—	30·4
Nagoya		51·8	36	e 8 59	− 6	—	—	—	—
Riverview		53·3	129	e 9 17	+ 1	i 16 40	− 6	27·6	32·5
Sydney		53·3	129	e 16 20	S	(e 16 20)	−26	31·2	38·4
Almata		53·7	338	e 9 25	+ 6	16 55	+ 3	29·4	—
Andijan		53·7	332	e 9 19	0	16 51	− 1	e 33·9	—
Tananarive		55·2	251	9 39	+ 9	(e 17 19)	+ 7	e 17·3	26·9
Vladivostok		55·2	26	i 9 26	− 4	17 21	+ 9	30·9	—
Tashkent		55·6	330	i 9 36	+ 3	i 17 18	+ 1	e 25·9	34·9
Sendai		56·2	35	8 19	−78	16 31	−54	—	—
Mizusawa	E.	56·9	36	9 2	−40	17 38	+ 3	—	—
	N.	56·9	36	9 44	+ 2	17 50	+15	30·1	—
Irkutsk		57·6	1	i 9 47	0	17 32	−12	28·9	36·5
Baku		66·4	320	10 53	+ 5	i 19 40	+ 3	32·2	42·2
Ekaterinburg		70·8	338	i 11 16	0	i 20 26	− 5	31·9	45·6
Wellington		73·2	132	—	—	20 48	−11	37·6	42·9
Ksara		73·9	309	11 49	+15	21 10	+ 3	—	—
Helwan		76·6	303	e 11 51	+ 2	21 35	− 3	—	44·7
Theodosia		77·9	320	e 12 1	+ 4	e 21 51	− 2	—	—
Yalta		78·6	319	e 12 1	+ 1	—	—	—	—
Simferopol		78·8	319	e 12 4	+ 3	—	—	—	—
Sebastopol		79·1	319	e 12 2	− 1	—	—	—	—
Pulkovo		85·8	332	e 12 38	+ 1	23 6	−10	45·9	53·9
Helsingfors		88·5	331	—	—	23 57	+15	e 47·9	—
Budapest		89·5	318	12 56?	+ 1	23 40	−11	—	—
Königsberg		89·7	325	—	—	i 23 46	− 7	—	—
Zagreb		91·4	315	e 13 8	+ 4	e 23 56?	−13	—	—
Vienna	Z.	91·4	320	e 13 3	− 1	—	—	—	—
Cheb		94·1	320	—	—	e 23 56?	[0]	e 55·9	61·9
Copenhagen		94·4	326	—	—	24 56?	+19	51·9	—
Stuttgart		96·2	319	e 13 31	+ 5	e 24 36	−17	e 55·9	—
De Bilt		98·7	322	—	—	e 25 28	+13	e 47·9	63·1
San Fernando	N.	108·2	309	15 12	?	28 56	PS	53·9	—
Haiwee	N.	131·7	44	e 19 23	[+13]	e 22 38	PKS	—	—
Pasadena	Z.	132·6	46	e 19 1	[−10]	i 22 36	PKS	—	—
Tucson		138·8	45	e 23 2	PKS	—	—	65·9	—
Ottawa		139·9	358	e 22 24	PP	e 29 34	{+11}	76·9	—
Toronto		141·6	3	i 19 21	[− 3]	—	—	64·6	87·9
Buffalo		142·3	2	i 19 30	[+ 6]	i 23 44	PKS	e 75·9	—
Harvard		142·5	352	—	—	e 40 56?	SS	e 61·9	—
Fordham		144·3	354	e 19 30	[− 1]	—	—	e 75·9	—
Florissant		144·5	16	i 19 31	[− 2]	—	—	e 67·9	—
Georgetown		146·4	0	i 19 38	[+ 2]	—	—	e 81·9	—
Little Rock	N.	147·5	23	e 19 42	[+ 4]	—	—	—	84·1
La Paz		156·4	203	i 19 57	[+ 8]	26 57	?	71·8	84·7
San Juan		162·8	321	e 20 2	[+ 5]	—	—	e 62·3	—

For Notes see next page.

NOTES TO FEB. 12d. 5h. 44m. 4s.

Additional readings :—
Batavia i = +8s. and +11s.
Medan i = +2m.37s.
Manila PPEZ = +6m.29s., PPPPZ = +6m.49s., SSSE = +12m.52s.
Zi-ka-wei PPZ = +9m.16s., PPPZ = +9m.42s., SSZ = +17m.10s.
Adelaide i = +17m.56s. =SS +13s.
Melbourne SS = +19m.29s.
Riverview i = +9m.27s.
Sydney iS = +22m.8s.
Wellington +25m.20s. =SS −11s. and +30m.46s.
Helsingfors eSKSEN = +23m.27s., ePSN = +24m.34s., eSSN = +29m.24s.
Königsberg iEN = +24m.9s., eEN = +25m.8s.
Stuttgart ePPZ = +17m.22s., eSSN = +31m.16s.
Pasadena eN = +19m.9s., iZ = +19m.13s., eN = +19m.18s., eE = +19m.22s.
Ottawa e = +40m.41s. =SS +0s.
Toronto e = +16m.25s.
Fordham ePP = +22m.46s.
Florissant iZ = +22m.50s. =PP +1s., eEN = +42m.26s.
Georgetown PPZ = +22m.45s., SSE = +41m.21s.
La Paz PPN = +23m.43s., PPE = +23m.54s., PPZ = +24m.7s., iSKKS = +30m.46s., iSKSP = +34m.31s., eN = +39m.11s., SSN = +43m.52s., SSSN = +49m.56s.
San Juan iPP = +24m.35s., SS = +44m.43s.
Long waves were also recorded at Arapuni, La Plata, Ivigtut, Scoresby Sund, Kucino, and other American and European stations.

Feb. 12d. 8h. 6m. 36s. Epicentre 15°·5N. 92°·5W. (as on 1930 July 27d.). 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.	s.	m. s.	s.	m.	m.
Little Rock		19·3	0	e 4 21	− 1	e 7 57	+ 5	—	—
Port au Prince		19·5	78	i 4 20	− 4	e 8 15	+19	e 10·5	—
Columbia		21·2	27	—	—	i 8 36	+ 6	—	—
Florissant	N.	23·4	4	e 4 57	− 8	i 9 18	+ 6	e 12·4	—
Tucson		23·7	318	5 9	+ 2	—	—	10·1	—
San Juan		25·4	79	6 59	+95	11 18	+90	—	—
Chicago		26·6	8	—	—	e 10 0	− 9	e 18·4	—
Georgetown		27·1	27	5 46	+ 7	10 10	− 7	e 12·7	—
Ann Arbor		27·9	14	e 7 30	?	—	—	(e 13·7)	18·6
Pasadena		29·6	314	e 5 59	− 2	—	—	—	—
Buffalo		29·8	20	e 7 52	+109	e 12 24	+83	—	18·1
Toronto		30·3	20	e 9 16	(+ 5)	i 10 41	−28	18·4	—
Haiwee	N.	30·7	318	e 6 11	0	—	—	—	—
Harvard		32·6	30	—	—	e 11 15	−30	e 16·4	—
Ottawa		33·1	23	e 8 0	?	e 11 42	−10	e 18·4	—
La Paz		40·0	144	e 7 36	+ 4	—	—	27·4	38·3

Additional readings and note :—
Little Rock iPN = +4m.36s., iSEN = +8m.12s., iSSE = +8m.32s., and +8m.53s.
Port au Prince i = +4m.40s. and +5m.1s.
Tucson ePP = +5m.24s.
Ann Arbor eE = +8m.36s., L is given as eP.
Pasadena iZ = +7m.53s.
Toronto i = +13m.58s.
Ottawa e = +14m.48s.
Long waves were also recorded at Berkeley.

Feb. 12d. Repetitions from the epicentre 39°·5S. 176°·9E. of 11d. 17h. were recorded at :—

Hastings					
h.	m.	s.	h.	m.	s.
14	30	0?	17	4	0?

Feb. 12d. Readings also at 0h. (Tyosi and Medan), 2h. (Andijan, Tashkent, and near Samarkand), 4h. (Sitka and near Malabar), 6h. (near Andijan and Samarkand), 7h. (near Samarkand), 8h. (Andijan and near Samarkand (2)), 9h. (near Andijan and Samarkand), 11h. (near Nagoya (2), Tyosi, and Osaka), 12h. (Toledo, near Almeria, and Granada), 13h. (Catania, Mineo, and Wellington), 16h. (Tyosi), 19h. (Lick and Koti), 20h. (Baku, Ekaterinburg, and Tashkent), 21h. (Baku, Ekaterinburg, Irkutsk, Hong Kong, near Manila, near Samarkand, and near Wellington), 23h. (Apia, Tashkent, and near Manila).

Feb. 13d. 0h. 40m. 52s. Epicentre 25°·5N. 122°·0E. (as on 1920 Jan. 25d.). R.1.

Probable error of epicentre ±0°·3.

A = −·478, B = +·765, C = +·431; D = +·848, E = +·530; G = −·228, H = +·365, K = −·903.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Taihoku		0·6	223	0 20	+11	0 35	+20	—	0·6
Karenko		1·6	194	0 23	0	0 41	0	—	—
Taityu		1·8	222	0 26	0	0 43	− 3	—	—
Isigakizima		2·3	120	0 36	+ 3	0 58	− 1	—	—
Tainan		3·0	213	0 46	+ 3	1 15	− 2	—	—
Hokoto		3·0	229	1 8	P_g	1 38	S_g	—	—
Kosyun		3·7	199	0 51	− 2	1 26	− 9	—	—
Hong Kong		7·8	248	1 49	− 2	2 54	−25	3·4	4·5
Kagosima		9·6	49	2 26	+10	4 22	+19	—	—
Nagasaki		10·0	41	2 31	+10	4 32	+19	—	—
Unzendake		10·2	43	2 28	+ 4	4 31	+13	—	—
Miyazaki		10·5	50	2 38	+10	4 42	+16	—	—
Hukuoka		10·9	40	i 2 44	+11	4 55	+19	—	5·0
Manila		10·9	185	i 2 28	− 5	i 4 26	−10	—	—
Ooita		11·4	45	2 52	+12	5 11	+33	—	—
Koti		12·8	48	e 3 0	+ 1	5 38	+16	—	—
Heizyo		13·9	12	3 24	+10	6 13	+24	—	—
Sumoto		14·2	48	3 26	+ 8	6 35	+39	—	6·8
Siomisake		14·3	53	3 23	+ 4	6 16	+18	—	—
Kobe		14·6	48	3 39	+16	e 6 41	+36	—	7·6
Osaka		14·8	49	3 35	+ 9	—	—	7·0	8·1
Phu-Lien		14·9	255	i 3 26	− 1	e 6 10	− 3	7·1	—
Toyooka	E.	14·9	45	i 3 35	+ 8	i 7 0	+47	—	—
	N.	14·9	45	i 3 50	+23	e 6 30	+17	—	—
Chiufeng		15·4	344	e 3 40	+ 6	—	—	—	—
Nagoya		16·1	49	e 3 51	+ 8	—	—	—	—
Gihu		16·1	48	3 44	+ 1	7 27	+46	—	—
Misima		17·4	52	4 6	+ 7	7 6	− 5	—	—
Oiwake		17·8	49	4 6	+ 2	8 11	+51	—	—
Kumagaya		18·2	50	4 9	0	8 15	+46	—	—
Tyosi		19·1	53	e 4 18	− 2	—	—	—	—
Vladivostok		19·3	22	i 4 30	+ 8	e 8 20	+28	9·0	—
Hukusima		19·8	47	4 23	− 4	9 5	+63	—	—
Sendai		20·4	47	4 30	− 4	10 7	L	(10·1)	—
Akita		20·7	42	4 38	+ 1	8 51	+31	—	—
Mizusawa		21·0	45	4 39	− 1	9 4	+38	—	—
Irkutsk		29·9	338	i 6 4	0	10 55	− 8	14·1	17·3
Medan		31·3	231	i 6 31	+14	i 11 7	−17	—	—
Batavia		34·9	210	5 39	−69	10 57	−83	—	—
Dehra Dun		38·9	290	7 38	+15	(13 28)	+ 8	13·5	—
Almata		40·5	310	8 8	+32	13 32	− 7	—	—
Hyderabad		41·1	271	7 39	− 2	13 43	−10	19·7	24·8
Kodaikanal		44·8	261	e 14 8	S	(e 14 8)	−39	—	—
Bombay		45·7	275	8 22	+ 4	18 32	(+15)	e 37·3	—
Samarkand		47·7	305	e 8 33	− 1	15 25	− 4	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Ekaterinburg		53·3	325	i 9 15	− 1	i 16 40	− 6	26·1	—
Baku		60·6	305	e 10 40	(−16)	i 18 20	− 4	i 36·3	—
Kucino		65·9	323	—	—	e 20 14	(−20)	e 38·6	—
Pulkovo		69·0	329	10 55	−10	19 50	−19	41·1	—
Simferopol		70·8	313	e 11 11	− 5	—	—	—	—
Helsingfors		71·4	329	—	—	e 20 18	−20	e 39·1	—
Helwan		78·1	299	e 12 23	+25	i 21 25	−30	—	—
Budapest		79·5	320	e 12 8?	+ 3	—	—	—	—
Vienna		80·8	321	12 7	− 5	22 10	−14	—	—
Cheb		82·2	323	—	—	e 22 22	−17	—	—
Zagreb	N.W.	82·2	318	e 12 14	− 5	—	—	—	—
Feldberg		84·2	325	—	—	e 22 42	[−11]	e 47·8	—
Florence		86·1	318	e 21 8	?	—	—	—	—
Santa Barbara	E.	96·2	47	e 13 21	− 5	—	—	—	—
Haiwee	N.	96·4	45	e 13 23	− 4	—	—	—	—
Pasadena		97·5	47	e 13 25	− 7	—	—	—	—
La Paz	Z.	167·0	49	i 19 58	[− 3]	—	—	—	—

Additional readings :
Taihoku iEN = +23s.
Koti ePP = +3m.5s., i = +3m.21s.
Chiufeng PPE = +6m.42s.
Vladivostok i = +8m.49s.
Mizusawa SE = +9m.24s.
Baku e = +14m.56s., i = +20m.38s., +23m.11s., and +25m.40s.
Kucino e = +33m.50s.
Helsingfors eN = +21m.15s.
Vienna SS = +27m.1s.
Zagreb eNE = +12m.35s., e = +12m.53s.
Feldberg eE = +34m.42s.
Long waves were also recorded at Königsberg, Copenhagen, Stuttgart, Paris, and De Bilt.

Feb. 13d. 1h. 27m. 21s. Epicentre 39°·5S. 176°·9E. (as on 11d.). R.1.

Probable error of epicentre ±0°·37.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Arapuni		1·7	324	0 49?	+25	1 18?	S_g	—	—
Wellington		2·4	223	0 39	+ 5	—	—	—	—
Takaka		3·4	246	0 56?	+ 7	1 48?	+21	—	2·5
Christchurch		5·1	217	i 1 15	+ 2	—	—	—	—
Riverview		21·3	277	4 46	+ 3	8 53	+21	10·6	12·6
Sydney		21·3	277	i 4 33	−10	i 8 39	+ 7	12·0	12·2
Suva		21·4	4	4 27	−17	8 39	+ 5	—	—
Melbourne		24·9	264	5 19	0	9 39	0	12·8	13·4
Apia		27·6	24	7 18	+94	12 5	+100	15·0	20·0
Adelaide		30·6	269	i 6 20	+10	i 11 27	+13	i 13·4	16·6
Perth		49·2	260	i 8 54	+ 9	i 15 49	− 1	e 21·2	29·6
Amboina		56·7	297	9 38	− 3	13 9	−23	24·0	36·3
Honolulu T.H.		65·2	26	e 10 48	+ 8	i 19 18	− 4	e 27·0	—
Malabar		69·5	278	11 2	− 6	20 10	− 5	e 36·6	40·5
Batavia		70·7	278	i 11 14	− 1	20 37	+ 7	30·1	41·0
Manila		75·0	305	i 11 39	− 1	i 21 16	− 4	—	—
Tyosi		82·2	332	e 22 21	S	(e 22 21)	−18	e 41·9	43·8
Misima		82·4	330	12 17	− 3	22 21	−20	—	—
Taihoku	E.	82·6	312	e 12 23	+ 2	e 22 34	− 9	e 27·4	—
Miyazaki		82·9	324	12 17	− 6	22 15	−31	—	—
Kumagaya		83·2	330	12 21	− 3	22 40	− 9	—	—
Medan		83·2	280	11 17	−67	21 38	−71	38·6	42·6
Nagoya		83·2	329	e 12 21	− 3	—	—	—	—
Koti		83·3	326	e 12 21	− 4	22 45	− 5	—	40·2
Osaka		83·4	327	12 24	− 1	22 46	− 5	42·7	45·6

Continued on next page.

		Δ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
Sumoto		83·4	327	e 12 24	− 1	e 22 46	− 5	e 35·6	44·6
Kobe		83·6	327	12 27	+ 1	22 52	− 1	e 36·6	44·9
Santiago		83·9	130	11 49	−39	22 19	−37	33·2	—
Toyooka		84·4	328	i 12 32	+ 2	—	—	e 36·5	45·7
Nagasaki		84·4	323	12 29	− 1	22 48	[− 7]	—	—
Hong Kong		85·1	305	12 33	− 1	22 50	[−10]	—	58·0
Mizusawa	E.	85·2	334	12 36	+ 2	23 0	[− 1]	—	—
	N.	85·2	334	12 33	− 1	22 46	[−15]	35·4	—
Zi-ka-wei	E.	87·4	317	e 12 47	+ 2	—	—	—	50·0
Phu-Lien		89·0	299	e 12 52	− 1	e 23 20	[− 6]	36·6	55·7
La Plata		90·0	139	13 5	+ 8	23 28	[− 5]	40·2	—
Vladivostok		92·1	330	13 9	+ 2	24 3	−13	45·8	47·6
Santa Barbara	N.	94·3	48	—	—	e 24 49	+13	—	—
Pasadena		95·0	49	13 19	− 1	e 24 46	+ 4	e 40·6	58·6
Berkeley		95·4	44	e 12 47	−35	e 24 45	− 1	e 47·5	—
Lick		95·4	44	e 13 23	+ 1	—	—	e 46·4	—
Haiwee	N.	96·5	48	e 13 34	+ 7	e 23 59	[− 9]	—	—
La Paz		97·6	119	i 13 42	+10	i 24 18	[+ 4]	41·2	49·6
Tucson		98·1	55	13 58	+23	i 25 10	0	40·8	—
Victoria		102·6	35	14 39	+44	25 36	−13	47·0	68·0
Calcutta		103·0	290	23 23	S	(23 23)	. ?	51·6	—
Tananarive		104·9	230	—	—	24 49	[0]	46·6	52·9
Hyderabad		107·4	279	17 29	[−40]	29 17	?	53·0	67·8
Johannesburg		108·2	210	—	—	28 21	PS	46·6	—
Irkutsk		111·2	321	e 15 56	?	e 25 3	[−16]	53·6	82·4
Little Rock	E.	111·8	63	—	—	e 27 17	?	e 47·6	56·2
Bombay		112·6	276	17 59	[−27]	28 46	PS	50·4	66·4
Agra	E.	113·3	286	e 18 36	[+ 8]	28 52	PS	—	71·2
	N.	113·3	286	e 17 50	[−38]	28 50	PS	—	69·0
Dehra Dun		115·1	290	19 39	PP	29 19	PS	48·2	64·6
Florissant		115·3	60	—	—	e 25 15	[−20]	—	61·6
Chicago		118·7	59	—	—	28 2	?	51·4	—
Columbia		119·3	70	—	—	e 24 51	?	e 50·3	—
Ann Arbor		121·5	60	21 21	?	33 21	?	e 53·0	78·2
Almata		122·2	303	e 20 32	PP	—	—	e 57·6	—
San Juan		122·2	91	e 20 17	PP	—	—	51·6	—
Charlottesville		123·1	66	—	—	e 25 57	[− 3]	e 49·6	—
Andijan		125·2	299	e 19 19	[+24]	—	—	e 54·6	—
Georgetown		124·5	66	18 56	[0]	—	—	e 57·6	—
Toronto		124·9	60	e 16 16	?	i 27 24	{−24}	62·0	69·4
Buffalo		125·0	61	e 19 6	[+ 9]	—	—	—	60·6
Tashkent		126·5	298	e 20 8	?	e 30 39?	SKSP	80·4	91·6
Samarkand		127·4	295	e 19 14	[+12]	—	—	e 42·6	—
Fordham		127·5	65	i 19 7	[+ 5]	—	—	61·6	—
Ottawa		127·9	59	e 21 19	PP	e 28 12	{+ 4}	e 50·6	—
Harvard		130·0	64	e 20 18	?	—	—	e 62·6	—
Ekaterinburg		136·0	316	i 19 15	[− 1]	—	—	51·6	86·6
Baku		140·0	290	e 19 15	[− 6]	28 26	{−58}	—	—
Ivigtut		145·1	38	19 30	[− 4]	—	—	—	—
Scoresby Sund		147·5	13	19 40	[+ 2]	—	—	—	—
Ksara		148·5	272	19 42	[+ 2]	—	—	63·6	84·2
Kucino		148·6	316	20 33	?	—	—	59·6	83·0
Helwan		150·3	262	19 56	[+14]	33 43	SKSP	—	86·6
Pulkovo		150·9	325	i 19 47	[+ 4]	30 11	{−16}	72·6	93·6
Yalta		152·1	293	19 59	[+15]	—	—	e 75·2	—
Simferopol		152·2	294	20 0	[+16]	—	—	e 75·6	—
Sebastopol		152·6	293	e 19 58	[+13]	—	—	e 82·6	—
Helsingfors	E.	152·9	329	e 19 55	[+ 9]	e 30 10	{−29}	e 67·6	—
	N.	152·9	329	e 19 58	[+12]	e 30 15	{−24}	e 67·6	—
Upsala		155·9	334	—	—	33 42	SKSP	e 67·6	102·0
Königsberg		158·0	322	e 19 33	[−18]	31 53	{+46}	e 52·6	102·6

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Bergen		158·4	349	—	—	e 43 4	?	e 86·6	—
Lund		160·6	332	—	—	34 39?	SKSP	—	—
Copenhagen		160·8	333	19 57	[+ 2]	—	—	—	—
Belgrade	E.	161·8	295	e 20 13	[+17]	—	—	e 95·3	108·8
Budapest		162·1	304	20 39?	[+43]	e 36 9	?	e 47·6	91·2
Potsdam		163·0	324	i 20 5	[+ 8]	—	—	e 70·6	91·6
Hamburg		163·4	332	e 19 59	[+ 2]	—	—	e 70·6	85·6
Vienna		163·5	309	19 58	[+ 1]	—	—	e 75·6	112·6
Prague		163·8	317	e 19 23	[−35]	—	—	e 70·6	102·6
De Bilt		164·2	338	e 20 15	[+17]	e 31 47	{+ 6}	e 78·6	100·2
Taranto		164·4	280	20 4	[+ 6]	31 32	{−10}	48·1	106·9
Graz		164·5	305	e 20 12	[+13]	e 28 28	?	76·6	90·4
Zagreb		164·6	300	e 20 6	[+ 7]	—	—	e 81·2	91·7
Jena		164·7	323	e 19 55	[− 4]	—	—	67·6	103·6
Cheb		164·8	320	—	—	e 46 27	?	e 75·6	105.2
Trenta		165·0	276	e 20 4	[+ 5]	—	—	82·6	—
Göttingen		165·0	327	e 20 0	[+ 1]	—	—	e 71·0	111·0
Messina		165·4	271	e 18 49	[−70]	35 39	SKSP	e 45·7	98·7
Catania		165·6	268	21 19	PKP_2	31 43	{+ 6}	e 84·2	104·1
Bidston		166·1	0	e 18 54	?	—	—	e 68·6	101·2
Feldberg		166·6	327	e 25 56	?	—	—	—	91·6
Naples		166·7	281	e 35 39?	SKSP	—	—	—	53·6
Stuttgart		167·2	321	e 20 9	[+ 8]	e 27 11	?	e 52·6	101·6
Treviso		167·2	304	e 19 17	[−44]	31 39	{−18}	92·6	101·6
Venice		167·2	303	—	—	27 39?	?	—	—
Padova		167·5	303	e 21 8	PKP_2	45 53	SS	e 86·6	—
Uccle		167·6	338	e 21 13	PKP_2	—	—	89·6	100·2
Oxford		167·7	355	—	—	e 25 12	PP	e 76·6	103·4
Kew		167·9	352	i 20 17	[+15]	e 31 51	{− 9}	73·6	99·5
Rome		168·0	287	e 20 10	[+ 8]	29 56	?	—	—
Strasbourg		168·1	323	i 20 10	[+ 8]	—	—	e 62·6	106·6
Chur		168·3	313	e 20 2	[0]	—	—	—	—
Florence		168·5	297	e 20 0	[− 2]	31 39	{−25}	72·6	94·6
Prato		168·5	297	e 20 7	[+ 5]	38 39	?	83·6	—
Zurich		168·5	317	e 20 8	[+ 6]	—	—	—	—
Piacenza		169·1	305	e 20 39	[+36]	—	—	51·6	103·7
Neuchatel		169·6	319	e 20 3	[− 1]	—	—	—	—
Besançon		169·9	323	—	—	e 35 39?	SKSP	79·6	—
Paris		169·9	339	e 20 11	[+ 7]	e 45 58	SS	76·6	100·6
Marseilles		172·6	305	e 19 37	—	—	—	61·6	—
Algiers		174·4	243	e 20 5	[− 1]	35 58	?	72·6	91·6
Serra do Pilar		175·5	66	—	—	39 22	?	—	—
Barcelona		175·6	299	—	—	e 46 53	SS	e 74·4	93·5
San Fernando		176·1	139	20 33	[+16]	(46 39)	SS	46·6	102·6
Tortosa	N.	176·9	296	—	—	e 32 22	{−26}	e 72·9	95·1
Malaga		177·0	159	20 4	[− 3]	36 40	SKSP	—	92·6
Almeria		177·3	190	20 7	[0]	37 46	?	73·3	93·5
Granada		177·6	170	i 20 8	[+ 1]	—	—	82·0	91·0
Alicante		177·7	241	e 19 59	[− 8]	e 37 27	?	e 46·4	—
Toledo		179·2	62	20 7	[0]	32 56	{− 3}	—	97·6

Additional readings :—
Arapuni P_g = +55s. ?
Wellington P_g = +49s.
Takaka P^* = +1m.13s. ?, P_g = +1m.31s. ?, S^* = +1m.59s. ?, S_g = +2m.20s. ?
Apia PP = +7m.58s., SS = +13m.18s.
Adelaide i = +7m.18s. =PP +13s. and +12m.9s.
Batavia iZ = +21m.11s.
Tyosi eS = +33m.55s.
Koti eE = +23m.10s.
Sumoto eSZ = +23m.39s. ? =PS +8s.
Kobe eSZ = +24m.6s., eSSN = +28m.24s.
Hong Kong PP = +15m.46s., PS = +24m.9s.
Vladivostok PP = +16m.50s., SKS = +23m.38s.
Pasadena e = +13m.26s., ePPNZ = +17m.18s., eE = +23m.58s. =SKS −3s., eN = +24m.7s. and +24m.40s., iEN = +24m.55s.
Berkeley eN = +13m.21s., eZ = +13m.25s., eE = +13m.43s., eZ = +43m.17s., eE = +43m.31s.

Continued on next page.

Lick eN = +13m.42s.
La Paz PPZ = +17m.43s., PPN = +17m.46s., iN = +24m.38s. =SKKS +3s., PSN = +26m.18s.
Tucson PP = +17m.43s., SKS = +24m.13s., e = +27m.39s., eSS = +31m.32s.
Victoria PN = +15m.27s.
Tananarive SKKSN = +25m.52s., S = +26m.16s., PSEN = +27m.46s., PPSN = +28m.52s., SSN = +33m.7s., N = +34m.10s., and +34m.52s., E = +35m.42s., SSSE = +37m.39s., SSSN = +37m.49s., E = +42m.2s.
Hyderabad SKS = +27m.56s. =PS −6s.
Johannesburg +34m.9s. =SS +15s.
Irkutsk ePP = +18m.59s., PS = +28m.27s.
Little Rock ePPE = +19m.41s., eE = +25m.28s. =SKS +7s., ePSE = +28m.43s., eSSE = +34m.58s., eSSSE = +39m.23s.
Florissant ePPE = +19m.45s., eSKKS = +26m.36s., iPS = +29m.27s.
Chicago PS = +29m.57s., ePPS = +30m.45s., SS = +36m.29s., e = +38m.45s.
Columbia ePP = +20m.6s., eS = +28m.13s., eSS = +36m.27s., eSSS = +40m.42s.
Ann Arbor ePP = +25m.45s., ePPP = +28m.33s., ePS = +34m.51s., eSS = +40m.21s., e = +51m.51s.
San Juan iPP = +20m.31s., iPS = +30m.29s., eSSS = +36m.39s.
Charlottesville ePP = +20m.39s., eS = +27m.39s., e? = +28m.39s., ePS = +30m.27s., SS = +37m.39s.
Georgetown PPE = +20m.38s., PSEZ = +30m.56s. ; T_o =1h.27m.18s.
Toronto i = +17m.9s., ePKPE = +19m.2s., i = +20m.9s., PPE = +20m.51s., i = +26m.54s., iE = +27m.24s., SS = +37m.43s., SSE = +37m.48s.
Buffalo iPP = +20m.56s.
Fordham iPPN = +20m.57s., iSS = +38m.17s.
Ottawa eE = +22m.28s., ePPE = +23m.27s., ePPP? = +27m.11s., ePPSE = +34m.44s., ePPPN = +37m.17s., iSKKS = +38m.30s., e = +43m.21s., eSSS = +47m.3s.
Harvard ePP = +23m.7s., ePS = +32m.30s., eSS = +39m.22s., eSSS = +44m.7s.
Ekaterinburg iPP = +21m.57s., iPKS = +22m.59s., iPS = +32m.3s., PPS = +34m.3s., iSS = +39m.51s.
Baku iPP = +21m.33s.
Ivigtut e = +32m.57s. =SKSP −7s., +34m.21s., and +41m.33s. =SS −10s.
Scoresby Sund eEN = +19m.51s., eN = +23m.3s. =PP −3s., eE = +32m.27s., eN = +38m.33s., eE = +41m.45s.
Ksara PPN = +23m.36s., PPPE = +26m.42s., PPPPN? = +29m.48s., PPPPPN = +31m.43s., PPSN = +37m.11s., SSE? = +42m.29s., e = +48m.14s., SSSSN = +53m.58s., eE = +55m.30s., SSSSSN = +57m.56s.
Kucino PKS = +24m.15s., SKSP = +34m.21s., SS = +42m.21s.
Pulkovo PP = +23m.25s., SKSP = +33m.48s., PS = +34m.49s., SS = +41m.51s.
Helsingfors eZ = +20m.23s. =PKP_3 +11s., eE = +25m.24s. and +32m.51s., eSKSPN = +33m.51s., eSKSPE = +34m.6s., eSKSSEN = +34m.40s., eS = +35m.40s., eN = +36m.40s., eE = +36m.49s., eN = +38m.17s., eE = +38m.27s., eSKSPPE = +39m.31s., eEN = +40m.25s., eE = +42m.40s., eSSN = +43m.2s., eN = +44m.40s., eE = +45m.40s., eN = +47m.55s., eSSSN = +49m.43s., eSSSE = +49m.57s., eE = +53m.40s.
Upsala PPS = +36m.42s., PSS = +41m.42s., SS = +43m.22s.
Königsberg PKPN = +20m.33s., e?N = +22m.43s., eN = +35m.53s., eSS?N = +44m.15s.
Copenhagen PKP_3 = +20m.45s., PP = +24m.27s., eN = +31m.9s. =SKKS −14s., eEN = +35m.33s., SS = +45m.21s.
Belgrade eE = +21m.20s., +25m.34s., +27m.22s., and +36m.7s.
Potsdam iZ = +20m.44s. =PKP_3 −14s., eZ = +23m.39s. ? =PKS +1s., and +28m.21s. =PPP +10s., eN = +28m.48s., i = +34m.1s.
Hamburg ePKP$_3$ = +20m.53s., ePPE = +25m.47s., ePPPNZ = +30m.39s., eZ = +33m.45s. and +37m.45s., eE = +44m.51s., ePSSE = +48m.32s.
Vienna PP = +24m.35s., PPP = +27m.15s., PKKP = +33m.39s., PS = +34m.23s., SKKS = +52m.2s.
Graz iS_0PP = +24m.59s., ePP = +25m.55s., iPPP = +29m.52s., i? = +32m.37s., iPPP = +33m.38s., eSKKS = +35m.45s., eSKSP = +36m.48s., i? = +38m.34s., ePPS = +40m.28s., iSS = +46m.43s.
Zagreb e = +20m.58s., +24m.39s.? =PP +0s., +31m.10s., eNE = +35m.10s. = SKSP −1s., eNW = +35m.21s., eNE = +37m.39s. ?, e = +41m.28s., +45m.12s. =SS −8s., +46m.12s., and +51m.6s. =SSS −17s.
Jena ePZ = +20m.0s., eE = +24m.39s. =PP −1s., eN = +29m.27s., and +33m.20s., eE = +33m.59s., eN = +35m.3s. =SKSP −8s., +39m.3s., +43m.39s., +52m.9s., and +58m.39s.
Cheb eE = +24m.53s. =PP +13s., e = +35m.47s.
Göttingen eE? = +31m.33s. =SKKS −12s., iE = +34m.21s., ePSE = +38m.7s., eSSE = +44m.33s., iSSSEN = +51m.47s., iEN = +53m.33s.
Bidston e = +33m.54s., +35m.54s. and +51m.54s.
Feldberg e = +30m.21s. and +35m.12s. =SKSP −10s.
Stuttgart iPP = +25m.1s., e = +35m.9s. =SKSP −17s., eSS = +45m.49s.
Treviso PP = +25m.9s., SS = +35m.34s., SSS = +38m.59s.
Uccle ePP = +24m.51s., ePPP = +29m.4s., i = +31m.33s. =SKKS −26s., iSKSP = +35m.51s., iSKSP' = +37m.34s.
Kew iSSE = +45m.43s., iSSN = +46m.28s., iN = +46m.55s., and +51m.25s.

Continued on next page,

Strasbourg i = +21m.10s. = PKP_2 = −11s., iSKP = +23m.19s., iPP = +25m.5s., iPPP = +29m.32s., ePPPP = +31m.24s., ePPPPP = +33m.44s.
Chur ePKP = +21m.13s., ePP = +25m.9s.
Florence iPP = +24m.54s., PPP = +27m.44s.
Zurich ePKP = +21m.7s., ePP = +24m.51s.
Neuchatel ePP = +25m.39s.
Marseilles ePPP? = +28m.36s.
Malaga PKP_2 = +22m.12s., i = +35m.4s.
Almeria iPKP_2 = +22m.3s., PP = +25m.53s., i = +28m.13s., PPP = +30m.14s., PPPP = +32m.42s.
Granada i = +21m.4s., SKP = +22m.26s., PP = +24m.55s., PPP = +29m.19s., PPPP = +32m.0s., and +32m.43s. = SKKS −8s., SPPP = +41m.49s.
Toledo iPZ = +20m.18s., eP = +20m.22s., ePZ = +21m.59s., iPZ = +22m.12s., PP = +25m.57s., SKS = +27m.12s., iZ = +29m.3s., PPP = +30m.14s., iS = +32m.41s., PPPP = +33m.30s., iSS = +36m.42s., iSSS = +40m.9s., SSSS = +46m.37s.
Long waves were also recorded at Balboa Heights, Sitka, Colombo, Kodaikanal, and other European stations.

Feb. 13d. 22h. 17m. 30s. Epicentre 11°·5N. 96°·0E. N.3.

A = −·102, B = +·975, C = +·199; D = +·995, E = +·105; G = −·021, H = +·198, K = −·980.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Medan		8·3	160	e 2 58	+60	—	—	4·5	—
Calcutta		13·2	328	3 5	0	5 38	+ 6	7·0	—
Phu-Lien		13·8	46	e 5 16	S	(e 5 16)	−30	7·5	—
Colombo		16·6	255	4 48	+59	—	—	—	8·8
Hong Kong		20·5	56	4 36	+ 1	8 35	+19	—	12·3
Batavia		20·7	148	e 9 10	S	(e 9 10)	+50	—	—
Agra	E.	23·0	316	e 4 36	−25	—	—	—	—
Bombay		23·5	291	5 4	− 1	9 4	−10	11·7	21·8
Manila		24·5	80	i 6 16	+61	i 10 1	+29	i 12·0	—
Almata		35·8	335	e 7 4	+ 8	—	—	—	—
Andijan		35·9	329	e 7 3	+ 6	—	—	—	—
Tashkent		37·9	327	e 3 6	?	e 8 54	PP	e 12·5	24·1
Samarkand		38·1	323	e 7 7	− 9	e 11 11	?	—	—
Irkutsk		41·4	7	e 7 43	− 1	e 13 44	−13	21·5	27·2
Baku		49·7	314	—	—	15 50	− 7	26·0	34·7
Ekaterinburg		52·8	336	e 9 4	− 8	i 16 20	−19	25·0	31·2

Additional readings:—
Agra eN = +4m.44s.
Baku SS = +19m.39s.
Long waves were also recorded at Kotì, Vladivostok, Copenhagen, De Bilt, and Feldberg.

Feb. 13d. Repetitions from the epicentre 39°·5S. 176°·9E. of 13d. 1h. were recorded at:—

Hastings.

h.	m.	s.	h.	m.	s.	h.	m.	s.	h.	m.	s.
1	30	0?	1	55	0?	2	19	0?	11	47	0?
1	43	0?	2	2	0?	3	8	0?	16	26	0?
1	45	0?	2	5	0?	8	33	0?	21	50	0?
1	50	0?	2	18	0?	9	55	0?	23	3	0?
1	53	0?									

New Plymouth.

h.	m.	s.	h.	m.	s.	h.	m.	s.	h.	m.	s.
9	26	0?	11	56	0?	15	16	30?	20	58	30?
9	50	0?	13	43	0?	17	7	0?	22	8	0?
11	48	30?	14	40	0?						

Wellington.

h.	m.	s.	h.	m.	s.	h.	m.	s.	h.	m.	s.
†1	28	0	2	53	48	4	56	54	15	40	42
1	40	32	3	5	51	9	49	52	20	58	29
1	55	14	3	58	41	11	48	37			
2	5	44	4	50	10	13	42	54			

† Separately computed.

Feb. 13d. Readings also at 0h. (Kucino), 2h. (Ann Arbor), 5h. (Andijan and near Samarkand), 11h. (Almata, Andijan, Samarkand, Bombay, Calcutta, Phu-Lien, Hong Kong, and Medan), 12h. (Ekaterinburg and near Lick), 13h. (Tucson, Irkutsk, and near Samarkand), 14h. (Tyosi and Manila), 15h. (near Wellington), 19h. (Baku, Ekaterinburg, Tashkent, Haiwee, Pasadena, and near Sumoto), 20h. (Ksara), 22h. (Andijan), 23h. (Andijan, Bombay, and Tucson).

Feb. 14d. 13h. 58m. 52s. Epicentre 5°·3S. 102°·5E. (as on 12d.). R.2.

		△ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
Batavia		4·4	102	e 1 0	− 3	1 53	0	—	—
Malabar		5·4	111	1 21	+ 4	2 25	+ 7	—	—
Medan		9·7	337	2 20	+ 3	i 4 30	+24	—	—
Colombo		25·7	298	5 33	+ 7	9 43	−10	13·0	15·4
Phu-Lien		26·4	9	e 5 33	0	e 9 58	− 7	12·1	17·0
Manila		27·0	42	5 37	− 1	i 10 41	+26	i 14·4	—
Kodaikanal		29·4	302	6 8	+ 8	(11 44)	+49	11·7	13·0
Perth		29·4	156	e 6 13	+13	i 11 13	+18	e 13·5	—
Hong Kong		29·9	23	6 0	− 4	11 27	+24	14·6	19·1
Calcutta		31·0	334	6 1	−13	11 1	−19	15·1	18·4
Hyderabad		32·9	314	6 51	+20	12 7	+18	14·2	22·7
Taihoku		35·5	30	12 40	S	(12 40)	+11	—	—
Bombay		37·9	310	7 23	+ 9	13 8	+ 3	18·0	20·5
Agra	E.	40·2	325	e 7 1	−33	13 21	−18	e 19·9	21·9
	N.	40·2	325	e 6 46	−48	13 4	−35	e 18·8	—
Zi-ka-wei		40·7	25	7 32	− 6	14 14	+27	20·8	25·5
Dehra Dun		42·6	329	9 28	PP	16 18	?	26·5	29·1
Adelaide		44·6	137	e 8 21	+11	i 14 48	+ 4	19·9	23·4
Miyazaki		46·3	34	15 8	S	(15 8)	− 1	—	—
Chiufeng	E.	47·1	15	e 7 53	−46	—	—	—	—
Koti		48·7	36	8 37	− 4	e 15 50	+ 7	e 23·1	30·1
Melbourne		50·4	137	9 12	+18	16 20	+14	24·8	28·9
Riverview		53·3	129	9 14	− 2	i 16 52	+ 6	23·9	29·1
Sydney		53·3	129	e 16 8	S	(e 16 8)	−38	32·4	43·6
Almata		53·7	338	—	—	16 10	−42	e 25·1	—
Andijan		53·7	332	e 9 19	0	16 48	− 4	e 28·1	—
Tananarive		55·2	251	—	—	e 17 23	+11	e 25·9	31·1
Vladivostok		55·2	26	9 34	+ 4	17 23	+11	31·4	36·4
Samarkand		55·6	328	9 31	− 2	17 14	− 3	e 22·8	—
Tashkent		55·6	330	i 9 31	− 2	i 17 12	− 5	25·1	35·1
Irkutsk		57·6	1	e 9 40	− 7	e 17 32	−12	28·1	36·8
Baku		66·4	320	10 50	+ 2	i 19 33	− 4	32·1	39·9
Ekaterinburg		70·8	338	e 11 10	− 6	i 20 22	− 9	30·1	39·6
Wellington		73·2	132	—	—	21 0	+ 1	37·0	41·6
Arapuni		73·5	128	—	—	e 21 8?	+ 5	—	—
Ksara		73·9	309	e 11 36	+ 2	21 32	PS	36·0	42·1
Helwan		76·6	303	11 53	+ 4	21 53	+15	—	43·6
Yalta		78·6	319	e 11 58	− 2	e 22 13	+13	—	—
Simferopol		78·8	319	e 11 56	− 5	—	—	—	—
Sebastopol		79·1	319	e 12 4	+ 1	—	—	—	—
Pulkovo		85·8	332	e 12 34	− 3	i 23 20	+ 4	42·1	53·2
Helsingfors		88·5	331	—	—	i 23 43	+ 1	e 44·1	—
Budapest		89·5	318	12 54	− 1	23 39	+ 8	e 37·1	59·6
Königsberg		89·7	325	e 13 8	+12	i 24 12	+19	e 46·1	53·1
Vienna		91·4	320	e 12 58	− 6	—	—	—	67·1
Graz		91·8	318	e 13 21	+15	e 24 6	− 7	e 50·1	57·8
Upsala		92·0	331	—	—	24 0	−15	e 46·1	54·4
Potsdam		93·8	322	—	—	e 24 8?	[+14]	e 46·1	61·1
Lund		94·0	326	—	—	24 8?	[+13]	43·1	—
Cheb		94·1	320	—	—	e 23 56	[0]	e 50·1	61·6

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Copenhagen		94·4	326	—	—	24 8	[+10]	43·1	—
Florence		94·6	314	—	—	e 25 8	+30	54·1	59·1
Piacenza		95·7	315	—	—	e 24 8	[+ 4]	—	63·6
Stuttgart		96·2	319	—	—	e 24 18	[+11]	e 41·9	62·3
Feldberg		96·7	320	—	—	e 24 50	− 7	e 40·5	66·8
Strasbourg		97·1	319	(e 15 8?)	?	—	—	e 15·1	58·1
De Bilt		98·7	322	—	—	e 24 18	[− 1]	e 47·1	68·0
Paris		100·6	319	e 14 8?	+22	e 19 8?	PP	49·1	67·1
Kew		102·1	323	—	—	i 24 56	[+20]	54·1	68·1
Scoresby Sund		106·0	343	—	—	25 8?	[+13]	—	—
San Fernando		108·2	309	26 30	SKKS	(26 30)	{−24}	48·1	76·6
Haiwee	N.	131·7	44	e 19 26	[+16]	—	—	—	—
Pasadena	Z.	132·6	46	e 19 14	[+ 3]	—	—	—	—
Ottawa		139·9	358	—	—	e 40 8?	SS	e 63·1	—
Buffalo		142·3	2	i 19 30	[+ 5]	—	—	—	75·3
Harvard		142·5	352	—	—	e 42 8?	SS	112·1	—
Florissant		144·5	16	i 19 35	[+ 2]	—	—	e 69·6	79·6
Georgetown		146·4	0	19 37	[+ 1]	—	—	e 73·1	—
La Paz		156·4	203	e 19 53	[+ 4]	27 15	?	71·8	82·4

Additional readings :—
Batavia i = +1m.7s. and +1m.15s. =P*.
Manila SSZ = +12m.34s.
Zi-ka-wei iZ = +7m.50s.
Adelaide i = +18m.23s. =S_cS +13s.
Riverview iSE = +16m.4s.
Tananarive SSSN = +23m.8s. ?
Helsingfors eSKSEN = +23m.22s., ePSE = +24m.41s., eSSN = +29m.18s., eSSE = +29m.41s., eSSSE = +34m.5s., eN = +36m.25s.
Königsberg e?E = +14m.32s., eSKSEN = +23m.42s.
Vienna i ≐ +15m.0s.
Florence eS = +31m.8s. ?
Stuttgart ePPZ = +16m.58s., ePPSE = +26m.13s., eSSEN = +30m.58s.
Feldberg e = +31m.16s. =SS +1s. and +34m.36s.
De Bilt eN = +25m.2s. =S −13s.
San Fernando S = +35m.18s.
Pasadena eN = +19m.17s., eE = +19m.24s., eZ = +22m.38s., eN = +22m.44s. = PKS −1s., eE = +22m.48s.
Buffalo i = +22m.48s. =PP +13s. and +35m.26s.
Florissant ePPNZ = +22m.47s., ePSEN = +34m.6s., eSSN = +41m.24s., e = +48m.40s.
Georgetown ePSZ = +34m.26s. ; T_o =13h.58m.42s.
La Paz eN = +30m.55s. =SKKS −4s., and +34m.37s. =SKSP +16s., SSN = +44m.38s.
Long waves were also recorded at Johannesburg, Ivigtut, La Plata, San Juan, and the American and European stations.

Feb. 14d. Repetitions from the epicentre 39°·5S. 176°·9E. of 13d. 1h. were recorded at :—

Hastings.

h.	m.	s.
2	47	0?

New Plymouth.

h.	m.	s.	h.	m.	s.	h.	m.	s.	h.	m.	s.
2	3	0?	3	16	0?	11	40	0?	14	55	30?
2	20	40?	11	14	0?	13	35	0?			

Wellington.

h.	m.	s.	h.	m.	s.	h.	m.	s.	h.	m.	s.
0	34	41	2	20	38	14	55	30	21	37	26

Feb. 14d. Readings also at 1h. (Nagoya), 2h. (Lick and near Sumoto), 3h. (near Taihoku), 6h. (Baku, Ekaterinburg, Tashkent, Irkutsk, Phu-Lien, Hong Kong, and near Manila), 10h. (Vienna, near Andijan (2), and Samarkand (2)), 12h. (near Andijan), 14h. (Samarkand), 15h. (near Florissant and St. Louis), 16h. (Vienna and Samarkand), 19h. (Samarkand), 21h. (La Paz).

Feb. 15d. Repetitions from the epicentre 39°·5S. 176°·9E. of Feb. 13d. 1h. and 14d. were recorded at :—

Hastings.

h.	m.	s.	h.	m.	s.	h.	m.	s.	h.	m.	s.
4	44	0?	4	57	0?	10	10	0?	14	2	0?

New Plymouth.

h.	m.	s.	h.	m.	s.	h.	m.	s.
6	6	20?	9	5	0?	21	34	0?

Wellington.

h.	m.	s.	h.	m.	s.
6	6	21	6	18	34

Feb. 15d. Readings also at 0h. (near Manila), 2h. (Samarkand and near Granada), 5h. (Baku, Ekaterinburg, Irkutsk, and Tashkent), 8h. (Florissant), 9h. (near Lick), 10h. (Irkutsk and Tashkent), 12h. (near Manila and near Samarkand), 13h. (near Batavia), 16h. (Samarkand and near Andijan), 19h. (near Tyosi), 22h. (Tyosi and near Mizusawa), 23h. (Ekaterinburg and Irkutsk).

Feb. 16d. 18h. 48m. 42s. Epicentre 42°·3N. 142°·4E. (as on 1930 Dec. 13d.). R.1.
Probable error of epicentre ±0°·26.

A = −·586, B = +·451, C = +·673 ; D = +·610, E = +·792 ;
G = −·533, H = +·410, K = −·740.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Urakawa	0·3	118	0 0	− 4	0 6	− 2	—	—
Obihiro	0·8	44	0 9	− 2	0 15	− 6	—	—
Muroran	1·1	272	0 20	+ 4	0 37	S_g	—	—
Sapporo	1·2	312	0 23	+ 6	0 39	+ 8	—	—
Hakodate	1·4	248	0 19	− 1	0 47	S_g	—	—
Asahigawa	1·5	359	0 22	+ 1	0 45	+ 6	—	—
Aomori	1·9	219	0 30	+ 2	0 58	S*	—	—
Nemuro	2·5	66	0 36	0	1 7	+ 3	—	—
Miyako	2·7	187	0 35	− 4	1 3	− 6	—	—
Morioka	2·8	202	0 38	− 2	1 13	+ 1	—	—
Akita	3·1	214	0 49	+ 5	1 26	+ 6	—	—
Mizusawa	3·3	198	0 46	− 1	1 26	+ 1	—	—
Isinomaki	4·0	194	0 50	− 7	1 33	− 9	—	—
Sendai	4·2	198	0 58	− 2	1 49	+ 1	—	—
Ootomari	4·4	2	1 6	+ 3	2 4	+11	—	—
Yamagata	4·4	201	0 59	− 4	2 5	+12	—	—
Mito	6·1	195	1 23	− 4	2 33	− 3	—	—
Tukubasan	6·4	197	1 27	− 4	3 2	S*	—	—
Kakioka	6·4	196	1 25	− 6	2 37	− 6	—	—
Nagano	6·5	211	1 32	0	2 59	+13	—	—
Wazima	6·5	223	1 35	+ 3	2 49	+ 3	—	—
Tyosi	6·6	191	1 29	− 5	2 41	− 7	—	3·6
Oiwake	6·6	208	1 37	+ 3	3 5	S*	—	—
Kumagaya	6·6	202	1 35	+ 1	2 55	+ 7	—	—
Tokyo	6·9	199	1 20	−18	2 59	+ 3	—	—
Yokohama	7·2	198	1 39	− 3	2 58	− 6	—	—
Mera	7·7	196	1 44	− 5	3 40	S*	—	—
Vladivostok	7·8	280	1 53	+ 2	(i 3 33)	+14	i 3·6	4·6
Gihu	8·2	214	2 22	+26	4 5	S*	—	—
Nagoya	8·3	213	i 2 0	+ 2	3 44	+13	—	4·8
Hamamatu	8·4	208	2 4	+ 5	3 38	+ 4	—	—
Hikone	8·5	216	2 0	0	3 39	+ 3	—	—
Toyooka	9·0	224	i 2 10	+ 3	i 3 54	+ 5	e 5·2	6·4
Osaka	9·3	218	2 11	0	(4 11)	+15	4·2	5·4
Yagi	9·3	216	2 14	+ 3	4 17	+21	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Kobe		9·5	219	2 14	0	4 19	+18	—	5·7
Sakai		9·8	229	2 26	+ 8	—	—	—	—
Sumoto		9·9	219	2 23	+ 4	4 22	+11	—	7·7
Okayama		10·1	224	2 33	+11	4 49	S*	—	—
Siomisaki		10·3	213	2 23	− 2	5 5	S*	—	—
Hamada		11·0	231	2 39	+ 4	4 51	+13	—	—
Koti		11·2	222	e 2 36	− 1	4 57	+14	5·8	7·1
Matuyama		11·4	225	i 2 39	− 1	—	—	5·0	5·3
Ooita		12·4	226	3 2	+ 8	6 17	L	(6·3)	—
Hukuoka		12·8	231	3 4	+ 5	5 42	+20	—	—
Miyazaki		13·5	224	3 11	+ 2	5 55	+16	—	—
Nagasaki		13·8	230	3 15	+ 2	6 19	+33	—	—
Titizima		15·2	181	3 25	− 6	6 2	−18	—	—
Chiufeng		19·8	272	e 4 26	− 1	8 44	+42	10·5	—
Zi-ka-wei		20·1	243	4 24	− 7	8 26	+18	10·6	13·2
Taihoku	E.	24·4	232	5 29	+15	9 31	+ 1	e 12·3	13·7
Irkutsk		27·3	305	5 42	+ 1	10 23	+ 3	15·3	17·2
Hong Kong		30·9	239	6 13	0	11 17	− 1	14·6	17·3
Manila		33·3	222	6 36	+ 2	i 11 44	−11	i 15·6	18·4
Phu-Lien		36·9	245	e 7 8	+ 2	e 12 44	− 6	18·3	—
Almata		46·7	295	8 32	+ 6	15 22	+ 8	e 26·1	—
Calcutta		48·8	266	8 59	+17	16 2	+18	24·7	—
Andijan		50·9	295	8 57	− 1	16 16	+ 3	e 26·3	—
Ekaterinburg		51·6	318	i 9 3	0	i 16 28	+ 5	25·3	33·2
Tashkent		52·8	297	9 14	+ 2	i 16 38	− 1	e 28·4	31·0
Agra		53·8	278	e 8 40	−40	16 41	−12	e 29·4	—
Medan		54·9	239	e 9 51	+23	i 17 12	+ 4	30·1	—
Samarkand		55·1	296	9 29	− 1	17 8	− 3	e 29·3	—
Batavia		58·3	225	9 48	− 4	17 47	− 6	—	—
Hyderabad		59·2	269	10 1	+ 2	18 3	− 2	30·3	37·5
Victoria	E.	61·9	49	18 53	S	(18 53)	+12	30·2	33·2
Bombay		62·4	273	10 24	+ 3	19 2	+15	33·3	40·4
Kucino		63·1	323	10 48	+22	e 19 18	+22	e 31·8	36·7
Pulkovo		63·8	330	10 28	− 3	e 19 0	− 5	33·3	39·8
Kodaikanal		64·7	263	23 36	SS	—	—	—	—
Helsingfors		65·5	331	e 10 41	− 1	e 19 25	− 1	e 34·3	—
Baku		65·7	305	10 48	+ 5	e 19 50	PS	33·8	37·9
Upsala		68·3	334	e 10 58	− 2	—	—	e 37·3	44·6
Yalta		72·1	316	e 11 24	+ 1	e 21 5	PS	—	—
Sebastopol		72·4	316	e 11 28	+ 3	—	—	—	—
Haiwee	N.	72·7	56	e 11 24	− 3	—	—	—	—
Santa Barbara		72·7	59	e 11 24	− 3	—	—	—	—
Pasadena	Z.	73·9	59	e 11 21	−13	—	—	—	—
Potsdam		75·7	331	i 11 45	+ 1	—	—	e 38·3	44·3
Hamburg		75·8	334	i 11 46	+ 1	—	—	e 37·3	48·3
Riverview		76·6	173	—	—	e 21 42	+ 4	e 38·4	—
Budapest		77·2	325	21 21	S	(21 21)	−24	43·3	49·8
Adelaide		77·4	184	e 11 48	− 6	i 21 32	−15	37·3?	45·0
Göttingen		77·5	332	i 11 52	− 3	—	—	e 38·3	42·3
Jena		77·5	331	e 11 50	− 5	—	—	e 41·3	45·8
Vienna		77·7	327	e 11 49	− 7	21 46	− 5	e 42·3	52·3
Cheb		77·8	330	e 21 58	S	(e 21 58)	+ 6	e 43·3	45·3
Ksara	N.	78·5	307	12 0	0	21 57	− 2	—	—
De Bilt		78·6	335	—	—	e 22 6	+ 6	e 37·3	44·7
Feldberg		79·1	333	—	—	e 22 2	− 4	e 40·2	49·6
Uccle		79·9	335	e 12 7	0	—	—	e 38·3	—
Stuttgart		80·1	331	e 12 10	+ 2	—	—	e 42·3	—
Melbourne		80·2	179	—	—	e 32 54	?	—	—
Strasbourg		80·8	332	12 18	+ 6	—	—	e 42·3	—
Innsbruck		81·1	329	12 12	− 2	—	—	—	—

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Treviso	81·5	328	(12 16)	0	18 18	PPPP	48·3?	53·3
Florence	83·4	328	e 12 48	+23	19 18?	?	51·3	54·3
Rome	84·5	325	e 12 31	0	—	—	—	—
Trenta	84·9	322	e 12 18	−15	—	—	—	—
Florissant	85·8	39	i 12 34	− 3	e 22 56	[− 9]	e 40·3	45·3
St. Louis	86·0	40	e 12 34	− 4	e 22 57	[− 9]	40·8	44·3
Ottawa	86·0	25	—	—	e 23 2	[− 4]	e 38·3	—
Toronto	86·2	30	e 20 39	?	i 22 55	[−13]	48·0	—
Buffalo	87·0	30	i 12 42	− 1	e 22 2	?	e 46·3	—
Little Rock	88·1	43	e 12 42	− 6	e 23 27	[+ 6]	—	45·3
Wellington	88·6	157	e 12 51	0	e 26 18	?	43·0	46·3
Fordham	90·6	27	i 12 55	− 5	i 23 48	[+12]	e 42·3	—
Georgetown	91·2	30	i 13 2	− 1	23 36	[− 4]	e 44·3	—
San Fernando	96·2	336	22 30	?	35 18?	?	52·3	60·3
La Paz	143·3	55	e 19 31	[+ 3]	i 26 35	?	68·3	78·4

Additional readings and note :—
Toyooka i = +2m.23s., eSN = +3m.59s.
Kobe iE = +2m.22s., iEN = +2m.32s.
Sumoto SN = +4m.34s.
Zi-ka-wei iE = +4m.46s., PPZ = +4m.50s., iE = +5m.6s., iN = +5m.54s., SSZ = +8m.46s., SSSZ = +9m.4s.
Baku e = +20m.16s. = S_gS −17s.
Pasadena eN = +11m.27s.
Potsdam iZ = +11m.55s.
Adelaide e = +30m.36s.
Vienna iPZ = +11m.57s., PP = +15m.1s., i = +23m.3s.
Cheb eS? = +29m.36s. = SSS −16s.
Feldberg eN = +31m.34s.
Treviso P is given as PP, eP? = +10m.46s.
Florissant iZ = +12m.52s., eZ = +15m.55s. = PP +3s., eEN = +28m.38s. = SS −1s.
St. Louis iPSE = +23m.8s., iE = +29m.35s.
Buffalo i = +7m.18s.
Fordham eSKS? = +23m.27s.
Georgetown PSN = +25m.13s.
La Paz PPN = +22m.43s., PPE = +22m.55s., eN = +31m.46s., SSN = +42m.37s.
Long waves were also recorded at Chicago, Charlottesville, Ivigtut, Scoresby Sund, Colombo, and many European stations.

Feb. 16d. Repetitions from the epicentre 39°·5S. 176°·9E. of Feb. 13d. 1h. and 15d. were recorded at :—

Hastings

h.	m.	s.	h.	m.	s.
1	23	0?	5	9	0?
3	5	0?	21	27	0

New Plymouth

h.	m.	s.	h.	m.	s.	h.	m.	s.
11	49	0?	13	36	0?	18	40	0?

Feb. 16d. Readings were also recorded at 3h. (Samarkand and near Andijan), 7h. (near Wellington), 11h. (Takaka, Christchurch, and near Wellington), 12h. (Irkutsk, Nagoya, near Mizusawa, and Tyosi), 13h. (Baku), 16h. (near Lick), 17h. (Neuchatel, Granada, and near Algiers), 18h. (near Lick (2)), 21h. (near Wellington), 23h. (Ksara).

Feb. 17d. Repetitions from the epicentre 39°·5S. 176°·9E. of Feb. 13d. 1h. and 16d. were recorded at :—

Hastings

h.	m.	s.	h.	m.	s.	h.	m.	s.	h.	m.	s.
0	37	0?	5	55	0?	14	14	0?	17	42	0?

New Plymouth

h.	m.	s.
17	5	0?

Feb. 17d. Readings were also recorded at 0h. (Samarkand), 1h. (Christchurch, Wellington, and Suva), 2h. (Baku, Ekaterinburg, Irkutsk, Tashkent, Melbourne, Sydney, Simferopol, Yalta, Harvard, and La Paz), 3h. (Jena), 5h. and 6h. (near Mizusawa), 7h. (Tyosi), 10h. (Andijan and near Mizusawa), 11h. (near Manila), 15h. (Berkeley, Lick, and near Manila), 19h. (Tucson).

Feb. 18d. Repetitions from the epicentre 39°·5S. 176°·9E. of 13d. 1h. and 17d. were recorded at :—

Hastings

h.	m.	s.	h.	m.	s.	h.	m.	s.	h.	m.	s.
7	43	0?	21	43	0?	21	57	0?	22	37	0?
8	34	0?									

New Plymouth

h.	m.	s.	h.	m.	s.	h.	m.	s.
7	43	40?	14	54	0?	20	31	0?

Wellington

h.	m.	s.
7	43	46

Feb. 18d. Readings were also recorded at 0h. (Hong Kong), 1h. (Ekaterinburg, Tashkent, Manila, and near La Paz), 2h. (La Paz and near Malabar), 3h. (near Kobe), 13h. (Baku, Ekaterinburg, Irkutsk, Pulkovo, Tashkent, Strasbourg, Samarkand, near Almata (4), and Andijan (3)), 14h. (La Paz, near La Plata, Andijan, and near Almata), 17h. (Samarkand), 19h. (Bombay, Colombo, Medan, Batavia, Manila (2), Hong Kong, Baku, Irkutsk, Tashkent, Samarkand, Perth, Riverview, and Adelaide), 20h. (Ekaterinburg), 21h. (Kew).

Feb. 19d. 17h. 40m. 35s. Epicentre 5°·3S. 102°·5E. R.2.

(as on 14d.).

A = −·216, B = +·972, C = −·092 ; D = +·976, E = +·216 ;
G = +·020, H = −·090, K = −·996.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Batavia		4·4	102	i 0 53	−10	i 1 58	+ 5	—	—
Malabar		5·4	111	i 1 23	+ 6	i 2 22	+ 4	—	—
Medan		9·7	337	e 2 20	+ 3	i 5 1	S*	—	—
Amboina		25·6	87	e 5 36	+11	i 10 59	+68	15·4	—
Colombo		25·7	298	5 28	+ 2	9 39	−14	10·7	14·2
Phu-Lien		26·4	9	e 5 31	− 2	10 18	+13	13·4	20·6
Manila		27·0	42	i 5 37	− 1	i 10 2	−13	i 12·9	15·4
Kodaikanal		29·4	302	e 6 7	+ 7	(e 11 1)	+ 6	e 11·0	17·5
Perth		29·4	156	6 0	0	i 10 25	−30	e 12·4	14·4
Hong Kong		29·9	23	5 57	− 7	11 25?	+22	15·9	21·2
Calcutta		31·0	334	6 25	+11	13 40	?	23·8	26·3
Hyderabad		32·9	314	6 29	− 2	12 46	+57	15·2	21·8
Taihoku	E.	35·5	30	—	—	e 12 38	+ 9	e 19·6	—
Bombay		37·9	310	7 15	+ 1	13 7	+ 2	19·7	23·4
Agra	E.	40·2	325	4 59	−155	e 11 13	−146	18·1	—
	N.	40·2	325	4 53	−161	i 11 6	−153	17·9	—
Zi-ka-wei	Z.	40·7	25	i 7 35	− 3	14 49	+ 2	23·0	26·1
Dehra Dun		42·6	329	7 55	+ 2	14 15	0	23·9	26·4
Adelaide		44·6	137	e 7 30	−40	i 14 39	− 5	21·0?	23·2
Nagasaki		46·0	31	8 15	− 6	15 20	+16	—	—
Miyazaki		46·3	34	8 20	− 3	15 8	− 1	—	—
Chiufeng		47·1	15	e 8 23	−16	e 15 32	+12	—	—
Koti		48·7	36	8 35	− 6	15 43	0	—	—
Kobe		50·4	35	8 50	− 4	16 20	+14	e 29·8	39·1
Melbourne		50·4	137	8 58	+ 4	16 6	0	25·5	32·7
Osaka		50·6	35	9 3	+ 7	(16 11)	+ 2	16·2	18·0

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Riverview	53·3	129	e 9 15	− 1	i 17 13	+27	—	30·4
Sydney	53·3	129	e 7 55	?	e 16 7	−39	31·4	38·7
Andijan	53·7	332	e 9 19	0	i 16 48	− 4	e 29·4	—
Almata	53·7	338	—	—	16 50	− 2	29·4	—
Vladivostok	55·2	26	i 9 35	+ 5	17 25	+13	e 31·1	35·4
Tananarive	55·2	251	9 35	+ 5	17 16	+ 4	25·6	—
Samarkand	55·6	328	9 28	− 5	17 21	+ 4	29·4	—
Tashkent	55·6	330	9 19	−14	i 17 12	− 5	—	33·5
Mizusawa	56·9	36	(9 43)	+ 1	9 43	P	—	—
Irkutsk	57·6	1	i 9 44	− 3	17 40	− 4	29·4	37·8
Baku	66·4	320	10 50	+ 2	i 19 35	− 2	31·9	42·8
Ekaterinburg	70·8	338	i 11 11	− 5	i 20 21	−10	32·4	45·1
Wellington	73·2	132	—	—	e 20 35	−24	36·8	42·2
Arapuni	73·5	128	—	—	e 21 25?	+22	33·4	39·4
Johannesburg	73·7	245	—	—	20 55	−10	35·1	—
Ksara	73·9	309	e 11 30	− 4	e 21 4	− 3	35·4	41·4
Helwan	76·6	303	11 49	0	i 21 33	− 5	—	43·4
Theodosia	77·9	320	e 11 55	− 2	e 21 41	−12	44·4	—
Simferopol	78·8	319	11 57	− 4	—	—	—	—
Sebastopol	79·1	319	11 58	− 5	21 54	−12	—	—
Kucino	80·6	329	e 10 55	−76	20 31	?	34·7	46·1
Pulkovo	85·8	332	12 34	− 3	23 3	[− 2]	41·4	52·6
Helsingfors	88·5	331	—	—	e 23 27	[+ 4]	e 44·4	—
Budapest	89·5	318	13 2	+ 7	23 38	[+ 8]	36·4	—
Königsberg	89·7	325	—	—	e 23 46	− 7	e 49·4	—
Zagreb	91·4	315	e 13 2	− 2	e 23 54	[+13]	e 50·4	—
Vienna	91·4	320	e 13 0	− 4	23 57	−12	e 54·4	64·4
Graz	91·8	318	e 13 27	+21	e 23 44	[+ 1]	45·4	57·4
Upsala	92·0	331	—	—	e 23 43	[− 1]	e 46·4	54·0
Prague	92·8	320	—	—	e 36 55	?	e 45·4	61·4
Potsdam	93·8	322	e 19 25?	?	e 24 25?	− 6	e 44·4	59·4
Lund	94·0	326	—	—	24 43	+10	49·4	—
Cheb	94·1	320	e 14 25?	?	e 23 55	[− 1]	e 49·4	65·4
Copenhagen	94·4	326	—	—	24 25	−12	49·4	—
Florence	94·6	314	13 25?	+ 6	i 24 25?	−13	—	—
Piacenza	95·7	315	14 25	+61	24 9	[+ 5]	—	64·1
Göttingen	95·7	322	—	—	e 24 31	−17	e 45·4	61·0
Stuttgart	96·2	319	e 13 25	− 1	e 24 45	− 8	e 41·8	58·9
Feldberg	96·7	320	—	—	e 24 43	−14	e 54·8	60·9
Strasbourg	97·1	319	(e 13 25?)	− 5	—	—	e 13·4	—
De Bilt	98·7	322	e 13 27	−11	e 24 14	[− 5]	e 47·4	64·3
Uccle	99·3	320	e 17 41	PP	e 24 16	[− 6]	34·4	—
Paris	100·6	319	e 12 25?	?	—	—	40·4	64·4
Algiers	100·7	307	—	—	e 24 20	[− 9]	e 49·4	60·4
Kew	102·1	323	—	—	e 23 25	[−71]	47·4	—
Oxford	102·6	323	—	—	i 25 30	{+17}	—	63·9
Bidston	103·5	324	e 25 41	S	(e 25 41)	{+21}	e 51·4	—
Almeria	105·1	308	e 18 35	[+34]	e 25 9	[+19]	55·2	59·2
Scoresby Sund	106·0	343	—	—	27 25?	PS	43·4	—
Granada	106·0	308	i 18 44	PP	i 27 51	PP	55·3	60·4
Toledo	106·1	311	—	—	e 25 28	{−11}	—	67·7
Malaga	106·7	308	—	—	e 26 2	{+19}	—	—
Tucson	138·8	45	e 22 49	?	—	—	—	—
Ottawa	139·9	358	—	—	e 34 53	?	e 64·4	—
Toronto	141·6	3	e 16 53	?	i 23 10	PKS	69·7	—
Buffalo	142·3	2	i 22 37	PP	i 26 9	?	e 80·4	—
Harvard	142·5	352	—	—	e 58 25?	?	e 82·4	—
Fordham	144·3	354	i 19 28	[− 4]	—	—	e 66·4	—
Florissant	144·5	16	i 19 28	[− 5]	—	—	e 75·5	80·9
St. Louis	144·7	16	i 19 31	[− 2]	—	—	—	80·9
Georgetown	146·4	0	i 19 35	[− 1]	e 29 49	{−13}	e 80·4	—
Little Rock	147·5	23	e 19 48	[+10]	—	—	—	81·4
La Paz	156·4	203	e 19 59	[+10]	27 10	PPP	76·8	82·8

For Notes see next page.

NOTES TO FEB. 19d. 17h. 40m. 35s.

Additional readings and note :—
Batavia iP = +58s.
Malabar iP = +1m.39s. =P* +2, iS = +2m.39s.
Medan i = +2m.58s. =P* −6s.
Perth P = +6m.15s.
Zi-ka-wei iZ = +7m.45s., and +8m.1s., PPZ = +10m.9s., PPPZ = +10m.41s., SSZ = +19m.5s., SSSZ = +20m.17s., SSSSZ = +21m.13s.
Kobe SZ = +17m.15s.
Tananarive E = +13m.32s., EN = +17m.25s., N = +17m.35s., E = +17m.47s., and +17m.53s., SSSN = +23m.3s.
Mizusawa P = +8m.49s. ; these readings appear to belong to a local shock but may be connected with the above.
Wellington e = +27m.8s. and +30m.45s.
Helsingfors iN = +23m.53s., eSSE = +29m.21s., eSSN = +29m.29s.
Königsberg eEN = +24m.8s.
Zagreb e = +29m.55s. =SS −5s. and +36m.25s.?
Vienna PS = +24m.21s.
Potsdam eZ = +25m.25s.? =PS −11s.
Stuttgart ePSE = +26m.15s., eSSN = +30m.50s.
Feldberg eN = +31m.44s. =SS +29s. and +34m.25s. =SSS −32s.
De Bilt eZ = +17m.37s. =PP +4s., eN = +25m.0s. =S −15s.
Kew eEN = +25m.31s. =S −14s.
Bidston e = +33m.3s., +34m.50s., and +36m.45s.
Ottawa eN = +40m.42s. =SS +1s., eE = +41m.52s. and +56m.57s.
Buffalo i = +35m.17s.
Fordham iZ = +19m.36s. and +21m.45s.
Florissant iZ = +20m.58s. and +22m.32s. =PP −17s., eEN = +33m.5s. = PKS −14s., eN = +41m.25s. =SS −11s.
Georgetown iPPNZ = +23m.3s.
Little Rock eEN = +21m.4s.
La Paz ePKPZ = +20m.7s., PPE? = +23m.34s., SKSN = +27m.14s., SKSPE = +33m.30s., eE = +44m.34s., iE = +52m.45s.
Long waves were also recorded at Dakar, Ivigtut, La Plata, and American and European stations.

Feb. 19d. 18h. 24m. 22s. Epicentre 5°·3S. 102°·5E. (as at 17h.). R.3.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Batavia		4·4	102	i 0 59	−4	2 11	S*	—	—
Malabar		5·4	111	0 25	−52	1 13	−65	—	—
Medan		9·7	337	i 3 27	+70	—	—	i 5·1	—
Amboina		25·6	87	i 5 59	PP	—	—	—	—
Manila		27·0	42	i 5 32	−6	i 10 1	−14	—	—
Palau		34·3	69	7 4	+21	—	—	—	—
Koti	Z.	48·7	36	8 41	0	—	—	—	—
Osaka		50·6	35	8 55	−1	—	—	16·4	17·6
Andijan		53·7	332	e 9 19	0	e 16 50	−2	—	—
Almata		53·7	338	e 9 25	+6	e 17 32	+40	—	—
Vladivostok		55·2	26	i 9 38	+8	—	—	11·2	—
Samarkand		55·6	328	9 31	−2	—	—	—	—
Hukusima		55·6	35	9 32	−1	—	—	—	—
Irkutsk		57·6	1	9 47	0	e 17 38	−6	29·6	—
Ekaterinburg		70·8	338	i 11 2	−14	20 28	−3	33·6	41·5
Florissant		144·5	16	i 19 32	[−1]	—	—	—	—
St. Louis	N.	144·7	16	e 19 34	[+1]	—	—	—	—
Georgetown	Z.	146·4	0	i 19 32	[−4]	i 23 2	PP	—	—
Little Rock	E.	147·5	23	e 19 49	[+11]	—	—	—	—
La Paz	Z.	156·4	203	e 19 41	[−8]	—	—	—	—

Additional readings :—
Manila iEN = +5m.45s.
Florissant iZ = +22m.35s., eE = +31m.41s.
Long waves were also recorded at Tucson and Granada.

Feb. 19d. 21h. 32m. 28s. Epicentre 5°·7S. 151°·8E. (as on 1930 Oct. 22d.). X.

$A = -\cdot 877$, $B = +\cdot 470$, $C = -\cdot 099$; $D = +\cdot 473$, $E = +\cdot 881$; $G = +\cdot 088$, $H = -\cdot 047$, $K = -\cdot 995$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Amboina		23·6	274	i 4 47	−19	i 8 30	−46	—	—
Riverview		28·2	181	—	—	e 10 2	−33	e 15·6	17·4
Sydney		28·2	181	e 8 18	?	—	—	16·0	16·5
Adelaide		31·7	200	i 4 42	?	i 11 13	−18	16·0?	18·5
Manila		36·7	305	7 7	+ 3	i 12 43	− 4	i 17·4	—
Perth		42·6	228	14 12	S	(14 12)	− 3	—	—
Osaka		43·2	341	7 51	− 7	(14 11)	−13	14·2	15·2
Nagano		44·4	344	8 12	+ 4	—	—	—	—
Hong Kong		46·3	309	i 10 55	PP	15 12	+ 3	—	—
Zi-ka-wei	z.	46·9	324	e 8 24	− 4	—	—	22·3	23·8
Vladivostok		52·0	341	9 17	+11	(16 38)	+10	16·6	—
Irkutsk		70·6	332	e 11 12	− 2	20 15	−13	34·5	38·4
Tashkent		88·2	314	—	—	e 34 38	?	e 40·5	47·5
Ekaterinburg		95·4	327	—	—	e 25 18	+32	39·5	—
Baku		102·7	311	—	—	e 27 24	PS	48·5	61·2
La Paz	z.	134·7	121	e 22 40	PP	—	—	—	—

Additional readings :—
Vladivostok e = +11m.15s.
Ekaterinburg e = +30m.57s. =SS +0s.
Baku e = +36m.35s. and +40m.32s.
Long waves are also recorded at Kucino and European stations.

Feb. 19d. Repetitions from the epicentre 39°·5S. 176°·9E. of Feb. 13d. 1h. and 18d. were recorded at :—

Hastings

h.	m.	s.	h.	m.	s.	h.	m.	s.	h.	m.	s.
2	13	0?	2	24	0?	8	44	0?	16	14	0?

New Plymouth

h.	m.	s.	h.	m.	s.	h.	m.	s.
2	13	0?	7	15	0?	9	19	0?
6	40	0?	8	44	0?	20	47	0?

Wellington

h.	m.	s.
6	39	54

Feb. 19d. Readings also at 2h. (near Manila), 4h. (near Santiago), 5h. and 6h. (Sumoto), 7h. (Mineo and Tyosi), 11h. (Melbourne and Riverview), 12h. (Ksara), 15h. (Baku, Ekaterinburg, Irkutsk, Tashkent, and Vladivostok), 16h. (Samarkand, near Almata, Andijan, and near Tyosi), 18h. (near Manila), 19h. (Apia), 20h. (Florissant).

Feb. 20d. 5h. 33m. 26s. Epicentre **44°·9N. 135°·8E.** **N.1.**

The following authors have discussed this earthquake :—
H. Honda in Geophy. Mag., Tokyo, Vol. 5, No. 1, p. 69.
F. J. Scrase in Phil. Trans. Roy. Soc. London, Vol. 231, p. 207.
K. Wadati and T. Isikawa in Geophys. Mag., Tokyo, Vol. 7, No. 3, p. 291.

$A = -\cdot 508$, $B = +\cdot 494$, $C = +\cdot 706$; $D = +\cdot 697$, $E = +\cdot 717$;
$G = -\cdot 506$, $H = +\cdot 492$, $K = -\cdot 708$.

A depth of focus 0°·045 has been assumed.

	Corr. for Focus	Δ	Az.	P.	O–C.	S.	O–C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Vladivostok	+0·8	3·3	238	i 1 0	+ 2	—	—	i 1·7	3·1
Sapporo	+0·5	4·4	114	1 16	+ 6	2 14	+ 9	—	—
Muroran	+0·4	4·6	124	1 14	+ 3	2 6	− 2	—	—
Asahigawa	+0·3	4·8	101	1 18	+ 5	2 27	+17	—	—
Ootomari	+0·2	5·1	68	1 28	+13	2 35	+20	—	—
Aomori	+0·2	5·4	137	1 26	+ 6	2 37	+14	—	—
Obihiro	+0·1	5·6	108	1 25	+ 4	2 28	+ 3	—	—
Urakawa	+0·1	5·7	117	1 29	+ 7	2 40	+12	—	—
Akita	0·0	6·1	147	1 32	+ 5	2 45	+ 9	—	—
Kusiro	0·0	6·5	104	1 35	+ 3	2 52	+ 6	—	—
Morioka	0·0	6·5	141	1 36	+ 4	2 49	+ 3	—	—
Mizusawa	−0·1	7·0	144	1 40	− 2	2 4	−52	—	—
Nemuro	−0·1	7·2	100	1 45	+ 4	2 59	− 2	—	—
Sendai	−0·2	7·6	149	1 48	+ 3	3 9	0	—	—
Wazima	−0·2	7·6	174	1 48	+ 3	3 3	− 6	—	—
Hukusima	−0·2	8·0	153	1 57	+ 6	3 23	+ 4	—	—
Husiki	−0·2	8·2	173	1 55	+ 2	3 26	+ 2	—	—
Nagano	−0·3	8·4	167	2 0	+ 5	3 30	+ 4	—	—
Oiwake	−0·3	8·8	165	2 1	+ 1	3 37	+ 1	—	—
Kumagaya	−0·4	9·2	162	2 5	0	3 34	−10	—	—
Mito	−0·4	9·2	156	2 3	− 2	3 22	−22	—	—
Tukubasan	−0·4	9·3	158	2 4	− 2	3 42	− 4	—	—
Kakioka	−0·4	9·3	158	2 4	− 2	3 40	− 6	—	—
Toyooka	−0·4	9·4	185	i 2 9	+ 2	i 3 48	− 1	—	3·9
Heizyo	−0·4	9·5	235	2 12	+ 3	3 53	+ 2	—	—
Kohu	−0·4	9·5	165	2 9	0	3 19	−32	—	—
Gihu	−0·4	9·5	176	2 9	0	3 50	− 1	—	—
Hikone	−0·4	9·6	182	2 10	0	3 48	− 6	—	—
Tokyo	−0·4	9·7	161	2 10	− 1	3 54	− 2	—	4·8
Nagoya	−0·5	9·8	175	i 2 12	+ 1	3 56	0	—	4·0
Kyoto	−0·5	9·9	181	2 14	+ 1	4 5	+ 6	—	—
Yokohama	−0·5	9·9	162	2 14	+ 1	4 1	+ 2	—	—
Tyosi	−0·5	10·0	155	2 11	− 3	3 53	− 8	—	4·0
Numadu	−0·5	10·1	166	2 15	− 1	4 3	0	—	—
Kobe	−0·5	10·2	183	2 19	+ 2	4 5	− 1	—	4·2
Osaka	−0·5	10·2	181	2 18	+ 1	(4 10)	+ 4	4·2	5·1
Hamada	−0·5	10·2	197	2 20	+ 3	4 13	+ 7	—	—
Mera	−0·6	10·5	162	2 18	− 1	4 10	− 1	—	—
Sumoto	−0·6	10·6	184	2 23	+ 2	4 11	− 2	—	4·3
Wakayama	−0·6	10·6	183	2 21	0	4 12	− 1	—	—
Matuyama	−0·6	11·3	193	i 2 30	− 1	4 32	+ 1	—	4·7
Simonoseki	−0·7	11·5	180	2 30	− 2	4 24	− 9	—	—
Koti	−0·7	11·5	190	i 2 33	+ 1	i 4 32	− 1	—	5·2
Hukuoka	−0·7	12·0	203	i 2 39	0	i 4 46	+ 1	—	4·9
Kumamoto	−0·8	12·7	200	2 49	+ 2	—	—	—	—
Nagasaki	−0·8	13·0	203	2 44	− 7	4 57	−11	—	—
Miyazaki	−0·8	13·4	196	2 55	− 1	5 14	− 3	—	—
Chiufeng	−1·1	15·2	258	i 4 17	+60	i 6 54	+61	7·6	8·1
Zi-ka-wei	−1·4	17·7	224	i 3 40	− 5	6 43	− 2	i 8·3	9·5
Titizima	−1·5	18·5	162	3 50	− 4	6 55	− 7	—	—

Continued on next page.

		Corr. for Focus	Δ	Az.	P.	O–C.	S.	O–C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Naha		−1·7	19·8	202	4 1	− 7	7 4	−23	—	—
Irkutsk		−2·0	21·9	301	4 25	− 4	8 6	+ 2	9·8	10·0
Taihoku	E.	−2·1	23·0	215	4 33	− 6	8 12	−12	e 9·3	10·2
Hong Kong		−2·6	28·7	225	5 21	− 9	9 40	−20	12·0	15·2
Manila		−3·1	32·8	208	i 6 1	− 1	i 10 53	− 6	i 14·3	—
Phu-Lien		−3·2	34·0	235	6 10	− 2	e 10 42	−35	13·6	20·6
Almata		−3·7	41·3	290	i 7 18	+ 6	i 13 5	+ 5	—	—
Calcutta		−3·9	44·5	257	7 37	0	13 37	− 8	—	—
Andijan		−4·0	45·5	288	7 48	+ 4	i 14 5	+ 6	e 22·4	—
Ekaterinburg		−4·1	46·4	314	i 7 55	+ 4	i 14 10	0	20·6	—
Dehra Dun		−4·2	47·0	274	7 54	− 1	(14 24)	+ 6	14·4	14·6
Tashkent		−4·2	47·4	291	8 2	+ 4	i 14 28	+ 4	—	28·2
Agra		−4·3	48·8	272	5 41	−148	12 14	−149	19·9	—
Amboina		−4·3	49·0	190	i 8 7	− 3	—	—	—	—
Samarkand		−4·4	49·7	291	i 8 19	+ 4	i 15 3	+ 8	21·1	—
Medan		−4·6	52·5	229	i 8 42	+ 7	i 15 39	+ 8	—	—
Sitka		−4·7	53·1	42	—	—	i 15 59	+21	—	—
Hyderabad		−4·8	54·8	262	8 54	+ 3	16 0	− 1	22·6	31·2
Batavia		−4·9	57·3	216	i 9 3	− 6	i 16 28	− 6	—	—
Bombay		−4·9	57·8	267	9 17	+ 4	16 45	+ 4	27·6	28·8
Malabar		−4·9	58·0	215	9 14	− 1	e 17 4	+21	—	—
Honolulu T.H.		−5·0	58·6	90	9 44	+26	i 17 7	+17	24·3	—
Pulkovo		−5·0	59·1	326	i 9 27	+ 5	—	—	27·6	33·1
Baku		−5·0	60·3	300	i 9 38	+ 7	i 17 28	+15	26·6	33·8
Kodaikanal		−5·0	60·6	254	e 16 58	S	(e 16 58)	−19	e 20·4	26·0
Helsingfors		−5·0	60·9	329	i 9 39	+ 4	e 17 21	0	27·0	—
Colombo		−5·0	61·4	250	9 38	− 1	17 26	− 2	25·2	25·5
Scoresby Sund		−5·1	63·5	353	i 10 10	+17	i 18 10	+15	—	—
Upsala		−5·1	63·8	331	i 9 57	+ 2	i 18 6	+ 7	—	43·9
Victoria		−5·2	64·0	46	11 24	(+15)	(18 12)	+12	18·2	18·4
Theodosia		−5·3	65·8	311	i 10 13	+ 5	i 18 36	+13	33·6	—
Königsberg		−5·3	66·3	327	i 10 15	+ 4	i 18 38	+ 9	e 29·2	—
Simferopol		−5·3	66·6	311	10 15	+ 1	18 44	+11	—	—
Yalta		−5·3	66·9	311	i 10 16	0	i 18 41	+ 4	—	—
Sebastopol		−5·3	67·1	311	i 10 21	+ 4	18 55	+16	—	—
Lemberg		−5·4	68·2	320	e 10 26	+ 2	19 10	+18	—	—
Lund		−5·4	68·4	330	i 10 29	+ 4	i 19 4	+ 9	—	—
Copenhagen		−5·4	68·7	330	i 10 31	+ 4	i 19 8	+ 9	—	—
Potsdam		−5·4	71·1	328	10 43	0	i 19 34	+ 5	34·6	—
Hamburg		−5·4	71·2	330	e 10 46	+ 2	i 19 36	+ 6	e 29·6	40·1
Berkeley		−5·4	71·4	55	e 10 48	+ 3	i 19 44	+12	—	—
Prague		−5·4	72·3	325	10 55	+ 4	i 19 50	+ 7	e 29·6	33·6
Budapest		−5·4	72·3	321	i 10 54	+ 3	i 19 52	+ 9	e 30·6	46·6
Jena		−5·4	72·8	328	e 10 51	− 3	i 19 51	+ 1	e 29·6	30·2
Göttingen		−5·4	72·9	330	i 10 56	+ 1	i 19 55	+ 4	e 30·2	—
Vienna		−5·4	72·9	324	i 10 56	+ 1	20 34	?	—	48·6
Ksara	E.	−5·4	73·0	302	10 57	+ 1	i 19 53	+ 1	31·2	—
	N.	−5·4	73·0	302	10 54	− 2	i 19 50	− 2	31·0	—
Cheb		−5·4	73·1	326	e 10 57	+ 1	e 19 58	+ 5	e 46·6	47·6
Edinburgh		−5·4	73·5	339	—	—	i 20 0	+ 2	i 30·7	—
Belgrade	E.	−5·4	73·6	319	e 11 0	+ 1	e 19 59	0	—	—
	N.	−5·4	73·6	319	e 10 58	− 1	e 20 15	+16	e 30·4	—
Ivigtut		−5·4	73·9	2	i 11 2	+ 1	i 20 8	+ 5	—	—
Durham		−5·5	74·0	337	11 3	+ 2	20 7	+ 4	—	—
Graz		−5·5	74·1	324	e 10 55	− 7	i 20 10	+ 6	e 31·6	39·5
De Bilt		−5·5	74·2	331	i 11 4	+ 1	i 20 11	+ 6	e 30·6	31·0
Feldberg		−5·5	74·5	330	i 11 6	+ 1	e 20 28	+19	—	—
Zagreb		−5·5	74·9	321	e 11 6	− 1	i 20 15	+ 1	—	39·6
Stonyhurst		−5·5	75·0	336	i 11 8	0	i 20 17	+ 2	30·6	—
Haiwee	N.	−5·5	75·1	53	e 11 11	+ 3	e 20 24	+ 8	—	—

Continued on next page.

		Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Laibach	E.	−5·5	75·4	324	e 10 49	−21	e 20 16	− 4	e 30·9	—
Santa Barbara	N.	−5·5	75·4	56	e 11 14	+ 4	e 20 35	+15	—	—
Stuttgart		−5·5	75·4	328	i 11 11	+ 1	i 20 22	+ 2	e 31·1	—
Karlsruhe		−5·5	75·5	328	9 34?	?	—	—	—	—
Uccle		−5·5	75·5	331	i 11 9	− 2	i 20 23	+ 2	—	—
Bidston		−5·5	75·6	337	i 11 2	− 9	i 20 9	−13	30·6	38·9
Innsbruck		−5·5	75·7	325	11 12	0	i 20 26	+ 2	30·8	—
Strasbourg		−5·5	76·1	328	11 12	− 2	i 20 30	+ 2	30·6	—
Kew		−5·5	76·5	335	i 11 16	− 1	i 20 35	+ 2	31·0	32·5
Oxford		−5·5	76·5	335	i 11 17	0	i 20 35	+ 2	e 28·5	—
Pasadena		−5·5	76·5	55	i 11 18	+ 1	i 20 36	+ 3	—	—
Treviso		−5·5	76·6	323	i 11 15	− 2	i 20 34	0	58·6	—
Venice		−5·5	76·7	323	13 34?	PP	—	—	—	—
Chur		−5·5	76·8	326	e 11 17	− 2	e 20 38	+ 1	—	—
Zurich		−5·5	76·8	326	e 11 16	− 3	e 20 36	− 1	—	—
Padova		−5·5	77·0	323	e 11 18	− 2	20 38	− 1	—	—
Neuchatel		−5·6	77·7	328	i 11 21	− 2	e 20 35	−11	—	—
Paris		−5·6	77·8	330	i 11 24	0	i 20 46	− 1	27·6	31·6
Besançon		−5·6	77·9	328	11 26	+ 1	i 20 49	+ 1	37·6	—
Pavia		−5·6	78·3	325	e 11 31	+ 4	—	—	—	—
Piacenza		−5·6	78·3	325	11 8	−19	i 20 50	− 3	—	50·4
Taranto		−5·6	78·4	317	i 11 26	− 2	i 20 52	− 2	—	—
Prato		−5·6	78·5	323	i 11 34	+ 6	21 0	+ 4	32·3	—
Florence		−5·6	78·6	323	i 11 14	−15	i 20 59	+ 2	34·6	—
Helwan		−5·6	78·6	301	i 11 27	− 2	i 20 50	− 7	—	—
Perth		−5·7	79·0	198	i 11 29	− 2	i 20 54	− 6	—	—
Denver		−5·7	79·4	43	e 12 59	+86	i 20 50	−15	—	—
Rome		−5·7	79·5	321	e 11 26	− 7	—	—	—	—
Naples	E.	−5·7	79·6	320	e 19 41	?	e 20 11	−56	—	—
Trenta		−5·7	79·8	318	e 11 14	−21	i 21 14	+ 4	—	—
Adelaide		−5·7	79·9	178	i 11 32	− 4	i 21 3	− 8	34·7	41·7
Riverview		−5·7	80·0	167	i 11 30	− 6	i 21 1	−11	—	—
Catania		−5·7	81·8	317	11 37	−10	21 19	−14	—	—
Tucson		−5·7	82·0	52	i 11 49	+ 1	i 21 36	+ 1	—	—
Melbourne		−5·7	83·1	173	e 11 47	− 7	21 37	−10	40·2?	—
Barcelona		−5·8	84·2	327	e 11 57	− 2	21 42	−16	—	40·7
Chicago		−5·8	85·1	30	e 12 16	+12	i 21 46	−22	—	—
Tortosa		−5·8	85·4	328	i 12 2	− 4	i 21 52	−19	35·6	—
Ottawa		−5·8	85·5	21	i 13 25	+79	i 22 4	− 8	e 36·6	—
Ann Arbor	N.	−5·8	86·0	28	—	—	e 21 58	−20	—	—
Toronto		−5·8	86·1	25	i 13 26	+77	i 21 56	−23	—	—
Florissant		−5·8	86·5	35	i 12 9	− 3	i 22 0	−23	—	—
St. Louis		−5·8	86·8	35	e 12 8	− 5	e 21 59	−27	e 36·8	—
Buffalo		−5·8	86·9	25	i 12 14	0	i 22 12	−15	e 35·6	—
Algiers		−5·9	87·9	324	e 12 12	− 6	22 3	−34	e 36·6	50·6
Alicante		−5·9	87·9	328	e 12 17	− 1	e 22 16	−21	e 35·5	—
Toledo		−5·9	87·9	330	12 12	− 6	i 22 5	−32	e 36·1	55·0
Little Rock	E.	−6·0	89·2	39	e 12 21	− 3	e 22 12	−37	—	—
Harvard		−6·0	89·5	20	i 13 36	+70	i 22 16	−36	34·6	—
Almeria		−6·0	89·9	328	i 12 21	− 7	i 22 18	−38	37·4	49·2
Granada		−6·0	90·1	329	i 12 24	− 5	—	—	36·8	48·3
Fordham		−6·0	90·2	22	i 12 26	− 3	i 22 21	−39	—	—
Malaga		−6·0	90·8	329	12 25	− 7	22 11	−55	31·6	—
Georgetown		−6·0	91·1	25	i 12 30	− 4	i 22 27	−42	—	—
Charlottesville		−6·0	91·5	26	e 13 34	+58	e 24 40	PS	—	—
San Fernando		−6·0	91·7	330	12 19	−18	22 19	−56	37·1	62·1
Wellington		−6·0	93·0	151	e 13 34	+51	23 1	−26	—	—
Columbia		−6·0	94·4	30	e 14 8	+78	e 23 27	−14	—	—
Tananarive		—	102·0	256	—	—	23 22	[−73]	42·1	—
Dakar		—	115·7	331	i 19 12	PP	i 24 24	[−72]	26·5	—
La Paz		—	145·2	42	i 18 56	[−48]	i 28 36	{−79}	71·7	—
La Plata		—	165·5	51	30 26	SKKS	(30 26)	{−82}	44·5?	—

For Notes see next page.

NOTES TO FEB. 20d. 5h. 33m. 26s.

Additional readings :—
Toyooka eSZ = +3m.52s.
Kobe SZ = +4m.8s.
Zi-ka-wei PPN = +3m.48s., PPPN = +3m.54s., PPPPN = +3m.56s., iN = +4m.31s., iZ = +4m.46s., iE = +5m.6s., and +5m.18s., iZ = +5m.26s. and +5m.36s., iE = +5m.54s. and +6m.8s., PSN = +6m.45s., SSN = +7m.7s., SSSN = +7m.14s., SSSSN = +7m.18s.
Taihoku iZ = +5m.38s. and +6m.18s.
Hong Kong ? = +6m.33s.
Manila PPN = +6m.49s., PPPN = +7m.4s.
Agra PN = +5m.43s., SN = +11m.15s.
Medan i = +16m.40s.
Sitka iS = +18m.5s. = S_cS − 60s., e = +20m.34s. ?
Honolulu T.H. iP = +11m.22s., e = +16m.7s., and +18m.40s. = S_cS − 62s.
Helsingfors eN = +10m.21s., i = +10m.57s., eEZ = +11m.43s., eZ = +13m.22s., iS = +17m.29s., eN = +18m.39s., iEN = +18m.48s., iS_cSE = +19m.43s., iS_cSN = +19m.51s., SSE = +21m.27s., eSSSN = +23m.24s., eN = +23m.57s., iE = +24m.31s.
Scoresby Sund +11m.18s. = PP − 36s., i = +19m.17s. = S_cS − 61s., eE = +21m.34s. = SS − 9s., e = +25m.40s.
Upsala i = +11m.18s., +19m.11s., and +20m.27s.
Königsberg iP_cS?N = +15m.28s., e?N = +18m.23s., iN = +18m.48s., iE = +19m.1s., iN = +19m.38s., and +19m.54s., iSKSN = +20m.13s., iN = +20m.38s., iE = +21m.48s., i = +28m.4s.
Lemberg eN = +10m.37s.
Lund (without phase) +11m.49s., eNE = +13m.6s., i = +19m.53s. = PS − 24s., eNW = +21m.22s.
Copenhagen PZ = +11m.50s., e = +12m.58s., i = +19m.55s., e = +21m.28s.
Potsdam iE = +12m.2s., iZ = +13m.27s. and +14m.34s., eZ = +15m.4s., +16m.16s., and +18m.58s., iN = +19m.56s., iZ = +19m.59s., iPSEN = +20m.5s., eSSZ = +23m.34s. ?, eZ = +24m.34s. ?, eSSSZ = +26m.52s., eE = iZ = +29m.28s.
Hamburg eN = +11m.47s., iZ = +12m.7s.
Berkeley eN = +11m.6s., eE = +11m.10s.
Jena eN = +12m.11s., iEZ = +12m.15s., eE = +13m.43s., eN = +15m.20s., iE = +20m.18s., iN = +20m.27s.
Göttingen iNZ = +10m.54s., iENZ = +12m.16s., eEN = +19m.40s., iPSEN = +20m.26s.
Vienna PKP = +13m.14s., PP = +16m.21s., SKP = +17m.12s., PPP = +19m.58s., SKKS = +22m.57s., PPP = +26m.33s., ePPS = +29m.32s., SSS = +41m.20s.
Cheb e? = +12m.6s., ePP = +13m.43s.
Edinburgh i = +20m.4s.
Belgrade ePPPN = +15m.15s., eE = +21m.52s.
Ivigtut (without phase) +12m.21s., e = +20m.41s., eN = +22m.35s.
Graz iP = +11m.0s., i? = +13m.43s., iPP = +13m.55s., iPS = +20m.39s., S_cS = +21m.19s., PSS = +25m.19s., SSS = +28m.26s.
De Bilt iZ = +12m.23s.
Feldberg e = +12m.22s., i = +14m.0s. and +15m.52s.
Zagreb iP_cPNE = +11m.50s., e = +12m.27s. and +13m.5s., iPP = +14m.3s., iPPPNW = +15m.25s., e = +16m.59s. and +19m.9s., i = +20m.25s., iPS = +20m.47s., iPPS = +20m.53s., eSKS = +21m.21s., eS_cS? = +21m.18s., eSKKS = +22m.59s., eSSSNE = +28m.28s., eNW = +30m.10s., eSKP = +30m.52s.
Laibach eE = +12m.1s.
Stuttgart i = +12m.28s. and +13m.10s., iPP = +14m.4s., i = +22m.44s.
Uccle i = +12m.30s., iPP = +13m.59s., iPSN = +20m.53s., iN = +22m.37s., iE = +22m.52s., i = +31m.3s.
Bidston PP = +13m.14s., PPP = +13m.34s., PPPP = +15m.9s., SS = +25m.26s., SSS = +27m.34s., SSSS = +28m.54s.
Strasbourg i = +12m.35s., iPP = +14m.19s., i = +15m.24s., PS = +20m.55s., SS = +26m.19s., SSS = +29m.4s.
Kew ipP = +12m.35s., eSP = +12m.35s., esP = +13m.18s., ePPNZ = +14m.21s., ePPPNZ = +17m.9s., iPS = +21m.15s., iSSE = +23m.1s., iSSN = +23m.5s.
Oxford e = +12m.33s.
Pasadena eE? = +11m.9s., eNE = +11m.21s., eZ = +12m.2s. and +12m.39s., iZ = +13m.39s., eZ = +15m.32s., eSZ = +25m.37s., eZ = +26m.56s.
Treviso PP = +14m.3s., PPP = +14m.20s., SS = +23m.19s.
Chur e = +12m.35s.
Paris i = +12m.44s.
Denver eE = +14m.20s. = PP + 10s., eN = +20m.47s. and +21m.44s., eE = +21m.50s. and +23m.6s.
Rome i = +11m.34s.
Adelaide i = +22m.39s.
Tucson e = +13m.46s., ePS = +23m.52s.

Continued on next page.

Melbourne PPP = +16m.46s., SS = +27m.4s.
Chicago e = +23m.46s. and +24m.22s., eSS = +30m.4s., and +33m.22s.
Ottawa eN = +16m.51s., iN = +21m.52s., eN = +23m.11s., i = +23m.50s. = PS −7s. and +24m.30s., eE = +28m.7s., eN = +29m.6s.
Ann Arbor iN = +24m.40s.
Toronto iE = +21m.48s., i = +23m.54s. and +24m.34s.
Florissant iZ = +13m.32s., +14m.6s., and +16m. 49s., iEN = +22m.18s., iN = +23m.21s. and +24m.1s., iEN = +28m.7s. and +29m.45s.
St. Louis iPEN = +12m.12s., eN = +13m.30s., ePPN = +15m.17s., iEN = +22m.17s., iN = +24m.10s., iEN = +27m.53s.
Buffalo i = +13m.34s., +19m.34s., and +24m.2s.
Algiers PP = +15m.46s.
Toledo i = +13m.37s. and +15m.49s.
Little Rock eN = +13m.40s., iEN = +22m.42s., eE = +25m.5s., iE = +25m.10s.
Harvard iPN = +13m.37s., eN = +16m.1s. and +17m.9s., iN = +18m.4s., i = +22m.45s., iE = +24m.32s., iN = +24m.35s., i = +25m.12s., e = +28m.34s. ?
Almeria i = +13m.45s., PP = +16m.2s., PPP = +17m.15s.
Granada PP = +17m.7s.
Fordham iPZ = +13m.48s., iPNZ = +14m.28s., iEN = +22m.50s. and +25m.15s.
Georgetown iNZ = +13m.51s., iN = +14m.45s. and +24m.5s.
Charlottesville ePP = +17m.34s.
Wellington PP = +16m.28s.
Columbia ePP = +17m.46s., i = +22m.45s., e = +24m.42s. and +25m.56s., eSS = +31m.34s.
Tananarive SEN = +24m.23s., PPSE = +25m.56s., PPSN = +26m.2s., E = +29m.26s., SS = +31m.40s., N = +36m.38s.
La Paz iZ = +20m.27s., +21m.0s., iN = +21m.10s., PPN = +22m.13s., PPZ = +22m.31s., PPE = +22m.34s., PPPN = +26m.58s., SSE = +40m.42s.

Feb. 20d. Repetitions from the epicentre 39°·5S. 176°·9E. of Feb. 13d. 1h. and 19d. were recorded at :—

Hastings.

h.	m.	s.	h.	m.	s.	h.	m.	s.
13	54	0?	17	58	0?	23	47	0?
17	14	0?	18	37	0?			

New Plymouth.

h.	m.	s.	h.	m.	s.
13	58	0?	15	6	30?

Wellington.

h.	m.	s.	h.	m.	s.	h.	m.	s.
5	32	13	13	57	57	17	14	10

Feb. 20d. Readings also at 1h. (Baku and Ekaterinburg), 5h. (near Belgrade, Neuchatel, Taranto, and Mostar), 9h. (La Paz and near Tyosi), 10h. (Dakar, Ottawa, Toronto, Cheb, Paris, Strasbourg, Stuttgart, De Bilt, Feldberg, Uccle, Copenhagen, Baku, Ekaterinburg, Tashkent, and Irkutsk), 14h. (Tyosi), 15h. (near Sumoto), 16h. (Sumoto), 22h. (Irkutsk and Manila), 23h. (Baku, Ekaterinburg, Prato, Perth, and near Tyosi).

Feb. 21d. Repetitions from the epicentre 39°·5S. 176°·9E. of 13d. 1h. and 20d. were recorded at :—

Hastings.

h.	m.	s.
0	22	0?

Wellington.

h.	m.	s.	h.	m.	s.
0	22	24	13	40	17

Feb. 21d. Readings also at 1h. (near Berkeley), 2h. (Samarkand), 8h. (near Berkeley and Lick), 12h. (Manila), 15h. (Apia), 17h. (La Paz), 18h. (near Matuyama), 20h. and 21h. (Samarkand), 22h. (Tucson, and near Balboa Heights).

Feb. 22d. 21h. 27m. 26s. Epicentre 8°·1S. 119°·6E. (as on 1922 May 9d.). R.2.

A = −·489, B = +·861, C = −·141; D = +·869, E = +·494; G = +·070, H = −·123, K = −·990.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Batavia	12·8	278	e 2 53	− 6	—	—	—	—
Manila	22·7	3	i 4 53	− 5	i 9 3	+ 4	i 11·4	—
Medan	23·9	299	e 5 22	+13	i 8 53	P_cP	—	—
Perth	24·1	188	3 54	−77	e 9 34	+ 9	e 11·8	—
Hong Kong	30·9	352	6 14	+ 1	11 14	− 4	—	17·9
Phu-Lien	31·6	338	—	—	(10 34?)	−55	10·6	—
Adelaide	32·0	149	—	—	e 13 23	PP	19·1	22·7
Melbourne	37·5	146	—	—	12 57	− 2	20·0	25·2
Riverview	38·9	138	—	—	e 12 59	−21	21·3	24·3
Colombo	42·4	290	8 40	+48	—	—	—	29·1
Hyderabad	48·0	304	8 39	+ 3	15 40	+ 7	25·9	32·0
Bombay	53·4	302	9 21	+ 4	16 47	0	27·4	—
Irkutsk	61·8	350	e 10 15	− 2	18 35	− 4	e 32·6	—
Tashkent	67·6	323	—	—	i 19 55	+ 3	e 36·6	50·6
Samarkand	68·1	320	e 11 1	+ 2	e 20 53	(+ 2)	—	—
Baku	80·2	314	e 13 41	?	e 22 18	0	e 37·1	—
Ekaterinburg	80·7	332	—	—	e 22 9	−14	41·1	—

Additional readings :—
Batavia i = +4m.28s. and +11m.9s.
Manila PPE = +5m.23s., iEN = +5m.48s., SSE = +10m.7s.
Medan i = +5m.57s.
Perth iPP = +5m.14s.
Adelaide e? = +21h.22m.12s.
Melbourne e = +6m.9s. ? and +6m.59s.
Bombay SN = +16m.52s.
Tashkent e = +18m.34s. ?
Ekaterinburg e = +27m.47s.

Feb. 22d. Repetitions from the epicentre 39°·5S. 176°·9E. of 13d. 1h. and 21d. were recorded at :—

Hastings.

h.	m.	s.	h.	m.	s.
5	2	0?	19	2	0?

Wellington.

h.	m.	s.
18	30	10

Feb. 22d. Readings also at 1h. (La Paz and near Samarkand), 2h. (near Sumoto), 4h. (near Kobe and Sumoto), 5h. (Simferopol and near Theodosia), 6h. (Simferopol, near Sebastopol, and Yalta), 7h. (Apia), 10h. (Batavia), 11h. (Andijan, Samarkand, and La Paz), 13h. (La Paz and Samarkand), 19h. (Yalta and near Sebastopol), 20h. (Vladivostok, Almata, Tashkent, near Andijan, and Samarkand).

Feb. 23d. 2h. 15m. 8s. Epicentre 49°·5N. 136°·0E. N.3.

A = −·467, B = +·451, C = +·760; D = +·695, E = +·719; G = −·547, H = +·528, K = −·649.

		Δ	Az.	P.	O−C.	S.	O−C.	L.
		°	°	m. s.	s.	m. s.	s.	m.
Mizusawa	E.	11·0	159	2 35	0	4 37	− 1	—
	N.	11·0	159	2 34	− 1	4 40	+ 2	—
Nagoya		14·3	177	e 3 21	+ 2	—	—	—
Irkutsk		20·0	290	4 57	+27	—	—	e 11·6
Manila		37·0	205	6 54	−12	12 1	−50	15·7
Almata		40·2	284	e 7 43	+ 9	—	—	—
Ekaterinburg		43·4	310	—	—	i 14 17	−10	e 20·9
Andijan		44·3	284	e 8 12	+ 5	—	—	—
Tashkent		46·0	287	e 8 22	+ 1	i 15 10	+ 6	—
Samarkand		48·4	287	8 41	+ 2	15 40	+ 2	—
Baku		58·3	297	—	—	i 17 42	−11	25·9
La Paz		141·7	40	e 20 53	[+89]	—	—	—

Additional readings :—
Ekaterinburg i = +16m.39s., e = +17m.34s. =SS +14s.
Tashkent i = +16m.58s.
Baku e = +21m.15s.
Long waves were also recorded at Vladivostok.

Feb. 23d. 5h. 25m. 8s. Epicentre 8°·1S. 119°·6E. (as on 22d.). X.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Batavia	12·8	278	3 10	+11	—	—	10·5	—
Manila	22·7	3	i 4 54	− 4	i 9 3	+ 4	i 11·4	13·6
Medan	23·9	299	5 22	+13	i 10 51	+90	—	—
Irkutsk	61·8	350	e 10 16	− 1	e 18 38	− 1	e 36·9	—
Almata	64·3	327	e 11 56	(+46)	—	—	—	—
Samarkand	68·1	320	e 10 55	− 4	—	—	—	—

Additional readings :—
Batavia i = +4m.27s. and 7m.25s.
Medan i = +6m.51s. and +10m.32s.
Long waves were also recorded at Tashkent, Baku, and Ekaterinburg.

Feb. 23d. Repetitions from the epicentre 39°·5S. 176°·9E. of 13d. 1h. and 22d. were recorded at :—

Hastings.

h.	m.	s.	h.	m.	s.	h.	m.	s.
4	10	0?	4	23	0?	12	21	0?

Wellington.

h.	m.	s.
1	10	28

Feb. 23d. Readings also at 1h. (near Berkeley), 2h. (Haiwee, Pasadena, Riverside, and Santa Barbara), 3h. (Apia and near Algiers), 4h. (Florissant and Riverview), 6h. (Apia), 10h. (Berkeley (2), Lick, Tyosi, and near Wellington), 11h. (near Mizusawa, Sumoto, Tyosi, and Tokyo), 18h. (Mizusawa).

Feb. 24d. 14h. 7m. 50s. Epicentre 42°·0N. 158°·0E. (as on 1929 July 25d.). X.

A = −·689, B = +·278, C = +·669; D = +·375, E = +·927; G = −·620, H = +·251, K = −·743.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Mizusawa	13·1	263	2 52	−11	4 40	−49	—	—
Vladivostok	19·2	282	4 1	−20	—	—	9·1	—
Koti	21·0	254	4 46	+ 6	—	—	10·8	13·0
Irkutsk	37·0	306	—	—	e 12 14	−37	18·2	20·6
Almata	57·1	302	e 10 1	+17	—	—	—	—
Ekaterinburg	59·5	322	e 10 0	− 1	18 10	+ 1	28·2	33·4
Andijan	61·3	302	e 10 14	0	—	—	—	—
Tashkent	63·0	304	e 10 29	+ 4	i 18 20	−35	e 29·2	36·5
Samarkand	65·4	304	10 41	0	—	—	—	—
Baku	75·1	312	e 11 39	− 2	21 15	− 6	35·7	45·5

Additional readings :—
Koti eZ = +5m.4s.
Tashkent i = +10m.51s.
Long waves were also recorded at Hong Kong, Kucino, Pulkovo, and European stations.

Feb. 24d. 17h. 28m. 24s. Epicentre 9°·5S. 119°·0E. (as on 1928 July 26d.) R.3.

A = −·478, B = +·863, C = −·165; D = +·875, E = +·485; G = +·080, H = −·144, K = −·986.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Batavia	12·5	284	2 36	−19	5 49	+34	—	—
Perth	22·6	187	i 5 6	+ 9	i 8 58	+ 1	—	—
Medan	24·1	302	5 37	+26	10 23	+58	i 14·8	—
Manila	24·2	5	i 5 17	+ 5	i 9 16	−11	i 11·5	—
Adelaide	31·1	148	—	—	i 11 16	− 5	15·8	20·3
Hong Kong	32·2	353	6 41	+17	11 42	+ 4	—	25·8
Phu-Lien	32·6	339	(5 36?)	−52	—	—	5·6	—
Melbourne	36·2	145	—	—	12 46	+ 7	19·3	23·5
Riverview	38·3	136	i 13 9	S	(i 13 9)	− 2	21·1	23·6
Sydney	38·3	136	e 13 6	S	(e 13 6)	− 5	22·6	24·6
Colombo	42·3	291	11 4	?	—	—	—	25·2
Calcutta	43·9	319	11 45	?	19 35	?	31·9	—
Bombay	53·6	304	e 7 19	−119	—	—	—	29·0
Irkutsk	63·1	351	10 26	0	18 51	− 5	33·6	42·2
Almata	64·6	328	e 11 15	(+ 5)	—	—	—	—
Andijan	66·1	324	e 10 46	0	e 19 31	− 3	—	—
Tashkent	68·3	323	e 11 16	+16	i 19 56	− 5	e 37·6	45·9
Samarkand	68·8	320	11 2	− 1	i 20 7	0	—	—
Baku	80·7	315	e 12 12	0	i 22 26	+ 3	38·1	51·5
Ekaterinburg	81·6	333	i 12 17	+ 1	e 22 25	− 8	28·6	50·3
Ksara	89·6	306	—	—	e 22 36?	?	—	—
Pulkovo	97·5	330	—	—	e 24 18	[+ 4]	52·6	62·7
Strasbourg	111·1	318	—	—	(e 32 36?)	?	e 32·6	—
De Bilt	112·0	322	—	—	e 29 6	PS	e 59·6	—
Paris	114·4	320	—	—	34 36?	SS	—	—

Additional readings :—
Batavia eP = +3m.5s.
Long waves were also recorded at a few other European stations.

Feb. 24d. Repetitions from the epicentre 39°·5S. 176°·9E. of 13d. 1h. and 23d. were recorded at :—

Hastings.

h.	m.	s.	h.	m.	s.
8	26	0?	23	43	0?

Arapuni.

h.	m.	s.	h.	m.	s.
8	27	0?	23	0	0?

Wellington.

h.	m.	s.	h.	m.	s.
8	26	50	23	43	29
11	31	8			

Christchurch.

h.	m.	s.
23	44	0

Feb. 24d. Readings also at 0h. (La Paz), 1h. (Apia and near La Paz), 6h. (near Balboa Heights), 7h. (Samarkand), 8h. (Andijan and Samarkand), 9h. (near La Paz), 10h. (Stuttgart), 11h. (near Lick), 13h. (Florence), 15h. (Neuchatel and Tyosi), 23h. (near Wellington (4)).

Feb. 25d. 20h. 30m. 12s. Epicentre 31°·8N. 131°·8E. (as on 1929 June 11d.). X.

A = −·566, B = +·634, C = +·527.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Nagasaki		1·9	300	0 27	− 1	0 59	S*	—	—
Hukuoka		2·1	327	0 32	+ 2	0 59	+ 5	—	1·1
Matuyama		2·2	21	i 0 27	− 4	i 0 59	+ 2	—	1·1
Koti	Z.	2·3	40	e 1 32	+59	—	—	—	2·2
Sumoto		3·7	44	e 0 45	− 8	e 2 4	S_g	—	2·3
Kobe	N.	4·0	43	1 3	+ 6	e 2 0	S*	—	2·3
Osaka		4·2	46	1 32	P_g	—	—	2·2	2·6
Toyooka		4·5	33	e 1 24	P*	i 2 8	S*	—	2·4

Additional readings :—
Koti iZ = +1m.41s. and +1m.45s.
Sumoto eSN = +1m.58s.
Kobe SE = +2m.5s.

Feb. 25d. Repetitions from the epicentre 39°·5S. 176°·9E. of 13d. 1h. and 24d. were recorded at :—

Hastings.

h.	m.	s.	h.	m.	s.
1	3	0?	8	30	0?

New Plymouth.

h.	m.	s.
19	30	0?

Wellington.

h.	m.	s.	h.	m.	s.
7	29	48	23	36	16

Takaka.

h.	m.	s.
23	44	0?

Feb. 25d. Readings also at 0h. (near Berkeley), 6h. (Andijan, Samarkand, and Simferopol), 7h. (La Plata and La Paz), 8h. (Port au Prince and Wellington), 9h. (Tyosi and La Plata), 11h. (La Paz and near Manila), 12h. (near La Paz (2)), 13h. (Samarkand), 17h. (Tucson), 18h. (Kew), 20h. (Apia and near Suva), 21h. (Adelaide and Riverview).

Feb. 26d. Repetitions from the epicentre 39°·5S. 176°·9E. of 13d. 1h. and 25d. were recorded at :—

Hastings.

h.	m.	s.	h.	m.	s.
9	21	0?	19	25	0?

New Plymouth.

h.	m.	s.
3	6	30?

Wellington.

h.	m.	s.	h.	m.	s.	h.	m.	s.	h.	m.	s.
3	19	20	9	21	35	15	5	17	19	25	52

Feb. 26d. Readings also at 1h. (near Berkeley), 3h. and 5h. (near Wellington), 7h. (San Juan and near Port au Prince), 8h. (near Batavia and near La Paz), 10h. (near Amboina), 12h. (near La Paz), 14h. (near Tyosi and near La Paz), 16h. (Mizusawa and near Tyosi), 17h. (Tucson), 18h. (Adelaide, Melbourne, Riverview, near Arapuni, New Plymouth, Wellington, Takaka, Christchurch, and near La Paz (2)), 19h. (Tyosi), 21h. (near Andijan, Samarkand, and near Malabar).

Feb. 27d. 9h. 37m. 43s. Epicentre 2°·3N. 127°·2E. (as on 1929 Jan. 30d.). R.1.

Probable error of epicentre ±0°·28.

A = −·604, B = +·796, C = +·040 ; D = +·797, E = +·605 ;
G = −·024, H = +·032, K = −·999.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Amboina		6·0	170	i 1 27	+ 2	i 2 41	+ 8	—	—
Manila		13·8	334	i 3 12	− 1	i 5 44	− 2	i 7·0	—
Batavia		22·0	246	4 31	−20	8 31	−15	12·5	—
Taihoku	E.	23·4	347	5 14	+ 9	9 18	+ 6	e 11·5	—
Hong Kong		23·7	329	4 55	−12	9 14	− 4	10·9	12·3
Phu-Lien		27·3	314	e 5 37	− 4	10 4	−16	11·3	—
Medan		28·5	273	5 59	+ 7	i 10 59	+19	—	—
Zi-ka-wei	N.	29·6	350	e 7 1	+60	11 57	+59	—	—
Miyazaki		29·9	7	6 6	+ 2	11 2	− 1	—	—
Nagasaki		30·5	5	6 12	+ 3	11 11	− 1	—	—
Hukuoka		31·4	6	e 6 21	+ 4	11 23	− 3	—	—
Koti		31·8	10	i 6 23	+ 2	11 32	0	14·0	18·0
Sumoto		32·8	13	6 31	+ 1	11 48	0	e 15·9	16·9
Kobe		33·2	13	6 36	+ 2	11 51	− 3	e 14·5	17·0
Osaka		33·3	12	6 35	+ 1	(12 7)	+12	12·1	13·6
Nagoya		34·1	15	e 6 42	+ 1	(12 10)	+ 2	12·2	—
Gihu		34·3	15	6 44	+ 1	12 10	− 1	—	—
Oiwake		35·7	15	6 54	− 1	12 28	− 4	—	—
Maebasi		35·8	16	7 1	+ 5	12 36	+ 3	—	—
Nagano		35·8	15	6 52	− 4	12 15	−18	—	—
Perth		35·9	197	i 6 57	0	i 12 27	− 8	14·6	—
Hukusima		37·5	19	7 11	0	12 57	− 2	—	—
Sendai		38·1	19	7 16	0	13 6	− 2	—	—
Adelaide		38·8	166	i 7 20	− 2	i 13 9	− 9	18·0	26·1
Akita		38·8	17	6 34	−48	12 32	−46	—	—
Mizusawa	E.	39·0	19	7 27	+ 3	13 23	+ 2	—	—
	N.	39·0	19	7 24	0	13 26	+ 5	—	—
Chiufeng	N.	39·1	347	e 7 27	+ 3	e 13 18	− 4	—	—
Vladivostok		41·0	6	7 40	0	i 13 52	+ 1	20·5	21·6
Riverview		42·6	150	i 7 51	− 2	i 14 13	− 2	24·0	28·2

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Sydney		42·6	150	e 7 29	−24	e 14 17	+ 2	e 27·1	28·9
Calcutta		42·7	303	5 8	?	(14 0)	−16	14·0	—
Melbourne		43·3	160	7 59	0	14 24	− 1	22·4	27·7
Colombo		47·4	278	8 23	− 9	15 8	−16	24·1	28·5
Kodaikanal		50·0	282	e 15 23	S	(e 15 23)	−38	e 25·4	30·5
Hyderabad		50·2	291	(9 3)	+10	(16 1)	− 3	(23·7)	(27·9)
Agra	E.	53·1	304	e 8 11	−64	15 35	−68	e 25·7	—
	N.	53·1	304	e 8 17	−58	15 34	−69	e 26·0	—
Irkutsk		53·5	345	9 17	− 1	16 43	− 6	24·3	30·8
Dehra Dun		54·3	308	9 37	+14	16 37	−22	24·8	26·3
Bombay		55·7	292	9 30	− 4	16 57	−22	27·8	30·5
Arapuni		60·2	137	—	—	23 17?	?	34·3	37·3
Almata		60·4	321	10 10	+ 3	18 17	− 4	32·3	—
Wellington		61·3	141	10 14	0	19 53	(− 8)	33·3	40·3
Andijan		62·4	316	—	—	20 31?	(+12)	32·3	—
Tashkent		64·8	316	i 11 33	+56	i 20 8	+51	e 31·3	43·3
Samarkand		65·9	315	10 40	− 5	19 24	− 7	—	—
Honolulu T.H.		75·2	69	e 10 7	−94	i 21 34	+12	e 32·3	—
Ekaterinburg		75·4	330	i 11 38	− 5	i 21 5	−20	36·3	45·2
Baku		78·9	312	12 3	+ 1	i 21 53	−11	—	—
Tananarive		81·0	251	12 6	− 7	22 8	−18	39·3	—
Kucino		87·7	326	e 12 46	0	23 20	[+ 2]	41·3	48·0
Theodosia		89·6	316	e 12 54	− 2	e 23 27	[− 3]	44·3	—
Ksara		89·8	305	12 57	+ 1	23 21	[−10]	40·3	—
Yalta		90·5	316	e 12 57	− 3	—	—	—	—
Simferopol		90·6	316	e 12 57	− 3	e 23 27	[− 9]	—	—
Pulkovo		91·5	330	13 7	+ 3	i 23 54	[+13]	41·3	56·3
Helwan		93·9	300	e 13 11	− 4	23 40	[−15]	—	53·1
Helsingfors		94·0	331	—	—	24 19	−14	e 44·3	—
Upsala		97·7	331	—	—	i 23 59	[−16]	e 45·3	58·9
Budapest		100·4	320	e 13 47	+ 2	24 19	[− 9]	e 52·3	65·3
Lund		101·3	330	—	—	24 24	[− 8]	52·3	—
Copenhagen		101·7	330	18 17	PP	24 27	[− 7]	46·3	—
Vienna		101·9	320	18 27	PP	24 25	[−10]	e 55·3	61·3
Potsdam		102·6	325	e 18 5	PP	i 24 27	[−11]	e 52·3	59·3
Zagreb		102·9	319	13 55	− 2	—	—	e 55·3	—
Bergen		103·0	335	—	—	e 24 30	[−10]	e 49·3	—
Cheb		103·8	322	—	—	e 24 36	[− 8]	e 52·3	62·3
Hamburg		103·8	327	e 18 23	PP	i 24 34	[−10]	e 52·3	57·3
Scoresby Sund		104·4	351	18 29	PP	24 39	[− 8]	52·3	—
Göttingen		104·6	325	—	—	e 24 35	[−13]	e 54·1	63·3
Feldberg		106·1	325	—	—	e 24 43	[−12]	e 50·3	63·5
Stuttgart		106·2	324	—	—	e 26 2	{+23}	e 57·3	—
Taranto		106·6	313	24 30	SKS	29 27	?	52·9	—
Florence		106·7	318	e 18 47	PP	27 47	PS	59·3	64·3
De Bilt		107·1	326	—	—	e 24 51	[− 9]	e 52·3	59·6
Strasbourg		107·2	323	e 14 17?	0	24 53	[− 7]	e 42·3	—
Haiwee	N.	108·4	50	e 18 59	PP	—	—	—	—
Pasadena	Z.	108·9	51	e 18 27	[+12]	—	—	—	58·6
Rome		109·7	316	—	—	e 24 37	[−35]	—	—
Paris		110·1	324	e 19 17?	PP	e 26 41	{+33}	46·3	65·3
Kew		110·3	329	—	—	e 25 1	[−14]	52·3	66·3
Bidston		110·7	331	e 20 57	?	—	—	e 49·6	64·3
Ivigtut		116·4	358	19 47	PP	—	—	64·3	—
Toledo		118·7	319	—	—	e 29 22	PS	—	70·3
Almeria		119·0	316	e 20 15	PP	30 32	PS	63·6	72·6
Granada		119·7	315	e 19 59	PP	—	—	64·9	71·0
Malaga		120·5	315	e 29 38	SKSP	—	—	—	—
San Fernando		121·9	314	19 52	PP	24 54	?	36·8	—
Chicago		125·8	31	—	—	e 46 5	?	64·0	—

Continued on next page,

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Florissant	126·3	36	e 19 4	[+ 4]	(e 29 17)	?	e 29·3	—
Little Rock	127·6	40	e 19 3	[+ 1]	e 25 13	[−59]	—	62·5
Ottawa	128·2	19	—	—	e 45 43	?	e 57·3	—
Toronto	128·2	24	e 15 14	?	i 22 48	?	62·8	—
Buffalo	129·1	25	e 21 29	PP	e 31 53	SKSP	e 65·8	—
Fordham	132·8	21	e 21 42	PP	e 39 13	SS	e 64·3	—
Georgetown	133·1	26	i 19 16	[+ 4]	—	—	e 54·3	—
Charlottesville	133·2	28	e 21 53	PP	—	—	—	—
San Juan	155·5	32	19 51	[+ 2]	—	—	e 62·7	—
La Paz	159·3	134	i 20 1	[+ 8]	—	—	78·3	111·5

Additional readings and note :—
Batavia P = +4m.41s.
Kobe PPN = +8m.14s.
Adelaide i = +15m.35s. and +17m.57s.
Riverview iS_eS = +17m.35s.
Calcutta SN = +9m.54s.
Melbourne e = +17m.32s.
Hyderabad readings have been *increased* by 6m.
Honolulu T.H. iPP = +16m.58s.
Tananarive E = +22m.11s. and +22m.30s.
Pulkovo SKS = +23m.28s.
Helsingfors SKSE = +23m.43s., eN = +24m.59s., ePSE = +25m.31s., eN = +27m.2s., eE = +27m.13s., eSSE = +31m.13s.
Upsala iSKKS = +24m.43s., SS = +31m.44s.
Vienna SSS = +28m.1s., i = +39m.6s.
Potsdam i = +25m.35s. =S −14s., eZ = +26m.59s. =PS −13s.
Zagreb ePS = +24m.33s. =SKS −7s., ePPS = +25m.34s.
Bergen e = +37m.17s.?
Feldberg e = +26m.5s., +27m.53s., +34m.47s., and +43m.49s.
Stuttgart ePPZ = +18m.37s., ePSZ = +27m.37s.
Strasbourg ePP = +18m.52s., SKKS = +26m.17s., ePS = +27m.48s., iPPS = +28m.44s.
Pasadena eZ = +19m.23s.
Paris i = +28m.19s. =PS −9s.
Kew e = +28m.18s. =PS −12s.
Granada i = +20m.49s.
Chicago e = +56m.41s. and +59m.35s.
Florissant eEZ = +20m.52s. =PP +0s., iZ = +22m.6s.
Ottawa eE? = +46m.26s., eE = +50m.47s., eN = +52m.23s.
Toronto i = +38m.41s. =SS +24s.
Buffalo e = +35m.45s.
Fordham i = +22m.33s. =PKS −12s., e = +44m.2s.
Georgetown iNZ = +21m.40s., iPP = +22m.42s., PS = +31m.55s.
La Paz iPPZ = +24m.16s.
Long waves were also recorded at La Plata, Tucson, Victoria, Alicante, and Stonyhurst.

Feb. 27d. Repetitions from the epicentre 39°·5S. 176°·9E. of 13d. 1h. and 26h. were recorded at :—

Hastings.

h.	m.	s.
12	23	0?

New Plymouth.

h.	m.	s.	h.	m.	s.
4	8	0?	17	19	0?

Wellington.

h.	m.	s.
7	36	12

Feb. 27d. Readings also at 0h. (near Andijan and Samarkand), 1h. (Adelaide, Melbourne, Riverview, Sydney, Hong Kong, Manila, Irkutsk, and Tashkent), 2h. (Baku, Ekaterinburg, and Feldberg), 7h. (Sydney), 10h. (Samarkand and Tyosi), 11h. (Batavia, Phu-Lien, Hong Kong, Manila, Ekaterinburg, Pulkovo, and Sydney), 12h. (De Bilt and Copenhagen), 13h. (Montecassino), 14h. (Wellington and near Granada), 16h. (Matuyama and near Tyosi), 18h. (Andijan and near Samarkand (2)), 19h. (near Manila), 23h. (Andijan and near Samarkand).

Feb. 28d. 22h. 25m. 51s. Epicentre 12°·0N. 93°·5E. (as on 1929 Aug. 1d.). X.

A = −·060, B = +·976, C = +·208; D = +·998, E = +·061; G = −·013, H = +·208, K = −·978.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Calcutta	11·6	336	2 58	+15	5 8	+15	6·2	7·2
Bombay	21·1	291	e 4 36	− 5	8 38	+10	11·2	13·2
Manila	26·8	82	i 4 53	−43	i 10 34	+22	i 15·5	—
Andijan	34·2	332	e 6 42	0	—	—	—	—
Almata	34·4	340	e 6 49	+ 5	—	—	—	—
Samarkand	36·2	325	6 59	− 1	—	—	—	—
Tashkent	36·2	330	—	—	e 12 39	0	e 19·2	22·6
Irkutsk	41·2	10	—	—	e 14 9?	+15	—	—
Ekaterinburg	51·4	338	i 9 3	+ 1	e 16 22	+ 2	27·2	—
Simferopol	60·0	316	e 10 3	− 1	—	—	—	—

Additional readings :—
Tashkent e = +13m.21s.
Irkutsk e = +17m.9s.?

Feb. 28d. Repetitions from the epicentre 39°·5S. 176°·9E. of 13d. 1h. and 27d. were recorded at :—

Hastings.

h.	m.	s.	h.	m.	s.	h.	m.	s.
1	32	0?	16	47	0?	18	31	0?

New Plymouth.

h.	m.	s.	h.	m.	s.
5	40	0?	10	10	0?

Wellington.

h.	m.	s.	h.	m.	s.
16	47	23	18	31	53

Feb. 28d. Readings also at 0h. (Ekaterinburg, Irkutsk, and Tashkent), 1h. (Tucson), 2h. (Bombay, Phu-Lien, Irkutsk, Vladivostok (2), Ekaterinburg, Tashkent, and Nagasaki), 3h. (Ekaterinburg, Tashkent, Sumoto, and near Port au Prince), 4h. (Andijan ,near Samarkand, and near Mizusawa), 6h. (near Apia), 7h. (Granada), 9h. (near Manila), 14h. (Montecassino), 17h. (near Lick), 20h. (Andijan and near Samarkand).

March 1d. 14h. 23m. 7s. Epicentre 46°·7N. 142°·0E. N.2:

A = −·540, B = +·422, C = +·728; D = +·616, E = +·788; G = −·573, H = +·448, K = −·686.

A *depth* of focus 0·050 has been assumed.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Ootomari	+1·9	0·5	95	0 42	+ 8	1 15	+13	—	—
Asahigawa	+1·0	3·0	175	0 57	0	1 20	−22	—	—
Sapporo	+0·7	3·7	188	1 4	+ 1	1 43	−10	—	—
Kusiro	+0·6	4·1	154	1 4	− 3	1 53	− 7	—	—
Muroran	+0·4	4·5	190	1 9	− 1	2 4	− 1	—	—
Urakawa	+0·4	4·6	173	1 13	+ 2	2 7	− 1	—	—
Hakodate	+0·3	5·0	197	1 10	− 5	2 14	− 1	—	—
Aomori	+0·1	6·0	189	1 25	− 2	2 31	− 5	—	—
Morioka	−0·1	7·0	185	1 36	− 2	2 51	− 5	—	—
Akita	−0·1	7·2	192	1 40	− 1	3 2	+ 1	—	—
Mizusawa	−0·2	7·6	185	1 43	− 2	3 4	− 5	—	—
Vladivostok	−0·3	8·0	247	i 1 56	+ 7	i 3 27	+11	—	—
Sendai	−0·4	8·5	186	1 54	− 1	3 23	− 3	—	—
Hukusima	−0·4	9·1	188	1 59	− 4	3 34	− 7	—	—
Wazima	−0·6	10·1	204	2 19	+ 5	4 5	+ 4	—	—

Continued on next page.

	Corr. for Focus	Δ	Az.	P.	O−C.	S	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Mito	−0·6	10·4	187	2 18	0	4 8	0	—	—
Nagano	−0·7	10·5	197	2 21	+ 3	4 14	+ 6	—	—
Tukubasan	−0·7	10·6	188	2 18	− 1	3 59	−12	—	—
Kakioka	−0·7	10·6	188	2 18	− 1	4 10	− 1	—	—
Oiwake	−0·7	10·7	195	2 21	0	4 14	+ 1	—	—
Tyosi	−0·8	11·0	185	e 2 25	+ 1	e 4 18	0	—	—
Tokyo	−0·8	11·1	189	2 18	− 7	4 10	−11	—	—
Misima	−0·8	11·8	192	2 34	− 1	4 39	+ 1	—	—
Gihu	−0·9	12·0	201	2 38	+ 2	4 25	−16	—	—
Nagoya	−0·9	12·2	200	e 2 40	+ 1	5 25	+40	—	—
Hikone	−0·9	12·3	203	2 42	+ 2	4 48	0	—	—
Osaka	−1·0	13·0	203	2 53	+ 5	(5 12)	+ 9	5·2	6·3
Kobe	−1·0	13·1	206	i 2 53	+ 3	5 11	+ 6	—	5·3
Sumoto	−1·1	13·5	206	2 55	+ 1	5 23	+10	—	5·6
Siomisaki	−1·2	14·1	202	3 3	+ 2	5 36	+11	—	—
Koti	−1·2	14·6	209	e 3 8	+ 1	e 5 42	+ 5	—	—
Kumamoto	−1·4	16·4	216	3 30	+ 2	6 0	−15	—	—
Nagasaki	−1·5	16·8	218	e 3 35	+ 3	e 6 36	+14	—	—
Miyazaki	−1·5	16·8	212	3 37	+ 5	6 34	+12	—	—
Irkutsk	−2·5	24·8	297	e 5 49	+55	8 56	+ 4	e 10·9	—
Ekaterinburg	−4·4	48·2	315	—	—	i 14 48	+15	i 20·6	—
Lick	−5·7	67·6	59	e 10 20	+ 2	—	—	—	—
Tinemaha E.	−5·9	69·8	56	e 10 31	0	—	—	—	—
Haiwee N.	−5·9	70·5	57	e 10 38	+ 2	—	—	—	—
Pasadena	−5·9	71·9	59	i 10 45	0	—	—	—	—
Florissant	−6·3	82·5	39	e 11 36	−11	—	—	—	—
St. Louis N.	−6·3	82·7	39	i 11 45	− 3	—	—	—	—
Little Rock N.	−6·4	85·0	43	e 11 57	− 3	—	—	—	—
La Paz	—	140·8	51	e 18 51	[−31]	—	—	—	—

Additional readings :—
Ekaterinburg i = +17m.24s. =SS −4s.
Lick eN = +10m.29s.
Florissant iEN = +11m.44s.

March 1d. Readings also at 2h. (near Sumoto), 10h. (Samarkand, near Almata, and Andijan), 11h. (near New Plymouth and Wellington), 12h. (Balboa Heights, near Hastings, and New Plymouth), 13h. (Nagoya, Tyosi, and near Wellington), 15h. (Apia), 16h. (near New Plymouth and Wellington), 18h. (Baku, Ekaterinburg, Irkutsk, Almata, Andijan, and near Samarkand), 19h. (near Wellington), 20h. (La Plata and near Lick), 21h. (La Paz and near Manila), 22h. (near Hastings and New Plymouth (2)), 23h. (Manila (2)).

March 2d. 2h. 18m. 36s. Epicentre 21°·5S. 172°·5E. N.1.

A = −·923, B = +·121, C = −·367 ; D = +·131, E = +·991 ;
G = +·363, H = −·048, K = −·931.

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

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Suva	0·0	6·4	60	i 2 27	+56	i 4 12	+89	—	6·4
Arapuni	−0·6	16·8	171	3 24?	−20	6 24?	−19	7·0?	7·4?
Apia	−0·6	16·8	66	—	—	5 40	−63	6·7	11·4
Wellington	−0·8	19·9	175	4 13	− 7	7 51	+ 3	9·1	10·1
Christchurch	−1·0	22·0	180	4 43	+ 3	8 43	+17	—	—
Riverview	−1·0	22·5	232	i 4 36	− 9	i 8 27	− 9	10·4	12·9
Sydney	−1·0	22·5	232	(i 4 54)	+ 9	(8 42)	+ 6	11·8	13·0
Melbourne	−1·3	28·8	229	e 5 36	− 7	10 12	−12	12·6	16·6
Adelaide	−1·5	32·6	238	i 6 11	− 4	i 11 4?	−17	i 13·1	17·6
Amboina	−2·0	46·6	285	8 3	− 7	—	—	—	—

Continued on next page.

		Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Perth		−2·1	51·1	245	i 8 44	0	15 34	−13	i 22·8	24·1
Honolulu T.H.		−2·1	51·7	35	e 8 44	− 4	i 16 24	+29	25·0	—
Manila		−2·4	62·2	300	i 10 0	− 3	—	—	—	—
Tyosi		−2·5	64·6	332	e 10 28	+ 9	e 18 51	+ 8	—	—
Batavia		−2·5	65·2	275	i 11 0	+37	i 19 30	+39	29·9	—
Nagoya		−2·5	66·0	329	e 10 33	+ 4	—	—	—	—
Gihu		−2·5	66·2	329	10 30	0	18 52	−12	—	—
Osaka		−2·5	66·3	327	10 18	−13	(19 11)	+ 6	19·2	20·5
Sumoto		−2·5	66·4	327	e 10 33	+ 2	—	—	—	—
Miyazaki		−2·5	66·4	321	10 31	0	18 51	−15	—	—
Kobe		−2·5	66·5	327	e 10 31	− 1	i 20 26	(−13)	—	33·1
Koti		−2·5	66·5	325	10 31	− 1	19 12	+ 5	—	—
Nagano		−2·5	66·6	330	10 36	+ 3	19 19	+10	—	—
Sendai		−2·5	66·8	332	10 35	+ 1	19 20	+ 9	—	—
Mizusawa		−2·5	67·4	334	10 43	+ 5	19 26	+ 7	31·1	—
Toyooka		−2·5	67·4	328	i 10 37	− 1	—	—	—	—
Nagasaki		−2·6	67·9	322	e 10 40	− 1	e 19 17	− 7	—	—
Taihoku		−2·6	68·0	311	10 38	− 3	19 30	+ 5	—	—
Akita		−2·6	68·3	333	10 41	− 2	19 30	+ 1	—	—
Hong Kong		−2·6	71·8	304	11 0	− 6	20 15	+ 4	—	—
Zi-ka-wei	N.	−2·6	72·0	316	e 11 4	− 3	—	—	—	41·2
Vladivostok		−2·6	74·8	330	i 11 27	+ 3	i 20 52	+ 5	31·3	—
Medan		−2·6	76·4	280	13 10	?	i 22 35	PS	40·8	—
Phu-Lien		−2·6	77·1	299	e 11 32	− 5	e 21 2	−12	33·4	—
Tientsin		−2·7	79·7	321	i 11 50	− 2	—	—	—	22·1
Chiufeng		−2·7	81·0	320	e 11 53	− 6	21 55	− 2	—	—
Santa Barbara		−2·7	85·3	49	e 12 35	+14	e 23 49	PS	—	—
Lick		−2·7	85·5	45	e 12 29	+ 7	—	—	—	—
Pasadena		−2·7	86·2	50	i 12 33	+ 7	23 8	+16	e 42·7	—
Haiwee	N.	−2·8	87·4	48	e 12 42	+11	e 24 18	PS	—	—
Sitka		−2·8	89·8	25	—	—	i 24 30	PS	i 38·4	—
Victoria	E.	—	90·3	36	12 55	− 4	23 19	[−15]	38·8	43·3
Tucson		—	90·8	55	e 13 29	+28	i 23 57	− 7	e 37·7	—
Calcutta	E.	—	93·0	293	13 5	− 6	(23 9)	[−41]	23·1	—
	N.	—	93·0	293	13 20	+ 9	(23 27)	[−23]	23·4	—
Irkutsk		—	94·5	325	e 13 1	−17	23 15	[−43]	43·4	—
Colombo		—	95·0	275	13 5	−15	23 33	[−28]	30·5	53·1
Kodaikanal		—	98·4	278	—	—	(e 23 48)	[−30]	e 23·8	59·4
Bombay		—	105·5	284	7 4	?	18 11	PP	41·9	55·5
La Plata		—	106·0	138	18 31	PP	24 32	[−23]	27·4	—
Little Rock		—	106·0	58	e 14 31	+20	e 24 36	[−19]	—	—
Almata		—	108·5	310	e 18 27	PP	—	—	—	—
Florissant		—	108·6	53	e 14 44	+20	i 24 48	[−19]	51·9	—
St. Louis	N.	—	108·7	53	e 19 14	PP	i 26 16	?	49·4	—
Chicago		—	111·2	50	—	—	e 26 54	?	53·4	—
Andijan		—	111·3	307	e 18 14	[− 8]	—	—	—	—
Tananarive		—	112·7	307	—	—	25 56	{−30}	—	61·9
Columbia		—	115·0	60		—	27 24	?	49·4	—
Samarkand		—	115·2	305	e 18 9	[−24]	—	—	—	—
Toronto		—	117·5	49	e 19 56	PP	i 27 40	?	62·6	—
Charlottesville		—	117·6	55	—	—	e 27 42	?	52·4	—
Georgetown		—	118·8	55	20 1	PP	25 18	[−28]	e 56·4	—
Ekaterinburg		—	119·7	324	e 15 3	−15	25 20	[−29]	51·4	55·5
Ottawa		—	120·2	48	—	—	e 26 32	{−45}	e 51·4	—
Fordham		—	121·1	52	i 20 42	PP	e 37 36	SS	—	55·4
La Paz		—	122·7	117	e 18 8	[−44]	i 29 8	PS	51·9	58·4
Harvard		—	123·5	50	e 20 33	PP	e 28 24	?	e 58·4	—
San Juan		—	125·1	80	e 21 12	PP	—	—	e 52·9	—
Baku		—	128·3	306	e 18 57	[− 7]	—	—	—	—
Scoresby Sund		—	130·3	6	21 16	PP	i 22 27	PKS	59·6	—
Ivigtut		—	131·4	25	—	—	39 24?	SS	—	—
Kucino		—	132·1	327	—	—	25 36	[−51]	59·4	66·8
Pulkovo		—	133·4	335	i 19 0	[−12]	31 30	PS	63·4	68·5
Helsingfors		—	135·1	338	e 19 5	[−10]	e 28 20	{−33}	e 57·4	—
Upsala		—	137·7	342	e 19 24	[+ 5]	31 59	SKSP	e 60·4	—

Continued on next page.

		Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Theodosia		—	137·9	315	e 19 4	[−15]	—	—	—	—
Yalta		—	138·8	315	19 13	[− 7]	—	—	—	—
Sebastopol		—	139·2	315	e 19 13	[− 7]	—	—	—	—
Ksara	E.	—	140·0	298	19 20	[− 1]	22 7	PP	32·1	—
Bergen		—	140·1	350	e 34 10	?	e 40 20	SS	—	—
Lund		—	142·5	341	20 24?	[+59]	—	—	65·4	—
Copenhagen		—	142·7	341	19 15	[−11]	e 32 26	SKSP	59·4	—
Helwan		—	144·2	292	i 19 17	[−15]	32 41	SKSP	—	—
Potsdam		—	145·3	338	i 19 22	[−13]	—	—	e 67·4	—
Hamburg		—	145·3	341	19 22	[−13]	e 41 24?	SS	e 61·4	70·4
Budapest		—	146·4	328	18 27	[−69]	—	—	e 71·4	79·4
Jena		—	147·0	338	e 19 24	[−13]	e 42 24	SS	e 66·4	—
Göttingen		—	147·1	340	i 19 26	[−11]	—	—	62·4	66·4
Vienna		—	147·2	331	e 19 21	[−16]	29 25	{−41}	e 68·4	80·4
Belgrade		—	147·3	322	e 19 17	[−21]	—	—	—	—
Cheb		—	147·4	336	e 19 14	[−24]	e 32 58	SKSP	e 63·4	65·4
Bidston		—	147·9	355	i 19 36	[− 3]	i 29 44	{−26}	e 70·4	—
De Bilt		—	147·9	344	i 19 28	[−11]	i 23 2	PP	e 69·4	74·4
Graz		—	148·4	330	19 27	[−12]	e 29 31	{−42}	e 53·4	76·7
Feldberg		—	148·7	341	i 19 33	[− 7]	i 33 20	SKSP	—	—
Zagreb		—	149·1	329	i 19 33	[− 7]	e 33 24?	SKSP	e 72·0	—
Uccle		—	149·3	346	e 19 28	[−13]	—	—	e 61·4	—
Oxford		—	149·3	353	i 19 41	[0]	—	—	—	—
Kew		—	149·5	350	e 19 30	[−11]	e 33 31	SKSP	65·4	77·4
Karlsruhe		—	149·7	338	19 36	[− 5]	—	—	—	—
Stuttgart		—	149·7	338	i 19 31	[−10]	e 33 29	SKSP	76·4	—
Innsbruck		—	150·1	334	i 19 32	[−10]	—	—	—	—
Strasbourg		—	150·3	339	e 19 30	[−12]	26 37	PPP	e 41·4	—
Treviso		—	151·0	331	i 19 31	[−12]	29 54	?	73·4	—
Zurich		—	151·1	337	e 19 33	[−10]	—	—	—	—
Chur		—	151·2	335	e 19 33	[−10]	—	—	—	—
Padova		—	151·3	331	e 19 49	[+ 6]	—	—	—	—
Paris		—	151·5	346	i 19 38	[− 6]	(34 24?)	SKSP	34·4	86·4
Neuchatel		—	151·9	339	e 19 31	[−13]	e 26 17	PPP	—	—
Besançon		—	152·1	340	e 19 47	[+ 3]	—	—	—	—
Camerino		—	152·4	326	19 53	[+ 8]	20 48	?	—	—
Piacenza		—	152·6	333	e 19 36	[− 9]	—	—	—	75·7
Florence		—	152·8	329	19 42	[− 3]	e 23 24?	PP	34·4	84·4
Prato		—	152·8	330	e 19 36	[−10]	—	—	—	—
Trenta		—	153·0	316	e 19 44	[− 2]	—	—	—	—
Rome		—	153·6	325	e 19 43	[− 4]	—	—	—	—
Toledo		—	161·4	352	e 19 46	[− 9]	i 34 37	SKSP	—	—
Alicante		—	162·2	342	e 23 3	PKS	—	—	—	—
Almeria		—	164·0	345	19 49	[− 9]	i 35 14	SKSP	81·4	83·6
Malaga		—	164·5	351	e 19 30	[−28]	e 24 38	PP	—	—
San Fernando		—	165·0	357	19 44	[−15]	29 4	?	38·9	—
Dakar		—	168·3	124	e 19 56	[− 6]	—	—	—	—

Additional readings and notes :—
Sydney gives P as S and S as L.
Melbourne iPP = +6m.19s., SS = +11m.17s.
Adelaide iPPP = +7m.13s.
Amboina i = +8m.9s., iN = +10m.2s.
Perth iP = +8m.55s., i = +11m.14s., and +11m.34s., S = +16m.24s., i = +18m.24s. and +20m.24s.
Honolulu T.H. e = +9m.54s., i = +17m.0s.
Batavia iP = +11m.6s.
Osaka S = +13m.30s., true S is given as L.
Kobe iPN = +10m.37s., iZ = +20m.23s. = S_cS − 16s.
Koti S?E = +19m.36s.
Toyooka iPZ = +10m.42s.
Hong Kong PP = +14m.30s., S = +20m.55s.
Lick eN = +12m.34s.
Pasadena iZ = +12m.36s. and +13m.5s., ePPZ = +16m.30s., e = +23m.15s., eN = +24m.0s., eE = +24m.8s., eZ = +24m.13s., +24m.55s., +26m.1s., and +28m.58s.

Continued on next page.

Sitka iSKS = +23m.32s., ePS = +25m.31s.
Victoria PN = +13m.2s.; T_0 = 2h.19m.4s.
Tucson iSKS = +23m.24s., eSS = +29m.54s.
Irkutsk PS = +24m.55s., SS = +30m.24s.?
Little Rock eEN = +18m.31s. and +22m.26s., eE = +25m.41s. = SKKS +3s. and +28m.4s. = PS +16s.
Florissant iZ = +18m.4s. and +19m.11s., iN = +26m.25s. and +27m.18s., iE = +29m.5s., iN = +34m.56s.
St. Louis iN = +27m.5s., iE = +29m.55s., iEN = +34m.50s.
Chicago ePP = +20m.54s., SKS = +25m.52s., PS = +29m.30s., PPS = +30m.37s., SS? = +34m.39s., SSS = +38m.42s.
Tananarive eN = +26m.40s.
Columbia PP = +19m.42s., iSKS = +25m.13s., SKKS = +26m.6s., PS = +29m.54s., SS = +35m.30s.
Toronto i = +36m.2s. = SS +3s.
Charlottesville eSKS = +26m.12s., SS = +36m.54s.
Georgetown PSEZ = +29m.57s.; T_0 = 2h.18m.18s.
Ekaterinburg iPKP = +18m.36s., iPP = +19m.32s., iSS = +35m.48s.
Ottawa eN = +29m.4s., eE = +30m.42s., e = +36m.40s. = SS +5s. and +37m.26s., eE = +38m.26s., e = +40m.38s.
Fordham e = +23m.10s. = PP −1s. and +32m.6s.
La Paz iPZ = +19m.0s., iZ = +19m.24s., iE = +23m.54s., iPSZ = +29m.32s., SSSE = +34m.54s.
Harvard eN = +29m.24s., eE = +31m.24s., eN = +37m.7s. = SS −11s., iN = +38m.9s., e = +41m.15s.
San Juan ePS = +31m.24s., eSS = +38m.36s.
Baku ePP = +20m.52s.
Scoresby Sund PPS = +33m.36s., SS = +38m.36s.
Kucino PP = +21m.0s., PS = +30m.54s., PPS = +33m.54s.
Pulkovo iPP = +21m.26s., PPS = +33m.22s., SS = +39m.6s.
Helsingfors ePKPE = +19m.8s., ePKS = +22m.22s., iEN = +22m.39s., eEN = +23m.2s. and +29m.9s., ePSE = +32m.18s., ePPSE = +33m.38s., eSSEN = +39m.27s., eSSSE = +45m.35s.
Upsala ePP = +21m.56s., iPKS = +22m.46s., SS = +39m.48s.
Lund PP = +22m.24s.
Copenhagen PP = +22m.25s., PKS = +23m.3s., PPP = +25m.36s., e = +34m.56s., SS = +41m.42s.
Helwan i = +22m.32s. = PP −15s.
Potsdam iZ = +19m.54s., iEN = +20m.36s., iN = +20m.42s., iZ = +21m.22s., +21m.43s., and +22m.42s., iE = +22m.51s., iZ = +25m.58s.
Jena iP = +19m.31s., iE = +19m.44s., iN = +19m.55s., iZ = +19m.58s.
Göttingen iZ = +20m.1s., +20m.38s., eN = +35m.30s.
Vienna iPZ = +19m.27s., iE = +20m.16s., PKP = +21m.38s., PKS = +25m.43s., PPP = +28m.16s., and +35m.34s.
Belgrade e = +19m.24s., +19m.54s., +20m.25s., and +21m.0s.
Bidston ePP = +23m.6s., SS = +34m.4s.
Graz i = +19m.46s.
Feldberg i = +19m.38s., e = +21m.29s., and +23m.7s. = PP −5s., i = +26m.25s. = PPP +1s., e = +41m.58s. = SS −27s.
Zagreb i = +20m.2s., e = +20m.55s., eNW = +44m.24s.?, eE = +54m.3s.
Uccle iZ = +20m.4s., iN = +23m.7s. = PP −9s., e = +35m.24s.?
Kew iZ = +19m.35s. and +19m.39s., PPNZ = +23m.9s., ePSSZ = +42m.25s., eE = +63m.2s.
Stuttgart iZ = +19m.34s., iZ = +19m.40s., i = +19m.46s., iZ = +20m.6s., iE = +22m.6s., ePPNZ = +23m.8s., ePPPNZ = +26m.30s., eSSN = +42m.24s.?
Strasbourg i = +20m.33s., PP = +23m.11s.
Paris e = +23m.24s. = PP −5s.
Florence i = +33m.40s. = SKSP −17s.
Toledo P = +20m.33s., i = +24m.18s. = PP −5s., and +26m.21s., e = +44m.27s. = SS −19s.
Almeria iPP = +24m.29s., i = +25m.28s.

March 2d. Readings also at 0h. (Ekaterinburg, Irkutsk, and Kucino), 1h. (Baku), 4h. (near New Plymouth, Takaka, and Wellington), 6h. (near Sumoto), 7h. (Batavia, Hong Kong, Manila, Medan, Irkutsk, Baku, Ekaterinburg, and near Amboina), 8h. (San Juan, near Port au Prince, and near Hastings), 9h. (near Hastings and Wellington), 10h. (near Manila), 13h. (Königsberg and near Andijan), 16h. (near Sumoto and near Tyosi), 17h. (Granada), 18h. (Granada, near La Paz, near New Plymouth, and Wellington), 20h. (Ekaterinburg, Irkutsk, Bombay, and near Hyderabad).

March 3d. 20h. 39m. 27s. Epicentre 37°·3N. 141°·7E. (as on 1931 Jan. 24d.). R.2.

$A = -\cdot624$, $B = +\cdot493$, $C = +\cdot606$; $D = +\cdot620$, $E = +\cdot785$; $G = -\cdot476$, $H = +\cdot376$, $K = -\cdot795$.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Onahama		0·7	240	0 2	− 8	0 10	− 8	—	—
Hukusima		1·1	294	0 13	− 3	0 25	− 3	—	—
Sendai		1·2	326	0 15	− 2	0 31	0	—	—
Mito		1·3	227	0 17	− 1	0 29	− 4	—	—
Yamagata		1·4	312	0 19	− 1	0 36	0	—	—
Kakioka		1·6	229	0 20	− 3	0 36	− 5	—	—
Utunomiya		1·6	243	0 20	− 3	0 35	− 6	—	—
Tyosi		1·7	204	e 0 3	−21	0 24	−20	—	0·6
Tukubasan		1·7	229	0 20	− 4	0 38	− 6	—	—
Mizusawa	E.	1·9	346	0 27	− 1	0 57	S*	—	—
Tokyo		2·3	224	0 31	− 2	0 54	− 5	—	1·2
Maebasi		2·3	247	0 32	− 1	0 56	− 3	—	—
Morioka		2·4	350	0 32	− 2	1 3	+ 1	—	—
Yokohama		2·5	222	0 37	+ 1	1 2	− 2	—	—
Oiwake		2·7	249	0 36	− 3	1 14	+ 5	—	—
Mera		2·8	212	0 40	0	1 34	S*	—	—
Misima		3·1	225	0 44	0	1 16	− 4	—	—
Numadu		3·2	242	0 44	− 2	1 19	− 3	—	—
Wazima		3·8	272	0 56	+ 2	1 43	+ 6	—	—
Hamamatu		4·1	232	1 5	+ 7	1 42	− 3	—	—
Nagoya		4·4	242	e 1 8	+ 5	1 58	+ 5	—	—
Gihu		4·4	245	1 4	+ 1	1 51	− 2	—	—
Hikone		4·9	246	1 11	+ 1	2 11	+ 6	—	—
Osaka		5·6	243	1 29	+ 9	(2 41)	S*	2·7	3·4
Sumoto		6·3	243	e 1 48	+18	e 2 59	+18	—	3·3

Tyosi gives also $P_g = +12$s.
Long waves were recorded at Baku and Ekaterinburg.

March 3d. Readings also at 3h. (near Mizusawa), 4h. (near Hastings), 5h. (near New Plymouth), 6h. (near Amboina), 7h. (La Paz), 10h. (Baku, Ekaterinburg, Pulkovo, Copenhagen, De Bilt, Rome, and Zagreb), 11h. (Budapest), 12h. (Ekaterinburg, Irkutsk, near Almeria, and Granada), 17h. (near New Plymouth), 19h. (Adelaide, Melbourne, Riverview, Perth, Hong Kong, Vladivostok, Irkutsk, Samarkand, Baku, Ekaterinburg, and Pulkovo), 20h. (Copenhagen, De Bilt, Uccle, Paris, Strasbourg, and near New Plymouth).

March 4d. 17h. 44m. 50s. Epicentre 34°·8N. 132°·9E. (as on 1931 Feb. 1d.). X.

$A = -\cdot559$, $B = +\cdot602$, $C = +\cdot571$; $D = +\cdot733$, $E = +\cdot681$; $G = -\cdot389$, $H = +\cdot418$, $K = -\cdot821$.

	△	Az.	P.	O−C.	S.	O−C.	M.
	°	°	m. s.	s.	m. s.	s.	m.
Matuyama	1·0	187	0 23	P_g	0 39	S_g	0·7
Koti	1·3	158	—	—	i 0 35	+ 2	0·6
Sumoto	1·7	105	—	—	e 0 43	− 1	0·8
Toyooka	1·8	65	—	—	i 0 45	− 1	0·8
Kobe	1·9	94	0 25	− 3	0 48	− 1	0·8
Hukuoka	2·4	239	e 0 33	− 1	1 5	+ 3	—

Additional readings:—
Sumoto e = +41s.
Toyooka iEN = +40s., iZ = +43s.

March 4d. Readings also at 0h. (near Almeria), 1h. (Algiers), 3h. (Paris), 4h. (Batavia), 5h. (Ekaterinburg, Irkutsk, Phu-Lien, Granada, and near Algiers), 6h. (Takaka and near Hastings), 8h. (Samarkand), 9h. (Rome and Zagreb), 16h. (near Kobe, Sumoto, and near La Paz), 17h. (Matuyama and near Balboa Heights), 18h. (near Koti, Matuyama, Hukuoka, Sumoto, and near Hastings), 19h. (La Paz, Koti, near Matuyama, and Kobe), 21h. (De Bilt and Paris), 22h. (La Paz), 23h. (near Manila),

March 5d. 17h. 55m. 8s. Epicentre 2°·8N. 96°·0E. (as on 1929 June 29d.). R.2.

A = −·104, B = +·993, C = +·049 ; D = +·995, E = +·105 ;
G = −·005, H = +·049, K = −·999.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Medan		2·8	74	(i 0 56)	P_g	(i 1 39)	S_g	—	—
Colombo		16·6	285	3 47	− 2	—	—	8·2	10·4
Kodaikanal		19·8	293	e 8 22	S	(e 8 22)	+20	e 10·9	12·5
Phu-Lien		20·7	29	e 4 39	+ 2	e 8 33	+13	—	14·2
Hyderabad		22·6	312	4 57	0	9 2	+ 5	12·2	18·1
Hong Kong		26·0	41	5 31	+ 2	10 32	+34	14·2	17·1
Manila		27·3	63	i 5 54	+13	i 10 19	− 1	i 13·0	19·4
Bombay		27·8	307	5 44	− 1	10 30	+ 2	14·1	22·8
Agra	N.	29·8	327	e 5 29	−34	—	—	—	—
Andijan		43·5	333	e 7 55	− 6	e 14 20	− 8	—	—
Almata		43·8	340	e 8 7	+ 4	14 39	+ 6	—	—
Samarkand		45·2	330	8 17	+ 3	14 49	− 5	—	—
Tashkent		45·3	332	i 8 13	− 2	i 14 51	− 4	e 22·2	27·5
Irkutsk		49·9	7	8 51	0	e 15 59	0	25·9	31·6
Vladivostok		51·3	34	e 13 3	?	e 24 4	?	33·0	38·6
Ekaterinburg		60·9	340	i 10 10	− 1	i 18 25	− 3	27·9	37·8
Kucino		70·2	330	—	—	20 17	− 7	34·8	38·8
Pulkovo		75·5	333	11 42	− 1	21 17	− 9	39·9	49·3
Copenhagen		84·0	326	—	—	22 52	− 6	43·9	—
De Bilt		88·3	323	—	—	e 23 34	[+12]	e 48·9	—
Granada		95·9	309	i 12 26	−59	—	—	56·5	63·5
La Paz		159·2	228	e 20 52	PKP_g	—	—	81·9	98·1

Additional readings and notes :—
Medan readings have been *diminished* by 5m.
Agra eE = +5m.34s.
Kucino e = +21m.58s., SSS = +28m.10s.
Long waves were also recorded at Batavia, Koti, Sydney, Perth, Scoresby Sund, and other European stations.

March 5d. Readings also at 0h. (Adelaide and Riverview), 1h. (Tyosi, near Mizusawa, and Nagasaki), 2h. (Ekaterinburg, Kucino, Suva, near Apia, and near New Plymouth), 3h. (Ekaterinburg, Kucino, Irkutsk, Granada, Honolulu T.H., and near La Paz), 4h. (Copenhagen, De Bilt, and Uccle), 6h. (Ekaterinburg and Irkutsk), 7h. (near Wellington), 10h. (La Paz, La Plata, and Samarkand), 17h. (Calcutta), 18h. (near Reykjavik), 19h. (near New Plymouth), 20h. (near Mizusawa and near New Plymouth), 22h. (Adelaide, Riverview, and near La Paz).

March 6d. 16h. 13m. 24s. (I) } Epicentre 35°·1N. 139°·0E. R.2.
16h. 53m. 37s. (II) } (as on 1930 Dec. 16d.). R.2.

A = −·617, B = +·537, C = +·575 ; D = +·656, E = +·755 ;
G = −·434, H = +·377, K = −·818.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
I	Misima	0·0	—	−0 2	− 2	0 0	0	—	—
II		0·0	—	−0 4	− 4	−0 2	− 2	—	—
I	Numadu	0·1	270	−0 3	− 4	−0 1	− 4	—	—
II		0·1	270	0 3	+ 2	0 6	+ 3	—	—
I	Kohu	0·6	327	0 0	− 9	0 10	− 5	—	—
II		0·6	327	0 5	− 4	0 15	0	—	—
I	Yokosuka	0·6	68	0 8	− 1	0 20	+ 5	—	—
II		0·6	68	0 10	+ 1	0 21	+ 6	—	—
I	Yokohama	0·6	58	0 12	+ 3	0 24	+ 9	—	—
II		0·6	58	0 10	+ 1	0 22	+ 7	—	—
I	Mera	0·8	105	0 12	+ 1	0 25	+ 4	—	—
II		0·8	105	·0 11	0	0 24	+ 3	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
I	Tokyo	0·8	47	0 16	+ 5	0 29	+ 8	—	1·6
II		0·8	47	0 13	+ 2	0 17	− 4	—	1·0
I	Kumagaya	1·1	18	0 17	+ 1	0 31	+ 3	—	—
II		1·1	18	0 15	− 1	0 30	+ 2	—	—
I	Hamamatu	1·1	250	0 13	− 3	0 27	− 1	—	—
II		1·1	250	0 12	− 4	0 26	− 2	—	—
I	Oiwake	1·3	343	0 15	− 3	0 37	+ 4	—	—
II		1·3	343	0 15	− 3	0 36	+ 3	—	—
I	Maebasi	1·3	2	0 15	− 3	0 35	+ 2	—	—
II		1·3	2	0 18	0	0 33	0	—	—
I	Kakioka	1·5	40	0 22	+ 1	0 44	+ 5	—	—
II		1·5	40	0 21	0	0 42	+ 3	—	—
I	Tukubasan	1·5	39	0 23	+ 2	0 42	+ 3	—	—
II		1·5	39	0 21	0	0 41	+ 2	—	—
I	Nagano	1·7	337	0 23	− 1	0 47	+ 3	—	—
II		1·7	337	0 23	− 1	0 47	+ 3	—	—
I	Nagoya	1·7	272	i 0 20	− 4	0 40	− 4	0·8	0·9
II		1·7	272	i 0 20	− 4	0 38	− 6	0·8	1·0
I	Tyosi	1·7	67	e 0 25	+ 1	e 0 51	+ 7	—	—
II		1·7	67	e 0 24	0	0 53	+ 9	—	0·9
II	Takayama	1·7	307	0 20	− 4	0 42	− 2	—	—
I	Gihu	1·8	279	0 25	− 1	0 47	+ 1	—	—
II		1·8	279	0 24	− 2	0 46	0	—	—
I	Mito	1·8	43	0 28	+ 2	0 57	+11	—	—
II		1·8	43	0 25	− 1	0 49	+ 3	—	—
I	Hatidyozima	2·1	161	0 32	+ 2	1 1	+ 7	—	—
II		2·1	161	0 30	0	0 59	+ 5	—	—
II	Takada	2·1	343	0 35	+ 5	1 0	+ 6	—	—
I	Hikone	2·2	274	0 31	0	1 2	+ 5	—	—
II		2·2	274	0 30	− 1	0 58	+ 1	—	—
I	Kyoto	2·6	268	0 36	− 1	1 16	+ 9	—	—
II		2·6	268	0 37	0	1 11	+ 4	—	—
I	Osaka	2·8	261	0 43	+ 3	—	—	1·4	1·8
II		2·8	261	0 38	− 2	(1 18)	+ 6	1·3	2·8
I	Hukusima	2·9	23	0 42	+ 1	1 22	+ 8	—	—
I	Siomisaki	3·1	238	0 44	0	1 29	+ 9	—	—
II		3·1	238	0 50	+ 6	1 34	+14	—	—
I	Kobe	3·2	263	0 44	− 2	1 23	+ 1	—	1·7
II		3·2	263	0 43	− 3	1 17	− 5	—	1·6
II	Wakayama	3·3	256	0 50	+ 3	1 34	+ 9	—	—
I	Sumoto	3·4	257	0 49	0	1 36	+ 9	—	1·8
II		3·4	257	0 50	+ 1	1 32	+ 5	—	1·7
I	Toyooka	3·4	280	i 0 49	0	i 1 38	+11	—	1·8
II	E.N.	3·4	280	e 0 49	0	i 1 33	+ 6	—	1·7
II	Z.	3·4	280	i 0 52	+ 3	i 1 42	+15	—	1·7
I	Sendai	3·5	24	0 49	− 1	1 48	S*	—	—
II		3·5	24	0 50	0	1 40	+10	—	—
I	Mizusawa	4·4	22	1 0	− 3	1 55	+ 2	—	—
II		4·4	22	1 3	0	1 51	− 2	—	—
I	Koti	4·7	253	1 19	+12	2 13	+13	—	2·6
II		4·7	253	e 1 15?	+ 8	2 5	+ 5	—	2·6
I	Akita	4·7	10	1 17	+10	2 16	+16	—	—
II		4·7	10	1 12	+ 5	2 21	S*	—	—
I	Morioka	4·9	20	1 12	+ 2	2 13	+ 8	—	—
II		4·9	20	1 10	0	2 11	+ 6	—	—
I	Matuyama	5·3	258	e 1 13	− 2	—	—	—	—
II		5·3	258	e 1 9	− 6	—	—	—	—
I	Hukuoka	7·2	260	e 2 1	+19	3 42	L	(3·7)	3·8
II		7·2	260	e 2 0	+18	3 42	L	(3·7)	3·9

Additional readings :—
Tyosi I P_g = +33s. ; II P_gEZ = +31s., P_gN = +35s.
Kobe I i = +52s., S_gE = +1m.29s. ; II i = +50s., S_gE = +1m.28s.
Sumoto I PZ = +47s. ; II SZ = +1m.39s.
Mizusawa I SN = +2m.13s., II SN = +1m.59s.
Koti I eE = +1m.57s., SEZ = +2m.19s.
Long waves for shocks I and II were recorded at Nagasaki, Vladivostok, Irkutsk, and Ekaterinburg.

March 6d. Readings also at 4h. (near Algiers), 9h. (La Paz), 12h. (Almata, Manila, near Mizusawa. Osaka, and Tyosi), 14h. (near La Paz), 17h. (Nagoya), 20h. (Mizusawa and Nagoya), 21h. (near Trenta).

March 7d. 0h. 16m. 52s. Epicentre 41°·0N. 22°·5E. N.1.

Probable error of epicentre ±0°·27.

A = +·697, B = +·289, C = +·656 ; D = +·383, E = −·924 ;
G = +·606, H = +·251, K = −·755.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Taranto		4·0	275	0 53	− 4	1 48	+ 6	—	2·8
Belgrade		4·1	340	e 0 50	− 8	1 45	0	—	2·1
Mostar		4·2	306	i 0 20	−40	i 1 16	−32	—	2·3
Trenta		5·0	252	1 8	− 3	2 58	S_g	—	—
Messina		6·0	245	1 25	0	2 41	+ 8	—	—
Naples	E.	6·2	271	e 1 32	+ 4	e 2 22	−16	4·1	6·1
Benevento		6·2	274	i 1 25	− 3	2 48	+10	3·6	4·7
Casamicciolo		6·5	271	1 23	− 9	2 12	−34	4·2	—
Monte Cassino		6·6	277	1 26	− 8	3 36	L	(3·6)	4·5
Catania		6·7	242	1 37	+ 2	3 13	S*	4·3	6·2
Zagreb		6·7	317	e 1 29	− 6	i 2 44	− 7	—	4·4
Collurania		6·8	290	1 33	− 4	—	—	—	—
Budapest		6·9	341	1 31	− 7	3 1	+ 5	4·1	5·1
Casamari		6·9	278	1 29	− 9	—	—	—	—
Mineo		7·1	241	1 0	−41	—	—	—	—
Camerino		7·2	290	i 2 25	P_g	3 38	S*	—	—
Rome		7·6	280	e 1 45	− 3	3 18	+ 4	4·1	5·7
Laibach		7·7	314	1 45	− 4	i 4 0	S*	—	4·7
Graz		7·9	323	i 1 41	−11	3 21	0	—	4·3
Vienna		8·4	331	e 1 52	− 7	3 37	+ 3	i 4·9	5·1
Venice		8·6	304	2 0	− 2	4 51	+12	—	—
Florence		8·8	292	e 2 1	− 4	—	—	—	—
Sebastopol		8·8	62	2 3	− 2	e 3 39	− 5	4·1	5·2
Padova		8·9	303	i 2 2	− 4	e 4 8	+22	—	—
Prato		8·9	293	e 2 8	+ 2	3 51	+ 5	—	4·1
Lemberg		8·9	6	e 1 42	−24	—	—	—	5·0
Treviso		9·0	305	i 1 57	−10	4 49	S*	—	5·0
Yalta		9·2	64	2 9	− 1	3 52	− 2	—	5·4
Simferopol		9·3	61	2 13	+ 2	e 4 0	+ 4	3·9	5·3
Innsbruck		10·1	313	e 2 8?	−14	3 36	−40	i 4·8	5·6
Piacenza		10·2	298	2 25	+ 1	[illegible] 39	+21	5·7	8·1
Theodosia		10·2	62	2 27	+ 3	4 23	+ 5	4·6	5·9
Prague		10·7	331	e 2 25	− 6	e 4 18	−13	e 5·1	7·1
Chur		11·0	306	e 2 30	− 5	i 5 30	L	(i 5·5)	—
Ravensburg		11·4	311	e 2 36	− 4	e 5 1	+13	i 5·9	—
Cheb		11·5	326	e 2 35	− 7	e 4 55	+ 5	e 5·4	6·4
Zurich		11·8	308	e 2 40	− 6	e 5 18	L	(e 5·3)	—
Stuttgart		12·2	314	i 2 46	− 5	i 5 8	0	i 6·0	6·9
Jena		12·4	326	e 2 47	− 7	i 5 17	+ 4	e 5·1	7·9
Neuchatel		12·7	303	i 2 52	− 6	e 5 12	− 8	—	—
Karlsruhe		12·8	313	3 50	+51	6 14	+52	7·1	7·3
Ksara	N.	12·8	120	3 6	+ 7	5 56	+34	6·7	—
Strasbourg		12·9	311	e 2 57	− 4	5 37	+12	7·5	7·6
Marseilles		12·9	286	e 4 8?	+67	—	—	7·1	—
Potsdam	E.	13·0	334	i 3 0	− 2	e 5 32	+ 5	e 6·4	8·0
	N.	13·0	334	i 2 57	− 5	e 5 26	− 1	e 6·4	8·3
Helwan		13·2	145	3 5	0	i 5 37	+ 5	—	14·2
Besançon		13·3	303	i 3 1	− 5	6 12	+38	7·1	—
Feldberg		13·4	318	e 2 44	−23	i 5 47	+10	—	7·5
Göttingen		13·6	325	i 3 3	− 7	e 5 41	0	e 6·0	7·5
Königsberg		13·9	355	i 3 9	− 5	e 5 58	+ 9	e 7·0	8·9

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Puy de Dôme		15·0	296	e 3 34	+ 6	—	—	11·8	—
Hamburg		15·1	331	i 3 24	− 6	e 6 18	+ 1	e 8·7	9·6
Algiers		15·7	261	3 36	− 2	6 39	+ 8	8·1	10·6
Uccle		15·9	314	i 3 38	− 2	i 6 44	+ 8	8·1	9·0
Lund		15·9	341	3 33	− 7	6 29	− 7	8·1	—
Copenhagen		16·1	339	3 38	− 5	6 38	− 3	—	—
Paris		16·1	306	e 3 40	− 3	e 6 49	+ 8	7·1	9·1
De Bilt		16·2	319	3 42	− 2	6 52	+ 9	e 7·9	9·2
Tortosa	N.	16·6	277	e 3 48	− 1	6 51	− 1	7·5	11·4
Kucino		17·9	29	4 2	− 3	7 10	−12	7·7	11·2
Alicante		17·9	269	e 4 6	+ 1	e 7 45	+23	e 9·5	12·4
Kew		18·8	312	i 4 15	− 1	i 7 44	+ 2	i 9·3	10·8
Upsala		19·1	353	4 12	− 8	7 39	− 9	e 8·9	12·0
Helsingfors		19·2	4	e 4 14	− 7	7 42	− 8	10·0	—
Pulkovo		19·4	12	i 4 16	− 7	i 7 50	− 4	i 9·5	11·3
Oxford		19·5	312	i 4 18	− 6	i 7 56	0	i 10·0	11·8
Almeria		19·7	266	i 4 25	− 1	i 8 14	+14	11·1	13·2
Toledo		20·2	276	i 4 29	− 3	i 8 15	+ 5	e 9·4	13·5
Granada		20·5	268	i 4 32	− 3	i 8 28	+12	i 11·3	11·5
Baku		20·7	83	e 4 39	+ 2	i 8 41	(− 1)	11·1	13·3
Durham		21·0	319	—	—	8 28	+ 2	—	13·0
Bidston		21·2	315	i 5 1	PP	i 8 36	+ 6	11·3	11·8
Malaga		21·3	267	4 44	+ 1	8 42	(− 2)	11·1	—
Bergen		22·1	337	4 13	−39	8 48	0	—	13·0
Edinburgh		22·4	320	—	—	i 8 58	+ 5	—	15·7
San Fernando		22·8	268	4 26	−33	8 38	−23	9·6	14·6
Ekaterinburg		29·1	44	e 5 54	− 3	i 10 42	− 8	14·1	18·6
Samarkand		33·6	77	6 40	+ 3	—	—	23·1	—
Scoresby Sund		37·0	338	8 29	PP	—	—	—	22·1
Andijan		37·2	73	e 7 18	+10	e 17 0	(−24)	—	—
Almata		39·7	68	e 9 8	PP	e 19 5	L (e 19·1)		—
Dakar		43·5	246	e 16 38	?	—	—	—	—
Bombay		48·1	101	8 32	− 5	15 35	+ 1	25·1	29·5
Irkutsk		54·2	48	e 9 23	0	e 16 59	+ 1	29·1	31·4
Calcutta		57·5	87	e 17 49	S	(e 17 49)	+ 6	30·9	—
Ottawa		67·0	313	—	—	e 24 24	SS	38·1	—
Victoria		85·6	340	23 6	SKS	(23 6)	[+ 3]	50·7	—

Additional readings :—
Belgrade i = +53s., iP_gE = +1m.6s., i = +1m.11s., +1m.35s., and +1m.53s.
Mostar i = +56s. and +1m.4s.
Zagreb iP = +1m.33s., iP* = +1m.42s., i = +1m.48s., iP_g = +1m.58s., i = +2m.13s., iE = +2m.20s., i = +2m.27s., +2m.40s., +3m.21s., and +3m.27s.
Laibach i = +2m.11s., iPPS = +2m.40s., i = +3m.14s.
Graz i = +1m.44s.
Vienna P* = +1m.57s. and +2m.9s., P_g = +2m.40s., PSS = +3m.42s., S* = +4m.17s.
Innsbruck PP = +2m.21s.
Chur i = +5m.57s.
Ravensburg eP = +2m.47s., iSSN = +5m.18s.
Stuttgart iP = +2m.57s., i = +3m.45s., iE = +4m.28s., iS = +5m.20s., iSS = +5m.36s., i = +6m.8s., iE = +6m.28s.
Jena eN = +2m.54s., eEZ = +3m.8s., iSE = +5m.3s., iE = +5m.25s.
Strasbourg PPP = +4m.6s., SSS = +7m.17s.
Potsdam iPPN = +3m.8s.?, iPPZ = +3m.12s., iNZ = +5m.30s., iSSN = +6m.8s?
Göttingen iZ = +3m.18s., eSE = +5m.53s.
Königsberg iZ = +3m.38s., eEN = +3m.54s., SSEN = +6m.14s., eZ = +6m.50s.
Puy de Dôme e = +8m.9s.
Lund eEN = +4m.31s., SNW = +6m.37s.
Copenhagen e = +6m.47s.
Helsingfors eN = +5m.29s., eSE = +7m.37s., eSSN = +8m.26s., eSSSN = +8m.51s.
Oxford SS = +9m.40s.
Toledo PP = +4m.52s., PPP = +5m.6s., PPPP = +5m.12s., SS = +8m.57s., SSS = +9m.8s.
Granada i = +4m.50s. PP +0s. and +6m.54s.
Bergen PP = +4m.48s.
Scoresby Sund SSN = +15m.37s., eE = +16m.8s.
Long waves were also recorded at Barcelona, Ivigtut, Colombo, and Hong Kong.

March 7d. 0h. 41m. 56s. Epicentre 11°·3N. 85°·7W. N.2.

A = +·074, B = −·978, C = +·196; D = −·997, E = −·075; G = +·015, H = −·195, K = −·981.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Balboa Heights		6·4	110	1 33	+ 2	2 57	+14	—	—
Port au Prince		14·8	59	i 3 36	+10	e 6 36	+26	e 9·9	11·5
San Juan		20·2	67	e 4 32	0	i 8 39	+29	e 10·9	—
Columbia		23·1	10	i 5 17	+15	i 9 27	+20	e 11·6	—
Little Rock		24·2	347	e 5 12	0	e 9 22	− 5	e 14·1	—
Charlottesville		27·5	12	5 46	+ 3	e 10 24	0	16·1	—
St. Louis		27·6	352	e 5 42	− 2	e 10 39	+14	—	—
Florissant		27·8	352	e 5 43	− 2	e 10 46	+18	—	20·6
Georgetown		28·7	14	5 57	+ 4	10 55	+12	e 15·1	—
Chicago		30·5	356	e 7 7	PP	(e 10 57)	−15	e 10·9	—
Tucson		31·2	316	6 16	0	e 11 44	+21	14·1	—
Fordham		31·3	18	i 6 13	− 4	i 11 35	+11	14·1	—
Ann Arbor	N.	31·6	2	—	—	e 11 10	−19	e 14·7	22·3
Buffalo		32·2	10	i 6 30	+ 6	i 12 39	+61	—	17·1
Toronto	E.	32·8	9	5 42	−48	e 11 9	−39	15·5	18·2
La Paz		32·8	148	e 6 31	+ 1	i 11 40	− 8	15·6	19·6
Harvard		33·6	20	e 5 14	−83	e 12 4	+ 4	16·1	—
Ottawa		35·1	13	e 7 14	+24	—	—	e 13·1	—
Pasadena		37·3	314	e 7 8	− 1	e 17 19	(− 7)	—	—
Haiwee	N.	38·3	316	e 7 18	0	—	—	—	—
Santa Barbara		38·7	312	e 7 25	+ 4	—	—	—	—
Lick		41·4	315	e 7 42	− 2	—	—	—	—
Berkeley		42·2	315	i 7 51	+ 1	i 14 13	+ 4	e 20·7	24·0
Serra do Pilar		72·9	50	14 9	PP	—	—	—	—
Bergen		80·7	30	24 59	?	—	—	e 42·1	—
Pulkovo		92·7	27	—	—	i 23 49	[+ 1]	46·1	51·0
Manila		143·0	314	i 19 16	[−11]	(40 34)	SS	40·6	—

Additional readings :—
Port au Prince PP = +3m.47s., PPP = +3m.59s., i = +4m.36s., +5m.22s., +6m.19s., and +7m.48s.
San Juan iP = +4m.40s.
Columbia SS = +9m.51s.
Little Rock iN = +5m.14s., iPP = +5m.46s., iN = +5m.53s., eSSE = +10m.28s.
Charlottesville eS = +11m.4s. = SS − 26s.
St. Louis iN = +6m.28s. = PP + 3s.
Florissant iNZ = +6m.32s. = PP + 4s. and +6m.47s., iSN = +11m.2s.
Georgetown PPN = +6m.53s.; T_o = 0h.41m.24s.
Tucson PP = +7m.19s.
Fordham iPP = +7m.9s., P_cP = +8m.31s.
Buffalo iPP = +7m.52s.
Toronto iPE = +5m.57s.
La Paz iPZ = +6m.36s., PPZ = +7m.33s., iSN? = +11m.53s., SSE = +13m.37s.
Harvard eN = +7m.32s. = PP − 11s.
Ottawa e = +8m.16s. = PP + 14s.
Pasadena eZ = +9m.27s. = P_cP − 6s.
Lick eN = +7m.58s.
Long waves have been recorded at Sydney, Riverview, Victoria, Sitka, Honolulu T.H., Scoresby Sund, Ekaterinburg, Vladivostok, La Plata, Hong Kong, Ivigtut, and European stations.

March 7d. 10h. 0m. 37s. Epicentre 10°·5S. 161°·0E. (as on 1924 Jan. 26d.). R.3.

A = −·930, B = +·320, C = −·182; D = +·326, E = +·946; G = +·172, H = −·059, K = −·983.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Suva	18·5	116	i 4 23	+10	9 38	+122	14·4	14·4
Riverview	25·0	199	i 5 22	+ 2	e 9 37	− 4	13·4	16·1
Sydney	25·0	199	e 9 41	S	(e 9 41)	0	13·9	14·7
Arapuni	30·6	156	e 9 23?	(+11)	12 53?	SS	—	—
Melbourne	30·9	204	e 6 30	+17	11 55	+37	15·4	17·9

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Adelaide		31·9	216	e 6 23	+ 1	i 11 33	− 1	i 14·7	18·7
Wellington		33·1	163	6 36	+ 3	13 23	SS	18·4	21·4
Christchurch		34·6	166	—	—	13 43	SS	—	—
Perth		46·8	235	e 11 53	?	e 18 53	SS	e 23·7	25·9
Manila		47·0	302	i 8 29	0	i 15 20	+ 1	22·7	—
Koti		51·2	331	—	—	16 13	− 5	21·4	29·4
Honolulu T.H.		51·4	52	—	—	e 14 18	?	e 20·4	—
Batavia		53·7	270	e 10 18	(−12)	i 17 31	?	—	—
Hong Kong		56·4	307	9 42	+ 3	17 27	− 1	—	28·8
Vladivostok		59·8	337	—	—	e 18 8	− 5	27·5	32·6
Calcutta		78·4	297	e 11 26	−33	21 26	−32	49·3	—
Irkutsk		79·3	330	e 12 0	− 4	21 58	−10	36·4	39·8
Colombo		82·4	278	12 27	+ 7	(22 48)	+ 7	—	22·8
Sitka		85·1	30	—	—	e 23 3	− 6	e 42·1	—
Kodaikanal		85·7	281	22 35	S	(22 35)	−40	—	—
Hyderabad		86·2	289	—	—	23 11	− 8	—	—
Berkeley		86·2	50	e 12 38	− 1	e 23 10	− 9	e 42·4	—
Victoria		88·6	40	—	—	23 20	−23	42·8	56·3
Haiwee	N.	89·0	53	e 12 59	+ 6	—	—	—	—
Pasadena		89·0	55	e 12 46	− 7	—	—	e 47·8	—
Tinemaha	E.	89·0	52	e 12 52	− 1	—	—	—	—
Bombay		91·8	290	e 17 51	?	—	—	—	—
Ekaterinburg		104·4	326	e 14 22	+18	e 25 47	−18	43·4	58·9
Baku		112·8	310	e 19 45	PP	e 26 17	{−10}	55·7	61·9
Kucino		116·9	329	e 20 4	PP	e 29 38	PS	e 47·1	62·4
Pulkovo		118·7	334	e 20 26	PP	e 36 41	SS	55·4	62·8
La Paz		124·4	119	e 20 36	PP	—	—	—	—

Additional readings :—
Suva SS = +11m.5s.
Riverview iS = +9m.55s.
Sydney iS = +12m.23s.
Melbourne e = +5m.30s.
Adelaide iSSS = +13m.43s.
Christchurch SS = +16m.49s. = S_cS − 21s., SSS = +18m.1s.
Perth eP = +12m.13s., eS = +19m.8s.
Manila iSNZ = +15m.23s.. iN = +18m.53s.
Batavia e = +13m.18s.
Pasadena e = +12m.50s.
Ekaterinburg PKP = +17m.35s., SKS = +24m.36s., SS = +32m.59s.
Baku iPS = +29m.17s.
Kucino eSS = +35m.53s.
La Paz eZ = +20m.56s.
Long waves were also recorded at Ottawa and other European stations.

March 7d. 18h. 18m. 16s. Epicentre 10°·5S. 161°·0E. (as at 10h.). X.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Riverview		25·0	199	5 20	0	e 9 44	+ 3	15·9	—
Melbourne		30·9	204	—	—	e 11 19	+ 1	14·2	17·7
Adelaide		31·9	216	—	—	e 12 22?	+48	15·4	17·1
Perth		46·8	325	—	—	e 17 59	SS	e 24·1	25·7
Manila		47·0	302	i 8 35	+ 6	i 15 12	− 7	—	—
Irkutsk		79·3	330	e 11 53?	−11	e 21 52?	−16	e 36·7	—
Pasadena	Z.	89·0	55	e 12 41	−12	—	—	—	—

Additional readings :—
Manila iE = +15m.24s.
Pasadena ePZ = +12m.44s.
Long waves were also recorded at Baku and Ekaterinburg.

March 7d. Readings also at 0h. (Andijan and near Samarkand), 1h. (Bombay), 3h. (La Paz), 4h. (near Amboina), 5h. (Andijan, near Samarkand, and near Lick), 8h. (Messina and Tyosi), 9h. (near Sumoto), 11h. (Pasadena), 12h. (Adelaide), 13h. (near Granada), 15h. (near Apia), 17h. (La Plata), 20h. (Suva and near Taihoku), 21h. (Bombay and near Hukuoka), 22h. (Florissant), 23h. (Nagoya, Adelaide, Melbourne, Riverview, and Perth).

March 8d. 1h. 50m. 24s. Epicentre **41°·0N. 22°·5E.** R.1.
(as on 7d.).

Probable error of epicentre ±0°·23.

A = +·697, B = +·289, C = +·656; D = +·383, E = −·924;
G = +·606, H = +·251, K = −·755.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Taranto		4·0	275	i 0 57	0	i 1 51	+ 9	—	2·6
Belgrade		4·1	340	i 0 54	− 4	i 1 56	+11	—	—
Bari		4·2	274	0 55	− 5	1 20	−28	1·9	—
Mostar		4·2	306	0 36	−24	—	—	—	—
Trenta		5·0	252	e 1 1	−10	e 2 6	− 2	—	—
Messina		6·0	245	i 1 30	+ 5	2 45	+12	3·2	4·0
Naples	N.	6·2	271	e 1 32	+ 4	e 1 54	−44	2·8	3·6
Benevento		6·2	274	i 1 22	− 6	—	—	—	3·4
Casamicciolo		6·5	271	1 28	− 4	2 54	+ 8		6·6
Monte Cassino		6·6	277	0 34	−60	—	—	—	—
Catania		6·7	242	1 36	+ 1	3 24	S*	4·5	5·0
Zagreb		6·7	317	1 36?	+ 1	3 36?	S*	—	3·9
Collurania		6·8	296	1 37	0	—	—	—	—
Budapest		6·9	341	1 33	− 5	(3 6)	+10	3·1	4·1
Mineo		7·1	241	0 29	−72	—	—	—	—
Camerino		7·2	290	1 46	+ 4	—	—	—	—
Rome		7·6	280	i 1 48	0	e 3 4	−10	e 4·3	5·8
Laibach	N.	7·7	314	0 49	−60	—	—	—	4·4
Graz		7·9	323	i 0 45	−67	i 2 33	−48	—	3·4
Triest		7·9	309	i 1 52	0	i 3 56	S*	—	4·3
Vienna		8·4	331	1 54	− 5	3 36	+ 2	i 4·4	6·6
Venice		8·6	304	i 2 6	+ 4	i 4 34	+55	—	—
Florence		8·8	292	i 1 36?	−29	—	—	—	—
Sebastopol		8·8	62	2 5	0	3 41	− 3	4·2	5·1
Padova		8·9	303	i 2 9	+ 3	e 4 17	+31	—	—
Prato		8·9	293	i 2 8	+ 2	3 59	+13	—	6·6
Lemberg		8·9	6	e 2 4	− 2	e 3 50	+ 4	—	5·1
Treviso		9·0	305	i 2 3	− 4	4 36	S*	—	5·4
Yalta		9·2	64	2 9	− 1	e 3 53	− 1	—	5·5
Simferopol		9·3	61	2 13	+ 2	—	—	4·5	5·3
Innsbruck		10·1	313	2 24	+ 2	—	—	i 4·9	6·1
Piacenza		10·2	298	2 23	− 1	4 29	+11	5·6	7·8
Theodosia		10·2	62	2 26	+ 2	4 15	− 3	—	6·0
Prague		10·7	331	i 2 27	− 4	i 4 34	+ 3	e 4·6	6·4
Carloforte		11·0	265	i 2 17	−18	e 4 41	+ 3	—	—
Chur		11·0	306	i 2 35	0	—	—	—	—
Ravensburg		11·4	311	i 2 39	− 1	i 4 56	+ 8	i 5·8	—
Cheb		11·5	326	e 2 41	− 1	e 5 25	+35	e 6·2	6·5
Zurich		11·8	308	i 2 44	− 2	e 5 10	+12	—	—
Stuttgart		12·2	314	i 2 49	− 2	i 5 15	+ 7	i 6·2	7·0
Jena		12·4	326	e 2 51	− 3	i 5 14	+ 1	e 5·3	8·1
Neuchatel		12·7	303	i 2 55	− 3	i 4 56	−24	—	—
Karlsruhe		12·8	313	3 0	+ 1	5 16	− 6	6·2	7·8
Ksara		12·8	120	3 1	+ 2	5 19	− 3	—	—
Strasbourg		12·9	311	i 2 56	− 5	e 5 31	+ 6	—	7·1
Marseilles		12·9	286	i 3 3	+ 2	e 5 41	+16	7·7	—
Potsdam		13·0	334	e 2 58	− 4	i 5 36?	+ 9	e 6·3	7·8
Helwan		13·2	145	i 3 8	+ 3	i 5 36	+ 4	—	14·6
Besançon		13·3	303	i 3 6	0	5 47	+13	7·0	—
Feldberg		13·4	318	i 3 8	+ 1	i 5 51	+14	—	—
Göttingen		13·6	325	i 3 8	− 2	e 5 42	+ 1	—	6·7
Königsberg		13·9	355	i 3 7	− 7	i 5 54	+ 5	e 6·7	9·4
Puy de Dôme		15·0	296	e 4 35	+67	e 7 21	+66	9·6	—
Hamburg		15·1	331	i 3 27	− 3	i 6 21	+ 4	7·6	9·6

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Barcelona		15·3	279	i 3 31	− 1	6 28	+ 6	6·9	8·8
Algiers		15·7	261	i 3 40	+ 2	i 6 43	+12	7·8	10·6
Uccle		15·9	314	i 3 40	0	i 6 49	+13	7·6	9·0
Lund		15·9	341	e 3 34	− 6	6 32	− 4	—	—
Copenhagen		16·1	339	3 36	− 7	e 6 46	+ 5	7·6	—
Paris		16·1	306	i 3 40	− 3	i 6 50	+ 9	8·6	9·6
De Bilt		16·2	319	3 45	+ 1	6 54	+11	e 7·7	9·3
Tortosa	N.	16·6	277	3 49	0	7 0	+ 8	7·3	—
Bagnères		16·6	285	2 53	−56	6 59	+ 7	8·6	—
Kucino		17·9	29	i 3 58	− 7	i 7 20	− 2	7·7	10·7
Alicante		17·9	269	i 4 9	+ 4	i 7 29	+ 7	e 9·1	11·0
Kew		18·8	312	i 4 17	+ 1	i 7 46	+ 4	9·1	11·0
Upsala		19·1	353	i 4 15	− 5	i 7 45	− 3	e 8·7	11·2
Helsingfors		19·2	4	i 4 14	− 7	7 33	−17	i 9·6	—
Pulkovo		19·4	12	i 4 18	− 5	i 7 46	− 8	9·6	14·7
Oxford		19·5	312	i 4 17	− 7	i 7 53	− 3	—	12·6
Almeria		19·7	266	i 4 27	+ 1	i 8 13	SS	10·5	13·2
Toledo		20·2	276	i 4 28	− 4	i 8 20	+10	9·4	13·8
Granada		20·5	268	i 4 37	+ 2	8 29	+13	i 11·0	12·3
Baku		20·7	83	e 4 44	+ 7	e 8 19	− 1	—	—
Stonyhurst		21·0	316	i 4 37	− 3	i 8 27	+ 1	—	12·5
Durham		21·0	319	4 41	+ 1	8 25	− 1	10·6	11·8
Bidston		21·2	315	i 4 45	+ 3	i 8 41	+11	11·2	11·9
Malaga		21·3	267	i 4 46	+ 3	i 8 44	+12	11·1	15·1
Bergen		22·1	337	4 50	− 2	8 49	+ 1	10·6	15·6
Edinburgh		22·4	320	i 4 58	+ 3	i 8 59	+ 6	—	13·1
San Fernando		22·8	268	5 4	+ 5	8 56	− 5	10·6	14·6
Serra do Pilar		23·4	281	6 21	+76	—	—	—	—
Ekaterinburg		29·1	44	i 5 57	0	i 10 47	− 3	15·1	—
Samarkand		33·6	77	i 6 42	+ 5	—	—	20·6	—
Scoresby Sund		37·0	338	i 7 7	+ 1	12 58	+ 7	—	—
Andijan		37·2	73	e 7 14	+ 6	—	—	—	—
Almata		39·7	68	i 7 37	+ 8	—	—	e 23·6	31·4
Dakar		43·5	246	e 8 7	+ 6	e 15 14	+46	21·8	28·9
Dehra Dun		45·5	85	8 56	+39	15 36	+39	28·3	33·6
Ivigtut		46·0	321	i 8 19	− 2	15 3	− 1	—	—
Agra	E.	47·2	89	8 4	−26	14 39	−42	e 22·8	—
	N.	47·2	89	i 7 58	−32	i 14 43	−38	e 24·0	27·3
Bombay		48·1	101	8 41	+ 4	15 41	+ 7	25·3	30·4
Hyderabad		53·1	99	9 17	+ 2	16 39	− 4	27·3	31·4
Irkutsk		54·2	48	9 24	+ 1	16 56	− 2	28·6	31·6
Kodaikanal		57·1	107	e 18 30	S	(e 18 30)	+52	e 33·1	38·5
Calcutta		57·5	87	9 46	− 1	17 45	+ 2	30·0	33·7
Colombo		61·1	109	10 9	− 3	18 24	− 6	33·6	38·6
Harvard		66·0	309	e 10 40	− 5	i 19 47	+15	e 29·6	—
Ottawa		67·0	313	e 10 52	0	i 19 47	+ 2	e 29·6	—
Chiufeng	E.	67·3	56	e 10 47	− 7	—	—	—	—
Fordham		68·5	308	i 11 0	− 1	e 19 59	− 4	e 31·6	—
Tientsin		68·5	56	11 2	+ 1	i 20 12	+ 9	i 34·9	35·3
Toronto		70·1	313	i 11 14	+ 3	e 20 21	— 1	31·2	38·2
Buffalo		70·2	311	i 10 38	−34	i 20 31	+ 7	—	38·2
Georgetown		71·7	308	11 22	+ 1	20 40	− 1	e 31·6	—
Phu-Lien		72·2	78	e 11 23	− 1	e 20 43	− 4	32·6	—
Charlottesville		73·1	308	—	—	20 58	0	32·0	—
Ann Arbor	N.	73·4	314	—	—	i 21 42	PS	—	37·6
Vladivostok		74·6	45	i 11 37	− 1	21 12	− 3	40·6	47·7
Hong Kong		75·4	71	11 50	+ 7	21 39	+14	41·1	48·1
Chicago		75·9	315	11 37	− 8	e 21 12	−18	36·9	—
San Juan		77·1	285	i 11 54	+ 1	i 21 42	− 2	e 32·6	—
Columbia		77·3	305	i 11 54	0	21 44	− 2	34·6	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Florissant		79·4	315	i 12 6	+ 1	e 22 3	− 6	e 35·6	—
St. Louis		79·5	315	i 12 6	+ 1	i 22 8	− 2	e 35·1	39·1
Sitka		80·1	349	e 12 8	0	i 22 8	− 9	e 30·6	—
Hukuoka		80·2	53	—	—	e 31 45	?	e 43·9	46·6
Toyooka		81·5	50	e 14 33	PP	—	—	i 44·3	48·3
Koti		82·1	51	e 12 23	+ 4	—	—	42·2	48·0
Kobe		82·3	50	e 12 23	+ 3	—	—	e 45·2	47·2
Mizusawa	E.	82·3	43	12 24	+ 4	23 48	+68	—	—
	N.	82·3	43	12 18	− 2	24 30	—	43·8	—
Osaka		82·5	50	34 10	?	—	—	43·8	52·6
Nagano		82·6	47	12 26	+ 5	—	—	—	—
Little Rock		83·5	313	e 12 26	0	e 22 47	− 5	e 37·6	41·9
Kumagaya		83·6	46	12 33	+ 7	—	—	—	—
Victoria	E.	85·6	340	12 38	+ 2	23 5	− 9	43·3	53·2
	N.	85·6	340	12 36	0	23 11	− 3	—	—
Manila		86·7	73	i 12 40	− 2	i 23 11	[0]	i 41·1	—
Batavia		89·8	99	e 13 36	+40	i 24 22	+28	54·4	—
Tinemaha		94·0	330	e 13 18	+ 2	—	—	—	—
Haiwee	N.	94·8	330	e 13 21	+ 1	—	—	—	—
Berkeley		94·8	334	i 13 21	+ 1	i 24 40	0	51·6	57·9
Tucson		95·0	323	13 22	+ 2	e 24 41	− 1	e 41·2	—
Passadena		96·6	329	i 13 28	0	—	—	e 50·6	—
Santa Barbara		97·0	330	e 13 30	0	—	—	—	—
La Paz		101·2	260	e 13 29	−20	i 24 29	[− 3]	49·1	61·6
Perth		112·6	114	34 36?	SS	—	—	—	—
Melbourne		136·2	105	e 22 54	PKS	i 34 11	?	62·6	77·6

Additional readings :—
Belgrade iN = +57s., i = +1m.5s., eE = +1m.8s., iE = +1m.20s.
Mostar iE = +40s., +45s., and +1m.1s., i = +1m.19s. and +1m.25s.
Zagreb i = +1m.45s., +1m.51s., iP_g = +2m.2s., iNW = +2m.13s., iNE = +2m.25s., iNW = +2m.31s., i = +2m.46s., iNE = +2m.51s., i = +3m.10s., +3m.22s., +3m.27s., iNE = +3m.34s., iNW = +3m.44s., and +3m.47s.
Laibach iN = +1m.18s., +1m.47s., +2m.30s., and +2m.56s.
Triest PP = +2m.26s.
Vienna iP = +2m.0s., P* +2m.20s., P_g = +2m.49s., PPS = +3m.22s., PSZ = +3m.52s.
Innsbruck P*? = +2m.28s., iPSS = +4m.17s.
Cheb e = +5m.3s.
Stuttgart iSS = +5m.38s.
Jena iN = +3m.48s., iE = +3m.56s., iN = +4m.1s., and +4m.51s., iSE = +4m.52s., iSN = +5m.7s., iSZ = +5m.11s., iSN = +5m.17s.
Neuchatel i = +2m.57s.
Strasbourg SSS = +7m.6s.
Potsdam iEN = +3m.2s. and +3m.17s., iE = +5m.51s., iN = +6m.13s.
Göttingen iPP = +3m.18s., iN = +3m.27s., and +3m.43s.
Königsberg iN = +3m.14s., +3m.19s., +3m.48s., and +4m.9s., iE = +4m.18s., and +5m.9s., iN = +5m.20s., iE = +5m.38s., iEN = +6m.2s., iN = +6m.9s.
Hamburg iSE = +6m.24s.
Algiers PSE = +7m.1s.
Uccle PP = +4m.45s., iN = +6m.24s.
Lund iP = +3m.39s., e = +4m.41s., iSNW = +6m.39s.
Copenhagen iE = +6m.50s. =SS +0s.
Helsingfors eZ = +4m.53s. and +5m.3s., iN = +5m.14s., eZ = +7m.24s., iSN = +7m.43s., iSZ = +7m.49s., eSSN = +8m.15s., eSSZ = +8m.24s.
Almeria i = +5m.3s. and +5m.17s.
Toledo PP = +4m.46s., PPP = +5m.1s., PPPP = +5m.7s., P_gP = +8m.5s., i = +8m.39s., SS = +9m.1s., SSS = +9m.10s., SSSS = +9m.22s.
Granada i = +4m.41s., +4m.44s., +5m.17s., +5m.31s., +6m.13s., and +9m.54s.
Bidston PP = +4m.56s., SS = +9m.6s.
Edinburgh i = +9m.20s. =PP − 8s.
San Fernando SN = +8m.52s.
Scoresby Sund i = +8m.34s., +15m.30s. =SSS +2s.
Ivigtut +18m.29s. $=S_gS$ +11s.
Harvard iSS = +24m.14s., iSSS = +26m.36s. ! ; T_e = 1h.49m.57s.
Ottawa ePPE = +13m.17s., ePPPE = +14m.57s., eSS = +24m.10s.
Fordham ePPP = +15m.10s., eSS = +24m.41s.
Tientsin i = +14m.6s. and +28m.6s.
Toronto iS = +20m.26s., SS = +25m.6s., SSS = +28m.10s.
Buffalo iPP = +13m.48s., iSS = +25m.9s.
Charlottesville SS = +25m.36s.
Chicago SS = +26m.33s.

Continued on next page.

Florissant iZ = +15m.9s. =PP +10s., iSEN = +22m.7s., iE = +22m.31s. = PS −10s., iSSEN = +27m.19s.
St. Louis i = +27m.22s. =SS +17s.
Sitka eSS = +27m.21s.
Little Rock ePP = +15m.39s., ePSN = +23m.37s.
Batavia iNW = +26m.4s.
Berkeley eN = +13m.41s., eZ = +25m.14s., eN = +26m.14s., eE = +29m.36s., eN = +34m.53s., eE = +45m.26s., iE = +47m.37s., eN = +48m.7s.
Tucson PP = +17m.22s., eSKS = +24m.6s., iPS = +26m.1s., SS = +30m.48s.
Pasadena ePN = +13m.32s., eE = +13m.35s., ePPZ = +17m.22s. and +17m.28s.
La Paz iPZ = +13m.51s., PPE = +17m.55s., SKSE = +23m.29s., iN = +27m.5s., PSE = +28m.15s., SSN = +33m.4s.
Long waves were also recorded at Riverview, Sydney, Adelaide, Johannesburg, Honolulu T.H., La Plata, Tyosi, Nagoya, Sumoto, and Pavia.

March 8d. 2h. 11m. 35s. (I)
2h. 26m. 49s. (II)
2h. 39m. 29s. (III)
2h. 44m. 39s. (IV)
Epicentre 41°·0N. 22°·5E. (as at 1h.). X. X. X. X.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
I Taranto		4·0	275	0 56	− 1	1 49	+ 7	—	3·4
II		4·0	275	0 56	− 1	1 46	+ 4	—	3·1
III		4·0	275	0 56	− 1	—	—	—	3·3
IV		4·0	275	0 56	− 1	1 56	S*	—	3·4
I Belgrade	Z.	4·1	340	0 45	−13	e 1 42	− 3	—	—
II	Z.	4·1	340	0 55	− 3	e 1 55	+10	—	—
III	Z.	4·1	340	0 49	− 9	e 1 46	+ 1	—	—
I Zagreb		6·7	317	—	—	e 3 0	+ 9	—	3·5
II		6·7	317	—	—	3 44	S_g	—	4·5
III		6·7	317	—	—	3 16	S*	—	—
II Camarino		7·2	290	3 52	S_g	—	—	—	—
I Rome		7·6	280	e 2 4	+16	e 2 46	P_g	—	4·5
II		7·6	280	e 1 56	+ 8	e 2 16	P*	—	7·0
III		7·6	280	e 1 40	− 8	—	—	—	4·8
II Innsbruck		10·1	313	—	—	e 5 11?	S*	e 6·4	—
II Ravensburg		11·4	311	—	—	e 6 11	?	e 7·2	—
II Stuttgart		12·2	314	—	—	e 6 41	?	e 7·5	—

Belgrade gives other readings as follows :—
I eZ = +55s., +1m.10s.
II eZ = +2m.51s.
Long waves for shock IV were recorded at Rome.

March 8d. 5h. 3m. 9s. Epicentre 41°·0N. 22°·5E. (as at 2h.). X.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Taranto		4·0	275	0 46	−11	1 46	+ 4	3·9	—
Belgrade	E.	4·1	340	1 3	+ 5	e 1 55	+10	—	2·4
	N.	4·1	340	1 0	+ 2	e 2 0	+15	—	2·4
Zagreb		6·7	317	e 1 51?	+16	—	—	e 3·3	—
Budapest		6·9	341	1 48	+10	—	—	3·9	—
Rome		7·6	280	1 36	−12	—	—	—	5·3
Graz		7·9	323	i 1 41	−11	i 3 7	−14	—	4·2
Vienna	Z.	8·4	331	e 1 44	−15	—	—	—	—
Florence		8·8	292	2 21	+16	—	—	—	—
Padova		8·9	303	3 31	S	(3 31)	−15	—	—
Innsbruck		10·1	313	e 2 33	+11	—	—	—	—
Chur		11·0	306	e 2 28	− 7	—	—	—	—
Cheb		11·5	326	e 3 51?	+69	—	—	—	6·4
Zurich		11·8	308	e 2 46	0	—	—	—	—
Pulkovo		19·4	12	4 19	− 4	—	—	10·4	—
Baku		20·7	83	(5 51?)	+74	—	—	5·9	10·7

Additional readings :—
Belgrade eN = +1m.6s. and +1m.45s.
Padova S? = +4m.40s. =S*.
Innsbruck 5h.2m.42s.
Long waves were also recorded at Irkutsk, and other European stations.

March 8d. 5h. 56m. 51s. Epicentre 10°·5S. 161°·0E. (as on 7d.). X.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Riverview		25·0	199	e 5 28	+ 8	e 9 51	+10	e 13·0	16·6
Sydney		25·0	199	e 1 3	?	—	—	13·8	14·6
Melbourne		30·9	204	—	—	i 11 28	+10	15·6	17·2
Adelaide		31·9	216	—	—	e 11 39	+ 5	e 15·9	18·2
Perth		46·8	235	12 59	?	(15 24)	+ 8	24·2	—
Manila		47·0	302	i 8 30	+ 1	i 18 55	SS	—	—
Irkutsk		79·3	330	e 12 4	0	e 21 54	−14	36·2	—
Haiwee	N.	89·0	53	e 13 4	+11	—	—	—	—
Pasadena	Z.	89·0	55	e 12 46	− 7	—	—	—	—
Tinemaha	E.	89·0	52	e 12 42	−11	—	—	—	—
Ekaterinburg		104·4	326	e 27 36	PS	e 33 18	SS	44·2	—
Belgrade	E.	131·8	323	—	—	e 32 49	?	—	—

Additional readings and note :—
Riverview i = +10m.3s.
Perth gives S as PR_1 and S = +19m.9s.
Belgrade eE = +33m.21s. and +33m.38s.

March 8d. 11h. 47m. 26s. Epicentre 35°·1N. 139°·0E. (as on March 6d.). X.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Nagoya	1·7	272	e 0 20	− 4	0 39	− 5	—	—
Tyosi	1·7	67	e 0 25	+ 1	—	—	—	—
Osaka	2·8	261	0 42	+ 2	—	—	1·4	1·8
Kobe	3·2	263	0 50	+ 4	1 33	S*	—	1·6
Sumoto	3·4	257	e 1 0	P*	e 1 40	S*	—	1·8

No additional readings.

March 8d. 11h. 50m. 40s. Epicentre 39°·5S. 176°·9E. (as on Feb. 28d.). R.3.

A = −·770, B = +·042, C = −·636 ; D = +·054, E = +·999 ;
G = +·635, H = −·034, K = −·772.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Hastings		0·1	185	0 20?	+19	—	—	—	—
Arapuni		1·7	324	1 20?	+56	1 44?	+60	—	—
Takaka		3·4	246	0 41	− 8	1 27	0	—	2·3
Christchurch		5·1	217	e 1 17	+ 4	i 2 23	+13	—	—
Riverview		21·3	277	i 4 44	+ 1	i 8 57	SS	e 10·5	12·7
Sydney		21·3	277	e 4 32	−11	i 8 50	SS	11·3	13·3
Suva		21·4	4	e 3 20?	?	—	—	—	9·3
Melbourne		24·9	264	i 5 19	0	9 54	+15	12·8	13·6
Adelaide		30·6	269	e 6 15	+ 5	11 19	+ 5	i 13·4	18·9
Perth		49·2	260	—	—	e 16 5	+15	e 26·3	—
Manila		75·0	305	11 39	− 1	i 21 18	− 2	i 37·5	42·3
Pasadena	Z.	95·0	49	e 13 19	− 1	—	—	—	—
La Paz		97·6	119	i 13 37	+ 5	i 24 13	[− 1]	39·3	49·4
Irkutsk		111·2	321	e 18 32	[+10]	—	—	e 49·3	—
Samarkand		127·4	295	e 19 35	[+33]	—	—	—	—
Ekaterinburg		136·0	316	e 19 26	[+10]	—	—	58·3	—
Baku		140·0	290	—	—	e 22 26	PP	65·3	85·1
Pulkovo		150·9	325	i 19 46	[+ 3]	—	—	—	—

Additional readings :—
Hastings P_g = +32s. ?
Arapuni S_g = +2m.2s.
Takaka P* = +51s., P_g = +1m.9s., S_g = +2m.17s.
Riverview iPN = +4m.51s., i?N = +5m.24s., $iP_cPE?$ = +8m.45s.
Melbourne i = +9m.45s.
Perth e = +21m.35s.
Manila iN = +21m.7s.
Ekaterinburg e = +21m.59s. = PP + 3s., +22m.45s. = PKS −12s., and +41m.41s.
Baku e = +31m.47s., +38m.4s., +50m.10s., and +55m.50s.
Long waves were also recorded at Kodaikanal, Bombay, Hyderabad, Ottawa, San Juan, La Plata, Scoresby Sund, and the European stations.

March 8d. Readings also at 0h. (Medan, near Hastings, and Wellington (2)), 1h. (Uccle, near Taranto and near Berkeley), 2h. (near Manila), 3h. (Little Rock, Wellington, St. Louis, and near Florissant), 4h. (Baku, Kucino, Paris, Andijan, and near Samarkand), 5h. (Belgrade), 6h. (Rome and Taranto), 8h. (Adelaide), 9h. (Andijan and near Almata), 11h. (near Wellington), 12h. (near Osaka, Kobe, Sumoto, and Toyooka), 14h. (near Wellington), 16h. (near Manila), 22h. (Baku, Ekaterinburg, Ottawa, near Apia, and near Victoria), 23h. (Irkutsk, and near Apia).

March 9d. 3h. 48m. 57s. Epicentre 40°·5N. 142°·5E. N.1.

Probable error of epicentre ±0°·26.

A = −·603, B = +·463, C = +·649; D = +·609, E = +·793; G = −·515, H = +·395, K = −·760.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Miyako		1·0	204	0 18	+ 4	0 33	+ 7	—	—
Morioka		1·3	232	0 17	− 1	0 41	+ 8	—	—
Aomori		1·4	284	0 23	+ 3	0 46	S_g	—	—
Urakawa		1·7	7	0 24	0	0 58	S_g	—	—
Mizusawa		1·7	218	0 21	− 3	0 51	S*	—	—
Hakodate		1·9	314	0 29	+ 1	0 50	+ 1	—	—
Akita		2·0	246	0 31	+ 2	0 58	S*	—	—
Isinomaki		2·2	204	0 27	− 4	1 4	S*	—	—
Muroran		2·2	328	0 32	+ 1	0 56	− 1	—	—
Sendai		2·6	210	0 33	− 4	1 11	+ 4	—	—
Yamagata		2·8	217	0 33	− 7	1 19	+ 7	—	—
Kusiro		2·9	30	0 37	− 4	1 17	+ 3	—	—
Hukusima		3·1	210	0 40	− 4	1 32	S*	—	—
Niigata		3·7	227	1 5	P*	1 59	S*	—	—
Onahama		3·7	200	0 58	+ 5	1 51	S*	—	—
Nemuro		3·7	39	0 33	−20	1 25	−10	—	—
Mito		4·4	201	0 55	− 8	1 58	+ 5	—	—
Utunomiya		4·4	209	1 4	+ 1	2 1	+ 8	—	—
Kakioka		4·6	203	0 56	−10	2 15	S*	—	—
Tukubasan		4·7	204	0 59	− 8	2 8	+ 8	—	—
Tyosi		4·9	195	e 1 5	− 5	2 19	S*	—	3·0
Maebasi		4·9	214	0 58	−12	2 9	+ 4	—	—
Kumagaya		5·0	210	1 7	− 4	2 26	S*	—	—
Oiwake		5·1	218	1 10	− 3	2 23	S*	—	—
Nagano		5·1	222	1 12	− 1	2 24	S*	—	—
Tokyo		5·3	205	1 12	− 3	2 29	S*	—	2·6
Wazima		5·3	236	1 14	− 1	2 37	S*	—	—
Yokohama		5·5	205	1 19	+ 1	2 37	S*	—	—
Mera		6·0	201	1 24	− 1	2 51	S*	—	—
Numadu		6·1	209	1 32	+ 5	3 5	S*	—	—
Misima		6·1	208	1 20	− 7	2 34	− 2	—	—
Ootomari		6·2	2	1 28	0	2 27	−11	—	—
Gihu		6·8	223	1 33	− 4	3 13	S*	—	—
Nagoya		6·8	221	1 43	+ 6	2 59	+ 6	3·6	3·7
	Z.	6·8	221	1 48	+11	3 23	S*	3·7	4·0
Hamamatu		6·9	214	1 43	+ 5	3 28	S*	—	—
Hikone		7·2	225	1 45	+ 3	3 31	S*	—	—
Kyoto		7·6	226	1 50	+ 2	3 49	S*	—	—
Toyooka	E.	7·8	233	e 1 47	− 4	i 3 37	S*	i 4·1	5·3
	N.	7·8	233	e 1 50	− 1	i 3 35	S*	—	4·8
Osaka		8·0	225	1 54	+ 1	i 3 26	+ 2	3·7	5·4
Kobe		8·2	227	2 0	+ 4	3 48	+19	—	5·0
Vladivostok		8·3	292	e 2 0	+ 2	i 3 58	S*	—	24·1
Wakayama		8·5	225	2 4	+ 4	4 11	S*	—	—
Sumoto		8·6	227	e 2 1	− 1	3 50	+11	—	5·2

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Siomisaki	8·8	219	2 7	+ 2	4 5	S*	—	—
Hamada	9·9	239	2 17	− 2	4 24	+13	—	—
Koti	9·9	228	e 2 16	− 3	e 4 26	+15	e 4·6	5·9
Matuyama	10·2	232	i 2 23	− 1	i 4 41	S*	5·4	6·2
Hukuoka	11·8	238	2 48	+ 2	5 36	L	(5·6)	8·1
Kumamoto	12·2	234	2 45	− 6	5 30	L	(5·5)	—
Miyazaki	12·3	224	1 59	−53	4 40	−30	—	—
Nagasaki N.	12·8	236	e 2 56	− 3	6 4	L	(6·1)	7·6
Titizima	13·4	181	3 9	+ 2	6 11	+34	—	—
Naha	18·8	225	4 12	− 4	8 4	SS	—	—
Tientsin	19·3	274	i 4 21	− 1	—	—	—	—
Zi-ka-wei	19·4	248	4 17	− 6	8 7	SS	10·6	12·4
Chiufeng	20·0	278	4 31	+ 1	i 8 16	+10	10·0	13·4
Isigakizima	22·3	229	4 54	0	8 58	+ 6	—	—
Taihoku	23·3	235	5 8	+ 4	9 24	+14	e 10·5	16·2
Irkutsk	28·4	307	5 54	+ 3	10 49	+11	14·1	—
Hong Kong	30·0	240	6 3?	− 2	11 8	+ 4	13·9	17·9
Manila	32·0	223	i 6 26	+ 3	i 11 56	+21	i 16·5	19·5
Phu-Lien	36·2	248	e 7 0	0	i 12 45	+ 6	16·1	21·3
Amboina	46·0	200	i 8 20	− 1	i 15 8	+ 4	24·1	—
Almata	47·7	296	i 8 39	+ 5	i 16 3	+34	i 26·4	30·5
Calcutta	48·6	268	8 40	− 1	15 54	+13	26·3	31·3
Andijan	51·7	296	e 9 6	+ 2	16 48	+24	—	—
Dehra Dun	52·3	281	(9 3)	− 6	(16 33)	0	(27·6)	(33·1)
Ekaterinburg	52·9	319	i 9 10	− 3	i 17 47	+66	—	—
Sitka	53·0	44	9 45	+31	i 16 52	+10	27·1	—
Honolulu T.H.	53·6	92	e 9 18	0	i 16 53	+ 3	23·6	—
Medan	53·9	239	i 9 1	−20	i 16 47	− 7	24·9	31·6
Agra E.	54·0	277	8 52	−29	16 35	−21	28·1	33·4
N.	54·0	277	8 57	−24	i 16 35	−21	27·3	33·5
Samarkand	55·9	297	e 9 32	− 3	i 17 38	+17	21·9	35·6
Batavia	57·0	225	10 16	+33	i 18 12	+36	30·5	37·8
Hyderabad	59·2	270	9 58	− 1	18 7	+ 2	30·1	42·8
Bombay	62·5	274	10 28	+ 6	18 53	+ 5	32·3	40·4
Victoria	63·1	50	10 39	+13	18 57	+ 1	33·3	47·1
Kodaikanal	64·4	264	10 21	−14	—	—	31·4	43·1
Colombo	64·8	259	10 35	− 2	19 15	− 2	27·3	40·3
Pulkovo	65·4	330	i 10 39	− 2	i 19 27	+ 2	29·1	36·6
Helsingfors	67·1	332	e 10 50	− 2	19 48	+ 2	e 31·1	—
Suva	67·4	143	—	—	(20 9)	+19	42·1	—
Scoresby Sund	68·5	355	11 1	0	20 10	+ 7	—	—
Saskatoon	69·7	39	e 11 15	+ 6	i 20 15	− 3	—	—
Berkeley	69·8	58	i 11 12	+ 3	i 20 20	+ 1	e 31·4	—
Upsala	69·9	335	11 18	+ 8	i 20 22	+ 2	e 31·1	44·4
Lick N.	70·6	58	e 11 9	− 5	e 20 24	− 4	—	—
Theodosia	72·4	316	e 11 27	+ 2	e 20 55	+ 5	39·1	47·9
Königsberg	72·6	330	i 11 26	0	i 20 45	− 7	e 32·1	46·0
Bergen	73·2	340	11 31	+ 1	21 3	+ 4	31·1	51·1
Simferopol	73·2	316	11 30	0	e 21 0	+ 1	31·9	47·4
Yalta	73·4	316	11 28	− 3	e 20 58	− 3	36·0	47·5
Haiwee N.	73·6	56	e 10 47	−45	e 20 2	−62	—	—
Santa Barbara	73·6	60	e 11 28	− 4	e 20 58	− 6	—	—
Sebastopol	73·7	316	11 31	− 2	21 4	− 1	35·6	—
Reykjavik	74·6	354	e 11 44	+ 6	e 20 59	−16	36·6	—
Lund	74·7	333	11 39	0	e 21 17	0	32·1	—
Riverview	74·8	173	e 11 45	+ 6	i 21 6	−12	e 36·4	40·8
Sydney	74·8	173	(e 11 39)	0	20 39	−39	47·0	55·3
Lemberg	74·8	324	e 11 36	− 3	e 21 13	− 5	e 35·1	48·2
Pasadena	74·8	58	e 11 31	− 8	e 21 7	−11	e 34·2	—
Copenhagen	74·9	333	11 38	− 2	21 21	+ 2	32·1	—
Adelaide	75·5	184	e 11 47	+ 4	i 21 16	−10	32·8	45·3
Perth	76·5	203	e 11 53	+ 4	21 53	+16	44·6	46·1
Potsdam	77·3	331	e 11 55	+ 1	i 21 45	− 1	e 33·1	43·9
Hamburg	77·4	333	e 11 54	0	i 21 51	+ 4	e 35·6	48·1
Ivigtut	77·9	5	i 11 59	+ 2	21 49	− 4	32·1	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Melbourne		78·3	178	e 12 33	+34	21 49	− 8	32·2?	43·1
Prague		78·6	329	12 1	+ 1	e 22 6	+ 6	e 28·4	50·1
Budapest		78·8	325	12 0	− 1	22 0	− 3	37·6	50·0
Jena	E.	79·0	331	e 12 2	− 1	e 22 3	− 2	e 36·1	45·6
	N.	79·0	331	e 12 3	0	e 22 19	+14	e 36·1	50·1
Denver		79·0	47	e 11 43	−20	e 21 34	−31	e 42·1	e 51·1
Göttingen		79·1	332	e 12 2	− 1	i 22 8	+ 2	e 34·4	50·4
Vienna		79·3	327	e 11 57	− 7	22 12	+ 4	e 36·1	51·1
Edinburgh		79·3	341	e 13 6	+62	22 13	+ 5	37·1	46·1
Cheb		79·4	330	e 12 10	+ 5	e 22 15	+ 6	e 37·1	43·9
Ksara	E.	79·5	307	12 7	+ 2	22 14	+ 4	40·1	—
	N.	79·5	307	12 9	+ 4	22 9	− 1	—	—
Belgrade	E.	79·7	323	12 9	+ 3	22 18	+ 6	e 32·7	51·9
	N.	79·7	323	12 6	0	22 15	+ 3	e 32·8	51·9
Durham		79·9	340	12 9	+ 2	22 21	+ 6	40·4	46·1
De Bilt		80·3	335	12 10	+ 1	22 20	+ 1	e 37·1	48·3
Graz		80·6	327	e 12 14	+ 3	i 22 17	− 5	e 35·0	52·0
Tucson		80·6	56	12 8	− 3	i 22 19	− 3	33·7	—
Feldberg		80·7	334	e 12 15	+ 3	i 22 27	+ 4	—	—
Stonyhurst		80·9	340	e 12 20	+ 7	i 22 27	+ 2	36·1	47·1
Zagreb		81·3	325	e 12 16	+ 1	e 22 28	− 2	e 40·6	52·6
Bidston		81·5	340	i 12 23	+ 7	i 22 33	+ 1	e 36·1	53·3
Uccle		81·6	335	12 15	− 1	i 22 32	− 1	36·1	52·6
Stuttgart		81·7	331	i 12 17	0	i 22 36	+ 2	e 38·1	52·1
Laibach		81·8	327	e 12 31	+14	22 43	+ 8	e 41·7	43·2
Karlsruhe		81·8	331	12 21	+ 4	23 4	PS	e 44·1	54·5
Innsbruck		82·0	329	12 21	+ 3	22 39	+ 2	36·1	53·2
Strasbourg		82·3	332	i 12 19	− 1	i 22 41	+ 1	36·1	55·4
Triest		82·4	327	e 12 14	− 6	e 22 38	− 3	e 33·5	—
Oxford	E.	82·5	340	i 12 23	+ 2	e 22 34	− 8	e 33·1	56·6
	N.	82·5	340	12 15	− 6	i 22 43	+ 1	e 32·1	53·6
Kew		82·5	339	i 12 25	+ 4	i 22 42	0	37·1	50·1
Treviso		83·0	327	i 12 27	+ 4	22 53	+ 6	43·1	59·6
Zurich		83·1	330	e 12 22	− 2	e 22 37	[− 8]	—	—
Venice		83·1	327	e 12 34	+10	22 40	[− 5]	44·8	51·0
Chur		83·1	330	e 12 22	− 2	e 22 53	+ 5	—	—
Padova		83·4	327	i 12 27	+ 2	i 23 30	PS	—	—
Neuchatel		84·0	332	e 12 26	− 2	e 22 45	[− 7]	—	—
Paris		84·0	335	i 12 27	− 1	i 22 55	− 3	33·1	53·1
Besançon		84·1	332	e 12 30	+ 1	i 22 56	− 3	38·1	—
Arapuni		84·2	155	—	—	21 3?	[−110]	41·1?	45·1?
Pavia		84·6	330	12 56	+25	—	—	—	—
Piacenza		84·6	329	12 31	0	23 3	− 1	33·6	54·4
Camerino		84·7	326	13 29	+57	—	—	—	—
Collurania		84·8	325	12 37	+ 5	—	—	—	—
Prato		84·9	328	e 12 44	+11	i 22 3	−64	e 38·1	54·1
Taranto		84·9	322	e 12 31	− 2	i 23 7	0	40·1	55·6
Helwan		85·1	306	12 35	+ 1	i 23 0	[0]	—	55·4
Monte Cassino		85·8	324	11 58	−39	22 58	[− 7]	—	—
Benevento		85·8	324	12 46	+ 9	—	—	—	56·2
Casamari		85·8	325	12 52	+15	—	—	—	—
Rome		86·0	325	e 12 45	+ 7	e 23 13	− 5	e 44·4	55·9
Naples	E.	86·0	323	e 12 53	+15	e 23 23	+ 5	40·1	61·1
Chicago		86·0	36	—	—	23 0	[− 6]	35·1	—
Trenta		86·3	322	e 12 33	− 7	e 23 33	+13	41·1	55·1
Puy de Dôme		86·4	334	(e 12 57)	+17	(23 29)	+ 8	(e 35·1)	—
Wellington		86·8	156	12 53	+11	20 36	?	43·1	46·9
Florissant		87·2	40	e 12 41	− 3	e 22 58	[−17]	36·1	46·6
Ann Arbor		87·2	32	e 12 33	−11	i 23 15	[0]	41·6	58·9
St. Louis		87·4	40	i 12 48	+ 3	e 23 6	[−10]	36·6	46·6
Ottawa		87·6	26	e 12 51	+ 5	e 23 14	[− 3]	e 37·0	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Messina		87·6	321	12 46	0	23 34	+ 1	28·9	49·4
Toronto		87·8	29	e 12 47	0	i 23 18	[− 1]	37·4	47·6
Catania		88·3	321	13 0	+11	23 19	[− 3]	31·3	57·8
Marseilles		88·5	331	e 12 52	+ 2	e 23 18	[− 5]	32·1	—
Buffalo		88·6	29	i 12 46	− 5	—	—	—	49·8
Little Rock		89·4	43	e 12 52	− 3	e 23 27	[− 2]	e 43·2	e 50·9
Bagnères		89·8	334	12 53	− 3	23 40	[+ 9]	34·1	—
Barcelona		90·6	331	e 13 10	+10	e 23 35	[− 1]	e 31·1	57·6
Tortosa	N.	91·6	333	13 6	+ 1	23 56	{+18}	40·5	54·2
Harvard		91·8	24	—	—	i 24 3?	−10	e 39·6	—
Fordham		92·3	27	13 29	+21	i 24 12	− 5	e 42·1	—
Georgetown		92·8	30	13 19	+ 9	23 47	[− 2]	e 41·1	—
Charlottesville		93·0	31	12 53	−18	24 17	− 7	51·6	—
Toledo		94·1	335	e 13 17	+ 1	24 19	−15	e 39·6	55·3
Alicante		94·2	332	e 13 26	+ 9	e 24 22	−13	e 41·4	58·2
Algiers		94·2	329	e 13 20	+ 3	23 49	[− 7]	41·1	61·4
Serra do Pilar		94·3	340	20 46	PPPP	—	—	—	—
Columbia		95·4	35	e 13 51	+29	i 24 43	− 3	37·1	—
Almeria		96·2	333	e 13 21	− 5	24 4	[− 3]	45·9	54·0
Granada		96·4	334	i 13 28	+ 1	25 37	PS	43·9	52·2
Malaga		97·0	334	13 49	+19	—	—	36·1	61·6
San Fernando		97·9	335	13 18	−16	24 18	[+ 2]	46·6	68·1
Tananarive		106·8	259	—	—	29 0	?	51·0	69·3
San Juan		115·4	30	—	—	i 27 25	{+40}	46·9	—
Dakar		121·8	337	e 20 29	PP	e 26 59	[+63]	36·6	77·9
La Paz	Z.	144·3	57	i 19 34	[+ 2]	26 34	PPP	69·1	110·4
La Plata		163·0	78	24 47	PP	—	—	73·1	—

Additional readings and notes :—
Tyosi P = +1m.13s., P_gZ = +1m.26s., P_gN = +1m.31s., P_gE = +1m.33s., SN = +2m.25s.
Toyooka iP = +1m.52s.
Osaka i = +2m.6s., +2m.28s. =P* and +2m.39s. =P_g.
Kobe iN = +3m.4s.
Sumoto iP = +2m.7s.
Koti PEN = +2m.22s.
Hukuoka PP? = +2m.53s.
Zi-ka-wei iPZ = +4m.25s., PPN = +4m.47s., PPPN = +4m.55s., iN = +5m.10s. and +5m.23s., iE = +6m.7s., iN = +7m.3s., SSZ = +8m.37s., SSE? = +8m.53s., iE = +9m.29s., and +9m.45s.
Chiufeng iPPZ = +4m.54s., iSSN = +8m.58s.
Hong Kong ? = +11m.30s.
Phu-Lien ePP? = +8m.30s.
Amboina i = +8m.37s.
Dehra Dun readings have been *diminished* by 5m.
Sitka iSS = +20m.26s.
Honolulu T.H. SSS = +22m.48s.
Medan i = +17m.53s.
Batavia i = +20m.9s.
Victoria SN = +19m.2s.
Helsingfors iP = +10m.55s., eP_gPN = +11m.31s., e = +13m.22s. =PP +9s., ePPN = +13m.47s., ePPPE = +15m.10s., eNZ = +15m.33s., eN = +17m.17s., PSEZ = +20m.9s., iPSN = +20m.24s., iSKSE = +20m.53s. iSKSN = +21m.9s., eE = +24m.12s., eSSN = +24m.33s., eSSE = +24m.51s., eSSSEN = +27m.21s.
Suva eN = +3m.34s. ; S is given as SS.
Scoresby Sund +13m.34s. =PP +9s., +20m.50s. =S_gS −4s., eE = +22m.51s., SS = +24m.57s., SSSE = +27m.57s.
Berkeley eE = +11m.15s., eEN = +11m.22s.
Upsala PP = +13m.46s., PPP = +15m.40s., iPSE = +20m.47s., iPPSN = +21m.2s. =S_gS −2s., SSE = +25m.4s.
Lick eE = +11m.14s. and +11m.27s., eN = +11m.45s.
Königsberg iP_gPE = +11m.45s., i = +12m.6s., +14m.5s. =PP +4s., and +14m.28s., PPPE = +16m.5s., eE = +20m.16s., e = +21m.7s. =PS −6s., eEN = +21m.16s., PSEN = +21m.42s., PPSE = +22m.1s., e = +25m.35s. = SS +13s., iSSEN = +25m.59s., eE = +27m.6s., and +30m.33s.
Bergen PS = +21m.33s. ?, SS = +26m.33s. ?
Simferopol PP = +14m.37s.
Reykjavik e = +15m.31s. and +20m.39s., ePS = +21m.23s., eSS? = +26m.28s.
Lund eNE = +12m.49s., +14m.27s., eSNE = +21m.22s., eNE = +21m.42s. = PS +2s.

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Sydney eS = +30m.39s.
Pasadena e = +11m.39s., iZ = +11m.50s., ePPZ = +14m.26s., eSN = +21m.12s.
Copenhagen +14m.31s. =PP +10s. and +26m.39s.
Adelaide i = +26m.47s.
Perth eP = +10m.28s. and +12m.8s., SS = +29m.3s., SSS = +32m.33s., e = +38m.3s. and +40m.3s.
Potsdam eN = +11m.45s., iZ = +11m.53s., iEN = +11m.59s., iE = +12m.9s., iEN = +12m.19s., eZ = +14m.39s. =PP −2s., iE = +15m.0s. and +22m.7s. =PS −7s., iEN = +22m.16s., iE = +29m.40s. =SSS −3s., iN = +30m.50s.
Hamburg iPP = +14m.53s., eSSEZ = +27m.33s.
Ivigtut iSE = +21m.53s.
Jena iE = +22m.33s. =PS −3s. and +23m.19s., eN = +32m.3s.
Göttingen ePPPNZ = +15m.9s., iPSN = +22m.35s., eSSEN = +27m.27s.
Vienna iP = +12m.7s., P_cP = +13m.36s., PP = +16m.22s., PPP = +17m.56s., PS = +22m.54s., S_cS = +23m.10s., SS = +27m.2s., SSS = +30m.34s.
Cheb ePP = +15m.29s., eSS? = +27m.31s., e = +30m.56s. and +33m.55s.
Belgrade eN = +17m.12s. and +25m.10s., eE = +28m.0s.
Durham PP = +15m.17s., ? = +17m.1s., PPP = +17m.24s., PPPP = +18m.48s., SS = +27m.21s., ? = +31m.25s., SSS = +32m.0s. =SSSS +7s.
De Bilt PP = +15m.19s., eSSE = +27m.48s.
Graz PP = +15m.22s., i = +22m.47s., iS_cS = +22m.58s., iPS = +23m.18s., eSS = +27m.44s., iPKKP = +31m.14s., eSSS = +31m.34s.
Tucson PS = +23m.22s.
Feldberg i = +15m.23s. =PP +14s., e = +17m.3s. =PPP +12s., and +18m.48s.
Stonyhurst PP = +15m.32s., PPP = +17m.12s., iSS = +27m.57s.
Zagreb iP_cP = +12m.35s., iPP = +15m.42s., iPPP = +17m.16s., ePPPP = +18m.21s., e = +21m.39s., eSKS = +22m.36s., iSKKS? = +23m.0s., ePS = +23m.27s., iPPSNE = +23m.43s., eSS = +28m.44s., ePKKP = +31m.34s., eSSS = +32m.22s., eSSSS = +33m.32s., eNW = +36m.33s., +38m.30s., eNE = +39m.33s.
Bidston iPP = +15m.31s., ePPP = +17m.53s., eSS = +27m.45s., eSSS = +31m.28s.
Uccle iPP = +15m.31s., iPPPPN = +18m.50s., iPPS = +23m.36s. =SKS +3s., SS = +28m.5s., iN = +28m.57s.
Stuttgart i = +12m.20s. and +12m.50s., iPP = +15m.28s., i = +22m.53s., iPS = +23m.23s., eSS = +27m.51s., eSSS = +33m.3s. ?
Laibach eE = +14m.54s.
Innsbruck P_cP = +12m.38s., PP = +15m.36s., PPP = +17m.47s., PPS? = +23m.45s., SSS = +31m.45s.
Strasbourg iPP = +15m.39s., iPPP = +17m.26s., iPS = +23m.6s., iPPS = +23m.41s.
Oxford iSE = +23m.9s., SSE = +28m.10s., iSSN = +28m.21s.
Kew iPP = +15m.34s., PSN = +23m.49s., SSE = +28m.20s., eN = +28m.57s.
Paris PP = +15m.49s.
Arapuni SS = +27m.3s. ?
Chicago iSS = +28m.42s.
Puy de Dôme readings have been *increased* by 3m.
Wellington PP = +16m.16s., PPP = +18m.21s., SS = +29m.3s. ?, SSS = +32m.53s.
Florissant iZ = +13m.8s. and +16m.24s. =PP +21s., iSEN = +23m.9s., iEN = +23m.23s. and +23m.49s., iE = +29m.9s. =SS +10s.
Ann Arbor ePP = +16m.15s., ePPP = +18m.9s., iPS = +24m.15s., iSS = +29m.15s., eSSS = +33m.9s.
St. Louis eN = +15m.36s., iEN = +23m.24s. =S −7s., iE = +28m.18s.
Ottawa i = +13m.8s., iE = +23m.25s., eN = +24m.22s. and +25m.18s., eE = +26m.37s. and +29m.19s.
Toronto i = +13m.11s., iPP = +16m.33s., e = +22m.48s. =S +13s., iSSE = +29m.12s.
Buffalo iPP = +16m.28s., iPS = +24m.54s.
Little Rock ePPN = +16m.21s., iEN = +23m.41s. =S −9s.
Bagnères PP = +16m.40s.
Harvard eE = +30m.33s. =SS +27s. and +33m.48s. =SSS +7s.
Fordham PPP = +19m.15s., SKS = +23m.44s., PS = +25m.2s.
Georgetown iPZ = +13m.31s., PPZ = +16m.55s. ; T_o = 3h.49m.42s.
Charlottesville SS = +30m.45s., e = +37m.33s.
Toledo PP = +17m.7s., SKS = +23m.50s., iPS = +24m.49s., SS = +30m.32s., i = +30m.58s., PPSS = +31m.21s.
Columbia eSKS = +23m.43s., SS = +31m.9s., SSS = +34m.28s.
Almeria PP = +17m.22s., PPP = +20m.5s., PS = +26m.37s.
Granada i = +13m.44s., +17m.32s. =PP +17s., +18m.41s., and +20m.22s. = PPPP −23s.
San Fernando S = +24m.23s.
Tananarive +29m.16s., SS = +33m.47s., SSS = +38m.31s. ; +44m.46s., and +48m.43s.
San Juan PP = +19m.51s., SKS = +24m.39s., PS = +29m.38s., SS = +35m.27s.
La Paz iPKPN = +19m.40s., PPZ = +22m.56s., SKSPZ = +33m.12s., SSE = +41m.42s., iSSN = +41m.50s., SSSE = +47m.8s., SSSN = +47m.28s.
Long waves were recorded at Balboa Heights, Port au Prince, and Johannesburg.

March 9d. 17h. 56m. 9s. Epicentre 40°·5N. 142°·5E. (as at 3h.). R.2.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Miyako	1·0	204	0 16	+ 2	0 31	S*	—	—
Morioka	1·3	232	0 21	+ 3	0 42	S*	—	—
Aomori	1·4	284	0 28	P*	0 51	S_g	—	—
Urakawa	1·7	7	0 29	+ 5	0 49	+ 5	—	—
Mizusawa	1·7	218	0 27	+ 3	0 49	+ 5	—	—
Hakodate	1·9	314	0 35	P*	1 8	S_g	—	—
Akita	2·0	246	0 35	+ 6	1 2	S*	—	—
Isinomaki	2·2	204	0 28	− 3	0 46	−11	—	—
Sendai	2·6	210	0 37	0	1 11	+ 4	—	—
Kusiro	2·9	30	0 32	− 9	1 2	−12	—	—
Hukusima	3·1	210	0 41	− 3	1 22	+ 2	—	—
Onahama	3·7	200	0 42	−11	1 35	0	—	—
Mito	4·4	201	1 0	− 3	1 48	− 5	—	—
Kakioka	4·6	203	1 4	− 2	2 16	S*	—	—
Tyosi	4·9	195	e 1 6	− 4	2 13	+ 8	—	—
Kumagaya	5·0	210	1 8	− 3	2 20	+12	—	—
Nagano	5·1	222	1 14	+ 1	2 28	S*	—	—
Tokyo	5·3	205	1 12	− 3	2 34	S*	—	—
Yokohama	5·5	205	1 21	+ 3	2 39	+19	—	—
Misima	6·1	208	1 25	− 2	2 49	+13	—	—
Gihu	6·8	223	1 37	0	3 10	+17	—	—
Nagoya	6·8	221	e 1 44	+ 7	3 13	+20	—	—
Hamamatu	6·9	214	1 40	+ 2	3 18	+22	—	—
Osaka	8·0	225	1 53	0	(3 40)	+16	3·7	4·7
Kobe	8·2	227	2 0	+ 4	—	—	—	4·6
Vladivostok	8·3	292	e 1 51	− 7	i 3 42	+11	4·6	—
Sumoto	8·6	227	e 2 1	− 1	3 55	+16	—	4·8
Irkutsk	28·4	307	e 5 48	− 3	e 10 43	+ 5	14·8	18·0
Ekaterinburg	52·9	319	9 13	0	e 16 59	+18	25·8	34·6
Tashkent	53·6	298	—	—	e 18 51	(−17)	e 33·8	36·8
Samarkand	55·9	297	e 9 36	+ 1	—	—	—	—
Baku	66·8	306	e 9 56	−55	—	—	e 33·8	43·2

Additional readings :—
Mizusawa SN = +52s.
Tyosi P_gN = +1m.19s., SN = +2m.20s.
Kobe iE = +3m.57s., eZ = +4m.19s.
Long waves were also recorded at Koti, Hong Kong, Pulkovo, and Uccle.

March 9d. 18h. 40m. 59s. Epicentre 36°·2N. 139°·6E. (as on 1930 Oct. 24d.). X.

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

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tokyo		0·6	166	0 4	− 5	0 13	− 2	—	0·2
Tyosi		1·1	115	e 0 13	− 3	0 26	− 2	—	—
Nagoya		2·4	244	e 0 32	− 2	—	—	—	—
Mizusawa	E.	3·1	23	0 49	+ 5	1 27	+ 7	—	—
Osaka		3·7	245	0 58	+ 5	—	—	1·8	2·3
Kobe		4·0	249	—	—	e 1 45	+ 3	—	—

No additional readings.

March 9d. Readings also at 4h. (Mizusawa (4) and near Samarkand), 5h. (Mizusawa (2), near Osaka, Kobe, Sumoto, and Toyooka), 7h. (Andijan, Samarkand, Kucino, Pulkovo, Paris, Mizusawa (2), near Nagoya, and Osaka), 9h. (Messina), 10h. (Ekaterinburg, Irkutsk, Tyosi, and near Mizusawa (2)), 11h. (near Mizusawa, near Naples, Rome, Taranto, Benevento, Trenta, Collurania, Casamicciola, and near Zagreb), 12h. (Tyosi and near Mizusawa), 14h. (near Mizusawa), 16h. (Tucson), 17h. (Ekaterinburg, Vladivostok, Koti, Osaka, near Mizusawa, Tyosi, and near Hastings), 18h. (Andijan and Samarkand), 19h. (near Hastings (2) and near Mizusawa), 20h. (Koti and near Hastings), 21h. (Koti), 22h. (La Paz and San Juan).

March 10d. 3h. 28m. 59s. Epicentre 40°·0N. 125°·3W. N.3.

A = −·443, B = −·625, C = +·643 ; D = −·816, E = +·578 ;
G = −·371, H = −·525, K = −·766.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Berkeley		3·2	131	i 0 46	0	i 1 22	0	—	2·3
Lick		3·9	131	i 0 56	0	i 1 42	+ 2	—	—
Haiwee	N.	6·9	122	e 1 42	+ 4	e 3 5	+ 9	—	—
Santa Barbara		7·1	140	i 1 38	− 3	3 1	0	—	—
Mount Wilson		8·2	133	e 1 56	0	e 3 25	− 4	—	—
Pasadena	Z.	8·2	134	e 1 55	− 1	e 3 26	− 3	—	—
Tucson		14·0	119	3 23	+ 8	e 7 28	+97	9·4	—
Florissant		26·9	81	e 5 36	− 1	e 10 41	+27	14·0	—

Additional readings :
Berkeley i = +50s., iN = +1m.6s., +1m.18s., and +1m.39s., iSE = +1m.53s.
Lick PN = +1m.1s., iN = +1m.50s.
Mount Wilson eE = +3m.28s.
Long waves were also recorded at Scoresby Sund.

March 10d. Readings also at 3h. (near Lick), 6h. (near Mizusawa), 8h. (Andijan and near Samarkand), 11h. and 14h. (near Mizusawa), 18h. (Samarkand), 19h. (Andijan), 20h. and 22h. (Granada).

March 11d. 5h. 0m. 0s. Epicentre 39°·3N. 146°·3E. N.3.

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

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Mizusawa	E.	4·0	270	0 45	−12	1 13	−29	—	—
	N.	4·0	270	0 48	− 9	1 17	−25	—	—
Tyosi		5·6	235	e 1 14	− 6	e 2 29	+ 6	—	—
Nagoya		8·5	244	e 1 58	− 2	3 32	− 4	—	—
Osaka		9·8	245	2 30	+12	—	—	4·6	5·0
Kobe	E.	10·0	246	2 25	+ 4	e 4 29	+16	—	5·1
Sumoto		10·4	245	e 3 4	+38	e 4 58	+35	—	5·3
Vladivostok		11·4	294	e 2 35	− 5	—	—	5·9	—
Irkutsk		31·5	308	e 6 19	+ 1	—	—	16·0	19·5
Ekaterinburg		55·8	319	9 39	+ 5	e 17 25	+ 5	28·0	35·2

Additional readings :
Ekaterinburg eSS = +21m.24s.
Long waves were also recorded at Koti, Hong Kong, Tashkent, Baku, Kucino, and Copenhagen.

March 11d. 5h. 58m. 51s. Epicentre 5°·3S. 133°·5E. (given by Batavia). N.3.

A = −·685, B = +·722, C = −·092 ; D = +·725, E = +·688 ;
G = +·064, H = −·067, K = −·996.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Amboina		5·5	287	0 42	−36	i 1 22	−58	—	—
Manila		23·4	328	i 4 59	− 6	i 9 9	− 3	—	—
Batavia		26·5	267	i 5 33	− 1	9 42	−25	—	—
Adelaide		30·0	172	i 10 53	S	(i 10 53)	−11	17·4	19·6
Perth		31·4	210	—	—	11 9	−17	14·2	—
Riverview		32·9	152	11 59	S	(11 59)	+10	(14·8)	18·0
Sydney		32·9	152	e 7 27	PP	e 12 21	+32	18·6	19·4
Hong Kong		33·5	327	6 29	− 7	11 38	−20	—	16·9
Melbourne		34·1	165	12 9	S	(12 9)	+ 1	17·1	19·0
Koti	N.	38·8	0	—	—	e 13 39	+21	—	—
Osaka		40·0	2	7 51	+19	—	—	9·5	10·8
Vladivostok		48·4	358	e 8 59	+20	—	—	29·1	—
Wellington		51·5	140	—	—	e 16 41	+19	27·2	32·2
Calcutta		52·2	305	e 9 56	+48	15 36	−55	20·3	—
Colombo		54·9	282	16 4	S	(16 4)	−64	26·9	27·6

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		Δ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
Agra	E.	62·6	306	—	—	e 17 18	−92	—	—
Irkutsk		62·7	340	10 23	0	18 50	− 1	e 32·2	—
Bombay		64·4	295	9 53	−42	18 34	−38	33·5	—
Tashkent		74·6	317	e 12 5	+27	20 47	−28	e 33·2	43·0
Samarkand		75·7	315	e 11 37	− 7	—	—	—	—
Ekaterinburg		85·2	330	i 12 32	− 2	i 22 48	[−13]	35·2	—
Baku		88·6	312	e 12 56	− 5	i 23 27	[+ 3]	41·2	52·1
Pulkovo		101·2	330	e 18 21	?	—	—	51·2	—
Copenhagen		111·4	329	31 9?	?	—	—	—	—
Scoresby Sund		113·1	350	—	—	28 9	PS	61·2	—
La Paz		149·5	135	e 19 49	[+ 8]	27 9	?	78·2	87·0

Additional readings and notes :
Adelaide i = +11m.30s. and +16m.13s., iS = +15m.26s.
Perth SS = +11m.54s.
Riverview gives S as P and L as S.
Melbourne S = +15m.24s.
Vladivostok e = +10m.51s. = PP + 26s.
Colombo S = +19m.51s.
Agra eN = +17m.33s.
La Paz PPE = +23m.36s.
Long waves were also recorded at Granada and De Bilt.

March 11d. 12h. 26m. 46s. Epicentre 23°·0N. 143°·5E. N.1.

Probable error of epicentre ±0°·28.

A = −·740, B = +·547, C = +·391 ; D = +·595, E = +·804 ;
G = −·314, H = +·232, K = −·920.

		Δ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
Misima		12·7	343	2 54	− 4	5 7	−13	—	—
Tyosi		12·9	350	e 2 56	− 5	e 5 10	−15	—	—
Tokyo		13·1	346	2 52	−11	5 0	−29	—	—
Nagoya		13·4	336	e 3 8	+ 1	—	—	6·1	—
Sumoto		13·6	328	3 8	− 2	6 52	L	(6·9)	7·6
Osaka		13·6	331	e 3 8	− 2	(e 5 53)	+12	e 5·9	7·3
Koti		13·7	323	e 3 10	− 1	5 46	+ 2	e 6·7	7·6
Gihu		13·7	336	3 8	− 3	5 44	0	—	—
Kobe		13·8	330	3 9	− 4	—	—	e 6·3	9·7
Miyazaki		13·9	313	3 14	0	5 52	+ 3	—	—
Toyooka		14·6	331	i 3 25	+ 2	—	—	i 7·8	10·1
Naha		14·8	289	3 28	+ 2	6 21	+11	—	—
Nagasaki		15·5	312	e 3 35	0	6 26	− 1	7·6	11·3
Hukuoka		15·6	315	3 36	0	6 40	+11	e 7·9	9·5
Mizusawa	E.	16·2	354	3 44	0	6 50	+ 7	7·6	—
	N.	16·2	354	3 46	+ 2	6 56	SS	7·8	—
Morioka		16·8	354	3 49	− 3	6 55	− 2	—	—
Taihoku	E.	20·2	280	4 29	− 3	8 31	SS	e 9·9	15·6
Nemuro		20·4	4	4 35	+ 1	8 48	PcP	—	—
Zinsen		20·6	319	4 35	− 1	8 18	0	—	—
Zi-ka-wei		21·2	297	e 5 2	+20	8 54	+24	11·7	16·9
Vladivostok		22·2	337	4 54	+ 1	i 9 0	+10	11·6	12·9
Manila		22·9	252	i 5 4	+ 4	i 9 24	+21	i 12·1	—
Hong Kong		27·0	274	5 39	+ 1	10 41	+26	—	17·1
Tientsin		27·5	312	i 4 54	−49	11 14	SS	—	16·7
Chiufeng	E.	28·7	313	e 5 50	− 3	e 10 40	− 3	—	—
Amboina		30·6	212	e 6 16	+ 6	—	—	15·2	—
Phu-Lien		34·2	275	6 45	+ 3	e 12 20	+11	17·2	21·3
Irkutsk		41·8	324	7 46	− 1	14 0	− 3	22·2	25·3
Batavia		46·3	237	i 8 58	+35	i 15 41	+32	27·0	—
Calcutta		50·5	281	8 21	−34	15 9	−59	29·6	36·1
Suva		53·4	139	e 9 24	+ 7	e 17 14	+27	29·2	—
Honolulu T.H.		54·0	80	e 9 4	−17	i 17 1	+ 5	23·7	—
Riverview		57·3	174	e 11 28	PP	(i 17 40)	0	25·4	30·5
Sydney		57·3	174	i 17 14	S	(i 17 14)	−26	26·5	31·7
Almata		57·6	309	9 57	+10	17 54	+10	e 33·2	—

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		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Dehra Dun		58·2	294	9 44	− 8	17 44	− 8	32·4	36·2
Adelaide		58·2	185	e 9 51	− 1	i 17 45	− 7	i 26·2	34·0
Agra		58·8	289	8 59	−57	e 17 1	−59	e 28·6	—
Melbourne		60·9	179	—	—	18 24	− 4	—	34·0
Perth		61·0	208	—	—	e 18 39	+10	e 26·1	36·7
Andijan		61·2	305	10 15	+ 2	18 33	+ 1	e 32·0	—
Colombo		63·1	268	10 25	− 1	18 57	+ 1	30·8	37·5
Tashkent		63·5	308	i 10 29	0	i 18 58	− 3	e 29·2	39·2
Kodaikanal		64·1	273	e 9 56	−37	—	—	i 32·4	39·1
Bombay		65·5	281	10 43	+ 1	19 25	− 1	34·0	40·3
Samarkand		65·5	307	10 42	0	19 26	0	35·2	—
Sitka		66·1	37	—	—	i 19 31	− 3	e 31·2	—
Ekaterinburg		67·1	324	i 10 50	− 2	i 19 40	− 6	28·2	41·2
Arapuni		68·1	153	—	—	20 14?	PS	37·2?	39·2?
Wellington		70·5	156	11 10	− 4	20 17	−10	36·9	41·2
Victoria		75·0	43	12 23	+43	21 13	− 7	34·6	35·5
Baku		77·9	309	e 11 58	+ 1	i 21 51	− 2	38·2	49·2
Berkeley		79·2	53	i 12 2	− 2	—	—	36·7	46·5
Kucino		79·4	326	e 13 0	+55	e 23 44	+95	35·8	46·5
Lick	E.	79·9	53	11 59	− 8	—	—	e 37·5	—
Pulkovo		81·1	332	i 12 11	− 3	i 22 15	−12	38·2	49·8
Santa Barbara	E.	82·4	55	—	—	e 22 30	[− 9]	—	—
Tinemaha	E.	82·5	52	e 12 22	+ 1	e 22 35	[− 5]	—	—
Haiwee	N.	83·0	53	e 12 29	+ 6	e 22 42	[− 2]	—	—
Helsingfors		83·1	333	e 12 23	− 1	22 34	[−11]	e 42·2	—
Pasadena		83·7	55	i 12 28	+ 1	e 22 43	[− 6]	e 38·5	—
Mount Wilson	E.	83·8	55	e 12 29	+ 2	e 22 50	[0]	—	—
Scoresby Sund		86·0	355	12 44	+ 6	23 2	[− 4]	45·2	—
Upsala		86·2	336	15 58	PP	22 52	[−16]	e 43·2	48·5
Simferopol		86·6	318	12 50	+ 9	23 14	[+ 3]	—	—
Yalta		86·7	318	12 43	+ 1	—	—	48·2	—
Sebastopol		87·1	318	13 16	+32	—	—	—	—
Königsberg		88·2	330	e 16 44	PP	e 23 22	[+ 1]	e 44·2	63·2
Tucson		90·0	55	12 44	−13	23 29	[− 4]	41·0	—
Bergen		90·2	340	26 14	?	31 44	?	47·2	—
Lund		90·8	334	—	—	23 50	{+ 9}	45·2	—
Copenhagen		91·1	334	13 8	+ 5	23 50	{+ 6}	45·2	—
Potsdam		93·2	332	—	—	e 24 2	{+ 1}	e 46·4	55·2
Hamburg		93·6	334	e 16 58	PP	—	—	e 44·2	50·2
Vienna		94·5	328	e 13 27	+ 9	24 23	{+12}	e 47·2	60·2
Jena		94·8	332	e 15 44	?	e 25 38	PS	e 42·2	57·2
Cheb		95·1	330	e 18 14?	?	e 27 38	?	e 46·2	61·2
Göttingen		95·1	333	—	—	e 24 36	− 7	e 46·1	62·7
Ivigtut		95·4	6	—	—	24 33	−13	—	—
Edinburgh		96·2	341	—	—	e 31 14?	SS	47·2	—
De Bilt		96·6	335	e 13 32	+ 4	e 24 43	−13	e 46·2	60·7
Feldberg		96·7	333	—	—	e 24 20	[+11]	e 50·3	55·8
Innsbruck		97·5	329	16 14	?	—	—	56·2	61·7
Stuttgart		97·5	332	e 13 36	+ 4	i 24 59	− 5	e 48·2	61·2
Stonyhurst		97·7	339	e 22 43	?	i 30 9	?	48·2	53·2
Uccle		97·9	335	e 15 14?	?	21 14?	PPPP	e 44·2	62·2
Strasbourg		98·2	332	e 13 14?	−21	e 24 31	{− 9}	e 43·2	62·7
Bidston		98·3	339	i 13 24	−12	i 26 0	PS	e 43·2	69·7
Kew		99·0	338	e 13 57	+18	e 25 10	− 8	47·2	63·1
Oxford		99·1	338	i 17 30	PP	e 23 59	[−22]	e 48·7	67·6
Taranto		99·2	321	24 55	SKKS	(24 55)	{+ 8}	53·2	58·2
Neuchatel		99·8	331	e 17 28	PP	—	—	e 62·2	—
Chicago		99·8	36	—	—	e 25 6	−19	48·3	—
Piacenza		100·0	329	—	—	e 24 44	[+18]	—	60·6
Paris		100·1	335	e 14 14?	+30	e 23 14?	[−72]	48·2	56·2
Florissant		100·2	40	e 14 24	+40	i 24 20	[− 7]	—	52·4
St. Louis		100·5	40	—	—	i 24 20	[− 8]	42·2	52·2
Rome		100·9	324	e 24 33	SKS	26 19	+45	—	—
Catania		102·4	320	e 12 30	−85	e 24 29	[− 8]	e 56·1	65·0
Tananarive		102·6	256	—	—	e 27 17	?	52·4	—

Continued on next page.

	△ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
Toronto	102·6	30	e 13 32	−23	i 24 29	[− 9]	46·2	—
Ottawa	102·8	27	—	—	e 24 32	[− 7]	e 45·2	—
Buffalo	103·4	30	e 18 14	PP	e 27 28	PS	—	60·2
Harvard	107·2	26	—	—	i 24 51	[− 9]	e 47·2	—
Fordham	107·3	29	—	—	e 24 37	[−24]	e 45·2	—
Charlottesville	107·3	33	—	—	i 24 54	[− 7]	—	—
Georgetown	107·4	31	18 42	PP	24 54	[− 7]	—	—
Columbia	109·0	37	—	—	i 25 2	[− 7]	47·7	—
Algiers	109·5	327	e 18 54	PP	34 14	SS	57·2	63·7
Granada	112·3	332	i 19 4	PP	—	—	e 57·6	76·1
San Fernando	114·0	333	17 26	[−64]	28 56	PS	48·2	72·7
San Juan	129·4	37	22 14	?	e 31 14	PS	e 60·2	—
La Paz	149·6	84	i 19 50	[+ 9]	i 30 13	{− 7}	76·3	83·5

Additional readings and notes :—
Tyosi P = +3m.5s.
Koti eZ = +3m.22s.
Kobe i = +3m.55s.
Toyooka iPZ = +3m.31s.
Nagasaki PP = +3m.41s., PPP = +3m.51s.
Zi-ka-wei iN = +5m.36s., SSE = +9m.16s.
Manila iN = +10m.5s., iE = +11m.3s.
Batavia PE = +9m.1s., i = +9m.59s. = PP − 4s., +10m.44s. = PPP + 2s., and +16m.31s.
Suva PP = +12m.44s.
Riverview iSS ? = +19m.36s. = S_cS + 3s. ; S is given as iS_cS ?
Adelaide i = +24m.35s.
Agra eN = +9m.10s.
Melbourne e = +11m.54s. ? and +25m.4s.
Perth e = +13m.29s.
Sitka e = +26m.3s. = SSS − 17s.
Arapuni SS = +26m.54s. ? = SSS − 3s., SSS = +30m.4s. ?
Berkeley ePZ = +12m.9s., eE = +36m.25s.
Kucino e = +24m.26s.
Lick eN = +12m.12s., eE = +12m.18s., eN = +12m.27s.
Helsingfors ePPE = +15m.38s., ePSN = +23m.32s., eSSEN = +27m.58s.
Pasadena eZ = +19m.45s., eSN = +22m.46s.
Scoresby Sund +28m.38s. = SS − 4s.
Upsala SS = +28m.43s.
Simferopol PP = +16m.8s.
Königsberg eE = +29m.31s. = SS − 18s. and +30m.22s., eN = +31m.17s., eE = +31m.41s. and +36m.56s.
Tucson SS = +29m.46s.
Lund +16m.31s. = PP − 1s.
Copenhagen PP = +16m.37s.
Potsdam eEN = +30m.26s. = SS + 1s., iN = +30m.30s.
Göttingen eEN = +30m.38s. = SS − 15s.
De Bilt ePPZ = +17m.26s.
Feldberg e = +26m.29s. = PS + 20s., +29m.0s., +31m.28s. = SS + 13s., +37m.41s. +39m.31s., and +43m.56s.
Stuttgart iPP = +17m.30s., e = +19m.4s. = PPP − 20s., eSKS = +24m.4s. − 11s., eSS = +32m.20s., eE = +35m.14s. ? = SSS + 0s.
Strasbourg ePP = +16m.42s., SS = +31m.44s.
Taranto S = +35m.14s. ? = SSS − 21s.
Chicago SKS = +24m.13s., ePS = +27m.44s., eSS = +32m.14s.
Florissant eEZ = +17m.59s. = PP + 15s., eEN = +26m.47s. = PS − 1s., e = +32m.14s. = SS + 9s.
Tananarive eE = +33m.10s.
Toronto i = +33m.5s. and +37m.50s.
Ottawa e = +32m.57s. = SS + 17s., eE = +37m.26s., eN = +37m.56s., and +40m.52s., e = +42m.36s.
Buffalo i = +39m.31s. and +43m.56s.
Harvard e = +28m.14s. = PS + 14s. and +33m.14s. = SS − 27s., eN = +38m.32s. and +41m.17s.
Fordham eN = +19m.29s., e = +27m.44s. = PS − 17s. and +34m.12s.
Charlottesville PS = +28m.8s., SS = +33m.56s.
Georgetown PSN = +27m.58s. ; T_0 = 12h.26m.36s.
Columbia ePS = +28m.18s., PPS = +29m.29s., SS = +34m.30s.
San Juan eSS = +39m.14s.
La Paz iZ = +19m.56s., iPPE = +24m.21s., iPPN = +25m.4s., SKSN ? = +26m.53s.
Long waves were also recorded at Little Rock, Cape Town, and the European stations.

March 11d. Readings also at 0h. (near Hastings, near Lick, and near Mizusawa), 1h. (La Paz), 2h. (Mizusawa, near Hastings, and Wellington), 3h. (near La Paz), 4h. (Medan and near Mizusawa), 6h. (Almata, Andijan, and near Tashkent), 10h. (Medan), 11h. (Granada and Simferopol), 12h. (Graz), 13h. and 15h. (Granada), 16h. (Amboina), 18h. (Granada Phu-Lien, and Medan), 19h. (Hong Kong, Tashkent, Ekaterinburg, near Mizusawa, Nagoya, and Tyosi), 20h. (Ekaterinburg, Almata, near Andijan, Samarkand, and Tashkent), 23h. (Andijan (2)).

March 12d. 10h. 40m. 40s. Epicentre 22°·5N. 143°·5E. N.1.

Probable error of epicentre ±0°·27.

A = −·748, B = +·549, C = +·383 ; D = +·595, E = +·804 ;
G = −·308, H = +·228, K = −·924.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Titizima		4·7	346	1 2	− 5	2 37	S_g	—	—
Siomisaki		12·8	330	3 3	+ 4	5 56	+34	—	—
Tyosi		13·4	351	e 3 6	− 1	—	—	e 6·3	—
Nagoya		13·9	337	e 3 18	+ 4	—	—	6·3	—
Sumoto		14·0	329	3 2	−13	7 24	L	(7·4)	9·8
Osaka		14·0	332	3 41	+26	(6 24)	+33	6·4	7·7
Koti		14·1	324	e 3 21	+ 4	(5 38)	−15	5·6	8·7
Kobe		14·2	331	e 3 38	+20	—	—	7·5	7·9
Hukusima		15·4	351	3 35	+ 1	6 44	+20	—	—
Nagasaki		15·8	313	e 3 43	+ 5	e 6 25	− 9	e 6·9	—
Hukuoka		16·0	317	e 3 35	− 6	6 44	+ 6	e 8·2	10·0
Mizusawa	E.	16·7	354	3 56	+ 6	7 4	+ 9	—	—
Taityu		18·6	319	4 15	+ 1	7 38	0	—	—
Zi-ka-wei		21·5	299	e 4 42	− 3	8 50	+14	—	12·7
Manila		22·8	254	i 5 5	+ 6	i 9 29	SS	i 12·2	—
Ootomari		24·2	359	5 11	− 1	9 29	+ 2	—	—
Hong Kong		27·1	275	5 41	+ 2	10 42	+25	13·3	17·3
Chiufeng	E.	29·1	314	e 5 58	+ 1	—	—	—	—
Phu-Lien		34·3	275	e 6 46	+ 3	e 12 35	+24	15·3	—
Irkutsk		42·2	324	7 48	− 2	e 13 59	−10	22·3	26·8
Batavia		46·0	237	i 9 3	+42	i 15 47	+44	—	—
Medan		47·3	255	e 19 48	?	i 28 12	?	—	—
Calcutta		50·6	281	e 8 40	−16	15 54	−15	25·9	—
Honolulu T.H.		54·1	80	—	—	e 17 1	+ 4	26·8	—
Adelaide		57·7	185	—	—	e 17 50	+ 4	29·2	33·8
Almata		58·0	309	—	—	e 18 51	+62	34·3	—
Hyderabad		60·9	280	10 15	+ 4	18 26	− 2	33·3	38·7
Andijan		61·6	305	e 10 18	+ 2	e 18 39	+ 2	e 33·3	—
Colombo		63·1	268	10 24	− 2	19 26	+30	—	40·4
Tashkent		63·9	308	i 10 30	− 1	i 19 2	− 4	e 28·3	40·1
Kodaikanal		64·2	273	e 21 32	S	(e 21 32)	(+71)	e 35·3	40·2
Bombay		65·6	281	10 43	+ 1	19 30	+ 3	34·8	40·7
Samarkand		65·8	307	10 45	+ 1	19 23	− 7	—	—
Ekaterinburg		67·4	324	i 10 51	− 3	19 43	− 7	27·3	42·1
Victoria		75·4	43	—	—	21 18	− 7	35·1	38·3
Baku		78·3	309	e 12 0	+ 1	i 21 54	− 3	37·3	51·4
Berkeley	E.	79·4	53	e 5 14	?	e 22 4	− 5	e 36·1	39·3
Kucino		79·8	326	12 4	− 3	22 1	−13	37·4	50·4
Pulkovo		81·5	332	12 12	− 4	22 17	−15	38·3	51·5
Tinemaha	E.	82·8	52	e 12 24	+ 2	e 22 34	−11	—	—
Haiwee	N.	83·3	53	e 12 29	+ 4	—	—	—	—
Helsingfors		83·5	333	—	—	e 22 37	[−11]	e 42·3	—
Pasadena	E.	84·1	55	e 12 29	0	22 47	[− 5]	—	—
Scoresby Sund		86·5	355	12 50	+ 9	23 2	[− 8]	43·3	—
Tucson		90·3	55	—	—	e 23 32	[− 2]	—	—

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Copenhagen	91·4	334	—	—	23 20?	[−21]	43·3	—
Cheb	95·5	330	—	—	e 31 20?	SS	e 47·3	60·3
Feldberg	97·2	333	—	—	e 24 58	− 4	e 51·0	55·9
Stuttgart	97·9	332	e 13 32	− 2	—	—	—	61·4
Uccle	98·3	335	9 20?	?	—	—	—	—
Strasbourg	98·6	332	(e 17 20?)	PP	—	—	e 17·3	—
Kew	99·5	338	—	—	e 26 20?	PS	46·3	—
Piacenza	100·4	329	—	—	e 24 20	[− 8]	—	57·7
Paris	100·6	335	e 17 20?	PP	—	—	53·3	56·3
Florissant	100·6	40	—	—	i 24 23	[− 6]	57·3	—
Toronto	103·0	30	—	—	i 24 33	[− 7]	45·7	—
Ottawa	103·3	27	—	—	e 24 38	[− 4]	e 45·3	—
Buffalo	103·8	30	—	—	e 27 0	PS	e 59·3	—
Fordham	107·8	29	e 17 50	[−20]	e 28 20	PS	e 55·3?	—
La Paz	149·6	84	e 19 47	[+ 6]	27 4	?	75·9	87·8

Additional readings :—
Kobe eEZ = +7m.20s., eN = +7m.32s.
Manila iZ = +9m.56s.
Irkutsk ePP = +9m.27s., eSS = +17m.2s.
Adelaide e = +25m.5s.
Helsingfors eSSN = +28m.2s., eE = +31m.15s. =SSS −13s.
Feldberg e = +31m.26s. =SS +3s.
Stuttgart ePPZ = +17m.33s., eSSE = +31m.30s.
Florissant iZ = +27m.36s.
Toronto e = +32m.48s. =SS +5s.
Ottawa eE = +33m.12s., eN = +33m.30s.
Fordham e = +34m.5s. =SS +16s.
La Paz iPKPZ = +19m.52s., PPZ = +24m.13s.
Long waves were recorded at Riverview, Sydney, Toyooka, San Juan, Ivigtut, and many European and American stations.

March 12d. 19h. 4m. 37s. (I) } Epicentre 22°·5N. 143°·5E. R.2.
19h. 9m. 4s. (II) } (as at 10h.). R.2.
20h. 58m. 45s. (III) } R.2.

A = −·743, B = +·549, C = +·383 ; D = +·595, E = +·804 ;
G = −·308, H = +·228, K = −·924.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
II	Misima	13·2	343	2 53	−12	4 55	−37	—	—
III		13·2	343	2 54	−11	5 4	−28	—	—
II	Tokyo	13·6	347	3 12	+ 2	—	—	—	—
II	Sumoto	14·0	329	e 3 20	+ 5	8 5	L	(8·1)	10·1
II	Kakioka	14·0	349	3 13	− 2	5 24	−27	—	—
II	Osaka	14·0	332	e 2 42	−33	e 4 56	−55	e 7·2	9·4
III		14·0	332	e 3 16	+ 1	—	—	e 7·2	9·3
II	Koti	14·1	324	e 3 21	+ 4	—	—	—	7·8
III		14·1	324	e 3 19	+ 2	—	—	—	—
II	Kobe	14·2	331	e 3 36	+18	—	—	—	9·7
III		14·2	331	e 4 28	+70	—	—	e 7·4	9·7
II	Miyazaki	14·3	314	3 25	+ 6	5 53	− 5	—	—
III		14·3	314	3 18	− 1	5 58	0	—	—
III	Hukusima	15·4	351	3 24	−10	5 58	−26	—	—
II	Nagasaki	15·8	313	e 3 37	− 1	e 6 37	+ 3	—	—
I	Mizusawa E.	16·7	354	6 23	S	(6 23)	−32	—	—
I	N.	16·7	354	6 17	S	(6 17)	−38	—	—
II	E.	16·7	354	—	—	6 56	+ 1	—	—
II	N.	16·7	354	—	—	6 52	− 3	—	—
III	E.	16·7	354	4 3	+13	6 46	− 9	—	—
II	N.	16·7	354	4 15	+25	6 33	−22	—	—

Continued on next page.

			Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
			°	°	m. s.	s.	m. s.	s.	m.	m.
III	Akita		17·4	351	4 24	+25	8 31	+80	—	—
I	Zi-ka-wei	E.	21·5	299	e 4 41	− 4	—	—	—	—
II		E.	21·5	299	e 4 44	− 1	—	—	—	—
I	Vladivostok		22·7	338	e 5 4	+ 6	i 8 59	0	12·0	16·6
III			22·7	338	e 4 57	− 1	i 8 59	0	11·4	13·1
I	Manila		22·8	254	e 4 55	− 4	i 10 5	+64	i 14·1	16·4
III			22·8	254	e 5 3	+ 4	i 8 31	−30	i 10·1	12·2
I	Hong Kong		27·1	275	5 39	0	10 12	− 5	—	20·6
III			27·1	275	5 42	+ 3	10 28	+11	—	15·9
I	Irkutsk		42·2	324	e 7 53	+ 3	13 47	−22	e 22·4	30·1
III			42·2	324	e 7 46	− 4	e 13 53	−16	e 23·3	28·4
I	Almata		58·0	309	e 10 8	+18	—	—	—	—
II			58·0	309	e 10 39	+49	—	—	—	—
II	Hyderabad		60·9	280	18 37	S	(18 37)	+ 9	—	39·0
I	Andijan		61·6	305	e 10 7	− 9	—	—	—	—
II			61·6	305	10 17	+ 1	e 18 34	− 3	—	—
I	Tashkent		63·9	308	e 10 30	− 1	i 18 58	− 8	—	43·6
III			63·9	308	e 10 32	+ 1	i 19 0	− 6	e 26·7	41·0
II	Bombay		65·6	281	10 40	− 2	19 29	+ 2	34·3	—
I	Samarkand		65·8	307	e 10 45	+ 1	—	—	—	—
II			65·8	307	10 45	+ 1	19 26	− 4	—	—
I	Ekaterinburg		67·4	324	e 10 48	− 6	i 19 38	−12	33·4	45·6
II			67·4	324	i 10 51	− 3	i 19 41	− 9	—	—
III			67·4	324	i 10 50	− 4	i 19 39	−11	31·2	42·0
II	Victoria	E.	75·4	43	21 24	S	(21 34)	− 1	35·9	40·9
II	Baku		78·3	309	e 12 21	+22	e 21 50	− 7	35·9	49·7
III			78·3	309	e 12 15	+16	e 21 51	− 6	e 37·2	51·7
II	Berkeley	E.	79·4	53	—	—	e 22 57	PS	e 39·1	—
II	Kucino		79·8	326	e 12 2	− 5	22 14	0	—	—
III			79·8	326	—	—	21 59	−15	40·8	49·4
I	Tinemaha	E.	82·8	52	e 12 21	− 1	—	—	—	—
II		E.	82·8	52	e 12 29	+ 7	—	—	—	—
III			82·8	52	e 12 34	+12	—	—	—	—
I	Pasadena	Z.	84·1	55	e 12 26	− 3	—	—	—	—
II		Z.	84·1	55	e 12 29	0	—	—	—	—
III		Z.	84·1	55	e 12 29	0	—	—	—	—
II	Scoresby Sund		86·5	355	—	—	23 14	− 8	44·9	—
II	Copenhagen		91·4	334	—	—	29 56	SS	44·9	—
II	Stuttgart		97·9	332	—	—	e 31 26	SS	e 46·9	59·9
I	Granada		112·8	332	—	—	(23 24)	PPPP	23·4	—
I	La Paz	Z.	149·6	84	e 19 54	[+13]	—	—	—	—
III		Z.	149·6	84	e 19 59	[+18]	—	—	—	—

Additional readings :—
Manila I iE = +5m.31s., iZ = +6m.49s., III iE = +5m.33s.
Pasadena II eE = +12m.33s.
Long waves for the 19h. shocks were recorded at Toyooka, Phu-Lien, Kodaikanal, and other European stations, and for the 20h. shock at Phu-Lien, Kodaikanal, Scoresby Sund, and other European stations.

March 12d. Readings also at 0h. (Ekaterinburg, Irkutsk, and Tashkent), 1h. (near Tyosi), 4h. (near Amboina), 5h. (Mizusawa, near Tyosi, Osaka, and Nagoya), 6h. (near Hastings and New Plymouth), 7h. (Ekaterinburg, Vladivostok, near Lick, and near Mizusawa), 9h. (Samarkand and Tucson), 10h. (Monte Cassino), 11h. (San Fernando and La Paz), 12h. (Alicante, near Almeria, and near La Paz), 13h. (Taranto, Vladivostok, and La Plata), 14h. (Baku, Ekaterinburg, Tashkent, Irkutsk, and Vladivostok), 15h. (Ekaterinburg, Tashkent, Irkutsk, Kucino, and La Paz), 16h. (La Paz and near Tyosi), 18h. (Baku, Ekaterinburg, Tashkent, Irkutsk, Vladivostok, Budapest, Zagreb, Neuchatel, Mineo, near Medan, and near Mizusawa), 19h. (De Bilt, Uccle, Feldberg, Copenhagen, Strasbourg, Stuttgart, Piacenza, and Kucino), 20h. (near Berkeley), 21h. (La Paz, Riverview, near Hastings, New Plymouth, and Wellington), 22h. (Granada, Vladivostok, and near Mizusawa), 23h. (De Bilt, Ekaterinburg, Tashkent, Irkutsk, Kucino, and Samarkand).

March 13d. Readings at 0h. (Sumoto), 1h. (near Algiers and near Hastings), 2h. (near New Plymouth and Wellington), 3h. (near Sumoto), 7h. (Perth), 9h. (Christchurch, near New Plymouth, Takaka, and Wellington), 13h. (Monte Cassino), 16h. (Stuttgart, near Berkeley (2), and Lick (2)), 18h. (Vladivostok and near Mizusawa (2)), 19h. (Ekaterinburg and Samarkand), 21h. (Amboina, Melbourne, and near Riverview), 22h. (Ekaterinburg and Vladivostok), 23h. (Baku, Irkutsk, Tashkent, and Granada).

March 14d. 12h. 6m. 50s. Epicentre 22°·5N. 143°·5E. (as on 12d.). X.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Vladivostok	22·7	338	e 4 47	−11	e 8 48	−11	e 11·8	13·7
Manila	22·8	254	i 4 55	− 4	i 8 27	−34	10·2	—
Irkutsk	42·2	324	—	—	e 13 10?	−59	20·2	27·4
Andijan	61·6	305	e 10 22	+ 6	—	—	—	—
Tashkent	63·9	308	i 10 23	− 8	i 18 50	−16	35·2	40·8
Samarkand	65·8	307	(e 10 52)	+ 8	—	—	—	—
Ekaterinburg	67·4	324	e 11 4	+10	19 31	−19	32·2	—
Pulkovo	81·5	332	—	—	e 26 10	?	45·2	—

Additional readings and note :—
Tashkent e = +8m.42s. and +8m.45s.
Samarkand readings have been *increased* by 3m.
Long waves were also recorded at Baku, Kucino, and the European stations.

March 14d. Readings also at 2h. (Granada), 5h. (Baku, Ekaterinburg, Andijan, Samarkand, Tashkent, near Manila, near Sebastopol, Theodosia, Yalta, near Berkeley, and Lick), 7h. (Sebastopol, near Theodosia, and Yalta), 10h. (Granada and La Paz), 11h. (Baku, Ekaterinburg, Tashkent, Copenhagen, De Bilt, Feldberg, Paris, Stuttgart, Strasbourg, near Sumoto, and near Hastings), 12h. (Koti, Ekaterinburg, and La Paz), 13h. (Irkutsk and Perth), 14h. (Haiwee, Mount Wilson, Pasadena, Tinemaha, Manila, Ekaterinburg, Samarkand, Vladivostok, Melbourne, Riverview, Suva, New Plymouth, and Wellington (2)), 17h. (Berkeley), 18h. (Bombay, Andijan, Samarkand, Tashkent, Ekaterinburg, and near Santiago), 19h. (Ekaterinburg, Tashkent, Granada, Tananarive, near Neuchatel, and Zurich), 20h. (Hyderabad and Manila), 21h. (Ekaterinburg, Kucino, Vladivostok, Pasadena, and Tinemaha), 22h. (Ekaterinburg, Kucino, Feldberg, and La Paz), 23h. (Sydney).

March 15d. 15h. 15m. 5s. Epicentre 24°·3N. 97°·9E. (as on 1930 Nov. 4d.). X.

A = −·125, B = +·903, C = +·412 ; D = +·991, E = +·137 ;
G = −·057, H = +·408, K = −·911.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Phu-Lien		8·8	112	e 2 15	+10	—	—	5·9	—
Calcutta		8·9	260	2 2	− 4	3 38	− 8	4·4	8·7
Hong Kong		15·1	94	3 30	0	—	—	8·2	12·3
Agra	N.	18·1	284	e 3 22	−46	—	—	—	—
Hyderabad		19·4	253	5 46	+83	—	—	—	15·8
Manila		23·8	110	e 5 7	− 1	i 9 19	0	i 11·9	14·5
Bombay		23·9	262	4 4	−65	7 57	−84	10·1	15·4
Andijan		26·9	314	e 6 2	PP	—	—	—	—
Irkutsk		28·4	8	e 6 14?	+23	e 12 0?	SS	17·9	—
Tashkent		29·2	312	e 5 59	+ 1	—	—	e 12·9	24·4
Samarkand		30·1	308	e 5 51	−15	—	—	—	—
Ekaterinburg		42·1	330	i 7 47	− 2	e 17 20	SS	23·9	—

Additional readings :—
Agra eE = +2m.4s.
Long waves were also recorded at Zi-ka-wei, Vladivostok, Baku, and Copenhagen.

March 15d. 16h. 33m. 34s. Epicentre 40°·8N. 143°·4E. N.1.

Probable error of epicentre ±0°23.

A = −·608, B = +·451, C = +·653 ; D = +·596, E = +·803 ;
G = −·525, H = +·390, K = −·757.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Urakawa		1·5	341	0 31	P_g	0 55	S_g	—	—
Miyako		1·6	223	0 19	− 4	0 32	− 9	—	—
Aomori		2·0	270	0 30	+ 1	0 53	+ 2	—	—
Obihiro		2·1	356	0 36	P*	1 17	S_g	—	—
Morioka		2·1	237	0 27	− 3	0 47	− 7	—	—
Kusiro		2·3	19	0 40	P*	1 9	S*	—	—
Hakodate		2·3	296	0 34	+ 1	1 6	S*	—	—
Mizusawa		2·4	226	0 31	− 3	0 55	− 7	—	—
Akita		2·8	246	0 41	+ 1	1 14	+ 2	—	—
Sendai		3·2	218	0 40	− 6	1 12	−10	—	—
Niigata		4·4	230	0 59	− 4	1 54	+ 1	—	—
Mito		5·0	208	1 8	− 3	2 3	− 5	—	—
Kakioka		5·2	210	1 8	− 6	2 8	− 5	—	—
Kumagaya		5·6	215	1 16	− 4	2 23	0	—	—
Oiwake		5·8	222	1 20	− 2	2 27	− 1	—	—
Nagano		5·8	226	1 21	− 1	2 35	+ 7	—	—
Ootomari		5·9	355	1 27	+ 3	3 12	S_g	—	—
Tokyo		5·9	211	1 16	− 8	2 35	+ 4	—	—
Yokohama		6·1	210	1 28	+ 1	2 46	+10	—	—
Wazima		6·1	238	1 47	+20	2 53	+17	—	—
Mera		6·6	207	1 39	+ 5	3 10	S*	—	—
Numadu		6·7	214	1 37	+ 2	2 56	+ 5	—	—
Misima		6·7	213	1 31	− 4	2 42	− 9	—	—
Hamamatu		7·5	218	1 46	0	3 19	+ 8	—	—
Gihu		7·5	226	1 35	−11	3 4	− 7	—	—
Nagoya		7·6	224	e 1 52	+ 4	3 20	+ 6	3·9	—
Hikone		7·9	228	1 49	− 3	3 19	− 2	—	—
Toyooka		8·5	235	i 1 56	− 4	i 4 13	S*	e 5·1	—
Osaka		8·7	228	2 4	+ 1	—	—	3·9	5·2
Vladivostok		8·8	289	2 2	− 3	i 3 49	+ 5	4·2	5·1
Kobe		8·9	229	e 2 16	+10	e 3 46	0	—	4·9
Sumoto	E.	9·3	229	e 2 10	− 1	4 5	+ 9	—	5·1
	N.	9·3	229	e 2 16	+ 5	4 4	+ 8	—	5·1
Siomisaki		9·6	222	2 20	+ 4	4 6	+ 3	—	—
Koti		10·7	230	2 22	− 9	4 29	− 2	e 5·5	6·0
Miyazaki		13·0	231	2 51	−11	5 29	+ 2	—	—
Zi-ka-wei	Z.	20·1	249	e 4 20	−11	8 24	SS	11·7	16·1
Chiufeng	E.	20·7	277	e 4 33	− 4	—	—	—	—
Irkutsk		28·8	307	5 56	+ 2	e 10 40	− 5	15·4	18·2
Hong Kong		30·8	242	—	—	11 5	−12	15·0	20·1
Manila	E.	32·7	225	i 6 31	+ 2	i 11 31	−15	15·0	17·6
Phu-Lien		37·0	249	e 7 3	− 3	12 40	−11	15·4	—
Almata		48·1	296	e 8 39	+ 2	—	—	29·4	—
Andijan		52·2	294	e 9 6	− 2	e 16 36	+ 5	—	—
Ekaterinburg		53·2	319	i 9 17	+ 2	i 16 59	+14	24·4	34·6
Tashkent		54·1	298	i 8 42	−40	i 17 1	+ 4	e 27·4	34·6
Samarkand		56·4	296	9 37	− 2	17 50	+22	—	—
Bombay		63·3	275	18 53	S	(18 53)	− 6	—	—
Pulkovo		65·5	330	10 42	0	e 19 43	PS	34·4	41·8
Baku		67·2	305	—	—	e 20 18	PS	32·8	43·1
Pasadena	Z.	74·0	59	e 11 39	+ 4	—	—	—	—
La Paz	Z.	143·5	58	e 19 52	[+23]	—	—	—	—

Additional readings :—
Kobe eSE = +4m.1s., eSN = +4m.11s.
Baku e = +28m.19s.
Pasadena iZ = +11m.48s.
Long waves were recorded at Ottawa and many other European stations.

March 15d. Readings also at 1h. (Perth, La Paz, near Hastings, and New Plymouth), 2h. (Samarkand), 4h. (Sumoto), 5h. (near New Plymouth), 6h. (near Manila (2)), 8h. (Ekaterinburg and Irkutsk), 9h. (Ekaterinburg, Tashkent, La Paz, La Plata, and Santiago), 11h. (near Manila), 12h. (Andijan), 13h. and 14h. (La Paz), 16h. (Budapest and near Mizusawa), 18h. (near Almata, Andijan, Samarkand, and Tashkent), 19h. (Ekaterinburg, Tashkent, Vladivostok and Manila), 20h. (near Hastings), 21h. (near Lick and near Mizusawa), 22h. (near Hukuoka).

March 16d. Readings at 0h. (Tyosi, near Mizusawa, and near La Paz (2)), 3h. (Zagreb), 4h. (Nagoya and near Sumoto), 6h. (Baku, Tashkent, Ksara, La Plata, and near Santiago), 7h. (Andijan, Samarkand, Ekaterinburg, and near Hastings), 10h. (Irkutsk), 11h. (Almata, Andijan, and Tashkent), 16h. (Ekaterinburg, Almata, near Andijan, Samarkand, Tashkent, and near Port au Prince), 19h. (Ekaterinburg, Irkutsk, Andijan, Samarkand, Tashkent, and near Almata).

March 17d. 9h. 46m. 9s. Epicentre 31°·0N. 130°·6E. N.2.

A = −·558, B = +·651, C = +·515; D = +·759, E = +·651;
G = −·335, H = +·391, K = −·857.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Nagasaki	1·9	343	0 29	+ 1	0 52	+ 3	—	0·9
Hukuoka	2·6	357	e 0 38	+ 1	i 1 9	+ 2	—	1·2
Matuyama	3·4	32	0 46	− 3	(1 12)	−15	1·2	1·3
Koti	3·6	43	i 0 52	+ 1	e 1 32	0	—	1·6
Sumoto	4·9	46	1 10	0	2 4	− 1	—	2·1
Kobe	5·3	45	—	—	i 2 16	+ 1	—	—
Osaka	5·6	47	1 16	− 4	(2 31)	+ 8	2·5	3·1
Nagoya	6·7	50	e 2 17	P_g	2 52	+ 1	—	—

No additional readings.

March 17d. Readings also at 7h. (Ekaterinburg, Irkutsk, Tashkent, and Vladivostok), 8h. (Berkeley and Lick), 11h. (near Mizusawa), 13h. (Andijan and near Samarkand (2)), 15h. (Andijan (2), Samarkand, Bombay, and Calcutta), 16h. (Ekaterinburg, Tashkent, Vladivostok, Andijan, Samarkand, Phu-Lien, and Hong Kong), 17h. (near Sumoto), 20h. (Trenta and Zagreb), 22h. (near Andijan and Samarkand).

March 18d. 8h. 2m. 25s. Epicentre 32°·8S. 71°·3W. N.2.

A = +·270, B = −·796, C = −·542; D = −·947, E = −·321;
G = −·174, H = +·513, K = −·841.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Santiago		0·8	142	0 23	S	(0 23)	+ 2	—	—
La Plata		11·3	104	2 38	− 1	5 8	+23	6·4	—
La Paz	N.	16·6	11	i 4 3	+14	i 7 30	+38	i 7·8	9·0
Balboa Heights		42·5	348	e 7 35?	−18	—	—	—	—
Port au Prince		51·4	359	e 9 7	+ 5	e 16 3	−17	29·7	—
San Juan		51·5	7	i 9 4	+ 1	e 16 21	− 1	—	—
Columbia		67·4	353	—	—	19 55	+ 5	—	—
Dakar		69·9	56	e 11 19	+ 9	e 20 38	+18	33·1	44·2
Little Rock		70·4	343	e 11 11	− 2	e 20 23	− 3	e 31·7	38·4
Charlottesville		71·2	355	11 15	− 3	i 20 40	+ 5	—	—
Georgetown		71·9	356	11 21	− 1	20 45	+ 1	—	—
Cape Town		72·2	120	—	—	22 53	?	34·3	35·8
St. Louis		73·6	346	e 11 29	− 3	i 20 59	− 5	33·1	42·1
Pittsburgh		73·7	354	i 10 51	−42	i 20 24	−41	e 32·3	—
Fordham		73·7	358	e 11 35	+ 2	i 21 10	+ 5	e 34·6	—

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		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Florissant		73·8	346	e 11 29	− 4	e 20 59	− 7	33·6	40·6
Tucson		75·0	327	11 40	0	i 21 15	− 5	31·2	—
Ann Arbor		76·0	352	—	—	e 21 23	− 9	i 34·4	—
Buffalo		76·0	355	i 11 49	+ 3	e 21 29	− 3	—	—
Chicago		76·1	349	i 11 47	0	i 21 27	+ 6	e 31·1	—
Ottawa		78·3	357	e 11 58	− 1	i 21 56	− 1	e 36·6	—
Denver		79·0	335	—	—	e 22 9	+ 4	—	44·8
Riverside		79·6	324	e 12 4	− 2	e 22 7	− 4	—	—
Mount Wilson	E.	80·1	323	e 12 6	− 2	e 22 11	− 6	—	—
Pasadena		80·1	323	e 12 6	− 2	22 11	− 6	e 33·6	46·8
Haiwee	N.	81·7	325	e 12 17	0	e 22 30	− 4	—	—
Johannesburg		83·3	117	—	—	21 35?	−75	—	—
Christchurch		84·0	222	12 27	− 1	i 22 45	−13	—	—
Wellington		84·2	225	12 31	+ 2	22 45	−15	38·1	51·6
Lick	N.	84·5	322	e 12 32	+ 1	e 23 2	− 1	—	—
Berkeley		85·2	322	i 12 35	+ 1	e 23 2	− 8	e 40·6	51·1
Arapuni		85·8	228	—	—	i 22 35?	[−30]	35·6?	39·6?
Apia		91·1	255	—	—	e 36 49	?	—	—
San Fernando		92·1	48	13 20	+13	23 50	[+ 5]	36·6	60·1
Victoria		93·5	329	13 21	+ 7	23 51	[− 2]	42·4	62·7
Granada		94·2	48	i 13 24	+ 7	24 0	[+ 4]	i 36·4	56·8
Almeria		94·8	48	13 14	− 6	24 40	0	44·9	58·8
Toledo		95·6	45	e 13 41	+18	24 41	− 7	e 46·1	56·5
Ivigtut		95·9	11	—	—	23 35	[−30]	—	—
Suva		96·3	244	e 15 12	?	26 45	PS	44·6	—
Alicante		96·8	48	17 26	PP	e 24 54	− 4	e 39·2	59·3
Algiers		98·2	51	—	—	e 24 17	[0]	—	58·6
Honolulu T.H.		98·6	290	—	—	e 24 5	[−14]	i 44·5	—
Tortosa	N.	98·9	46	e 16 27	?	24 26	[+ 6]	e 35·6	59·9
Bagnères		100·1	45	—	—	(e 23 35?)	?	e 23·6	—
Barcelona		100·3	47	—	—	e 23 51	[−36]	—	60·0
Melbourne		101·7	209	e 18 0	PP	24 23	[−11]	46·2	48·9
Tananarive		102·0	122	e 18 5	PP	25 54	+10	50·9	55·5
Riverview		102·3	216	—	—	i 24 24	[−13]	46·8	58·8
Sydney		102·3	216	e 12 35	?	i 24 35	[− 2]	49·9	50·8
Marseilles		103·3	46	—	—	(e 27 35?)	PS	e 27·6	—
Oxford		104·3	38	e 15 30	?	i 24 50	[+ 4]	e 43·6	60·4
Bidston		104·4	36	13 8	?	24 18	[−29]	e 38·2	60·9
Grenoble		104·5	45	—	—	(e 25 35?)	{+ 8}	e 25·6	—
Paris		104·6	41	e 14 10	+ 5	(27 35?)	PS	27·6	66·6
Kew		104·7	38	e 14 12	+ 7	24 48	[0]	48·6	58·2
Sitka		104·8	330	—	—	e 24 46	[− 3]	—	—
Stonyhurst		105·0	36	—	—	i 24 49	[− 1]	50·6	60·9
Besançon		105·7	44	—	—	e 27 59	PS	—	61·6
Edinburgh		105·8	33	—	—	e 24 55	[+ 1]	52·6	62·3
Durham		105·9	34	—	—	24 53	[− 1]	—	61·7
Neuchatel		106·2	44	—	—	e 24 57	[+ 1]	e 64·6	—
Adelaide		106·6	206	—	—	i 24 40	[−17]	44·8?	60·6
Catania		106·7	56	e 24 46	S	(e 24 46)	[−12]	—	68·4
Uccle		106·7	40	e 14 17	+ 2	e 24 59	[+ 1]	—	59·7
Piacenza		106·8	47	e 18 51	PP	24 59	[+ 1]	38·7	64·1
Rome		107·1	50	e 18 59	PP	e 29 9	?	e 58·0	60·5
Strasbourg		107·4	44	e 14 21	+ 3	24 7	[−54]	e 47·6	63·2
Messina		107·4	55	14 39	+21	24 59	[− 2]	—	—
Naples	E.	107·7	52	e 28 45?	PS	e 39 45	?	57·6	72·6
De Bilt		107·8	40	e 14 25	+ 5	e 28 23	PS	e 52·6	62·8
Stuttgart		108·4	42	e 14 25	+ 2	e 25 0	[− 6]	e 49·6	63·7
Feldberg		108·7	41	e 17 52	[−22]	e 24 42	[−25]	—	61·5
Treviso		108·7	47	e 19 10	PP	27 30	PS	61·1	67·1
Venice		108·7	47	e 24 58	SKS	(e 24 58)	[− 9]	—	—

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		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Innsbruck		109·0	44	—	—	e 25 11	[+ 2]	e 51·2	64·9
Scoresby Sund		109·1	15	18 59	PP	24 59	[−10]	—	—
Triest		109·6	48	19 10	PP	i 29 53	?	e 53·1	—
Taranto		109·6	53	16 50	?	28 40	PS	35·2	67·5
Göttingen		110·2	41	e 18 41	PP	e 25 5	[− 9]	—	62·0
Jena		110·8	42	e 20 35	?	—	—	e 46·6	65·8
Cheb		110·9	42	e 19 13	PP	e 28 53	PS	e 58·6	65·6
Zagreb		111·1	48	e 19 15	PP	e 25 18	[0]	e 51·0	74·9
Hamburg		111·1	39	e 20 35?	?	—	—	e 55·6	65·6
Graz		111·4	45	e 16 44	?	e 27 17	?	e 47·6	69·5
Bergen		112·0	31	14 8	−32	28 55	PS	51·6	66·6
Prague		112·0	43	—	—	e 24 52	[−30]	e 48·6	66·6
Potsdam		112·2	40	e 14 35?	− 7	e 24 35?	[−48]	e 49·6	63·1
Vienna		112·4	44	—	—	i 29 3	PS	e 43·6	68·6
Copenhagen		113·3	37	19 35	PP	29 30	PS	—	—
Belgrade		113·6	50	—	—	(e 29 22)	PS	e 56·0	—
Budapest		113·7	47	e 19 56	PP	29 19	PS	e 52·6	67·6
Lund		113·7	37	19 35?	PP	29 18	PS	—	—
Perth		114·9	186	e 19 35	PP	i 28 55	PS	e 56·4	73·2
Helwan		115·4	70	19 40	PP	i 29 35	PS	—	73·4
Königsberg		117·2	40	—	—	e 27 35?	{+38}	e 57·6	75·6
Upsala		117·4	34	—	—	e 27 35	{+36}	e 54·6	70·7
Ksara	E.	120·5	67	20 13	PP	—	—	54·6	63·6
Helsingfors		121·0	35	—	—	e 25 45	[− 8]	e 59·6	—
Simferopol		122·7	54	—	—	(e 31 17)	?	e 31·3	—
Yalta		122·7	54	—	—	(e 30 35)	PS	e 30·6	—
Theodosia		123·6	53	—	—	(e 31 35)	?	e 31·6	—
Pulkovo		123·6	36	20 30	PP	e 24 33	PPPP	61·6	72·0
Kucino		127·1	41	e 21 9	PP	e 28 16	{+13}	42·7	—
Ekaterinburg		139·5	39	19 19	[− 2]	—	—	60·6	75·6
Batavia		140·9	176	i 22 49	PP	—	—	51·6	77·6
Colombo		142·7	127	19 23	[− 3]	—	—	60·4	83·1
Kodaikanal		143·4	120	e 20 11	[+42]	—	—	e 71·9	83·8
Bombay		145·1	103	19 42	[+ 8]	33 4	SKSP	69·9	79·6
Hyderabad		148·7	111	19 20	[−20]	33 6	SKSP	72·6	91·6
Medan		149·3	160	e 19 38	[− 3]	i 42 23	SS	62·6	69·6
Andijan		150·1	64	e 19 52	[+10]	—	—	e 78·6	—
Ootomari		150·7	308	23 56	PP	—	—	—	—
Agra	E.	152·9	94	e 20 40	[+54]	34 26	SKSP	e 74·9	—
	N.	152·9	94	e 20 43	[+57]	e 34 39	SKSP	e 73·8	94·7
Almata		153·1	58	e 22 1	?	—	—	e 84·6	—
Dehra Dun		153·8	87	16 45	?	—	—	80·9	98·6
Osaka		157·7	282	27 7	PPP	41 39	?	73·7	107·3
Manila		158·6	214	e 19 53	[+ 1]	36 53	?	72·6	—
Vladivostok		159·1	306	e 19 51	[− 1]	—	—	74·7	79·8
Calcutta		159·3	115	18 55	[−59]	32 25	{+70}	62·7	—
Koti		159·3	279	e 23 35?	PKS	—	—	—	73·1
Irkutsk		160·3	8	19 55	[+ 1]	34 48	SKSP	81·6	96·9
Hong Kong		168·5	206	20 7	[+ 5]	31 38	{−26}	—	114·2
Zi-ka-wei		169·1	265	e 19 59	[− 4]	—	—	74·7	106·8
Chiufeng	E.	170·6	323	e 8 50	?	—	—	—	—

Additional readings :—
Port au Prince e = +23m.7s.
San Juan iS = +16m.31s.
Little Rock eSSE = +25m.11s., eSSSE = +28m.29s.
Charlottesville e = +25m.11s. =SS +10s.
Georgetown iSZ = +20m.50s.
St. Louis iE = +21m.16s. =PS −10s.
Pittsburgh iPP = +13m.36s., iSS = +24m.39s.
Fordham ePP = +14m.35s., iPS = +21m.35s., eSS = +26m.15s.
Florissant iNZ = +11m.34s., iSEN = +21m.4s., iE = +24m.56s., iSSEN = +25m.58s.
Ann Arbor e = +6m.59s., iS = +25m.53s. =SS −20s.
Buffalo iPP = +14m.55s., iPS = +22m.7s.

Continued on next page.

Chicago iSS = +26m.7s., SSS = +29m.42s.
Ottawa iN = +26m.40s. =SS −7s., eN = +28m.47s.; T_0 =8h.2m.23s.
Denver eEN = +27m.52s.
Pasadena eSN = +22m.13s., eSZ = +22m.17s., iZ = +23m.23s., eZ = +26m.25s., eE = +27m.37s.
Christchurch iSS = +30m.30s.
Wellington PP = +14m.29s., SS = +28m.55s.
Arapuni SS = +27m.5s. ?
Victoria SE = +23m.41s.
Granada PP = +17m.14s., PPP = +20m.12s., PS = +26m.15s.
Almeria PP = +17m.15s., PPP = +19m.48s., PS = +26m.3s., SS = +29m.24s.
Toledo iSKS = +24m.1s., PPS = +26m.37s.
Ivigtut PS = +26m.41s.
Honolulu T.H. SS = +31m.35s.
Melbourne i = +25m.10s. =SKKS +4s.
Tananarive SKSE = +24m.42s. =SKKS +15s., PSE = +27m.17s., PSN = +27m.25s., SSN = +32m.32s., E = +39m.55s., N = +43m.55s.
Oxford i = +27m.43s. =PS +12s.
Bidston PPPP? = +18m.35s. =PP +19s., SSSS? = +37m.32s.
Paris e = +8m.13s. and +18m.29s.
Kew PP = +18m.26s., PPS = +27m.54s., iZ = +30m.58s., SS = +33m.42s.
Sitka ePP = +18m.31s., eS = +25m.37s. =SKKS +8s., ePS = +27m.37s.
Stonyhurst iPP = +18m.30s., SSSS = +41m.17s.
Edinburgh i = +28m.0s. and +42m.5s.
Adelaide e = +23m.5s., i = +28m.53s. ?
Uccle e = +18m.35s. ? =PP +2s., and +28m.9s. =PS +14s.
Strasbourg ePKP = +17m.35s. ?, PP = +19m.2s., PPP = +21m.34s., SKKS = +25m.20s., PS = +28m.27s., SS = +34m.50s.
Stuttgart ePKPEZ = +17m.59s., ePP = +18m.55s., ePPPEZ = +21m.35s., eSN = +26m.35s., ePS= +28m.29s., ePPS = +29m.11s., eSSEN = +34m.5s., eSSSEN = +38m.5s., eSSSN = +41m.35s.
Feldberg e = +18m.59s. =PP +11s., +26m.44s., +28m.11s. =PS −4s. and +34m.35s. =SS +34s.
Venice S = +36m.36s.
Scoresby Sund PS = +28m.31s., SS = +34m.29s., SSS = +38m.29s.
Göttingen eEN = +39m.5s.
Jena eN = +26m.53s., eE = +29m.5s., eZ = +30m.35s., eEN = +35m.5s., eN = +38m.35s., eE = +39m.17s.
Cheb ePPP? = +25m.15s., eSS? = +35m.25s.
Zagreb eNW = +27m.5s., e = +29m.2s., +29m.53s., eNW = +33m.15s., eNE = +34m.17s., +42m.35s. ?, and +51m.0s.
Graz i = +39m.32s.
Bergen PP = +21m.33s.
Prague e = +29m.4s.
Potsdam eZ = +20m.17s., eEN = +21m.35s. ? =PPP +5s., eN = +27m.5s., e = +29m.5s. =PS +16s., eNZ = +34m.35s. ? =SS −13s., e = +39m.35s. ?, eZ = +42m.35s. ? =SSSS +24s.
Vienna PS = +29m.58s., SS = +35m.19s., SSS = +39m.40s.
Copenhagen +26m.41s. =SKKS +11s., PSE = +29m.15s., PSZ = +29m.30s., PPS = +30m.17s., eE = +32m.21s., SS = +35m.35s., SSS = +40m.5s.
Königsberg iE = +29m.53s. =PS +17s., eE = +35m.35s.?, eN = +36m.35s.?, eE = +38m.35s.?, eN = +47m.35s.?, and +48m.35s.
Upsala SSN = +36m.12s.
Ksara PPE? = +21m.54s., PPPPE = +26m.5s., PPPPPE = +27m.20s. =SKKS +1s., PSE = +30m.24s., SSE = +36m.54s., SSSE = +42m.24s.
Helsingfors ePPE = +20m.22s., ePPPE = +23m.9s., eE = +27m.21s. =SKKS −1s., ePKKPN = +28m.34s., ePSE = +30m.16s., ePPSE = +31m.22s., eE = +32m.49s., +33m.35s., and +34m.52s., eSSE = +36m.34s., eSSN = +37m.4s., eE = +37m.41s., eEN = +40m.16s., eSSSE = +41m.27s., eN = +43m.13s., eEN = +45m.16s., eN = +47m.58s., eE = +49m.16s.
Pulkovo e = +28m.5s.
Kucino e = +22m.25s. and +30m.52s. =PS −14s., i = +38m.11s. =SS +8s.
Ekaterinburg PP = +22m.12s., PPS = +34m.54s., SS = +39m.53s.
Manila iPZ = +19m.53s.
Irkutsk PP = +24m.25s., PPP = +27m.39s.
Hong Kong SKSP = +35m.7s., SS = +45m.44s.
Zi-ka-wei iZ = +20m.29s., +23m.31s., +31m.55s., +35m.1s., +35m.43s., and +41m.45s.
Long waves were also recorded at Kobe, Phu-Lien, and a few other European stations.

March 18d. 20h. 13m. 42s. Epicentre 5°·6N. 126°·3E. R.1.

(as on 1929 Aug. 29d.).

Probable error of epicentre ±0°·25.

A = −·589, B = +·802, C = +·098; D = +·806, E = +·592; G = −·058, H = +·079, K = −·995.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Palau		8·3	77	1 59	+ 1	3 27	− 4	—	—
Amboina		9·5	169	i 2 18	+ 4	4 11	+10	—	—
Manila		10·4	330	i 2 35	+ 9	4 48	+25	—	—
Isigakizima		18·8	354	4 20	+ 4	7 50	+ 8	—	—
Hong Kong		20·4	326	4 31	− 3	7 31	−43	8·4	9·0
Batavia		22·7	239	i 4 59	+ 1	7 38	−81	—	—
Malabar		22·7	236	5 2	+ 4	—	—	—	—
Phu-Lien		24·4	310	e 5 14	0	i 9 39	+ 9	11·3	15·4
Zi-ka-wei		25·9	350	5 24	− 4	9 52	− 5	—	—
Titizima		26·2	33	5 27	− 4	9 48	−14	—	—
Miyazaki		26·8	10	5 37	+ 1	9 55	−17	—	—
Nagasaki		27·3	7	5 40	− 1	10 12	− 8	—	—
Kumamoto		27·5	8	5 42	− 1	10 13	−11	—	—
Medan		27·6	267	2 47	−177	7 54	−151	—	—
Hukuoka		28·2	7	e 5 54	+ 5	e 10 4	−31	—	17·3
Muroto		28·6	14	5 51	− 2	10 30	−12	—	—
Koti		28·7	13	e 5 52	− 1	10 35	− 8	10·7	13·3
Sumoto		29·8	14	6 1	− 2	10 45	−16	e 13·2	14·4
Kobe		30·2	15	e 6 11	+ 4	i 10 53	−14	e 13·3	13·5
Osaka		30·3	15	6 9	+ 1	(11 12)	+ 3	11·2	12·1
Toyooka		30·9	14	i 6 9	− 4	i 11 9	− 9	i 13·1	14·3
Nagoya		31·1	17	e 6 16	+ 1	7 35	?	—	—
Sendai		35·2	20	6 49	− 2	12 12	−12	—	—
Chiufeng		35·6	347	e 6 54	0	i 12 21	− 9	i 17·7	—
Mizusawa		36·1	20	7 0	+ 1	12 26	−12	16·9	—
Akita		36·3	19	7 3	+ 3	12 36	− 5	—	—
Vladivostok		37·8	6	7 7	− 6	i 12 49	−14	18·5	—
Perth		38·9	193	i 7 18	− 5	13 58	+38	19·6	—
Sapporo		39·7	18	7 32	+ 3	13 33	+ 1	—	—
Calcutta		40·3	300	7 44	+ 9	12 44	−57	14·1	14·9
Adelaide		42·2	165	i 7 48	− 2	i 13 59	−10	i 17·8	26·4
Riverview		45·9	150	i 8 17	− 3	i 14 52	−11	—	26·5
Sydney		45·9	150	e 8 6	−14	e 14 36	−27	17·6	18·1
Colombo		46·2	274	8 20	− 2	15 15	+ 8	23·1	27·6
Melbourne		46·8	160	i 8 26	− 1	15 8	− 8	—	—
Hyderabad		48·2	290	8 36	− 2	15 27	− 9	24·1	30·5
Kodaikanal		48·6	279	e 8 30	−11	(e 15 36)	− 5	e 15·6	32·2
Irkutsk		50·0	343	8 50	− 1	15 54	− 7	24·3	28·8
Agra		50·6	301	9 37	+41	16 50	+41	e 26·7	—
Dehra Dun		51·6	306	8 28	−35	(16 8)	−15	16·1	32·3
Bombay		53·7	290	9 16	− 3	16 41	−11	27·0	34·0
Suva	N.	56·6	116	i 9 18	−22	i 16 57	−34	—	—
Almata		57·4	320	9 48	+ 2	—	—	—	—
Andijan		59·5	315	e 10 0	− 1	e 18 43	+34	e 31·3	—
Samarkand		63·0	313	i 10 24	− 1	—	—	25·3	—
Christchurch		64·5	145	—	—	i 18 51	−23	—	—
Wellington		64·5	142	e 9 18	−77	18 53	−21	33·8	34·3
Ekaterinburg		72·1	329	i 11 20	− 3	i 20 31	−15	31·3	44·3
Honolulu T.H.		74·8	70	i 11 39	0	i 21 8	−10	31·3	—
Tananarive		81·3	250	12 12	− 3	22 54	+24	e 38·1	—
Kucino		84·4	326	i 12 32	+ 2	22 42	[−13]	37·8	46·2
Theodosia		86·6	316	e 12 45	+ 4	e 23 5	[− 6]	44·3	—
Ksara	E.	87·2	305	12 46	+ 2	23 44	+15	42·8	49·4
Simferopol		87·6	316	e 12 45	− 1	—	—	—	—
Yalta		87·6	316	e 12 45	− 1	23 2	[−15]	49·3	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Pulkovo		88·2	330	12 44	− 5	i 23 27	[+ 6]	42·3	55·9
Sitka		89·7	33	—	—	i 23 33	[+ 2]	i 36·4	—
Helsingfors		90·7	331	e 12 59	− 2	i 23 55	− 8	e 44·3	—
Helwan		91·5	300	13 1	− 3	i 23 28	[−13]	—	52·6
Königsberg		94·4	326	e 13 18	0	i 24 18	[+20]	e 36·3	48·3
Upsala		94·4	331	e 13 8	−10	e 24 11	[+13]	e 42·3	51·5
Belgrade		96·8	318	e 13 24	− 5	e 23 54	[−16]	—	—
Budapest		97·3	320	13 29	− 2	24 39	[+26]	e 46·3	—
Lund		98·0	330	13 30	− 4	24 48	[+32]	46·3	—
Copenhagen		98·4	330	13 31	− 5	24 50	[+32]	43·3	—
Vienna		98·8	321	e 13 31	− 7	23 59	[−21]	e 47·3	57·3
Victoria	E.	99·0	40	17 38	PP	24 8	[−13]	44·7	45·9
	N.	99·0	40	18 3	PP	24 3	[−18]	—	—
Potsdam		99·3	326	e 14 6	+26	e 24 0	[−22]	e 41·3	53·3
Bergen		99·6	335	24 14	S	(24 14)	[− 9]	52·3	—
Graz		99·7	321	e 14 33	+51	e 24 49	{− 2}	46·8	55·0
Zagreb		99·8	319	e 13 40	− 3	24 4	[−21]	46·9	66·9
Hamburg		100·5	327	e 13 45	− 1	24 24	[− 4]	e 46·3	52·3
Cheb		100·6	325	e 14 20	+34	e 24 19	[−10]	e 43·3	54·3
Taranto		100·6	314	14 13	+27	i 24 13	[−16]	51·3	54·2
Jena		100·7	325	e 13 48	+ 1	25 18	−15	e 45·3	50·8
Scoresby Sund		101·0	350	14 24	+36	25 3	{+ 3}	46·3	—
Göttingen		101·4	326	i 13 52	+ 2	e 26 2	?	e 44·3	48·3
Triest		101·4	320	e 14 18	+28	e 25 48	+ 9	e 37·8	47·3
Trenta		101·6	313	14 18	+27	24 48	[+15]	—	—
Innsbruck		102·2	322	14 18	+24	e 24 12	[−24]	53·8	—
Treviso		102·4	320	i 13 57	+ 2	24 28	[− 9]	56·3	—
Messina		102·5	312	e 16 22	+27	25 2	{−10}	—	—
Naples	E.	102·6	315	e 14 28	+33	e 24 28	[−10]	—	—
Padova		102·7	320	e 18 34	PP	e 24 31	[− 8]	—	—
Feldberg		102·9	326	—	—	e 25 32	−20	e 48·2	59·0
Stuttgart		103·0	324	e 13 56	− 1	e 25 33	−20	e 48·3	—
Catania		103·0	311	14 6	+ 9	24 28	[−12]	52·5	—
Berkeley		103·1	49	e 13 31	−27	24 26	[−15]	e 46·7	—
Karlsruhe		103·4	324	23 53	SKS	(23 53)	[−49]	—	—
Rome		103·5	316	e 14 2	+ 2	17 56	PP	—	—
Chur		103·6	322	e 13 59	− 1	e 24 25	[−18]	—	—
Prato		103·7	318	e 17 48	PP	i 24 36	[− 8]	—	—
Lick	N.	103·7	49	e 17 47	PP	e 24 29	[−15]	—	—
De Bilt		103·8	327	14 1	0	e 24 31	[−13]	e 46·3	55·0
Strasbourg		104·0	324	e 14 2	0	e 24 37	[− 8]	e 35·3	—
Zurich		104·0	322	e 14 6	+ 4	e 24 25	[−20]	—	—
Piacenza		104·2	320	14 30	+27	24 28	[−18]	53·3	64·0
Uccle		104·9	327	e 14 6	0	i 24 32	[−17]	43·3	58·5
Neuchatel		105·2	323	e 14 7	0	e 24 36	[−15]	—	—
Besançon		105·6	322	e 16 28	?	—	—	e 42·3	—
Durham		105·8	332	—	—	24 20	[−34]	38·0	64·3
Edinburgh		105·9	333	—	—	e 24 18?	[−36]	—	—
Santa Barbara	E.	106·1	50	—	—	e 24 32	[−23]	—	—
Haiwee	N.	106·9	49	e 18 21	[+13]	e 24 41	[−17]	—	—
Paris		106·9	326	e 14 44	+28	e 24 59	[+ 1]	44·3	52·3
Kew		107·0	330	e 14 18?	+ 2	e 24 45	[−14]	47·3	53·5
Bidston		107·3	331	13 56	−22	25 28	[+27]	e 28·8	—
Oxford		107·4	330	e 19 38	PP	e 25 4	[+ 3]	e 41·8	53·8
Mount Wilson		107·5	50	—	—	e 25 35	[+33]	—	—
Pasadena		107·5	50	i 14 16	− 3	24 47	[−15]	e 48·3	—
Riverside		108·2	50	e 17 25	[−47]	e 24 53	[−12]	—	—
Algiers		112·2	315	e 19 2	PP	—	—	e 59·3	72·8
Ivigtut		113·1	357	—	—	25 2	[−25]	52·3	—
Tucson		113·9	50	18 32	[+ 2]	25 13	[−17]	46·8	—
Alicante		114·0	317	e 19 59	PP	—	—	e 35·5	—
Toledo		115·6	319	e 13 50	?	e 25 49	[+13]	e 51·8	—
Almeria		116·0	317	e 17 20	?	—	—	58·3	62·4
Granada		116·7	317	i 16 26	?	i 24 36	[−64]	48·1	62·6
San Fernando		118·8	318	20 18	PP	29 18	?	39·8	52·3

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Chicago	123·4	30	e 20 33	PP	25 43	[−17]	51·0	—
Florissant	124·1	34	e 18 53	[− 2]	i 25 52	[−10]	58·8	—
St. Louis	124·3	34	e 18 58	[+ 2]	e 25 51	[−12]	51·8	—
Ottawa	125·3	17	e 21 21	PP	e 25 50	[−16]	56·3	—
Little Rock	125·6	40	e 18 57	[− 1]	e 25 50	[−17]	e 56·1	—
Toronto	125·6	21	e 20 44	PP	i 25 42	[−25]	59·0	—
Buffalo	126·4	21	i 19 0	[0]	—	—	e 60·3	—
Pittsburgh	128·0	24	i 20 27	PP	i 30 15	?	e 53·0	—
Fordham	130·0	20	i 19 9	[+ 2]	—	—	e 62·3	—
Georgetown	130·5	23	i 19 7	[− 1]	26 4	[−17]	e 61·3	—
Charlottesville	130·6	26	21 18	PP	e 26 48	[+27]	62·3	—
Columbia	132·7	30	e 22 30	PKS	—	—	e 57·3	—
Dakar	138·7	301	e 17 47	?	—	—	—	—
Santiago	148·0	150	(19 44)	[+ 5]	—	—	19·7	—
Port au Prince N.E.	149·7	37	e 19 16	[−25]	—	—	—	—
Balboa Heights	150·4	61	e 19 18?	[−24]	—	—	—	—
La Plata	150·5	173	19 42	[0]	—	—	75·7	—
San Juan	153·0	27	i 19 55	[+ 9]	e 29 36	?	60·3	—
La Paz	162·2	129	i 19 58	[+ 2]	27 2	?	74·3	101·4

Additional readings and notes: —
Manila iEN = +2m.48s., i = +3m.27s.
Zi-ka-wei iZ = +5m.48s., PPN = +5m.58s., iZ = +6m.2s., +6m.12s., and +6m.58s., iN = +7m.36s. and +8m.16s.
Medan i = +3m.9s.
Koti eNZ = +7m.18s., SE = +10m.29s.
Sumoto PE = +6m.5s.
Kobe PE = +6m.17s.
Toyooka iPN = +6m.20s., ePE = +6m.23s., iPPN? = +7m.24s., i = +7m.49s.
Chiufeng iE = +17m.7s.
Mizusawa SE = +12m.29s.
Perth iPP = +9m.3s., SS = +16m.53s., SSS = +17m.38s.
Adelaide iPP = +9m.24s., i = +14m.28s., iSSS = +17m.3s.
Riverview iSS = +18m.19s., iS_cS = +18m.23s.
Melbourne SS = +18m.10s.
Hyderabad PP = +10m.57s.
Agra PE = +9m.41s.
Dehra Dun S = +12m.8s.
Christchurch PP = +12m.45s., iSSS = +27m.51s.
Wellington e = +10m.45s. = P +10s., SS = +24m.18s.
Tananarive P_cPE = +12m.39s., PPN = +16m.51s., N = +22m.18s., SKS = +22m.21s., S_cSN = +23m.15s., PSE = +23m.19s., SSE = +27m.42s., N = +27m.45s. and +28m.0s., SSSE = +31m.36s., SSSSN = +33m.48s.
Kucino PP = +16m.54s.
Ksara PPE = +16m.27s., PPPE = +18m.46s., PPPPE = +20m.23s., SKSE = +23m.5s., PSE = +24m.45s., PPPSE = +25m.23s., SSE +29m.37s.; T_o = 20h.13m.25s.
Helsingfors eSKSEN = +23m.14s., eSN = +23m.40s., iPSEN = +24m.27s., ePPSE = +25m.14s., eN = +27m.14s., eSSE = +30m.24s., eSSN = +30m.35s., eSSSN = +33m.59s., eN = +36m.26s., eE = +36m.59s.
Königsberg iN = +24m.43s., eEN = +24m.33s., iPSEN = +24m.58s., iE = +25m.23s. and +27m.33s., e?E = +28m.38s.
Upsala SKS = +23m.38s., iN = +24m.58s.
Belgrade e = +14m.1s., +14m.58s., +17m.36s. = PP +18s. and +24m.42s. = S − 16s.
Lund +17m.30s. = PP and +25m.33s. = S +24s.
Copenhagen PP = +17m.30s., SKS = +24m.0s., PS = +25m.38s.
Vienna PP = +17m.32s., PPP = +20m.27s., SKKS = +24m.57s., PS = +26m.17s., PPS = +28m.2s.
Potsdam eE = +16m.18s.?, eEN = +18m.24s.
Bergen S? = +38m.8s.
Graz i = +26m.5s.
Zagreb eNE = +14m.46s., ePKP = +16m.31s., ePP = +17m.40s., ePPP = +19m.33s., ePPP'? = +20m.30s., ePPPP = +21m.22s., ePPPPP = +22m.16s., eSKKSNW = +24m.49s., eSE = +24m.56s., eS = +25m.4s., ePS = +25m.55s., ePKKP = +29m.56s., eSS = +32m.40s., eSSS = +36m.51s., eSSSS = +39m.50s., ePPPP' = +41m.58s., ePPPPP' = +44m.36s.
Jena eE = +17m.18s., eNZ = +18m.18s., eSE = +25m.48s.
Scoresby Sund SKS = +24m.19s., +31m.12s., PSN = +26m.0s., SS = +31m.18s.
Göttingen eN = +25m.17s. = SKKS +13s.
Feldberg e = +23m.24s., +32m.18s., and +35m.35s.

Continued on next page.

Stuttgart ePEZ = +14m.22s., ePPEZ = +18m.8s., and +18m.41s., ePPPEZ = +20m.42s., eSKSE = +24m.23s., iEN = +24m.35s., eSKSE = +25m.3s., eS = +26m.18s., ePSEN = +27m.14s., ePPSZ = +27m.40s., ePPSEN = +27m.53s., eSSN = +32m.36s.
Berkeley eE = +18m.41s., eN = +18m.47s., SKKSE = +25m.6s.
Rome eP = +14m.32s.
Strasbourg ePP = +18m.29s., eSKKS = +25m.26s.
Zurich ePP = +18m.24s.
Uccle ePPE = +18m.42s., iN = +25m.48s. =SKKS +18s.
Paris e = +21m.19s.
Kew e = +21m.41s. and +37m.35s.
Pasadena ePKPZ = +17m.56s., eZ = +19m.18s., +19m.26s., +21m.15s., and +25m.36s., eSKKS = +25m.35s., iZ = +29m.49s.
Riverside eE = +17m.54s., eE = +25m.38s., eN = +25m.41s.
Algiers e = +19m.53s.
Ivigtut +26m.54s.
Tucson PP = +19m.25s., S = +26m.25s. =SKKS − 9s., PS = +28m.55s., SS = +34m.40s.
Toledo PP = +17m.22s., i = +20m.20s., SKS = +24m.20s., PS = +28m.17s., S = +31m.20s.
Almeria PP = +19m.55s., PPP = +22m.8s., i = +30m.6s.
Granada PP = +20m.27s., i = +21m.18s., PS = +29m.33s.
Chicago eS = +27m.18s., ePS = +30m.18s., e = +30m.58s., SS = +37m.6s.
Florissant iPPZ = +20m.34s., iZ = +21m.31s., and +22m.20s., iEN = +26m.34s., +27m.38s., and +31m.14s., iSSN = +37m.27s.
St. Louis iEN = +26m.32s. and +28m.11s., eEN = +30m.57s., eSSE = +37m.27s.
Ottawa eE = +26m.36s., eN = +31m.18s., e = +36m.38s.
Little Rock ePPN = +20m.45s.
Toronto i = +27m.34s., +31m.21s., and +38m.3s.
Buffalo iPP = +21m.18s., ePS = +31m.29s., iPPS = +32m.30s.
Pittsburgh iSS = +37m.20s., i = +40m.5s.
Fordham iPP = +21m.41s., eSS = +38m.18s. ?
Georgetown iPP = +21m.47s., i = +22m.23s., iSKP = +22m.59s., PS = +32m.49s. ; T_o =20h.13m.36s.
Charlottesville ePS = +31m.36s.
Columbia ePS = +31m.30s., ePPS = +32m.36s., eSS = +38m.59s.
Port au Prince iPNW = +19m.47s., iNE = +19m.55s., iNW = +20m.9s., iNE = +20m.31s., iNW = +20m.37s.
San Juan iPP = +24m.0s., ePS = +33m.24s., SS = +43m.0s.
La Paz iPPZ = +24m.12s., PPPE = +27m.14s., iN = +31m.18s. =SKKS − 12s., PPS = +38m.16s., iSSN = +44m.48s., SSSN = +50m.30s.
Long waves were also recorded at Barcelona, Tortosa, and Laibach.

March 18d. Readings also at 0h. (Zagreb), 1h. (near Manila), 4h. (Taranto, Trenta, and Messina), 5h. (Rome), 6h. (near Mizusawa), 10h. (Batavia and near Malabar), 11h. (Andijan), 12h. (La Paz), 13h. (La Paz, La Plata, and near Santiago), 14h. (La Paz), 15h. (near Apia, Wellington, near Neuchatel, Zurich, and near Tyosi), 16h. (Irkutsk, Vladivostok, La Plata, near Santiago, and near Tyosi), 17h. (La Paz and near Tyosi), 20h. (Andijan, Samarkand, and near Tyosi), 21h. (near Batavia and near Medan), 22h. (Bombay, Calcutta, Medan, Dehra Dun, Irkutsk, Vladivostok, Hong Kong, Phu-Lien, Andijan (2), and Samarkand), 23h. (Zagreb and near Naples).

March 19d. 6h. 25m. 5s. Epicentre 18°·0N. 120°·4E. N.1.

Probable error of epicentre ±0°·20.

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

		Δ	Az.	P.	O − C.	S.	O − C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Manila		3·5	169	i 0 58	+ 8	i 2 3	S_g	—	—
Kosyun		4·0	6	0 58	+ 1	1 45	+ 3	—	—
Hokoto		5·6	352	2 16	+56	3 10	S_g	—	—
Taihoku		7·1	9	1 47	+ 6	3 15	+14	—	—
Isigakizima		7·2	29	1 43	+ 1	2 39	−25	—	—
Hong Kong		7·2	308	1 43	+ 1	3 26	S*	—	4·4
Naha		10·6	38	2 29	0	4 55	+27	—	—
Zi-ka-wei	z.	13·2	4	i 3 5	0	5 35	+ 3	i 7·0	8·4
Phu-Lien		13·3	284	e 3 8	+ 2	i 5 45	+11	6·4	12·9
Nagasaki		17·0	28	e 3 54	0	7 3	+ 1	11·3	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Hukuoka		18·0	28	i 4 8	+ 1	i 7 29	+ 4	—	7·8
Simidu		18·6	35	4 15	+ 1	7 44	+ 6	—	—
Koti		19·5	35	i 4 23	− 1	i 8 7	+11	—	11·7
Zinsen		20·2	14	4 33	+ 1	8 9	− 1	—	—
Sumoto		20·8	36	i 4 38	0	8 28	+ 6	—	8·8
Kobe		21·2	36	i 4 43	+ 1	i 8 35	+ 5	—	8·7
Osaka		21·4	36	4 45	+ 1	(8 34)	0	8·6	9·9
Toyooka		21·7	34	i 4 48	0	i 8 47	+ 7	e 12·3	—
Kyoto		21·8	36	4 49	0	8 55	+13	—	—
Chiufeng		22·4	351	4 57	+ 2	i 8 55	+ 2	—	—
Nagoya		22·6	37	i 4 59	+ 2	—	—	9·2	—
Amboina		23·0	160	5 1	0	9 24	+19	—	—
Hatidyozima		23·1	45	5 1	− 1	9 9	+ 2	—	—
Tyosi		25·4	42	e 5 26	+ 2	e 10 6	+18	—	—
Medan		25·7	238	(i 5 28)	+ 2	(i 9 16)	−37	—	—
Vladivostok		26·9	19	i 5 32	− 5	i 10 4	−10	13·5	17·8
Batavia		27·7	210	i 5 46	+ 2	10 45	+18	—	—
Mizusawa		27·7	36	5 45	+ 1	10 26	− 1	16·4	—
Calcutta		30·3	284	6 4	− 4	11 19	+10	15·4	22·9
Irkutsk		36·5	345	i 7 3	+ 1	12 43	− 1	18·9	22·3
Agra	E.	39·9	294	i 8 12	+41	e 14 12	+37	20·4	26·1
Hyderabad		39·9	277	7 33	+ 2	13 36	+ 1	20·1	26·3
Dehra Dun		40·3	298	7 25	−10	13 25	−16	19·7	25·9
Colombo		41·0	262	7 44	+ 4	13 54	+ 3	20·0	24·5
Kodaikanal		42·3	269	e 8 13	+22	—	—	i 21·0	26·6
Almata		44·3	316	i 8 16	+ 9	i 14 42	+ 2	24·7	—
Bombay		45·0	281	8 18	+ 5	14 46	− 4	22·3	31·1
Andijan		46·8	311	e 8 30	+ 3	e 15 23	+ 7	25·1	—
Perth		50·1	186	e 8 55	+ 3	i 14 55	?	22·4	—
Samarkand		50·7	309	e 9 0	+ 3	—	—	28·9	—
Adelaide		55·7	164	i 9 33	− 1	i 17 10	− 9	25·1	29·7
Ekaterinburg		58·6	327	i 9 54	− 1	i 17 55	− 2	27·9	34·9
Riverview		59·6	151	i 10 1	− 1	i 18 5	− 6	—	33·2
Sydney		59·6	151	—	—	i 18 13	+ 2	26·9	31·4
Melbourne		60·4	160	10 7	0	18 14	− 7	—	35·1
Suva		67·5	120	10 49	− 6	19 40	−11	31·9	—
Theodosia		73·9	315	11 33	− 1	21 3	− 4	35·0	—
Pulkovo		74·5	330	i 11 35	− 2	i 21 4	−10	37·9	45·2
Yalta		74·8	315	11 38	− 1	21 11	− 7	42·9	—
Ksara	E.	75·7	303	11 44	0	21 25	− 3	36·7	42·7
Honolulu T.H.		76·2	72	i 11 50	+ 3	i 21 31	− 3	34·7	—
Helsingfors		77·1	330	e 11 49	− 4	i 21 32	−12	e 41·9	—
Wellington		77·8	142	11 49	− 8	21 33	−19	37·9	—
Helwan		80·4	299	i 12 13	+ 3	i 22 10	−10	—	53·0
Tananarive		80·5	249	12 21	+11	22 14	− 7	36·9	42·9
Upsala		80·7	301	e 12 13	+ 1	e 22 9	−14	e 39·9	47·3
Königsberg		80·8	325	i 12 13	+ 1	22 11	−13	e 40·9	49·9
Sitka		82·4	32	i 12 22	+ 2	i 22 31	−10	e 34·2	—
Budapest		84·2	320	12 28	− 1	i 22 48	[− 5]	e 46·4	54·9
Belgrade	N.	84·2	317	12 31	+ 2	e 22 42	[−11]	—	—
Lund		84·4	328	12 30	0	22 47	[− 8]	40·9	—
Copenhagen		84·8	328	12 31	− 1	i 22 50	[− 8]	40·9	—
Vienna		85·5	321	e 12 35	− 1	22 55	[− 8]	e 37·9	58·9
Potsdam		85·9	325	e 12 37	− 1	i 22 55	[−11]	e 41·9	54·9
Bergen		86·0	334	10 37	−121	22 55	[−11]	41·9	49·9
Graz		86·5	320	i 12 42	+ 1	i 22 58	[−12]	44·9	—
Zagreb		86·7	319	e 12 39	− 3	i 23 1	[−10]	e 40·4	48·4
Hamburg		87·0	327	e 12 45	+ 2	i 23 5	[− 8]	e 46·9	53·9
Cheb		87·2	324	e 12 46	+ 2	e 23 10	[− 5]	e 46·9	55·9
Jena		87·3	325	e 12 43	− 2	i 23 7	[− 8]	e 46·9	55·5

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Laibach	E.	87·6	320	e 13 4	+18	e 23 7	[−10]	—	—
Scoresby Sund		87·7	350	e 12 44	− 2	e 23 9	[− 9]	44·9	—
Taranto		87·9	314	12 49	+ 2	i 23 9	[−10]	51·9	—
Göttingen		88·0	325	i 12 50	+ 2	i 23 26	[+ 6]	e 43·9	55·6
Triest		88·2	319	13 0	+11	i 23 26	[+ 5]	e 44·9	—
Trenta		89·0	313	12 55	+ 2	23 30	[+ 4]	—	—
Innsbruck		89·0	321	—	—	e 23 11	[−15]	—	—
Venice		89·2	319	i 13 3	+ 9	23 20	[− 8]	—	—
Treviso		89·2	319	i 12 55	+ 1	i 23 20	[− 8]	52·9	—
Feldberg		89·4	325	e 12 58	+ 3	e 23 20	[− 9]	—	51·6
Padova		89·5	319	i 12 55	0	i 23 19	[−11]	—	—
Stuttgart		89·7	323	e 12 55	− 1	i 23 19	[−12]	e 46·9	56·6
Naples	E.	89·8	315	e 13 5	+ 9	e 23 5	[−26]	—	—
Karlsruhe		90·0	323	16 55?	PP	—	—	e 49·9	—
Messina		90·0	312	e 12 55	− 2	e 23 35	[+ 2]	—	—
Chur		90·4	320	e 12 58	− 1	e 23 22	[−13]	—	—
De Bilt		90·4	326	12 58	− 1	i 23 26	[− 9]	e 44·9	57·3
Rome		90·6	316	e 13 4	+ 4	i 23 30	[− 6]	—	—
Catania		90·6	311	13 9	+ 9	23 33	[− 3]	e 55·0	—
Prato		90·6	318	e 12 55	− 5	i 23 25	[−11]	50·9	—
Strasbourg		90·6	324	e 12 55	− 5	i 23 51	−11	41·9	57·4
Zurich		90·7	320	e 12 58	− 3	e 23 52	−11	—	—
Piacenza		91·1	320	13 7	+ 4	i 23 29	[−10]	50·9	61·6
Uccle		91·4	326	13 4	0	i 23 56	{+10}	43·9	53·7
Neuchatel		91·9	322	e 13 5	− 1	e 23 31	[−13]	—	—
Durham		92·2	332	—	—	23 33	[−13]	49·4	53·9
Edinburgh		92·2	333	e 17 7	PP	i 23 35	[−11]	49·9	57·7
Besançon		92·3	322	—	—	i 23 34	[−12]	e 51·9	—
Victoria	E.	92·8	37	13 11	+ 1	23 36	[−13]	49·9	58·2
Stonyhurst		93·1	331	—	—	i 23 44	[− 7]	49·9	54·9
Paris		93·4	325	e 13 12	− 1	e 23 42	[−10]	47·9	57·9
Kew		93·5	330	i 13 26	+12	24 12	{+ 9}	44·9	57·5
Bidston		93·7	331	e 13 16	+ 2	i 24 20	−10	e 31·9	—
Oxford		93·8	330	e 13 35	+20	i 23 51	[− 3]	e 47·9	58·2
Barcelona		97·6	319	e 16 16	?	24 4	[−10]	e 30·6	57·8
Berkeley		98·9	45	e 13 32	− 6	24 12	[− 8]	e 45·3	—
Tortosa	N.	99·0	320	—	—	24 12	[− 9]	e 51·9	63·1
Algiers		99·5	315	e 13 47	+ 6	24 12	[−11]	52·9	61·9
Ivigtut		100·3	355	—	—	24 13	[−14]	—	—
Alicante		101·1	318	e 18 0	PP	e 24 22	[− 9]	e 74·0	—
Toledo		102·4	321	—	—	25 8	{− 3}	e 47·7	64·2
Haiwee	N.	102·7	45	e 14 9	+13	e 25 31	−19	—	—
Almeria		103·1	318	e 14 9	+11	—	—	—	64·7
Granada		103·7	319	e 14 13	+12	—	—	i 57·6	—
Pasadena		103·8	46	e 14 1	0	i 24 36	[− 8]	e 47·9	—
Mount Wilson		103·8	46	e 13 56	− 5	—	—	—	—
Riverside		104·4	46	e 17 5	?	e 24 41	[− 6]	—	—
San Fernando		105·8	319	13 25	−45	28 25	PS	56·9	69·9
Tucson		109·8	45	e 18 10	[− 7]	e 26 26	{+20}	50·4	—
Chicago		114·9	23	—	—	i 27 11	{+30}	52·9	—
Ottawa		115·0	11	e 27 17	SKKS	i 35 33	SS	e 44·9	—
Toronto	E.	115·8	15	19 25	PP	i 27 16	{+28}	56·7	64·3
Florissant		116·3	27	e 16 16	?	i 27 11	{+20}	56·9	—
St. Louis		116·6	27	e 19 52	PP	e 24 25	?	e 50·4	—
Buffalo		116·6	15	i 19 51	PP	i 29 25	PS	e 68·9	—
Pittsburgh		118·6	16	—	—	i 27 0	{− 7}	e 51·3	—
Little Rock		118·8	30	e 18 47	[+ 4]	e 26 59	{−10}	—	—
Fordham		119·7	12	20 15	PP	30 22	PS	e 62·9	—
Georgetown		120·8	15	19 6	[+18]	25 48	[− 5]	e 61·9	—
Charlottesville		121·2	17	e 20 25	PP	e 25 55	[+ 1]	e 55·9	—
Dakar		127·2	306	e 19 53	[+52]	—	—	—	—
San Juan		143·0	11	i 17 37	+25	32 33	SKSP	56·9	—
La Plata		163·1	185	24 31	?	—	—	80·9	—
La Paz		171·7	81	20 8	[+ 3]	27 11	?	79·3	87·6

For Notes see next page.

NOTES TO MARCH 19d. 6h. 25m. 5s.

Additional readings and note :—

Zi-ka-wei iZ = +3m.13s., PPN = +3m.33s., iZ = +3m.47s., SZ? = +5m.53s.
Nagasaki PP = +4m.6s., PPP = +4m.11s.
Koti iPP = +4m.44s., iSSEN = +8m.31s.
Chiufeng iPPN = +5m.17s., iSSE = +9m.30s.
Amboina i = +16m.9s. = S_cS +3s.
Tyosi PPE = +6m.6s.
Medan i = +(10m.38s.); readings have been *increased* by 5m.
Batavia PN = +5m.49s., i = +11m.16s.
Mizusawa SE = +10m.32s.
Hyderabad PP = +9m.10s.
Perth PP = +10m.50s, PPP = +11m.25s.
Riverview iS_cS = +19m.52s., i = +20m.21s.
Melbourne i = +18m.40s. = PS +12s.
Ksara P_cPE = +12m.7s., PPPE = +16m.29s., PSE = +22m.6s., S_cSE = +22m.35s., P_cSS_cP = +27m.14s.
Honolulu T.H. PS = +21m.55s.
Helsingfors iE = +12m.3s., iZ = +12m.7s., ePPE = +14m.47s., ePPZ = +15m.3s. ePPPE = +16m.44s., eE = +18m.14s., iSKSEN = +21m.57s., iPSN = +22m.25s., ePPSEN = +22m.44s., eE = +24m.38s., eSSE = +26m.38s., eSSN = +26m.42s., eSSSN = +29m.57s.
Tananarive P_cPE = +12m.48s., PPE = +15m.23s., PS = +22m.39s., S_cS = +23m.16s.
Upsala PP = +15m.27s., PPP = +17m.24s.
Königsberg PE = +12m.21s., P_cPZ = +12m.30s., SEN = +22m.20s., +22m.35s., e?E = +23m.1s., iPPSE = +23m.30s., eE = +25m.31s. ?, iE = +26m.42s., iEN = +28m.35s., e?E = +30m.55s.
Belgrade eN = +13m.29s., +16m.57s., and +23m.50s. = PS +9s.
Copenhagen eEZ = +12m.45s., +15m.55s. = PP +11s., PS = +23m.25s.
Vienna iPZ = +12m.38s., P_cP = +13m.0s., PP = +16m.1s.
Potsdam iE = +12m.55s.? and +16m.3s. = PP +10s., iEN = +16m.55s. ?
Bergen eE = +12m.40s. = P +2s., and +13m.6s., eZ = +15m.10s., eE = +16m.5s.
Graz i = +23m.16s. = S − 6s.
Zagreb iP = +13m.3s., eNW = +14m.25s., e = +15m.5s. and +15m.38s., ePP = +16m.7s., e = +16m.32s., ePPP = +18m.17s., ePSSSNE = +19m.44s., e = +20m.5s., eSKS = +22m.43s., i = +23m.15s., eSPKS = +23m.25s., ePS = +24m.15s., ePPS = +24m.35s., e = +25m.23s., +25m.39s., and +26m.16s., eSS = +29m.30s., eSSS = +35m.25s., ePPP′ = +43m.25s.
Hamburg ePPZ = +16m.7s., eSSE = +29m.7s.
Jena ePE = +12m.47s., ePPE = +16m.23s.
Laibach e = +13m.57s.
Scoresby Sund eN = +16m.13s., eEZ = +16m.27s. = PP +20s., PS = +24m.55s., +29m.14s. = SS +7s., eEN = +36m.1s.
Göttingen iSKSEN = +23m.2s.
Triest PP = +16m.30s.
Feldberg e = +16m.24s. = PP +3s., +27m.14s., +29m.38s. = SS +6s., and +31m.55s.
Stuttgart iEZ = +13m.10s., ePP = +16m.27s., ePPP = +18m.31s., i = +23m.42s. = S − 11s., iPS = +24m.9s., eSS = +29m.7s.
De Bilt PPZ = +16m.32s., i = +23m.50s. = S +10s.
Strasbourg iPP = +16m.29s., iSKS = +23m.25s., iPS = +24m.54s., eSS = +30m.21s.
Zurich ePP = +16m.39s., eSKS = +23m.24s.
Uccle PP = +16m.43s., iSKS = +23m.32s., SS = +30m.8s.
Neuchatel ePP = +16m.47s.
Durham S = +24m.6s. and +31m.33s.
Edinburgh e = +17m.7s.
Besançon i = +24m.9s. = S − 8s.
Stonyhurst ePP = +17m.9s.
Paris iPP = +16m.52s.
Kew iPP = +16m.59s., iSKS = +23m.43s., PS = +25m.29s., SSEN = +30m.30s.
Bidston PP = +16m.15s., SKS = +23m.45s., SS = +30m.25s.
Oxford i = +17m.21s.
Berkeley iZ = +13m.38s., SKKSE = +24m.43s., ePSN = +26m.10s.
Algiers PP = +17m.42s.
Ivigtut +25m.10s. = S − 20s.
Toledo PP = +18m.24s., SKS = +24m.29s., SKKS = +25m.8s.
Haiwee eN = +25m.39s.
Almeria iPP = +18m.11s.
Granada PP = +18m.17s., i = +20m.16s., PPP = +20m.53s., i = +29m.10s., +34m.15s., +35m.34s., and +38m.57s.
Pasadena eZ = +17m.4s., and +18m.10s. = PP − 1s., eE = +25m.1s., eN = +26m.10s.
Tucson iPP = +18m.59s., SKS = +25m.5s., PS = +28m.24s.
Chicago ePPP = +22m.13s., SKS = +25m.32s., PS = +29m.25s., ePPS = +30m.49s., iSS = +35m.20s.

Continued on next page.

Ottawa ePPN = +30m.0s.
Toronto PP = +19m.40s., PPSE = +31m.0s., SSEN = +35m.40s., SSSSE = +45m.9s.
Florissant iPPZ = +19m.48s., iE = +27m.57s., iPSN = +29m.30s., eSSEN = +35m.51s., iEN = +38m.49s.
St. Louis eE = +27m.7s. =SKKS +14s., ePSEN = +29m.26s., eSSEN = +35m.46s.
Pittsburgh eSS = +35m.22s.
Little Rock ePP = +20m.2s., ePSN = +29m.50s.
Fordham SS = +36m.22s.
Georgetown PPNZ = +20m.20s., PS = +30m.8s. ; T_0 =6h.25m.18s.
Charlottesville ePP = +20m.25s., PS = +30m.13s.
San Juan PP = +22m.31s., SS = +40m.27s.
La Paz iPPZ = +25m.18s., iE = +32m.5s. =SKKS −17s., iSSN = +46m.21s., SSSE = +51m.35s.
Long waves were recorded at Columbia and Kucino.

March 19d. Readings also at 1h. (near Andijan), 3h. (near Osaka and Tyosi), 5h. (Ekaterinburg, Kucino, Scoresby Sund, Andijan (2), and near Samarkand (2)), 6h. (near Andijan and near Hastings), 7h. (near Almata (2), Andijan, and Samarkand (2)), 10h. (Andijan, Almata, Samarkand (2), Messina, and near Wellington), 11h. (near Manila), 15h. (near Sumoto), 17h. (near Mizusawa), 19h. (De Bilt, Feldberg, Strasbourg, Stuttgart, Uccle, Copenhagen, Messina, Rome, Zagreb, Naples, near Belgrade, Taranto, and Trenta), 20h. (Messina, Lick, and near Berkeley).

March 20d. Readings at 0h. (La Paz), 2h. (Messina and near Catania), 3h. (Almata, Samarkand, Tashkent, near Andijan, and near Hastings), 8h. (near Almeria and Granada), 10h. (near Hukuoka), 12h. (near New Plymouth and Wellington), 13h. (Berkeley, Ekaterinburg, Tashkent, near Andijan, and Samarkand), 15h. (Granada, La Paz, and Vladivostok), 16h. (Ekaterinburg and Tashkent), 18h. (near Florissant), 22h. (Andijan, near Catania, and near Mizusawa).

March 21d. Readings at 2h. (Catania), 3h. (near Graz), 4h. (La Paz and near Nagasaki), 5h. (Belgrade, Tyosi, and near Mizusawa), 6h. (near Samarkand and near Suva), 8h. (near Zagreb), 10h. (Vienna), 11h. (Suva (2)), 12h. (Takaka, near New Plymouth, and Wellington), 13h. (Little Rock, near Florissant, St. Louis, and near New Plymouth), 16h. (Ekaterinburg and Tashkent), 17h. (Andijan), 19h. (near Irkutsk), 22h. (Hong Kong, Bombay, Vladivostok, Irkutsk, Ekaterinburg, Tashkent, and Andijan (2)), 23h. (Copenhagen and Kucino).

March 22d. 3h. 51m. 32s. Epicentre 42°·2N. 20°·7E. (as on 1926 June 16d.). X.

A = +·693, B = +·262, C = +·672 ; D = +·353, E = −·935 ;
G = +·628, H = +·237, K = −·741.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Sarajevo		2·3	315	0 33	0	1 0	+ 1	—	1·1
Belgrade		2·6	356	0 49	P_g	1 47	?	—	2·7
Taranto		3·1	238	0 42	− 2	1 20	0	—	1·4
Trenta		4·4	230	1 8	+ 5	2 13	S*	—	—
Zagreb		4·9	318	e 1 20	+10	i 2 23	S*	—	2·9
Naples	E.	5·0	256	e 1 38	P_g	e 2 38	S*	—	—
Collurania		5·2	278	1 4	−10	—	—	—	—
Triest		6·1	307	1 33	+ 6	i 2 17	−19	i 2·5	3·0
Rome		6·1	271	e 1 29	+ 2	3 14	S*	—	3·7
Venice		6·8	301	2 53	S	(2 53)	0	—	6·0
Vienna	Z.	6·8	335	e 1 55	P*	(i 3 50)	S_g	—	—
Treviso		7·1	302	2 53	S	(2 53)	− 8	—	5·0
Padova		7·1	300	e 2 52	S	(e 2 52)	− 9	—	—
Ravensburg		9·6	310	e 3 53	S	(e 3 53)	−10	e 5·0	—
Stuttgart		10·4	313	e 3 58	S	(e 3 58)	−25	e 5·3	—
Strasbourg		11·1	311	—	—	e 4 57	+16	—	—
Pulkovo		18·5	15	4 27	+14	—	—	11·5	—

For Notes see next page.

NOTES TO MARCH 22d. 3h. 51m. 32s.

Additional readings and note :—
Belgrade eE = +1m.0s., eN = +1m.26s.
Zagreb i = +1m.36s., iNE = +1m.40s., iNW = +1m.45s., i = +1m.55s., e = +2m.6s., i = +2m.14s.
Triest iS_g = +2m.25s.
Venice S = +3m.49s. = S_g.
Vienna readings are given as eP and iP respectively.
Treviso S = +3m.33s. = S*
Padova S = +4m.55s.
Stuttgart eE = +5m.2s. = S*.
Strasbourg eSS = +5m.49s., iSSS = +5m.59s.
Long waves were also recorded at Kucino and other European stations.

March 22d. 15h. 7m. 23s. Epicentre 15°·5N. 122°·0E. (as on 1930 Aug. 31d.). R.3.

A = −·511, B = +·817, C = +·267 ; 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	i 0 23	+ 3	i 0 43	+ 7	—	—
Hong Kong	10·1	314	—	—	3 51	−25	—	5·2
Phu-Lien	15·6	292	e 3 33	− 3	(6 37?)	+ 8	6·6	—
Vladivostok	28·9	15	—	—	e 10 39	− 8	19·3	—
Tashkent	52·1	311	—	—	e 16 27	− 3	e 26·2	29·4
Ekaterinburg	61·5	327	i 10 14	− 1	18 32	− 4	27·6	33·8
Baku	66·5	309	—	—	e 19 39	0	32·6	38·6
Pulkovo	77·5	330	11 58	+ 3	—	—	38·6	46·0

Additional readings :—
Vladivostok e = +15m.42s.
Tashkent e = +21m.27s.
Baku e = +27m.23s.
Long waves were also recorded at Irkutsk, Kucino, and European stations.

March 22d. Readings also at 0h. (Irkutsk, Tashkent, Hong Kong, near Taihoku, near Batavia, and Malabar), 1h. (De Bilt, Uccle, Ekaterinburg, Andijan, and near Samarkand), 3h. (Nagoya, near Mizusawa, and near Tyosi), 5h. and 6h. (near La Paz), 7h. (Samarkand), 8h. (Trenta), 10h. (Mizusawa, near Belgrade, near Chur, Neuchatel, and Zurich), 11h. (near Belgrade), 12h. (Yalta), 14h. (Baku, Hong Kong, Ekaterinburg, and near Manila), 15h. (San Juan), 17h. (near Manila and near Alicante), 19h. (Andijan and near Samarkand), 20h. (near Samarkand), 21h. (Baku, Ekaterinburg, Irkutsk, Tashkent, and Scoresby Sund), 22h. (near Manila), 23h. (Tyosi).

March 23d. 1h. 22m. 54s. Epicentre 47°·2N. 11°·3E. N.3.

A = +·666, B = +·133, C = +·734 ; D = +·196, E = −·981 ;
G = +·719, H = +·144, K = −·679.

		Δ	Az.	P.	O−C.	S.	O−C.	M.
		°	°	m. s.	s.	m. s.	s.	m.
Chur		1·3	254	e 0 16	− 2	i 0 20	−13	—
Ravensburg		1·3	297	e 0 19	+ 1	i 0 33	0	—
Zurich		1·9	275	e 0 27	− 1	e 0 48	− 1	—
Stuttgart		2·1	318	e 0 31	+ 1	i 0 56	+ 2	—
Neuchatel		3·0	266	e 0 46	+ 3	e 1 29	S*	—
Jena	E.	3·7	4	—	—	e 1 36	+ 1	1·9
Göttingen	N.	4·4	349	e 1 22	P*	e 1 43	−10	2·3

Additional readings :
Ravensburg e = +28s.
Göttingen eN = +2m.12s. = S*.

March 23d. Readings also at 2h. (Yalta), 6h. (near Takaka and Wellington), 8h. (near Nagoya and Tyosi), 11h. (Nagoya and Tyosi), 14h. (Buffalo and Messina), 15h. (Bombay, Calcutta, Samarkand, Andijan, Tashkent, Baku, Ekaterinburg, Vladivostok, Hong Kong, Phu-Lien, and Manila), 16h. (De Bilt), 19h. (Berkeley (2) and Lick (2)), 20h. (Irkutsk, Tashkent, Hong Kong, and near Manila), 22h. (Messina).

March 24d. Readings at 0h. (near Santiago), 5h. (La Paz), 9h. (Phu-Lien), 11h. (Samarkand and near Amboina), 12h. (Chicago), 13h. (Baku, Ekaterinburg, Tashkent, Pulkovo, Copenhagen, Edinburgh, Stonyhurst, Kew, De Bilt, Uccle, Paris, Stuttgart, Neuchatel, Strasbourg, Scoresby Sund, Granada, Lick, and near Hastings), 16h. (near Tokyo), 18h. (Andijan, near Samarkand, and near Hastings), 20h. (Zagreb), 21h. (near Belgrade), 22h. (Ksara).

March 25d. Readings at 1h. (La Plata, Paris, La Paz, and near New Plymouth), 2h. (Florissant, St. Louis, and Little Rock), 3h. (Florissant and St. Louis), 5h. (near Belgrade), 8h. (near Nagasaki), 9h. (Tyosi), 10h. (near Matuyama), 12h. (Cheb, Andijan, and near Samarkand), 13h. (La Paz and Ottawa), 14h. (near Santiago), 17h. (near Andijan and Samarkand), 19h. (near Santiago), 20h. (La Paz), 22h. (Lick).

March 26d. Readings at 3h. (Manila), 6h. (near Nagoya and Tyosi), 7h. (Samarkand and near Irkutsk), 10h. (near Hastings, New Plymouth, Takaka, and Wellington), 11h. (near Santiago), 13h. (La Plata and near Santiago), 15h. (near New Plymouth), 16h. (near Sumoto, near New Plymouth, and Wellington), 17h. (Andijan), 18h. (La Paz, Tyosi, near Nagoya, Sumoto, Kobe, and Osaka), 19h. (Manila), 20h. (near Tokyo, Tyosi, Osaka, and Nagoya), 22h. (near Hastings).

March 27d. 2h. 46m. 57s. Epicentre 45°·0N. 11°·5E. (as on 1924 Sept. 21d.). R.3.

$A = +\cdot693$, $B = +\cdot141$, $C = +\cdot707$; $D = +\cdot199$, $E = -\cdot980$; $G = +\cdot693$, $H = +\cdot141$, $K = -\cdot707$.

		△	Az.	P.	O−C.	S.	O−C.	M.
		°	°	m. s.	s.	m. s.	s.	m.
Padova		0·5	33	i 0 3	− 4	e 0 14	+ 1	—
Venice		0·7	53	i 0 9	− 1	i 0 19	+ 1	1·2
Treviso		0·8	36	−e 0 12	?	0 27	S_g	—
Prato		1·1	194	0 15	− 1	0 28	0	—
Chur		2·3	324	e 0 38	+ 5	—	—	—
Innsbruck		2·3	0	—	—	e 1 15	S_g	—
Ravensburg		3·1	335	—	—	e 1 21	+ 1	—
Zurich		3·1	322	e 1 2	P_g	—	—	—
Zagreb		3·3	74	0 48	+ 1	e 1 30	+ 5	1·7
Neuchatel		3·7	303	e 0 55	+ 2	e 1 42	+ 7	—
Stuttgart	N.	4·1	338	—	—	e 1 46	+ 1	—
Strasbourg		4·4	326	—	—	2 37	S_g	—
Vienna	Z.	4·7	45	—	—	e 2 20	S*	—

Additional readings :—
Ravensburg iEN = +1m.44s., iE = +1m.48s., i = +1m.54s.
Zagreb e = +52s.
Stuttgart iE = +2m.19s. = S_g and +2m.27s., eZ = +2m.29s.
Strasbourg PPP = +1m.48s.

March 27d. Readings also at 1h. (near Santiago), 3h. (near Hastings), 5h. (Baku and Ekaterinburg), 6h. (near La Pas), 12h. (Andijan), 13h. (near New Plymouth), 16h. (Stuttgart), 19h. (Belgrade and Zagreb), 20h. (Andijan, Irkutsk, and Tashkent), 21h. (Andijan, Tashkent, Ekaterinburg, Vladivostok, and near Mizusawa (2)), 23h. (Ekaterinburg, near Batavia, and near Hastings and near Matuyama).

March 28d. 12h. 38m. 45s. Epicentre 7°·0S. 129°·5E. N.1.

A = − ·631, B = + ·766, C = − ·122; D = + ·772, E = + ·636; G = + ·078, H = − ·094, K = − ·993.

A depth of focus 0·013 has been assumed.

		Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Amboina		+0·4	3·6	339	i 1 3	+ 6	i 1 19	−23	—	—
Palau		−0·3	15·2	19	3 30	+ 3	6 28	+15	—	—
Batavia		−0·6	22·5	271	i 4 48	− 2	8 51	+ 7	—	—
Manila		−0·6	23·2	339	i 4 57	0	i 8 59	+ 2	i 11·7	—
Perth		−0·8	28·0	205	e 5 45	+ 5	9 55	−43	11·3	11·3
Adelaide		−0·9	29·2	164	i 5 44	− 6	i 10 39	+ 2	i 12·6	18·8
Isigakizima		−0·9	31·8	351	6 9	− 4	9 32	PcP	—	—
Medan		−1·0	32·5	289	(i 6 21)	+ 3	(14 43)	?	—	—
Hong Kong		−1·0	32·9	334	6 20	− 2	12 2	+28	16·9	18·4
Taihoku		−1·0	32·9	348	e 7 3	PP	10 48	−46	—	16·9
Naha		−1·0	33·3	356	6 27	+ 2	11 33	− 7	—	—
Riverview	E.	−1·0	33·5	145	6 24	− 3	i 11 50	+ 7	—	17·7
Sydney		−1·0	33·5	145	e 6 15	−12	i 11 45	+ 2	18·1	18·7
Melbourne		−1·0	33·8	158	6 30	0	11 33	−15	14·3	18·4
Phu-Lien		−1·0	35·8	321	6 49	+ 2	e 12 23	+ 5	16·3	18·7
Titizima		−1·0	36·2	21	6 53	+ 2	12 7	−17	—	—
Miyazaki		−1·1	39·0	1	7 14	0	13 5	0	—	—
Zi-ka-wei		−1·1	39·0	350	i 7 13	− 1	12 57	− 8	15·3	16·8
Nagasaki		−1·1	39·8	0	e 7 21	0	13 10	− 7	e 20·2	—
Hukuoka		−1·1	40·6	1	7 29	+ 1	13 27	− 2	—	17·1
Koti		−1·1	40·8	5	7 29	0	e 13 26	− 6	—	13·8
Siomisaki		−1·1	40·9	7	7 31	+ 1	13 35	+ 2	—	—
Hatidyozima		−1·1	41·3	14	7 35	+ 1	13 32	− 7	—	—
Sumoto		−1·1	41·7	7	7 37	0	13 40	− 5	17·1	17·4
Kobe		−1·1	42·0	7	i 7 40	0	13 59	+ 9	i 17·3	17·4
Osaka		−1·1	42·1	7	7 38	− 2	(13 49)	− 2	13·8	15·3
Nagoya		−1·1	42·8	9	e 7 47	+ 1	(13 59)	− 3	14·0	14·3
Toyooka		−1·1	42·8	7	i 7 48	+ 2	i 13 59	− 3	e 17·4	18·3
Tokyo		−1·2	43·7	13	7 56	+ 3	14 39	+26	—	—
Tyosi		−1·2	44·1	14	7 54	− 2	14 15	− 4	—	14·3
Zinsen		−1·2	44·6	356	8 0	0	14 26	− 1	—	—
Hukusima		−1·2	45·9	13	8 9	− 1	14 43	− 3	—	—
Mizusawa		−1·3	47·2	13	8 24	+ 4	15 7	+ 4	22·7	—
Morioka		−1·3	47·9	12	8 26	+ 1	15 12	− 1	—	—
Chiufeng		−1·3	48·7	347	8 30	− 2	i 15 18	− 6	—	—
Suva	N.	−1·3	48·8	109	9 10	+38	—	—	i 27·4	—
Calcutta		−1·3	49·9	309	8 43	+ 2	16 31	+50	28·3	—
Vladivostok		−1·3	50·1	2	i 8 46	+ 4	i 15 47	+ 3	24·7	29·4
Colombo		−1·3	51·4	284	8 50	− 2	16 12	+10	24·9	34·2
Arapuni		−1·3	51·9	134	9 15?	+19	15 57?	−12	24·3?	25·3?
Christchurch		−1·4	52·5	141	9 28	+28	i 16 22	+ 6	—	—
Wellington		−1·4	52·8	138	9 5	+ 3	16 8	−12	21·3	31·3
Kodaikanal		−1·4	54·6	288	(i 8 39)	−36	—	—	i 8·7	33·6
Ootomari		−1·4	54·9	11	9 22	+ 4	16 51	+ 2	—	—
Hyderabad		−1·4	56·0	298	9 24	− 2	17 13	+ 9	28·3	40·7
Apia		−1·5	58·0	101	(i 9 39)	0	(i 17 11)	−19	—	—
Agra		−1·5	60·3	308	i 9 19	−37	(18 6)	+ 6	18·1	—
Bombay		−1·5	61·5	298	10 5	+ 1	18 20	+ 4	30·9	32·4
Dehra Dun		−1·5	61·8	310	10 15	+ 8	15 15	?	—	—
Irkutsk		−1·6	63·1	344	i 10 16	+ 1	18 36	0	30·3	34·1
Andijan		−1·7	70·8	319	e 11 5	0	e 20 8	− 2	e 35·3	—
Samarkand		−1·7	74·0	316	e 11 28	+ 3	i 20 50	+ 2	e 36·3	—
Honolulu T.H.		−1·7	76·8	65	i 12 20	+39	i 21 19	− 2	i 35·4	—
Tananarive		−1·7	80·2	253	i 12 2	+ 2	e 21 56	− 3	37·8	43·3
Ekaterinburg		−1·7	84·6	330	i 12 20	− 3	i 22 32	−14	37·3	48·3

Continued on next page.

		Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Kucino		−1·8	96·6	326	e 13 18	− 2	24 30	−10	43·1	51·1
Ksara		−1·8	96·9	305	13 19	− 2	24 51	+ 8	46·3	54·3
Theodosia		−1·9	97·9	316	e 13 25	0	e 23 48	[−28]	47·3	—
Yalta		−1·9	98·6	316	13 27	− 1	23 54	[−25]	—	—
Sitka		−1·9	98·7	33	—	—	i 24 58	0	—	—
Helwan		—	100·6	300	13 32	−14	24 0	[−29]	—	70·8
Pulkovo		—	100·7	330	i 13 37	−10	e 24 41	{−17}	51·3	66·3
Helsingfors		—	103·3	330	—	—	e 25 14	−41	e 52·3	—
Königsberg		—	106·6	325	e 18 32	PP	i 25 37	−46	50·3	58·3
Victoria	E.	—	106·6	41	19 22	?	24 47	[−10]	44·5	49·4
	N.	—	106·6	41	19 17	?	24 44	[−13]	—	—
Upsala		—	106·9	331	e 17 28	[−40]	24 43	[−15]	e 47·3	58·0
Belgrade	N.	—	108·4	315	e 17 35	[−38]	e 27 57	PS	e 64·8	—
Berkeley		—	108·6	51	e 14 14	−10	e 26 21	?	—	—
Budapest		—	108·9	318	e 17 41	[−33]	e 25 15?	[+ 7]	e 44·8	61·3
Lick	E.	—	109·2	51	e 14 31	+ 4	—	—	—	—
Lund		—	110·4	328	19 15?	PP	25 51	{−19}	—	—
Vienna		—	110·5	320	e 14 21	−12	25 23	[+ 7]	e 53·3	64·3
Copenhagen		—	110·8	328	13 55	−39	24 45	[−32]	—	—
Santa Barbara		—	111·1	55	e 18 19	[− 2]	e 26 4	{−11}	—	—
Graz		—	111·3	319	e 18 17	[− 5]	i 28 17	PS	54·3	63·6
Prague		—	111·3	320	e 17 47	[−35]	—	—	e 47·3	67·3
Zagreb		—	111·3	314	e 14 27	−10	e 24 47	[−32]	e 50·6	57·9
Taranto		—	111·4	310	18 46	PP	23 3	PPPP	57·0	—
Tinemaha	E.	—	111·9	51	e 14 25	−15	24 56	[−26]	—	—
Laibach	E.	—	112·2	317	e 17 43	[−32]	e 26 52	{+30}	e 57·9	—
Haiwee	N.	—	112·3	52	i 18 24	[− 1]	i 24 56	[−27]	—	—
Trenta		—	112·3	310	e 18 5	[−20]	e 28 35	PS	—	—
Bergen		—	112·4	334	18 41	[+16]	30 57	?	—	—
Cheb		—	112·5	321	e 18 43	[+18]	28 56	PS	e 53·3	64·2
Mount Wilson		—	112·5	55	e 14 48	+ 5	e 24 58	[−26]	—	—
Pasadena		—	112·5	55	e 14 31	−12	i 24 56	[−28]	—	—
Hamburg		—	112·8	325	e 18 10	[−16]	i 28 54	PS	e 56·2	62·3
Jena		—	112·8	323	e 18 15	[−11]	e 26 37	{+10}	e 51·3	62·8
Triest		—	112·9	317	e 18 25	[− 2]	i 29 2	PS	41·3	—
Messina		—	113·1	309	20 11	?	28 6	?	—	—
Riverside		—	113·1	55	e 18 23	[− 4]	i 24 57	[−30]	—	—
Catania		—	113·5	308	e 18 34	[+ 6]	i 29 23	PS	e 66·5	—
Göttingen		—	113·6	324	i 18 23	[− 6]	e 28 45	PS	—	71·7
Naples	E.	—	113·6	311	e 18 24	[− 5]	e 29 24	PS	61·3	—
Camerino		—	113·9	314	19 32	PP	—	—	—	—
Treviso		—	113·9	317	e 18 23	[− 7]	29 20	PS	57·3	70·3
Venice		—	113·9	317	e 18 24	[− 6]	e 26 37	{+ 3}	—	—
Innsbruck		—	114·0	320	e 18 33	[+ 3]	e 29 21	PS	—	—
Scoresby Sund		—	114·0	350	14 33	−17	27 3	?	—	—
Padova		—	114·2	317	e 18 29	[− 2]	26 15?	{−21}	—	—
Feldberg		—	114·9	323	e 19 25	PP	e 27 15	?	—	62·8
Florence		—	115·0	315	e 14 42	−18	29 7	PS	53·3	61·3
Stuttgart		—	115·0	321	e 14 40	−15	i 25 15	[−19]	56·3	69·3
Prato		—	115·1	315	e 18 45	[+12]	29 15	PS	52·3	—
Chur		—	115·4	318	e 18 23	[−11]	e 25 0	[−35]	—	—
Piacenza		—	115·8	317	e 18 35	[0]	29 45	PS	55·3	69·0
Strasbourg		—	115·9	321	e 18 26	[− 9]	i 29 15	PS	46·3	63·9
Zurich		—	116·0	318	e 18 28	[− 7]	e 31 18	?	—	—
De Bilt		—	116·1	325	e 15 0	− 1	e 29 49	PS	e 58·3	60·5
Neuchatel		—	117·0	329	e 18 31	[− 7]	e 26 45	{−11}	—	—
Uccle		—	117·1	324	e 18 30	[− 8]	i 27 36	?	e 55·2	62·0
Besançon		—	117·5	320	18 36	[− 3]	e 29 12	SKSP	e 57·3	—
Edinburgh		—	118·6	331	—	—	e 21 15	?	51·3	—
Tucson		—	118·7	56	18 40	[− 2]	25 38	[− 8]	—	—
Paris		—	119·0	323	e 15 12	− 7	i 29 53	PS	47·3	72·3

Continued on next page.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Stonyhurst	—	119·3	329	19 2	[+18]	—	—	61·3	—
Kew	—	119·4	326	e 18 37	[− 7]	—	—	50·1	60·4
Oxford	—	119·8	326	i 20 14	PP	e 29 35	SKSP	56·3	78·3
Bidston	—	119·9	329	e 18 50	[+ 4]	e 30 47	PS	e 51·3	—
Puy de Dôme	—	119·9	320	17 33	?	e 29 9	?	40·3	—
Barcelona	—	122·1	315	e 20 7	PP	—	—	—	—
Algiers	—	123·0	310	i 18 43	[−10]	32 51	?	57·3	77·3
Tortosa	—	123·5	315	18 47	[− 7]	—	—	34·8	69·5
Alicante	—	125·2	312	e 18 51	[− 6]	e 32 25	?	e 63·0	—
Almeria	—	127·1	311	i 18 50	[−11]	32 55	?	i 63·8	80·1
Toledo	—	127·1	315	18 52	[− 9]	31 3	SKSP	e 53·3	—
Granada	—	127·9	311	i 18 57	[− 6]	—	—	i 64·7	69·6
Malaga	—	128·7	311	18 55	[− 9]	30 53	SKSP	42·3	—
San Fernando	—	130·1	312	19 2	[− 5]	21 16	PP	—	—
Florissant	—	132·1	41	i 19 1	[− 9]	i 28 17	{−18}	+	—
Chicago	—	132·1	38	e 21 27	PP	28 17	{−18}	58·3	—
St. Louis	—	132·3	41	e 18 50	[−21]	i 28 17	{−19}	e 53·3	e 68·3
Little Rock	—	132·6	48	e 19 2	[− 9]	e 31 25	SKSP	—	—
Ann Arbor	—	134·1	34	e 19 3	[−10]	—	—	—	—
Toronto	—	135·5	30	e 19 0	[−16]	(i 29 25)	{+29}	57·8	65·4
Ottawa	—	135·8	25	e 19 9	[− 7]	e 28 23	{−35}	e 40·3	—
Buffalo	—	136·3	30	i 19 12	[− 5]	—	—	e 57·3	—
La Plata	—	137·5	171	19 10	[− 8]	—	—	58·3	—
Pittsburgh	—	137·5	32	19 13	[− 5]	—	—	—	—
Charlottesville	—	140·0	35	e 19 33	[+12]	28 57	{−27}	e 54·3	—
Georgetown	—	140·1	33	19 9	[−12]	29 7	{−18}	—	—
Harvard	—	140·2	23	e 19 15	[− 6]	e 32 15	SKSP	—	—
Fordham	—	140·3	29	i 19 17	[− 5]	—	—	—	—
Columbia	—	140·9	41	19 21	[− 2]	27 45	PS	e 60·0	—
Dakar	—	146·7	286	i 19 33	[− 4]	—	—	—	—
La Paz	—	150·7	143	i 19 36	[− 7]	i 26 38	PPP	70·3	79·0
Port au Prince	—	155·9	59	e 19 34	[−15]	—	—	—	—
San Juan	—	161·0	52	i 19 48	[− 7]	i 31 5	{−19}	85·3	—

Additional readings and notes :—
Batavia iPP = +5m.52s., SS = +9m.51s.
Perth eP = +6m.5s., S = +10m.25s.
Adelaide i = +6m.24s. = PP − 10s.
Medan readings have been *increased* by 7m.
Hong Kong PP = +7m.19s., SS = +14m.53s.
Riverview iP$_c$SN? = +12m.43s., E = +13m.25s. = SS − 4s., SS?N = +13m.54s., E = +14m.25s., N = +14m.27s., E = +15m.32s., N = +16m.5s.
Melbourne i = +7m.2s. and +12m.45s., SS = +13m.30s.
Zi-ka-wei iZ = +7m.57s., PPZ = +8m.27s., iN = +9m.33s. = P$_c$P − 2s., iE = +9m.37s., iZ = +10m.41s.
Nagasaki SS? = +13m.33s.
Koti iS = +13m.42s., eE = +16m.57s.
Nagoya eS = +8m.58s.
Toyooka iPZ = +7m.36s., iPE = +7m.51s.
Tyosi PEN = +7m.58s.
Suva iN = +9m.35s.
Arapuni SS = +20m.55s.? = SSS − 1s.
Wellington P = +9m.19s., SZ = +16m.20s.
Apia PP = (+11m.52s.). All readings have been *increased* by 21m.
Agra S = +14m.9s.
Honolulu T.H. e = +11m.45s.
Tananarive P$_c$PE = +12m.18s., PPE = +15m.28s., PSE = +22m.39s., iE = +23m.25s., eN = +23m.27s., SSE = +27m.19s.
Kucino PP = +17m.14s.
Ksara PPE = +17m.19s., PPPE? = +19m.52s., PSE = +26m.0s., PPSE = +27m.0s., PPPSE = +27m.9s., SKKS = +28m.13s., PKKPE = +29m.58s., SPSE = +31m.38s., PPSSE = +31m.46s., PPP'E = +38m.32s., SSSSE = +39m.0s., PPPPP'E = +46m.8s., PPSS'E = +63m.52s., PSSSE = +71m.27s., SSSS'E = +77m.48s., SSSSS'E = +83m.16s.
Sitka iSKS = +23m.54s., SS = +31m.15s.
Pulkovo PP = +17m.35s., SKS = +23m.59s.
Helsingfors ePPPE = +19m.59s., eSKSEN = +24m.12s., mE = +24m.30s. = SKS − 12s., iN = +25m.33s., ePSN = +26m.29s., iEN = +27m.22s., ePPSEN = +27m.44s., iE = +28m.32s., eEN = +29m.12s., ePKKPE = +30m.2s., eN = +30m.26s., eSSN = +32m.17s., eSSE = +32m.59s., eN = +33m.10s. and 34m.22s., eE = +35m.9s., eNE = +36m.50s., eSSSEN = +37m.31s., ePPP$_s$E = +38m.32s., eN = +39m.12s., eE = +42m.53s.

Continued on next page.

Königsberg eZ = +18m.43s., SKSE = +24m.32s., eE = +24m.42s., eN = +26m.51s., iEN = +27m.33s., eEN = +32m.56s. = SS − 35s., eN = +36m.43s., +38m.39s., and +40m.57s., e = +42m.15s.?
Upsala PPE = +18m.31s., PPSE = +28m.38s., SSN = +33m.27s.
Belgrade eZ = +17m.41s., eN = +17m.44s., and +19m.20s.
Berkeley eN = +14m.22s., eE = +14m.49s., eZ = +14m.55s., +17m.52s., and +18m.56s. = PP +9s., eN = +19m.16s., iZ = +29m.24s., iE = +34m.6s. = SS +9s.
Budapest i = +19m.2s. = PP +13s.
Lick eN = +13m.22s.
Lund e = +28m.43s. and +30m.6s.
Vienna PP = +18m.5s., iEN = +19m.2s. = PP +1s., PPP = +20m.28s., iEZ = +21m.35s., PS = +26m.27s., iEN = +28m.33s. = PS +1s., SS = +31m.36s., PKKP = +32m.1s., SSS = +34m.39s. = SS +14s.
Copenhagen PP = +19m.15s., SKKS = +25m.56s., SN = +26m.39s., PS = +28m.33s., ePPS = +30m.33s., eE = +31m.45s., SS = +34m.33s.
Graz i = +19m.6s. = PP − 1s. and +25m.52s. = SKKS − 24s.
Prague ePP = +18m.27s., ePPP = +20m.59s., ePS = +27m.17s., ePPS = +28m.27s., eSS = +33m.45s., eSSS = +37m.57s.
Zagreb ePKP = +18m.3s., ePP = +18m.55s., e = +19m.8s., ePPPPNW = +23m.48s., ePPPPP = +25m.45s., eSKKSNE = +26m.50s., eNW = +27m.51s., ePKKPNE = +28m.34s., ePS = +28m.53s., ePSKSS = +29m.45s., ePPS = +29m.54s., ePPP′ = +31m.9s., e = +32m.54s., eSSNE = +34m.50s., eSSNW = +35m.53s., eSKKS = +36m.53s., eSSS = +38m.42s., eSSSS = +38m.45s., ePPPPP′ = +43m.43s.
Tinemaha ePKPE = +18m.23s.
Laibach eE = +19m.29s. = PP +16s. and +22m.28s.
Cheb e = +19m.33s. = PP +18s. and +25m.32s. = SKS +8s., ePS = +29m.28s., eSS = +36m.6s., e = +39m.54s.
Mount Wilson eN = +18m.26s. = PKP +1s., eEN = +25m.14s.
Pasadena iPKP = +18m.24s., ePPEN = +19m.10s., ePPZ = +19m.16s., eE = +25m.10s., iN = +25m.13s., eSKKSN = +25m.57s., iE = +26m.12s., iPSZ = +28m.31s.
Hamburg iE = +29m.21s. and +31m.37s.
Triest iP_cP = +19m.14s., SKKS = +29m.43s.
Jena iEZ = +19m.15s. = PP − 2s., eE = +26m.45s., eNZ = +29m.15s., eE = +29m.29s.
Riverside iE = +25m.11s., eE = +26m.13s. = SKKS − 16s.
Catania i = +19m.30s. = PP +7s.
Göttingen eZ = +18m.40s., ePPE = +19m.21s., ePPPE = +22m.21s., ePPS = +29m.45s.
Scoresby Sund PP = +19m.24s., SKS = +25m.17s., PS = +29m.3s., PPS = +30m.1s., SS = +35m.21s., eZ = +37m.3s., SSS = +39m.3s.
Feldberg e = +22m.38s., +35m.36s. = SS +12s., and +39m.15s. = SSS − 28s.
Florence P = +18m.32s. = PKP − 1s., PP = +19m.27s. and +22m.7s. = PPP − 13s., PPS = +30m.7s., i = +37m.42s.
Stuttgart ePEZ = +14m.56s., ePKPZ = +18m.27s., iPKPZ = +18m.44s., ePPEZ = +19m.22s., ePP = +19m.35s., ePPP = +22m.21s. and +22m.49s., e = +24m.39s., iEZ = +26m.21s., eSN = +27m.21s., e = +28m.30s., ePS = +29m.15s., e = +29m.32s., eE = +30m.3s., eSSN = +35m.45s., eZ = +37m.33s., eSSSN = +39m.15s., eEZ = +40m.51s., eE = +45m.15s., eN = +46m.35s.
Piacenza P = +19m.31s. = PP − 8s.
Strasbourg iPP = +19m.38s., iPPP = +22m.8s.
Zurich eSKS = +29m.18s. = PS − 7s.
De Bilt e = +19m.45s. = PP − 4s., eN = +27m.26s.
Uccle ePP = +19m.44s., iPS = +29m.35s.
Tucson e = +20m.1s., PP = +21m.0s., S? = +26m.45s. = SKKS − 23s., SS = +36m.25s.
Paris e = +18m.36s. = PKP − 7s., iPP = +19m.48s.
Stonyhurst PP = +20m.17s.
Kew ePPNZ = +20m.2s., iN = +26m.34s., iPSN = +30m.10s., ePPPNZ = +36m.13s. = SS − 11s., eZ = +36m.58s., iN = +37m.26s., eSSN = +42m.6s.
Bidston i = +20m.5s. = PP − 3s.
Algiers PP = +20m.35s.
Almeria PP = +20m.57s., i = +27m.15s., +31m.44s., and +33m.28s., SS = +36m.11s., SSS = +39m.44s., SSSS = +43m.23s., i = +45m.53s.
Toledo PP = +20m.52s., PPPP = +24m.22s., SKKS = +33m.13s.
Granada +19m.4s., +21m.7s. = PP +4s., PP = +21m.27s., also +42m.48s., +44m.58s., and +46m.56s.
Florissant iZ = +19m.16s., i = +22m.15s., and +22m.29s., iEN = +22m.44s. and +23m.47s., iZ = +25m.1s., iEZ = +31m.21s., and +33m.17s., iE = +35m.27s., iEN = +38m.32s., +39m.46s., +41m.17s., and +44m.7s.
Chicago iPP = +22m.28s., e = +23m.39s., PS = +33m.17s., PPS = +34m.37s., iSS = +39m.55s., SSS = +44m.15s.
St. Louis eN = +19m.3s., iN = +19m.17s., iEN = +22m.17s., +22m.28s., +22m.48s., +23m.47s., eEN = +25m.45s., iEN = +28m.41s. and +31m.45s. = SKSP +15s., eE = +33m.12s., iE = +39m.2s. = SS − 6s., eEN = +44m.5s.

Continued on next page.

Little Rock eN = +18m.37s., iPPEN = +22m.17s., iEN = +22m.30s. =PKS −15s., +23m.29s., and +39m.5s. =SS−8s., iE = +41m.23s., eE = +44m.15s.
Ann Arbor iPP = +22m.33s., ePPP = +24m.51s., eSS = +35m.21s., eSSS = +38m.57s.
Toronto iE = +19m.7s., +19m.25s., i = +22m.0s., iPP = +22m.37s., +22m.53s. =PKS − 2s., i = +23m.45s., iPPP = +24m.35s., +24m.53s., i = +35m.39s., +39m.22s., and +39m.49s. =SS + 1s.
Ottawa e= +22m.39s.=PKS−17s. and +28m.40s., eN= +34m.0s., eE=+34m.57s.
Buffalo iPKP = +19m.25s., iPP = +22m.29s., and +22m.45s. =PKS − 13s., iPPP = +24m.55s., ePS = +33m.39s., iPPS = +34m.57s.
Pittsburgh ePP = +22m.45s., eSS = +39m.45s.
Charlottesville ePP = +22m.15s., e = +29m.33s., SS = +40m.15s.
Georgetown iPPZ = +22m.32s., PPN = +23m.8s., PSN = +34m.35s., SSN = +41m.3s.
Harvard e = +22m.42s. =PP + 19s., i = +28m.50s. =SKKS − 15s., e = +36m.0s., i = +40m.42s. =SS − 3s., e = +45m.35s. =SSS − 9s., i = +50m.16s.
Fordham iPKPZ = +19m.28s., iPPZ = +22m.39s., iPPNZ = +22m.54s., iPPPPN = +28m.52s., and +29m.9s. =SKKS − 16s., iPS = +33m.55s., iSS = +38m.40s.
Columbia iPP = +22m.58s., eSS = +40m.15s., SSS = +46m.15s.
La Paz iZ = +20m.38s., iPPE = + 22m.54s., iZ = +24m.0s., SKSE = +26m.44s., iE = +29m.58s., iSKSPZ = +33m.22s., iSKSPE = +33m.36s., PPSE = +37m.50s., iE = +42m.46s., iSSE = +43m.55s., SSSE = +48m.46s.
Port au Prince i = +19m.48s., +20m.39s., +22m.13s., and +23m.52s.
San Juan e = +21m.27s., PP = +26m.1s.
Long waves were also recorded at Durham, Potsdam, Tashkent, and Ivigtut.

March 28d. Readings also at 0h. (Bombay, Hong Kong, and Irkutsk), 5h. (near Andijan), 7h. (near Santiago), 8h. (near Batavia), 9h. (near Amboina and near Wellington), 12h. (Wellington), 13h. (Andijan), 14h. (Hamburg, Hong Kong, Phu-Lien, and La Paz), 15h. (Catania and near Mizusawa), 19h. (near Andijan), 21h. (Sumoto (2) and La Paz).

March 29d. 17h. 25m. 5s. Epicentre 51°·0N. 170°·0W. N.2.

A = −·620, B = −·109, C = +·777; D = −·174, E = +·985; G = −·765, H = −·135, K = −·629.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Sitka		21·0	60	—	—	i 8 23	− 3	i 11·4	—
Victoria		29·8	77	—	—	11 1	0	13·5	15·7
Berkeley	E.	35·8	93	—	—	e 12 38	+ 5	e 17·1	—
Tinemaha	E.	38·8	90	e 7 26	+ 4	—	—	—	—
Pasadena		40·8	95	e 7 42	+ 3	—	—	—	—
Mount Wilson	E.	40·8	95	e 7 53	+14	—	—	—	—
Irkutsk		49·9	309	e 8 45	− 6	e 15 55	− 4	27·9	29·7
Zi-ka-wei		53·2	277	e 9 19	+ 4	17 11	+26	i 31·4	—
Chicago		54·6	66	—	—	e 16 55	− 9	e 25·2	—
Florissant		54·9	70	i 9 26	− 2	i 17 5	− 3	—	—
St. Louis		55·1	70	e 9 28	− 2	e 17 4	− 7	e 25·4	31·4
Scoresby Sund		56·4	13	—	—	17 25	− 3	28·9	—
Little Rock		56·4	76	e 9 35	− 4	e 17 22	− 6	—	—
Toronto		57·9	59	—	—	e 17 43	− 5	31·3	—
Ottawa		58·7	55	—	—	e 17 55	− 4	e 24·9	—
Buffalo		58·7	60	e 9 55	0	e 18 7	+ 8	—	34·9
Pittsburgh		59·8	62	—	—	i 18 14	+ 1	27·9	—
Fordham		62·8	59	e 10 23	− 1	e 18 33	−19	e 30·9	—
Harvard		63·2	55	—	—	e 18 36	−21	e 32·9	—
Hong Kong		64·0	275	—	—	(19 29)	PS	—	19·5
Ekaterinburg		64·4	333	i 10 33	− 2	e 19 22	+10	29·9	40·3
Pulkovo		68·1	350	e 11 53	(+27)	e 21 1	[+10]	31·9	52·8
Kucino		70·8	345	—	—	e 21 28	+57	37·2	53·4
Copenhagen		73·3	358	11 28	− 3	21 47	PS	—	—
Tashkent		74·3	319	i 11 38	+ 2	e 21 10	− 2	36·9	46·2
De Bilt		76·8	3	—	—	e 22 7	PS	e 43·9	—
Feldberg		78·8	1	—	—	e 22 6	+ 3	e 30·4	—
Baku		82·2	331	e 12 24	+ 5	22 48	+ 9	41·9	61·0
Florence		85·2	359	12 5	−29	23 35	+25	—	—
Granada		91·1	12	i 13 37	+34	i 24 13	+ 7	i 75·7	83·1
Bombay		91·1	305	—	—	e 23 55	−11	—	—

For Notes see next page.

NOTES TO MARCH 29d. 17h. 25m. 5s.

Additional readings :—
Sitka iS? = +8m.47s.
Berkeley eN = +10m.36s.
Tinemaha eN = +7m.46s.
Fordham eSS = +23m.13s.
Kucino e = +26m.29s.
Granada i = +25m.16s. =PS +12s.
Long waves were also recorded at Tucson, Columbia, Honolulu T.H., and Helsingfors, Almeria, and Ivigtut.

March 29d. 17h. 51m. 54s. Epicentre 42°·6N. 144°·2E. N.1.
as given by Wadati " Shallow and Deep Earthquakes " in Geophy. Mag. of Tokyo, Vol. IV, No.4.

A = − ·597, B = + ·431, C = + ·677 ; D = + ·585, E = + ·811 ;
G = − ·549, H = + ·396, K = − ·736.

From the Japanese material M. Wadati finds the focus shallow, but when the more distant records are considered it is evident that slight but definite depth must be assumed. Here we have assumed depth 0.010.

		Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Kusiro		+0·3	0·4	21	0 7	− 3	0 18	0	—	—
Obihiro		+0·2	0·8	303	0 11	− 3	0 19	− 7	—	—
Urakawa		+0·2	1·1	247	0 19	+ 1	0 35	+ 2	—	—
Nemuro		+0·2	1·3	54	0 20	− 1	0 37	− 2	—	—
Asahigawa		+0·2	1·8	312	0 21	− 8	0 38	−13	—	—
Sapporo		+0·2	2·1	283	0 33	0	0 47	−12	—	—
Aomori		+0·1	3·1	235	0 44	− 2	1 11	−11	—	—
Miyako		+0·1	3·4	208	0 51	+ 1	1 15	−15	—	—
Morioka		+0·1	3·7	220	0 54	0	1 36	− 1	—	—
Ootomari		+0·1	4·2	346	0 54	− 7	1 36	−14	—	—
Mizusawa		+0·1	4·2	215	0 59	− 2	1 46	− 4	—	—
Akita		+0·1	4·2	229	1 2	+ 1	1 47	− 3	—	—
Sendai		0·0	5·0	212	1 10	− 1	1 59	− 9	—	—
Hukusima		0·0	5·6	211	1 19	− 1	2 23	0	—	—
Mito		0·0	6·8	206	1 36	− 1	2 52	− 1	—	—
Kakioka		0·0	7·1	207	1 39	− 2	2 51	−10	—	—
Tukubasan		0·0	7·1	208	1 39	− 2	2 57	− 4	—	—
Tyosi		0·0	7·3	202	1 44	0	3 2	− 4	—	3·1
Kumagaya		0·0	7·4	211	1 44	− 1	3 18	+ 9	—	—
Nagano		0·0	7·5	220	1 45	− 1	3 4	− 7	—	—
Oiwake		−0·1	7·6	216	1 49	+ 3	3 10	− 1	—	—
Tokyo		−0·1	7·7	208	1 50	+ 2	3 12	− 2	—	—
Yokohama		−0·1	8·0	208	1 54	+ 2	3 19	− 2	—	—
Mera		−0·1	8·4	205	1 56	− 2	3 33	+ 2	—	—
Gihu		−0·1	9·2	221	2 8	− 1	3 48	− 3	—	—
Nagoya		−0·1	9·3	220	e 2 11	+ 1	4 1	+ 7	—	5·3
Hikone		−0·1	9·6	223	2 12	− 2	3 56	− 5	—	—
Toyooka		−0·1	10·1	229	i 2 20	− 1	i 4 11	− 2	—	—
Osaka		−0·1	10·4	223	2 23	− 2	(4 37)	+16	4·6	5·3
Kobe		−0·1	10·6	225	i 2 25	− 3	e 4 27	+ 1	—	5·4
Sumoto		−0·1	11·0	224	2 29	− 4	5 13	+37	—	6·1
Hamada		−0·1	12·2	235	2 31	−19	—	—	—	—
Koti		−0·1	12·3	226	2 47	− 4	5 24	+16	—	—
Hukuoka		−0·2	14·0	235	3 12	− 1	—	—	—	—
Miyazaki		−0·2	14·7	228	3 19	− 3	5 51	−12	—	—
Nagasaki		−0·2	15·0	234	3 21	− 5	6 36?	+26	—	—
Chiufeng	E.	−0·4	21·1	273	e 4 27	−10	e 8 19	− 1	—	—
Zi-ka-wei	Z.	−0·4	21·4	245	i 4 36	− 4	8 24	− 2	—	12·8
Irkutsk		−0·6	28·2	304	5 38	− 6	10 14	−11	14·1	16·4
Hong Kong		−0·7	32·1	240	7 17	+60	11 24	− 2	—	17·8

Continued on next page.

		Corr. for Focus	Δ	Az.	P.	O–C.	S.	O–C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Manila		−0·8	34·4	224	i 6 38	+ 1	i 12 10	+10	—	—
Phu-Lien		−0·8	38·2	248	7 8	− 2	e 12 56	− 1	—	18·1
Almata		−1·0	47·9	295	8 27	− 1	e 15 13	− 4	—	—
Andijan		−1·0	52·0	294	e 8 54	− 5	e 16 7	− 8	—	—
Ekaterinburg		−1·0	52·3	318	8 56	− 5	16 12	− 7	25·1	30·5
Tashkent		−1·1	53·8	298	8 9	−63	i 16 36	− 2	—	34·8
Samarkand		−1·1	56·1	297	e 9 18	−11	e 16 59	−10	—	—
Kucino		−1·2	63·7	324	—	—	i 18 43	− 5	—	—
Bombay		−1·2	63·8	275	10 20	− 2	18 36	−14	30·3	—
Pulkovo		−1·2	64·3	330	i 11 20	+54	—	—	34·1	41·9
Helsingfors		−1·2	65·9	331	e 10 50	+13	i 19 5	−11	e 34·1	—
Scoresby Sund		−1·2	66·5	356	10 36	− 5	19 17	− 7	—	—
Baku		−1·2	66·7	305	e 10 42	0	—	—	—	—
Berkeley		−1·3	67·7	59	e 10 46	− 2	—	—	—	—
Lick		−1·3	68·4	59	e 10 51	− 1	—	—	—	—
Upsala		−1·3	68·6	334	e 10 47	− 7	i 19 38	−10	—	—
Tinemaha		−1·3	70·7	57	i 11 5	− 2	e 20 14	0	—	—
Königsberg		−1·3	71·4	330	i 11 27	+16	i 20 10	−12	e 37·2	39·1
Santa Barbara	N.	−1·3	71·4	60	e 11 9	− 2	—	—	—	—
Mount Wilson		−1·3	72·7	60	e 11 17	− 2	i 20 36	− 2	—	—
Pasadena		−1·3	72·7	60	e 11 15	− 4	i 20 34	− 4	—	—
Lund		−1·3	73·4	334	11 37	+14	20 35	−11	—	—
Copenhagen		−1·3	73·6	334	11 39	+14	20 39	− 9	—	—
Hamburg		−1·3	76·1	334	i 11 34	− 5	21 8	−10	—	—
Potsdam		−1·3	76·1	331	e 11 48	+ 9	i 21 22	+ 4	—	—
Göttingen		−1·3	77·8	333	e 11 36	−13	i 21 25	−12	—	43·1
Jena		−1·3	77·8	333	—	—	e 21 12	−25	—	—
Vienna		−1·3	78·2	329	e 10 45	− 6	20 31	−71	—	—
Tucson		−1·3	78·4	57	e 11 49	− 4	e 21 41	− 3	—	—
De Bilt		−1·3	78·9	336	i 12 12	+17	i 21 39	−10	e 39·6	—
Feldberg	N.	−1·3	79·5	334	e 11 30	−28	e 21 43	−13	—	—
Uccle		−1·3	80·0	336	e 11 55	− 6	e 18 6?	?	e 40·1	—
Zagreb		−1·3	80·4	326	e 11 58	− 5	e 21 34	−32	—	—
Stuttgart		−1·3	80·5	332	12 19	+15	i 22 4	− 3	—	—
Innsbruck		−1·3	80·9	330	11 54	−12	—	—	—	—
Kew		−1·3	81·0	340	e 12 25	+19	(e 21 6?)	−66	e 21·1	—
Strasbourg		−1·3	81·1	333	e 12 57	+50	i 22 11	− 3	e 28·1	—
Chur		−1·3	81·9	331	e 12 5	− 6	e 22 9	−13	—	—
Paris		−1·4	82·6	336	e 12 7	− 7	(e 21 6?)	−22	21·1	—
Neuchatel		−1·4	82·7	333	e 12 9	− 6	—	—	—	—
Piacenza		−1·4	83·4	331	22 14	S	(22 14)	−23	—	52·6
Florence		−1·4	83·9	328	e 12 15	− 6	22 31	−11	—	38·1
Florissant		−1·4	84·8	40	i 12 23	− 2	i 22 43	− 8	—	—
St. Louis		−1·4	85·0	40	i 12 22	− 4	i 22 36	−17	—	—
Naples	E.	−1·4	85·1	325	e 12 16	−11	e 22 16	−38	—	—
Ottawa		−1·4	85·2	26	—	—	e 22 35	−20	—	—
Toronto		−1·4	85·4	30	—	—	i 22 29	−29	—	—
Little Rock	N.	−1·4	87·0	43	e 12 30	− 6	i 23 2	−12	—	—
Tortosa	N.	−1·4	90·3	335	—	—	23 8	[−26]	—	—
Toledo		−1·4	92·6	337	e 12 54	− 9	23 21	[−27]	—	—
Granada		−1·4	95·0	336	i 17 17	PP	i 23 31	[−30]	i 26·9	27·5
Malaga		−1·4	95·7	336	e 13 27	+10	24 9	−27	35·4	—
San Juan		—	112·9	31	e 17 6?	?	—	—	e 23·1	—
La Paz		—	142·1	57	19 23	[− 1]	e 32 0	SKSP	—	—

Additional readings :—
Nagoya P_g = +2m.47s.
Toyooka iZ = +4m.14s.
Osaka i = +3m.12s.
Zi-ka-wei PPPPZ = +5m.8s., iZ = +6m.10s.
Tashkent e = +17m.10s.
Kucino i = +19m.57s.
Bombay SE = +18m.19s.

Continued on next page.

Pulkovo i = +11m.42s., +19m.44s. and +21m.2s.
Helsingfors eSEN = +20m.12s.
Scoresby Sund i = +10m.57s.
Berkeley eN = +11m.15s.
Upsala iPS = +20m.34s.
Königsberg ePPN = +14m.18s., eSN = +20m.13s., e = +29m.42s. and +31m.30s.
Pasadena iN = +21m.12s.
Hamburg iP_cPZ = +11m.56s., eE = +21m.38s., eSSSE = +28m.36s., SE = +41m.6s. ?
Potsdam iN = +12m.36s., iEN = +21m.6s., eE = +22m.18s.
Göttingen iZ = +12m.4s.
Vienna PS = +22m.30s., SS? = +26m.54s.
Feldberg eN = +17m.29s. and +24m.6s.
Zagreb e = +12m.20s., +21m.54s., and +28m.6s. ?
Stuttgart iSNZ = +21m.55s., eSSN = +27m.6s., eSSS = +31m.6s. ?
Strasbourg i = +13m.19s. and +21m.54s.
Florence iP = +12m.35s.
Florissant iZ = +12m.47s., iSN = +22m.37s.
St. Louis i = +22m.43s. and +23m.25s.
Little Rock eN = +23m.38s.
Toledo iP = +12m.57s., i = +13m.20s.
La Paz e = +36m.36s.

March 29d. 19h. 12m. 24s. Epicentre 51°·0N. 170°·0W. (as at 17h.). X.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Sitka		21·0	60	—	—	e 8 22	− 4	—	—
Irkutsk		49·9	309	—	—	e 18 36?	(− 8)	24·6	—
Chicago		54·6	66	—	—	(e 17 12)	+ 8	e 17·2	—
Florissant		54·9	70	i 9 28	0	i 17 4	− 4	—	31·6
St. Louis		55·1	70	e 9 30	0	e 16 43	−28	—	33·6
Little Rock	N.	56·4	76	e 9 46	+ 7	e 17 43	+15	—	—
Ekaterinburg		64·4	333	i 10 32	− 3	—	—	33·6	45·8
Tashkent		74·3	319	—	—	e 21 24	+12	e 36·6	46·1
Samarkand		76·6	320	e 11 45	− 4	—	—	—	—
Neuchatel		82·0	3	e 12 15	− 3	—	—	—	—

Additional readings :—
Florissant eZ = +9m.35s.
Tashkent i = +21m.59s.
Long waves were also recorded at Berkeley, Ottawa, Scoresby Sund, Pulkovo, Baku, De Bilt, Feldberg, and Granada.

March 29d. Readings also at 0h. (La Paz), 1h. (Manila, Baku, Ekaterinburg, Kucino, Tashkent, near Samarkand and Andijan), 2h. (Cheb), 4h. (Granada), 11h. (Tyosi), 17h. (Neuchatel), 22h. (Ekaterinburg, Tashkent, near Andijan (2) and Samarkand (2)), 23h. (Irkutsk, Ekaterinburg, Tashkent, and Hong Kong).

March 30d. 7h. 26m. 17s. Epicentre 24°·0N. 124°·0E. (as on 1927 Oct. 15d.). X.

A = −·511, B = +·757, C = +·407; D = +·829, E = +·559;
G = −·228, H = +·337, K = −·914.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Taihoku		2·5	294	i 0 36	0	(0 54)	−10	0·9	1·5
Zi-ka-wei	Z.	7·5	343	1 49	+ 3	3 31	S*	4·6	5·2
Hong Kong		9·2	262	2 8	− 2	3 48	− 6	4·6	4·9
Manila		9·8	197	e 2 17	− 1	i 4 13	+ 5	—	—
Irkutsk		32·0	337	e 6 29	+ 6	e 11 59	+24	17·7	20·5
Tashkent		48·3	305	—	—	e 13 39	?	e 24·7	31·3
Samarkand		50·0	303	8 47	− 4	—	—	—	—
Ekaterinburg		55·6	324	i 9 38	+ 5	e 17 27	+10	25·7	35·2

Additional readings :—
Zi-ka-wei iZ = +2m.3s., +2m.11s., +2m.33s., +2m.51s., +3m.35s., +3m.57s., +4m.7s., +4m.13s., and +4m.19s.
Long waves were also recorded at Koti, Bombay, Baku, Pulkovo, Scoresby Sund, and other European stations.

March 30d. 13h. 38m. 6s. Epicentre 18°·0N. 120°·4E. (as on 19d.). R.3.

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

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Manila		3·5	169	1 2	P*	i 2 17	S_g	—	—
Hong Kong		7·2	308	1 37	− 5	3 13	+ 9	3·7	4·6
Zi-ka-wei	z.	13·2	4	e 3 2	− 3	—	—	7·3	9·0
Phu-Lien		13·3	284	e 3 11	+ 5	—	—	6·9	—
Sumoto		20·8	36	4 32	− 6	—	—	—	—
Kobe		21·2	36	i 4 4	−38	—	—	—	—
Nagoya		22·6	37	e 4 53	− 4	—	—	—	—
Irkutsk		36·5	345	e 6 54	− 8	12 31	−13	18·9	—
Almata		44·3	316	e 8 38	+31	—	—	—	—
Bombay		45·0	281	10 6	(+ 8)	14 48	− 2	18·1	28·1
Andijan		46·8	311	e 8 33	+ 6	—	—	—	—
Tashkent		49·3	310	e 8 56	+10	i 16 54	+63	e 24·9	29·6
Samarkand		50·7	309	e 8 52	− 5	—	—	—	—
Ekaterinburg		58·6	327	9 53	− 2	i 17 53	− 4	—	34·3
Baku		63·8	308	—	—	e 19 7	+ 2	31·9	43·0
Pulkovo		74·5	330	e 10 34	−63	e 19 59	?	38·9	45·6
Helsingfors		77·1	330	—	—	e 21 31	−13	e 42·9	—
Copenhagen		84·8	328	—	—	22 54	[− 4]	45·9	—
Scoresby Sund		87·7	350	—	—	24 54?	PS	51·9	—
Stuttgart		89·7	323	—	—	e 23 39	[+ 8]	e 48·9	—
De Bilt		90·4	326	—	—	e 23 30	[− 5]	e 45·9	56·9

Additional readings :—
Tashkent e = +9m.14s.
Long waves were also recorded at other European stations.

March 30d. Readings also at 0h. (Koti and near Wellington), 3h. (Messina), 5h. (Ekaterinburg, Tashkent, Samarkand, Hong Kong, and near Manila), 10h. (Zi-ka-wei, Hong Kong, and near Taihoku), 11h. (Irkutsk, Tashkent, Copenhagen, De Bilt, Paris, and Strasbourg), 14h. (La Paz and near Manila), 15h. (Baku, Ekaterinburg, Tashkent, Irkutsk, Scoresby Sund, Ottawa, and Adelaide), 16h. (Stuttgart, Zurich, De Bilt, Copenhagen, and near Samarkand), 17h. (Andijan), 19h. (near New Plymouth), 21h. (Baku and near La Paz.).

March 31d. 14h. 45m. 52s. Epicentre 33°·6N. 134°·5E. N.3.

A = −·584, B = +·594, C = +·553.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Koti	0·8	266	i 0 12	+ 1	i 0 23	+ 2	—	0·4
Sumoto	0·8	23	i 0 11	0	0 21	0	—	0·4
Kobe	1·2	28	0 17	0	0 31	0	—	0·5
Osaka	1·4	40	0 18	− 2	0 34	− 2	—	1·2
Matuyama	1·5	279	e 0 20	− 1	e 0 36	− 3	0·8	0·8
Toyooka	2·0	8	i 0 34	+ 5	i 0 49	− 2	—	1·0
Nagoya	2·6	52	e 0 39	+ 2	1 5	− 2	—	—

Additional readings :—
Kobe iEN = +24s.
Osaka i = +25s.

March 31d. 16h. 2m. 26s. Epicentre 13°·2N. 85°·8W. N.2.

$A = +\cdot071$, $B = -\cdot971$, $C = +\cdot228$; $D = -\cdot997$, $E = -\cdot073$; $G = +\cdot017$, $H = -\cdot228$, $K = -\cdot974$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Balboa Heights		7·4	124	1 58	+13	3 3	− 6	3·9	—
Port au Prince		14·0	66	i 3 18	+ 3	e 6 27	+36	e 7·8	9·0
San Juan		19·6	72	i 4 24	− 1	e 8 4	+ 6	9·6	—
Columbia		21·3	11	4 50	+ 7	8 54	+22	e 11·4	—
Little Rock	N.	22·4	346	e 4 52	− 3	e 9 7	+14	—	—
Charlottesville		25·7	13	—	—	10 4	+11	e 14·1	—
St. Louis		25·7	352	e 5 25	− 1	e 10 0	+ 7	—	20·1
Florissant		26·0	352	i 5 26	− 3	i 10 4	+ 6	—	19·6
Georgetown		26·9	15	e 5 34	− 3	i 10 24	+10	e 13·6	—
Pittsburgh		27·8	10	5 47	+ 2	i 10 36	+ 8	e 13·2	—
Chicago		28·6	357	e 6 16	+23	10 47	+ 5	e 14·1	—
Ann Arbor		29·2	3	i 8 22	?	i 10 58	+ 7	16·1	17·2
Fordham		29·6	18	e 6 9	+ 8	11 11	+13	14·8	—
Tucson		29·8	314	e 5 52	−11	e 10 46	−15	e 12·9	—
Toronto		31·0	10	i 6 15	+ 1	i 11 26	+ 6	16·4	19·0
Denver	E.	31·4	333	—	—	e 13 44	?	—	—
Harvard		31·8	21	—	—	i 10 53	−39	e 15·1	—
Ottawa		33·3	15	e 6 37	+ 3	e 12 12	+17	e 16·6	—
La Paz		34·4	149	e 6 44	0	i 12 44	+32	16·0	21·3
Pasadena		36·0	313	e 6 58	0	—	—	e 19·8	—
Tinemaha		37·5	317	e 7 10	− 1	—	—	—	—
Lick	N.	40·0	316	e 7 32	0	—	—	—	—
Berkeley	E.	40·7	316	—	—	e 15 24	?	e 19·6	23·2
Victoria	E.	46·9	328	—	—	19 2	?	27·5	32·1
Ivigtut		55·1	22	—	—	22 22	?	25·6	—
Scoresby Sund		69·0	20	—	—	20 28	+19	33·6	—
Granada		75·9	55	—	—	i 21 40	+10	38·2	43·9
Almeria		76·9	55	—	—	e 22 18	+36	38·2	40·7
Kew		77·0	39	e 14 34?	PP	—	—	33·6	48·6
Strasbourg		82·5	41	(e 18 34?)	?	—	—	e 18·6	—
Feldberg		82·6	40	—	—	e 26 28	?	e 34·4	39·3
Stuttgart		83·4	41	—	—	e 22 40	−11	e 39·9	46·6
Copenhagen		83·6	35	—	—	22 46	− 7	33·6	—
Pulkovo		91·1	27	e 20 24	?	—	—	42·6	55·4
Ekaterinburg		104·7	20	—	—	e 24 15	[−33]	43·6	65·4
Baku		112·5	35	—	—	e 37 44	?	51·6	64·7
Irkutsk		114·0	353	—	—	e 27 34?	?	58·6	64·0
Tashkent		120·9	22	—	—	e 25 16	[−37]	e 56·6	75·8
Manila	Z.	141·6	317	16 39	?	—	—	—	—

Additional readings :—
San Juan iS = +8m.21s.
Little Rock iN = +5m.11s. = PP − 4s., +5m.22s., and +6m.56s., eSSN = +10m.30s.
Charlottesville eSS = +11m.28s.
St. Louis iPN = +5m.29s., iN = +6m.0s. = PP + 1s., +10m.15s., +11m.12s., and +11m.39s.
Florissant iPNZ = +5m.30s., iNZ = +6m.1s. = PP − 3s., +6m.40s., and +7m.35s. iN = +10m.30s.
Ann Arbor iN = +11m.40s., e = +12m.52s.
Fordham ePP = +7m.5s.
Tucson ePP = +6m.52s., e = +11m.34s.
Toronto e? = +5m.54s., PP = +7m.24s.
La Paz PPN = +8m.1s.
Pasadena eEN = +7m.6s., eZ = +8m.22s. = PP + 9s.
Lick eE = +7m.44s.
Berkeley eE = +17m.39s. = S_cS − 7s.
Feldberg e = +29m.34s.
Ekaterinburg e = +27m.45s. = PS + 10s. and +33m.19s. = SS + 13s.
Baku e = +42m.7s.
Irkutsk e = +34m.34s.? and +39m.34s. ?
Tashkent e = +31m.34s. and +45m.34s. ?
Long waves were also recorded at Sitka, La Plata, Wellington, Riverview, Sydney, Hong Kong, Bombay, Kucino, and other European stations.

March 31d. 20h. 45m. 10s. Epicentre 34°·4N. 134°·8E. (as on 1930 Dec. 5d.). X.

A = −·581, B = +·585, C = +·565.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Sumoto	0·1	128	i 0 1	0	0 5	+ 2	—	0·1
Kobe	0·4	48	0 5	+ 1	0 12	+ 2	—	0·2
Osaka	0·7	68	0 7	+ 3	(0 15)	− 3	0·2	0·8
Koti	1·4	231	e 0 24	+ 4	0 42	+ 6	—	0·7
Matuyama	1·8	252	e 0 32	+ 6	—	—	1·0	1·1
Nagoya	1·9	67	e 0 38	P*	0 57	+ 8	—	—

March 31d. Readings also at 0h. (La Paz), 1h. (near New Plymouth (2)), 3h. (Suva), 6h. (Ekaterinburg, Irkutsk, Tashkent, and Hong Kong), 15h. (Apia), 17h. (Sumoto), 18h. (Ksara), 20h. (Sumoto), 21h. (near Kobe, Osaka, and Sumoto), 23h. (near Mizusawa (2)).