The International Seismological Summary for 1924 July, August, September.

FORMERLY THE BULLETIN OF THE BRITISH ASSOCIATION SEISMOLOGY COMMITTEE.

The present number of the Summary deals with 147 epicentres, 31 of which are new, and 116 repetitions from old epicentres. The average number of shocks dealt with in the five years 1918-1922 was 81 per 3 months, 35 being new and 46 old. For 1923 these numbers rose to 122 (47 and 75) and for Jan.—June of this year they were 106 (27 and 79). It is not yet clear whether this represents a real increase in seismic activity, permanent or temporary, or is merely the result of greater vigilance on the part of existing and the establishment of new stations.

As regards abnormal focus there are only two cases :—

Date 1924		Epicentre		Focal Depth
d.	h.	°	°	
July 22	4	−1·0	− 79·0	+0·040
Sept. 10	5	−7·0	+124·0	+0·040

The most important recent event has been the very successful meeting of the International Geodetic and Geophysical Union in Prague, Sept. 1-10, 1924. There was a good attendance in the Seismological Section where we heard, for instance, a very interesting account from Prof. Imamura of the changes in level which precede earthquakes, and seem to give some hope of anticipating them. M. Nikiforov attended as a visitor (since the U.S.S.R. has not yet joined the Union) and showed a map of numerous actual and proposed stations extending from Leningrad to Vladivostok. A large committee was appointed to deal with the question of revising the tables of P, S, and other waves. The former officers were re-elected (President, H. H. Turner ; Vice-Presidents, E. Oddone, H. Fielding Reid, J. Galbis ; Secretary, E. Rothé), and Prof. Salamon, of Prague, was also elected a vice-president. After the formal meeting there were two very pleasant excursions, one to the western and the other to the eastern parts of Czecho-Slovakia.

The Palestine earthquake (1927 July 11), mentioned in the last report, aroused sufficient interest to lead to a question in the House of Commons :—

THE PALESTINE EARTHQUAKE.

In reply to Lieut.-Com. Kenworthy (Hull, Central Lab.), Mr. Ormsby-Gore said the High Commissioner had not asked for a grant to Palestine for the relief of sufferers from the recent earthquake, as the funds required had been raised by private subscription. The Palestine Government was providing £E.100,000 to furnish credit facilities to persons whose property was affected by the earthquake.

(*Times*. 1927 Nov. 15).

On August 25 a shock near Tainan in Formosa caused destruction of life and property. On September 12 there were violent shocks in the Crimea and the shores of the Black Sea ; the following paragraph appeared in *The Times* :—

RIGA, Sept. 23.

Lunacharsky, Soviet Commissar of Education, and Semashko, Commissar of Health, have appealed to the "Soviet *intelligentsia*" and workers to organize collections on an extended scale for the victims of the earthquake on the Black Seas as the Soviet is unable to cope with the widespread distress without financial help from private sources.

The shocks, which began on September 12, particularly affecting the Crimea, still continue daily, although they are more feeble, and thousands of people are still remaining in the open air day and night, afraid to re-enter their damaged houses. The distress is aggravated by the falling temperature.

A violent shock took place off the South Coast of Alaska on Oct. 24d. 15h. 59m. 40s., epicentre about 58°N. 140°W. Some anxiety was felt when communication was cut off, but apparently the damage done on the coast was less serious than at first feared. On Nov. 4d. 13h. 50m. 55s. there was a considerable shock near 34°·5N. 121°·5W., off the coast of California.

H. H. TURNER.

University Observatory, Oxford.
1927 November 15.

1924 JULY, AUGUST, SEPTEMBER.

July 1d. 3h. 1m. 0s. (I) } Epicentre 43°·0N. 125°·0W. (as on 1922 Jan. 26d.).
3h. 26m. 6s. (II) }

A = −·420, B = −·599, C = +·682 ; D = −·819, E = +·574 ;
G = −·391, H = −·559, K = −·731.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
I Victoria	E.	5·5	12	—	—	—	—	2·6	4·6
I	N.	5·5	12	—	—	—	—	2·7	4·0
II	E.	5·5	12	0 58	−27	—	—	2·2	5·5
II	N.	5·5	12	1 13	−12	—	—	3·0	5·2
I Berkeley		5·5	157	—	—	e 2 33	+ 2	e 3·6	—
II		5·5	157	—	—	—	—	—	3·4
II Lick		6·5	155	i 3 57	?L	—	—	(i 4·0)	—
I Toronto	E.	32·8	72	—	—	—	—	e 21·2	—
II	E.	32·8	72	e 8 2	+67	e 12 24	+ 3	e 20·1	21·7
I Ottawa		34·9	69	—	—	—	—	e 21·7	—
II		34·9	69	—	—	e 12 54	0	e 19·9	22·5
II Ithaca		35·1	74	—	—	—	—	e 20·9	—
II Georgetown		36·0	80	—	—	—	—	e 23·5	—
II Eskdalemuir		70·0	31	—	—	e 20 28	+ 2	32·9	—
II Pulkovo		75·3	13	—	—	—	—	e 41·6	—
II De Bilt		75·6	29	—	—	e 21 29	− 4	e 31·9	—
II Uccle		76·4	30	—	—	—	—	e 31·9	—
II Paris		77·4	32	—	—	—	—	e 41·9	—
II Rocca di Papa		87·1	30	—	—	—	—	e 26·8	54·1

Additional readings: Berkeley II eLZ = 3h.25m.33s., MZ = +4·4m. Lick II eP?N = +4m.0s., iE = +4m.4s., iN = +4m.10s. Toronto II eN = +14m.49s. and +19m.39s., MN = +21·3m. Georgetown II LN = +23·9m.

July 1d. 6h. 20m. 0s. Epicentre 1°·0N. 32°·0E.

A = +·848, B = +·530, C = +·017 ; D = +·530, E = −·848 ;
G = +·015, H = +·009, K = −1·000.

(For a neighbouring epicentre see 1919 June 30d. 7h. and note).

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Ksara	E.	33°1	7	e 12 13	?S	(e 12 13)	−13	18·0	—
Cape Town		37·1	198	—	—	—	—	—	21·7
Rocca di Papa		44·3	341	—	—	—	—	19·0	31·7
Algiers		44·7	328	—	—	—	—	e 25·5	31·0
Colombo		48·1	83	24 0	?L	—	—	(24·0)	—
Hyderabad		48·5	67	23 40	?L	—	—	(23·7)	—
Granada		48·8	323	—	—	i 28 28	?L	i 30·1	33·0
Tortosa	E.	49·0	328	—	—	—	—	e 29·0	33·9
Moncalieri		49·0	338	—	—	—	—	e 20·2	—
Toledo		50·8	325	—	—	—	—	e 29·8	34·8
Strasbourg		52·0	341	—	—	—	—	e 20·0	—
Coimbra		53·7	323	—	—	e 16 20	−45	29·5	—
Paris		54·2	337	—	—	—	—	e 32·0	37·0
Konigsberg	N.	54·7	353	—	—	—	—	e 23·2	—
Uccle		55·1	340	—	—	—	—	e 30·0	—
Hamburg		55·7	346	—	—	—	—	e 34·0	—
De Bilt		55·9	341	e 10 4	+19	—	—	e 33·0	35·0
Pulkovo		58·8	359	—	—	—	—	e 37·6	—
Ekaterinburg		60·4	18	10 14	− 1	18 24	− 4	30·0	36·5

Additional readings: Algiers L = +27·5m. Toledo MZ = +34·9m. Coimbra eS? = +23m.20s. Paris MN = +34·0m. Ekaterinburg e = +12m.27s., MN = +36·6m.

July 1d. Readings also at 1h. and 2h. (Granada), 4h. (La Paz and Granada), 6h. (near Tacubaya), 8h. (Nagasaki), 11h. (Ekaterinburg), 12h. (Riverview, Ekaterinburg, Rocca di Papa, and near Osaka), 15h. (Taihoku), 16h. (Rocca di Papa), 19h. (near Belgrade), 23h. (Granada (2) and Nagasaki).

July 2d. 18h. 4m. 40s. Epicentre 14°·5N. 94°·0W. (as on 1924 June 4d.).

A = −·068, B = −·966, C = +·250 ; D = −·998, E = +·070 ;
G = −·017, H = −·249, K = −·968.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Oaxaca		3·7	315	0 47	−11	—	—	2·0	—
Vera Cruz		5·1	337	0 42	−37	—	—	2·0	6·6
Tacubaya		7·0	315	2 9	+23	—	—	4·1	4·8
Merida		7·7	32	3 38	?S	(3 38)	+ 9	5·3	6·8
Chicago		27·9	10	4 57	−70	11 4	+ 7	16·1	—
Georgetown	E.	28·6	28	7 20	+66	e 12 22	+72	e 17·6	—
	N.	28·6	28	7 20	+66	e 12 22	+72	e 16·3	—
Toronto	E.	31·8	21	e 6 50	+ 5	11 50	−15	e 18·5	23·3
Ottawa		34·5	23	6 58	−11	12 32	−16	e 17·3	22·3
Victoria	E.	41·6	330	8 2	− 6	14 45	+16	24·4	28·2
	N.	41·6	330	8 13	+ 5	14 33	+ 4	24·1	28·1
Edinburgh		78·6	36	—	—	—	—	e 47·3	—
Uccle		84·0	39	—	—	—	—	—	50·3
De Bilt		84·1	38	e 12 47	+ 4	—	—	e 42·3	—
Strasbourg		86·8	41	—	—	—	—	e 51·3	—
Pulkovo		93·4	25	e 13 37	+ 3	e 24 7	[+19]	40·8	—
Ekaterinburg		105·6	15	—	—	e 24 25	[−25]	32·3	—
Irkutsk		111·4	348	19 36	?PR_1	—	—	65·3	—
Taihoku		127·7	318	—	—	—	—	e 72·4	—

Additional readings: Merida MN = +5·8m. Tacubaya MN = +5·0m.
Toronto eE = +7m.35s. and +11m.35s.. eN = +14m.50s. Irkutsk e = +29m.19s., +35m.13s., and +51m.7s.

July 2d. Readings also at 0h. (Ekaterinburg and La Paz), 2h. (Rocca di Papa), 3h. (near Athens), 5h. (Tortosa, De Bilt, Ksara, and Cape Town), 10h. (Kodaikanal, Victoria, and Ekaterinburg), 11h. (Pulkovo), 12h. (Kobe and Nagoya (3)), 13h. (Ekaterinburg), 15h. (Melbourne), 18h. (near Batavia and Malabar), 20h. (Venice), 21h. (Ekaterinburg, Toledo, Granada, Rocca di Papa, Tortosa, De Bilt, Paris, Hyderabad, Uccle, and Coimbra : perhaps far north ?).

1924. July 3d. 4h. 40m. 0s. Epicentre 37°·3N. 85°·3E.

A = +·065, B = +·793, C = +·606 ; D = +·997, E = −·082 ;
G = +·050, H = +·604, K = −·795.

Very well observed. The requisite corrections to tables near Δ = 35° cannot be large in this instance.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Simla	E.	9·1	230	1 54	−24	4 6	0	—	5·9
Calcutta	E.	15·0	169	3 40	+ 1	(6 42)	+10	6·7	—
	N.	15·0	169	3 30	− 9	(6 47)	+15	6·8	—
Irkutsk		20·0	36	5 23	+42	9 13	+50	12·0	—
Hyderabad		20·8	199	i 4 45	− 6	7 30	−70	8·2	11·9
Bombay		21·4	214	5 2	+ 4	8 46	− 7	—	—
Kodaikanal		28·0	197	10 24	?S	(10 24)	−35	11·2	25·2
Hong Kong		29·0	113	6 18	0	11 13	− 4	16·2	18·5
Zi-ka-wei		30·3	90	6 23	+ 2	e 11 37	− 2	—	19·1
Colombo		30·8	192	7 0	+24	12 6	+18	17·5	22·0
Hokoto		32·3	106	6 46	− 5	—	—	e 18·2	—
Taihoku	E.	33·1	101	6 59	+ 2	12 35	+ 9	18·5	19·7
	N.	33·1	101	—	—	12 31	+ 5	18·6	19·3
Nagasaki		36·4	84	7 20	− 5	13 17	+ 1	20·4	22·3
Kucino		36·5	316	i 7 22	− 4	i 12 53	−24	—	30·0
Manila		38·9	116	e 7 48	+ 3	e 13 50	− 1	i 19·0	—
Kobe		39·9	79	7 59	+ 5	14 9	+ 4	23·0	26·9
Ksara		39·9	280	7 40	−14	i 13 48	−17	19·2	30·8
Osaka		40·2	79	8 7	+10	14 14	+ 4	20·6	23·6
Pulkovo		41·1	322	i 7 53	−11	i 14 3	−19	17·0	30·8
Nagoya		41·2	78	7 22	−43	—	—	23·1	24·9
Sapporo		42·4	64	8 22	+ 8	13 46	−54	23·8	—
Ootomari		42·7	59	8 22	+ 6	—	—	22·8	28·3
Mizusawa	E.	43·2	70	8 22	+ 2	14 56	+ 5	21·0	—
	N.	43·2	70	8 23	+ 3	14 55	+ 4	20·9	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Lemberg	E.	44·8	307	e 8 17	−15	e 18 9	?SR_1	e 26·3	29·7
	N.	44·8	307	e 8 23	− 9	e 18 17	?SR_1	e 22·9	27·5
Helwan		45·0	276	i 8 20	−13	14 52	−23	—	30·0
Konigsberg		46·3	314	i 8 35	− 7	15 20	−12	e 22·2	26·0
Upsala		47·5	322	i 8 44	− 7	e 15 36	−12	e 23·7	32·5
Batavia		47·9	151	i 8 48	− 5	—	—	e 24·0	—
Athens		47·9	290	8 48	− 5	e 15 47	− 6	e 24·0	37·0
		47·9	290	i 8 53	0	i 15 51	− 2	—	48·1
Belgrade		48·2	300	e 8 50	− 5	e 16 2	+ 6	e 28·8	32·7
Budapest		48·5	306	8 59	+ 2	15 56	− 4	e 18·5	—
Malabar		49·2	150	—	—	—	—	e 25·0	—
Vienna		50·0	307	e 9 3	− 4	16 22	+ 3	e 25·5	30·5
Hamburg	E.	52·6	315	e 9 24	0	—	—	e 26·5	34·0
	N.	52·6	315	e 9 31	+ 7	i 16 59	+ 8	—	32·4
Venice		53·5	305	i 9 36	+ 6	e 17 15	+12	—	31·4
Bergen		53·5	324	9 45	+15	17 0	− 3	26·6	35·0
Pompeii		53·6	297	i 8 51	−39	16 21	−43	30·0	43·0
Rocca di Papa	E.	54·5	300	i 9 33	− 3	e 17 12	− 3	30·2	36·2
	N.	54·5	300	i 9 40	+ 4	—	—	29·9	36·4
Florence		54·8	304	9 37	− 1	17 30	+11	—	36·0
Zurich		55·3	307	e 9 40	− 1	e 17 33	+ 8	e 28·2	30·5
Strasbourg		55·4	310	9 43	+ 1	i 17 31	+ 5	26·0	33·9
De Bilt		55·9	314	9 47	+ 2	17 36	+ 3	e 26·0	36·9
Uccle		56·7	312	9 52	+ 2	17 45	+ 3	26·0	37·1
Moncalieri		56·7	305	9 53	+ 3	17 45	+ 3	24·4	36·7
Besançon		57·2	308	e 9 55	+ 2	17 48	− 1	25·4	32·0
Dyce		58·1	320	10 5	+ 5	18 6	+ 6	28·0	31·0
Paris		58·6	311	i 10 6	+ 3	i 18 10	+ 4	29·0	44·0
Edinburgh		59·1	319	10 15	+ 9	18 25	+13	27·0	36·3
Kew		59·2	315	(10 0)	− 6	—	—	—	10·0
Eskdalemuir		59·3	319	10 12	+ 5	18 21	+ 6	—	—
Stonyhurst		59·5	317	i 10 10	+ 1	i 18 24	+ 7	31·0	35·8
Oxford		59·7	315	i 10 15	+ 5	i 18 18	− 1	31·1	39·2
West Bromwich		59·8	316	10 13	+ 2	18 23	+ 2	—	—
Bidston		60·0	316	10 17	+ 5	18 26	+ 3	23·4	40·3
Barcelona		61·8	303	10 27	+ 3	18 48	+ 2	28·9	37·0
Tortosa	E.	63·2	303	10 37	+ 4	19 8	+ 5	—	43·6
	N.	63·2	303	10 36	+ 3	i 19 10	+ 7	29·3	40·8
Algiers		63·4	297	10 37	+ 3	19 13	+ 7	31·0	41·0
Toledo		66·7	303	i 10 59	+ 3	i 19 55	+ 9	e 31·6	36·4
Granada		67·8	300	i 11 48	+45	i 20 8	+ 8	i 23·6	41·5
Coimbra		69·4	306	11 15	+ 2	20 27	+ 8	33·8	41·6
Rio Tinto		69·5	303	22 0	?	—	—	—	47·0
San Fernando		70·0	301	11 18	+ 1	20 40	+14	30·0	46·5
Lisbon		70·7	305	11 27	+ 6	20 39	+ 5	e 33·2	41·2
Perth		74·9	153	11 57	+ 9	21 30	+ 5	33·2	—
Sitka		79·6	21	22 24	?S	(22 24)	+ 5	46·2	50·5
Johannesburg		83·2	230	—	—	—	—	36·0	—
Adelaide		87·6	139	—	—	e 23 30	−18	e 48·4	61·7
Victoria		90·7	19	13 20	0	23 59	−22	41·7	59·3
Melbourne		93·0	137	—	—	e 22 48	−117	e 49·3	59·5
Riverview		93·9	131	—	—	i 24 10	[+19]	e 43·0	51·8
Sydney	E.	93·9	131	21 54	?	35 30	?	59·5	61·7
Cape Town		94·4	230	24 8	?S	(24 8)	[+14]	—	51·0
Ottawa		95·6	347	i 13 38	− 9	24 16	−56	e 44·0	54·0
Honolulu		96·4	56	24 33	?S	(24 23)	[+28]	44·4	47·0
Harvard		97·5	345	—	—	e 27 6	+95	43·1	60·5
Toronto	E.	97·9	350	e 13 54	− 5	e 24 30	[+17]	44·7	52·3
	N.	97·9	350	i 13 54	− 5	i 24 31	[+18]	44·6	57·2
Ithaca		98·6	347	e 17 44	?PR_1	e 25 26	−16	54·0	—
Ann Arbor		99·8	353	15 54	+104	25 42	−12	42·9	57·9
Berkeley	N.	100·6	22	14 30	+17	—	—	49·7	56·4
Chicago		100·9	355	14 5	−10	24 41	[+12]	33·6	54·5
Lick		101·3	22	i 12 42	?	—	—	i 50·2	62·6
Georgetown		102·1	347	—	—	24 52	[+18]	49·5	59·2
Cheltenham	E.	102·2	347	—	—	e 48 53	?	56·0	59·3
	N.	102·2	347	—	—	e 46 30	?	55·9	62·2
St. Louis		104·0	357	—	—	—	e 46·0		54·4
Tucson	E.	108·8	14	—	—	e 52 18	?L	62·3	62·8
Wellington		113·2	125	e 14 10	−62	e 25 30	[+ 7]	51·7	55·6
Tacubaya		123·2	5	—	—	—	—	—	78·4
Rio de Janeiro	N.	133·8	274	e 22 30	?PR_1	—	—	—	—
La Paz		148·7	305	i 20 1	[+ 7]	33 56	?	68·1	78·1
La Plata	E.	150·4	262	i 20 5	[+ 9]	—	—	72·4	89·7
	N.	150·4	262	i 20 6	[+10]	—	—	64·5	87·5

For Notes see next page.

NOTES TO JULY 3d. 4h. 40m. 0s.

Additional readings and notes: Zi-ka-wei $SR_1E = +13m.26s.$, $SR_1N = +14m.50s.$, $MN = +18{\cdot}6m.$ All readings given for 14h. Nagasaki $PR_1 = +9m.0s.$, $PR_2 = +9m.34s.$, $PR_3 = +10m.2s.$, $SR_1 = +16m.39s.$, $SR_2 = +17m.47s.$, $SR_3 = +19m.9s.$, $MN = +22{\cdot}6m.$ Kucino $MN = +29{\cdot}3m.$ Kobe $MN = +23{\cdot}9m.$ Ksara $PR_1E = +9m.14s.$ and $+12m.25s.$, $PR_1N = +9m.18s.$, $iSN = +13m.49s.$, $LN = +22{\cdot}8m.$, $MN = +27{\cdot}8m.$; $T_0 = 4h.39m.44s.$ Osaka $MN = +23{\cdot}7m.$ Pulkovo $iPR_1 = +9m.23s.$, $PR_2 = +10m.33s.$, $MZ = +23{\cdot}7m.$ Nagoya $MN = +25{\cdot}8m.$ Ootomari $MN = +24{\cdot}1m.$ Konigsberg $PR_1 = +10m.51s.$, $PR_2 = +11m.8s.$, $e = +11m.45s.$, $PS = +15m.47s.$, $SR_1 = +18m.40s.$, $SR_2 = +19m.58s.$ Batavia $i = +10m.49s.$ and $+32m.8s.$ Athens $PR_1 = +10m.48s.$, $SR_1 = +19m.23s.$ Belgrade $iP = +8m.55s.$, $PR_1 = +9m.47s.$, $PR_2 = +10m.53s.$, $PR_3 = +12m.58s.$, $PR_4 = +15m.27s.$, $SR_1 = +19m.53s.$, $SR_3 = +21m.55s.$, $SR_4 = +27m.6s.$ Vienna $iPZ = +9m.6s.$, $PR_1 = +11m.9s.$, $PR_2 = +12m.14s.$, $SR_1 = +20m.17s.$, $SR_2 = +22m.23s.$, $MZ = +34{\cdot}5m.$ Upsala $PR_1E = +10m.38s.$, $iSN = +15m.46s.$, $SR_1N = +19m.17s.$, $MN = +29{\cdot}5m.$ Hamburg $SR_1 = +21m.30s.$ Venice $SR_1 = +24m.19s.$ Bergen $SR_1 = +21m.35s.$ Zurich $eLE = +21{\cdot}5m.$ Strasbourg $ePEN = +9m.45s.$, $SR_2 = +23m.24s.$, $SR_3 = +24m.39s.$, $MN = +33{\cdot}1m.$ De Bilt $iZ = +10m.47s.$, $MN = +32{\cdot}5m.$, $MZ = +35{\cdot}6m.$ Uccle $MN = +33{\cdot}4m.$ Moncalieri $MN = +39{\cdot}4m.$ Dyce $PR_2 = +13m.31s.$ Paris $eS = +17m.58s.$, $MN = +33{\cdot}0m.$ Edinburgh $PR_2 = +13m.42s.$, $SR_1 = +24m.32s.$ Eskdalemuir $PR_1 = +12m.23s.$, $PR_2 = +13m.38s.$ Oxford $PR_1 = +14m.0s.$, $SR_1 = +24m.50s.$ Bidston readings diminished by 1h. Barcelona $MN = +35{\cdot}5m.$ Toledo $SR_1NW = +25m.49s.$, $SR_1NE = +25m.53s.$, $SR_2 = +27m.25s.$, $SR_2NW = +28m.37s.$, $SR_2NE = +28m.39s.$, $MZ = +44{\cdot}3m.$ Granada $PR_1 = +14m.8s.$, $PR_2 = +19m.0s.$, $MN = +40{\cdot}5m.$ Coimbra $SN = +20m.29s.$, $MN = +41{\cdot}4m.$; $T_0 = 4h.40m.2s.$ Sitka $S = +31m.52s.$, $eE = +39m.0s.$, $LN = +41{\cdot}6m.$ and $+45{\cdot}2m.$, $MN = +52{\cdot}7m.$; $T_0 = 4h.50m.55s.$ Adelaide $e = +28m.18s.$ Victoria $LN = +44{\cdot}9m.$, $MN = +54{\cdot}0m.$; $T_0 = 4h.40m.38s.$ Melbourne $i = +43m.54s.$ Riverview $MN = +46{\cdot}6m.$ Ottawa $PR_1 = +17m.30s.$, $PR_2N = +19m.38s.$ $SR_1E = +30m.36s.$, $SR_2E = +34m.36s.$, $MN = +61{\cdot}0m.$ Honolulu $LE = +45{\cdot}7m.$, $iLN = +46{\cdot}2m.$, $MN = +46{\cdot}5m.$ Harvard $eE = +34m.6s.$, $+41m.25s.$, and $+47m.19s.$, $LE = +54{\cdot}1m.$ and $+58{\cdot}7m.$ Toronto $iN = +17m.53s.$, $eE = +24m.20s.$, $iE = +25m.15s.$; $T_0 = 4h.41m.15s.$ Ann Arbor $MN = +61{\cdot}0m.$ Berkeley $eLZ = +50{\cdot}5m.$, $MZ = +56{\cdot}5m.$ Chicago $PR_1 = +18m.18s.$, $MN = +63{\cdot}4m.$ Lick $iPE = +17m.11s.$, $iPR_1E = +17m.59s.$, $eLN = +51{\cdot}8m.$, $iLE = +52{\cdot}7m.$ Georgetown $eLE = +38{\cdot}6m.$, $LN = +50{\cdot}5m.$, $MN = +63{\cdot}2m.$ St. Louis $PSE = +27m.47s.$, $PSN = +27m.50s.$, $SR_1 = +33m.33s.$, $SR_2E = +38m.16s.$, $SR_2N = +38m.20s.$, $SR_3N = +41m.22s.$, $SR_3E = +41m.26s.$, $eE = +43m.17s.$ and $+44m.57s.$, $iE = +50m.0s.$, $MN = +65{\cdot}8m.$ La Paz $iPN = +21m.3s.$, $PR_1 = +24m.10s.$, $PR_2 = +27m.33s.$, $eSN = +33m.58s.$, $SR_1 = +42m.11s.$, $SR_2 = +47m.6s.$; $T_0 = 4h.40m.17s.$ La Plata $iPR_1E = +23m.38s.$, $iPR_1N = +23m.44s.$

July 3d. 8h. 8m. 30s. (I) } Epicentre 35°·5N. 55°·0E. (as on 1923 Sept. 17d.).
8h. 18m. 50s. (II) }

$$A = +{\cdot}467,\ B = +{\cdot}667,\ C = +{\cdot}581;\quad D = +{\cdot}819,\ E = -{\cdot}574;$$
$$G = +{\cdot}333,\ H = +{\cdot}476,\ K = -{\cdot}814.$$

The only way of reconciling the observations seems to be to presume two shocks, the earlier of which was only noted at Simla and Bombay, the later at the European stations, except Strasbourg (and possibly, Pulkovo).

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
I	Simla	19·0	97	4 54	+25	e 9 0	+58	—	—
I	Bombay	22·9	132	5 12	− 4	9 12	−11	11·6	—
II	Kucino	23·4	336	e 5 25	+ 4	e 9 26	− 7	e 12·2	—
II	Pulkovo	29·1	334	—	—	—	—	10·7	14·3
II	Upsala N.	34·2	329	—	—	—	—	e 15·7	—
II	Hamburg	36·0	316	—	—	—	—	e 18·2	—
I	Strasbourg	36·8	308	—	—	—	—	e 16·5	—
II	Eskdalemuir	43·8	317	—	—	—	—	18·2	—

Simla I gives also eN = +8m,48s.

July 3d. 21h. 31m. 36s. Epicentre 39°·0N. 135°·5E.

A = −·554, B = +·545, C = +·629.

		△	P.	O−C.	S.	O−C.	L.	M.
		°	m. s.	s.	m. s.	s.	m.	m.
Nagoya		4·0	0 45	−17	—	—	—	—
Osaka		4·3	1 9	+ 2	(1 56)	− 2	1·9	2·2
Kobe		4·3	1 7	0	1 57	− 1	2·0	2·0
Mizusawa	E.	4·4	1 7	− 1	1 59	− 2	—	—

July 3d. Readings also at 3h. (Granada and La Paz), 5h. (Moncalieri), 6h. (Ekaterinburg (2) and near Vera Cruz, Tacubaya, and Oaxaca), 7h. (Ekaterinburg), 9h. (Ekaterinburg (2)), 10h. (near Taihoku), 11h. (Kucino and Pulkovo), 12h. and 15h. (Ekaterinburg), 16h. (Granada), 20h. (La Paz), 21h. (Kucino, Ekaterinburg, and near Zurich), 22h. (Ekaterinburg and Nagasaki), 23h. (Granada and near Manila).

July 4d. Readings at 0h. (Kucino, Pulkovo, and near Granada), 4h. (Apia), 7h. (Manila, Ksara, and Cape Town), 8h. (Ekaterinburg and Nagasaki), 10h. (Ekaterinburg and near Tacubaya), 11h. (Ekaterinburg, near Kobe, and near Batavia, and Malabar), 19h. (Ekaterinburg), 20h. (Rio Tinto), 21h. (Ekaterinburg and Apia), 22h. (Apia), 23h. (Ekaterinburg).

July 5d. 15h. 1m. 54s. Epicentre 37°·3N. 85°·3E. (as on July 3d.).

A = +·065, B = +·793, C = +·606; D = +·997, E = −·082;
G = +·050, H = +·604, K = −·795.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Simla	E.	9·1	230	4 42	?L	—	—	(4·7)	—
Irkutsk		20·0	36	i 4 53	+12	8 48	+25	11·1	—
Hyderabad		20·8	199	8 36	?S	(8 36)	− 4	—	13·6
Bombay		21·4	214	5 0	+ 2	9 4	+11	11·6	—
Ekaterinburg		25·5	328	i 5 43	0	10 11	− 2	13·1	16·6
Hong Kong		29·0	113	—	—	—	—	—	19·1
Colombo		30·8	192	17 6	?L	—	—	(17·1)	—
Kucino		36·5	316	—	—	e 14 54	+97	22·9	24·0
Ksara	E.	39·9	280	e 9 6	?PR_1	—	—	—	—
Pulkovo		41·1	322	7 55	− 9	14 9	−13	19·1	27·0
Konigsberg		46·3	314	—	—	—	—	e 22·2	29·1
Upsala		47·5	322	—	—	—	—	e 24·7	32·5
Hamburg		52·6	315	—	—	—	—	e 25·1	32·1
Strasbourg		55·4	310	—	—	—	—	e 41·1	—
De Bilt		55·9	314	—	—	—	—	e 30·1	36·4
Uccle		56·7	312	—	—	—	—	28·1	—
Moncalieri		56·7	305	—	—	—	—	48·8	—
Paris		58·6	311	—	—	—	—	e 31·1	—
Edinburgh		59·1	319	—	—	—	—	e 32·1	—
Eskdalemuir		59·3	319	—	—	—	—	28·1	—
Ottawa		95·6	347	—	—	—	—	e 51·1	—
Apia		108·5	94	—	—	—	—	42·1	—

Additional readings: Simla PN = +4m.36s. Ekaterinburg MN = +19·6m. Kucino i = +19m.31s. Pulkovo MN = +26·6m., MZ = +26·9m. Konigsberg e = +24m.36s. Upsala MN = +32·7m. De Bilt MN = +33·2m., MZ = +36·9m. Moncalieri e = +23m.42s., S? = +35m.40s. Edinburgh reading has been increased by 1h.

July 5d. 22h. 51m. 40s. Epicentre 42°·0N. 142°·0E. (as on 1923 Aug. 14d.).

A = −·586, B = +·458, C = +·669 ; D = +·616, E = +·788 ;
G = −·527, H = +·412, K = −·743.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Sapporo		1·2	336	0 23	+ 5	—	—	1·2	—
Mizusawa	E.	2·9	193	0 33	−12	1 3	−17	—	—
	N.	2·9	193	0 34	−11	1 1	−19	—	—
Nagoya		7·8	212	1 50	− 8	(3 37)	+ 6	3·6	—
Osaka		8·9	217	2 30	+15	—	—	4·8	5·2
Zi-ka-wei		19·6	243	e 4 44	+ 8	—	—	—	—
Taihoku		23·9	231	—	—	—	—	e 13·3	—
Hong Kong		30·4	238	—	—	—	—	—	21·3
Ekaterinburg		51·6	318	12 12	+175	19 40	+181	29·3	37·9
Honolulu		53·8	93	—	—	e 14 23	−163	—	—
Bombay		62·2	272	—	—	—	—	37·3	—
Victoria		62·6	49	18 45	?S	(18 45)	−11	27·8	31·2
Kucino		63·2	323	e 13 33	+180	22 15	+192	37·2	39·9
Pulkovo		64·0	330	10 36	− 2	19 24	+11	29·8	37·7
Colombo		64·9	259	43 20	?L	—	—	(43·3)	—
Upsala		68·5	334	—	—	—	—	e 38·3	—
Konigsberg		71·1	330	—	—	—	—	e 40·8	43·3
Hamburg		76·0	334	—	—	e 21 20	−17	e 40·3	43·3
Budapest	N.	77·3	324	—	—	—	—	e 37·8	—
Edinburgh		77·8	341	—	—	e 22 20	+22	45·3	—
Eskdalemuir		78·3	341	e 17 39	?PR_1	e 22 7	+ 3	42·3	—
De Bilt		78·8	335	e 12 19	+ 7	22 11	+ 1	e 41·3	46·8
Stonyhurst		79·4	340	—	—	—	—	e 45·3	—
Uccle		80·1	335	—	—	e 22 26	+ 2	e 40·3	—
Strasbourg		81·0	332	—	—	—	—	e 33·3	—
Kew		81·0	339	—	—	—	—	—	52·3
Oxford		81·1	339	—	—	—	—	43·3	46·3
Paris		82·5	336	e 2 20	?	—	—	43·3	—
Moncalieri		84·0	330	e 4 1	?	23 2	− 6	47·1	—
Rocca di Papa		84·6	325	e 13 43	+57	21 44	−91	e 47·2	58·2
Ottawa		86·5	26	e 7 50	?	e 14 20	?	e 34·3	—
Toronto	E.	86·7	29	e 8 52	?	—	—	46·0	—
Tortosa	N.	90·2	333	—	—	—	—	e 51·3	54·8
Toledo		92·5	335	—	—	—	—	e 46·2	54·2
Granada		94·9	334	—	—	i 20 52	?	47·7	53·8
San Fernando		96·3	336	e 35 50	?	36 50	?	—	60·3

Additional readings and notes: Sapporo readings have been increased by 1m. Osaka MN = +5·0m. Ekaterinburg MN = +30·6m. Honolulu eN = +14m.30s. Victoria MN = +30·3m. Pulkovo MZ = +42·4m. Budapest eE = 22h.50m.30s. Edinburgh readings have been increased by 1h. Eskdalemuir e = +17m.39s. De Bilt MNZ = +56·6m. Stonyhurst e = +60m.20s. Melbourne (△ = 79°·8) gives simply 23h. Ottawa LN = +37·3m., LE = +50·3m. Toledo MNW = +54·3m. Granada i = +26m.11s.

July 5d. Readings also at 0h. (Almeria and Rocca di Papa), 2h. (Granada), 3h. (Ekaterinburg), 6h. (near Taihoku), 10h. (near Osaka and Kobe), 11h. (near Mostar), 12h. (Ootomari), 14h. (Merida), 17h. (Irkutsk, Taihoku, and near Manila), 18h. (La Paz, Apia, and near Osaka and Kobe), 19h. (Nagasaki), 20h. (Vienna, Nagoya, near Mizusawa, and near Osaka), 21h. (La Paz), 22h. (La Paz, Riverview, Wellington, and Adelaide), 23h. (Ekaterinburg and near Sapporo and Mizusawa).

1924. July 6d. 14h. 18m. 36s. Epicentre 7°·5N. 79°·0W.

(as on 1923 Sept. 9d.).

A = +·189, B = −·973, C = +·130 ; D = −·982, E = −·191 ;
G = +·025, H = −·128, K = −·991.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Balboa Heights	E.	1·6	346	1 28	+64	1 56	+71	—	—
	N.	1·6	346	1 30	+66	1 58	+73	—	—
Port au Prince		12·8	30	e 3 2	− 8	i 5 33	− 6	8·4	—
Porto Rico		17·0	50	4 0	− 5	7 25	+ 7	10·8	11·0
Vera Cruz		20·4	307	3 46	−60	7 46	−46	9·0	12·3
Tacubaya	N.	22·9	303	5 31	+15	9 52	+29	12·1	18·1
La Paz		26·3	156	i 2 39	−192	i 7 16	−192	11·1	15·6
Cheltenham	E.	31·3	3	—	—	—	—	17·3	18·8
Georgetown		31·5	3	i 6 36	− 7	e 11 47	−13	e 15·1	19·2
Ithaca		35·0	3	7 7	− 6	12 43	−12	18·4	—
Chicago		35·1	350	7 16	+ 2	12 58	+ 1	e 17·8	—
Ann Arbor		35·1	354	i 7 24	+10	12 42	−15	17·9	24·6
Harvard	E.	35·6	11	—	—	—	—	e 28·4	—
Toronto	E.	36·1	0	e 7 36	+13	i 12 55	−16	i 17·5	20·5
	N.	36·1	0	i 7 16	− 7	e 12 54	−17	i 17·6	26·5
Ottawa	N.	38·0	4	i 7 30	− 8	13 32	− 6	i 17·6	24·9
Tucson	E.	38·6	316	—	—	—	—	25·6	26·2
Halifax		40·0	18	7 44	−11	13 54	−13	e 18·7	24·2
Rio de Janeiro	E.	46·4	133	e 8 24	−19	15 2	−31	18·5	24·9
La Plata	E.	46·8	156	8 35	−11	15 22	−16	23·5	26·2
	N.	46·8	156	i 8 40	− 6	15 23	−15	23·0	31·3
Berkeley		49·5	316	—	—	e 16 23	+10	e 28·9	30·2
Victoria	E.	55·3	326	9 50	+ 9	17 45	+20	30·2	33·6
	N.	55·3	326	9 52	+11	17 41	+16	29·3	40·5
Sitka		65·9	330	—	—	—	—	37·4	—
Lisbon		69·6	52	e 14 55	?	—	—	e 32·4	42·4
Coimbra		70·4	50	11 21	+ 2	20 30	− 1	32·8	39·6
San Fernando		71·7	54	11 44	+16	20 54	+ 8	33·4	48·4
Toledo		73·7	50	11 40	0	e 21 13	+ 3	e 31·2	36·6
Granada		73·8	53	i 11 42	+ 1	21 14	+ 2	i 31·8	39·6
Bidston		75·6	37	11 52	− 1	21 28	− 5	31·9	—
Eskdalemuir		75·7	35	e 11 55	+ 2	21 33	− 1	36·4	—
Edinburgh		75·9	34	11 54	0	21 36	0	32·4	48·4
Oxford		76·5	39	11 59	+ 1	—	—	—	41·7
Dyce		76·6	33	11 47	−12	21 29	−15	—	33·0
Honolulu		77·0	290	12 22	+21	22 14	+25	36·6	39·2
Kew		77·1	39	—	—	—	—	—	55·4
Tortosa	E.	77·2	49	12 8	+ 6	21 59	+ 8	e 34·4	49·7
	N.	77·2	49	12 8	+ 6	21 52	+ 1	—	50·0
Barcelona		78·4	49	—	—	—	—	e 38·6	—
Paris		78·8	42	i 12 12	0	e 22 15	+ 5	34·4	39·4
Algiers		79·2	54	12 11	− 3	—	—	e 39·4	48·9
Uccle		80·0	39	12 18	− 1	22 19	− 4	e 34·4	40·4
De Bilt		80·5	38	12 22	0	22 30	+ 1	e 37·4	41·2
Besançon		81·1	44	e 12 24	− 2	—	—	—	44·4
Strasbourg		82·2	41	i 12 30	− 1	22 46	− 2	e 31·4	41·4
Moncalieri		82·4	45	12 49	+17	23 7	+17	31·1	—
Hamburg		82·8	37	i 12 38	+ 3	e 22 54	− 1	e 38·4	43·4
Innsbruck		84·8	43	e 12 44	− 3	—	—	e 28·4	—
Florence		85·0	46	12 34	−14	—	—	—	—
Venice		85·6	45	13 24	+33	—	—	—	—
Rocca di Papa		86·3	48	e 12 51	− 4	e 23 51	+18	—	—
Upsala		86·8	29	e 12 54	− 4	e 23 26	−13	38·4	52·0
Pompeii		87·7	49	e 12 29	−34	e 22 14	−95	—	—
Vienna		88·0	42	i 12 59	− 6	23 47	− 5	e 41·4	55·9
Konigsberg		89·3	35	e 12 7	−65	23 49	−17	—	48·4
Budapest		89·9	42	e 12 54	−21	e 23 54	−19	e 47·9	—
Belgrade		91·4	44	e 14 1	+38	e 23 47	−41	—	—
Pulkovo		93·0	28	13 24	− 8	24 23	−22	41·9	53·7
Kucino		98·3	30	e 13 51	−11	24 27	[+12]	43·4	67·0

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Cape Town		100·4	123	27 3	?S	(27 3)	+63	—	56·5
Ksara	E.	105·9	52	e 18 34	?PR$_1$	25 5	[+13]	28·4	—
Ekaterinburg		107·8	22	e 14 33	−14	25 7	[+ 7]	38·4	58·1
Irkutsk		120·1	358	—	—	e 20 27	?PR$_1$	49·4	64·1
Riverview		126·9	233	—	—	—	—	e 60·6	75·8
Melbourne		130·1	226	—	—	—	—	—	71·4
Zi-ka-wei		136·7	333	19 4	[−29]	e 31 18	?	71·4	85·5
Bombay		141·7	45	22 24	?PR$_1$	—	—	—	—
Hyderabad		146·6	40	19 52	[+ 1]	—	—	—	89·4
Hong Kong		147·5	337	—	—	—	—	—	95·4
Manila		150·3	318	e 20 21	[+25]	—	—	—	—

Additional readings: Port au Prince iP = +3m.11s. Porto Rico eE = +9m.29s., eN = +9m.57s., LN = +11·7m. and +14·5m., MN = +14·7m.; T$_0$ = 14h.18m.20s. Vera Cruz PZ = +3m.32s., LZ = +8·8m.? MZ = +16·0m. La Paz PR$_1$ = +3m.9s., PR$_2$ = +3m.31s., i = +4m.39s., SR$_1$ = +7m.41s., SR$_2$ = +8m.28s. Georgetown eLN = +14·6m., LE = +17·3m., LN = +18·6m. Ithaca PR$_1$ = +8m.10s., PR$_2$ = +8m.28s. Chicago LN = +22·1m. Ann Arbor PR$_2$ = +8m.30s., SR$_1$E = +15m.0s., SR$_2$ = +15m.30s. Toronto iSE = +12m.57s., iSN = +12m.59s., LE = +18·3m.; T$_0$ = 14h.18m.39s. Ottawa PR$_1$N = +8m.42s., PR$_2$N = +9m.0s., SR$_1$E = +15m.42s., SR$_2$E = +16m.28s., ME = +21·4m.; T$_0$ = 14h.18m.32s. La Plata PR$_1$N = +10m.29s., N = +18m.12s. and +18m.57s., +25·1m. and +26·0m.; T$_0$ = 14h.18m.39s. Berkeley eE = +17m.51s., eLN = +25·8m. and +26·2m. Toledo MNW = +36·8m. Granada i = +21m.36s. Honolulu eLN = +38·4m., MN = +43·1m. Paris MN = +53·4m. Uccle SR$_1$ = +27m.39s. De Bilt eSR$_1$ = +28m.24s., eLN = +34·4m., MN = +43·1m., MZ = +44·4m. Strasbourg P = +12m.31s., SR$_1$ = +28m.35s. Hamburg eLN = +33·4m., MNZ = +57·4m. Innsbruck ePNE = +12m.51s. Rocca di Papa iPE = +12m.56s. Konigsberg SR$_3$ = +34m.54s., MN = +56·4m. Pulkovo PR$_1$ = +17m.14s., PR$_2$ = +19m.36s., PS = +25m.44s., SR$_1$ = +30m.6s., MZ = +53·2m., MN = +58·1m. Kucino MN = +45·2m. Ekaterinburg PR$_1$ = +19m.0s., MN = +55·7m. Irkutsk PR$_1$ = +19m.6s., SR$_1$ = +30m.18s. Riverview eL = +74·4m.

1924. July 6d. 18h. 31m. 40s. Epicentre 41°·0N. 73°·5E.

A = +·214, B = +·724, C = +·656; D = +·959, E = −·284; G = +·186, H = +·629, K = −·755.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Simla	E.	10·3	162	2 32	− 2	4 14	−23	—	5·7
	N.	10·3	162	2 26	− 8	4 8	−29	5·2	6·6
Dehra Dun		11·2	160	(2 44)	− 3	4 38	−21	5·8	6·5
Ekaterinburg		17·9	337	i 4 23	+ 7	i 7 41	+ 3	9·8	—
Bombay		22·1	182	5 5	− 1	9 8	+ 1	11·4	13·8
Calcutta	E.	22·3	142	5 22	+13	9 22	+11	12·9	—
	N.	22·3	142	5 34	+25	9 34	+23	13·1	—
Irkutsk		23·7	51	i 5 26	+ 1	i 10 2	+24	12·3	—
Hyderabad		23·9	168	5 21	− 6	(9 44)	+ 2	9·7	13·1
Kucino		27·4	315	i 5 4	−58	i 9 42	−66	—	—
Ksara	N.	30·5	269	e 6 27	− 6	12 17	+34	18·2	—
Kodaikanal		31·0	174	12 8	?S	(12 8)	+17	16·3	16·9
Pulkovo		32·5	321	i 6 45	− 8	i 12 2	−14	14·3	20·3
Colombo		34·6	170	12 32	?S	(12 32)	−17	17·8	19·3
Lemberg	N.	35·2	300	7 12	− 3	e 14 20	+82	—	20·3
Helwan		35·8	267	7 10	−10	12 57	−10	—	27·5
Konigsberg		37·1	311	7 22	− 9	13 10	−15	e 18·3	21·3
Athens		38·1	281	e 7 33	− 6	13 58	+19	e 16·4	30·5
Belgrade		38·4	295	e 7 38	− 3	e 13 37	− 7	e 19·6	23·1
Upsala	E.	38·8	320	7 39	− 5	e 13 26	−23	e 16·3	24·1
Budapest		38·8	299	7 46	+ 2	e 16 34	?	20·8	—
Hong Kong		38·8	106	7 40	− 4	—	—	—	23·7
Zi-ka-wei		39·4	89	i 7 14	−36	e 13 8	−49	—	24·8
Vienna		40·4	300	e 7 52	− 6	—	—	—	27·8
Taihoku		42·7	97	—	—	—	—	e 18·6	—
Hamburg		43·3	310	i 8 17	− 3	i 14 47	− 5	23·3	24·3

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Pompeii		43·7	290	e 7 40	−44	16 25	+87	33·3	—
Venice		43·7	298	8 15	− 9	14 54	− 4	—	28·3
Innsbruck		43·8	302	e 9 23	+59	e 14 56	− 3	e 22·7	—
Rocca di Papa		44·7	292	e 8 23	− 8	15 4	− 7	e 25·7	31·2
Bergen		44·9	320	9 0	+28	15 35	+21	21·3	28·3
Florence		45·0	297	8 30	− 3	15 8	− 7	—	23·3
Zurich	Z.	45·7	300	e 8 32	− 6	—	—	—	—
Strasbourg		45·9	304	i 8 34	− 5	i 15 20	− 7	22·3	28·9
De Bilt		46·5	310	8 41	− 3	15 34	− 1	e 24·3	30·5
Moncalieri		47·0	299	9 3	+16	15 54	+13	19·7	33·5
Uccle		47·3	308	e 8 47	− 2	e 15 44	− 1	e 23·3	—
Besançon		47·4	301	8 47	− 3	e 19 10	?	25·3	—
Kobe	N.	48·1	77	—	—	—	—	—	30·4
Osaka		48·3	77	9 7	+11	16 5	+ 7	27·8	33·0
Ootomari		48·6	59	17 4	?S	(17 4)	+63	26·8	—
Manila		48·8	109	e 9 10	+11	—	—	—	—
Paris		49·1	305	i 9 1	0	e 16 18	+11	24·3	34·3
Dyce		49·3	316	8 52	−10	15 55	−15	24·8	31·6
Kew		49·9	310	21 20	?L	—	—	(21·3)	—
Edinburgh		50·2	314	i 9 15	+ 7	16 28	+ 7	25·3	34·5
Oxford		50·4	310	9 12	+ 3	16 26	+ 2	20·2	20·5
Eskdalemuir		50·4	314	9 29	+20	16 46	+22	—	—
Stonyhurst		50·4	312	i 9 16?	+ 7	20 13	?L	(20·2)	—
West Bromwich		50·6	311	—	—	20 20?	?L	(20·3?)	—
Bidston		50·9	312	9 13	+ 1	20 12	?	24·9	30·2
Barcelona		52·1	295	9 25	+ 4	e 16 49	+ 4	e 29·4	34·6
Tortosa	E.	53·4	296	9 35	+ 6	17 0	− 1	—	37·6
	N.	53·4	296	9 34	+ 5	17 5	+ 4	—	30·6
Algiers		53·5	290	e 9 33	+ 3	e 17 20	+17	e 23·3	36·7
Toledo		57·0	297	9 56	+ 4	e 17 49	+ 3	e 22·6	38·5
Granada		58·0	294	i 10 9	+10	i 18 20	+21	i 24·2	34·4
Rio Tinto		59·7	296	26 20	?L	—	—	(26·3)	45·8
Coimbra		59·8	299	e 10 16	+ 5	18 26	+ 5	31·3	33·5
San Fernando		60·2	295	10 35	+22	18 40	+14	26·3	37·3
Lisbon		61·0	298	—	—	—	—	e 32·3	39·3
Victoria	E.	89·4	11	24 6	?S	(24 6)	− 1	43·6	52·3
	N.	89·4	11	24 6	?S	(24 6)	− 1	46·9	54·7
Ottawa		89·4	340	—	—	e 23 39	[+14]	e 43·3	52·3
Cape Town		90·4	223	—	—	—	—	—	57·2
Toronto	E.	91·9	341	—	—	e 23 43	[+ 4]	46·5	49·6
	N.	91·9	341	i 13 25	− 1	i 24 30	− 4	53·0	—
Chicago		95·5	347	13 50	+ 4	24·24	[+24]	51·0	56·2
Georgetown	N.	95·7	339	—	—	—	—	52·3	—
La Paz		138·9	294	i 19 49	[+11]	—	—	—	—

Additional readings and notes: Dehra Dun readings have been increased by 2m. Irkutsk iP = +5m.32s., +5m.34s., and +5m.37s. Hyderabad S = +8m.18s. Pulkovo PR_1 = +7m.51s., PR_3 = +8m.32s. Helwan PR_1 = +8m.27s. Konigsberg e = +8m.52s., iN = +16m.7s. and +16m.27s., i = +16m.50s. Athens MN = +20·1m. Upsala PR_1E = +9m.11s., MN = +22·6m. Zi-ka-wei PR_1Z = +9m.0s., SR_1Z = +16m.36s., MN = +23·7m., MZ = +26·9m. Vienna iPZ = +7m.55s., PR_1 = +9m.30s., SR_1? = +16m.58s., SR_2? = +18m.12s. Hamburg iPR_1 = +10m.8s., iPR_2 = +10m.39s., eSR_1 = +17m.49s., MZ = +26·3m. Innsbruck ePNE = +10m.19s., eSR_1NE = +19m.26s. Rocca di Papa eP = +7m.28s., ePN = +8m.25s., ePZ = +8m.28s. Strasbourg P = +8m.37s., iPR_1 = +10m.25s., PR_2 = +11m.25s., PR_3 = +11m.50s., iSR_1 = +18m.53s., SR_2 = +20m.40s., SR_3 = +21m.26s., MN = +27·5m. De Bilt PR_1Z = +10m.33s., iZ = +19m.14s., eE = +19m.24s., MZ = +30·6m., MN = +32·1m. Uccle PR_1 = +10m.40s., SR_1 = +19m.15s. Osaka MN = +32·5m. Paris PR_1 = +10m.57s., SR_1 = +19m.50s., MN = +31·3m. Edinburgh i = +20m.15s. Eskdalemuir PR_1 = +11m.27s., SR_1 = +20m.31s. Barcelona MN = +37·4m. Toledo MNW = +33·4m. Ottawa e = 18h.32m.0s., e = +33m.57s. Toronto eE = 18h.32m.10s.

July 6d. Readings also at 3h. (Granada and La Paz), 9h. (Ekaterinburg and near Mizusawa), 11h. (Rocca di Papa), 13h. (La Paz, Ksara, and near Mostar), 14h. (Ekaterinburg), 15h. (Colombo and Kodaikanal), 16h. (Wellington), 17h. (La Paz (2)), 18h. (Chicago and near Puebla, Oaxaca, Tacubaya, and Vera Cruz), 20h. (Ekaterinburg), 21h. (Manila, Ekaterinburg, Taihoku, Pulkovo, Hong Kong, Kucino, De Bilt, and near Hokoto), 23h. (Taihoku).

July 7d. 2h. 39m. 42s. Epicentre 14°·0S. 174·0W. (as on 1918 May 2d.).

A = −·965, B = −·101, C = −·242; D = −·105, E = +·995;
G = +·241, H = +·025, K = −·970.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Apia		2·2	86	0 50	+16	0 59	− 1	—	—
Suva		8·4	240	1 30	−37	3 36	−11	i 5·4	—
Wellington		29·0	198	e 3 30	−168	9 29	−108	12·2	15·3
Riverview		37·2	232	—	—	e 10 30	−177	e 16·9	21·4
Sydney		37·2	232	12 36	?S	(12 36)	−51	21·2	22·7
Honolulu	E.	38·7	24	e 8 8	+24	e 13 31	−17	i 16·3	17·3
	N.	38·7	24	7 40	− 4	12 42	−66	16·8	19·6
Melbourne		43·4	229	—	—	—	—	e 13·3	26·6
Adelaide		47·4	235	—	—	—	—	24·1	27·9
Perth		65·9	241	—	—	—	—	e 28·1	—
Osaka		68·3	317	11 51	+45	—	—	31·2	38·7
Manila		70·4	291	e 16 18	?PR_1	—	—	—	—
Victoria	E.	76·9	32	12 6	+ 6	22 1	+13	35·4	40·1
	N.	76·9	32	12 6	+ 6	21 56	+ 8	32·9	40·0
Chicago		96·7	49	24 28	?S	24 28	[+22]	43·9	—
Toronto	E.	102·9	48	25 9	?S	(25 9)	[+31]	49·2	—
	N.	102·9	48	—	—	33 38	?	48·9	—
Georgetown	E.	104·1	54	—	—	—	—	e 53·3	—
Ottawa		105·7	46	25 3	?S	(25 3)	[+13]	e 46·3	—
Colombo		107·3	272	63 48	?	—	—	—	—
Harvard	E.	108·8	49	—	—	—	—	e 54·4	61·3
Pulkovo		130·9	344	e 22 41	?PR_1	—	—	54·8	70·0
Kucino		131·5	335	e 23 51	?PR_1	—	—	—	86·0
Upsala		133·4	351	—	—	—	—	e 73·3	—
Edinburgh		137·5	7	—	—	e 40 18	?SR_1	—	—
Konigsberg		137·6	346	e 23 24	?PR_1	—	—	e 67·8	74·8
Eskdalemuir		138·1	10	e 23 6	?PR_1	—	—	57·3	—
Stonyhurst		139·6	7	e 76 18	?L	—	—	(e 76·3)	—
Hamburg		140·3	356	e 23 18	?PR_1	—	—	e 70·3	—
De Bilt		141·9	1	e 19 37	[− 6]	e 40 24	?PR_1	e 73·3	81·1
Kew		142·2	6	—	—	—	—	—	92·3
Uccle		143·2	8	e 20 18	[+33]	—	—	e 60·3	84·3
Vienna		144·7	350	e 19 40	[− 8]	—	—	e 57·3	82·8
Budapest		144·8	344	—	—	—	—	e 70·8	—
Paris		145·1	356	i 19 45	[− 3]	39 18	?SR_1	73·3	83·3
Strasbourg		145·4	358	e 19 45	[− 4]	—	—	40·3	80·3
Ksara	N.	146·5	310	e 19 53	[+ 2]	—	—	—	—
Besançon		146·8	359	—	—	—	—	—	84·3
Moncalieri		149·0	358	e 20 48	[+54]	32 21	?	73·8	—
Coimbra		150·9	23	—	—	e 50 18	?	e 79·3	—
Rocca di Papa		151·6	349	e 19 55	[− 3]	24 41	?PR_2	80·6	92·4
Tortosa	N.	152·8	9	—	—	—	—	e 79·3	88·9
San Fernando		155·0	24	—	—	—	—	e 70·1	86·8
Granada		155·3	19	e 20 37	[+35]	i 24 30	?PR_1	e 69·6	92·6

Additional readings and notes: Apia +2m.50s., +3m.10s. and + 3m. 49s. Suva i = +6m.36s. Riverview MN = +19·6m. Sydney S = +18m.6s. Honolulu LN = +18·7m. Osaka MN = +36·6m. Chicago S = +33m.26s. Toronto eS?N = +33m.26s., eSE = +33m.27s., eE = +33m. 47s. Ottawa PR_1E = +28m.3s. (?S), S = +33m.58s. Pulkovo e = +31m.54s. and +34m.25s., MZ = +71·9m., MN = +72·9m. Kucino e = +34m.14s., MN = +79·1m. Upsala eLN = +70·3m. De Bilt MZ = +82·4m., MN = +83·1m. Vienna iPZ = +19m.50s. Moncalieri L = +43·8m. Rocca di Papa P = +20m.11s. and +20m.23s. Granada i = +20m.49s.

July 7d. 8h. 52m. 45s. Epicentre 25°·8N. 128°·0E.

A = −·554, B = +·709, C = +·435 ; D = +·788, E = +·616 ;
G = −·268, H = +·343, K = −·900.

(See for comparison 1924 May 23, Epicentre 28°·0N. 127°·0E.).

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Taihoku		5·9	263	e 1 8	−23	—	—	—	—
Zi-ka-wei		8·0	315	e 2 1	0	e 4 47	?L	(e 4·8)	7·2
Osaka		11·0	34	2 52	+ 8	—	—	6·1	8·2
Manila		13·0	212	e 3 15	+ 2	—	—	7·8	—
Hong Kong		13·1	257	3 25	+11	—	—	—	9·6
Ekaterinburg		56·3	324	e 9 54	+ 6	17 43	+ 5	27·2	36·8
Kucino		69·0	324	—	—	e 20 14	0	37·0	43·7
Pulkovo		71·6	329	11 28	+ 1	i 20 50	+ 5	32·2	48·1
Upsala		77·4	331	—	—	—	—	e 42·2	51·8
Ksara	N.	77·8	302	e 12 26	+20	—	—	—	—
Konigsberg		78·4	326	—	—	e 24 15	+130	e 42·8	43·8
Hamburg		84·1	328	e 12 42	− 1	—	—	e 47·2	48·2
De Bilt		87·5	328	e 13 0	− 2	e 23 42	− 5	e 47·2	51·7
Edinburgh		88·4	335	—	—	—	—	e 46·2	—
Strasbourg		88·5	325	—	—	—	—	e 55·2	65·2
Uccle		88·7	328	—	—	—	—	e 47·2	—
Besançon		89·8	325	—	—	—	—	48·2	—
Rocca di Papa		89·8	318	e 13 14	− 1	e 23 21	[− 6]	e 48·8	59·4
Oxford		90·6	331	—	—	—	—	—	53·0
Moncalieri		90·8	323	e 0 37	?	17 6	?PR$_1$	50·0	—
Paris		90·9	328	—	—	—	—	e 51·2	57·2
Tortosa	N.	97·5	324	—	—	—	—	e 54·2	57·4
Toledo		100·6	325	—	—	—	—	e 54·4	58·3
Granada		102·4	324	—	—	—	—	e 55·2	58·2
Ottawa		105·6	17	—	—	—	—	e 55·8	—
Toronto	E.	106·2	20	—	—	—	—	e 59·5	—

Additional readings: Zi-ka-wei MN = +6·9m. Osaka MN = +9·0m. Ekaterinburg iP = +10m.3s., SR$_1$ = +21m.53s., MN = +33·8m. Kucino MN = +38·3m. Pulkovo MN = +41·7m., MZ = +48·2m. Upsala MN = +45·9m. Hamburg e = +13m.15s., MZ = +56·2m. De Bilt MN = +51·9m., MZ = +58·3m. Rocca di Papa PN = +13m.19s. Toledo MNW = +58·0m. Ottawa eLE = +60·2m., LN = +68·2m. Toronto LE = +63·5m.

July 7d. 11h. 59m. 0s. Epicentre 41°·0N. 73°·5E. (as on 6d.).

A = +·214, B = +·724, C = +·656 ; D = +·959, E = −·284 ;
G = +·186, H = +·629, K = −·755.

Very doubtful identification.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Ekaterinburg	17·9	337	—	—	e 7 26	−12	14·0	24·4
Ksara	30·5	269	7 0	+26	—	—	—	—
Pulkovo	32·5	321	—	—	—	—	e 27·2	—
Strasbourg	45·9	304	—	—	—	—	e 32·0	—
De Bilt	46·5	310	—	—	—	—	e 22·0	—
Moncalieri	47·0	299	e 10 40	?PR$_1$	—	—	—	—
Edinburgh	50·2	314	—	—	—	—	—	30·0
Tortosa N.	53·4	296	—	—	—	—	e 13·0	46·0
Toledo	57·0	297	12 16	?PR$_1$	—	—	—	23·9
Granada	58·0	294	10 1	+ 2	—	—	20·0	22·5
Coimbra	59·8	299	—	—	e 20 14	+113	24·0	—

Granada SR$_1$ = +17m.32s.

July 7d. 17h. 20m. 50s. Epicentre 18°·5S. 63°·5W. (as on 1920 Aug. 13d.).

A = +·423, B = −·849, C = −·317 ; D = −·895, E = −·446 ;
G = −·142, H = +·284, K = −·948.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
La Paz		4·8	294	i 1 21	+ 7	i 2 32	+21	3·0	3·3
La Plata	E.	17·2	164	3 57	−10	7 20	− 2	9·3	11·5
	N.	17·2	164	i 4 3	− 4	i 7 26	+ 4	9·4	10·2
Toronto	E.	63·8	347	—	—	e 19 18	+ 7	33·3	—
	N.	63·8	347	—	—	e 19 25	+14	33·4	—
Chicago		64·2	340	9 11	−88	18 59	−16	30·4	—
Ottawa	N.	64·8	351	e 10 40	− 4	e 19 20	− 3	e 30·2	—
Granada		79·2	45	—	—	—	—	e 42·5	44·3
Paris		89·2	37	—	—	—	—	e 50·2	52·2
Edinburgh		90·0	29	—	—	—	—	—	52·2
Moncalieri		90·5	42	e 16 32	?PR_1	26 22	?	48·6	—
Strasbourg		92·1	40	—	—	—	—	e 58·2	—
De Bilt		92·2	35	—	—	—	—	e 49·2	—
Pulkovo		107·8	31	—	—	e 28 51	+103	57·2	63·8
Ekaterinburg		123·8	33	e 21 15	?PR_1	e 28 2	−76	56·2	71·8
Irkutsk		144·9	12	e 19 26	[−22]	23 6	?PR_1	81·2	—

Additional readings: Pulkovo MZ = +64·2m. Ekaterinburg e = +22m.16s., +31m.10s., +32m.58s., and +33m.54s. Irkutsk L = +25·2m.

July 7d. Readings also at 0h. (Granada), 1h. (near Mizusawa (2)), 2h. (Nagoya, Granada, Manila, Ekaterinburg, and near Mizusawa and Sapporo), 3h. (near Mizusawa and Sapporo), 4h. (near Malabar and Batavia), 9h. (near Taihoku (2)), 10h. (Apia), 11h. (Ekaterinburg), 13h. (near La Paz), 15h. (near Mizusawa), 18h. (Strasbourg), 20h. (La Plata), 21h. (Zi-ka-wei), 22h. (Granada), 23h. (Ekaterinburg).

July 8d. 9h. 5m. 20s. Epicentre 43°·5N. 139°·0E.

A = −·547, B = +·476, C = +·688 ; D = +·656, E = +·755 ;
G = −·520, H = +·452, K = −·725.

Possibly a repetition from 39°·0N. 135°·5 as on July 3d. 21h. ; but if so the residuals would be sensibly more discordant.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Sapporo	1·8	104	0 28	0	—	—	1·0	—
Ootomari	4·1	40	0 58	− 6	(1 42)	−11	1·7	—
Mizusawa E.	4·7	159	1 11	− 2	2 0	− 9	—	—
Batavia	57·5	219	—	—	—	—	i 36·6	—
Pulkovo	61·5	327	—	—	e 27 53	?	43·2	—
De Bilt	76·4	333	—	—	e 28 40	?SR_1	—	—
Moncalieri	81·5	328	—	—	e 22 27	−14	52·4	—
Tortosa	87·8	330	e 22 40	?[S]	(e 22 40)	[−34]	—	—

Additional readings: Mizusawa SN = +2m.3s. Moncalieri S? = +31m.52s.

July 8d. 10h. 49m. 12s. Epicentre 50°·0N. 170°·0W. (as on 1914 Jan. 30d.).

A = −·633, B = −·112, C = +·766 ; D = −·174, E = +·985 ;
G = −·754, H = −·133, K = −·643.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Honolulu	E.	30·2	157	—	—	—	—	e 14·1	17·7
	N.	30·2	157	—	—	—	—	e 14·8	17·8
Chicago	N.	55·0	65	—	—	—	—	24·6	—
Toronto		58·4	59	—	—	e 25 3	?	29·2	—
Ottawa		59·2	55	—	—	e 26 3	?	e 29·3	—
Ekaterinburg		65·3	333	—	—	(22 48)	+199	22·8	42·2
Pulkovo		69·0	350	e 11 9	− 2	e 20 16	+ 2	31·8	44·8
Kucino		71·8	345	—	—	—	—	e 39·6	—
De Bilt		77·8	3	—	—	e 19 18	−160	e 46·8	—

No additional readings.

July 8d. 20h. 43m. 40s. Epicentre 9°·5S. 157°·0E. (as on 1920 Jan. 13d.).

A −·908, B = +·385, C = −·165 ; D = +·391, E = +·920 ;
G = +·152, H = −·064, K = −·986.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Riverview		24·9	191	e 5 38	+ 1	e 9 50	−11	e 10·8	13·6
Sydney		24·9	191	3 32	−125	9 44	−17	13·4	14·5
Melbourne		30·3	199	—	—	(11 20)	−19	11·3	17·5
Adelaide		30·5	210	—	—	e 8 56	−167	e 15·1	18·6
Apia		30·8	101	e 4 20	−136	—	—	—	9·3
Wellington		35·4	157	e 7 20	+ 3	(13 5)	+ 4	13·1	15·7
Perth		44·2	234	—	—	—	—	e 27·5	—
Honolulu	N.	53·8	55	—	—	e 19 20	+134	—	—
Victoria		90·4	40	23 2	?S	(23 2)	[−28]	39·9	47·0
Ekaterinburg		101·4	326	e 20 42	?PR_1	e 24 50	[+19]	49·3	61·0
Chicago		115·2	48	17 52	?	—	—	53·5	—
Pulkovo		116·1	333	e 20 29	?PR_1	—	—	62·3	—
Toronto		120·5	44	—	—	—	—	60·5	—
Ottawa		122·4	40	—	—	e 54 20	?	59·3	—
Edinburgh		131·1	345	—	—	—	—	78·3	—
Eskdalemuir		131·6	345	e 22 20	?PR_1	—	—	69·3	—
De Bilt		131·6	336	e 19 36	[+14]	—	—	e 73·3	79·2
Uccle		133·0	336	—	—	—	—	e 69·3	—
Strasbourg		133·2	331	e 21 20	?PR_1	—	—	e 70·3	86·3
Rocca di Papa	E.	135·1	321	e 19 23	[− 7]	—	—	—	—
Paris		135·3	336	e 18 54	[+23]	e 22 20	?PR_1	68·3	—
Moncalieri		135·8	329	e 19 41	[+ 9]	31 29	?	—	—
Granada		147·3	330	—	—	—	—	e 74·3	83·6

Additional readings: Riverview MN = +16·0m. Victoria LN = +40·1m., MN = +47·5m. Ekaterinburg e = +28m.13s. Toronto LN = +56·9m.
Rocca di Papa iE = +19m.33s.

July 8d. Readings also at 4h. (near Malabar), 7h. (Balboa Heights), 9h. (near Wellington (2) and near Granada), 10h. (Ekaterinburg, Pulkovo, and Zi-ka-wei), 12h. (Granada and Azores), 13h. (Ekaterinburg), 14h. (Irkutsk), 15h. (Taihoku), 16h. (near Algiers), 22h. (Ekaterinburg and Port au Prince), 23h. (Ekaterinburg (2) and Pulkovo).

July 9d. 20h. 24m. 8s. Epicentre 41°·0N. 144°·0E. (as on 1922 May 15d.).

A = −·611, B = +·444, C = +·656 ; D = +·588, E = +·809 ;
G = −·531, H = +·386, K = −·755.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Mizusawa	E.	2·9	230	0 47	+ 2	1 15	− 5	—	—
Sapporo		2·9	320	0 43	− 2	—	—	1·5	—
Ootomari		5·7	351	e 1 38	+10	—	—	3·5	—
Nagoya		8·0	226	2 29	+28	—	—	4·1	—
Zi-ka-wei		20·6	249	e 7 26	?PR_1	—	—	—	—
Honolulu	E.	52·3	94	—	—	—	—	e 38·9	41·5
	N.	52·3	94	—	—	—	—	e 39·9	42·9
Ekaterinburg		53·4	317	e 9 26	− 3	16 59	− 2	26·9	35·3
Victoria		62·2	49	—	—	—	—	25·7	27·2
Kucino		64·9	323	19 32	?S	(19 32)	+ 8	36·5	37·2
Konigsberg		72·8	330	—	—	—	—	e 41·0	45·9
Hamburg		77·5	334	—	—	—	—	41·9	—
Edinburgh		79·2	342	—	—	—	—	e 45·9	—
De Bilt		80·3	336	—	—	22 27	0	e 42·9	46·9
Uccle		81·7	336	—	—	—	—	e 41·9	—
Strasbourg		82·6	333	—	—	—	—	e 49·9	57·9
Paris		84·0	336	—	—	e 23 2	− 6	43·9	—
Florence		85·2	328	49 32	?L	103 52	?	(49·5)	113·9
Rocca di Papa		86·3	326	—	—	—	—	e 48·5	—
Ottawa		86·6	27	—	—	e 37 28	?	e 42·4	—
Toronto	E.	86·8	30	—	—	e 32 22	?	43·4	—
Granada		96·4	335	—	—	—	—	e 51·0	55·5

Additional readings: Mizusawa PN = +48s. Sapporo readings have been diminished by 2h. Ootomari readings given for 10d. Ekaterinburg PR_1 = +11m.31s., SR_1 = +20m.58s., MN = +30·8m. Victoria MN = +28·0m. Kucino e = +31m.52s., MN = +42·1m. De Bilt MN = +56·8m., MZ = +60·8m. Toronto eE = +36m.18s., LN = +43·2m.

July 9d. Readings also at 1h. (Batavia), 2h. (Ekaterinburg and Granada), 4h. (Granada), 6h. (Kobe and Nagoya), 9h. (Ekaterinburg), 11h. (Taihoku), 20h. (Victoria).

July 10d. Readings at 1h. (Granada, Paris, De Bilt, Coimbra, and Ekaterinburg), 3h. (near Sapporo), 6h. (near Mizusawa), 7h. (Ekaterinburg), 9h. (La Paz (2) and near Mizusawa and Sapporo), 11h. (Ksara), 13h. (Zantc), 15h. (La Paz), 22h. (near Sapporo (2)).

1924. July 11d. 19h. 44m. 33s. · Epicentre 37°·3N. 85°·3E.

(as on July 5d.).

$A = +\cdot065$, $B = +\cdot793$, $C = +\cdot606$; $D = +\cdot997$, $E = -\cdot082$; $G = +\cdot050$, $H = +\cdot604$, $K = -\cdot795$.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Dehra Dun		9·2	223	1 9	−70	2 7	−121	3·0	4·4
Calcutta	E.	15·0	169	3 27	−12	—	—	8·1	—
	N.	15·0	169	3 32	− 7	—	—	8·4	—
Irkutsk		20·0	36	i 4 40	− 1	8 23	0	—	—
Hyderabad		20·8	199	i 4 43	− 8	7 30	−70	8·4	12·0
Bombay		21·4	214	4 36	−22	8 44	− 9	e 10·4	—
Ekaterinburg		25·5	328	i 5 35	− 8	—	—	—	—
Hong Kong		29·0	113	6 17	− 1	11 27	+10	17·0	17·4
Zi-ka-wei		30·3	90	e 6 31	0	e 11 27	−12	—	20·5
Hokoto		32·3	106	8 27	?PR_1	—	—	e 15·4	—
Taihoku		33·1	101	7 10	+13	12 38	+12	19·0	19·8
Nagasaki		36·4	84	13 21	?S	(13 21)	+ 5	20·1	26·4
Kucino		36·5	316	i 7 25	− 1	i 13 0	−17	—	18·5
Manila		38·9	116	e 7 50	+ 5	i 13 57	+ 6	i 19·0	28·0
Kobe		39·9	79	7 52	− 2	13 11	−54	22·6	27·9
Ksara	E.	39·9	280	7 39	−15	13 56	− 9	21·7	24·7
	N.	39·9	280	7 38	−16	13 58	− 7	21·7	24·7
Osaka		40·2	79	8 7	+10	14 17	+ 7	22·8	23·7
Pulkovo		41·1	322	i 7 49	−15	13 52	−30	18·4	26·5
Nagoya		41·2	78	7 53	−12	—	—	23·1	25·3
Sapporo		42·4	64	e 8 26	+12	14 49	+ 9	24·4	—
Ootomari		42·7	59	e 8 30	+14	—	—	19·3	29·3
Lemberg		44·8	307	e 8 15	−17	e 18 9	?SR_1	e 22·8	31·0
Helwan		45·0	276	8 16	−17	14 52	−23	—	28·4
Konigsberg		46·3	314	i 8 32	−10	15 33	+ 1	e 19·4	30·4
Upsala		47·5	322	8 41	−10	15 32	−16	e 22·4	30·5
Batavia		47·9	151	i 8 57	+ 4	—	—	—	28·9
Belgrade		48·2	300	i 8 51	− 4	e 15 50	− 6	e 27·0	32·6
Malabar		49·2	150	e 9 13	+12	—	—	e 23·2	29·9
Sarajevo		49·8	300	i 9 5	− 1	e 21 19	?SR_1	e 30·2	31·9
Vienna		50·0	307	e 9 0	− 7	15 51	−28	e 23·4	35·4
Hamburg		52·6	315	e 9 20	− 4	e 16 55	+ 4	e 26·6	33·4
Innsbruck		53·5	306	i 9 27	− 3	i 17 17	+14	e 26·4	35·2
Bergen		53·5	324	i 8 37	−53	i 16 27	−36	26·3	34·4
Venice		53·5	305	i 9 32	+ 2	17 25	+22	26·8	32·3
Pompeii		53·6	297	i 8 54	−36	e 16 15	−49	30·4	38·0
Rocca di Papa	E.	54·5	300	i 9 32	− 4	e 16 57	−18	e 26·4	37·0
	N.	54·5	300	9 37	+ 1	e 17 27	+12	—	33·8
Florence		54·8	304	9 39	+ 1	17 27	+ 8	24·4	30·4
Zurich		55·3	307	e 9 40	− 1	—	—	e 21·8	30·2
Strasbourg		55·4	310	9 37	− 5	17 37	+11	25·4	40·2
De Bilt		55·9	314	9 44	− 1	17 30	− 3	e 26·4	36·6
Uccle		56·7	312	e 9 48	− 2	17 39	− 3	25·4	38·0
Moncalieri		56·7	305	9 49	− 1	17 46	+ 4	26·5	37·6
Besançon		57·2	306	9 49	− 4	e 17 41	− 8	21·4	30·4
Dyce		58·1	320	10 1	+ 1	18 3	+ 3	25·6	38·1
Paris		58·6	311	i 10 2	− 1	i 18 1	− 5	26·4	40·5
Kew		59·2	315	—	—	—	—	—	38·4
Eskdalemuir		59·3	319	i 10 13	+ 6	18 16	+ 1	26·4	—
Stonyhurst		59·5	317	10 15	+ 6	18 27	+10	—	39·5
Oxford		59·7	315	10 13	+ 3	18 20	+ 1	28·4	43·0
West Bromwich		59·8	316	10 14	+ 3	18 23	+ 2	—	—
Bidston		60·0	316	10 4	− 8	18 22	− 1	25·6	40·0
Barcelona		61·8	303	10 25	+ 1	e 18 42	− 4	29·0	41·0
Tortosa	N.	63·2	303	i 10 34	+ 1	i 19 5	+ 2	29·3	37·0
Algiers		63·4	297	10 33	− 1	19 5	− 1	30·0	44·0
Toledo		66·7	303	i 10 57	+ 1	i 19 43	− 3	i 27·0	44·4
Granada		67·8	300	i 11 16	+13	i 20 7	+ 7	24·1	39·0

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Coimbra	E.	69·4	306	11 15	+ 2	20 16	− 3	34·0	47·6
	N.	69·4	306	—	—	20 22	+ 3	32·7	43·0
Rio Tinto		69·5	303	14 57	?PR_1	—	—	—	50·0
San Fernando		70·0	301	e 11 2	−15	20 32	+ 6	33·0	54·0
Lisbon		70·7	305	e 11 14	− 7	—	—	e 28·2	41·2
Perth		74·9	153	12 22	+34	21 14	−11	36·0	43·6
Sitka		79·6	21	22 35	?S	(22 35)	+16	43·0	50·8
Johannesburg		83·2	230	17 57	?PR_1	—	—	—	35·2
Adelaide		87·6	139	—	—	i 23 39	− 9	—	64·4
Victoria	E.	90·7	19	13 19	− 1	23 46	[+14]	44·1	56·8
	N.	90·7	19	13 22	+ 2	23 42	[+10]	40·2	62·5
Melbourne		93·0	137	—	—	(23 57)	[+11]	24·0	63·2
Riverview		93·9	131	—	—	e 24 16	[+25]	e 41·4	53·2
Sydney		93·9	131	21 57	?	32 57	?	50·7	58·4
Cape Town		94·4	230	24 20	?S	(24 20)	[+26]	—	58·2
Ottawa		95·6	347	13 39	− 8	24 17	[+17]	e 45·0	62·0
Honolulu	E.	96·4	56	24 9	?S	(24 9)	[+ 5]	e 46·0	54·2
	N.	96·4	56	24 22	?S	(24 22)	[+18]	i 46·3	47·5
Harvard	E.	97·5	345	—	—	—	—	43·4	63·6
Toronto	E.	97·9	350	e 13 59	0	e 24 7	[− 6]	44·3	66·2
	N.	97·9	350	i 13 49	−10	i 23 29	[−44]	46·4	66·1
Ithaca		98·6	347	e 14 34	+31	e 24 32	[+15]	47·4	—
Ann Arbor		99·8	353	13 21	−49	24 27	[+ 4]	e 45·8	63·4
Chicago		100·9	355	13 59	−16	24 42	[+13]	49·5	67·4
Lick	E.	101·3	22	i 20 21	?PR_1	—	—	e 49·9	62·1
Georgetown	E.	102·1	347	e 20 57	?PR_1	e 24 45	[+11]	e 46·7	65·0
Cheltenham	E.	102·2	347	—	—	—	—	58·6	65·4
St. Louis		104·0	357	—	—	e 25 4	[+21]	e 45·2	66·9
Tucson	E.	108·8	14	—	—	—	—	e 58·1	65·5
Wellington		113·2	125	—	—	i 27 27	−29	e 49·8	—
Porto Rico	E.	118·1	330	—	—	e 40 27	?SR_1	66·3	71·6
Mazatlan	E.	118·5	12	—	—	—	—	56·8	64·0
Merida	E.	121·5	355	—	—	—	—	69·6?	88·0
	N.	121·5	355	—	—	—	—	68·3?	90·6
La Paz		148·7	305	i 19 54	[0]	i 33 50	?	68·4	99·1
La Plata	E.	150·4	262	20 0	[+ 4]	—	—	72·4	86·3
	N.	150·4	262	20 4	[+ 8]	35 15	?	67·8	95·7

Additional readings: Zi-ka-wei $SR_1N = +12m.27s.$, $SR_1E = +12m.30s.$, $MN = +18·0m.$ Taihoku $MN = +19·9m.$ Nagasaki $MN = +25·2m.$ Kucino $MN = +22·3m.$ Manila $MN = +25·2m.$ Kobe $MN = +24·2m.$, $MZ = +26·6m.$ Ksara $PR_1E = +9m.11s.$, $PR_1N = +9m.21s.$, $T_o = 19h.44m.4s.$ Pulkovo $iPR_1 = +9m.16s.$, $MN = +23·2m.$ Nagoya $MN = +27·0m.$ Ootomari $MN = +25·4m.$ Lemberg $MN = +29·4m.$ Konigsberg $PR_1 = +9m.25s.$, $PS = +15m.51s.$, $SR_1 = +18m.27s.$, and several other i readings. Upsala $PR_1E = +10m.35s.$, $SR_1 = +19m.3s.$, $MN = +29.8m.$ Batavia gives several i readings and $MN = +33·6m.$ Belgrade $PR_1 = +9m.15s.$, $PR_2 = +9m.53s.$, $PR_3 = +11m.13s.$, $PR_4 = +13m.15s.$, $SR_1 = +21m.52s.$, $SR_2 = +23m.21s.$, $SR_3 = +24m.23s.$, $SR_4 = +25m.40s.$ Vienna $iPZ = +9m.2s.$, $PR_1 = +11m.1s.$, $PR_2 = +12m.10s.$, $PS = +16m.0s.$, $SR_1 = +19m.37s.$, $SR_2 = +20m.45s.$, $MN = +29·6m.$ Hamburg $eSR_1E = +21m.5s.$, $iSR_1N = +21m.21s.$ Rocca di Papa $L = +33·4m.$ Innsbruck $iSR_1NE = +21m.9s.$, $MNW = +37·8m.$ Bergen $PR_1 = +11m.37s.$, $SR_1 = +20m.22s.$ Strasbourg $PEN = +9m.38s.$, $PR_1 = +12m.4s.$, $PR_2 = +13m.15s.$, $PR_3 = +13m.33s.$, $SR_1 = +22m.58s.$, $MN = +37·5m.$ DeBilt $eLN = +24·4m.$, $MN = +35·0m.$, $MZ = +36·7m.$ Uccle $MN = +28·8m.$, $MZ = +37·8m.$ Moncalieri $MN = +28·9m.$ Dyce $PR_1 = +12m.9s.$, $SR_1 = +22m.43s.$ Paris $PR_1 = +13m.41s.$, $SR_1 = +22m.19s.$, $MN = +29·4m.$ Eskdalemuir $PR_1 = +12m.18s.$ Oxford $PR_1 = +13m.47s.$ Barcelona $L = +24·8m.$, $MN = +40·8m.$ Tortosa $iPE = +10m.36s.$, $ME = +49·9m.$ Toledo $SR_1NE = +24m.15s.$ $SR_1NW = +24m.23s.$, $MNW = +39·5m.$, $MZ = +44·5m.$ Granada $PS = +21m.32s.$ Perth $L = +42·7m.$ Sitka $S = +32m.33s.$, $SR_1E = +37m.11s.$, $SR_2N = +39m.36s.$, $LN = +45·2m.$, $MN = +53·9m.$ Adelaide $iSR_2 = +34m.27s.$ Riverview $MN = +47·4m.$, $MZ = +52·9m.$ Sydney $SR_1 = +39m.57s.$ Ottawa $PR_1N = +17m.29s.$, $PR_2N = +19m.37s.$, $e = +26m.31s.$ and $+31m.29s.$, $MZ = +62·4m.$, $MN = +63·0m.$ Ann Arbor $MN = +64·4m.$ Chicago $PR_1 = +18m.10s.$ Lick $iPR_1E = +24m.27s.$, $iPR_2E = +27m.7s.$, $iE = +30m.9s.$, $iPSE = +33m.11s.$, $iLE = +58·1m.$, $MN = +71·5m.$ Georgetown $LN = +57·7m.$, $MN = +67·5m.$ Cheltenham $eN = +45m.52s.$ and $+50m.3s.$, $LN = +59·4m.$, $MN = +67·6m.$ St. Louis $ePR_2N = +20m.27s.$, $iPR_2N = +21m.45s.$, $iPSEN = +26m.27s.$, $eE = +27m.33s.$, $eN = +30m.59s.$, $SR_1E = +32m.14s.$, $eE = +33m.27s.$, $eN = +34m.12s.$, $SR_2EN = +36m.27s.$, $SR_3EN = +39m.29s.$ Porto Rico $eE = +43m.34s.$ and $+58m.50s.$, $LE = +69·8m.$, $LN = +66·0m.$ and $+74·1m.$ La Paz $i = +23m.43s.$, $SR_1 = +42m.18s.$, $SR_2 = +46m.53s.$, $T_o = 19h.44m.44s.$ La Plata $PR_1E? = +23m.29s.$, $E = +24m.33s.$, $SN = +40m.16s.$

July 11d. 23h. 40m. 30s. Epicentre 36°·0N, 19°·0W.

$A = +·765$, $B = -·263$, $C = +·588$; $D = -·326$, $E = -·946$; $G = +·556$, $H = -·191$, $K = -·809$.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Granada		12·4	80	i 2 59	− 6	i 5 32	+ 3	i 9·6	12·3
Tortosa	N.	16·0	67	5 27	+95	—	—	—	—
Algiers		17·7	81	—	—	—	—	e 14·5	17·0
Stonyhurst		21·2	28	—	—	—	—	—	10·0
Uccle		22·3	42	e 5 15	+ 6	e 9 18	+ 7	e 10·5	12·5
Strasbourg		23·2	49	5 47	+28	—	—	e 13·5	—
De Bilt		23·4	39	5 18	− 3	e 9 30	− 3	e 10·5	13·3
La Paz		70·1	230	12 16	+58	—	—	—	—

Additional readings: Strasbourg e = 23h.41m.0s. De Bilt MZ = +13·0m. Rocca di Papa (△ = 25°·2, Az. = 67°), eL = 23h.39m.18s.

July 11d. Readings also at 6h. (Zante), 9h. (Kobe), 11h. (Ekaterinburg and La Paz), 18h. (La Paz and La Plata), 20h. (Mizusawa), 21h. (Batavia and Malabar), 22h. (Tortosa).

July 12d. 9h. 4m. 26s. (I) } Epicentre 43°·0N. 93°·0E.
10h. 29m. 30s. (II) }

$A = -·038$, $B = +·730$, $C = +·682$; $D = +·999$, $E = +·052$; $G = -·036$, $H = +·681$, $K = -·731$.

On the evidence of the European stations alone these might be taken as repetitions from 37°·3N. 85°·3E., as on July 11 and former occasions, but the evidence of Calcutta and Hyderabad seems conclusive against this identification.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
I Calcutta	E.	20·8	192	8 41	?S	(8 41)	+ 1	—	—
I Hyderabad		28·4	210	—	—	11 4	− 2	12·1	14·9
I Pulkovo		40·7	318	i 8 0	− 1	14 15	− 2	19·1	28·8
II		40·7	318	7 59	− 2	14 8	− 9	17·0	22·2
I Upsala		46·9	319	—	—	—	—	e 24·6	32·8
II		46·9	319	—	—	—	—	e 24·0	32·7
I Hamburg		53·0	314	—	—	—	—	e 26·6	35·6
II		53·0	314	—	—	—	—	e 26·5	35·5
I De Bilt		56·3	313	9 54	+ 6	—	—	e 29·6	37·8
II		56·3	313	9 54	+ 6	—	—	e 29·5	—
I Strasbourg		56·5	308	—	—	—	—	e 30·6	—
II		56·5	308	—	—	—	—	e 33·5	—
I Florence		56·8	303	34 34	?L	—	—	(34·6)	46·6
I Rocca di Papa		56·9	299	—	—	—	—	e 35·5	—
II		56·9	299	—	—	—	—	e 22·4	24·7
I Uccle		57·3	312	—	—	—	—	e 30·6	—
I Eskdalemuir		58·9	320	—	—	—	—	30·6	—
II		58·9	320	—	—	—	—	31·5	—
I Paris		59·4	311	—	—	—	—	e 34·6	—

Additional readings to shock I: Calcutta PN = +8m.45s. Pulkovo PR_1 = +9m.38s., MN = +26·4m. Hamburg MN = +33·6m. De Bilt MN = +36·7m. Strasbourg eL = +34·6m.

1924. July 12d. 15h. 12m. 24s. Epicentre **41°·0N. 73°·5E.**

(as on July 7d.).

$A = +\cdot214$, $B = +\cdot724$, $C = +\cdot656$; $D = +\cdot959$, $E = -\cdot284$; $G = +\cdot186$, $H = +\cdot629$, $K = -\cdot755$.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Simla	E.	10·3	162	2 42	+ 8	4 18	−19	5·4	5·9
	N.	10·3	162	2 48	+14	4 24	−13	5·5	6·6
Bombay		22·1	182	4 53	−13	9 12	+ 5	11·3	12·0
Calcutta	E.	22·3	142	5 12	+ 3	9 12	+ 1	12·7	—
	N.	22·3	142	5 7	− 2	9 7	− 4	12·8	—
Irkutsk		23·7	51	i 5 32	+ 7	9 59	+21	12·6	—
Hyderabad		23·9	168	5 21	− 6	(9 36)	− 6	9·6	13·0
Ksara	E.	30·5	269	6 31	− 2	11 35	− 8	18·2	21·7
	N.	30·5	269	6 30	− 3	11 30	−13	18·3	21·2
Kodaikanal		31·0	174	11 54	?S	(11 54)	+ 3	15·3	16·6
Pulkovo		32·5	321	i 6 45	− 8	i 12 3	−13	14·6	20·2
Colombo		34·6	170	12 42	?S	(12 42)	− 7	18·3	21·6
Lemberg		35·2	300	e 8 12	?PR_1	e 14 48	?SR_1	e 18·9	22·6
Helwan		35·8	267	7 13	− 7	12 51	−16	—	27·4
Konigsberg		37·1	311	7 26	− 5	13 16	− 9	—	27·1
Belgrade		38·4	295	e 7 49	+ 8	e 17 11	?SR_1	e 22·4	27·6
Upsala		38·8	320	7 38	− 6	13 38	−11	—	24·0
Hong Kong		38·8	106	7 39	− 5	13 38	−11	18·2	25·6
Zi-ka-wei		39·4	89	e 7 16	−34	e 13 46	−11	—	27·3
Vienna		40·4	300	e 7 53	− 5	13 57	−16	e 23·6	29·9
Taihoku		42·7	97	—	—	e 14 45	+ 1	24·0	28·3
Hamburg		43·3	310	i 8 19	− 1	i 14 50	− 2	i 20·4	32·5
Pompeii		43·7	290	7 54	−30	e 13 24	−94	32·6	—
Venice		43·7	298	8 24	0	15 16	+18	26·5	—
Innsbruck		43·8	302	e 8 19	− 5	e 13 59	−60	e 22·7	31·5
Rocca di Papa		44·7	292	8 27	− 4	15 11	0	e 21·8	35·4
Bergen		44·9	320	e 12 36	+244	e 18 36	+202	e 21·6	30·6
Florence		45·0	297	8 39	+ 6	14 36	−39	—	25·6
Nagasaki		45·0	83	e 26 33	?L	—	—	(e 26·6)	—
Zurich		45·7	300	e 8 35	− 3	—	—	18·4	—
Strasbourg		45·9	304	8 36	− 3	15 24	− 3	22·6	25·1
De Bilt		46·5	310	8 42	− 2	15 35	0	e 24·6	30·5
Moncalieri		47·0	299	8 42	− 5	15 34	− 7	22·8	34·8
Uccle		47·3	308	e 8 49	0	e 15 45	0	e 22·6	34·8
Besançon		47·4	301	e 8 49	− 1	e 15 38	− 8	25·7	26·6
Kobe	N.	48·1	77	—	—	—	—	—	22·2
Ootomari		48·6	59	e 16 23	?S	(e 16 23)	+22	26·4	—
Manila		48·8	109	e 9 5	+ 6	—	—	e 23·9	—
Paris		49·1	305	i 9 2	+ 1	i 16 6	− 1	25·6	34·6
Dyce		49·3	316	9 4	+ 2	16 16	+ 6	23·5	32·4
Kew		49·9	310	—	—	—	—	—	32·6
Edinburgh		50·2	314	9 13	+ 5	16 26	+ 5	25·6	36·0
Oxford		50·4	310	9 10	+ 1	16 36	+12	25·4	33·4
Eskdalemuir		50·4	314	9 10	+ 1	16 26	+ 2	23·6	31·6
Stonyhurst		50·4	312	9 14	+ 5	16 27	+ 3	29·7	34·0
Bidston		50·9	312	9 6	− 6	16 36	+ 6	29·5	34·9
Barcelona		52·1	295	9 23	+ 2	16 52	+ 7	e 25·6	36·5
Tortosa	E.	53·4	296	9 35	+ 6	17 7	+ 6	e 25·6	37·5
	N.	53·4	296	9 35	+ 6	17 9	+ 8	25·5	31·1
Algiers		53·5	290	e 9 18	−12	e 17 3	0	22·6	36·6
Batavia		56·2	140	e 10 2	+15	—	—	32·0	—
Toledo		57·0	297	e 10 0	+ 8	i 17 52	+ 6	e 28·6	33·5
Granada		58·0	294	i 10 18	+19	i 19 7	+68	30·3	39·0
Rio Tinto		59·7	296	16 36	?PR_1	—	—	—	45·6
Coimbra		59·8	299	e 10 13	+ 2	18 29	+ 8	30·9	43·0
San Fernando		60·2	295	e 10 1	−12	18 11	−15	26·6	36·6
Lisbon		61·0	298	—	—	—	—	e 31·4	—
Ottawa		89·4	340	13 11	− 1	24 4	− 3	e 41·6	49·6
Victoria	E.	89·4	11	13 16	+ 4	23 54	−13	46·4	55·9
	N.	89·4	11	13 16	+ 4	24 6	− 1	46·3	54·0
Cape Town		90·4	223	—	—	—	—	—	56·7
Toronto	E.	91·9	341	e 14 6	+40	e 24 29	− 5	e 41·6	50·1
	N.	91·9	341	i 13 21	− 5	24 30	− 4	53·4	55·8

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Ithaca		92·3	338	—	—	e 23 58	[+16]	e 49·6	—
Chicago		95·5	347	13 32	−14	23 41	[−18]	55·8	—
Georgetown	N.	95·7	339	e 12 18	−89	24 20	[+20]	—	—
Adelaide		96·6	131	—	—	—	—	55·0	62·6
Honolulu	E.	101·4	47	—	—	—	—	e 44·6	57·1
	N.	101·4	47	—	—	—	—	e 46·6	58·6
Riverview		103·3	124	—	—	e 37 30	?	e 49·0	62·6
Sydney		103·3	124	32 42	?SR_1	—	—	59·1	62·8
La Paz		138·9	294	e 19 43	[+ 5]	33 24	?	74·6	78·9

Additional readings and notes: Hyderabad S? = +8m.17s. Pulkovo MZ = +20·1m., MN = +25·7m. Helwan PR_1 = +8m.35s. Konigsberg PE = +7m.27s., i = +9m.16s., +15m.36s., and +15m.59s., MN = +23·1m. Belgrade PR_1 = +8m.1s. and +8m.26s. Upsala PR_1 = +9m.8s., MN = +26·6m. Zi-ka-wei MN = +26·4m. Vienna iPZ = +7m.54s., iPR_1 = +9m.30s., PR_1Z = +9m.50s., SR_1 = +17m.7s., SR_2 = +18m.13s., MNZ = +30·9m. Hamburg ePR_1EZ = +10m.7s., iSR_1EZ = +17m.54s., MN = +31·8m., MZ = +32·2m. Venice readings have all been increased by 1h. Rocca di Papa PN = +8m.31s., L = +26·0m. Bergen e = +25m.36s. Strasbourg PEN = +8m.39s., iN = +9m.36s., PR_1 = +10m.31s., SR_1 = +18m.51s., MN = +31·6m. De Bilt PR_1 = +10m.33s., iZ = +19m.17s., eE = +19m.26s., eLN = +23·6m., MZ = +30·6m., MN = +32·1m. Uccle PR_1 = +10m.39s., SR_1 = +19m.15s., MN = +28·6m. Paris PR_1 = +10m.59s., SR_1 = +19m.54s., MN = +27·6m. Dyce SR_1? = +19m.4s. Edinburgh SR_1 = +20m.21s., Oxford SR_1 = +20m.16s. Eskdalemuir PR_1 = +11m.10s., SR_1 = +20m.14s. Stonyhurst PR_1 = +11m.11s.,, SR_1 = +20m.19s.; T_0 = 15h.12m.30s. Barcelona MN = +38·2m. Toledo MNW = +33·3m. Coimbra LN = +29·1m., MN = +39·5m. San Fernando MN = +38·1m. Ottawa PR_1N = +16m.44s., SR_1N = +30m.8s., SR_2N = +33m.48s.; T_0 = 15h.12m.38s. Toronto iN = +17m.4s. Adelaide e = +30m.36s., +41m.36s., +43m.36s., and +51m.36s. Riverview MN = +64·4m. Melbourne (Δ = 102°·2) gives small tremors at 15h.

July 12d. Readings also at 0h. (Batavia and near Malabar), 1h. (Ekaterinburg and near Mizusawa), 2h. (near Tacubaya), 3h. (Ekaterinburg, Pulkovo, Algiers, near Vera Cruz, and Tacubaya (2)), 8h. (Kucino and near Mizusawa), 10h. (Kucino and near Batavia and Malabar), 11h. (De Bilt, Kucino, and Pulkovo), 12h. (Batavia and near Malabar), 13h. (Pulkovo, Irkutsk, and Kucino), 20h. (Berkeley), 21h. (Apia), 23h. (Granada).

July 13d. Readings at 2h. (near Sapporo), 11h. (Pulkovo and Kucino), 16h. (Irkutsk and Pulkovo), 17h. (Pulkovo, Irkutsk (2), Mizusawa, and near Nagoya, Osaka, and Kobe), 19h. (Nagoya, La Paz, and near Kobe), 20h. (Nagasaki), 23h. (La Paz, Pulkovo, Kucino, Wellington, Riverview, Victoria, Honolulu, and Ottawa).

July 14d. 2h. 57m. 15s. Epicentre 50°·4N. 31°·6W. (as on 1920 Oct. 16d.).

A = +·543, B = −·334, C = +·770; D = −·524, E = −·852; G = +·656, H = −·404, K = −·637.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Eskdalemuir	17·6	63	e 4 21	+ 9	—	—	8·3	—
Edinburgh	17·8	61	i 4 21	+ 6	—	—	—	—
Oxford	19·0	74	i 4 32	+ 3	—	—	—	11·0
Kew	19·6	75	—	—	—	—	—	12·8
Paris	22·0	81	i 5 7	+ 2	e 8 58	− 7	10·8	11·8
Uccle	22·6	75	e 5 11	− 1	e 9 12	− 5	e 10·8	—
De Bilt	22·8	72	5 20	+ 5	9 22	+ 1	e 10·8	13·3
Granada	23·0	113	—	—	i 9 26	+ 1	10·5	12·5
Strasbourg	25·3	79	—	—	—	—	e 13·8	—
Moncalieri	26·7	86	e 6 11	+16	—	—	13·2	—
Rocca di Papa	31·4	89	e 6 30	−12	—	—	—	—
Ottawa	31·2	276	—	—	—	—	e 15·8	—
Pulkovo	35·2	50	e 6 52	−23	—	—	16·3	20·7
Kucino	40·3	55	—	—	—	—	e 22·6	—

Rocca di Papa gives also ePN = +6m.47s.

July 14d. 12h. 4m. 24s. Epicentre 26°·3N. 121°·5E. (as on 1924 May 13d.).

$A = -·468$, $B = +·764$, $C = +·443$; $D = +·853$, $E = +·522$; $G = -·231$, $H = +·378$, $K = -·896$.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Taihoku		1·3	179	0 20	0	—	—	0·6	0·6
Hokoto		3·3	212	0 41	−11	—	—	1·1	—
Zi-ka-wei		4·9	359	—	—	e 2 23	+ 9	—	—
Pulkovo		68·1	328	—	—	—	—	e 33·5	—
De Bilt		84·0	326	—	—	—	—	e 47·6	—
Uccle		85·1	325	—	—	—	—	—	47·6

Pulkovo gives also L = +41·6m.

July 14d. Readings also at 0h. (Taihoku, De Bilt, Uccle, Rocca di Papa, Granada, Kucino, Paris, Strasbourg, and Eskdalemuir), 2h. (near Manila), 10h. (Manila), 13h. (near Mizusawa), 14h. (Nagoya), 16h. (Irkutsk and Taihoku), 18h. (Azores, Nagoya, and near Wellington), 19h. (Rocca di Papa), 20h. (near Puebla), 23h. (Apia).

July 15d. 0h. 10m. 6s. Epicentre 46°·0N. 76°·0W.

$A = +·168$, $B = -·674$, $C = +·719$; $D = -·970$, $E = -·242$; $G = +·174$, $H = -·698$, $K = -·695$.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Ottawa		0·6	162	0 13	+ 4	i 0 19	+ 2	0·6	—
Toronto	E.	3·4	227	0 48	− 5	1 25	− 9	1·7	—
	N.	3·4	227	0 49	− 4	—	—	1·6	—
Ithaca		3·6	186	—	—	—	—	i 2·0	—
Ann Arbor		6·6	239	e 1 42	+ 1	—	—	—	—
Georgetown	E.	7·1	187	e 1 47	− 1	3 52	+39	e 4·0	—
Chicago	N.	9·4	248	—	—	—	—	4·5	—
Granada		53·0	72	e 11 34	?PR_1?	i 13 58	−178	i 14·7	15·0
La Paz		62·9	172	13 22	?PR_1	—	—	—	—

Additional readings: Ithaca e = +2m.17s. Georgetown ePN = +1m.46s.
The Granada readings probably refer to a local shock.

July 15d. 21h. 38m. 0s. Epicentre 37°·3N. 85°·3E. (as on July 11d.).

$A = +·065$, $B = +·793$, $C = +·606$; $D = +·997$, $E = -·082$; $G = +·050$, $H = +·604$, $K = -·795$.

Or perhaps this is from the epicentre 43°·0N. 93°·0E. (as on July 12d. 9h.).

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Ksara	N.	39·9	280	—	—	—	—	e 45·4	—
Pulkovo		41·1	322	8 0	− 4	14 22	0	21·0	26·5
Hamburg		52·6	315	—	—	—	—	e 28·0	35·0
Rocca di Papa		54·5	300	—	—	—	—	e 37·1	—
Strasbourg		55·4	310	—	—	—	—	e 32·0	—
De Bilt		55·9	314	—	—	—	—	e 35·0	36·5
Uccle		56·7	312	—	—	—	—	e 32·0	—
Paris		58·6	311	—	—	—	—	e 35·0	—
Edinburgh		59·1	319	—	—	—	—	e 38·0	—
Eskdalemuir		59·3	319	—	—	—	—	32·0	—

Additional readings: Pulkovo MNZ = +26·6m. De Bilt eLN = +32·0m.

July 15d. Readings also at 6h. (La Paz), 12h. (Pulkovo), 17h. (Simla and Manila), 18h. (Hamburg, De Bilt, and Pulkovo), 20h. (near Tacubaya).

July 16d. Readings at 1h. (Eskdalemuir), 2h. (Pulkovo and De Bilt), 4h. (Pulkovo and De Bilt), 5h. (Perth and near Nagasaki), 6h. (La Paz, Honolulu, Ottawa, Toronto, Chicago, and near Tacubaya), 8h. (Nagasaki), 12h. (Nagasaki), 14h. (Pulkovo), 15h. (near Vera Cruz, Tacubaya, and Oaxaca), 16h. (Victoria and near La Paz), 20h. (La Paz and near Vera Cruz, Tacubaya, and Oaxaca), 23h. (Tortosa).

July 17d. 11h. 42m. 6s. Epicentre 41°·0S. 92°·0W.

A = −·026, B = −·754, C = −·656 ; D = −·999, E = +·035 ; G = +·023, H = +·656, K = −·755.

Very rough.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
La Plata	E.	27·4	88	5 59	− 3	—	—	13·4	19·6
	N.	27·4	88	6 5	+ 3	10 50	+ 2	13·5	15·5
La Paz		32·0	47	e 6 48	+ 1	—	—	13·2	16·8
Toronto	E.	85·4	9	e 13 54	+64	—	—	33·4	—
Ottawa		87·6	11	e 13 47	+44	e 21 54	−114	e 41·9	—
Victoria	E.	93·6	340	22 23	?S	(22 33)	[−76]	35·6	37·0
	N.	93·6	340	22 33	?S	(22 33)	[−76]	37·2	41·6
Coimbra		111·0	53	—	—	e 29 34	+117	e 54·9	—
Granada		112·3	60	e 18 22	[− 7]	29 39	+111	e 47·2	59·3
Toledo		113·6	57	←	—	—	—	e 51·7	61·0
Eskdalemuir		122·0	42	e 22 7	?PB_1	e 26 25	[+34]	59·9	—
Paris		122·2	50	—	—	—	—	e 20·9	—
Edinburgh		122·3	42	—	—	e 39 54	?SR_1	—	73·9
Moncalieri		123·6	57	e 11 17	?	32 19	?	60·0	—
Uccle		124·1	49	—	—	—	—	e 36·9	—
De Bilt		125·1	48	e 19 54	?PR_1	e 37 12	?SR_1	e 57·9	65·5
Strasbourg		125·2	52	10 54	?	e 19 54	?PR_1	e 58·9	—
Hamburg		128·4	47	—	—	—	—	e 66·9	—
Pulkovo		140·3	41	e 19 8	[−32]	e 29 57	?	43·9	79·1
Irkutsk		164·2	321	—	—	—	—	e 91·9	—

Additional readings and notes: La Plata N = +7m.25s., E = +14m.31s.: T_o = 11h.42m.7s. Ottawa eE = +26m.54s., eL = +33·9m. Coimbra e = +37m.24s. Granada iP = +18m.37s., PR_1 = +22m.56s. and +28m.18s. Toledo MNW = +61·2m. De Bilt MN = +64·2m., MZ = +65·7m. Pulkovo e = +22m.46s., MZ = +77·4m., MN = +85·1m.

July 17d. Readings also at 1h. (Manila, Riverview, Granada, Perth, La Paz, De Bilt, and Pulkovo), 6h. (La Paz), 8h. (near Mizusawa), 9h. (Nagasaki), 11h. (Taihoku), 18h. (Nagasaki), 20h. (near Mizusawa), 23h. (Perth).

July 18d. Readings at 0h. (Pulkovo), 13h. (Moncalieri), 14h. (Pulkovo, Manila, near Vera Cruz, Tacubaya (2), and Oaxaca), 15h. (Kucino, Pulkovo), 21h. (Eskdalemuir and Granada), 22h. (Pulkovo).

July 19d. 2h. 50m. 7s. Epicentre 72°·8N. 2°·5E. (as on 1924 Mar. 12d.).

A = +·295, B = +·013, C = +·955 ; D = +·044, E = −·999 ; G = +·954, H = +·042, K = −·296.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Upsala	14·2	148	—	—	—	—	e 7·9	—
Pulkovo	16·9	126	i 3 52	−12	7 8	− 8	8·4	10·0
Edinburgh	17·2	192	—	—	e 7 23	+ 1	—	—
Eskdalemuir	17·7	191	i 4 19	+ 6	e 7 44	+11	8·6	—
Hamburg	19·5	166	e 3 53	−42	—	—	—	—
De Bilt	20·8	175	4 52	+ 1	8 47	+ 7	e 10·9	12·2
Uccle	22·0	177	e 5 6	+ 1	e 9 11	+ 6	e 10·9	—
Kucino	22·3	121	5 4	− 5	9 12	+ 1	11·6	12·7
Paris	24·0	180	i 5 27	− 1	—	—	9·9	—
Strasbourg	24·4	172	i 5 27	− 5	—	—	12·9	—
Vienna	25·4	158	e 5 41	− 1	—	—	—	—
Granada	35·8	190	e 12 47	?S	(e 12 47)	−20	i 19·4	22·6
Ottawa	43·8	275	—	—	e 14 59	0	e 23·9	—
Toronto E.	46·4	278	—	—	e 14 38	−55	48·5	—
Ann Arbor	48·8	282	—	—	(e 15 5)	−59	e 15·1	—

Additional readings: Pulkovo MZ = +9·9m. Granada iP = +12m.57s., iS = +16m.49s., i = +18m.13s.

July 19d. 12h. 47m. 45s. Epicentre 34°·0N. 4°·0E. (as on 1921 Oct. 22d.).

A = +·827, B = +·058, C = +·559.

	Δ	P.	O−C.	S.	O−C.	L.	M.
	°	m. s.	s.	m. s.	s.	m.	m.
Algiers	2·9	i 0 40	− 5	0 57	−23	1·0	1·1
Granada	6·9	1 58	+13	3 24	+17	i 3·8	4·3
Tortosa N.	7·3	1 47	− 4	e 3 20	+ 2	—	7·0
Toledo	8·7	e 2 20	+ 8	—	—	—	—
Moncalieri	11·4	e 1 43	−67	(4 52)	−12	4·9	—
Strasbourg	14·8	—	—	(6 15)	−12	6·2	9·2
Paris	14·9	—	—	—	—	e 7·2	8·2
De Bilt	18·1	—	—	—	—	e 9·2	—
Eskdalemuir	21·9	—	—	(9 15)	+12	9·2	—
Pulkovo	31·0	—	—	—	—	e 10·2	—

Tortosa gives also PZ = +1m.49s.

July 19d. Reading also at 8h. (near Barcelona, Granada, and Tortosa), 11h. (Zante), 22h. (Granada).

July 20d. 0h. 21m. 40s. Epicentre 7°·5N. 79°·0W. (as on July 6d.).

A = +·189, B = −·973, C = +·130 ; D = −·982, E = −·191 ;
G = +·025, H = −·128, K = −·991.

The observations at Balboa Heights indicate a greater distance for the epicentre from this observatory ; but they also do this on July 6, when the epicentre is well determined.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Balboa Heights	1·6	346	1 20	+56	2 18	+93	2·8	3·0
La Paz	26·3	156	5 49	− 2	10 28	0	14·2	16·6
Toronto	36·1	0	—	—	e 13 20	+ 9	18·7	—
Ottawa	38·0	4	e 9 20	?PR_1	—	—	e 16·8	—
Granada	73·8	53	—	—	—	—	e 39·4	41·7
Uccle	80·0	39	—	—	—	—	e 40·3	—
De Bilt	80·5	38	—	—	—	—	e 39·3	—
Pulkovo	93·0	28	—	—	—	—	e 47·3	—

Balboa Heights gives also LN = +2·7m., MN = +2·9m.

July 20d. 9h. 17m. 58s. Epicentre 18°·5S. 168°·5E. (as on 1924 Jan. 25d.).

A = −·929, B = +·189, C = −·317 ; D = +·199, E = +·980 ;
G = +·311, H = −·063, K = −·948.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Riverview	21·8	222	i 5 3	0	e 9 5	+ 4	e 11·0	14·5
Sydney	21·8	222	5 2	− 1	9 2	+ 1	11·1	12·0
Wellington	23·4	168	—	—	e 9 44	+11	e 12·7	16·2
Melbourne	28·2	221	—	—	(i 10 14)	−49	i 10·2	14·8
Adelaide	31·2	233	—	—	e 11 32	−22	e 16·2	19·0
Perth	49·0	243	—	—	19 48	?SR_1	24·0	28·4
Honolulu	51·6	42	—	—	—	—	e 21·0	—
Manila	57·3	303	e 10 2	+ 8	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Victoria	E.	90·2	37	24 54	?S	(24 54)	+38	43·7	55·7
Colombo		90·9	277	26 2	?	—	—	—	52·0
Chicago		112·4	51	—	—	29 9	+80	55·4	—
Toronto	E.	118·5	49	—	—	e 37 17	?SR_1	58·6	—
Ottawa		121·0	47	—	—	e 30 20	?	55·0	—
Pulkovo		129·1	335	e 21 3	?PR_1	—	—	57·0	83·3
Eskdalemuir		142·7	352	e 23 2	?PR_1	—	—	68·0	—
De Bilt		144·0	341	e 20 14	[+27]	—	—	e 67·0	—
Uccle		145·3	341	e 19 2	[−47]	—	—	e 62·0	—
Strasbourg		146·1	337	e 19 39	[−11]	—	—	e 42·0	—
Paris		147·6	344	e 19 49	[− 3]	—	—	—	—
Rocca di Papa		148·9	322	e 20 0	[+ 6]	—	—	—	—
Granada		160·1	341	i 22 38	?	—	—	e 80·0	86·0

Additional readings: Riverview iP = +5m.6s., PS = +9m.28s., MN = +13·4m.: T_o = 9h.17m.55s. Wellington i = +11m.38s. and +13m.20s. Adelaide e = +13m.20s. Chicago E = +35m.41s. Pulkovo MZ = +84·4m.

July 20d. Readings also at 6h. (La Paz), 18h. (near Taihoku), 23h. (La Paz and near Oaxaca).

July 21d. 0h. 36m. 18s. Epicentre 2°·4N. 98°·8E. (as on 1921 April 1d.).

A = −·153, B = +·987, C = +·042; D = +·988, E = +·153;
G = −·006, H = +·041, K = −·999.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Batavia		11·8	137	i 2 55	− 1	i 5 15	+ 1	i 6·5	7·0
Malabar		13·0	138	3 8	− 5	—	—	—	—
Colombo		19·4	284	—	—	—	—	11·3	14·3
Kodaikanal		22·6	291	9 30	?S	(9 30)	+13	16·1	17·4
Hong Kong		24·9	36	10 8	?S	(10 8)	+ 7	14·6	17·2
Bombay		30·2	307	11 32	?S	(11 32)	− 5	—	14·0
Taihoku		31·5	42	—	—	—	—	e 14·7	—
Simla	E.	35·2	326	—	—	—	—	e 16·9	—
Adelaide		52·8	139	—	—	i 14 18	−156	—	35·7?
Pulkovo		77·3	332	e 12 7	+ 4	21 57	+ 5	37·7	52·1
Rocca di Papa		85·5	313	—	—	e 23 22	− 3	e 60·4	—
De Bilt		90·3	322	—	—	—	—	e 50·7	—
Uccle		90·9	321	—	—	—	—	e 47·7	—
Eskdalemuir		94·8	326	—	—	e 24 42	−22	44·7	—
Granada		98·4	309	—	—	i 24 16	[0]	e 54·3	59·7
Ottawa		132·0	354	—	—	—	—	e 66·7	—
Toronto	E.	133·9	359	—	—	—	—	e 72·0	—
Chicago		135·4	6	—	—	—	—	85·0	—

Additional readings and notes: Pulkovo MN = +45·2m., MZ = +52·0m. Rocca di Papa e = +70m.22s. Granada readings have been increased by 1h. Toronto e = +75m.57s.

July 21d. Readings also at 3h. (La Paz and near Manila), 6h. (near Manila), 7h. (near Ksara), 11h. (Kodaikanal and Taihoku), 12h. (Taihoku), 18h. (La Paz and Taihoku), 19h. (Granada), 22h. (Taihoku).

1924. July 22d. 4h. 4m. 16s. Epicentre 1°·0S. 79°·0W.

A = +·191, B = −·981, C = −·071 ; D = −·982, E = −·191 ;
G = −·003, H = +·017, K = −1·000.

A depth of focus 0·040 has been assumed. The stations are well distributed in azimuth and it seems scarcely necessary to give a demonstration of the need for the general reduction of △. Although there are no observations of [P], those of [S] are almost as effective in showing the early arrival of waves which pass through the central core.

		Corr. for Focus	△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Balboa Hts.	E.	−0·5	10·0	357	2 22	− 1	4 14	− 2	4·6	4·5
	N.	−0·5	10·0	357	2 14	− 9	4 14	− 2	4·7	4·4
La Paz		−1·5	18·8	146	i 4 2	− 7	i 7 13	−12	9·4	9·8
Port au Prince		−1·7	20·6	18	e 4 30	+ 2	(8 15)	+15	8·2	8·3
Porto Rico	N.	−1·9	23·3	34	e 4 55	− 3	—	—	—	10·3
Merida	E.	−2·0	24·3	335	8 29	+200	12 32	+201	13·5	—
	N.	−2·0	24·3	335	8 32	+203	12 35	+204	13·7	—
Vera Cruz		−2·2	26·3	321	3 40	−109	8 8?	−98	—	9·5
Tacubaya		−2·4	28·4	317	5 56	+ 8	10 43	+21	12·9	16·3
La Plata	E.	−3·3	39·2	152	7 33	+12	13 1	+ 8	—	17·4
	N.	−3·3	39·2	152	7 11	−10	12 44	−25	18·2	19·4
Georgetown	E.	−3·3	39·9	3	—	—	i 13 18	0	e 16·4	—
	N.	−3·3	39·9	3	7 26	− 1	i 13 23	+ 5	21·4	—
Chicago		−3·5	43·4	351	7 50	− 4	14 2	− 3	20·4	21·1
Ithaca		−3·5	43·5	3	7 58	+ 3	14 14	+ 7	19·0	—
Ann Arbor		−3·5	43·5	356	7 50	− 5	i 13 50	−17	18·6	—
Toronto	E.	−3·6	44·6	0	e 8 13	+10	i 14 19	− 2	i 20·7	21·9
	N.	−3·6	44·6	0	i 8 1	− 2	i 14 24	+ 3	22·2	23·9
Ottawa		−3·7	46·5	4	8 8	− 9	14 44	− 1	e 20·7	21·2
Berkeley		−4·4	55·7	320	9 38	+23	17 14	+39	—	—
Victoria	E.	−4·6	62·5	330	10 10	+12	18 30	+32	30·2	33·4
Coimbra		−5·0	75·9	48	11 31	+ 9	20 44	+ 7	e 34·2	37·2
San Fernando		−5·0	76·8	52	12 24	+56	21 34	+46	40·7	50·2
Granada		−5·1	79·0	52	i 11 49	+ 8	i 21 30	+17	i 24·1	42·1
Toledo		−5·1	79·1	49	e 11 45	+ 3	i 21 26	+12	e 33·0	35·0
Honolulu		−5·1	80·2	291	e 11 44	− 6	e 21 52	+25	—	—
Bidston		−5·2	82·4	37	11 44	−18	20 31	−80	—	27·4
Tortosa	E.	−5·2	82·7	49	e 12 11	+ 7	22 0	+ 5	e 37·7	—
	N.	−5·2	82·7	49	e 12 22	+18	—	—	36·2	—
Eskdalemuir		−5·2	82·7	33	12 12	+ 8	i 22 8	+13	34·7	—
Edinburgh		−5·2	82·9	33	12 12	+ 7	22 6	+ 9	35·7	43·7
Stonyhurst		−5·2	82·9	37	12 17	+12	22 3	+ 6	—	42·7
Oxford		−5·2	83·2	38	i 12 12	+ 5	i 22 6	+ 6	—	45·2
Kew		−5·2	83·7	38	—	—	—	—	—	46·7
Barcelona		−5·3	84·0	48	e 13 17	+66	e 22 18	+10	e 37·7	—
Uccle		−5·3	86·5	40	e 12 24	− 2	e 22 25	−12	e 35·7	40·7
De Bilt		−5·3	87·1	38	12 30	+ 1	22 39	+15	—	42·2
Besançon		−5·3	87·3	43	e 13 20	+50	(22 38)	− 8	22·6	—
Moncalieri		−5·3	88·3	45	13 23	−13	22 34	−23	30·3	—
Strasbourg		−5·3	88·5	42	e 12 33	− 4	e 22 17	−42	e 34·7	—
Hamburg		−5·4	90·2	37	e 12 44	− 3	e 22 50	−27	e 39·7	47·7
Florence		−5·4	90·8	46	e 14 44?	+114	23 44	+21	—	39·7
Innsbruck		−5·5	91·0	43	12 50	− 1	—	—	—	—
Venice		−5·6	91·6	45	12 44?	− 9	—	—	—	—
Rocca di Papa	E.	−5·6	91·9	48	12 52	− 3	22 57	[−42]	e 39·7	—
Pompeii		−5·7	93·3	49	e 13 26	+23	e 22 26	[−82]	—	—
Upsala		−5·8	94·2	30	—	—	e 23 30	[−23]	—	—
Vienna		−5·8	94·3	41	13 3	− 5	23 4	[−49]	—	42·7
Budapest		—	96·1	42	—	—	e 22 14	[−109]	—	—
Pulkovo		—	100·4	28	e 13 36	−37	23 43	[−43]	40·7	52·3
Kucino		—	105·6	31	e 18 23	?PR_1	i 24 12	[−38]	27·5	—
Ksara	E.	—	111·0	54	e 16 54	+112	(28 10)	+33	e 40·3	—
Manila		—	156·0	306	e 21 44	?	—	—	—	—
Batavia		—	170·8	219	e 25 23	?PR_1	e 33 23	?	—	—

For Notes see next page.

NOTES TO JULY 22d. 4h. 4m. 16s.

Additional readings: La Paz $PR_1 = +4m.16s.$, $PR_2 = +4m.23s.$, $SR_2 = +7m.44s.$; $T_0 = 4h.4m.16s.$ Port au Prince iP = +4m.42s. Vera Cruz PZ = +3m.36s., SZ = +8m.6s. La Plata $PR_1N = +8m.1s.$, $PR_1E = +8m.37s.$, $SR_1N = +14m.19s.$, $SR_1E = +14m.33s.$, N = +15m.52s.; $T_0 = 4h.4m.11s.$ Georgetown $PR_1N = +9m.10s.$, LE = +18·2m. Chicago $SR_1 = +17m.32s.$ Ithaca e = +17m.32s. Ann Arbor $PR_1 = +8m.38s.$, $PR_2 = +9m.26s.$, $SR_1 = +16m.8s.$ Toronto iN = +14m.16s., iSE = +14m.21s., and +14m.23s., iE = +15m.52s. and +17m.36s.; $T_0 = 4h.4m.13s.$ Ottawa $PR_2N = +10m.12s.$, $SR_1E = +17m.52s.$, $SR_2E = +18m.32s.$ Berkeley SN = +17m.24s. and +17m.30s. Coimbra i = +12m.28s.; $T_0 = 4h.4m.33s.$ Granada i = +12m.49s., PS = +22m.40s. Toledo i = +12m.46s., MNW = +34·8m. Eskdalemuir e = +13m.7s. and +21m.58s. Stonyhurst P? = +13m.6s. Uccle e = +13m.15s. De Bilt iZ = +13m.23s., MN = +39·3m., MZ = +45·9m. Strasbourg iZ = +13m.41s., $SR_1 = +28m.4s.$ Hamburg iZ = +13m.44s., iSE = +22m.56s., eN = +24m.59s., MN = +40·7m. Rocca di Papa SN = +23m.2s. Vienna iZ = +13m.54s., iN = +14m.22s., iE = +14m.50s. Pulkovo $ePR_1 = +16m.55s.$, i = +39m.46s., MN = +52·9m. Ksara eE = +18m.57s., SE = +24m.45s.; true S is given as LE.

July 22d. 14h. 23m. 46s. Epicentre 24°·0N. 121°·0E. (as on 1922 Oct. 10d.).

A = −·470, B = +·783, C = +·407; D = +·857, E = +·515; G = −·210, H = +·349, K = −·914.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Taihoku	1·1	24	0 36	+19	—	—	0·9	0·9
Hokoto	1·4	252	−0 28	−49	—	—	0·0	—
Hong Kong	6·5	257	1 56	+17	3 24	+27	4·1	4·3
Zi-ka-wei	7·2	3	i 1 57	+ 8	e 3 25	+10	—	4·8
Manila	9·4	180	e 2 23	+ 1	(4 23)	+10	4·4	—
Nagasaki	11·8	39	2 53	− 3	6 4	+50	6·9	9·6
Kobe	16·3	46	—	—	—	—	—	11·6
Osaka	16·5	46	4 14	+15	(7 39)	+32	7·6	10·1
Nagoya	17·8	47	5 24	+69	—	—	—	—
Mizusawa E.	22·8	44	5 4	−11	(9 5)	−16	9·1	—
Ootomari	28·6	32	6 27	+13	—	—	13·6	18·3
Irkutsk	31·0	340	6 30	− 8	11 35	−16	17·2	20·8
Batavia	33·2	206	i 6 48	−10	—	—	—	—
Simla	39·2	290	13 32	?S	(13 32)	−22	—	—
Hyderabad	40·2	270	e 7 53	− 4	14 12	+ 2	20·1	26·0
Colombo	42·9	255	10 14	?PR_1	—	—	25·5	30·2
Kodaikanal	43·6	260	20 44	? L	—	—	27·9	30·0
Bombay	44·9	272	15 21	?S	(15 21)	+ 7	23·8	28·2
Kucino	66·5	323	—	—	—	—	e 39·2	—
Pulkovo	69·8	328	i 11 22	+ 6	20 33	+ 9	33·2	39·7
Ksara N.	73·0	309	11 50	+14	20 41	−20	30·1	—
Honolulu	73·6	74	—	—	e 21 8	− 1	e 34·1	41·2
Upsala	75·8	339	e 11 57	+ 3	e 21 39	+ 4	e 34·2	42·4
Budapest	80·1	320	—	—	e 22 44	+20	40·7	—
Bergen	80·9	334	—	—	—	—	e 46·2	—
Vienna	81·3	320	i 12 30	+ 3	22 45	+ 7	e 41·2	45·2
Hamburg	82·3	326	e 12 36	+ 4	i 22 54	+ 5	e 41·2	46·2
Innsbruck	84·8	321	e 12 46	− 1	—	—	e 43·2	—
De Bilt	85·6	326	12 51	0	23 26	0	e 40·2	49·4
Strasbourg	86·2	321	12 55	+ 1	e 24 33?	+ 1	36·2	58·2
Florence	86·6	318	—	—	—	—	66·2	—
Uccle	86·7	326	e 12 50	− 7	e 23 22	−16	e 38·2	48·9
Rocca di Papa	86·8	315	12 57	− 1	23 11	[+ 3]	e 46·6	54·0
Edinburgh	87·2	332	e 12 54	− 6	23 35	− 8	42·2	49·1
Eskdalemuir	87·5	332	e 13 2	0	23 40	− 7	39·2	49·2
Victoria E.	87·6	37	23 16	?S	(23 16)	[+ 3]	38·3	55·0
N.	87·6	37	23 16	?S	(23 16)	[+ 3]	37·4	52·8
Besançon	87·9	323	—	—	—	—	e 48·3	—
Moncalieri	88·1	319	13 42	+36	23 52	− 1	44·4	50·4
Stonyhurst	88·2	330	23 47	?S	(23 47)	− 7	44·2	51·2
Kew	88·6	328	—	—	—	—	—	57·2
Bidston	88·7	330	13 9	0	22 14	−106	38·7	49·7
West Bromwich	88·8	330	23 29	?[S]	(23 29)	[+ 8]	—	—
Paris	88·9	325	—	—	e 34 31	?	46·2	49·2

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Oxford		89·0	329	—	—	e 23 44	[+22]	e 41·4	50·0
Tortosa	E.	94·8	320	—	—	e 24 50	−14	e 50·2	59·6
	N.	94·8	320	—	—	—	—	e 49·2	56·8
Toledo		89·1	321	—	—	e 24 30	[+16]	e 46·6	55·6
Granada		99·6	319	—	—	—	—	i 50·8	61·6
Coimbra	E.	100·4	324	e 9 40	?	—	—	47·7	56·7
	N.	100·4	324	e 15 40	+87	—	—	49·7	56·9
Rio Tinto		101·0	320	60 14	?L	—	—	(60·2)	64·2
San Fernando		101·6	319	—	—	43 56	?	56·7	59·2
Lisbon		101·9	323	—	—	—	—	e 52·5	55·5
Ottawa		109·0	12	—	—	e 25 14	[+ 8]	64·2	—
Chicago		109·1	22	—	—	25 10	[+ 4]	70·8	—
Toronto	N.	109·8	16	—	—	e 25 7	[− 2]	e 61·6	—
Ithaca		111·6	14	—	—	—	—	69·2	—
La Paz		168·6	50	19 4	[−70]	—	—	—	—

Additional readings: Zi-ka-wei MN = +4·7m., MZ = +5·2m. Kobe MN = +9·8m. Osaka MN = +8·6m. Simla PN = +13m.38s. (O−C = −16s.). Bombay S = +20m.14s. Pulkovo PR_2 = +15m.45s., SR_1 = +25m.32s., SR_2 = +28m.14s., MNZ = +46·3m. Vienna MZ = +49·2m. Hamburg MZ = +54·2m. De Bilt MN = +49·7m., MZ = +56·8m. Strasbourg MN = +51·4m. Uccle SR_1 = +29m.26s. Rocca di Papa PN = +12m.59s., LN = +48·0m. Eskdalemuir eE = +13m.30s., e = +16m.46s., SR_1 = +29m.44s., MN = +48·7m. Victoria S = +29m.6s. Stonyhurst S = +33m.36s. Toledo MNW = +55·5m. Coimbra eSN = 14h.22m.26s. (some error?). Toronto eE = +28m.36s.

July 22d. Readings also at 1h. (Batavia), 6h. (Stonyhurst), 10h. (Manila, Victoria, Adelaide, and Melbourne), 11h. (Hong Kong (2), Kobe, Adelaide (2), Manila, Victoria, Honolulu, De Bilt (2), Ottawa, Hamburg, Pulkovo (2), Toronto, Sydney, and Riverview), 12h. (De Bilt, Honolulu, Victoria, and Nagasaki), 13h. (Manila), 14h. (2), 17h., and 20h. (near Taihoku), 21h. (Nagasaki).

July 23d. Readings at 2h. (near Wellington), 5h. (Paris and Johannesburg), 8h. (Batavia), 10h. (near Kobe (2)), 11h. (Riverview), 12h. (Azores), 17h. (Ottawa), 18h. (near Balboa Heights), 20h. (Apia), 22h. (Zurich).

1924. July 24d. 4h. 55m. 24s. Epicentre 48°·0S. 159°·0E.

A = −·625, B = +·240, C = −·743; D = +·358, E = +·934; G = +·694, H = −·266, K = −·669.

May be compared with 48°·5S. 162°·5E. on 1918 Sept. 16 (for which very little material was available), possibly an anticipation of the present shock.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Wellington		13·0	65	e 3 1	−12	i 5 36	− 8	6·2	12·3
Melbourne		14·4	310	(i 3 30)	− 2	i 3 30	?P	6·7	7·9
Riverview		15·3	335	i 4 0	+17	i 7 10	+33	e 7·8	8·7
Sydney		15·3	335	3 54	+11	6 48	+ 9	7·4	8·6
Suva		33·8	35	3 46	−197	10 1	−157	15·4	—
Perth		36·2	281	7 16	− 8	13 8	− 5	15·5	17·1
Apia		41·9	46	e 8 0	−10	14 37	+ 3	22·8	24·8
Batavia		60·7	296	i 10 11	− 6	i 18 28	− 4	e 28·0	34·9
Manila		71·2	322	e 11 21	− 3	e 20 36	− 4	i 36·2	—
Honolulu		79·3	40	12 8	− 7	22 25	+10	i 41·9	42·1
Taihoku		80·4	327	—	—	e 22 41	+13	—	—
Hong Kong		81·0	320	12 9	−16	(22 32)	− 3	22·5	34·4
Osaka		85·3	341	12 44	− 6	23 12	−10	32·8	36·4
Kobe	N.	85·4	341	—	—	—	—	—	79·4
Zi-ka-wei		86·0	330	i 12 41	−12	e 20 51	−159	e 28·7	37·8
Colombo		87·9	282	11 6	−118	23 36	−15	43·1	49·3
La Plata	E.	90·8	150	12 59	−21	23 48	−34	36·4	41·4
	N.	90·8	150	12 43	−37	24 49	+27	38·0	54·1

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Cape Town		90·8	212	12 57	−23	23 31	[− 2]	—	—
Kodaikanal		92·1	283	23 12	?[S]	(23 12)	[−29]	49·0	52·7
Calcutta	E.	94·6	299	23 16	?[S]	(23 16)	[−39]	—	—
Hyderabad		96·8	288	17 17	?PR_1	26 19	+55	45·6	55·9
Bombay		101·4	285	17 58	?PR_1	27 0	+51	43·1	55·3
La Paz		103·0	135	e 13 51	−34	i 24 24	[−14]	41·9	47·9
Rio de Janeiro		106·1	160	—	—	—	—	—	44·1
Simla	E.	107·6	297	24 48	?[S]	(24 48)	[−11]	e 53·5	57·7
	N.	107·6	297	24 54	?[S]	(24 54)	[− 5]	e 53·5	55·6
Berkeley	Z.	110·6	56	e 14 16	−44	—	—	49·7	60·0
Tacubaya		112·1	85	19 10	?PR_1	29 55?	+128	46·5	62·4
Vera Cruz	Z.	114·0	87	—	—	—	—	52·3?	52·7
	E.	114·0	87	—	—	—	—	56·0?	62·4
Victoria	E.	117·4	47	19 55	?PR_1	29 48	+79	47·8	75·7
	N.	117·4	47	20 0	?PR_1	29 53	+84	47·6	58·1
Sitka	E.	118·3	35	—	—	—	—	57·6	62·3
	N.	118·3	35	—	—	—	—	54·8	61·4
Baku		130·4	290	e 19 5	[−14]	i 33 7	?	—	—
Chicago		133·9	74	19 6	[−22]	28 53	?	57·8	70·8
Ksara		135·8	271	19 26	[− 6]	31 7	?	41·4	—
Ann Arbor		136·6	75	21 12	?PR_1	28 36	?	56·6	59·9
Georgetown	E.	139·3	83	e 19 26	[−12]	e 28 54	?	59·1	—
Toronto	E.	140·1	75	19 21	[−18]	i 29 14	?	59·2	78·0
	N.	140·1	75	e 22 24	?PR_1	29 8	?	e 57·1	62·5
Ithaca		141·3	79	e 19 26	[−16]	—	—	58·6	—
Ottawa		143·1	75	19 23	[−22]	29 11	?	59·6	63·6
Harvard	E.	144·9	81	19 32	[−16]	—	—	75·6	83·1
Pulkovo		148·5	312	19 33	[−20]	33 34	?	—	48·5
Belgrade		151·6	279	e 19 44	[−14]	e 34 33	?	49·0	—
Budapest		153·3	284	e 20 36	[+36]	—	—	e 44·1	—
Upsala		154·8	312	e 20 5	[+ 3]	e 34 13	?	e 67·6	75·3
Vienna		155·3	285	e 19 38	[−24]	—	—	—	44·6
Rocca di Papa		155·5	268	e 20 0	[− 2]	27 30	?	e 73·0	—
Florence		157·3	271	20 11	[+ 6]	34 21	?	44·1	76·6
Innsbruck		158·3	280	19 54	[−12]	24 0	?PR_1	e 65·6	—
Algiers		159·1	246	e 20 2	[− 5]	30 47	?	49·6	68·6
Hamburg		159·8	298	e 19 48	[−20]	—	—	e 63·6	78·6
Zurich		160·2	279	e 20 6	[− 2]	—	—	—	—
Bergen		160·4	320	e 24 36	?	—	—	—	—
Strasbourg		161·0	282	19 47	[−22]	e 34 27	?	54·6	98·5
Besançon		161·9	278	e 20 12	[+ 3]	—	—	44·6	77·6
Barcelona		162·4	257	e 21 15	[+66]	—	—	e 58·8	68·2
De Bilt		162·8	294	19 55	[−15]	—	—	e 69·6	80·5
Tortosa	N.	163·1	253	e 20 1	[− 9]	31 14	?	e 48·4	68·3
Granada		163·3	236	e 20 0	[−10]	—	—	52·7	67·5
Uccle		163·4	289	e 17 36	[−154]	e 45 6	?	—	52·3
San Fernando		164·1	229	20 16	[+ 5]	31 21	?	44·6	100·6
Dyce		165·3	317	20 13	[+ 1]	38 53	?	46·1	78·7
Toledo		165·4	242	e 19 54	[−18]	35 52	?	e 51·3	68·1
Kew		166·2	292	—	—	—	—	—	107·6
Edinburgh		166·5	312	20 36	[+23]	i 35 41	?	54·6	81·6
Eskdalemuir		166·8	310	19 55	[−18]	i 35 25	?	—	—
Oxford		166·8	294	e 21 1	[+48]	i 24 46	?PR_1	74·6	82·8
Stonyhurst		167·0	304	20 5	[− 8]	31 36	?	56·6	59·1
West Bromwich		167·0	298	21 6	[+53]	—	—	—	102·6
Lisbon		167·4	227	e 21 49	[+96]	—	—	e 44·8	—
Bidston		167·4	302	39 49	?	50 56	?	72·8	84·6
Coimbra		168·1	234	20 56	[+42]	35 52	?	68·6	73·3

Additional readings: Wellington iP = +3m.7s. Riverview iP = +4m.11s., PR_1 = +4m.32s., PS = +7m.25s. and +7m.44s., MN = +8·5m., MZ = +11·1m.; T_0 = 4h.55m.24s. Suva SR_1 = +12m.51s. Perth readings have been diminished by 8h. Apia eP = +8m.11s., PR_1 = +9m.52s., S = +18m.5s., MNZ = +27·9m.; T_0 = 4h.55m.3s. Batavia L = +29·9m. Honolulu PR_2E = +17m.45s., eN = +21m.40s., PS = +23m.16s., SR_2E = +33m.16s., eN = +35m.1s. and +37m.44s., LN = +44·1m., MN = +45·2m.; T_0 = 4h.55m.13s. Hong Kong S = +17m.48s. Osaka MN = +37·7m. Zi-ka-wei PR_1 = +16m.24s., MN = +37·5m., MZ = +48·1m. La Plata PE = +13m.20s., PN = +18m.20s., SN = +23m.12s., SE = +24m.55s., SR_1N = +29m.0s., SR_1E = +29m.54s. Calcutta SE = +31m.45s. La Paz PR_1 = +17m.38s., PR_2 = +19m.40s., SR_1 = +31m.0s., SR_2 = +35m.0s.: T_0 = 4h.56m.25s. Simla eS = +33m.48s. Berkeley PR_1 = +19m.7s., i = +20m.49s., $ScPcSZ$ = +21m.36s., PR_2Z = +21m.41s., SR_1Z = +30m.4s., PR_2E = +34m.47s., SR_2Z = +34m.59s., LE = +45·5m., ME = +51·8m.

Continued on next page.

Sitka PS? = +30m.17s., eE = +36m.53s., eN = +37m.2s., LE = +55·1m., LN = +57·9m. Baku i = +21m.19s. Chicago PR_1 = +22m.44s., MN = +59·0m. Ksara PN = +19m.29s., PR_1 = +22m.46s. Ann Arbor PR_2 = +25m.0s., SR_2 = +36m.0s. Toronto eE = +22m.21s., eN = +22m.24s., i = +22m.58s. Ithaca PR_1 = +22m.25s., PR_2 = +24m.22s., e = +33m.30s. and +35m.18s. Ottawa PR_1 = +22m.40s., PR_2E = +24m.43s., SR_1 = +34m.48s., MN = +62·6m. Harvard PR_1E = +23m.8s., eE = +29m.0s., PSE = +33m.7s., eE = +38m.12s., SR_1E = +40m.11s., SR_2E = +46m.36s., LE = +60·3m. Pulkovo i = +23m.19s., +30m.8s., +38m.33s., and +42m.42s., MN = +83·1m., MZ = +87·3m. Upsala MN = +75·8m. Vienna PR_1 = +23m.54s., PR_2 = +27m.32s., SR_1 = +44m.3s. Innsbruck eNW = +37m.12s. Algiers PR_1 = +26m.2s., ? = +34m.51s. Hamburg eE = +29m.59s., iN = +34m.43s., eN = +44m.36s. and +45m.36s., eE = +50m.54s. and +51m.36s., eLZ = +76·6m., MZ = +83·6m. Strasbourg MN = +100·6m. De Bilt eE = +35m.44s. and +45m.57s., eZ = +46m.0s., MN = +82·6m., MZ = +96·2m. Granada iP = +20m.19s. and many PR's. Uccle PR_1 = +24m.36s., MN = +82·5m. San Fernando PR_1 = +24m.36s., MN = +109·6m. Dyce P = +24m.40s., PR_1? = +27m.13s. Toledo i = +31m.20s., MNW = +52·4m. Edinburgh i = +47m.0s. and +52m.51s. Eskdalemuir iEZ = +21m.6s., iE = +24m.56s. Bidston e = +26m.9s. (?PR_1). Coimbra e = +16m.56s., SR_1 = +45m.46s., MN = +83·8m. ; T_0 = 4h.56m.9s.

July 24d. Readings also at 0h. (Granada and Baku), 2h. (Apia, Strasbourg, and Uccle), 5h. and 6h. (La Paz), 8h. (Vera Cruz, Oaxaca, and Tacubaya (3)), 9h. (La Paz), 10h. (Apia), 13h. (Irkutsk), 14h. (Irkutsk and Azores), 17h. (Merida and Manila), 18h. (Pulkovo, Baku, Irkutsk), 19h. (De Bilt).

July 25d. 19h. 36m. 18s. Epicentre 72°·5N. 16°·0E.

A = +·289, B = +·083, C = +·954 ; D = +·276, E = −·961 ; G = +·917, H = +·263, K = −·301.

The epicentre 72°·8N. 2°·5E. of July 19 was naturally tried, but found quite unsuitable.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Upsala	12·7	176	e 5 44	?S	(e 5 44)	+ 7	e 8·2	—
Pulkovo	13·9	149	3 28	+ 3	6 2	− 4	7·2	7·8
Konigsberg	17·8	171	—	—	e 7 46	+10	e 9·4	12·2
Eskdalemuir	19·0	215	e 4 28	− 1	e 8 10	+ 8	9·2	—
Hamburg	19·1	191	e 5 42	+72	—	—	e 12·7	—
De Bilt	21·0	199	4 53	0	—	—	e 11·7	12·8
Uccle	22·3	200	e 5 5	− 4	e 9 18	+ 7	—	—
Strasbourg	24·2	193	—	—	—	—	e 10·7	—
Paris	24·5	202	e 5 27	− 6	—	—	—	—
Rocca di Papa	30·8	185	—	—	—	—	e 21·3	25·0
Baku	36·1	134	—	—	e 13 1	−10	20·2	—
Irkutsk	40·5	70	e 9 34	?PR_1	—	—	e 21·7	—
Zi-ka-wei	64·8	66	—	—	—	—	e 25·4	—

Additional readings and notes: Pulkovo MZ = +7·4m., MN = +10·6m. Konigsberg e = +10m.10s. Paris reading is given for 18h. Baku e = +15m.24s. Irkutsk L = +23·7m.

July 25d. 21h. 39m. 24s. Epicentre 38°·0N. 43°·0E.

A = +·576, B = +·537, C = +·616 ; D = +·682, E = −·731 ; G = +·450, H = +·420, K = −·788.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Baku		5·8	63	e 1 32	+ 2	i 2 44	+ 5	—	—
Ksara	N.	7·1	236	1 49	+ 1	3 46	+33	—	—
Pulkovo		23·2	344	5 18	− 1	9 44	+15	11·1	—
De Bilt		29·7	314	—	—	—	—	e 18·6	—
Eskdalemuir		35·2	315	—	—	—	—	20·6	—

No additional readings.

July 25d. Readings also at 3h. (De Bilt), 8h. (Manila), 11h. (Pulkovo), 13h. (Malabar, Batavia, La Paz, and near Taihoku), 17h. (Irkutsk), 20h. (Toronto, La Paz (2), and near Victoria).

July 26d. 3h. 0m. 0s. Epicentre 6°·5N. 128°·0E. (as on 1923 May 25d.).

$A = -\cdot612$, $B = +\cdot783$, $C = +\cdot113$; $D = +\cdot788$, $E = +\cdot616$; $G = -\cdot070$, $H = +\cdot089$, $K = -\cdot994$.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Manila		10·7	320	e 2 46	+ 6	—	—	6·1	7·4
Hong Kong		20·7	322	4 52	+ 3	8 35	− 3	11·7	13·8
Batavia		24·7	239	5 33	− 2	i 9 55	− 2	—	—
Kobe		28·9	12	—	—	—	—	e 27·5	—
Baku		76·8	310	—	—	e 21 48	+ 1	41·5	—
Pulkovo		88·3	330	13 11	+ 4	23 38	−17	48·0	55·2
De Bilt	E.	104·0	329	—	—	e 25 6	[+23]	56·0	—
Strasbourg		104·3	323	—	—	—	—	e 60·0	—
Uccle		105·1	327	—	—	—	—	e 54·0	—
Eskdalemuir		106·3	336	—	—	e 25 16	[+22]	51·0	—
Granada		117·2	317	—	—	e 24 52	[−45]	e 61·3	82·3

Additional readings: Manila MN = +7·2m. Baku e = +24m.8s. and +30m.56s. Pulkovo MZ = +55·0m. De Bilt eLN = +57·0m. Granada i = +30m.5s.

July 26d. Readings also at 1h. (Granada), 8h. (Edinburgh), 11h. (Apia), 14h. (Lick), 16h. (Irkutsk), 17h. (Azores), 19h. (Baku, Pulkovo, Irkutsk, and De Bilt), 20h. (Pulkovo), 22h. (Zi-ka-wei).

July 27d. Readings at 2h. (Granada), 4h. (La Paz), 9h. (Kobe), 12h. (Apia and Pulkovo), 14h. (near Zurich), 18h. (La Paz), 21h. (Granada, Stonyhurst, Edinburgh, Eskdalemuir, Strasburg, Paris, and De Bilt), 22h. (Rocca di Papa).

July 28d. Readings at 1h. (Apia and near Mizusawa), 5h. (Perth and San Fernando), 7h. (Kingston), 15h. (near Tacubaya), 17h. (near Oaxaca), 18h. (near Tacubaya), 19h. (De Bilt (2), Rocca di Papa, Paris, Strasbourg, Eskdalemuir (2), Edinburgh, and Uccle), 23h. (near Tacubaya).

July 29d. 5h. 18m. 40s. Epicentre 2°·5S. 121°·0E. (as on 1924 Feb. 13d.)

$A = -\cdot515$, $B = +\cdot856$, $C = -\cdot044$; $D = +857$, $E = +\cdot515$; $G = +\cdot022$, $H = -\cdot037$, $K = -\cdot999$.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Malabar		14·2	250	3 16	−13	i 6 8	− 5	i 7·8	—
Batavia		14·6	255	i 3 27	− 7	6 33	+11	—	9·1
Manila		17·1	0	i 4 7	+ 1	—	—	—	—
Hong Kong		25·7	345	5 36	− 9	8 33	−103	9·8	10·3
Taihoku		27·6	1	e 5 51	−13	—	—	—	—
Zi-ka-wei		33·7	2	e 6 46	−16	e 11 36	−60	—	20·0
Adelaide		36·2	154	—	—	i 13 2	−11	18·5	22·1
Osaka		39·6	20	8 16	+25	(15 42)	+102	15·7	17·6
Calcutta		40·6	311	13 55	?S	(13 55)	−20	—	—
Melbourne		41·5	151	—	—	15 8	+40	24·5	26·7
Riverview		42·1	142	e 8 11	− 1	e 14 35	− 1	21·2	23·9
Sydney		42·1	142	7 44	−28	14 32	− 4	23·2	24·5
Kodaikanal		45·2	286	18 32	?	—	—	28·4	30·1
Hyderabad		46·5	297	8 32	−12	15 13	−22	25·6	32·8
Bombay		52·0	297	e 7 31	−109	16 35	− 9	—	31·9
Simla		53·6	313	16 50	?S	(16 50)	−14	—	—
Wellington		61·8	137	11 2	+38	i 19 2	+16	26·1	31·3
Baku		77·5	312	e 12 7	+ 3	21 53	− 2	37·1	42·3
Honolulu	E.	82·5	69	—	—	23 2	+10	38·6	46·6
	N.	82·5	69	—	—	22 58	+ 6	e 34·8	45·8
Ksara		87·4	305	13 2	+ 1	23 23	−20	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Kucino		88·2	326	e 9 50	?	20 13	?	—	49·0
Pulkovo		92·6	330	e 13 15	−15	24 10	−31	44·3	61·0
Upsala		98·9	330	—	—	e 24 56	−49	e 48·3	68·8
Cape Town		98·9	235	24 35	?[S]	(24 35)	[+17]	—	—
Vienna		101·6	320	e 17 38	?PR$_1$	—	—	e 49·3	60·3
Hamburg		104·4	325	e 18 20	?PR$_1$	—	—	e 48·3	65·3
Innsbruck		105·1	320	—	—	—	—	e 57·3	—
Florence		105·9	317	—	—	—	—	—	56·3
Strasbourg		107·1	322	e 19 50	?PR$_1$	—	—	e 38·3	61·3
De Bilt		107·6	325	e 15 21	+35	e 26 25	−41	e 50·3	60·1
Uccle		108·5	324	e 18 20	?PR$_1$	—	—	44·3	66·2
Besançon		108·6	319	—	—	—	—	e 63·3	—
Victoria	E.	108·6	40	25 13	?S	(25 13)	[+ 9]	41·7	55·2
	N.	108·6	40	26 3	?S	(26 3)	[+59]	42·5	46·8
Dyce		109·4	331	26 3	?S	(26 3)	[+55]	43·8	—
Paris		110·4	321	e 19 10	?PR$_1$	—	—	e 56·3	60·3
Edinburgh		110·6	331	—	—	e 25 20	[+ 8]	57·3	71·3
Eskdalemuir		110·9	331	e 19 20	?PR$_1$	e 29 20	+104	49·3	—
Kew		111·0	325	—	—	—	—	—	73·3
Stonyhurst		111·1	330	29 46	?S	(29 46)	+128	—	68·8
Oxford		111·4	325	19 28	?PR$_1$	30 16	?	—	70·8
Bidston		111·7	327	31 27	?	—	—	—	63·6
Toledo		117·9	314	e 25 39	?[S]	(e 25 39)	[0]	e 41·3	62·7
Granada		118·6	312	e 21 1	?	i 23 24	?PR$_1$	e 62·3	74·2
Coimbra		120·9	316	e 30 20	?	—	—	67·3	—
Chicago		133·1	29	23 8	?PR$_1$	—	—	38·0	—
Ottawa		134·7	15	e 22 20	?PR$_1$	—	—	e 38·3	67·8
Toronto	E.	135·1	20	e 22 27	?PR$_1$	—	—	64·7	—
	N.	135·1	20	e 23 32	?PR$_1$	i 26 10	?	85·6	—
La Paz		158·9	155	e 20 15	[+ 8]	e 34 25	?	81·3	87·8

Additional readings: Malabar L = +9·3m. Adelaide iSR$_1$ = +15m.56s. Osaka MN = +17·9m. Melbourne PR$_1$ = +9m.50s. Riverview PS = +14m.49s., MZ = +27·8m. T$_e$ = 5h.18m.41s. Sydney SR$_2$ = +18m.20s. Simla PN = +16m.56s. Baku iP = +12m.10s., PR$_1$ = +15m.15s., SR$_1$ = +27m.7s. Pulkovo PR$_1$ = +16m.49s., MN = +57·0m., MZ = +61·1m. Upsala MN = +58·9m. Hamburg MN = +55·3m. De Bilt eZ = +18m.42s. (?PR$_1$), eE = +26m.46s., MN = +64·4m., MZ = +72·2m. Victoria SE = +30m.53s., SN = +34m.28s.? Toledo MNW = +63·6m. Coimbra ePN = +31m.50s., eE = +44m.20s. and +49m.20s., e = +57m.20s. Ottawa MN = +74·8m.

July 29d. Readings also at 7h. (Uccle), 11h. (Berkeley), 12h. (Batavia), 15h. (Riverview, Melbourne, Batavia, and Manila), 17h. (Batavia), 19h. (near Port au Prince), 23h. (La Paz).

July 30d. Readings at 0h. (La Paz, near Batavia, and Malabar), 2h. (Manila), 3h. (Riverview), 5h. and 12h. (La Paz), 13h. (Manila), 21h. (Nagasaki), 23h. (Kucino and Pulkovo).

July 31d. 13h. 13m. 42s. Epicentre 40°·0N. 37°·0E. (as on 1923 April 29d.).

A = +·612, B = +·461, C = +·643; D = +·602, E = −·799; G = +·513, H = +·387, K = −·766.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Ksara	6·2	188	1 42	+ 7	3 4	+15	(3·1)	—
Kucino	15·8	6	—	—	e 7 6	+16	—	—
Konigsberg	18·4	331	—	—	e 7 48	− 1	14·3	—
Pulkovo	20·2	350	4 43	0	8 29	+ 2	11·3	16·1
Strasbourg	22·5	302	—	—	—	—	16·3	—
Hamburg	22·7	316	—	—	e 9 18	− 1	—	—
De Bilt	24·9	310	—	—	e 10 2	+ 1	—	—

Ksara gives also PR$_1$ = +2m.38s., SR$_1$ = +3m.30s., T$_e$ = 13h.14m.2s.

July 31d. Readings also at 0h. (Eskdalemuir, De Bilt, Granada), 3h. and 4h. (La Paz), 6h. (Perth), 8h. (near Belgrade), 11h. (La Paz), 12h. (Batavia), 15h. (Apia and near Taihoku), 18h. (Apia), 19h. (Berkeley).

Aug. 1d. 0h. 56m. 0s. Epicentre 55°·7N. 162°·5E. (as on 1923 April 13d.).

$A = -\cdot537$, $B = +\cdot169$, $C = +\cdot826$; $D = +\cdot301$, $E = +\cdot954$; $G = -\cdot788$, $H = +\cdot248$, $K = -\cdot564$.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Pulkovo		58·4	334	10 4	+ 3	18 9	+ 5	30·0	38·6
Kucino		59·8	328	—	—	e 18 29	+ 8	—	—
Ottawa		67·7	40	—	—	e 27 0	?	e 34·0	—
Toronto	E.	67·7	44	—	—	e 24 15	?SR_1	36·4	—
Eskdalemuir		68·3	352	—	—	—	—	34·0	—
Baku		68·3	311	e 20 28	?S	(e 20 28)	+22	34·5	40·1
De Bilt		70·6	346	—	—	—	—	e 40·0	—
Uccle		71·9	346	—	—	—	—	e 39·0	—
Strasbourg		73·6	343	—	—	—	—	43·0	—
Paris		74·1	347	—	—	—	—	e 48·0	—
Rocca di Papa		79·2	337	e 21 52	?S	(e 21 52)	−22	e 50·0	—
Granada		86·3	350	—	—	i 23 30	− 3	48·8	51·3

Additional readings: Pulkovo MN = +37·4m., MZ = +38·2m. Baku eS = +27m.32s., MN = +42·0m. Granada i = +25m.51s., e = +33m.26s., i = +37m.43s.

Aug. 1d. 14h. 42m. 56s. Epicentre 26°·0N. 96°·0E. (as on 1924 Feb. 14d.).

$A = -\cdot094$, $B = +\cdot894$, $C = +\cdot438$; $D = +\cdot995$, $E = +\cdot105$; $G = -\cdot046$, $H = +\cdot436$, $K = -\cdot899$.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Calcutta	E.	7·9	245	1 38	−22	2 50	−44	—	—
Hyderabad		18·4	246	4 10	−12	—	—	—	—
Bombay		22·6	256	8 46	?S	(8 46)	−31	—	11·9
Zi-ka-wei		22·9	71	e 5 21	+ 5	e 9 11	−12	—	—
Irkutsk		27·0	11	e 5 57	− 1	10 39	− 2	13·1	—
Kucino		50·9	321	e 9 10	− 2	e 16 10	−20	e 20·3	—
Pulkovo		55·6	327	i 9 43	0	17 23	− 6	25·1	—
De Bilt		70·3	320	11 21	+ 2	20 28	− 2	39·1	—

Additional readings: Calcutta SN = +2m.48s. De Bilt eLN = +37·1m.

Aug. 1d. Readings also at 4h. (La Paz), 8h. (near Taihoku, Manila, and La Paz), 9h. (Taihoku, Mizusawa, Zi-ka-wei, and La Paz), 10h. (Sapporo and Nagoya), 11h. (Paris and Taihoku), 14h. (Apia), 15h. (De Bilt, Irkutsk, and Pulkovo).

Aug. 2d. Readings at 0h. (Granada (2)), 2h. (Wellington), 5h. (De Bilt, Pulkovo, Kucino, Baku, and Simla), 7h. (near La Paz), 12h. (Riverview), 13h. (Apia), 17h. (Wellington and near La Paz), 18h. (Apia, Toronto, and Ottawa), 19h. (Simla and Irkutsk), 20h. (Taihoku (2)), 22h. (Manila and Taihoku).

Aug. 3d. Readings at 1h. (Granada), 14h. (La Paz (2) and Zi-ka-wei), 19h. (La Paz), 21h. (De Bilt, Pulkovo, Hyderabad, Apia, Granada, Hong Kong, Vienna, and Colombo).

Aug. 4d. Readings at 6h. (Kodaikanal), 12h. (Strasbourg), 14h. (Apia), 15h. (Kodaikanal), 18h. and 19h. (La Paz).

Aug. 5d. 1h. 26m. 45s. Epicentre 32°·0N. 37°·5W.

A = +·673, B = −·516, C = +·530 ; D = −·609, E = −·793 ;
G = +·420, H = −·323, K = −·848.

The epicentre 28°·0N. 34°·0W. was first tried, and suits Granada better, but throws Toronto and Ottawa out.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Toledo		28·0	64	—	—	(e 11 34)	+35	e 11·6	—
Granada		28·2	70	e 5 57	−13	i 10 38	−25	i 12·7	14·6
Ottawa		32·3	308	—	—	e 12 15	+ 2	18·2	—
Eskdalemuir		33·4	37	—	—	—	—	14·8	—
Edinburgh		33·7	37	—	—	—	—	e 16·2	—
Paris		34·3	50	—	—	e 13 15?	+31	e 17·2	—
Toronto		34·7	302	—	—	e 12 45	− 6	18·0	—
Uccle		35·9	47	—	—	e 13 9	0	e 16·2	—
De Bilt		36·7	45	—	—	13 38	+18	e 17·2	18·2
Strasbourg		37·6	51	—	—	e 16 15	+163	20·2	—
Ann Arbor		37·8	300	—	—	i 15 9	+94	i 23·8	—
Rocca di Papa		40·1	63	—	—	(e 14 45)	+37	e 14·8	28·6
Pulkovo		51·7	37	—	—	—	—	e 21·4	—
Kucino		56·1	42	—	—	—	—	e 23·8	—
La Paz		56·7	218	10 49	+59	—	—	—	—
Victoria	E.	64·1	314	—	—	—	—	31·6	38·0
	N.	64·1	314	—	—	—	—	30·8	37·1

Additional readings: Granada i = +7m.36s. Paris readings are given for 4d. Ann Arbor iN = +26m.57s.

Aug. 5d. Readings also at 0h. (La Paz), 5h. (La Paz and Manila), 6h., 8h., 19h., and 22h. (La Paz).

Aug. 6d. 0h. 22m. 0s. Epicentre 28°·0S. 163°·5W. (as on 1923 July 4d.).

A = −·846, B = −·251, C = −·469 ; D = −·284, E = +·959 ;
G = +·450, H = +·133, K = −·883.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Apia		16·1	330	e 4 0	+ 7	—	—	—	5·5
Wellington		22·2	227	—	—	(e 8 55)	−14	e 8·9	12·0
Riverview		39·0	250	e 8 1	+15	(e 14 0)	+ 8	e 14·0	17·8
Sydney		39·0	250	6 18	−88	—	—	17·2	18·4
Adelaide		49·2	246	—	—	e 22 36	?L	e 23·7	24·5
Honolulu	E.	49·6	7	—	—	18 45	?SR_1	—	21·8
	N.	49·6	7	—	—	e 15 53	−21	—	30·0
Victoria	E.	84·4	25	23 14	?S	(23 14)	+ 2	42·3	51·3
	N.	84·4	25	23 7	?S	(23 7)	− 5	42·3	51·2
Toronto		105·0	47	—	—	—	—	e 56·5	—
Ottawa		108·0	47	e 17 11	?PR_1	e 27 11	+ 1	50·0	—
Pulkovo		146·9	347	e 19 3	[−20]	—	—	71·0	79·7
Kucino		148·3	337	—	—	e 41 52	?SR_1	—	—
Edinburgh		148·8	23	—	—	—	—	e 82·0	—
Eskdalemuir		149·2	23	e 19 43	[−11]	e 42 14	?SR_1	77·0	—
Kew		153·4	24	—	—	—	—	—	93·0
De Bilt		154·4	16	i 19 58	[− 3]	—	—	e 83·0	95·0
Uccle		155·4	19	e 20 6	[+ 4]	—	—	91·0	—
Paris		156·5	24	e 20 2	[− 2]	e 48 43	?SR_1	85·0	—
Strasbourg		158·3	16	e 20 14	[+ 8]	—	—	86·0	—
San Fernando	N.	159·1	60	—	—	—	—	—	91·0
Toledo		159·3	50	—	—	—	—	e 85·5	95·8
Vienna	Z.	159·8	0	19 58	[−10]	—	—	—	—
Granada		160·8	57	e 20 56	[+47]	—	—	e 80·8	110·5
Ksara		162·4	296	e 20 3	[− 6]	—	—	—	—
Florence		163·7	13	—	—	—	—	—	18·0
Rocca di Papa		165·9	12	17 2	?	23 32	?	e 27·1	—

Additional readings: Apia e = +2m.0s., MZ = +6·8m., MN = +12·8m. Wellington e = 0h.22m.42s., e = +8m.42s. Riverview eS? = +12m.20s., MN = +17·9m. Ottawa eN = +34m.45s. Pulkovo e = +22m.31s. (?PR_1), e = +33m.3s. Eskdalemuir eN = +23m.31s., +33m.0s., +62m.14s. De Bilt MZ = +91·9m. Paris readings are given for 5d. Toledo MNW = +90·1m. Granada i = +21m.45s. and +49m.2s.

Aug. 6d. 14h. 22m. 18s. Epicentre 38°·5N. 146°·0E. (as on 1919 Aug. 7d.).

$A = -\cdot649$, $B = +\cdot438$, $C = +\cdot622$; $D = +\cdot559$, $E = +\cdot829$; $G = -\cdot516$, $H = +\cdot348$, $K = -\cdot783$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Mizusawa	E.	3·8	274	1 12	+13	1 49	+ 5	—	—
	N.	3·8	274	1 11	+12	1 50	+ 6	—	—
Sapporo		5·7	324	2 15?	?S	(2 15?)	−21	3·4?	—
Nagoya		7·9	248	0 12	?	—	—	1·1?	1·7?
Ootomari		8·5	344	e 1 56	−13	—	—	4·4	—
Osaka		9·3	249	1 35	−45	—	—	2·6	3·0
Kobe		9·5	250	1 26	−57	—	—	2·5	3·8
Zi-ka-wei		21·3	259	4 6	−51	e 7 46	−64	—	—
Hong Kong		31·6	247	10 7	?	—	—	—	17·7
Irkutsk		31·8	310	6 24	−21	e 13 22	+77	19·7	—
Manila		32·5	230	e 6 27	−26	—	—	7·3	—
Kucino		67·8	325	e 11 9	+ 6	20 1	+ 1	33·7	—
Pulkovo		68·5	331	11 15	+ 7	20 15	+ 7	30·7	43·7
Baku		70·2	308	e 11 12	− 6	20 38	+10	34·7	41·6
Hamburg		80·4	335	—	—	—	—	e 42·7	—
De Bilt		83·8	337	12 45	+ 4	23 4	− 3	40·7	—
Uccle		84·6	337	e 23 12	?S	(e 23 12)	− 3	e 41·7	—
Paris		86·9	337	e 13 2	+ 4	—	—	51·7	—
Ottawa		88·1	28	—	—	e 23 42	−11	e 46·7	—
Toronto		88·2	31	—	—	e 23 55	+ 1	46·6	—
Georgetown		93·1	33	—	—	27 9	+143	64·0	—
La Paz		143·0	64	19 59	[+14]	—	—	—	—

Additional readings: Kobe MN = +2·7m. Osaka MN = +3·2m. Uccle e = +30m.54s. Toronto eE = +24m.27s. and +57m.50s., eN = +23m.48s. and +46m.42s. Irkutsk PR_1 = +7m.50s. Baku P = +11m.14s., MN = +43·9m.

Aug. 6d. Readings also at 2h. (Wellington, Edinburgh, Sydney, and Riverview), 3h. (Kucino, Eskdalemuir, Granada, Ottawa, and Toronto), 4h. (De Bilt and Uccle), 6h. (Adelaide), 7h. (Pompeii and Rocca di Papa), 17h. (Kobe and near Wellington).

Aug. 7d. Readings at 8h. (Manila and Tacubaya), 9h. (Pulkovo and De Bilt), 10h. (Tacubaya and Vera Cruz), 11h. (Victoria and Chicago), 13h. (Ottawa, Honolulu, Victoria, Toronto, Ann Arbor, Chicago, Tacubaya, and Vera Cruz), 14h. (Strasbourg, Granada, Vienna, and De Bilt), 15h. (Granada), 16h. (Ottawa, Honolulu, Victoria, Toronto, La Paz, Chicago, and Tacubaya), 17h. (Strasbourg and De Bilt), 22h. (La Paz).

Aug. 8d. 22h. 10m. 30s. Epicentre 34°·0N. 21°·0E. (as on 1920 May 19d.).

$A = +\cdot774$, $B = +\cdot297$, $C = +\cdot559$; $D = +\cdot358$, $E = -\cdot934$; $G = +\cdot522$, $H = +\cdot200$, $K = -\cdot829$.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Athens	4·5	29	e 1 6	− 4	1 59	− 5	2·1	2·2
Rocca di Papa	10·1	322	e 2 42	+11	—	—	e 7·3	8·5
Strasbourg	17·6	330	—	—	—	—	10·5	—
Granada	20·2	286	—	—	(e 7 30)	−57	e 7·5	16·2
Uccle	20·7	329	—	—	—	—	e 11·5	—
De Bilt	21·4	333	—	—	—	—	e 12·5	—
Pulkovo	26·5	11	—	—	—	—	e 14·5	—

Additional readings: Athens PN = +1m.22s. Rocca di Papa eP = +3m.30s.

Aug. 8d. Readings at 2h. (La Paz), 3h. (Strasbourg), 8h. (Taihoku), 9h. (Kobe), 11h. (Victoria), 17h. (Baku, Manila, Irkutsk, Osaka, Strasbourg, and Rocca di Papa), 18h. (Pulkovo, De Bilt, Strasbourg, and Rocca di Papa), 19h. (La Paz and Granada), 23h. (Granada).

Aug. 9d. Readings at 0h. (Azores), 3h. (Athens), 11h. (Mizusawa), 15h. (Uccle, Eskdalemuir, De Bilt, and La Paz), 23h. (La Paz and Batavia).

Aug. 10d. 6h. 11m. 54s. Epicentre 30°·2S. 179·°0W. (as on 1923 June 2d.).

$A = -\cdot 864$, $B = -\cdot 015$, $C = -\cdot 503$; $D = -\cdot 017$, $E = +1\cdot 000$; $G = +\cdot 503$, $H = +\cdot 009$, $K = -\cdot 864$.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Wellington		12·2	202	e 2 54	− 8	i 5 1	−23	5·9	8·9
Apia		17·7	24	e 5 6	+53	—	—	—	13·1
Riverview		25·5	254	i 5 41	− 2	i 10 21	+ 8	e 11·0	13·1
Sydney		25·5	254	(5 30)	−13	5 30	?P	12·8	15·0
Melbourne		30·6	245	e 6 24	−10	11 36	− 8	15·2	18·4
Adelaide		35·8	252	e 7 12	− 8	i 12 54	−13	i 17·6	21·9
Perth		55·0	250	9 15	−24	17 38	+17	29·0	—
Honolulu		55·4	25	9 44	+ 2	17 16	−10	25·5	—
Manila		73·1	300	e 11 40	+ 3	(21 20)	+17	21·3	—
Batavia		73·2	274	i 11 41	+ 4	i 21 0	− 4	e 35·3	40·8
Hong Kong		82·9	300	12 32	− 3	—	—	—	24·6
Zi-ka-wei		83·4	313	12 38	0	e 22 59	− 2	—	42·9
Berkeley		86·2	41	e 12 43	−11	i 23 48	+16	39·0	46·0
Lick	E.	86·3	41	i 12 54	− 1	e 23 14	−19	i 39·8	47·4
Victoria	E.	93·0	34	13 6	−26	23 46	[0]	38·1	45·5
	N.	93·0	34	13 11	−21	23 47	[+ 1]	38·1	45·5
La Paz	E.	98·7	116	13 51	−13	i 24 25	[+ 8]	43·4	46·3
	N.	98·7	116	—	—	i 24 23	[+ 6]	45·5	—
Colombo		103·1	271	5 6	?	26 48	+23	64·1	67·6
Kodaikanal		106·8	273	28 42	?S	(28 42)	+103	—	—
Hyderabad		109·2	280	25 21	?S	(25 21)	[+14]	56·6	61·8
Chicago		110·5	51	19 17	?PR_1	28 48	+75	62·8	—
Rio de Janeiro		112·1	136	—	—	e 25 29	[+11]	51·1	56·2
Bombay		114·8	279	e 10 6	?	—	—	—	—
Toronto	E.	116·8	51	20 4	?PR_1	(e 29 44)	+80	55·1	65·4
	N.	116·8	51	—	—	e 29 45	+81	49·5?	—
Ithaca		118·5	53	—	—	—	—	53·1	—
Ottawa	N.	119·8	50	20 6	?PR_1	(e 28 6)	−42	49·1	—
Harvard	E.	122·3	55	—	—	—	—	59·4	61·9
Kucino		143·6	325	19 43	[− 3]	e 23 29	?PR_1	—	—
Pulkovo		144·5	334	19 37	[−10]	—	—	68·1	75·0
Upsala		148·3	344	e 19 46	[− 7]	—	—	e 70·1	81·7
Bergen		149·6	355	—	—	—	—	e 68·1	—
Ksara		150·3	285	20 0	[+ 4]	32 49	?	77·1	88·1
Konigsberg		151·7	336	—	—	—	—	e 77·1	89·1
Dyce		152·9	4	23 44	?PR_1	33 4	?	—	—
Eskdalemuir	N.	154·7	6	e 20 6	[+ 4]	e 23 36	?PR_1	—	—
Hamburg		155·7	347	e 20 12	[+ 9]	—	—	e 70·1	—
Stonyhurst		156·2	5	34 26	?	—	—	—	98·6
Budapest		157·8	326	e 22 6	[+60]	—	—	—	52·3
De Bilt		157·9	353	i 19 59	[− 7]	e 24 19	?PR_1	e 78·1	94·4
Oxford		158·4	356	e 20 8	[+ 2]	—	—	60·1	102·6
Vienna		158·5	331	i 20 1	[− 5]	i 24 41	?PR_1	e 65·1	87·1
Kew		158·7	2	—	—	—	—	—	107·1
Uccle		159·2	354	e 20 0	[− 7]	—	—	e 59·1	80·6
Strasbourg		160·9	346	i 20 2	[− 7]	i 24 30	?PR_1	35·1	103·1
Innsbruck	N.E.	161·1	338	e 19 57	[−12]	—	—	—	—
Paris		161·3	357	e 20 5	[− 4]	e 31 36	?	51·1	92·1
Florence		164·2	332	20 6	[− 5]	—	—	—	49·1
Pompeii		164·8	318	e 19 36	[−36]	e 31 36	?	—	—
Rocca di Papa		165·1	324	20 8	[− 4]	30 36	?	e 83·4	96·9
Barcelona		168·7	356	—	—	—	—	e 82·9	91·0
Tortosa	E.	169·4	2	20 15	[+ 1]	30 29	?	e 56·1	—
Toledo		169·5	22	i 20 12	[− 2]	e 32 24	?	e 46·3	98·3
San Fernando		171·3	42	19 57	[−18]	36 18	?	88·1	102·1
Granada		172·1	28	e 20 14	[− 2]	—	—	50·5	90·1
Malaga		172·1	33	20 9	[− 7]	32 43	?	45·7	—
Algiers		173·2	346	20 9	[− 7]	30 46	?	49·1	97·1

For Notes see next page.

NOTES TO AUG. 10d. 6h. 11m. 54s.

Additional readings and notes: Riverview $PR_1 = +6m.45s.$, $MN = +14{\cdot}2m.$ Sydney $P = 6h.10m.6s.$ Adelaide $iPR_2? = +8m.54s.$, $iSR_1 = +15m.30s.$ Perth $PR_1 = +13m.28s.$, $L = +36{\cdot}5m.$ Honolulu $SR_2 = +23m.14s.$, $LN = +29{\cdot}3m.$, $T_0 = 6h.12m.12s.$ Batavia $i = +16m.44s.$, $MN = +39{\cdot}3m.$ Berkeley $ePN = +12m.58s.$, $eN = +23m.14s.$ Lick $iPR_1E = +16m.9s.$, $eLE = +38{\cdot}1m.$ La Paz $PR_1 = +18m.2s.$, $iPSE = +25m.1s.$, $T_0 = 6h.12m.54s.$ Hyderabad $S = +28m.41s.$, $P = +51m.53s.$, $eS = +54m.56s.$, the readings being given as for two separate shocks. Toronto $eE = +25m.34s.$ and $+44m.19s.$, eSE is given as eLE. Ottawa eS is given as eL. Harvard $PR_1E = +20m.34s.$, $PSE = +30m.17s.$, $SR_1E = +37m.3s.$, $T_0 = 6h.11m.55s.$ Pulkovo $MZ = +74{\cdot}3m.$ Dyce $+43m.36s.$ De Bilt $MN = +80{\cdot}1m.$, $MZ = +94{\cdot}7m.$ Vienna $MN = +91{\cdot}1m.$ Strasbourg $MN = +87{\cdot}1m.$ Paris $MN = +98{\cdot}1m.$ Rocca di Papa $iPE = +20m.12s.$, $iPN = +20m.14s.$, $iPR_1E = +25m.29s.$, $ePR_1N = +25m.35s.$, $eL = +47{\cdot}4m.$ Tortosa $PN = +20m.13s.$ $(o - c = [-1])$. Toledo $MNW = +97{\cdot}9m.$ San Fernando $PR_1 = +25m.36s.$, $SR_1? = +46m.46s.$ Granada $iP = +20m.23s.$ Algiers $MN = +86{\cdot}1m.$

Aug. 10d. Readings also at 1h. (Almeria), 4h. (near Mostar), 5h. (Taihoku), 6h. (near Simla), 8h. (near Tortosa), 13h. (Travnik), 19h. (near Mizusawa and Sapporo), 22h. (near Mizusawa).

Aug. 11d. 2h. 25m. 42s. Epicentre 82°·0N. 120°·0E.

$A = -{\cdot}070$, $B = +{\cdot}121$, $C = +{\cdot}990$; $D = +{\cdot}866$, $E = +{\cdot}500$; $G = -{\cdot}495$, $H = +{\cdot}857$, $K = -{\cdot}139$.

Approximate.

		△ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
Pulkovo		31·2	281	7 16	+36	11 46	− 8	15·8	22·7
Eskdalemuir		39·6	312	—	—	e 13 48	−12	—	—
De Bilt		41·8	302	8 11	+ 2	14 36	+ 4	e 22·3	—
Strasbourg		45·0	300	—	—	(15 18)	+ 3	15·3	—
Victoria	E.	45·7	56	—	—	—	—	25·6	29·0
	N.	45·7	56	—	—	—	—	29·6	36·1
Ottawa	N.	52·4	13	—	—	e 21 18	?	30·3	—
Toronto	E.	54·0	18	—	—	—	—	27·7	—
Chicago	N.	55·4	26	—	—	—	—	30·2	—
Granada		57·5	308	e 11 39	+103	i 18 9	+16	e 33·1	34·5
Batavia		88·3	193	—	—	—	—	i 35·5	—

Additional readings: Toronto $LN = +33{\cdot}0m.$ Granada $i = +21m.4s.$, $e = +24m.25s.$ Batavia $i = +36m.12s.$

Aug. 11d. Readings also at 0h. (Apia), 3h. (Toronto), 8h. (La Paz, Venice, Innsbruck and near Zurich), 15h. (Baku), 16h. (Kew), 20h. and 21h. (De Bilt), 23h. (Granada).

Aug. 12d. 16h. 27m. 37s. Epicentre 45°·0N. 22°·0E. (as on 1922 Mar. 24d.).

$A = +{\cdot}656$, $B = +{\cdot}265$, $C = +{\cdot}707$; $D = +{\cdot}375$, $E = -{\cdot}927$; $G = +{\cdot}656$, $H = +{\cdot}265$, $K = -{\cdot}707$.

		△ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
Belgrade		1·1	261	i 0 13	− 4	i 0 35	+ 4	—	0·6
Sarajevo		2·8	246	i 0 28	−16	0 59	−18	—	1·0
Mostar		3·4	241	e 1 2	+ 9	i 1 38	+ 4	—	1·7
Lemberg		5·0	15	—	—	—	—	—	4·4
Venice		6·8	277	1 23	−21	2 26	−39	—	2·9
Pompeii		6·9	235	e 1 53	+ 8	—	—	—	—
Rocca di Papa	N.	7·5	247	e 1 20	−34	—	—	—	3·6
	E.	7·5	247	e 1 32	−22	—	—	—	3·9
Innsbruck		7·7	291	e 1 33	−24	i 2 46	−43	—	—
Zurich		9·6	289	2 16(?)	− 8	—	—	—	3·9
Konigsberg		9·9	355	—	—	4 49	+23	—	5·4
Strasbourg		10·4	295	e 3 2	+26	4 31	− 9	—	6·6

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Hamburg		11·6	322	—	—	e 4 23?	−46	—	—
Uccle		13·1	303	—	—	e 5 39	− 7	—	—
De Bilt	E.	13·2	308	—	—	—	—	e 6·2	7·4
Paris		13·8	293	—	—	—	—	7·4	—
Upsala		15·1	352	—	—	—	—	e 7·4	—
Pulkovo		15·6	16	e 3 30	−17	e 6 23	−23	7·4	—
Eskdalemuir		19·0	312	—	—	—	—	10·4	—

Additional readings: Mostar iP = +1m.6s. Paris E = +5m.16s. and = +6m.40s. Strasbourg E_2 = +3m.44s., MN = +5·8m. Lemberg e = +1m.41s. De Bilt MNZ = +7·3m. Rocca di Papa iE = +1m.44s., iN = +2m.20s.

Aug. 12d. 18h. 18m. 37s. Epicentre 32°·2N. 134°·6E. (as on 1913 April 13d.).

A = −·594, B = +·602, C = +·533; D = +·712, E = +·702; G = −·374, H = +·379, K = −·846.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Kobe		2·1	11	0 39	+ 6	—	—	0·9	0·9
Osaka		2·6	15	0 42	+ 1	—	—	0·9	1·3
Nagoya		3·6	33	1 1	+ 5	—	—	1·5	1·6
Nagasaki		4·1	279	1 27	+23	—	—	2·7	—
Mizusawa		8·7	36	2 9	− 3	3 51	− 5	—	—
Zi-ka-wei		11·2	270	e 3 10	+23	—	—	—	—
Manila		21·5	218	e 9 14	(S?)	(e 9 14)	+19	—	—
Baku		66·1	304	e 11 17	+25	e 19 53	+15	32·9	37·5
Pulkovo		69·2	329	11 18	+ 6	20 18	+2	31·4	43·1
Vienna	Z.	82·4	324	e 12 39	+ 7	—	—	—	53·4
De Bilt		84·8	331	—	—	e 23 11	− 6	e 42·4	—
Eskdalemuir		85·3	337	—	—	e 23 4	−18	42·4	—
Strasbourg		86·3	329	—	—	—	—	44·4	—
Paris		88·4	331	—	—	—	—	e 57·4	—
Granada	E.	100·3	327	—	—	—	—	e 52·4	64·9

Additional readings: Kobe MZ = +1·9m. Osaka MN = +1·5m. Baku iS = +19m.55s., MN = +43·0m.

Aug. 12d. Readings also at 0h. (Tacubaya), 3h. (Toronto), 4h. (La Paz), 6h. (near Vienna), 14h. (Manila), 16h. (Kucino), 17h. (Athens, Osaka and Kobe), 18h. (Tacubaya), 19h. and 21h. (La Paz.).

Aug. 13d. 9h. 28m. 24s. Epicentre 16°·0S. 168°·0E (as on 1923 Nov. 10d.).

A = −·940, B = +·200, C = −·276; D = +·208, E = +·978; G = +·270, H = −·057, K = −·961.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Riverview	23·4	210	e 5 27	+ 6	i 9 42	+ 9	e 11·0	13·1
Wellington	26·0	168	i 5 48	0	e 9 51	−31	11·6	13·1
Melbourne	29·8	218	—	—	—	—	i 8·1	9·9
Adelaide	32·4	229	i 9 30	?	—	—	—	10·9
Perth	49·8	241	—	—	15 22	−54	17·8	17·9
Hyderabad	94·3	288	e 47 20	?L	—	—	(e 47·3)	—
Bombay	99·8	287	—	—	—	—	46·6	—
Pulkovo	126·6	335	20 27	?PR_1	30 44	+67	74·6	84·8
Vienna	140·3	330	e 20 41	?	—	—	—	—
De Bilt	141·4	343	—	—	—	—	e 79·6	—
Strasbourg	143·7	338	—	—	—	—	80·6	—
Paris	145·2	343	—	—	—	—	e 87·6	95·6
Rocca di Papa	146·7	328	e 20 30	[+39]	—	—	—	28·5
Toledo	155·2	343	—	—	—	—	e 81·4	—
San Fernando	158·9	347	—	—	—	—	80·6	88·6

Additional readings: Riverview PS = +9m.54s., MZ = +13·4m. Wellington PR_1 = +6m.6s., PR_2 = +6m.15s., SR_1 = +10m.36s., SR_2 = +10m.51s., T_e = 9h.29m.2s. Perth e = +12m.18s., PR_1? = +13m.48s., iS = +15m.46s. De Bilt e = +20m.46s. Strasbourg e = +20m.22s. and +28m.40s. Rocca di Papa ePN = +20m.40s. San Fernando MN = +91·6m.

Aug. 13d. 13h. 30m. 19s. Epicentre 52°·0N. 178°·0W. (as on 1919 July 14d.).

A = −·615, B = −·021, C = +·788 ; D = −·035, E = +·999 ;
G = −·788, H = −·028, K = −·616.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Sitka		24·8	61	—	—	—	—	17·4	20·9
Honolulu		34·4	146	—	—	—	—	13·2	13·6
Victoria	E.	34·4	76	6 51	−17	12 18	−28	16·5	17·0
	N.	34·4	76	6 58	−10	12 22	−24	15·0	17·7
Osaka		37·2	262	6 49	−43	—	—	17·9	20·2
Berkeley		40·8	90	7 47	−14	14 1	−17	20·0	—
Zi-ka-wei		48·2	271	8 44	−11	—	—	—	—
Chicago		58·5	61	11 2	+60	20 52	+167	31·0	—
Hong Kong		59·0	267	18 14	?S	(18 14)	+ 3	—	33·7
Ann Arbor		60·2	59	—	—	24 17	?SR_1	e 29·7	40·7
Toronto	E.	61·5	55	i 10 24	+ 2	e 18 41	− 1	e 25·4	34·4
	N.	61·5	55	9 22	−60	i 18 49	+ 7	e 24·7	39·8
Ottawa		62·0	51	—	—	—	—	25·7	37·2
Ithaca		63·8	54	—	—	i 20 30	+79	e 34·7	—
Pulkovo		66·0	345	10 54	+ 3	19 42	+ 5	30·7	43·9
Georgetown		66·1	58	—	—	—	—	34·1	—
Upsala		67·4	352	e 11 3	+ 3	e 19 59	+ 4	—	47·5
Dyce		70·7	2	11 24	+ 3	20 45	+11	38·2	—
Konigsberg		72·0	349	—	—	—	—	e 38·7	44·7
Eskdalemuir		72·5	3	11 38	+ 5	21 4	+ 8	36·7	—
Hamburg		74·1	355	e 11 53	+10	i 21 24	+ 9	e 36·7	44·7
Bidston		74·5	2	21 26	?S	(21 26)	+ 6	35·3	43·8
De Bilt		75·8	357	i 11 56	+ 2	21 41	+ 6	e 36·7	50·0
Oxford		76·2	2	—	—	i 21 44	+ 5	—	55·5
Kew		76·5	2	—	—	—	—	—	59·7
Uccle		77·1	358	12 3	+ 1	e 21 54	+ 4	e 37·7	47·7
Vienna		79·0	350	e 12 14	+ 1	e 22 18	+ 6	e 42·7	53·7
Paris		79·2	0	e 12 14	0	i 22 16	+ 2	45·7	51·7
Strasbourg		79·3	355	i 12 24	+ 9	i 23 28	+73	34·7	—
Budapest		79·5	350	—	—	—	—	e 45·7	—
Innsbruck		80·4	354	i 12 23	+ 2	—	—	—	—
Florence		83·8	354	11 41	−60	23 41	+34	42·7	48·7
Hyderabad		84·3	292	e 22 55	?S	(e 22 55)	−16	—	—
Rocca di Papa		85·8	352	e 12 34	−18	—	—	e 59·8	—
Bombay		86·3	297	—	—	—	—	43·7	—
Tortosa		87·2	1	—	—	—	—	e 42·7	—
Toledo		88·0	5	—	—	—	—	—	53·7
Ksara	E.	89·2	333	—	—	—	—	53·7	64·7
San Fernando		91·3	6	—	—	24 11	−16	46·2	52·7
Wellington		93·8	186	—	—	e 23 41	[−10]	45·7	—
Melbourne		95·6	209	(e 19 41)	?PR_1	—	—	e 19·7	60·7

Additional readings: Sitka eLN = +17·7m., MN = +18·3m. Honolulu e = +11m.17s., MN = +16·0m. Osaka MN = +26·8m. Berkeley LZ = +19·7m. Ann Arbor e = +17m.41s., i = +20m.47s. Toronto iS = +18m.45s. ; T_0 = 13h.29m.58s. Ottawa e = +18m.49s. Pulkovo MZ = +44·5m. Georgetown e = +15m.9s. Upsala MN = +49·5m. Eskdalemuir e = +14m.41s. Hamburg MN = +50·7m. De Bilt MZ = +47·2m., MN = +49·4m. Paris e = +18m.53s. Budapest e = +34m.49s. Innsbruck e = +18m.5s. Rocca di Papa P = +12m.47s. Toledo e = +20m.19s., MNW = +62·0m. San Fernando MN = +60·7m.

Aug. 13d. 23h. 57m. 42s. Epicentre 29°·5N. 91°·5E. (as on 1915 Dec. 3d.).

A = −·023, B = +·870, C = +·492 ; D = +1·000, E = +·026 ;
G = −·013, H = +·492, K = −·870.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Calcutta	E.	7·5	203	3 8	?S	4 8	+44	5·1	—
	N.	7·5	203	2 36	+42	—	—	4·6	—
Simla		12·5	282	4 54	+108	—	—	—	6·7
Hyderabad		17·0	228	e 4 0	− 5	6 52	−26	8·2	11·5
Bombay		20·0	243	4 41	0	8 25	+ 2	10·5	11·0
Hong Kong		21·6	104	5 18	+18	9 22	+25	—	14·0
Kodaikanal		23·3	323	9 0	?S	(9 0)	−31	—	—
Colombo		25·1	208	—	—	—	—	—	24·3
Zi-ka-wei		25·8	78	5 48	+ 2	—	—	—	17·5
Manila		31·0	112	—	—	—	—	e 15·3	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Baku		35·5	300	e 6 29	−49	e 12 38	−25	18·8	29·1
Kucino		45·8	321	e 13 27	?S	(e 13 27)	−118	e 30·8	35·3
Ksara	E.	47·0	289	e 8 37	−10	15 29	−12	—	—
Pulkovo		50·5	327	9 3	− 7	16 9	−16	28·3	32·0
Konigsberg		55·5	320	—	—	e 17 24	− 4	—	35·3
Upsala		56·9	325	e 9 47	− 4	e 17 41	− 4	—	35·9
Budapest		57·3	311	—	—	e 21 18	?	—	—
Vienna		58·9	313	e 10 8	+ 4	e 20 12	+122	—	40·3
Hamburg		61·8	320	e 10 27	+ 3	—	—	e 29·3	39·3
Bergen		62·8	328	—	—	—	—	e 32·3	—
Rocca di Papa		63·9	305	e 9 55	−42	—	—	e 37·8	—
Strasbourg		64·5	314	i 10 54	+12	i 20 28	+69	27·3	—
De Bilt		65·0	319	i 10 47	+ 2	19 28	+ 3	e 35·3	41·9
Uccle		65·9	317	e 10 51	+ 1	e 19 36	0	e 33·3	37·8
Paris		67·6	315	i 11 5	+ 3	i 19 58	+ 1	36·3	38·3
Kew		68·4	318	—	—	—	—	—	43·3
Eskdalemuir		68·7	322	11 12	+ 3	20 10	0	33·3	—
Stonyhurst		68·8	321	—	—	—	—	—	44·8
Oxford		68·9	320	—	—	e 20 7	− 6	44·7	—
Granada		76·3	305	—	—	i 21 33	− 8	40·8	44·9
San Fernando		78·5	306	—	—	43 18	?L	(43·3)	—
Ottawa		104·2	351	—	—	e 35 48	?	e 39·3	—
Toronto		106·4	354	—	—	e 40 45	?	45·7	—

Additional readings: Simla PN = +5m.0s. Zi-ka-wei PSZ = +10m.52s. Baku eE = +6m.54s., MN = +22·8m. Kucino eS = +20m.5s. Ksara SR_1E = +19m.10s.; T_0 = 23h.57m.33s. Pulkovo e = +19m.57s. Rocca di Papa e = +10m.30s. (O−C = −7s.). De Bilt MN = +37·8m. Granada i = +27m.4s. and +30m.59s. San Fernando PR_1? = +30m.0s.

Aug. 13d. Readings also at 0h. (Osaka (2), Nagoya, and Kobe (2)), 1h. (Granada), 6h. (Granada), 8h. (Nagasaki), 10h. (Ottawa, Toronto, Victoria, and Chicago), 11h. (Victoria and Nagasaki), 12h. (Tacubaya), 14h. (Kodaikanal), 15h. (La Paz, Cape Town, Kobe, and Wellington), 16h. (Eskdalemuir, Uccle, Kew, Paris, De Bilt, Toledo, and Pulkovo).

Aug. 14d. 0h. 45m. 24s. Epicentre 51°·5N. 162°·5W.

A = −·594, B = −·187, C = +·783; D = −·301, E = +·954; G = −·746, H = −·235, K = −·623.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Victoria	E.	25·1	81	1 35	?	(10 17)	+12	10·3	18·9
	N.	25·1	81	1 35	?	(10 23)	+18	10·4	16·8
Honolulu	E.	30·4	171	—	—	e 12 7	+26	13·7	16·0
	N.	30·4	171	—	—	—	—	15·1	17·8
Lick		31·9	100	i 10 32	?S	(i 10 32)	−95	i 17·5	—
Chicago		50·0	70	16 20	?S	(16 20)	+ 1	25·6	—
Ann Arbor		52·0	67	—	—	e 17 0	+16	26·9	—
Toronto	E.	53·5	64	e 8 14	−76	—	—	33·9	35·3
	N.	53·5	64	—	—	e 12 2	?PR_1	33·2	34·2
Ottawa		54·5	60	—	—	e 17 14	− 1	28·1	35·6
Zi-ka-wei		57·8	281	10 3	+ 5	—	—	—	—
Pulkovo		68·3	354	11 6	0	e 20 6	0	32·1	41·1
Upsala	N.	68·7	359	e 11 7	− 2	—	—	e 35·6	—
Dyce		70·1	11	11 19	+ 1	20 22	− 5	—	—
Eskdalemuir		71·8	12	—	—	20 47	− 1	36·6	—
Konigsberg		73·6	358	—	—	—	—	e 35·6	51·6
Hamburg		74·8	5	e 11 49	+ 1	—	—	e 40·6	51·6
Oxford		75·6	12	—	—	e 21 23	−10	—	50·2
De Bilt		75·9	7	11 56	+ 2	21 44	+ 8	e 44·6	47·0
Kew		76·0	12	—	—	—	—	—	50·6
Uccle		77·1	8	e 12 0	− 2	e 21 43	− 7	e 34·6	—
Paris		79·5	10	e 12 14	− 2	e 23 13	+55	43·6	43·6
Strasbourg		79·6	6	i 12 28	+11	—	—	36·6	—
Vienna	Z.	80·3	1	e 12 20	− 1	—	—	—	—
Baku		83·9	336	e 12 45	+ 4	e 23 1	− 7	43·1	59·8
Rocca di Papa		86·7	3	e 11 57	−60	e 15 36	?	—	—
Granada		89·4	17	—	—	i 31 56	?SR_1	e 37·6	57·6
San Fernando		89·7	20	—	—	—	—	41·6	54·1
Bombay		94·7	309	—	—	—	—	43·6	—

Additional readings: Lick iE = +14m.54s. Chicago S = +20m.55s. Toronto iE = +19m.6s. De Bilt MZ = +47·2m. Baku MN = +56·8m. Rocca di Papa iZ = +13m.24s.

Aug. 14d. 17h. 53m. 36s. Epicentre 36°·0N. 142°·0E. (as on 1924 June 26d.).

A = −·638, B = +·498, C = +·588 ; D = +·616, E = +·788 ;
G = −·463, H = +·362, K = −·809.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Mizusawa	E.	3·2	348	0 41	− 9	1 20	− 8	—	—
	N.	3·2	348	0 48	− 2	1 19	− 9	—	—
Nagoya		4·2	260	1 5	0	—	—	2·1	2·2
Osaka		5·5	258	1 30	+ 5	—	—	2·6	3·3
Kobe		5·8	259	1 36	+ 6	—	—	2·9	3·0
Sapporo		7·1	355	1 58	+10	(3 20)	+ 7	3·3	—
Pulkovo		69·1	330	i 10 59	−13	—	—	—	—
De Bilt	Z.	84·2	337	12 27	−16	—	—	—	—
La Paz		146·9	62	19 58	[+ 7]	—	—	—	—
Rio de Janeiro		166·1	20	—	—	—	—	54·8	—

Additional readings : Nagoya MN = +2·3m. Osaka MN = +3·2m. Kobe MN = +2·9m.

1924. Aug 14d. 18h. 2m. 33s. Epicentre 36°·0N. 142°·0E.
(as at 17h.).

A = −·638, B = +·498, C = +·588 ; D = +·616, E = +·788 ;
G = −·463, H = +·362, K = −·809.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Mizusawa		3·2	348	0 53	+ 3	1 27	− 1	—	—
Nagoya		4·2	260	1 8	+ 3	—	—	2·1	—
Osaka		5·5	258	1 30	+ 5	—	—	2·7	4·4
Kobe		5·8	259	1 28	− 2	(2 49)	+10	2·8	3·6
Sapporo		7·1	355	1 58	+10	(3 12)	− 1	3·2	5·6
Nagasaki		10·6	256	2 34	− 4	5 9	+24	5·5	9·4
Ootomari		10·7	3	2 40	0	(4 30)	−18	4·5	6·7
Taihoku		20·7	244	4 53	+ 4	8 52	+14	13·7	15·5
Hong Kong		27·9	248	5 47	−20	10 17	−40	13·8	21·4
Manila		28·5	227	e 6 11	− 2	—	—	i 15·5	17·6
Irkutsk		31·1	313	i 6 20	−19	e 11 23	−30	17·4	20·1
Calcutta	E.	48·1	271	8 24	−31	15 41	−14	22·3	—
	N.	48·1	271	8 24	−31	15 10	−45	21·7	—
Simla	E.	53·3	285	9 27	− 1	16 51	− 9	32·4	—
	N.	53·3	285	9 33	+ 5	16 57	− 3	33·6	—
Batavia		53·6	226	i 9 27	− 3	i 16 52	−12	e 23·2	30·2
Honolulu	N.	53·7	89	9 39	+ 8	17 31	+26	e 26·0	26·6
Sitka	E.	56·6	42	—	—	17 49	+ 8	30·6	36·4
	N.	56·6	42	—	—	—	—	27·6	36·1
Hyderabad		58·7	271	9 59	− 4	18 30	+23	35·4	47·6
Bombay		62·5	275	10 26	− 3	19 0	+ 5	34·4	39·6
Kodaikanal		63·5	266	11 21	+46	—	—	40·0	47·0
Colombo		63·5	261	11 27	+52	20 15	+68	40·4	46·2
Apia		66·2	130	11 27	+34	20 15	+35	31·0	—
Victoria	E.	66·7	47	10 56	0	19 46	0	31·3	44·4
	N.	66·7	47	10 56	0	19 44	− 2	27·5	44·6
Kucino		68·0	325	—	—	—	—	—	47·5
Baku	N.	69·1	307	i 11 11	− 1	i 20 31	+16	—	—
Pulkovo		69·1	330	i 11 9	− 3	20 10	− 5	33·0	43·4
Riverview		70·4	173	e 20 31	?S	(e 20 31)	0	37·4	39·1
Adelaide		71·1	183	—	—	i 20 45	+ 6	—	50·2
Perth		72·3	204	10 47	−45	21 10	+16	33·4	—
Berkeley	E.	72·7	56	11 47	+13	21 5	+ 7	33·3	38·2
	N.	72·7	56	11 45	+11	21 7	+ 9	33·3	—
	Z.	72·7	56	11 45	+11	21 18	+20	33·8	39·7
Lick	E.	73·4	56	i 11 48	+10	i 21 10	+ 3	i 35·1	40·9
	N.	73·4	56	e 11 47	+ 9	i 21 15	+ 8	i 35·2	—
Upsala		73·9	334	11 35	− 6	e 21 4	− 9	e 33·4	44·8
Melbourne		73·9	178	e 13 9	+88	i 20 27	−46	31·6	62·0

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Konigsberg		76·3	330	11 54	− 3	e 21 22	−19	e 34·8	47·0
Bergen		77·3	342	11 37	−26	21 52	0	35·4	46·4
Lemberg		78·2	325	e 11 51	−17	e 21 45	−17	e 43·8	51·6
Hamburg		81·3	335	i 12 20	− 7	e 22 35	− 3	e 39·4	48·2
Dyce		82·0	343	12 25	− 5	22 40	− 6	32·4	57·2
Ksara		82·0	308	12 27	− 3	22 36	−10	34·4	50·7
Budapest		82·2	326	12 35	+ 4	22 53	+ 5	e 38·4	—
Vienna		82·9	329	i 12 29	− 6	22 16	−40	e 41·4	51·4
Wellington		83·0	157	—	—	e 22 45	−12	39·4	45·0
Belgrade		83·5	324	i 12 33	− 6	e 22 37	−26	e 42·4	51·9
Tucson	E.	83·5	56	—	—	e 23 3	0	40·3	45·6
Eskdalemuir		84·0	343	12 31	−11	22 52	−16	40·4	48·4
De Bilt		84·2	337	12 36	− 7	22 57	−13	e 39·4	52·2
Stonyhurst		85·0	341	12 57	+ 9	23 27	+ 8	—	54·4
Uccle		85·6	336	12 41	−10	23 19	− 7	39·4	55·1
Bidston		85·6	341	12 52	+ 1	23 27	+ 1	43·2	60·8
Innsbruck		85·8	330	i 12 43	− 9	e 22 36	−52	e 42·4	54·6
Travnik		86·0	324	—	—	—	—	44·5	51·3
Strasbourg		86·2	333	i 12 56	+ 2	23 29	− 3	39·4	50·6
Kew		86·5	339	—	—	—	—	—	56·4
Oxford		86·6	340	i 12 48	− 9	23 25	−12	36·4	51·8
Venice		86·7	329	12 27	−30	—	—	—	55·4
Zurich		86·9	331	12 47	−11	e 23 19	−21	e 29·4	—
Helwan		87·4	307	12 48	−13	(23 49)	+ 4	—	23·8
Paris		87·9	336	i 12 55	− 9	i 23 33	−18	44·4	52·4
Besançon		88·0	335	e 12 53	−12	e 23 50	− 2	45·4	51·4
Florence		88·6	329	12 46	−22	23 27	−32	40·4	44·4
Pompeii		89·4	324	e 12 52	−20	e 23 57	−10	47·6	54·0
Rocca di Papa	E.	89·5	326	i 13 11	− 2	24 9	0	e 45·2	53·2
	N.	89·5	326	i 13 14	+ 1	23 55	−14	e 44·2	58·8
Chicago		89·9	36	12 29	−46	22 56	−77	32·6	51·0
Ann Arbor		91·3	33	e 13 33	+10	24 15	−12	e 43·8	62·0
Ottawa		91·8	26	e 13 8	−18	24 12	−21	e 42·4	62·0
Toronto	E.	91·9	30	e 13 37	+11	i 24 11	−23	43·1	57·3
	N.	91·9	30	—	—	i 24 12	−22	43·4	62·8
Mazatlan	E.	92·3	60	12 55?	−34	23 52?	[+10]	42·6	—
Ithaca		94·0	28	e 16 26	?PR_1	23 52	[0]	45·4	—
Barcelona		94·2	332	e 17 3	?PR_1	—	—	e 48·2	55·6
Tortosa	E.	95·5	333	—	—	e 24 22	[+22]	e 42·4	58·9
	N.	95·5	333	13 20	−26	e 24 9	[+ 9]	44·2	59·2
Harvard	E.	96·0	25	12 30	−79	24 7	[+ 5]	47·5	56·1
Georgetown	E.	96·8	30	e 12 53	−60	e 25 6	−18	e 43·8	62·8
Cheltenham	N.	97·0	30	—	—	—	—	e 48·3	—
Algiers		97·8	329	e 13 56	− 3	24 34	[+22]	36·4	57·0
Toledo		98·0	336	e 13 42	−18	e 24 40	[+27]	e 45·0	65·9
Tacubaya	E.	99·9	59	14 2	− 8	24 54	[+30]	42·4	59·5
	N.	99·9	59	14 6	− 4	25 3	[+39]	42·3	—
Granada		100·2	335	e 13 54	−18	25 30	−28	47·1	61·4
Lisbon		100·7	339	12 3	−131	—	—	e 36·6	46·6
Rio Tinto		100·7	337	39 57	?L	—	—	(40·0)	78·4
Malaga		100·9	334	13 35	−40	24 51	[+22]	32·0	59·6
San Fernando		101·8	336	14 7	−12	24 52	[+19]	53·0	61·4
Vera Cruz		102·1	56	23 43?	?S	(23 43)	[−51]	50·8	63·1
Merida		104·9	50	—	—	—	—	—	65·7
Cape Town		134·3	255	23 8	?PR_1	—	—	—	94·0
La Paz	E.	146·9	62	i 19 54	[+ 3]	i 32 58	?	69·4	74·0
La Plata	E.	163·8	92	—	—	e 31 57	?	76·4	84·7
	N.	163·8	92	19 40	[−31]	29 58	?	80·4	94·6
Rio de Janeiro		166·1	20	—	—	—	—	71·4	—

Additional readings and notes: Osaka MN = +3·6m. Kobe MN = +3·5m., MZ = +4·4m. Sapporo MN = +5·9m. Ootomari MN = +8·1m. Irkutsk MZ = +19·8m., MN = +24·1m. Honolulu SR_1N = +22m.31s., ME = +29·0m., T_o = 18h.2m.24s. Sitka SR_1N = +24m.1s., SR_1E = +24m.23s., LN = +34·9m. Apia +29m.27s. Pulkovo PS = +21m.2s., SR_1 = +25m.15s., SR_2 = +28m.3s., MZ = +46·4m. Riverview eS? = +30m.3s., MN = +42·4m. Adelaide eS = +23m.9s. and +26m.15s., iS = +29m.39s.? Perth e = +20m.29s., S = +25m.59s. Berkeley PR_2Z = +16m.13s., SR_2E = +29m.13s., SR_3 = +30m.33s. Lick iPSE = +21m.44s., iSR_1E = +26m.4s., iSR_2E = +30m.49s. Upsala MN = +46·9m. Konigsberg PR_2 = +17m.8s., PR_3 = +17m.57s., iS = +21m.38s., i = +21m.55s., PS = +22m.35s., SR_1 = +27m.27s., SR_2 = +30m.27s., e = +32m.33s., MN = +48·4m. Lemberg MN = +50.0m. Hamburg MN = +52·0m., MZ = +55·2m. Ksara LE = +28·8m., T_o = 18h.2m.56s.

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Budapest iN = +17m.56s., +23m.19s., and +23m.55s., iE = +23m.39s. and +29m.5s. Vienna PR_1 = +15m.23s., PR_2 = +18m.23s., PS = +23m.1s., SR_1 = +27m.21s., SR_2 = +30m.9s., MN = +53·4m., MZ = +62·4m. Wellington SR_1 = +28m.10s., SR_2 = +31m.2s. Belgrade PR_1 = +15m.57s., SR_1 = +23m.11s., all readings have been increased by 1h. Tucson eE = +36m.2s. Eskdalemuir PR_1 = +16m.1s., PR_2 = +17m.41s., SR_1 = +28m.57s. De Bilt eE = +23m.14s., MZ = +59·1m., MN = +59·3m. Uccle PR_1 = +16m.13s., PR_2 = +18m.13s., SR_1 = +29m.13s., MN = +54·2m., MZ = +57·0m. Innsbruck MNW = +52·4m. Travnik readings have been increased by 1h. Strasbourg iZ = +18m.7s. and +21m.31s., MN = +53·5m. Helwan S? = +16m.19s., true S is given as M. Paris MN = +58·4m. Rocca di Papa PR_1E = +16m.33s., iLE = +52·2m., iLN = +52·8m. Ann Arbor PR_1N = +17m.9s., PR_2N = +19m.15s., SR_1 = +30m.33s., LE = +51·4m., MN = +58·2m. Ottawa PR_1N = +17m.3s., PR_2N = +19m.12s., SR_1 = +30m.37s., SR_2N = +35m.27s., T_0 =18h.2m.32s. Toronto eE = +12m.47s., iE = +24m.27s., iN = +24m.30s. Mazatlan SZ = +23m.9s., LZ = +42·5m. Ithaca e = +31m.3s. Barcelona MN = +55·8m. Harvard SR_1E = +31m.22s., eE = +33m.54s., LE = +52·3m. Georgetown SR_1E = +31m.50s., LE = +52·7m. Algiers MN = +62·0m. Toledo MNZ = +65·6m. Granada i = +14m.54s., +18m.10s., and +29m.35s. Rio Tinto readings have been increased by 1h. Malaga MN = +63·0m. San Fernando PR_1? = +18m.27s., SR_1 = +33m.27s., MN = +63·0m. Merida MN = +66·8m. La Paz LN = +69·8m. La Plata E = +35m.57s. and +46m.45s., N = +25m.49s., +31m.27s., +42m.9s., +59m.22s. and +69m.15s., T =18h.1m.24s.

1924. Aug. 14d. 23h. 27m. 24s. Epicentre 36°·0N. 142°·0E.

(as at 18h.).

A = −·638, B = +·498, C = +·588; D = +·616, E = +·788; G = −·463, H = +·362, K = −·809.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Mizusawa	E.	3·2	348	0 52	+ 2	1 25	− 3	—	—
	N.	3·2	348	0 54	+ 4	1 21	− 7	—	—
Nagoya		4·2	260	1 13	+ 8	—	—	2·3	2·8
Osaka		5·5	258	1 32	+ 7	—	—	2·7	3·8
Kobe		5·8	259	1 32	+ 2	—	—	3·0	4·7
Sapporo		7·1	355	1 53	+ 5	(3 13)	0	3·2	—
Nagasaki		10·6	256	2 53	+15	5 52	?L	6·1	7·0
Ootomari		10·7	3	2 36	− 4	(4 26)	−22	4·4	8·0
Taihoku		20·7	244	e 3 49	−60	7 59	−39	12·7	—
Manila		28·5	227	e 6 10	− 3	—	—	13·6	—
Calcutta		48·1	271	8 39	−16	—	—	—	—
Batavia		53·6	226	i 9 24	− 6	i 16 51	−13	—	—
Honolulu		53·7	89	—	—	i 17 5	0	—	26·6
Hyderabad		58·7	271	10 0	− 3	18 8	+ 1	30·5	38·2
Kodaikanal		63·5	266	34 12	?L	—	—	(34·2)	—
Victoria	E.	66·7	47	10 55	− 1	19 45	− 1	40·1	45·2
	N.	66·7	47	10 55	− 1	19 43	− 3	33·4	38·0
Kucino		68·0	325	3 58	?	—	—	e 28·0	37·2
Pulkovo		69·1	330	i 11 8	− 4	20 12	− 3	32·6	46·1
Baku		69·1	307	9 10	−122	18 30	−105	33·6	—
Riverview		70·4	173	—	—	e 27 30	?	e 38·9	45·4
Upsala		73·9	334	11 35	− 6	21 6	− 7	—	44·8
Melbourne		73·9	178	—	—	—	—	—	43·6
Konigsberg		76·3	330	11 55	− 2	21 40	− 1	e 41·6	43·6
Hamburg		81·3	335	e 12 20	− 7	e 22 36	− 2	e 41·6	46·4
Dyce		82·0	343	10 51	−99	23 6	+20	44·1	52·2
Ksara		82·0	308	12 24	− 6	22 38	− 8	—	—
Budapest		82·2	326	12 35	+ 4	22 49	+ 1	44·5	—
Vienna		82·9	329	12 28	− 7	e 22 40	−16	e 43·6	55·6
Eskdalemuir		84·0	343	e 12 33	− 9	22 54	−14	40·6	57·2
De Bilt		84·2	337	i 12 35	− 8	22 58	−12	e 44·6	56·7
Stonyhurst		85·0	341	12 36	−12	22 36	−43	—	—
Uccle		85·6	336	e 12 36	−15	e 22 54	−32	—	52·9
Bidston		85·6	341	—	—	—	—	42·9	55·9

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Innsbruck		85·8	330	—	—	—	—	e 45·6	—
Strasbourg		86·2	333	i 12 53	− 1	e 23 17	−15	38·6	44·3
Kew		86·5	339	—	—	—	—	—	56·6
Oxford		86·6	340	—	—	i 23 22	−15	42·6	55·8
Venice		86·7	329	17 36	?PR_1	—	—	—	—
Zurich		86·9	331	e 14 24	+86	e 24 26	+46	—	—
Paris		87·9	336	i 12 52	−12	e 24 19	+28	48·6	52·6
Besançon		88·0	335	—	—	—	—	e 48·7	—
Florence		88·6	329	13 36	+28	23 36	−23	—	49·4
Rocca di Papa		89·5	326	13 2	−11	23 33	[+ 8]	e 47·1	—
Chicago		89·9	36	—	—	23 39	[+12]	43·7	—
Ottawa		91·8	26	e 17 0	?PR_1	e 24 6	−27	45·6	—
Toronto	E.	91·9	30	—	—	e 24 11	−23	46·8	54·8
Barcelona		94·2	332	—	—	e 47 12	?L	e 54·2	58·8
Tortosa	N.	95·5	333	e 7 18	?	—	—	e 50·1	59·0
Harvard	E.	96·0	25	—	—	—	—	e 51·6	56·4
Algiers		97·8	329	—	—	—	—	e 54·6	62·6
Toledo		98·0	336	e 17 32	[− 7]	—	—	e 51·4	62·4
Granada		100·2	335	e 14 31	+19	26 11	+13	i 50·0	60·4
Malaga		100·9	334	17 45	[− 4]	28 49	?	—	—
San Fernando		101·8	336	17 56	[+ 3]	—	—	58·1	67·6
La Paz		146·9	62	i 19 55	[+ 4]	—	—	72·6	75·8

Additional readings: Osaka MN = +4·3m. Kobe MN = +3·2m., MZ = +3·4m. Calcutta PN = +8m.58s. Honolulu MN = +26·7m.; readings given for 15d. Kucino PR_1 = +6m.29s. Pulkovo MZ = +44·0m. Riverview MN = +41·8m. Upsala MN = +47·3m. Hamburg MZ = +51·8m. Eskdalemuir ePR_1 = +15m.44s., ePR_2 = +17m.39s., SR_1 = +28m.36s., MN = +53·3m. De Bilt iPR_1Z = +15m.50s., MN = +53·6m., MZ = +59·5m. Strasbourg MN = +55·4m. Rocca di Papa P = +13m.3s., PR_1 = +16m.39s., L = +49·4m. Toronto iE = +24m.15s. Tortosa eLE = +49·6m., ME = +63·5m. Toledo MNW = +56·6m. Granada gives many other i readings. San Fernando MN = +68·1m.

Aug. 14d. Readings also at 0h. (Tacubaya, near Merida, and near Manzanillo), 2h. (near Zurich), 6h. (Ksara), 17h. (Travnik), 18h. and 19h. (3) (near Mizusawa), 20h. (Sydney and near Mizusawa (2)), 21h. (2) and 22h. (2) (near Mizusawa).

Aug. 15d. Readings at 0h. (near Mizusawa (2)), 3h. (La Paz and near Taihoku), 4h. (La Paz, near Malaga, and near Osaka and Mizusawa (3)), 10h. (near Mizusawa), 11h. (La Plata and La Paz), 15h. (Rocca di Papa), 16h. (near Mizusawa (2) , and near Osaka (2)), 17h. (Strasbourg and Baku), 21h. (La Paz).

Aug. 16d. Readings at 1h. (near Mizusawa), 2h. (Rio Tinto and Honolulu), 4h. (Nagoya and near Mostar), 5h. (near Wellington), 7h. (La Paz), 9h. (Baku and near Mizusawa), 11h. (Nagasaki), 12h. (Malabar, near Batavia, near Osaka and Mizusawa), 13h. (Baku), 15h. (near Tacubaya, Ksara, and Baku), 16h. (Nagoya), 17h. (Baku, Ksara, and near Mizusawa), 20h. (Hyderabad), 22h. (Pulkovo, Nagoya, Baku, near Osaka, Mizusawa, and Taihoku), 23h. (Granada and Manila).

1924. Aug. 17d. 1h. 45m. 54s. (I)
2h. 10m. 0s. (II) } Epicentre **36°·0N. 142°·0E.** (as on Aug. 14d.).

A = −·638, B = +·498, C = +·588 ; D = +·616, E = +·788 ;
G = −·463, H = +·362, K = −·809.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
I	Mizusawa E.	3·2	348	0 55	+ 5	1 51	+23	(1·8)	—
I	N.	3·2	348	0 55	+ 5	1 49	+21	(1·8)	—
II	E.	3·2	348	0 54	+ 4	1 45	+17	(1·8)	—
II	N.	3·2	348	0 55	+ 5	1 49	+21	(1·8)	—
I	Nagoya	4·2	260	1 4	− 1	—	—	2·5	2·9
II		4·2	260	1 18	+13	—	—	2·8	3·1
I	Osaka	5·5	258	1 33	+ 8	—	—	2·8	3·8
II		5·5	258	2 7	?S	(2 7)	−24	3·2	4·0
I	Kobe	5·8	259	e 1 57	+27	—	—	3·3	4·9
II		5·8	259	1 39	+ 9	—	—	3·1	5·2
I	Nagasaki	10·6	256	2 52	+14	—	—	5·6	—
II		10·6	256	2 39	+ 1	—	—	6·2	8·0
I	Ootomari	10·7	3	1 38	−62	(3 34)	−74	3·6	8·1
II		10·7	3	1 49	−51	(3 36)	−72	3·6	8·2
I	Zi-ka-wei	17·8	260	e 4 10	− 5	e 8 8	+32	—	12·1
II		17·8	260	e 4 7	− 8	—	—	—	12·1
I	Taihoku E.	20·7	244	—	—	7 46	−52	13·9	15·4
II	E.	20·7	244	e 3 7	−102	9 4	+26	14·8	16·1
I	Hong Kong	27·9	248	—	—	—	—	—	18·6
I	Manila	28·5	227	e 6 54	+41	—	—	—	—
II		28·5	227	e 7 0	+47	—	—	14·5	—
I	Irkutsk	31·1	313	...	—	11 6?	−47	19·1?	—
II		31·1	313	—	—	—	—	27·0	—
I	Simla E.	53·3	285	30 54	?L	—	—	(30·9)	—
I	Batavia	53·6	226	e 9 11	−19	i 16 48	−16	—	—
II		53·6	226	i 9 32	+ 2	i 17 58	+54	—	—
I	Hyderabad	58·7	271	e 11 9	+66	19 21	+74	33·4	42·7
I	Bombay	62·5	275	10 26	− 3	19 12	+17	—	—
II		62·5	275	—	—	—	—	—	40·0
I	Colombo	63·5	261	19 6	?S	(19 6)	− 1	—	—
II		63·5	261	—	—	—	—	—	46·0
I	Victoria E.	66·7	47	11 4	+ 8	19 48	+ 2	40·4	44·0
I	N.	66·7	47	10 52	− 4	19 51	+ 5	41·1	44·0
I	Kucino	68·0	325	e 12 3	+59	22 1	+119	37·9	—
II		68·0	325	—	—	—	—	—	45·9
I	Pulkovo	69·1	330	i 11 10	− 2	20 13	− 2	30·1	—
II		69·1	330	11 11	− 1	20 18	+ 3	—	44·4
I	Baku	69·1	307	i 11 11	− 1	20 20	+ 5	34·4	—
II		69·1	307	i 11 13	+ 1	—	—	—	13·4
I	Riverview	70·4	173	—	—	e 23 30	+179	e 29·8	32·6
II		70·4	173	e 20 3	?S	(e 20 3)	−28	—	33·8
I	Lick N.	73·4	56	e 36 33	?L	—	—	(e 36·6)	—
II	E.	73·4	56	—	—	—	—	i 35·8	—
I	Upsala	73·9	334	—	—	e 21 8	− 5	e 40·1	—
II		73·9	334	e 11 39	− 2	e 21 10	− 3	—	49·3
I	Melbourne	73·9	178	—	—	—	—	—	35·1
II	Konigsberg	76·3	330	11 46	−11	21 30	−11	—	47·0
I	Bergen	77·3	342	—	—	—	—	e 44·1	—
I	Hamburg	81·3	335	—	—	—	—	e 44·1	46·1
II		81·3	335	e 12 23	− 4	—	—	e 44·0	47·0
I	Ksara E.	82·0	308	12 26	− 4	22 38	− 8	—	—
II	N.	82·0	308	12 29	− 1	22 40	− 6	—	—
I	Budapest	82·2	326	—	—	e 22 6	−42	e 44·1	—
II		82·2	326	e 12 0	−31	—	—	—	—
I	Vienna	82·9	329	12 31	− 4	—	—	—	57·1
II		82·9	329	i 12 32	− 3	23 2	+ 6	—	57·0
I	Wellington	83·0	157	i 12 46	+10	—	—	—	—
I	Edinburgh	83·5	343	—	—	e 23 6	+ 3	47·2	—
II		83·5	343	—	—	23 6	+ 3	—	57·8
I	Eskdalemuir	84·0	343	e 12 40	− 2	e 22 56	−12	42·1	—
II		84·0	343	e 13 8	+26	23 4	− 4	—	—
I	De Bilt	84·2	337	12 38	− 5	23 1	− 9	e 44·1	56·7
II		84·2	337	12 39	− 4	e 23 5	− 5	e 45·0	55·9

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
I	Stonyhurst	85·0	341	—	—	23 6	−13	43·6	—
II		85·0	341	—	—	—	—	—	56·0
I	Uccle	85·6	336	e 12 42	− 9	e 23 6	−20	44·1	—
II		85·6	336	e 12 52	+ 1	—	—	—	56·1
I	Bidston	85·6	341	—	—	—	—	47·4	55·8
II		85·6	341	—	—	—	—	41·6	60·3
II	Innsbruck N.W.	85·8	330	—	—	—	—	e 47·0	—
I	Strasbourg	86·2	333	i 12 57	+ 3	i 24 37	+65	47·1	—
II		86·2	333	i 12 58	+ 4	—	—	—	51·6
I	Kew	86·5	339	—	—	—	—	—	53·1
II		86·5	339	—	—	—	—	—	57·0
I	Oxford	86·6	340	—	—	i 23 24	−13	—	—
II		86·6	340	—	—	e 23 26	−11	—	56·7
I	Athens	86·7	318	—	—	—	—	39·4	39·4
II	Zurich	86·9	331	e 12 33	−25	e 23 11	−29	—	—
I	Paris	87·9	336	e 13 16	+12	—	—	49·1	—
II		87·9	336	e 12 58	− 6	—	—	—	59·0
I	Besançon	88·0	335	—	—	—	—	e 48·1	—
I	Florence	88·6	329	19 6	?	—	—	—	50·1
II		88·6	329	—	—	—	—	—	50·0
I	Rocca di Papa	89·5	326	e 34 13	?	—	—	e 41·3	58·4
II		89·5	326	—	—	16 33	?PR_1	e 50·4	58·0
I	Chicago N.	89·9	36	—	—	24 13	0	—	—
II		89·9	36	—	—	—	—	52·2	—
I	Ann Arbor	91·3	33	—	—	23 36	[0]	e 48·1	—
I	Ottawa	91·8	26	—	—	e 23 44	[+ 5]	45·4	—
II		91·8	26	—	—	e 24 8	−25	—	55·0
I	Toronto E.	91·9	30	—	—	e 23 44	[+ 5]	54·1	—
I	N.	91·9	30	—	—	e 23 54	[+15]	47·0	—
I	Barcelona	94·2	332	—	—	—	—	e 52·9	—
II		94·2	332	—	—	—	—	—	58·1
I	Tortosa N.	95·5	333	—	—	—	—	e 51·1	58·8
II	N.	95·5	333	—	—	—	—	e 52·0	64·9
I	Harvard E.	96·0	25	—	—	—	—	e 52·6	—
II	E.	96·0	25	—	—	—	—	e 53·8	55·0
II	Algiers	97·8	329	—	—	—	—	e 35·0	63·0
II	Toledo	98·0	336	e 17 43	?PR_1	24 22	[+ 9]	e 29·9	67·1
I	Granada	100·2	335	e 14 38	+26	—	—	52·9	61·7
II		100·2	335	—	—	—	—	e 51·0	62·1
I	Malaga	100·9	334	e 20 36	?PR_1	e 32 56	?SR_1	e 56·9	—
II		100·9	334	—	—	—	—	e 58·4	—
I	San Fernando	101·8	336	—	—	36 0	?	58·6	—
II		101·8	336	—	—	—	—	—	68·5
I	La Paz	146·9	62	20 4	[+13]	—	—	—	—
II		146·9	62	19 53	[+ 2]	—	—	—	—

Additional readings and notes: Osaka I MN = +3·5m. Kobe I MZ = +3·7m., MN = +4·2m., II MN = +3·4m., MZ = +3·7m. Nagasaki II MN = +6·8m. Ootomari I MN = +7·3m., II MN = +7·4m. Zi-ka-wei II MN = +11·5m. Simla I PN = +31m.0s. Kucino I PR_1 = +15m.32s., II MN = +43·3m. Pulkovo I PR_1 = +13m.44s., SR_1 = +24m.42s., II MZ = +44·3m., MN = +45·8m. Riverview I MN = +31·4m., II +20m.41s. and +22m.18s., MN = +34·3m. Lick II iN = +14m.23s. Upsala II MN = +48·9m. Konigsberg II e = +19m.30s., SR_1? = +27m.0s. Hamburg I MN = +48·1m., II MN = +51·0m., MZ = +52·8m. Wellington I iP = +20m.41s. and +21m.43s. given as separate shocks. Eskdalemuir I eSN = +23m.5s. (O − C = −3s.), e = +29m.6s. De Bilt I PR_1Z = +15m.59s. PR_2Z = +17m.50s., SR_1E = +28m.35s., MN = +53·6m., MZ = +60·1m., II PR_1Z = +15m.56s., MN = +55·2m., MZ = +56·0m. Uccle II MN = +56·8m. Strasbourg I iZ = +24m.40s., II MN = +57·6m. Paris II MN = +61·0m. Ottawa I eE = +30m.14s. Toronto I iE = +24m.14s., eN = +37m.36s., II LN = +50·2m. and LE = +52·5m. Tortosa II eLE = +53·0m. Harvard readings are given for 16d. Toledo II MNW = +59·1m. Granada I i = +20m.8s. and +32m.14s. Malaga II e = +62m.22s. San Fernando I SR_1? = +42m.36s.

Aug. 17d. 10h. 52m. 0s. Epicentre 18°·0S. 173°·0W. (as on 1924 April 14d.).

A = −·944, B = −·116, C = −·309 ; D = −·122, E = +·993 ;
G = +·307, H = +·038, K = −·951.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Apia	4·3	17	e 1 0	− 7	—	—	—	5·0
Riverview	35·7	236	—	—	e 13 12	+ 6	16·9	19·0
Perth	64·9	242	—	—	—	—	39·8	—
Victoria	79·8	31	22 20	?S	(22 20)	− 1	42·7	52·3
Chicago	98·6	49	—	—	—	—	53·1	—
Toronto	104·8	48	—	—	—	—	e 56·2	—
Ottawa	107·7	47	—	—	—	—	e 51·0	—
Pulkovo	135·0	344	e 21 52	?PR_1	—	—	71·0	81·5
Baku	137·0	310	21 59	?PR_1	e 23 46	?	76·0	—
Hamburg	144·3	357	e 19 0	[−47]	—	—	—	—
De Bilt	145·9	2	e 19 28	[−22]	—	—	e 83·0	—
Vienna Z.	148·8	349	e 19 41	[−13]	—	—	—	—
Budapest	148·9	344	e 18 0	[−114]	—	—	—	—
Strasbourg	149·4	358	—	—	—	—	94·0	—
Granada	158·7	24	—	—	i 44 42	?SR_1	e 74·8	98·4

Additional readings: Riverview MN = +18·8m. Victoria LN = +50·5m.
Ottawa eE = +55m,30s.

Aug. 17d. 21h. 39m. 20s. Epicentre 36°·5N. 16°·5E.

A = +·771, B = +·228, C = +·595 ; D = +·284, E = −·959 ;
G = +·570, H = +·169, K = −·804.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Pompeii	4·5	341	e 1 10	0	—	—	—	—
Rocca di Papa	6·0	332	—	—	e 2 31	−13	e 4·7	—
Tortosa N.	13·2	294	—	—	—	—	e 5·7	8·2
Granada	16·1	279	i 3 52	− 1	i 6 49	− 8	7·9	10·5
Toledo	16·4	288	—	—	—	—	e 8·6	11·9
De Bilt	17·5	336	—	—	—	—	e 10·7	—
Hamburg	17·7	347	—	—	—	—	e 9·7	—
Pulkovo	24·9	17	5 32	− 5	10 18	+17	13·7	—

Additional readings: Rocca di Papa ePE = +2m.43s., . PZ = +2m.46s.
Granada i = +7m.35s. Toledo MNW = +12·2m.

Aug. 17d. Readings also at 1h. (near Sapporo (2)), 4h. (near Osaka and Mizusawa), 5h. (near Lick and near La Paz), 7h. (near Granada), 12h. (near Mizusawa (2)), 15h. (Bombay), 21h. (2) and 22h. (near Mizusawa), 23h. (near Tacubaya (2) and near Algiers).

Aug. 18d. Readings at 0h. (Kucino), 2h. (Dyce), 3h. (near Osaka and Kobe), 4h. (Nagoya), 5h. (near Algiers), 12h. (Riverview), 16h. (Irkutsk), 17h. (Apia and La Paz), 18h. (Irkutsk), 21h. and 22h. (Nagoya).

Aug. 19d. Readings at 0h. (near Batavia and Malabar), 3h. (Nagoya), 8h. (Batavia, Malabar, Pulkovo, Baku, and near Mizusawa and Osaka), 10h. (Nagoya), 11h. (Hong Kong ,near Manila, and near Osaka, Nagoya, and Mizusawa), 12h. (Baku), 15h. (Baku, Pulkovo, De Bilt, Bombay, and Irkutsk), 19h. (Irkutsk, near Nagoya, Osaka, and Kobe), 20h. (Baku, De Bilt, Apia, and near Mizusawa).

Aug. 20d. Readings at 1h. (De Bilt, Innsbruck, Vienna, and La Paz), 8h. (Baku), 10h. (Apia (2)), 23h. (De Bilt, Hong Kong, and near Zi-ka-wei).

Aug. 21d. 18h. 50m. 45s. Epicentre 51°·0N. 179°·5W. (as on 1923 Nov. 17d.).

A = −·629, B = −·005, C = +·777 ; D = −·009, E = +1·000 ;
G = −·777, H = −·007, K = −·629.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Honolulu	E.	34·1	142	—	—	e 13 45	+63	—	15·6
	N.	34·1	142	—	—	e 12 13	−29	—	18·2
Victoria	E.	35·6	73	7 6	−12	11 43	−81	15·5	17·4
Irkutsk		45·0	304	8 25	− 8	15 8	− 7	20·2	27·0
Zi-ka-wei		47·2	270	8 42	− 6	e 15 34	−10	—	31·0
Chicago		60·0	60	—	—	18 23	0	29·4	—
Ann Arbor		61·6	57	—	—	e 18 45	+ 2	31·2	—
Toronto	E.	62·8	53	—	—	e 18 58	0	31·2	—
	N.	62·8	53	—	—	e 19 0	+ 2	e 30·1	—
Ottawa		63·4	50	e 10 32	− 2	e 19 11	+ 5	e 29·2	40·2
Pulkovo		66·6	346	11 17	+22	19 49	+ 4	32·2	46·0
Georgetown	E.	67·5	56	—	—	—	—	39·1	—
Upsala	N.	68·3	353	e 11 6	0	—	—	e 39·2	48·1
Kucino		68·8	340	e 11 11	+ 1	20 15	+ 3	35·4	42·0
Konigsberg		72·8	349	—	—	—	—	e 45·4	51·2
Eskdalemuir		73·6	3	e 12 15	+35	e 21 45	+36	e 26·2	—
Hamburg		75·1	355	—	—	—	—	e 39·2	50·2
De Bilt		76·8	357	12 2	+ 2	e 21 51	+ 4	e 39·2	53·2
Kew		77·5	0	—	—	—	—	—	57·2
Uccle		78·1	358	e 12 9	+ 1	e 21 57	− 4	e 37·2	—
Baku		79·0	324	e 11 49	−24	e 22 7	− 5	40·2	51·2
Strasbourg		80·2	356	i 12 27	+ 7	—	—	39·2	—
Hyderabad		83·8	291	—	—	—	—	—	53·0
Rocca di Papa		86·6	351	e 11 45	−72	e 24 9	+32	e 51·8	—
Toledo		89·0	5	—	—	—	—	e 43·9	64·3
Colombo		91·2	282	—	—	—	—	—	75·2
Granada		91·8	5	e 13 14	−12	24 22	−11	e 48·8	61·7

Additional readings: Irkutsk MZ = +27·6m. Toronto iSN = +19m.4s. Ottawa MN = +39·8m. Pulkovo SR_1 = +24m.9s., MZ = +43·1m. Kucino PR_1 = +15m.25s., MN = +45·6m. De Bilt MN = +54·8m. Baku iP = +12m.15s., PS = +23m.4s., MN = +49·4m. Rocca di Papa ePE = +12m.21s., ePZ = +12m.23s., eZ = +17m.3s. and +26m.3s. Toledo MNW = +60·3m.

Aug. 21d. Readings also at 3h. (Pulkovo and near Mizusawa), 6h. (Apia), 9h. (Kucino), 13h. (Kingston), 15h. (Ottawa, Zi-ka-wei, Irkutsk, Victoria, Honolulu, and near Batavia), 16h. (Pulkovo, Toronto, Baku, Granada, near Port au Prince, and Porto Rico), 18h. (near Taihoku (2)), 20h. (La Paz).

Aug. 22d. Readings at 0h. (Ottawa, Toronto, and near Balboa Heights), 6h. (Apia, Riverview, Wellington, Melbourne, Pulkovo, near Manila, and near Mizusawa), 7h. (Granada, Ottawa, and La Paz), 13h. and 18h. (near Taihoku), 20h. and 21h. (La Paz).

Aug. 23d. 18h. 42m. 46s. Epicentre 36°·0N. 142°·0E. (as on Aug. 17d.).

A = −·638, B = +·498, C = +·588.

		△	P.	O−C.	S.	O−C.	L.	M.
		°	m. s.	s.	m. s.	s.	m.	m.
Mizusawa	E.	3·2	0 49	− 1	1 29	+ 1	—	—
Nagoya		4·2	0 56	− 9	(1 57)	+ 2	1·9	2·4
Osaka		5·5	1 27	+ 2	(2 37)	+ 6	2·6	3·2
Kobe	E.	5·8	—	—	—	—	—	2·9
Irkutsk		31·1	—	—	—	—	e 18·2	—
Apia		66·2	—	—	—	—	26·2	—
Pulkovo		69·1	—	—	—	—	e 37·2	—

Additional readings: Mizusawa SN = +1m.32s. Osaka MN = +2·9m. Kobe MN = +2·7m.

Aug. 23d. Readings also at 0h. (near Taihoku), 1h. and 4h. (La Paz), 7h. (Manila), 9h. (Kingston, Nagoya, near Osaka, and Mizusawa), 10h. (near Honolulu), 15h. (near Nagoya, Osaka, and Mizusawa), 17h. (near Tacubaya), 21h. (near La Paz), 23h. (Pulkovo, Zi-ka-wei, and near Taihoku).

Aug. 24d. Readings at 0h. (Granada, De Bilt, Eskdalemuir, and near Taihoku), 1h. (near Tacubaya), 2h. (Rio Tinto), 3h. and 4h. (La Paz), 7h. (near Athens), 10h. (near La Paz), 13h. (near Merida and Tacubaya), 19h. (Nagoya, near Osaka, and Mizusawa, also near Kobe), 20h. (Apia and La Paz), 23h. (Berkeley).

1924. Aug. 25d. 2h. 21m. 40s. Epicentre 45°·0S. 34°·0E.

$A = +\cdot586$, $B = +\cdot395$, $C = -\cdot707$; $D = +\cdot559$, $E = -\cdot829$; $G = -\cdot586$, $H = -\cdot395$, $K = -\cdot707$.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Cape Town		16·3	307	4 0	+ 4	7 7	+ 5	7·1	9·1
Johannesburg		19·4	344	4 32	− 2	8 14	+ 4	9·2	31·3
Perth		62·7	110	—	—	—	—	e 25·7	—
Rio de Janeiro		65·1	263	—	—	(19 43)	+17	e 19·7	—
Colombo		66·2	50	18 38	?S	(18 38)	−62	31·5	35·0
Kodaikanal		67·7	46	20 2	?S	(20 2)	+ 4	32·7	36·1
Bombay		73·0	38	11 35	− 1	e 20 58	− 4	—	35·4
Hyderabad		74·4	44	i 21 7	?S	(i 21 7)	−12	30·0	39·4
Helwan		74·9	357	e 11 48	0	21 28	+ 3	—	41·6
Ksara	E.	78·9	1	12 9	− 3	22 11	0	35·2	43·1
Riverview		82·8	133	—	—	e 22 38	−17	e 35·7	40·0
Simla		85·7	36	23 14	?S	(23 14)	−13	—	—
Algiers		86·4	336	—	—	e 21 26	−128	e 41·3	50·0
La Paz	E.	86·6	250	12 54	− 3	i 23 34	− 3	44·3	49·9
	N.	86·6	250	—	—	i 23 36	− 1	37·3	—
Wellington		86·8	152·	—	—	23 5	−34	e 39·3	—
Rocca di Papa	E.	88·8	346	i 13 1	− 8	24 11	+10	e 42·9	—
	N.	88·8	346	e 12 59	−10	24 4	+ 3	e 45·7	54·2
Malaga		88·8	330	13 48	+39	24 26	+25	37·5	55·6
Granada		88·9	330	e 13 8	− 2	i 23 41	−21	e 42·5	54·0
San Fernando		89·2	329	11 50	?	23 44	−21	46·3	54·8
Tortosa	N.	90·9	335	e 13 4	−17	i 23 38	[+ 5]	e 41·7	52·7
Barcelona		91·0	338	e 23 44	?[S]	(e 23 44)	[+10]	e 41·4	50·4
Florence		91·1	345	12 40	−42	23 50	[+15]	40·3	50·3
Toledo		91·5	332	e 13 14	−10	i 23 56	[+19]	e 44·0	49·6
Budapest		93·4	350	e 13 20	−14	—	—	—	—
Innsbruck		94·4	346	—	—	—	—	e 47·3	—
Vienna		94·6	349	e 13 23	−18	e 23 59	[+ 4]	e 45·3	55·3
Zurich		95·0	344	e 13 30	−13	e 24 3	[+ 6]	—	—
Besançon		95·4	343	—	—	e 26 56	+106	e 46·6	51·3
Strasbourg		96·4	344	e 13 35	−16	i 24 22	[+18]	44·3	55·4
Paris		97·8	340	e 17 39	?PR_1	e 29 20	?SR_1	47·3	55·3
Manila		98·2	77	e 15 20	+79	—	—	—	—
Hong Kong		99·0	69	25 10	?S	(25 10)	−36	—	—
Uccle		99·2	343	e 17 45	?PR_1	i 24 32	[+12]	46·3	68·0
De Bilt		100·2	344	13 56	−16	24 36	[+11]	e 44·3	56·1
Hamburg		100·7	347	e 18 2	?PR_1	e 27 4	+62	e 47·3	58·3
Kucino		100·8	2	i 18 5	?PR_1	(24 36)	[+ 8]	e 32·7	66·5
Kew		100·9	340	—	—	—	—	—	58·3
Oxford		101·4	339	e 18 20	?PR_1	—	—	—	58·9
Bidston		103·4	340	18 30	?PR_1	—	—	51·0	60·0
Stonyhurst		103·6	340	18 10	?PR_1	—	—	—	58·5
Pulkovo		104·8	358	e 18 34	?PR_1	e 24 50	[+ 4]	45·3	63·2
Eskdalemuir		105·2	340	e 16 35	+120	i 25 50	[+62]	45·3	58·3
Edinburgh		105·6	340	19 44	?PR_1	25 0	[+10]	49·3	61·2
Dyce		105·7	341	18 45	?PR_1	—	—	—	62·4
Upsala		105·7	353	18 26	?PR_1	e 24 53	[+ 3]	—	60·2
Taihoku		105·8	70	—	—	e 23 38	[−73]	—	—
Bergen		108·0	346	e 18 20	?PR_1	—	—	—	—
Zi-ka-wei		109·5	65	e 18 51	?PR_1	e 27 53	+29	—	57·4
Georgetown		130·0	287	e 22 20	?PR_1	—	—	—	—
Ottawa		132·1	297	22 50	?PR_1	e 27 5	?	53·3	—
Toronto	E.	133·7	292	i 23 54	?PR_1	e 40 43	?SR_1	66·6	—
Chicago		138·4	285	—	—	40 46	?SR_1	68·0	—
Victoria	N.	164·1	291	31 29	?	46 9	?SR_1	68·4	89·7

For Notes see next page.

NOTES TO AUG. 25d. 2h. 21m. 40s.

Additional readings and notes: Hyderabad S = +26m.7s. Ksara PR_1E = +15m.15s., LE = +31·3m.; T_0 = 2h.22m.13s. Riverview MN = +39·7m. Algiers ? = +24m.26s. and +29m.8s. Rocca di Papa ePE = +11m.25s., PR_1E = +21m.5s., LZ = +56·4m. Malaga MN = +55·5m. San Fernando PR_1 = +15m.45s., SR_1 = +30m.0s., MN = +53·8m. Tortosa eLE = +43·5m., ME = +56·1m. Barcelona S = +30m.17s., MN = +50·5m. Toledo MNW = +54·9m., MZ = +54·4m. Strasbourg i = +17m.29s., and +31m.28s., MN = +63·3m. Paris MN = +61·3m. Uccle i = +26m.50s. and +32m.14s. De Bilt PR_1 = +17m.57s., eN = +26m.59s., eZ = +27m.10s., MZ = +65·2m., MN = +65·3m. Hamburg MZ = +61·3m. Kucino PR_2 = +24m.36s., MN = +32·8m. Vienna SR_1 ? = +31m.6s. Bidston readings have been increased by 1h. Pulkovo e = +27m.46s. and +33m.26s., MN = +66·5m., MZ = +67·5m. Eskdalemuir i = +22m.59s. and +26m.45s., iN = +31m.40s., MN = +64·3m. Edinburgh [S] is given as L. Dyce PR_1 = +22m.57s., i = +28m.13s., +29m.2s., 34m.2s., and 37m.45s. Upsala MN = +66·6m. Zi-ka-wei SR_1 = +35m.9s. Ottawa cE = +31m.42s., c = +39m.20s. and +44m.20s.

1924. Aug. 25d. 14h. 30m. 48s. Epicentre 36°·0N. 142°·0E.

(as on Aug. 23d.).

A = −·638, B = +·498, C = +·588; D = +·616, E = +·788;
G = −·463, H = +·362, K = −·809.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Mizusawa		3·2	348	0 52	+ 2	1 37	+ 9	—	—
Nagoya		4·2	260	1 22	+17	—	—	2·5	2·8
Osaka		5·5	258	1 39	+14	—	—	3·0	4·8
Kobe		5·8	259	1 39	+ 9	—	—	3·3	4·7
Nagasaki		10·6	256	1 58	−40	—	—	4·9	6·5
Ootomari		10·7	3	2 41	+ 1	(4 29)	−19	4·5	8·3
Zi-ka-wei		17·8	260	i 4 14	− 1	7 35	− 1	—	12·2
Taihoku		20·7	244	e 4 47	− 2	9 31	+53	13·6	17·0
Hong Kong		27·9	248	6 2	− 5	11 4	+ 7	13·8	17·0
Manila		28·5	227	e 6 10	− 3	(12 57)	+109	13·0	—
Irkutsk		31·1	313	i 6 23	−16	11 27	−26	16·2	19·6
Simla		53·3	285	e 17 6	?S	(e 17 6)	+ 6	—	—
Batavia		53·6	226	9 32	+ 2	i 17 6	+ 2	—	—
Honolulu		53·7	89	10 24	+53	17 12	+ 7	23·9	25·3
Ekaterinburg		56·1	321	i 9 46	− 1	17 35	0	26·2	35·8
Hyderabad		58·7	271	10 2	− 1	18 10	+ 3	30·6	42·2
Bombay		62·5	275	10 33	+ 4	19 11	+16	33·8	38·5
Kodaikanal		63·5	266	36 36	?L	—	—	(36·6)	—
Colombo		63·5	261	10 12	−23	—	—	—	44·2
Victoria	E.	66·7	47	10 59	+ 3	19 55	+ 9	33·4	48·6
	N.	66·7	47	11 3	+ 7	19 53	+ 7	33·4	36·0
Kucino		68·0	325	13 7	+123	i 22 7	+125	36·2	43·4
Pulkovo		69·1	330	i 11 12	0	20 16	+ 1	35·2	42·0
Baku		69·1	307	i 11 15	+ 3	20 23	+ 8	33·7	37·1
Riverview		70·4	173	e 20 39	?S	(e 20 39)	+ 8	e 31·6	32·7
Lick	E.	73·4	56	(i 11 40)	+ 2	i 11 40	?P	e 33·3	41·8
Upsala		73·9	334	11 39	− 2	21 9	− 4	e 38·2	44·5
Konigsberg		76·3	330	e 11 58	+ 1	21 41	0	e 35·2	44·9
Bergen		77·3	342	—	—	—	—	e 49·2	—
Lemberg		78·2	325	e 10 12	−116	e 22 6	+ 4	e 42·1	45·3
Hamburg		81·3	335	i 12 25	− 2	i 22 32	− 6	e 42·2	49·6
Dyce		82·0	343	i 12 26	− 4	i 22 40	− 6	40·0	46·8
Ksara	N.	82·0	308	12 32	+ 2	22 42	− 4	—	—
Budapest		82·2	326	12 29	− 2	22 46	− 2	e 42·2	—
Vienna		82·9	329	e 12 33	− 2	22 46	−10	e 42·2	57·2
Belgrade		83·5	324	e 12 27	−12	e 22 45	−18	e 46·7	—
Edinburgh		83·5	343	e 12 36	− 3	23 24	−21	38·2	47·8
Eskdalemuir		84·0	343	e 12 39	− 3	23 2	− 6	38·7	47·1
De Bilt		84·2	337	12 39	− 4	23 5	− 5	e 40·2	48·5
Stonyhurst		85·0	341	12 42	− 6	23 19	0	43·2	45·7
Uccle		85·6	336	e 12 44	− 7	e 23 12	−14	e 41·2	50·3
Bidston		85·6	341	12 52	+ 1	23 24	− 2	42·7	58·6

Continued on next page.

		△ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
Innsbruck		85·8	330	e 12 49	− 3	—	—	e 42·2	—
Strasbourg		86·2	333	i 12 54	0	23 30	− 2	39·2	50·8
Kew		86·5	339	—	—	—	—	—	51·2
Oxford		86·6	340	12 55	− 2	23 26	−11	41·2	53·1
Zurich		86·9	331	e 12 52	− 6	e 23 19	−21	—	—
Paris		87·9	336	i 12 57	− 7	e 23 36	−15	45·2	58·2
Besançon		88·0	335	—	—	e 23 34	−18	45·5	50·2
Florence		88·6	329	13 12	+ 4	23 41	−17	—	45·2
Pompeii		89·4	324	e 12 40	−32	—	—	53·7	56·2
Rocca di Papa	E.	89·5	326	12 33	−40	(23 55)	−14	46·3	61·3
	N.	89·5	326	13 9	− 4	—	—	48·3	—
Chicago	E.	89·9	36	21 1	?	30 38	?	48·5	—
Ann Arbor		91·3	33	e 12 42	−41	24 0	−27	45·5	—
Ottawa		91·8	26	13 12	−14	23 42	[+ 3]	e 41·2	—
Toronto	E.	91·9	30	13 18	− 8	e 23 38	[− 1]	e 40·5	—
	N.	91·9	30	—	—	i 23 48	[+ 9]	46·6	63·6
Ithaca		94·0	28	e 15 43	+125	22 30	?	53·2	—
Barcelona		94·2	332	—	—	—	—	e 49·2	56·2
Tortosa		95·5	333	e 34 29	?SR_1	—	—	e 50·2	58·0
Georgetown		96·8	30	e 13 19	−34	e 23 12	[−55]	50·2	—
Algiers		97·8	329	—	—	—	—	53·2	62·2
Toledo		98·0	336	e 12 34	−86	—	—	e 47·4	52·8
Granada		100·2	335	e 13 35	−37	e 23 49	[−36]	e 49·5	53·9
Lisbon		100·7	339	—	—	—	—	e 50·0	57·0
San Fernando		101·8	336	—	—	—	—	58·2	60·7
Cape Town		134·3	255	23 4	?PR_1	—	—	—	—
La Paz		146·9	62	i 19 58	[+ 7]	—	—	—	—

Additional readings and notes: Mizusawa PN = +51s. Nagoya MN = +3·9m. Osaka MN = +5·0m. Kobe MZ = +3·4m., MN = +4·0m. Nagasaki MN = +8·7m. Ootomari MN = +8·0m. Zi-ka-wei PSZ = +8m.15s., MZ = +12·3m., MN = +12·4m. Irkutsk MN = +16·8m., MZ = +19·3m. Honolulu L = +22·8m., MN = +26·5m. Ekaterinburg ePR_1 = +11m.53s., PR_2 = +12m.55s., PR_3 = +13m.38s. Kucino MN = +45·5m. Pulkovo SR_1 = +24m.54s., MN = +40·1m., MZ = +43·3m. Baku iPS = +21m.34s., MN = +37·4m. Riverview eS = +26m.31s. Lick ePE = +4m.47s., iPSE = +11m.51s., iPSN = +11m.54s., iE = +14m.5s., eLN = +31·3m., MN = +37·0m. Upsala MN = +46·2m. Konigsberg i = +57m.12s. and +59m.18s., MN = +77·2m. Lemberg MN = +45·2m. Hamburg MZ = +51·3m., MN = +53·8m. Ksara PR_1N = +15m.31s. Vienna PR_2 = +17m.48s., PS = +23m.49s. Eskdalemuir MN = +47·6m. De Bilt MZ = +52·8m., MN = +57·4m. Uccle SR_1 = +29m.0s., MN = +54·5m. Strasbourg P? = +12m.51s.?, MN = +51·4m. Paris MN = +52·2m. Rocca di Papa ePZ = +12m.16s., ePN = +12m.37s., iSE = +16m.48s., iSN = +16m.53s. (true S is given as PS). Ann Arbor PR_1? = +14m.30s., PR_2? = +19m.12s. Ottawa PR_1 = +16m.53s., SR_1 = +30m.4s., SR_2 = +33m.50s., T_0 = 14h.31m.27s. Toronto iSE? = +23m.47s. Barcelona MN = +56·4m. Tortosa MN = +64·0m. Granada PS = +22m.30s. San Fernando SR_1? = +36m.42s., MN = +67·2m.

Aug. 25d. 17h. 16m. 40s. Epicentre 36°·0N. 142°·0E. (as at 14h.).

	△ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
Mizusawa	3·2	348	0 52	+ 2	1 22	− 6	—	—
Nagoya	4·2	260	1 25	+20	—	—	2·6	3·1
Osaka	5·5	258	1 51	+26	—	—	2·9	3·3
Kobe	5·8	259	e 1 36	+ 6	—	—	3·3	3·5
Zi-ka-wei	17·8	260	e 3 59	−16	e 7 22	−14	—	12·2
Irkutsk	31·1	313	6 20?	−19	e 15 20?	?L	18·3?	—
Ekaterinburg	56·1	321	e 9 49	+ 2	e 17 31	− 4	29·8	34·8
Pulkovo	69·1	330	i 11 8	− 4	20 12	− 3	39·3	43·4
De Bilt	84·2	337	—	—	—	—	e 47·3	—
Uccle	85·6	336	—	—	—	—	e 45·3	—
Strasbourg	86·2	333	—	—	—	—	47·3	—
Paris	87·9	336	—	—	—	—	e 53·3	—
Granada	100·2	335	—	—	—	—	e 56·3	63·7
La Paz	146·9	62	19 46	[− 5]	—	—	—	—

Additional readings: Mizusawa SN = +1m.24s. Osaka MN = +4·3m. Kobe MN = +3·4m.

1924. Aug. 25d. 23h. 6m. 54s. Epicentre **55°·0N. 162°·5E.**
(as on 1923 Feb. 24d.).

A = −·547, B = +·172, C = +·819; D = +·301, E = +·954;
G = −·781, H = +·246, K = −·574.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Ootomari		14·9	244	2 19	−79	—	—	3·7	—
Mizusawa		21·4	231	4 53	− 5	8 44	− 9	12·7	—
Osaka		27·6	234	5 59	− 5	9 48	−64	14·9	15·7
Zi-ka-wei		37·4	249	7 16	−17	e 15 34	+124	—	—
Victoria	E.	44·2	68	8 26	− 1	15 7	+ 2	22·3	28·4
	N.	44·2	68	8 29	+ 2	14 54	−11	23·5	26·0
Honolulu	E.	44·7	123	—	—	19 11	+240	e 46·8	48·1
	N.	44·7	123	8 19	−12	—	—	45·5	47·7
Hong Kong		48·4	248	—	—	—	—	—	29·6
Manila		51·6	235	e 9 10	− 7	(16 34)	− 5	16·6	—
Ekaterinburg		51·6	318	i 9 14	− 3	16 31	− 8	24·1	31·4
Pulkovo		59·1	334	i 10 7	+ 1	18 11	− 1	30·1	38·4
Upsala		61·8	341	10 25	+ 1	18 44	− 2	—	41·3
Konigsberg		65·8	338	e 11 6	+16	19 50	+15	e 34·1	38·3
Chicago		66·4	50	19 49	?S	(19 49)	+ 7	38·6	—
Dyce		67·1	352	i 10 59	0	i 20 54	+63	34·0	41·0
Ann Arbor		67·6	48	11 6	+ 4	20 6	+ 9	e 35·1	41·9
Ottawa		68·2	40	11 4	− 1	20 4	0	e 33·1	45·1
Toronto	E.	68·2	44	—	—	i 20 5	+ 1	33·7	43·5
	N.	68·2	44	10 58	− 7	i 20 8	+ 4	e 36·2	43·6
Edinburgh		68·5	352	—	—	e 20 36	+28	31·1	—
Baku		68·8	312	i 11 11	+ 1	20 17	+ 5	33·6	—
Eskdalemuir		69·0	352	i 11 15	+ 4	i 20 20	+ 6	29·1	—
Hamburg	Z.	69·1	344	i 11 14	+ 2	—	—	—	42·1
Ithaca		70·4	43	—	—	e 21 6	+35	e 36·1	—
Stonyhurst		70·4	351	20 36	?S	(20 36)	+ 5	—	48·1
De Bilt		71·3	346	11 27	+ 2	20 46	+ 4	e 33·1	41·0
Hyderabad		72·4	276	20 49	?S	(20 49)	− 6	—	45·5
Oxford		72·4	350	11 32	0	21 18	+23	—	—
Kew		72·6	350	—	—	—	—	—	56·1
Uccle		72·6	347	11 34	0	20 59	+ 2	e 32·1	43·1
Vienna		72·9	338	11 38	+ 3	21 8	+ 7	e 36·1	47·1
Budapest		73·0	335	11 37	+ 1	21 5	+ 3	e 37·1	—
Georgetown		73·2	44	e 7 53	?	—	—	43·4	—
Strasbourg		74·3	344	i 11 50	+ 6	21 23	+ 5	34·1	42·6
Bombay		74·4	280	11 41	− 4	21 11	− 8	39·2	47·7
Paris		74·8	347	i 11 48	0	i 21 22	− 2	36·1	42·1
Innsbruck	N.W.	74·8	340	i 11 50	+ 2	—	—	—	—
Zurich		75·3	342	i 11 50	− 1	e 21 26	− 3	—	—
Besançon		75·9	345	—	—	—	—	—	45·1
Batavia		76·5	238	i 11 54	− 4	i 21 31	−12	—	—
Florence		78·2	340	12 6	− 2	22 6	+ 4	—	44·1
Kodaikanal		78·8	273	47 18	?L	—	—	(47·3)	—
Tacubaya		78·8	75	12 11	− 1	—	—	14·2	—
Rocca di Papa		79·9	338	i 12 18	0	i 22 19	− 3	e 46·6	50·4
Colombo		80·1	270	50 6	?L	—	—	(50·1)	55·1
Ksara	E.	80·1	318	12 17	− 3	22 19	− 5	—	—
Pompeii		80·4	336	12 24	+ 3	e 22 34	+ 6	—	—
Tortosa	N.	83·0	348	i 12 33	− 3	i 22 53	− 4	e 42·1	52·6
Toledo		84·5	350	i 12 42	− 3	23 4	−10	e 39·2	46·8
Algiers		86·6	344	—	—	23 11	−26	—	—
Granada		87·0	350	12 59	0	i 23 39	− 2	46·8	52·3
San Fernando		88·1	351	—	—	—	—	—	57·1
La Paz		125·5	67	19 42	[+35]	—	—	71·0	81·2

Additional readings: Mizusawa PN = +4m.52s. Osaka MN = +21·0m. Honolulu eN = +14m.57s., PSN = +21m.1s., SR_1E = +28m.36s., eSR_1N = +28m.56s. Ekaterinburg SR_1 = +19m.44s. Pulkovo SR_1 = +22m.36s., MZ = +39·7m., MN = +39·8m. Upsala MN = +41·0m. Konigsberg i = +21m.6s. and +23m.12s., MN = +41·1m. Chicago S = +24m.33s. Ottawa PR_1N = +13m.56s., PR_2N = +15m.34s., SR_1N = +25m.27s., SR_2N = +27m.56s., MN = +45·3m., T_e = 23h.6m.58s. Ithaca e = +25m.6s. and +28m.6s. De Bilt eLNZ = +36·1m., MN = +42·6m., MZ = +43·3m. Strasbourg MN = +47·6m. Rocca di Papa +40m.8s. Tortosa eLE = +39·1m., ME = +49·4m. Toledo MNW = +46·9m. Granada eL = +29m.24s. (?SR_1). San Fernando MN = +60·6m. La Paz LN = +75·1m.

Aug. 25d. Readings also at 0h. (near Sapporo and Mizusawa), 1h. (Apia), 3h. (Wellington), 4h. (Manila), 7h. and 9h. (La Paz), 14h. (near Belgrade), 19h. (Mizusawa (2)), 20h. (near La Plata), 23h. (near Tucson, Mazatlan, Manzanillo, Vera Cruz, and Tacubaya).

Aug. 26d. Readings at 0h. (La Paz (2) and near Tacubaya), 2h. (Konigsberg, De Bilt, Pulkovo, and Ekaterinburg), 3h. (near Misusawa), 5h. (Apia), 9h. (near Tacubaya), 13h. (Irkutsk and Ekaterinburg), 19h. (Manila, La Paz, and Ekaterinburg), 20h. (Zi-ka-wei and Ekaterinburg), 22h. (Ekaterinburg).

Aug. 27d. 22h. 33m. 44s. Epicentre 41°·5N. 30°·5W.

A = +·645, B = −·380, C = +·663 ; D = −·508, E = −·862 ; G = +·571, H = −·336, K = −·748.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
San Fernando		19·5	97	4 41	+ 6	8 32	+19	9·8	10·3
Toledo		20·1	86	i 4 49	+ 7	e 8 32	+ 7	e 9·4	12·0
Malaga		20·7	95	i 5 1	+12	8 57	+19	e 10·7	—
Granada		21·2	93	i 4 57	+ 2	8 56	+ 8	i 10·9	11·3
Bidston		21·8	48	5 1	− 2	—	—	10·3	12·0
Stonyhurst		22·3	47	5 13	+ 4	9 16	+ 5	—	11·6
Oxford		22·3	53	i 5 11	+ 2	9 24	+13	—	—
Eskdalemuir		22·5	43	5 15	+ 4	9 20	+ 5	10·8	—
Edinburgh		22·8	42	e 5 19	+ 4	i 9 40	+19	i 12·5	—
Kew		22·8	54	—	—	—	—	—	13·3
Tortosa	E.	23·2	81	i 5 21	+ 2	9 3	−26	12·6	—
	N.	23·2	81	i 5 17	− 2	9 35	+ 6	—	—
Paris		24·2	61	e 5 33	+ 3	e 9 49	+ 1	12·0	13·3
Barcelona		24·3	79	5 25	− 6	9 53	+ 3	13·0	—
Uccle		25·6	57	5 43	− 1	10 12	− 2	12·3	14·3
De Bilt		26·2	54	5 52	+ 2	10 27	+ 1	12·9	14·8
Algiers		26·3	89	5 49	− 2	—	—	—	16·8
Besançon		26·5	65	5 48	− 5	e 10 34	+ 2	14·5	—
Strasbourg		27·6	62	6 14	+10	10 55	+ 3	13·3	—
Hamburg		29·4	52	e 6 19	− 3	—	—	e 15·3	—
Innsbruck	N.W.	30·1	65	e 6 28	− 1	—	—	—	—
Rocca di Papa		31·9	75	i 6 39	− 7	e 11 38	−29	e 17·2	18·2
Ottawa		32·6	291	e 4 31	−142	e 12 28	+10	e 16·8	—
Vienna		33·4	60	e 6 51	− 9	—	—	—	19·3
Upsala	E.	34·5	40	e 7 4	− 5	—	—	—	—
Toronto		35·5	290	—	—	—	—	16·8	—
Konigsberg		35·6	50	e 8 16	+58	—	—	—	19·3
Pulkovo		40·8	42	7 58	− 3	14 2	−16	20·3	25·8
Chicago		41·8	290	e 9 40	+91	—	—	25·7	—
Ekaterinburg		56·9	41	i 9 59	+ 8	17 58	+13	28·3	32·6
Baku		58·4	61	i 10 16	+15	i 18 28	+24	32·8	—
La Paz		67·7	220	11 32	+30	—	—	—	—

Additional readings: San Fernando MN = +11·3m. Toledo MNW = +11·1m. Strasbourg P? = +6m.7s.? Rocca di Papa eP = +6m.46s. Toronto LN = +19·0m. Ekaterinburg MZ = +34·0m.

Aug. 27d. Readings at 0h. (Eskdalemuir, Ekaterinburg, and De Bilt), 1h. (Strasbourg, Ksara, Baku, and Ekaterinburg), 4h. (Ekaterinburg, Ksara, La Paz, and near Mostar), 5h. (Ekaterinburg and near Mostar), 6h. (La Paz), 8h. (Sitka), 9h., 11h., and 12h. (La Paz), 13h. (Granada, near Vera Cruz, and Tacubaya), 15h. (Edinburgh, De Bilt (2), Ekaterinburg, and Granada (2)), 16h. (Strasbourg), 17h. and 20h. (Ekaterinburg).

Aug. 28d. 7h. 58m. 22s. Epicentre 5°·0N. 120°·0E. (as on 1923 Aug. 11d.).

A = −·498, B = +·863, C = +·087 ; D = +·866, E = +·500 ; G = −·044, H = +·075, K = −·996.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Manila	9·7	6	e 2 25	− 1	(4 18)	− 3	4·3	—
Batavia	17·2	230	4 8	+ 1	—	—	—	—
Ekaterinburg	69·5	330	i 11 14	0	i 20 29	+ 9	31·1	36·5
Pulkovo	85·6	330	12 39	−12	23 1	−25	47·6	—
De Bilt	100·9	326	—	—	—	—	e 51·6	—
Uccle	101·8	325	—	—	—	—	e 52·6	—

No additional readings.

Aug. 28d. 18h. 47m. 18s. Epicentre 41°·5N. 30°·5W. (as on Aug. 27d.).

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Toledo	20·1	86	e 4 36	− 6	e 8 28	+ 3	e 9·5	11·8
Granada	21·2	93	i 4 52	− 3	i 8 48	0	10·1	10·8
Eskdalemuir	22·5	43	—	—	8 42	−33	—	—
Edinburgh	22·8	42	—	—	—	—	e 10·7	—
Paris	24·2	61	—	—	—	—	e 12·7	—
Uccle	25·6	57	—	—	e 10 1	−13	e 11·7	—
De Bilt	26·2	54	—	—	e 10 11	−15	e 12·7	14·6
Strasbourg	27·6	62	e 6 18	+14	—	—	12·7	—
Ottawa	32·6	291	—	—	—	—	e 17·7	—
Toronto E.	35·5	290	—	—	—	—	21·4	—
Ekaterinburg	56·9	41	e 9 55	+ 4	e 17 48	+ 3	24·2	—

Additional reading: Toledo MNW = +11·7m.

Aug. 28d. 23h. 50m. 36s. Epicentre 34°·0N. 131°·0E. (as on 1920 May 21d.).

A = −·544, B = +·626, C = +·559; D = +·755, E = +·656; G = −·367, H = +·422, K = −·829.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Nagasaki	1·6	216	0 27	+ 3	—	—	1·1	1·2
Kobe	3·5	83	0 52	− 3	(1 37)	0	1·6	1·7
Osaka	3·8	83	1 7	+ 8	(1 55)	+11	1·9	2·8
Nagoya	5·0	75	1 12	− 5	—	—	2·5?	2·8
Hong Kong	18·8	236	4 14	−13	8 2	+ 4	—	12·9
Manila	21·4	207	e 4 42	−16	—	—	—	—
Ekaterinburg	51·6	320	—	—	e 16 52	+13	26·9	34·4
Colombo	54·3	254	33 54	?L	—	—	(33·9)	—
Pulkovo	66·1	329	10 51	− 1	19 48	+10	34·4	44·0
Upsala	71·5	332	—	—	—	—	e 40·4	47·9
Konigsberg	73·1	327	—	—	—	—	e 39·4	51·4
Budapest	78·3	321	—	—	—	—	e 42·4	—
Hamburg	78·7	330	—	—	—	—	e 41·4	52·4
Vienna	79·2	323	11 45	−29	—	—	—	53·4
De Bilt	81·8	330	e 12 23	− 6	e 22 48	+ 4	e 40·4	55·4
Edinburgh	82·0	337	—	—	—	—	e 42·4	62·0
Innsbruck	82·4	325	—	—	—	—	e 52·4	—
Eskdalemuir	82·5	337	—	—	e 22 24	−28	39·4	—
Uccle	83·1	330	—	—	e 22 54	− 4	e 41·4	55·4
Strasbourg	83·2	327	19 24	?	—	—	41·4	—
Stonyhurst	83·4	335	45 24	?L	—	—	(45·4)	55·1
Florence	84·9	322	11 54	−53	—	—	—	46·4
Tortosa N.	92·4	325	—	—	—	—	e 50·4	60·5
Toledo	95·3	327	—	—	—	—	e 47·4	63·2
Ottawa	97·1	18	—	—	—	—	e 48·4	—
Granada	97·2	326	e 18 5	?PR$_1$	—	—	e 50·7	64·9
Toronto E.	97·5	21	—	—	—	—	56·5	—
San Fernando	99·0	327	—	—	—	—	—	66·4
La Paz	155·5	49	51 38	?L	—	—	(e 51·6)	—

Additional readings and notes: Kobe MNZ = +1·8m. Osaka MN = +3·0m. Ekaterinburg iP = 23h.45m.48s., PR$_1$ = +11m.17s., SR$_1$ = +20m.32s., MN = +32·9m., MZ = +34·5m. Pulkovo SR$_1$ = +24m.24s., MZ = +44·1m. Upsala MN = +47·0m. De Bilt MNZ = +54·6m. Tortosa ME = +60·3m. Toledo MNW = +63·7m. Granada i = +27m.38s. and +32m.28s. San Fernando MN = +65·4m.

Aug. 28d. Readings also at 1h. (La Paz), 3h. (Taihoku), 4h. (Ekaterinburg and Zi-ka-wei (2)), 5h. (Nagoya (2), near Tacubaya, near Mizusawa (2), and near Osaka (2)), 6h. (Pulkovo, De Bilt, and Uccle), 7h. (Zi-ka-wei), 13h. (near Taihoku), 14h. (Zi-ka-wei), 15h. (Ekaterinburg, and near Taihoku (4)), 18h. (Pulkovo and Rocca di Papa), 19h. (Strasbourg and Granada), 20h. (Ekaterinburg), 21h. (Ekaterinburg, Manila, Zi-ka-wei, and near Taihoku), 22h. (Ekaterinburg and Pulkovo), 23h. (La Paz).

Aug. 29d. Readings also at 3h. (Granada, Baku, Taihoku, and Rio Tinto), 5h. (Taihoku and Ekaterinburg), 8h. (Ekaterinburg), 9h. (near Taihoku), 10h. (Ekaterinburg, near Osaka, and Mizusawa), 11h. (near Manila and near Taihoku), 12h. (Ekaterinburg), 14h. (Baku), 18h. (Ekaterinburg), 19h. (Nagasaki).

1924. Aug. 30d. 3h. 4m. 48s. Epicentre **8°·0N. 126°·5E.**
(as on 1923 Sept. 27d.).

$A = -\cdot589$, $B = +\cdot796$, $C = +\cdot139$; $D = +\cdot804$, $E = +\cdot595$; $G = -\cdot083$, $H = +\cdot112$, $K = -\cdot990$.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Manila		8·5	321	i 2 12	+ 3	(i 3 38)	−12	i 3·6	—
Hokoto		16·9	337	3 36	−28	(e 6 38)	−38	e 6·6	—
Taihoku		17·7	345	2 0	−133	—	—	5·3	8·1
Hong Kong		18·6	322	4 18	− 6	7 42	−11	8·7	10·2
Zi-ka-wei		23·7	349	i 5 10	−15	e 8 44	−54	—	13·3
Batavia		24·2	235	i 5 32	+ 2	i 10 0	+12	—	—
Malabar		24·2	232	5 36	+ 6	10 8	+20	13·5	—
Nagasaki		24·9	7	5 40	+ 3	(9 53)	− 8	9·9	10·9
Kobe		27·8	15	5 56	−10	9 19	−106	15·3	18·8
Osaka		27·9	16	5 1	−66	(10 29)	−28	10·5	12·3
Nagoya		28·8	18	6 27	+11	(11 8)	− 5	11·1	19·0
Mizusawa		33·8	22	6 50	−13	12 4	−34	17·0	—
Sapporo		37·4	18	8 20	+47	13 4	−26	17·0	—
Calcutta	N.	39·4	296	7 24	−26	13 50	− 7	19·8	24·0
Ootomari		41·1	17	7 53	−11	(13 43)	−39	13·7	25·9
Perth		41·2	194	8 11	+ 6	i 14 14	−10	21·6	22·5
Adelaide		44·4	166	e 8 36	+ 7	i 15 0	− 7	20·3	26·8
Colombo		46·2	271	7 12	−89	13 54	−97	22·1	30·9
Hyderabad		47·7	286	i 8 47	− 5	14 19	−91	15·5	25·4
Riverview		47·9	152	e 8 50	− 3	e 15 48	− 5	e 21·1	33·6
Sydney		47·9	152	8 42	−11	15 42	−11	26·4	27·4
Kodaikanal		48·5	276	9 0	+ 3	(16 12)	+12	16·2	32·9
Melbourne		48·9	160	8 54	− 5	i 16 18	+13	27·4	32·2
Dehra Dun		50·4	305	8 22	−47	15 34	−50	20·7	31·0
Simla		51·4	306	9 18	+ 2	16 30	− 6	—	31·2
Bombay		53·1	287	9 33	+ 6	16 55	− 2	—	37·6
Suva		57·5	118	10 30	+34	18 30	+37	—	—
Apia		65·0	110	11 8	+23	20 2	+37	30·9	34·2
Wellington		66·2	143	i 11 7	+14	i 19 47	+ 7	28·5	30·2
Ekaterinburg		70·2	328	i 11 18	0	i 20 23	− 5	28·2	42·8
Honolulu		73·6	70	i 11 49	+ 9	i 21 20	+11	i 33·8	35·6
Baku		74·7	310	i 11 47	0	—	—	28·2	—
Ksara		86·1	305	12 53	− 1	i 23 18	−13	44·4	46·3
Pulkovo		86·3	330	i 12 45	−10	23 10	−23	42·2	53·2
Sitka	E.	87·6	34	—	—	23 29	−19	40·6	43·8
	N.	87·6	34	—	—	23 33	−15	39·0	41·9
Helwan		90·5	300	13 12	− 7	23 39	[+ 8]	—	53·6
Lemberg		91·8	321	e 12 18	−68	e 24 36	+ 3	e 45·9	56·1
Upsala		92·4	332	13 19	−10	23 44	[+ 2]	e 41·2	57·1
Konigsberg		92·5	327	e 13 36	+ 6	24 6	[+23]	e 40·9	48·2
Athens		95·1	310	e 13 42	− 2	24 5	[+ 7]	e 41·9	63·4
Belgrade		95·5	317	e 13 28	−18	e 26 40	+89	e 46·0	52·4
Victoria	E.	97·0	39	13 47	− 7	24 34	[+26]	41·1	46·0
	N.	97·0	39	13 48	− 6	24 53	[+45]	40·0	40·5
Vienna		97·1	322	13 37	−18	24 12	[+ 4]	48·7	59·2
Bergen		97·6	335	—	—	25 12	−20	—	55·2
Hamburg		98·6	327	e 13 48	−15	i 24 23	[+ 6]	e 44·2	62·2
Innsbruck		100·5	323	e 13 54	−19	i 24 32	[+ 5]	e 41·2	62·0
Pompeii		100·9	315	e 14 12	− 3	e 24 32	[+ 3]	33·2	53·2
Johannesburg		101·1	244	24 48	?S	(24 48)	[+19]	31·7	44·2
Berkeley		101·4	49	14 7	−10	24 41	[+10]	45·0	49·6
Rocca di Papa		101·9	317	e 13 58	−22	(i 24 40)	[+ 6]	50·6	64·3
De Bilt		102·0	327	e 14 3	−17	i 24 41	[+ 7]	e 48·2	57·3
Florence		102·0	318	14 12	− 8	24 32	[− 2]	—	58·2
Lick	E.	102·1	49	i 18 27	?PR_1	e 24 32	[− 2]	i 46·9	49·2
Strasbourg		102·2	323	14 13	− 8	24 49	[+14]	e 44·2	63·0
Zurich		102·2	322	e 14 5	−16	e 24 26	[− 9]	e 52·2	—
Dyce		102·6	335	18 17	?PR_1	24 29	[− 7]	32·7	63·8
Uccle		102·7	326	e 14 10	−14	24 44	[+ 7]	42·2	61·8
Besançon		103·9	324	e 18 16	?PR_1	24 48	[+ 6]	41·2	55·2
Edinburgh		103·9	333	e 17 12	?	i 24 48	[+ 6]	33·2	68·3
Eskdalemuir		104·2	333	14 15	−16	i 24 51	[+ 7]	45·2	64·4
Stonyhurst		104·7	331	18 43	?PR_1	24 56	[+10]	51·2	58·7
Paris		105·0	326	14 21	−13	i 24 54	[+ 7]	46·2	64·2
Kew		105·1	330	—	—	—	—	—	72·2
Oxford		105·4	330	i 18 46	?PR_1	—	—	33·2	59·0

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Barcelona		109·1	320	e 19 3	?PR$_1$	—	—	e 48·4	63·7
Tortosa	E.	110·4	320	e 19 20	?PR$_1$	e 28 30	+58	e 45·2	67·9
	N.	110·4	320	18 48	?PR$_1$	e 28 31	+59	—	66·4
Algiers		110·7	314	e 18 55	?PR$_1$	e 25 42	[+30]	e 45·2	71·2
Tucson	E.	112·2	50	—	—	e 29 12	+84	51·1	—
Toledo		113·9	320	e 19 2	?PR$_1$	i 29 6	+65	e 46·1	53·6
Granada		115·1	317	e 16 21	+60	i 28 56	+45	e 47·2	62·9
Malaga		115·9	318	19 0	?	29 6	+49	39·1	62·1
San Fernando		117·2	318	19 47	?PR$_1$	35 12	?SR$_1$	55·2	77·2
Lisbon		117·8	321	20 3	?PR$_1$	—	—	e 36·8	62·8
Chicago		121·3	29	20 51	?PR$_1$	30 47	?	e 54·8	—
Ann Arbor		122·6	26	e 20 30	?PR$_1$	30 12	?	e 46·6	91·2
Ottawa		123·0	17	20 42	?PR$_1$	27 32	−100	e 46·7	62·7
Toronto	E.	123·3	21	20 36	?PR$_1$	e 28 45	−29	53·6	71·2
	N.	123·3	21	20 35	?PR$_1$	e 30 49	+95	46·6	77·2
Ithaca		125·4	20	e 21 7	?PR$_1$	e 30 43	?	56·2	—
Harvard		127·2	15	—	—	—	—	e 55·4	75·5
Tacubaya		127·3	59	19 17	[+ 5]	21 9	?	31·3	23·0
Georgetown	N.	128·2	23	e 21 9	?PR$_1$	e 30 36	?	e 38·4	—
Cheltenham	N.	128·5	23	—	—	—	—	e 55·2	—
Balboa Heights		149·0	56	20 2	[+ 8]	—	—	—	—
La Plata	E.	152·8	172	20 21	[+21]	49 18	?SR$_1$	65·2	68·8
	N.	152·8	172	20 13	[+13]	30 33	?	65·2	81·3
Rio de Janeiro		162·1	213	e 20 27	[+18]	—	—	45·2	68·7
La Paz	E.	163·4	122	i 20 17	[+ 7]	34 20	?	72·2	102·1
	N.	163·4	122	—	—	34 31	?	68·3	81·5

Additional readings and notes: Taihoku MN = +8·0m. Zi-ka-wei SR$_1$N = +9m.34s., MN = +13·5m. Nagasaki S = +7m.28s., MN = +12·6m. Kobe MNZ = +17·3m. Osaka MN = +13·2m. Nagoya S = +7m.21s., MN = +18·3m. Mizusawa PN = +6m.52s. Ootomari MN = +25·3m. Perth PS = +13m.44s. Adelaide iS = +18m.24s. Hyderabad SR$_1$ = +15m.44s. Riverview PR$_1$ = +10m.48s., PR$_2$ = +11m.15s., PS = +16m.20s., eSR$_1$ = +18m.50s. and +19m.58s., MN = +28·0m., MZ = +32·5m.; T$_0$ = 3h.4m.24s. Melbourne SR$_2$ = +22m.42s. Simla MN = +29·9m. Apia +28m.32s. Wellington PR$_1$ = +14m.6s., PR$_2$ = +15m.25s.; T$_0$ = 3h.5m.11s. Ekaterinburg PR$_1$ = +13m.50s. Honolulu PR$_1$E = +16m.42s., PSN = +22m.3s., SR$_1$ = +26m.38s., eLN = +30·4m. and +37·2m., MN = +30·8m.; T$_0$ = 3h.5m.5s. Ksara PR$_2$ = +18m.24s., PR$_3$ = +19m.34s., i = +23m.28s.; T$_0$ = 3h.5m.2s. Pulkovo PR$_1$ = +15m.44s. Sitka SR$_1$N = +28m.22s., eN = +35m.35s., LN = +41·2m. Lemberg MN = +56·0m. Upsala MN = +50·6m. Konigsberg PS = +24m.36s., MN = +44·7m., MZ = +55·9m.; all readings have been increased by 4m. Athens PR$_1$ = +17m.28s., MN = +55·3m. Belgrade PR$_1$ = +14m.41s.; readings given for 29d. Vienna iPZ = +13m.47s., PR$_1$? = +17m.43s., PR$_2$ = +19m.23s., PS = +25m.7s., SR$_1$? = +29m.8s., SR$_2$? = +32m.36s., eL = +36·2m. Hamburg MN = +55·2m. Innsbruck MNW = +54·2m. Pompeii readings are given as on 31d. Berkeley PE = +14m.16s., PR$_1$E = +18m.7s., PR$_1$Z = +18m.10s., PR$_2$Z = +20m.16s., LN = +42·3m. Rocca di Papa iPE = +14m.14s., ePN = +14m.22s., iPR$_1$E = +18m.13s., ePR$_1$N = +18m.21s., LN = +50·9m.; S is given as PR$_2$. De Bilt iPZ = +14m.5s., PR$_1$ = +18m.15s., PR$_2$ = +20m.20s., PR$_3$ = +21m.34s., MN = +57·1m., MZ = +65·1m. Strasbourg MN = +65·9m. Uccle PR$_1$ = +18m.22s., MN = +56·6m., MZ = +61·7m. Eskdalemuir e = +24m.35s., SR$_1$ = +33m.12s. Paris MN = +57·2m. Barcelona eL = +38·2m., MN = +60·0m. Toledo MNW = +53·5m., MZ = +70·6m. Granada i = +20m.26s. Malaga MN = +72·2m. San Fernando PR$_1$? = +23m.42s. Ann Arbor PR$_2$ = +26m.0s. Ottawa i = +37m.27s. and +41m.42s., MN = +69·7m. Toronto eE = +27m.51s., eN = +27m.55s., iN = +30m.55s., iE = +37m.34s. Ithaca e = +36m.33s. Harvard PR$_1$E = +21m.13s., SR$_1$E = +38m.15s., LE = +68·0m.; T$_0$ = 3h.5m.0s. Tacubaya MN = +82·0m. La Plata N = +44m.42s., +50m.21s. La Paz PR$_1$ = +25m.19s., PR$_2$ = +28m.25s., PS = +35m.25s., SR$_1$ = +42m.43s., SR$_2$ = +47m.7s.; T$_0$ = 3h.5m.9s. and 3h.5m.14s.

Aug. 30d. Readings also at 4h. (Zi-ka-wei, Irkutsk, near Taihoku (2), and Hokoto), 7h. (near Tortosa and Manila), 8h. (Barcelona), 9h. (Taihoku), 10h. (near Manila and near Baku), 20h. (La Paz), 22h. (Ekaterinburg), 23h. (Apia).

Aug. 31d. Readings at 7h. (near Athens and Rocca di Papa), 8h. (Ekaterinburg), 19h. and 20h. (Taihoku), 21h. (Kobe).

Sept. 1d. Readings at 5h. (Batavia), 8h. (La Paz), 9h. (Wellington), 17h. (La Paz), 22h. (La Paz and Manila).

Sept. 2d. 2h. 3m. 0s. Epicentre 23°·0N. 95°·0E. (as on 1914 Mar. 28d.).

A = −·080, B = +·917, C = +·391 ; D = +·996, E = +·087 ; G = −·034, H = +·389, K = −·921.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Calcutta	E.	6·2	267	1 49	+14	—	—	2·4	—
	N.	6·2	267	1 44	+ 9	—	—	2·3	—
Ekaterinburg		42·0	332	i 8 2	− 9	e 14 38	+ 3	22·0	—
Pulkovo		57·6	327	e 10 2	+ 6	—	—	—	—

Sept. 2d. 21h. 56m. 30s. Epicentre 9°·0N. 128°·0E. (as on 1923 Aug. 30d.).

A = −·608, B = +·778, C = +·156 ; D = +·788, E = +·616 ; G = −·096, H = +·123, K = −·988.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Manila	8·9	310	e 2 16	+ 1	—	—	5·2	6·4
Hong Kong	18·8	317	4 20	− 7	7 55	− 3	9·6	12·0
Batavia	26·0	235	i 5 40	− 8	i 10 23	+ 1	—	—
Osaka	26·6	14	6 38	+44	—	—	11·6	15·0
Bombay	54·2	287	10 8	+34	17 8	− 3	—	—
Ekaterinburg	70·2	328	i 10 20	−58	19 26	−62	30·5	38·3
Pulkovo	86·1	330	i 12 51	− 3	23 12	−19	47·5	54·4
Upsala	92·2	332	—	—	e 23 47	[+ 6]	—	—
Hamburg	98·6	328	—	—	e 24 30	[+13]	e 57·5	—
De Bilt	101·9	328	—	—	i 24 48	[+14]	e 55·5	—
Strasbourg	102·3	324	—	—	—	—	e 56·0	65·0
Uccle	103·0	327	—	—	—	—	e 53·5	—
Eskdalemuir	104·0	334	—	—	e 24 52	[+ 9]	56·5	—
Paris	105·1	325	—	—	—	—	e 65·5	—
Granada	115·4	318	i 31 18	?	e 43 8	?	60·3	74·1

Additional readings: Manila MN = +6·3m. Osaka MN = +17·4m. Ekaterinburg MN = +38·0m., MZ = +44·0m. Pulkovo MZ = +54·3m.

Sept. 2d. 23h. 52m. 0s. (I) } Epicentre 32·°2N. 110°·1W. (as on 1922 Sept. 30d.).
23h. 57m. 40s. (II) }

A = −·291, B = −·794, C = +·533 ; D = −·939, E = +·344 ; G = −·183, H = −·500, K = −·846.

One of the cases where the first shock is recorded at the near stations, and the second (probably stronger) at the more distant.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
I Tucson	E.	0·6	275	3 26	?	—	—	3·8	4·6
I Mazatlan		9·6	159	2 16?	− 8	—	—	3·2	—
I Tacubaya		16·2	140	4 12	+15	7 14	+14	7·2	8·1
I Vera Cruz		18·1	132	—	—	7 17?	−25	7·5	9·1
II Victoria		19·0	332	4 51	+22	—	—	7·8	10·3
II Chicago		20·2	55	4 20	−23	7 57	−30	—	—
II Ann Arbor		23·2	57	—	—	—	—	e 8·3	—
I Toronto	E.	26·6	56	e 6 5	+ 9	e 10 3	−30	—	11·4
	N.	26·6	56	e 9 5	?	e 10 22	−11	—	11·4
II Ottawa	Z.	29·5	53	—	—	e 12 20	+54	13·8	—
II Honolulu		43·8	268	—	—	e 14 54	− 5	—	16·7
II De Bilt		78·6	34	—	—	—	—	41·3	—
II Paris		79·2	38	—	—	—	—	e 40·3	—
II Pulkovo		82·4	19	—	—	—	—	41·3	—
II Granada		82·5	50	—	—	—	—	e 37·0	38·9
II Rocca di Papa		89·2	39	—	—	—	—	e 44·3	45·2
II Ekaterinburg		90·6	5	—	—	e 29 57	?SR_1	37·3	—

Additional readings: I Tucson eN = +3m.45s. II Victoria LN = +8·0m., MN = +11·5m. II Toronto i = +11m.16s., LN = +12·6m. ; (possibly the M belongs to I and should be +17·1m.).

Sept. 2d. Readings also at 0h. (Ekaterinburg), 2h. (La Paz), 3h. (near Athens), 4h. (Kingston), 9h. (near Manila), 12h. (Ekaterinburg and Ksara), 15h. (near Berkeley), 17h. (Ekaterinburg), 23h. (Ekaterinburg, Manila, and Pulkovo).

Sept. 3d. 2h. 29m. 0s. Epicentre 17°·5N. 47°·5W. (as on 1919 Oct. 8d.).

$A = +\cdot644$, $B = -\cdot703$, $C = +\cdot301$; $D = -\cdot737$, $E = -\cdot676$; $G = +\cdot203$, $H = -\cdot222$, $K = -\cdot954$.

Very rough.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Granada	43·2	55	i 10 50	+150	i 18 1	+190	23·8	27·2
Eskdalemuir	50·5	31	—	—	—	—	27·0	—
Edinburgh	50·8	30	—	—	—	—	e 29·0	—
Uccle	52·7	40	—	—	—	—	e 26·0	—
De Bilt	53·6	39	—	—	—	—	e 28·0	—
Strasbourg	54·2	42	—	—	—	—	e 29·7	—
Pulkovo	68·8	31	e 11 58	+48	—	—	37·0	—
Ekaterinburg	84·8	31	12 37	−10	e 23 25	+ 8	e 41·5	—

Sept. 3d. Readings also at 6h. (Ekaterinburg), 8h. and 10h. (Manila), 12h. (Manila and Ekaterinburg), 13h. (Ekaterinburg), 14h. (Mizusawa), 16h. (Manila and Ekaterinburg), 17h. (Pulkovo and La Paz), 21h. (Manila), 22h. (Ekaterinburg, Pulkovo, and near Batavia and Malabar).

Sept. 4d. 1h. 6m. 0s.? Epicentre 17°·5N. 47°·5W. (as on Sept. 3d.). The following readings may refer to a repetition from September 3; they can scarcely refer to the shock at 1h. 14m. from near Batavia. De Bilt eL = +28·0m. Edinburgh eL = +24·0m. Eskdalemuir L = +24·0m. Granada e = +29m.16s., e = +31m.43s., eL = +32·8m., M = +33·4m. Oxford L = +28·0m., M = +31·0m. Paris eL = +30·0m., M = +32·0m. Pulkovo eL = +29·0m. Strasbourg e = +29m.45s., eL = +34·3m. Uccle eL = +28·0m. Dyce L = +25·2m., M = +26·6m.

Sept. 4d. 1h. 14m. 0s. Epicentre 6°·0S. 105°·0E. (as on 1924 March 18d.).

$A = -\cdot257$, $B = +\cdot960$, $C = -\cdot105$.

	△	P.	O−C.	S.	O−C.	L.	M.
	°	m. s.	s.	m. s.	s.	m.	m.
Batavia	1·9	i 0 26	− 3	i 0 43	−10	—	2·2
Malabar	2·9	i 0 44	− 1	i 1 26	+ 6	—	—

Sept. 4d. 6h. 24m. 5s. Epicentre 36°·0N. 142°·0E. (as on 1924 Aug. 25d.).

$A = -\cdot638$, $B = +\cdot498$, $C = +\cdot588$; $D = +\cdot616$, $E = +\cdot788$; $G = -\cdot463$, $H = +\cdot362$, $K = -\cdot809$.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Mizusawa	E.	3·2	348	0 49	− 1	1 29	+ 1	—	—
Nagoya		4·2	260	0 41	−24	—	—	1·6	2·2
Osaka		5·5	258	1 28	+ 3	—	—	2·4	3·0
Kobe		5·8	259	1 18	−12	(2 22)	−17	2·4	3·7
Ekaterinburg		56·1	321	i 9 27	−20	e 17 14	−21	25·9	—
Apia		66·2	130	—	—	—	—	35·9	—

Additional readings: Mizusawa PN = +50s. Nagoya MN = +1·8m. Osaka MN = +3·2m. Kobe MNZ = +2·5m.

Sept. 4d. 16h. 1m. 0s. Epicentre 64°·0N. 25°·0W.

A = +·397, B = −·185, C = +·899 ; D = −·423, E = −·906 ; G = +·815, H = −·380, K = −·438.

	△ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
Dyce	13·0	111	3 15	+ 2	6 18	+34	—	9·7
Edinburgh	13·6	117	—	—	e 6 12	+14	i 7·2	10·6
Eskdalemuir z.	13·8	119	e 3 30	+ 7	—	—	6·5	—
Bidston	15·3	124	—	—	—	—	7·2	12·8
Stonyhurst	15·3	121	—	—	—	—	—	11·3
Oxford	17·4	123	i 4 13	+ 3	7 28	+ 1	8·2	13·6
Kew	18·0	123	—	—	—	—	—	11·0
De Bilt	19·6	113	4 38	+ 2	8 12	− 3	9·3	13·1
Upsala	20·1	82	e 4 40	− 2	e 8 14	−11	—	13·7
Uccle	20·2	117	e 4 41	− 2	e 8 24	− 3	e 9·5	10·8
Hamburg	20·5	104	e 4 47	0	e 8 46	+12	e 13·5	17·0
Paris	21·2	123	i 4 56	+ 1	e 8 47	− 1	11·5	16·0
Strasbourg	23·4	116	5 18	− 3	9 33	0	12·0	—
Besançon	23·9	120	e 5 23	− 4	—	—	—	13·0
Konigsberg	24·2	91	—	—	—	—	e 13·0	17·0
Zurich	24·8	117	e 5 30	− 6	9 58	− 1	—	—
Pulkovo	25·6	74	5 40	− 4	10 8	− 6	12·5	17·2
Innsbruck	25·9	113	e 5 44	− 3	—	—	14·0	—
Moncalieri	26·3	120	e 1 24?	?	9 50	−38	13·0	18·7
Toledo	27·1	143	—	—	11 30	+47	14·2	15·8
Vienna	27·2	106	e 5 55	− 5	—	—	—	19·5
Barcelona	27·4	132	6 5	+ 3	—	—	e 14·0	18·2
Tortosa	27·6	135	—	—	e 13 52	+180	17·6	22·0
Florence	28·7	117	5 10	−65	—	—	—	16·0
Budapest	29·0	104	—	—	e 14 0	+163	—	—
Granada	29·4	145	e 6 23	+ 1	i 11 29	+ 5	i 14·1	20·8
Rocca di Papa	29·9	118	i 6 31	+ 4	11 30	− 2	e 19·5	23·9
Algiers	32·0	135	e 4 46	−121	—	—	—	20·5
Ottawa	33·4	261	—	—	e 12 48	+18	e 15·6	—
Toronto	36·4	263	—	—	—	—	21·6	—
Ann Arbor	39·3	265	—	—	e 12 48	−68	17·2	—
Ekaterinburg	39·6	59	e 8 32	+41	16 0	+120	—	23·1
Victoria, B.C.	51·0	302	—	—	—	—	27·2	28·6
Irkutsk	57·2	34	—	—	18 8	+19	—	—
Bombay	76·4	75	16 0	?PR_1	—	—	—	—

Additional readings and notes: De Bilt MN = +12·7m., MZ = +12·8m. Upsala MN = +15·3m. Paris MN = +13·0m. Pulkovo MZ = +15·8m. Toledo MN = +16·7m. Tortosa eLN = +16·5m., MN = +19·9m. Barcelona MN = +19·1m. Rocca di Papa eN = +52s., e = +5m.58s., iN = +6m.36s. Ekaterinburg MZ = +23·0m. Victoria MN = +28·7m. Irkutsk e_2 = +19m.6s. ; also e = +22m.0s., and L = +34·0m.

Sept. 4d. Readings also at 0h. (Apia), 9h. (Batavia, Bombay, and Manila), 10h. (Ekaterinburg), 14h. (La Paz (2)), 15h. (La Paz and Irkutsk), 16h. (Rocca di Papa), 18h. (La Paz), 19h. (Helwan, Ekaterinburg, and Ksara), 20h. (Granada), 21h. (Uccle), 22h. (Ekaterinburg, Granada, Pulkovo, De Bilt, Uccle, and Strasbourg), 23h. (Granada, Uccle, and De Bilt).

Sept. 5d. 14h. 47m. 36s. Epicentre 9°·0N. 128°·0E. (as on 2d.).

A = −·608, B = +·778, C = +·156 ; D = +·788, E = +·616 ; G = −·096, H = +·123, K = −·988.

	△ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
Manila	8·9	310	e 2 22	+ 7	—	—	i 5·3	6·6
Hong Kong	18·8	317	4 29	+ 2	8 14	+16	10·1	12·4
Batavia	26·0	235	i 5 48	0	10 31	+ 9	—	—
Irkutsk	47·4	340	e 8 20	−30	15 39	− 7	24·4	—
Hyderabad	48·8	285	e 10 33	+94	—	—	—	32·6
Kodaikanal	49·8	275	29 54	?L	—	—	(29·9)	—
Bombay	54·2	287	—	—	17 24	+13	—	—

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Ekaterinburg	70·2	328	i 11 28	+10	i 20 32	+ 4	32·4	39·2
Pulkovo	86·1	330	12 59	+ 5	23 27	− 4	49·4	54·8
De Bilt	101·9	328	—	—	—	—	e 53·4	—
Strasbourg	102·3	324	—	—	—	—	e 55·4	—
Uccle	103·0	327	—	—	—	—	e 54·4	—
Paris	105·1	325	—	—	—	—	e 63·4	—
Granada	115·4	318	—	—	—	—	e 61·4	79·0

Additional readings: Manila MN = +5·7m. Batavia i = +11m.35s. Ekaterinburg MZ = +44·6m. Pulkovo MN = +54·6m.

Sept. 5d. Readings also at 5h. (La Paz and near Batavia and Malabar), 7h. (Bombay, near Kobe, and near Wellington), 11h. (Manila), 16h. (Rocca di Papa), 20h. (Ekaterinburg, near Mizusawa, and Sapporo), 21h. (Taihoku), 23h. (Apia).

Sept. 6d. 2h. 36m. 55s. Epicentre 46°·5N. 160°·0E. (as on 1916 Oct. 31d.).

A = −·647, B = +·236, C = +·725; D = +·342, E = +·940; G = −·682, H = +·248, K = −·688.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Ekaterinburg	56·9	320	i 9 53	+ 2	e 17 56	+11	27·1	35·3
Pulkovo	66·1	335	e 10 55	− 3	e 19 35	− 3	32·1	41·1
Konigsberg	73·0	337	—	—	—	—	e 44·8	46·1
Chicago	73·3	46	—	—	38 5	?L	e 50·6	—
Toronto	75·7	40	—	—	—	—	43·7	—
Ottawa	75·8	37	—	—	—	—	e 37·6	—
Edinburgh	76·7	350	—	—	—	—	—	69·1
Eskdalemuir	77·2	350	—	—	—	—	e 39·1	—
De Bilt	79·1	345	e 12 15	+ 1	—	—	e 39·1	—
Vienna Z.	80·1	337	i 12 24	+ 4	—	—	—	—
Uccle	80·5	346	—	—	—	—	e 39·1	—
Georgetown	80·6	42	—	—	—	—	e 38·5	—
Strasbourg	82·0	343	—	—	—	—	e 49·0	50·7
Innsbruck N.W.	82·3	339	e 12 28	− 4	—	—	—	—
Paris	82·7	347	—	—	—	—	49·1	—
Rocca di Papa	87·0	336	i 13 2	+ 3	—	—	e 55·3	56·3
Granada	95·1	348	i 14 56	+72	—	—	—	24·7

Additional readings: Ekaterinburg SR_1 = +21m.15s., MN = +31·2m., MZ = +35·5m. Pulkovo MZ = +43·1m. De Bilt eLN = +41·1m. Georgetown eN = +38m.10s. Innsbruck ePNE = +11m.53s. Rocca di Papa iPN = +13m.7s.

Sept. 6d. 4h. 50m. 56s. Epicentre 40°·0N. 42°·0E. (as on 1924 May 13d.).

A = +·569, B = +·513, C = +·643; D = +·669, E = −·743; G = +·478, H = +·430, K = −·766.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Ksara	7·9	220	e 2 2	+ 2	4 19	+45	—	5·0
Athens	14·4	268	—	—	e 6 12	− 6	8·6	—
Budapest	18·1	302	4 4?	−14	—	—	—	—
Vienna	20·0	303	e 4 58	+17	—	—	—	8·6
Konigsberg	20·6	323	e 4 52	+ 4	8 45	+ 9	—	15·1
Ekaterinburg	20·7	30	i 4 47	− 2	i 8 37	− 1	12·1	—
Pompeii	20·9	281	e 4 30	−22	e 13 30	?L	(e 13·5)	—
Pulkovo	21·1	344	i 4 54	0	i 8 51	+ 5	11·1	14·2
Rocca di Papa	22·2	284	i 5 9	+ 2	—		e 12·8	15·5
Innsbruck N.W.	23·2	299	i 5 20	+ 1	—	—	—	—
Upsala	25·0	331	e 5 34	− 4	e 10 2	− 1	—	16·6
Hamburg	25·5	313	e 5 40	− 3	e 10 24	+11	e 16·1	—
Moncalieri	25·6	293	e 5 12	−32	10 20	+ 6	15·2	20·9
Strasbourg	25·8	301	e 10 25	?S	(e 10 25)	+ 7	e 17·2	19·4

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
De Bilt	27·9	308	—	—	e 10 57	0	e 17·1	—
Uccle	28·2	305	—	—	e 11 49	+46	e 14·1	—
Paris	29·2	301	—	—	e 12 4	+44	19·1	22·1
Dyce	33·1	316	13 12	?S	(13 12)	+46	18·4	23·1
Eskdalemuir	33·3	314	—	—	e 12 11	−18	19·1	—
Edinburgh	33·4	314	—	—	e 12 4	−26	—	28·1
Bombay	33·8	121	—	—	12 4?	−34	—	—
Granada	35·4	280	i 5 57	−80	e 11 12	−109	14·9	16·3
Ottawa	78·1	321	—	—	e 19 45	−136	e 23·1	—
Toronto	81·1	321	—	—	—	—	24·8	—
Chicago	86·3	325	—	—	22 6	−87	e 28·7	—

Additional readings: Ksara $PR_1 = +2$m.16s., $PR_2N = +2$m.45s.; $T_e =$ 4h.50m.3s. Rocca di Papa iPN = +5m.16s., $PR_1E = +5$m.42s. Strasbourg e = +11m.18s. Ottawa eLN = +22·1m.

Sept. 6d. 19h. 37m. 10s. Epicentre 8°·4S. 155°·8E. (as on 1920 May 7d.).

A = −·902, B = +·406, C = −·146; D = +·410, E = +·912; G = +·133, H = −·060, K = −·989.

It seems possible that some of the Italian observations refer to local shock.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Riverview	25·8	189	e 7 41	+115	12 1	+103	e 15·0	16·9
Sydney	25·8	189	1 50	?	—	—	15·9	17·1
Adelaide	30·9	208	—	—	e 12 8	+18	e 47·8	52·3
Melbourne	31·0	197	—	—	—	—	—	21·8
Apia	32·3	101	—	—	—	—	e 51·8	—
Manila	41·5	303	e 7 50	−17	—	—	9·8	—
Perth	43·9	231	i 12 10	?	15 20	+19	?18·3	—
Mizusawa	49·4	349	8 23	−40	8 56	?	—	—
Hong Kong	51·1	309	9 10	− 4	—	—	—	25·3
Honolulu N.	54·2	56	—	—	e 23 21	?	—	30·7
Irkutsk	74·8	330	i 11 50	+ 2	i 21 40	+16	36·8	—
Bombay	86·1	290	13 10	+16	23 14	−17	—	—
Victoria, B.C. E.	90·3	41	24 1	?S	(24 1)	−16	41·6	46·2
N.	90·3	41	24 18	?S	(24 18)	+ 1	37·7	38·5
Ekaterinburg	99·8	326	i 14 1	− 9	i 24 31	[+13]	43·8	52·6
Baku	107·5	310	e 14 41	− 5	28 6	+60	52·8	57·4
Pulkovo	114·5	334	e 15 9	− 9	24 43	[+15]	52·8	64·2
Chicago N.	115·3	47	—	—	21 50	?	54·3	—
Toronto	120·6	44	—	—	—	—	53·8	—
Ottawa	122·3	41	e 20 50	?PR_1	e 37 50	?SR_1	e 52·3	—
Hamburg Z.	127·1	335	e 19 38	[+27]	—	—	e 63·8	—
Vienna Z.	127·5	328	i 19 38	[+26]	—	—	(i 68·6)	—
Edinburgh	129·7	345	—	—	—	—	e 69·8	—
De Bilt	130·2	337	e 19 37	[+18]	—	—	e 56·8	72·8
Eskdalemuir	130·2	345	e 21 37	?PR_1	—	—	60·8	—
Uccle	131·5	337	e 19 44	[+22]	—	—	e 56·8	—
Strasbourg	131·7	329	e 19 46	[+24]	—	—	e 64·8	—
Rotapeii	132·9	320	e 22 50	?PR_1	—	—	—	—
Florence	133·0	326	18 50	[−35]	—	—	—	81·8
Rocca di Papa	133·4	322	i 19 49	[+23]	i 23 4	?PR_1	e 30·1	—
Paris	133·7	337	e 19 51	[+24]	—	—	72·8	—
Moncalieri	134·2	328	e 19 0?	[−28]	21 18	?PR_1	24·6	—
Toledo	143·7	334	—	—	—	—	e 66·8	78·7
Granada	145·7	331	e 20 11	[+22]	—	—	e 69·3	82·9

Additional readings and notes: Riverview eS = +11m.27s., MN = +18·3m.; it is assumed that the readings are all 2 min. in error. Mizusawa P is given as S, with P = +8m.23s., possibly a separate shock. Honolulu eE = +26m.21s., ME = +28·9m. Ekaterinburg i = +17m.51s. and +26m.55s., e = +31m.41s., MN = +51·2m., MZ = +58·5m. Baku ePR$_1$ = +18m.45s. Pulkovo i = +19m.37s., i = +29m.6s., MZ = +64·1m. Chicago N = +37m.44s. Ottawa e = +30m.50s. Vienna gives L as iPZ of another shock. De Bilt eZ = +21m.36s. (?PR$_1$), MN = +71·0m., MZ = +72·5m. Strasbourg e = +21m.46s. (?PR$_1$); L given as for a separate shock. Rocca di Papa iPN = +19m.41s., PR$_1$ = +22m.0s., iSN = +22m.6s., S = +23m.10s., L = +47m.26s. Paris e = +23m.7s. (?PR$_1$). Moncalieri S = +21m.18s. (?PR$_1$).

Sept. 6d. Readings also at 0h. (Granada), 3h. and 5h. (Granada), 10h. (Ekaterinburg), 11h. (De Bilt, Dyce, Edinburgh, Eskdalemuir, Granada, Uccle), 12h. (De Bilt, Dyce, Edinburgh, Ekaterinburg (2), Eskdalemuir, and Strasbourg), 15h. (Nagasaki (2)), 17h. (Ekaterinburg), 18h. (Balboa Heights and Nagasaki), 19h. (Zi-ka-wei).

Sept. 7d. 1h. 45m. 40s. Epicentre 9°·0N. 128°·0E. (as on Sept. 5d.).

A = −·608, B = +·778, C = +·156 ; D = +·788, E = +·616 ; G = −·096, H = +·123, K = −·988.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Manila	8·9	310	e 2 17	+ 2	—	—	i 4·9	6·6
Hong Kong	18·8	317	4 25	− 2	7 50	− 8	9·3	11·8
Zi-ka-wei	23·0	345	(e 5 14)	− 3	e 5 14	?P	—	—
Batavia	26·0	235	i 6 43	+55	i 11 31	+69	—	—
Osaka	26·6	14	7 16	+82	—	—	12·0	13·9
Colombo	47·8	273	9 20	+27	—	—	—	33·3
Kodaikanal	49·8	275	30 8	?L	—	—	(30·1)	—
Bombay	54·2	287	9 25	− 9	17 2	− 9	—	—
Ekaterinburg	70·2	328	i 11 23	+ 5	e 20 23	− 5	36·3	44·9
Baku	75·1	310	11 54	+ 4	21 28	+ 1	—	—
Pulkovo	86·1	330	12 52	− 2	23 14	−17	38·8	54·7
De Bilt	101·9	328	e 18 22	?PR_1	e 24 56	[+22]	e 54·3	65·9
Strasbourg	102·3	324	—	—	—	—	e 54·3	—
Uccle	103·0	327	—	—	e 24 56	[+18]	e 52·3	—
Edinburgh	103·6	334	—	—	—	—	e 58·3	—
Eskdalemuir	104·0	334	—	—	e 24 58	[+15]	52·3	—
Paris	105·1	325	—	—	—	—	63·3	—
Granada	115·4	318	—	—	i 29 19	+66	e 60·1	65·0
Ottawa	121·6	17	—	—	—	—	e 67·3	—

Additional readings: Manila MN = +5·8m. Zi-ka-wei eP = +14s. and gives P as S. Batavia i = +12m.37s. Osaka MN = +16·4m. Pulkovo MZ = +54·5m. De Bilt MN = +65·5m., MZ = +68·0m.

Sept. 7d. 6h. 14m. 25s. Epicentre 82°·0N. 10°·0E.

A = +·137, B = +·024, C = +·990 ; D = +·174, E = −·985 : G = +·975, H = +·172, K = −·139.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Pulkovo	22·9	153	e 6 16	0	e 9 25	+ 2	11·6	14·7
Edinburgh	26·4	197	—	—	e 9 35	−55	—	—
Ekaterinburg	28·7	118	e 6 24	+ 9	e 11 25	+13	13·6	19·4
De Bilt	29·9	186	—	—	e 11 11	−21	14·6	—
Uccle	31·2	187	—	—	e 11 26	−28	—	—
Strasbourg	33·4	182	—	—	—	—	e 16·6	—
Baku	43·7	135	—	—	e 15 6	+ 8	22·1	24·6
Ottawa	44·6	274	—	—	e 18 53	?SR_1	e 23·6	—
Toronto	46·8	277	—	—	e 22 27	?	25·3	—
Victoria, B.C.	47·4	319	—	—	—	—	24·6	25·5
Chicago	49·7	284	—	—	19 16	?SR_1	29·3	—

Additional readings: Ekaterinburg MN = +16·8m., MZ = +20·7m. Baku e_2 = +18m.12s., MN = +32·4m. Victoria B.C., LN = +25·3m., MN = +26·0m.

Sept. 7d. 7h. 59m. 0s. Epicentre 18°·0S. 173°·5E. (as on 1921 Nov. 14d.).

A = −·945, B = +·108, C = −·309 ; D = +·113, E = +·994 ; G = +·307, H = −·035, K = −·951.

Very rough.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Wellington	23·0	177	—	—	i 10 0	+35	e 11·8	—
Riverview	25·5	227	e 5 18	−25	e 10 12	− 1	e 18·3	20·1
Sydney	25·5	227	6 18	+35	13 54	?L	18·7	20·3
Melbourne	31·8	227	—	—	—	—	—	24·0
Adelaide	35·3	234	—	—	—	—	e 21·0	27·0

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	Δ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
Chicago	108·4	51	55 31	?	—	—	65·5	—
Toronto	114·6	49	—	—	—	—	73·8	—
Ottawa	117·2	46	—	—	—	—	66·0	—
Ekaterinburg	117·4	325	24 2	?	i 27 26	−63	58·0	77·4
Pulkovo	130·6	336	24 23	?	35 18	?	58·0	94·3
Ksara	139·0	300	e 23 38	?	—	—	—	—
De Bilt	144·7	348	e 29 0	?	—	—	e 90·0	—
Uccle	146·1	349	—	—	—	—	e 87·0	—
Strasbourg	147·3	342	—	—	—	—	e 99·0	—

Additional readings: Riverview MN = +20·3m. The American stations also suggest a separate shock. Ekaterinburg e = +38m.26s., MN = 75·6m.

Sept. 7d. 13h. 31m. 0s. Epicentre 40°·5N. 122°·0W. (as on 1923 April 29d.).

A = −·403, B = −·645, C = +·649; D = −·848, E = +·530; G = −·344, H = −·551, K = −·760.

		Δ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
Berkeley		2·6	186	e 0 50	+ 9	—	—	i 2·7	3·9
Victoria, B.C.		8·0	354	3 15	?S	(3 15)	−22	4·9	5·8
Chicago		25·8	76	—	—	11 7	+49	18·0	—
Toronto	E.	31·4	70	—	—	e 11 38	−20	20·8	—
Ottawa		33·5	65	—	—	e 12 28	− 4	22·5	—
Honolulu	N.	36·0	250	—	—	e 14 5	+55	—	16·0
De Bilt	E.	76·7	30	—	—	—	—	e 38·0	—

Additional readings: Berkeley eN = +0m.47s., eZ = +0m.35s., iLNZ = +2·8m., MN = +3·6m., LZ = +4·1m.; several other readings marked i. Victoria B.C. LN = +5·3m., MN = +6·7m. Toronto e = +20m.15s. Ottawa LN = +20·5m.

Sept. 7d. 14h. 11m. 30s. Epicentre 9°·0N. 128°·0E. (as at 1h.).

A = −·608, B = +·778, C = +·156; D = +·788, E = +·616; G = −·096, H = +·123, K = −·988.

	Δ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
Manila	8·9	310	e 2 17	+ 2	—	—	5·2	—
Hong Kong	18·8	317	—	—	—	—	—	12·5
Zi-ka-wei	23·0	345	e 12 8	?L	—	—	(e 12·1)	—
Ekaterinburg	70·2	328	e 11 17	− 1	e 20 21	− 7	34·5	39·0
Pulkovo	86·1	330	—	—	—	—	e 44·5	54·3
De Bilt	101·9	328	—	—	—	—	e 59·5	—
Uccle	103·0	327	—	—	—	—	e 55·5	—

Sept. 7d. 18h. 48m. 0s. Epicentre 18°·0S. 173°·5E. (as at 7h.).

A = −·945, B = +·108, C = −·309; D = +·113, E = +·994; G = +·307, H = −·035, K = −·951.

		Δ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
Wellington		23·0	177	i 4 10	−67	—	—	e 5·8	—
Riverview		25·5	227	e 5 47	+ 4	e 11 15?	+62	e 12·4	15·4
Sydney		25·5	227	5 12	−31	9 30	−43	13·0	15·5
Melbourne		31·8	227	—	—	—	—	—	18·0
Adelaide		35·3	234	—	—	e 16 0	+180	e 19·8	22·6
Zi-ka-wei		70·1	315	e 12 33	+75	—	—	—	—
Victoria, B.C.	E.	87·0	37	24 23	?S	(24 23)	+42	44·3	48·6
	N.	87·0	37	24 21	?S	(24 21)	+40	44·3	48·9
Colombo		95·6	274	34 0	?SR_1	—	—	—	70·0

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		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Bombay		105·4	284	63 25	?L	—	—	(63·4)	—
Chicago		108·4	51	—	—	26 48	[−26]	44·9	—
La Paz		110·2	118	69 19	?L	—	—	—	—
Toronto		114·6	49	—	—	—	—	68·9	—
Ottawa		117·2	46	—	—	e 30 0	?	e 61·0	—
Ekaterinburg		117·4	325	19 16	[+31]	i 22 45	?PR$_1$	54·0	62·7
Pulkovo		130·6	336	19 38	[+18]	—	—	70·0	83·0
Edinburgh		142·0	357	—	—	—	—	88·0	—
Vienna	Z.	144·5	334	20 39	[+52]	—	—	—	—
De Bilt		144·7	348	e 20 3	[+15]	e 24 10	?PR$_1$	e 87·0	—
Uccle		146·1	349	—	—	—	—	86·0	—
Strasbourg		147·3	342	e 20 2	[+10]	e 24 26	?PR$_1$	e 86·0	—
Paris		148·3	349	—	—	—	—	e 91·0	—

Additional readings: Riverview eP = +6m.43s., MN = +14·8m. There may be two shocks about 1 min. apart. Thus Wellington L may be P for the second shock. Toronto iE = +80m.38s. Ottawa eN = +28m.0s., eLN = +52·0m. Ekaterinburg MN = +71·0m. Pulkovo MN = +88·6m., MZ = +88·5m.

Sept. 7d. Readings also at 4h. (Edinburgh), 9h. (near Manila), 10h. (Victoria, B.C., and Ekaterinburg), 11h. (Apia), 16h. (near Tacubaya), 17h. (Manila), 18h. (Rocca di Papa and Strasbourg), 21h. (near Batavia and Malabar).

Sept. 8d. 9h. 4m. 11s. (I)
9h. 41m. 20s. (II)
10h. 16m. 48s. (III)
10h. 42m. 10s. (IV)
11h. 48m. 50s. (V)
} Epicentre 56°·8N. 33°·6W. (as on 1921 Aug. 23d.). But see notes below.

A = +·456, B = −·303, C = +·837; D = −·553, E = −·833; G = +·697, H = −·463, K = −·548.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
II	Edinburgh	16·7	80	—	—	—	—	e 7·7	—
I	De Bilt	22·7	85	—	—	—	—	e 10·8	—
II		22·7	85	e 5 12	− 1	e 9 15	− 4	e 10·9	12·9
III		22·7	85	—	—	—	—	e 10·2	—
IV		22·7	85	—	—	—	—	e 11·8	—
V		22·7	85	—	—	—	—	e 12·2	—
II	Paris	22·9	95	—	—	—	—	e 10·7	12·7
II	Hamburg	24·7	79	—	—	—	—	e 9·7	—
I	Strasbourg	25·9	91	—	—	—	—	e 12·8	—
II		25·9	91	e 5 31	−16	e 9 54	−26	e 12·7	—
III		25·9	91	—	—	—	—	e 12·2	—
IV		25·9	91	—	—	—	—	e 12·8	—
V		25·9	91	—	—	—	—	e 12·2	—
I	Granada	27·9	122	—	—	—	—	e 14·4	17·4
II		27·9	122	i 5 27	−40	e 11 0	+ 3	15·0	18·6
III		27·9	122	—	—	—	—	e 16·0	17·8
IV		27·9	122	—	—	—	—	e 16·1	18·5
V		27·9	122	—	—	e 11 15	+18	e 16·5	—
II	Ottawa	28·3	265	—	—	e 12 16	+72	e 17·7	—
II	Toronto E.	31·4	266	—	—	—	—	20·9	—
II	Pulkovo	32·4	57	e 5 22	−90	—	—	20·7	—
II	Chicago	37·1	270	—	—	15 12	+107	23·3	—
II	Baku	53·9	70	—	—	—	—	30·2	—
II	La Paz	78·8	213	24 26	?S	(24 26)	+126	—	—

The Strasbourg readings have been increased by 10 min., the Granada readings by 6 min., and the Chicago readings by 1 hour. The solution has thus elements of uncertainty. Additional readings: De Bilt MZ = +13·0m. II Granada i = +7m.27s.

Sept. 8d. Readings also at 0h. (Ekaterinburg), 1h. (Simla and Taihoku), 5h. (Batavia), 6h. (Manila), 7h. (Apia), 13h. (Kingston), 15h. (Manila), 23h. (Uccle, Wellington, Riverview).

Sept. 9d. 0h. 27m. 25s. Epicentre 19·4N. 99°·2W. (Tacubaya).

A = −·151, B = −·931, C = +·332.

		△	P.	O−C.	S.	O−C.	L.	M.
		°	m. s.	s.	m. s.	s.	m.	m.
Tacubaya		0·0	0 3	+ 3	—	—	0·1	0·1
Chicago		24·5	—	—	—	—	e 25·0	—
Ottawa	E.	32·4	—	—	—	—	e 18·6	—
De Bilt		83·2	—	—	—	—	e 54·6	—
Strasbourg		86·2	—	—	—	—	41·6	—
Baku		114·2	—	—	—	—	35·6	—

Sept. 9d. 10h. 2m. 0s. Epicentre 40°·5N. 122°·0W. (as on Sept. 7d.).

A = −·403, B = −·645, C = +·649.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Victoria		8·0	354	2 1	0	(3 13)	−24	3·2	4·3
Chicago		25·8	76	—	—	10 44	+26	e 25·8	—
Toronto	E.	31·4	70	—	—	—	—	21·3	—
Ottawa	E.	33·5	65	—	—	12 45	+13	e 19·0	—
Honolulu	E.	36·0	250	—	—	14 12	+62	—	16·7
	N.	36·0	250	—	—	14 4	+54	—	15·3

Additional readings: Victoria LN = +3·4m., MN = +5·5m. Ottawa eN = +14m.38s.

Sept. 9d. 14h. 41m. 50s. Epicentre 9°·0N. 128°·0E. (as on Sept. 7d.).

A = −·610, B = +·776, C = +·160.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Manila	8·9	310	e 2 28	+13	—	—	4·9	—
Hong Kong	18·8	317	—	—	—	—	—	12·2
Zi-ka-wei	23·0	345	5 21	+ 4	e 9 12	−13	—	16·7
Irkutsk	47·4	340	e 8 51	+ 1	e 15 39	− 7	25·2	—
Bombay	54·2	287	11 10?	+96	—	—	—	—
Ekaterinburg	70·2	328	—	—	—	—	35·2	—
Baku	75·1	310	—	—	—	—	37·2	—

Zi-ka-wei readings are given for 10d.

Sept. 9d. Readings also at 0h. (Granada), 2h. (Nagoya and Rocca di Papa), 3h. (Baku, Taihoku, Mizusawa, Granada, near Osaka, and near La Plata), 4h. (near Kobe), 5h. (Toronto), 12h. (Manila), 14h. (near Kobe), 15h. (Mizusawa), 17h. (Manila), 18h. (Mizusawa), 20h. (Rocca di Papa).

Sept. 10d. 4h. 43m. 10s. Epicentre 9°·0N. 128°·0E. (as on Sept. 9d.).

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Manila	8·9	310	e 2 20	+ 5	—	—	i 6·1	6·4
Hong Kong	18·8	317	4 5	−22	7 33	−25	9·5	11·8
Zi-ka-wei	23·0	345	i 5 0	−17	e 8 52	−33	—	15·4
Batavia	26·0	235	i 5 24	−24	10 26	+ 4	—	—
Colombo	47·8	273	27 50	?L	—	—	(27·8)	32·8
Baku	75·1	310	e 11 19	−31	e 21 13	−14	38·3	—
Pulkovo	86·1	330	—	—	—	—	e 50·8	—
Uccle	103·0	327	—	—	—	—	e 55·8	—

Additional readings: Manila MN = +6·1m. Zi-ka-wei readings are given for 11d.

Sept. 10d. 5h. 54m. 24s. Epicentre 6°·5S. 126°·0E. (as on 1923 Feb. 15d.).

A = −·584, B = +·804, C = −·113 ; D = +·809, E = +·588 ;
G = +·067, H = −·092, K = −·994.

Preliminary solution without deep focus. Revised solution with deep focus given below.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Malabar	18·3	267	i 3 35	−46	i 6 25	−82	—	—
Batavia	19·0	270	i 3 42	−47	e 6 31	−91	—	—
Manila	21·7	346	e 4 55	− 6	—	—	8·9	—
Perth	27·2	199	5 20	−40	9 18	−87	10·1	—
Hong Kong	31·0	339	6 52	+14	10 59	−52	—	—
Riverview	35·9	143	i 6 54	−27	i 12 21	−48	e 14·8	20·6
Zi-ka-wei	37·9	355	7 16	−21	—	—	—	—
Osaka	42·1	11	8 2	−10	—	—	15·4	22·4
Mizusawa	47·7	17	7 38	−74	—	—	—	—
Hyderabad	52·7	298	9 33	+ 9	15 38	−74	20·0	—
Bombay	58·2	298	e 8 46	−74	16 57	−64	—	—
Baku	83·7	314	i 12 11	−29	i 22 6	−60	—	—
Ksara	93·4	305	12 43	−51	22 58	−111	—	—
La Paz	153·1	149	19 40	[−20]	—	—	—	—

Additional readings and Notes : Zi-ka-wei readings are given for 11d. Batavia $i_1 = +4$m.46s., $i_2 = +14$m.3s. ; these follow P by 64s. and 10m.21s. Baku (below) also gives three impulses separated by similar intervals, actually 52s. and 9m.55s. ; and Mizusawa gives SE = +8m.41s., SN = +8m.42s., which, with the above, may be identified reasonably with the first two impulses ; so that the first of the three has been taken as P in each case. It seems possible that Hong Kong and Hyderabad missed the first impulse and recorded the second, which would explain the positive residuals for P. Batavia also gives Maron S? −P = 2m.29s. Perth $L_2 = +15·6$m. Riverview MN = +20·8m. Mizusawa seems to be 1 minute in error (see above note to Batavia). Baku $i_1 = +12$m.11s., $i_2 = +13$m.3s., $i_3 = +22$m.6s. (see above note to Batavia).

But the solution would clearly be improved by the hypothesis of a deep focus. Batavia, Perth, and Riverview, in azimuths 270°, 199°, and 143°, all require an epicentre considerably nearer them ; and both Hong Kong and Hyderabad, in azimuths 340° and 300°, show the same need in S. Further, though the P residual is positive in these last two cases, it is suggested above that this may be due to error in mistaking the second impulse for the first. [It should also be remarked that similar mistakes in S would only increase the discrepancies]. Finally, the La Paz [P] residual is sensibly negative. On trial a depth of focus 0·040 was found suitable, with a change of epicentre to 7°·0S. 124°·0E. (as on 1923 Mar. 28d.). A small correction has also been made in T_0.

Sept. 10d. 5h. 54m. 18s. Epicentre 7°·0S. 124°·0E. (as on 1923 Mar. 28d.).

A = −·555, B = +·823, C = −·122 ; D = +·829, E = +·559 ;
G = +·068, H = −·101, K = −·993.

A depth of focus 0·040 has been assumed.

	Corr. for Focus	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	•	•	•	m. s.	s.	m. s.	s.	m.	m.
Malabar	−1·2	16·3	268	i 3 41	+ 1	6 31	− 3	—	—
Batavia	−1·3	17·0	272	i 3 48	0	e 6 37	−11	—	—
Manila	−1·7	21·8	352	e 5 1	+19	—	—	9·0	—
Perth	−2·2	26·1	196	5 26	− 1	9 24	−18	10·2	—
Hong Kong	−2·6	30·9	343	6 58	+47	11 5	+ 1	—	—
Riverview	−3·1	36·7	141	i 7 0	− 1	i 12 27	− 7	e 14·9	20·7
Zi-ka-wei	−3·2	38·3	358	7 22	+ 8	—	—	—	—
Osaka	−3·5	43·1	14	8 8	+17	—	—	15·6	22·5
Mizusawa	−3·9	48·8	20	7 44	−48	8 47	?	—	—
Hyderabad	−4·1	51·2	300	9 39	+51	15 44	+ 2	20·1	—
Bombay	−4·5	56·7	300	e 8 52	−29	17 3	+17	—	—
Baku	−5·2	82·7	314	i 12 17	+13	i 22 17	+22	—	—
Ksara	−5·5	92·4	305	12 49	− 9	23 4	−36	—	—
La Paz	—	153·6	153	19 46	[−15]	—	—	—	—

Sept. 10d. 11h. 59m. 10s. Epicentre 37°·0N. 34°·3E.

A = +·660, B = +·450, C = +·602 ; D = +·564, E = −·826 ;
G = +·497, H = +·339, K = −·799.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Ksara	3·4	157	i 1 36	+43	i 2 29	+55	—	2·6
Helwan	7·5	200	i 2 9	+15	—	—	—	3·4
Athens	8·4	280	2 5	− 2	3 21	−26	e 3·5	4·2
Baku	12·7	70	i 4 1	+52	i 7 6	+89	8·8	—
Budapest	15·2	318	3 38	− 4	—	—	—	—
Pompeii	15·8	290	e 3 50	+ 1	—	—	—	—
Vienna	17·3	316	4 10	+ 1	i 7 35	+10	—	9·8
Rocca di Papa E.	17·3	293	4 5	− 4	—	—	i 9·9	10·3
Venice	18·5	304	3 50?	−33	—	—	—	—
Florence	18·6	299	4 15	− 9	8 15	+22	—	10·3
Innsbruck N.W.	19·8	307	i 4 40	+ 1	i 8 49	+30	—	—
Konigsberg	20·1	336	e 4 59	+17	i 8 29	+ 4	—	—
Moncalieri	21·5	300	e 4 34?	−25	8 25?	−30	12·2	—
Zurich	21·6	307	e 4 57	− 3	e 8 59	+ 2	—	—
Strasbourg	22·5	310	5 9	− 2	9 0	−15	12·1	13·2
Pulkovo	22·9	355	i 5 30	+14	9 34	+11	11·8	—
Besançon	23·1	305	5 15	− 3	e 9 29	+ 2	—	13·8
Hamburg	23·6	323	e 5 31	+ 7	i 9 57	+21	—	11·8
Algiers	24·9	279	e 5 27	−10	9 26	−35	11·5	—
Upsala	25·2	340	e 5 45	+ 5	e 10 12	+ 5	—	—
De Bilt	25·4	316	i 5 45	+ 3	e 10 23	+12	e 11·8	13·8
Uccle	25·4	313	e 5 39	− 3	e 10 5	− 6	e 11·8	—
Paris	25·8	308	e 5 57	+11	e 10 4	−14	13·8	13·8
Toledo	29·9	288	—	—	i 11 39	+ 7	14·9	20·2
Eskdalemuir	31·1	318	—	—	—	—	13·8	—
Edinburgh	31·4	319	—	—	—	—	—	18·8

Additional readings: Ksara PN = +1m.45s., iRPSN = +2m.10s. ; T_e = 11h.59m.56s. Athens i_1 = +2m.45s., i_2 = +3m.3s., MN = +4·6m. ; T_e = 11h.59m.41s. Baku i = +4m.36s. Vienna i = +4m.58s., S is given as i simply. Rocca di Papa PN = +4m.10s., PR_1N = +4m.22s., e(L) = +6·9m. Konigsberg ? = +5m.13s. Strasbourg PR_1 = +6m.47s. But this is probably the second shock recorded by Athens and elsewhere. De Bilt MN = +13·9m. Toledo MN = +20·1m. ; the readings have all been increased by 7m.

Sept. 10d. Readings also at 6h. and 7h. (Manila), 8h. (near Tacubaya), 15h. (La Paz and Taihoku), 16h. (La Paz), 17h. (Taihoku and close to Rocca di Papa and Pompeii).

Sept. 11d. 3h. 25m. 40s. Epicentre 4°·8N. 126°·0E. (See note to 1918 Feb. 27d. 9h.)

A = −·586, B = +·806, C = +·084 ; D = +·809, E = +·588 ;
G = −·049, H = +·068, K = −·997.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Manila	10·9	334	i 2 40	− 3	—	—	i 6·9	7·7
Taihoku	20·6	348	e 4 34	−14	8 21	−15	11·1	—
Hong Kong	21·0	328	4 40	−13	8 25	−19	11·0	12·8
Malabar	22·0	237	e 5 18	+13	—	—	—	—
Batavia	22·1	240	i 5 11	+ 5	i 10 1	+54	—	—
Zi-ka-wei	26·7	352	i 5 26	−29	9 49	−46	—	15·7
Kobe	31·0	15	—	—	—	—	—	7·5
Osaka	31·1	14	7 3	+24	—	—	14·8	e 23·8
Perth	38·0	194	9 37	+119	i 13 37	− 1	16·5	18·8
Adelaide	41·5	166	—	—	e 14 8	−20	23·8	26·3
Riverview	44·6	150	(e 12 14)	?	e 14 57	−13	e 25·8	27·6
Sydney	44·6	150	e 12 8	?	18 50	?SR_1	24·6	27·8
Melbourne	46·1	160	e 7 50	−51	—	—	i 18·7	19·3
Colombo	46·4	274	4 20	?	15 14	−19	—	36·3
Hyderabad	48·2	290	9 3	+ 8	15 39	−17	22·8	26·5
Kodaikanal	48·4	280	15 38	?S	(15 38)	−21	—	—
Simla	52·8	307	16 44	?S	(16 44)	−10	—	—
Bombay	53·3	290	9 20	− 8	—	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Baku		73·2	311	e 11 50	+13	e 21 28	+24	40·3	43·1
Honolulu	E.	75·1	69	—	—	e 21 28	+ 1	33·8	35·5
Ksara	N.	87·2	304	12 47	−13	23 26	[+16]	—	—
Pulkovo		88·7	331	12 50	−19	23 18	[− 2]	45·3	53·4
Konigsberg		94·8	326	—	—	i 24 20	[+25]	e 44·3	59·3
Upsala		94·9	331	—	—	e 24 20	[+24]	e 45·3	—
Budapest		97·7	320	—	—	e 21 50	?	—	—
Victoria		99·9	40	17 41	?PR_1	24 42	[+19]	31·6	46·1
Hamburg		101·1	326	—	—	e 24 20	[−10]	e 50·3	—
Innsbruck	N.W.	102·7	321	—	—	e 24 26	[−11]	—	—
Venice		102·8	320	19 20	?PR_1	—	—	—	—
Rocca di Papa		103·8	315	i 14 33	+ 4	e 22 22	?	e 54·3	—
Florence		104·1	317	16 20	?	—	—	37·3	52·3
Strasbourg		104·2	322	14 4	−27	25 56	−39	53·3	—
De Bilt		104·3	327	14 20	−11	25 2	[+18]	49·3	59·5
Dyce		105·2	334	—	—	24 40	[− 8]	52·3	—
Uccle		105·4	325	—	—	e 24 32	[−17]	e 48·3	55·3
Moncalieri		105·9	319	e 18 39	?PR_1	28 5	?	e 56·6	—
Besançon		106·4	321	—	—	e 25 20	[+26]	61·3	67·3
Edinburgh		106·6	332	—	—	25 20	[+25]	54·3	64·3
Stonyhurst		107·3	330	25 30	?S	(25 30)	[+32]	54·3	72·3
Paris		107·4	325	—	—	e 25 19	[+20]	55·3	67·3
Oxford		107·9	329	—	—	i 25 25	[+24]	54·6	63·1
Toledo		116·0	318	—	—	e 25 55	[+23]	e 46·1	67·0
Granada		117·1	316	i 14 39	−51	i 27 32	−55	i 60·0	76·6
Chicago		124·2	30	20 14	?PR_1	29 58	+38	62·2	—
Ottawa		126·2	17	e 20 48	?PR_1	e 30 32	?	e 38·0	—
Toronto		126·4	21	—	—	e 32 55	?	—	—
La Paz		161·9	131	20 17	[+ 8]	—	—	—	—

Additional readings: Manila MN = +8·0m. Zi-ka-wei PS = +10m.34s., SR_1 = +10m.56s.; all readings are given as on 12d. Adelaide e = +17m.26s. = SR_1, e = +23m.50s. taken as L. Riverview ePR_1? = +15m.32s., eS = +18m.16s. (?SR_1) and +18m.32s., PS = +18m.56s., MN = +31·7m.: true S is given as PR_1. Sydney L = +29·1m. Melbourne M = +20·8m. Osaka MN = +22·1m. Simla PN = +16m.50s. Bombay reading has been increased by 12m. Baku iP = +11m.53s., iS = +21m.32s., SR_1 = +27m.9s., SR_2 = +31m.10s. Ksara gives T_o = 3h.25m.32s. Victoria PN = +17m.42s., LN = +40·8m., MN = +41·6m. Rocca di Papa (e) = +8m.22s., e = +9m.46s. De Bilt MN = +58·9m., MZ = +62·1m. Dyce S = +33m.43s. Paris eSN = +25m.26s. Toledo MN = +67·8m. Granada i = +20m.11s., i(SP) = +29m.26s. Chicago LN = +37·2m. Toronto eE = +37m.58s.

Sept. 11d. Readings also at 2h. (Granada), 6h. (Zi-ka-wei), 7h. (Mostar), 17h. (Mostar), 21h. (Ekaterinburg and La Paz), 22h. (Ekaterinburg, Baku, and Ksara), 23h. (Apia).

Sept. 12d. 0h. 9m. 40s. (I)
8h. 59m. 30s. (II) } Epicentre 33°·2N. 71°·4E.

A = +·267, B = +·793, C = +·548; D = +·948, E = −·319; G = +·175, H = +·519, K = −·837.

The epicentre has been adopted from the Simla and Ekaterinburg observations of II, and assumed to be the same for I. The alternative solution from these two stations would be near 36°·0N. 80°·0E.; but this would be still further from the Indian stations and Baku.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
I	Simla	5·3	111	e 1 44	+22	—	—	—	—
II		5·3	111	1 30	+ 8	2 24	− 1	—	—
I	Bombay	14·3	175	—	—	5 20?	−55	—	—
II		14·3	175	8 30	?L	—	—	(8·5)	—
I	Hyderabad	17·1	156	—	—	—	—	—	8·5
II		17·1	156	e 9 6	?L	—	—	(9·1)	10·0
II	Calcutta E.	18·4	121	8 1	?S	(8 1)	+12	10·4	—
II	N.	18·4	121	7 56	?S	(7 56)	+ 7	10·2	—
I	Baku	18·6	299	e 7 33	?S	(7 33)	−20	—	—
II		18·6	299	—	—	—	—	12·5	—
I	Ekaterinburg	24·8	346	—	—	—	—	14·3	—
II		24·8	346	5 33	− 3	10 6	+ 7	12·5	—

Additional reading: Simla I ePN = +1m.32s.

Sept. 12d. Readings also at 3h. (La Paz). 4h. (Batavia), 18h. (Irkutsk and Algiers), 19h. (Kobe and Irkutsk), 20h. (Kobe, Irkutsk, and Mostar).

1924. Sept. 13d. 14h. 34m. 0s. Epicentre 40°·0N. 42°·0E.

(as on Sept. 6d.).

A = +·569, B = +·513, C = +·643 ; D = +·669, E = −·743 ;
G = +·478, H = +·430, K = −·766.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Baku	6·0	85	1 46	+14	—	—	—	—
Ksara	7·9	220	i 2 3	+ 3	i 4 3	+29	—	4·5
Helwan	13·4	224	i 3 21	+ 3	i 5 57	+ 4	—	10·3
Athens	14·4	268	3 39	+ 7	e 6 32	+14	i 7·6	8·6
Lemberg	16·0	314	e 3 54	+ 2	e 7 0	+ 5	e 10·1	14·4
Belgrade	16·6	294	e 4 7	+ 7	i 7 22	+13	i 10·2	11·8
Mostar	18·3	295	e 4 27	+ 6	e 7 46	− 1	e 11·4	12·4
Vienna	20·0	303	e 4 46	+ 5	7 36	−47	e 10·5	15·5
Konigsberg	20·6	323	4 54	+ 6	8 56	+20	e 11·0	13·0
Ekaterinburg	20·7	30	i 4 54	+ 5	i 8 39	+ 1	—	—
Pompeii	20·9	280	i 5 0	+ 8	i 9 23	+41	10·5	11·5
Pulkovo	21·1	344	i 4 55	+ 1	i 8 55	+ 9	10·8	24·2
Rocca di Papa	22·2	284	5 1	− 6	e 9 16	+ 7	e 11·6	15·2
Venice	22·3	294	5 4	− 5	9 20	+ 9	—	—
Florence	23·1	290	5 21	+ 3	9 30	+ 3	—	14·0
Innsbruck	23·2	299	i 5 19	0	i 9 39	+10	e 14·0	18·0
Upsala	25·0	331	e 5 35	− 3	i 10 3	0	—	21·4
Zurich	25·1	298	e 5 36	− 3	i 10 11	+ 6	—	—
Hamburg	25·5	313	e 5 43	0	i 10 25	+12	—	16·0
Moncalieri	25·6	293	5 34	−10	9 26	−48	13·8	19·0
Strasbourg	25·8	301	i 5 35	−11	i 10 24	+ 6	14·4	17·3
Besançon	26·7	298	i 6 6	+11	i 10 40	+ 5	18·0	18·0
De Bilt	27·9	308	6 9	+ 2	10 54	− 3	14·0	24·8
Uccle	28·2	305	e 5 59	−11	i 11 3	0	13·5	19·6
Paris	29·2	301	i 6 21	+ 1	i 11 13	− 7	18·0	23·0
Simla	29·8	96	6 30	+ 4	e 11 36	+ 5	17·4	20·0
Barcelona	29·9	286	6 28	+ 1	11 31	− 1	12·6	21·4
Bergen	30·5	324	(6 45)	+12	(e 12 0?)	+17	e 12·0	22·0
Algiers	30·5	277	e 6 23	−10	?11 29	−14	16·0	22·0
Dehra Dun	30·7	97	5 20	−75	10 51	−55	16·8	21·8
Kew	31·1	306	—	—	—	—	—	24·0
Tortosa	31·3	285	i 6 40	− 1	11 46	−10	13·8	23·7
Oxford	31·8	306	i 6 45	0	i 11 55	−10	14·3	21·1
West Bromwich	32·3	308	6 47	− 4	12 10	− 3	—	—
Stonyhurst	32·7	310	6 51	− 3	12 3	−16	—	24·3
Bidston	33·1	310	7 15	+18	12 20	− 6	14·6	24·5
Dyce	33·1	316	6 48	− 9	11 12	−74	12·3	22·3
Edinburgh	33·4	314	6 58	− 2	12 20	−10	—	24·9
Bombay	33·8	121	6 57	− 6	12 29	− 9	17·0	21·2
Toledo	34·9	285	7 1	−11	i 12 21	−33	e 15·2	19·5
Granada	35·4	280	i 7 12	− 5	i 12 40	−21	16·5	17·3
Malaga	36·2	280	7 12	−12	12 38	−25	15·9	25·4
Rio Tinto	37·5	281	9 0	?	—	—	—	30·0
San Fernando	37·6	280	7 28	− 7	13 23	− 9	16·5	21·5
Hyderabad	38·7	117	7 38	− 6	13 40	− 8	18·7	22·7
Lisbon	39·0	284	7 29	−17	13 32	−20	e 15·9	24·8
Calcutta E.	42·7	100	8 2	−14	14 38	− 6	22·5	—
N.	42·7	100	7 58	−18	15 36	+52	23·0	27·0
Irkutsk	42·8	52	i 8 18	+ 1	14 52	+ 7	23·0	—
Kodaikanal	43·2	124	9 48	+88	—	—	14·3	28·1
Colombo	47·3	124	9 0	+11	15 42	− 3	21·4?	29·3
Hong Kong	62·5	83	10 42	+13	—	—	—	42·0
Zi-ka-wei	63·0	71	e 10 16	−16	e 18 20	−41	—	43·3
Taihoku N.	66·5	78	—	—	39 10	?L	42·5	—
Johannesburg	67·4	194	—	—	—	—	32·8	42·0
Nagasaki	68·2	65	e 20 6	?S	(e 20 6)	+ 2	40·6	45·6
Ootomari	68·3	46	20 3	?S	(20 3)	− 3	34·6	40·4
Kobe	70·7	61	—	—	—	—	—	45·0

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Osaka		80·8	61	11 26	+ 4	20 50	+14	35·5	45·3
Nagoya		71·6	60	21 1	?S	(21 1)	+16	45·2	45·3
Mizusawa	E.	71·9	54	(11 46)	+17	11 46	?P	41·1	—
Manila		72·3	86	11 12	−20	—	—	41·3	—
Batavia		75·2	112	i 12 0	+10	i 21 30	+ 2	31·5	63·9
Cape Town		77·3	200	22 0	?S	(22 10)	+ 8	39·4	42·2
Harvard		77·9	316	—	—	22 12	+13	38·2	53·4
Ottawa		78·1	321	i 12 22	+14	i 22 19	+18	e 37·0	45·5
Ithaca		80·6	320	e 12 24	+ 1	22 37	+ 7	38·0	—
Toronto	E.	81·1	321	e 12 32	+ 6	i 22 45	+ 9	38·2	47·0
	N.	81·1	321	i 12 35	+ 9	i 22 46	+10	38·2	45·4
Sitka	E.	82·9	359	—	—	22 47	− 9	41·2	52·0
	N.	82·9	359	—	—	23 4	+ 8	40·5	62·5
Georgetown		83·4	317	e 12 48	+10	23 11	+10	45·9	51·9
Ann Arbor		84·2	324	12 30	−13	23 0	−10	e 40·0	51·0
Chicago		86·3	326	i 12 47	− 8	23 16	−17	43·4	51·8
St. Louis		90·1	325	e 12 56	−21	e 24 16	+ 1	e 41·0	54·0
Victoria	E.	90·7	351	13 24	+ 4	23 56	−25	40·9	57·4
	N.	90·7	351	13 25	+ 5	23 56	−25	45·6	55·6
Perth		99·1	125	24 39	?S	(24 39)	[+19]	58·1	—
Berkeley		100·8	349	e 18 13	?PR_1	27 13	+70	e 45·2	—
Rio de Janeiro		101·0	250	—	—	—	—	e 45·5	63·1
Honolulu		115·8	20	—	—	—	—	e 47·0	60·6
La Paz		115·9	270	e 19 37	?PR_1	i 31 7	?	58·8	70·5
Adelaide		116·1	115	i 29 30	?S	(i 29 30)	+71	e 60·0	70·5
La Plata	N.	118·4	248	—	—	—	—	62·5	74·6
Melbourne		121·9	115	—	—	e 61 30	?L	(61·5)	75·0
Sydney		124·5	108	—	—	61 24	?L	(61·4)	75·8
Riverview		124·5	108	—	—	e 27 51	?	e 52·8	67·2
Apia		140·3	58	—	—	28 0	?	—	—
Wellington		144·4	108	20 5	[+18]	e 33 0	?	e 77·5	—

Additional readings: Ksara MN = +5·5m.; T_o = 14h.33m.32s. Athens PN = +3m.41s.; T_o = 14h.34m.5s. Belgrade iP = +4m.13s., PR = +4m.48s., +6m.11s., SR = +7m.55s. Mostar iP = +4m.35s., PR = +4m.45s., +5m.11s., +5m.53s., +6m.13s. Vienna iPZ = +4m.53s., PR_1 = +5m.6s., PR_2 = +5m.14s., SR_1 = +9m.4s. Konigsberg iZ = +5m.58s., iN = +8m.52s., iZ = +9m.16s. Pulkovo MZ = +16·6m. Rocca di Papa PN = +5m.7s., iPE = +5m.13s. Innsbruck eSNW = 9m.43s., MNW = +19·5m. Upsala MN = +15·3m. Strasbourg PR_1 = +6m.21s., ePR_2 = +6m.59s., SR_1 = +11m.29s., MN = +16·4m. De Bilt MN = +19·2m., MZ = +20·5m. Uccle iP = +6m.11s., MN = +18·8m. Paris MN = +20·0m. Simla eSN = +11m.30s., MN = +21·6m. Barcelona MN = +16·8m. Bergen P is given as S, and S as L. Algiers iP = +6m.30s., MN = +25·5m. Tortosa iSN = 11m.52s., MN = +17·3m. Stonyhurst MN = +24·1m. Toledo iZ = +7m.7s., PR_1E = +8m.23s., PR_1N = +8m.25s., iNE = +12m.40s., MN = +19·3m. Granada MN = +18·6m. Malaga iP = +7m.20s., PR_1 = 8m.10s. San Fernando MN = +27·5m. Colombo L = +28·1m. Zi-ka-wei readings increased by 1h. Nagasaki S = +31m.34s. (?L). Kobe MN = +45·2m. Nagoya P = +15m.38s. (?PR_1). Mizusawa PN = +33m.53s., SN = +37m.26s. Osaka MN = +44·8m. Cape Town S = +32m.43s. Harvard University SN = +22m.20s., eN = +23m.1s., LE = +45·5m., LN = 35·9m., MN = 47·9m. Ottawa PR_1 = +15m.23s., iSR_1E = +27m.26s., eSR_2 = +31m.0s., MN = +51·0m.; T_o = 14h.34m.23s. Sitka eE = +28m.39s., SR_2E = +33m.49s. Ann Arbor PR_2 = +18m.6s., SR_1 = +28m.48s., SR_2 = +31m.0s., MN = +53·7m. Chicago SR_1 = +24m.29s. Georgetown SN = +23m.21s., SR_1E = +28m.32s., eL = +39·7m. St Louis PR_2E = +20m.2s., iE = +24m.27s., iE = +25m.0s., iE = +25m.24s., iE = +26m.6s.: epicentre 38°·5N. 45°·0E. Perth S = +41m.15s., SR = +49m.36s. (L?), L = +61·3m. Berkeley eN = +18m.18s. (?PR_1), eN = +31m.42s., eLENZ = +58·2m. Honolulu LN = +52·9m., MN = +63·0m. Adelaide i = +37m.18s. and +42m.0s., e = +45m.18s., e = +49m.42s., e = +54m.0s. La Plata ME = +76·3m. Melbourne e = +27m.0s., e = +30m.36s., L = +65·6m. Sydney L given as S: also L = +74·5m., L = +81·0m. Riverview MN = +58·5m., MZ = +67·4m. Wellington e = +61m.0s.

Sept. 13d. 15h. 37m. 20s. Epicentre 40°·0N. 42°·0E. (as at 14h.).

		△	Az.	P.	O−C.	S.	O−C.	M.
		°	°	m. s.	s.	m. s.	s.	m.
Ksara	N.	7·9	220	2 23	+23	4 27	+53	—
Vienna	Z.	20·0	303	4 51	+10	—	—	—
Pulkovo		21·1	344	i 5 1	+ 7	i 8 36	−10	25·7
Rocca di Papa		22·2	284	i 5 13	+ 6	—	—	—
Innsbruck	N.W.	23·2	299	e 5 22	+ 3	—	—	—
Granada		35·4	280	7 6	−11	—	—	—

Additional readings: Rocca di Papa iPN = +5m.15s., PR_1E = +5m.31s.

The following are given by Ksara, and are probably repetitions from the same epicentre:

d.	h.	m.	s.	
Sept. 13	16	3	39	Ksara P = +2m.34s., S = +4m.37s.
	16	22	21	Ksara P = +2m.31s., S = +4m.31s.
	16	31	57	Ksara P = +2m.31s., S = +4m.31s.
	17	6	47	Ksara P = +2m.23s., S = +4m.16s., Pulkovo iP = +5m.4s. Ekaterinburg P = +4m.39s., i = +8m.35s.
	17	20	10	Ksara e = +2m.22s.
	17	41	14	Ksara P = +2m.4s., S = +3m.42s.
	17	47	41	Ksara P = +2m.33s., S = +4m.35s. Pulkovo iP = +5m.2s., L = +9·3m.
	19	49	33	Ksara P = +3m.26s., S = +6m.8s.
	21	44	0	Ksara P = +2m.58s., S = +5m.17s., MN = +5·7m.
	22	44	50	Ksara P = +1m.54s., S = +3m.24s.
14	0	49	31	Ksara P = +2m.3s., S = +3m.38s.
	17	37	56	Ksara P = +2m.40s., S = +4m.30s.
15	12	9	45	Ksara P = +2m.50s., S = +5m.4s.

Sept. 13d. 19h. 12m. 24s. Epicentre 9°·0N. 128°·0E. (as on Sept. 10d.).

A = −·608, B = +·778, C = +·156; D = +·788, E = +·616; G = −·096, H = +·123, K = −·988.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Manila	8·9	310	i 2 22	+ 7	—	—	i 5·1	6·1
Hong Kong	18·8	317	4 26	− 1	7 57	− 1	9·4	12·9
Nagasaki	23·8	4	34 53	?	—	—	—	—
Batavia	26·0	235	i 5 42	− 6	i 10 39	+17	—	—
Osaka	26·6	14	6 38	+44	—	—	14·0	16·5
Irkutsk	47·4	340	e 9 11	+21	—	—	—	—
Colombo	47·8	273	15 36	?S	(15 36)	−15	—	31·6
Riverview	48·1	154	—	—	e 19 0	?SR_1	e 25·4	37·3
Hyderabad	48·8	285	e 8 48	−11	—	—	—	—
Bombay	54·2	287	17 5	?S	(17 5)	− 6	—	—
Apia	64·0	110	—	—	17 36	−97	—	—
Ekaterinburg	70·2	328	11 25	+ 7	i 21 30	+62	32·6	39·2
Baku	75·1	310	—	—	e 21 30	+ 3	38·6	—
Pulkovo	86·1	330	12 59	+ 5	i 23 22	− 9	39·6	54·6
De Bilt	101·9	328	—	—	—	—	e 54·6	—
Uccle	103·0	327	—	—	—	—	e 52·6	—
Paris	105·1	325	—	—	—	—	e 66·6	—
Granada	115·4	318	—	—	—	—	e 62·6	70·5
Ottawa	121·6	17	—	—	—	—	e 72·6	—
Toronto	121·8	22	—	—	—	—	76·3	—

Additional readings: Manila MN = +6·6m.; Manila records also what may be a repetition from this epicentre at 20h. 46m. 0s., giving P = +2m.13s., L = +4·2m. The times are near those for the following shock, for which Manila △ = 72°·3. Riverview eL = +30·3m., MN = +37·0m. Osaka MN = +18·8m. Ekaterinburg MZ = +44·0m.

Sept. 13d. 20h. 45m. 0s. Epicentre 40°·0N. 42°·0E. (as at 15h.).

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Baku	6·0	85	1 44	+12	i 3 0	+16	—	—
Athens	14·4	268	—	—	e 7 50	?L	(7·8)	8·4
Vienna	20·0	303	4 42	+ 1	8 30	+ 7	—	—
Ekaterinburg	20·7	30	i 4 47	− 2	i 8 34	− 4	10·5	12·1
Pulkovo	21·1	344	i 4 49	− 5	i 8 49	+ 3	10·8	14·2
Rocca di Papa	22·2	284	i 4 59	− 8	(e 8 18)	−51	e 8·3	—
Innsbruck N.F.	23·2	299	e 5 11	− 8	—	—	—	—
Upsala	25·0	331	e 5 34	− 4	e 10 6	+ 3	—	—
Hamburg	25·5	313	e 5 35	− 8	—	—	e 16·0	—
Moncalieri	25·6	293	e 5 14	−30	10 13	− 1	17·0	20·4
De Bilt	27·9	308	e 5 57	−10	e 10 53	− 4	e 17·0	18·8
Uccle	28·2	305	—	—	e 10 49	−14	—	—
Granada	35·4	280	e 7 8	− 9	(13 30)	+29	e 13·5	24·2
Manila	72·3	86	—	—	e 20 23	−31	21·3	—

Additional readings: Vienna $iPR_2 = +5$m.21s. Ekaterinburg MN = +13·3m., MZ = +15·8m. Rocca di Papa iPN = +5m.2s. De Bilt MZ = +21·9m. The Manila readings, which are given as P and L, may refer to a local shock; see also note to shock at 19h. 12m.

Sept. 13d. 23h. 3m. 40s. Epicentre 40°·0N. 42°·0E. (as at 20h.).

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Baku	6·0	85	1 46	+14	2 53	+ 9	—	—
Ksara N.	7·9	220	1 47	−13	4 4	+30	—	—
Vienna	20·0	303	(4 31)	−10	—	—	—	—
Ekaterinburg	20·7	30	4 36	−13	8 29	− 9	10·8	13·2
Pulkovo	21·1	344	4 37	−17	8 37	− 9	10·8	—
Rocca di Papa	22·2	284	—	—	e 8 55	−14	—	15·6
Hamburg	25·5	313	—	—	e 15 20	?L	e 15·3	—
De Bilt	27·9	308	—	—	e 18 20	?L	e 18·3	—
Granada	35·4	280	i 6 37	−40	e 12 15	−46	16·3	21·3

Additional readings and notes: Ksara gives $T_0 = 23$h.2m.32s. The Vienna reading has been increased by 5m. Ekaterinburg MN = +13·0m., MZ = +16·2m. Rocca di Papa gives also e = 22h.58m.50s. as an entry for the present shock. Granada gives also eP = 22h.7m.17s., eS = 22h.12m.50s., M = 22h.19m.9s., which may refer to a previous repetition at 22h. 0m.0s., though no other observatory records it. Further it gives e = 22h.53m.30s., and i = 23m.0s.17s., the last as an entry for the present shock, though it is too early.

Sept. 13d. Readings also at 2h. (Ekaterinburg), 3h. (Accra), 6h. (Taihoku), 8h. (Apia), 12h. (near Kobe (2), Nagoya, Osaka, and La Paz (2)), 15h. (Mizusawa), 16h. (Granada), 17h. (Ekaterinburg, Manila, and Uccle), 18h. (Granada (2)), 20h. (Manila), 21h. (Baku), 22h. (Granada (2) and Riverview).

Sept. 14d. 4h. 32m. 30s. (I)
4h. 59m. 28s. (II)
8h. 39m. 48s. (III)
10h. 40m. 18s. (IV)
} Epicentre 36°·0N. 142°·0E. (as on 1924 Sept. 4d.).

A = −·638, B = +·498, C = +·588; D = +·616, E = +·788; G = −·463. H = +·362. K = −·809.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
I Mizusawa	3·2	348	0 40	−10	1 38	+10	—	—
II	3·2	348	0 41	− 9	1 39	+11	—	—
III	3·2	348	0 45	− 5	1 42	+14	—	—
IV	3·2	348	0 38	−12	1 30	+ 2	—	—
I Nagoya	4·2	260	1 18	+13	—	—	2·1	2·6
II	4·2	260	1 42	+37	—	—	—	—
IV	4·2	260	1 30	+25	—	—	—	—

Continued on next page.

	Δ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
I Osaka	5·5	258	1 29	+ 4	—	—	2·5	4·3
II	5·5	258	1 39	+14	—	—	2·7	3·3
IV	5·5	258	1 39	+14	—	—	2·6	3·0
I Kobe	5·8	259	—	—	—	—	—	3·1
IV	5·8	259	—	—	—	—	—	4·0
IV Irkutsk	31·1	313	—	—	—	—	17·7	—
I Ekaterinburg	56·1	321	i 9 25	−22	17 28	− 7	27·5	35·7
II	56·1	321	e 9 23	−24	e 17 22	−13	28·5	34·5
III	56·1	321	e 7 52	−115	e 17 5	−30	29·2	35·8
IV	56·1	321	9 24	−23	—	—	27·7	35·0
I Baku	69·1	307	—	—	e 36 30	?	41·5	43·8
II	69·1	307	—	—	—	—	42·5	—
IV	69·1	307	—	—	—	—	40·7	43·8
I Pulkovo	69·1	330	—	—	—	—	e 39·6	43·5
II	69·1	330	—	—	—	—	e 42·0	—
IV	69·1	330	—	—	—	—	e 39·7	—
I Eskdalemuir	84·0	343	—	—	—	—	52·5	—
I De Bilt	84·2	337	—	—	—	—	e 50·5	—
II	84·2	337	—	—	—	—	e 51·5	—
IV	84·2	337	—	—	—	—	e 50·7	—

Additional readings and notes: Osaka I MN = +2·6m., II MN = +29m., IV MN = +2·9m. Kobe IV MN = +2·8m. Ekaterinburg I MN = +35·0m., MZ = +35·7m., II MN = +35·0m., MZ = +35·7m., III readings have been increased by 30m., IV MZ = +35·6m., MN = +35·8m. Baku I MN = +43·9m.

1924. Sept. 14d. 13h. 12m. 52s. Epicentre 50°·1N. 178°·7E.

A = −·641, B = +·015, C = +·767 ; D = +·023, E = +1·000 ; G = −·767, H = +·017, K = −·641.

The epicentre of 1923 Nov. 17, 51°·0N. 179°·5W. was first tried, and the above position deduced from the residuals.

		Δ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
Ootomari		23·9	276	5 31	+ 4	—	—	9·6	—
Sitka	E.	27·6	58	—	—	e 13 31	?L	e 19·4	19·9
	N.	27·6	58	—	—	e 10 45	− 7	e 18·9	19·8
Honolulu		34·1	139	—	—	i 12 48	+ 6	16·8	17·6
Osaka		34·8	262	—	—	12 41	−11	16·1	17·4
Victoria	E.	36·9	70	7 29	0	13 7	−15	16·3	18·3
	N.	36·9	70	7 32	+ 3	13 9	−13	16·8	18·0
Berkeley		42·8	85	e 8 20	+ 3	14 20	−25	e 21·3	—
Lick		43·6	85	e 8 19	− 4	i 15 0	+ 4	21·8	—
Irkutsk		44·4	304	8 18	−11	14 56	−11	21·1	24·5
Hong Kong		56·9	266	17 53	?S	(17 53)	+ 8	—	—
Manila		58·5	255	e 10 50	+48	—	—	25·6	—
Chicago		61·4	59	e 11 17	+56	—	—	38·1	—
Ekaterinburg		61·5	327	i 10 28	+ 6	i 18 47	+ 5	27·1	36·0
Ann Arbor		62·0	55	e 12 8	+103	e 19 38	+50	30·6	39·6
Toronto	E.	64·2	52	—	—	e 19 20	+ 5	30·8	33·3
	N.	64·2	52	—	—	e 19 25	+10	31·1	39·1
Ottawa	E.	64·8	49	e 10 43	− 1	i 19 22	− 1	29·9	36·1
Ithaca		66·6	49	—	—	e 20 38	+53	36·1	—
Pulkovo		67·2	344	11 1	+ 2	19 50	− 2	31·1	45·2
Georgetown	E.	68·9	55	—	—	—	—	39·5	—
Upsala		69·1	350	e 11 14	+ 2	—	—	—	—
Dyce		72·6	1	11 16	−18	20 35	−22	26·2	—
Simla		73·3	299	21 14	?S	(21 14)	+ 8	—	—
Konigsberg		73·5	348	—	—	—	—	e 27·1	45·1
Edinburgh		74·0	1	—	—	e 21 8	− 6	45·1	—
Eskdalemuir		74·6	1	—	—	e 21 8	−13	41·1	55·1
Hamburg		75·9	354	e 12 8	+14	—	—	e 30·1	50·1
Stonyhurst		76·0	0	—	—	—	—	—	53·1
Bidston		76·4	0	21 50	?S	(21 50)	+ 8	—	53·8
De Bilt		77·6	355	12 6	+ 1	21 57	+ 1	e 37·1	46·6
Oxford		78·1	0	—	—	i 21 59	− 2	—	62·6
Kew		78·4	359	—	—	—	—	—	57·1
Uccle		79·0	356	e 12 12	− 1	e 22 7	− 5	e 37·1	55·0
Baku		79·1	323	12 16	+ 2	22 16	+ 3	39·1	44·8

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Vienna		80·5	349	i 12 22	0	22 57	+28	e 41·1	54·1
Budapest		80·9	346	12 34	+10	22 40	+ 6	e 41·6	—
Strasbourg		81·0	354	e 15 59	?PR$_1$	22 34	− 1	e 41·1	—
Paris		81·1	358	e 12 25	− 1	e 20 44	−112	43·1	51·1
Innsbruck	N.W.	82·0	351	e 12 26	− 4	—	—	—	—
Besançon		82·5	355	—	—	—	—	50·5	—
Hyderabad		83·1	290	12 30	− 7	22 51	− 7	43·0	52·9
Belgrade		83·3	345	e 12 52	+14	e 33 14	?	e 55·1	—
Moncalieri		84·6	354	12 26	−20	21 20	−115	38·6	53·7
Bombay		85·3	294	12 51	+ 1	23 16	− 6	44·1	46·9
Florence		85·5	351	12 38	−13	21 8	−137	—	52·1
Rocca di Papa		87·3	350	12 55	− 6	24 19	+35	e 52·9	59·8
Riverview		87·4	202	—	—	e 23 14	−31	e 44·6	56·4
Tortosa	N.	89·1	358	—	—	—	—	e 23·1	57·8
Kodaikanal		89·3	284	23 50	?S	(23 50)	−16	50·3	55·4
Ksara		89·8	330	13 19	+ 4	23 36	−36	—	—
Toledo		90·0	2	11 21	−115	23 42	[+14]	e 30·6	63·3
Wellington		91·4	183	—	—	i 23 50	[+14]	e 44·6	52·6
Adelaide		92·1	212	—	—	24 32	− 4	e 51·2?	61·6
Granada		92·6	2	e 13 35	+ 5	23 57	[+13]	e 40·7	43·3
Melbourne		92·7	206	—	—	i 24 44	+ 2	—	86·1
Algiers		93·0	356	e 19 55	?	e 25 52	+67	e 43·1	62·6
San Fernando		93·3	4	—	—	24 8	−40	55·6	66·1
La Paz		117·4	83	e 25 55	?[S]	(e 25 55)	[+18]	67·9	78·7
Rio de Janeiro		137·6	67	—	—	e 45 23	?	63·6	—

Additional readings: Honolulu e = +14m.58s., LN = +17·1m., MN = +20·3m. Osaka MN = +17·6m. Berkeley eN = +16m.20s. Lick iE = +27m.46s. Irkutsk PR$_2$ = +10m.3s., SR$_2$ = +18m.24s., MN = +24·7m. Ekaterinburg PR$_1$ = +12m.44s., PR$_2$ = +14m.26s., MN = +39·6m., MZ = +39·6m. Toronto iSE = +19m.23s. Ann Arbor eLN = +30·9m., MN = +41·6m. Ottawa iSR$_3$ = +26m.46s., MN = +34·6m. ; T$_0$ = 13h.12m.56s. Pulkovo MZ = +44·1m., MN = +44·3m. Georgetown LE = +51·0m., LN = +50·8m. Dyce L = +29·8m. Eskdalemuir eSR$_1$? = +26m.8s. Simla PN = +21m.20s. (?SN). Hamburg MN = +51·1m. De Bilt eSR$_1$N = +26m.59s., MN = +53·3m., MZ = +66·9m. Uccle SR$_1$ = +27m.39s. Baku SR$_2$ = +31m.58s., SR$_4$ = +33m.16s. Strasbourg e = +28m.1s. and +37m.33s. Paris MN = +53·1m. Belgrade L = +62·5m. Rocca di Papa iPN = +13m.0s. Riverview e = +37m.8s., MN = +54·5m. Ksara gives T$_0$ = 13h.13m.40s. Toledo MNW = +65·4m. Adelaide SR$_2$? = +39m.50s. Granada i = +17m.2s., i = +20m.48s. Algiers e = +27m.21s.

Sept. 14d. 14h. 8m. 0s. Epicentre 9°·0N. 128°·0E. (as on 13d.).

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Manila	8·9	310	i 2 2	−13	—	—	i 4·4	5·6
Taihoku	17·2	340	4 9	+ 2	—	—	7·1	—
Hong Kong	18·8	317	4 16	−11	7 48	−10	8·8	10·0
Zi-ka-wei	23·0	345	e 3 48	−89	e 7 52	−93	—	12·6
Batavia	20·0	235	i 5 42	− 6	i 11 53	?SR$_2$	—	—
Malabar	26·0	232	i 5 40	− 8	i 7 15	−187	—	—
Kobe	26·5	13	—	—	—	—	—	15·9
Osaka	26·6	14	4 21	−93	(10 30)	− 3	10·5	11·8
Nagoya	27·4	16	9 54	?S	(9 54)	−54	—	—
Perth	42·5	195	7 56	−19	14 3	−39	19·5	—
Adelaide	45·1	168	—	—	e 13 0	−136	e 23·0	35·2
Riverview	48·1	154	e 9 18	+23	e 15 58	+ 3	e 24·4	39·6
Sydney	48·1	154	—	—	18 12	?SR$_1$	26·2	27·7
Hyderabad	48·8	285	10 47	?PR$_1$	15 47	−17	—	—
Kodaikanal	49·8	275	—	—	—	—	30·3	31·3
Apia	64·0	110	—	—	—	—	—	38·0
Wellington	66·1	144	e 11 3	+11	i 19 42	+ 4	e 28·0	42·0
Ekaterinburg	70·2	328	i 11 15	− 3	i 20 17	−11	31·0	39·0
Honolulu	71·8	70	—	—	e 21 44	+56	33·3	—
Baku	75·1	310	—	—	—	—	36·0	40·1
Pulkovo	86·1	330	i 12 38	−16	23 9	−22	38·0	54·4
Ksara	86·7	305	12 42	−15	23 17	−21	46·0	—
Budapest	95·8	320	e 14 30	+42	24 19	[+18]	—	—
Vienna	97·2	321	e 13 36	−19	24 15	[+ 6]	—	53·5

Continued on next page.

	△ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
Hamburg	98·6	328	—	—	—	—	e 48·0	68·0
Innsbruck	100·7	322	—	—	—	—	53·0	—
De Bilt	101·9	328	—	—	—	—	e 52·0	62·3
Rocca di Papa	102·2	317	—	—	—	—	e 51·8	—
Strasbourg	102·3	324	—	—	e 25 44	−34	53·3	—
Dyce	102·3	336	—	—	25 55	−23	34·4	56·4
Uccle	103·0	327	—	—	—	—	52·0	57·3
Edinburgh	103·6	334	—	—	—	—	54·0	59·0
Eskdalemuir	104·0	334	—	—	—	—	52·0	57·0
Besançon	104·0	324	—	—	—	—	55·0	—
Stonyhurst	104·6	331	—	—	—	—	—	58·8
Kew	105·0	330	—	—	—	—	—	67·0
Paris	105·1	325	—	—	e 24 54	[+ 6]	56·0	71·0
Bidston	105·2	331	—	—	—	—	—	59·8
Tortosa	110·6	320	—	—	—	—	e 57·0	70·6
Toledo	114·1	320	—	—	e 45 5	?	—	62·8
Granada	115·4	318	—	—	i 28 34	+21	e 59·0	75·6
Chicago	119·7	30	—	—	—	—	86·7	—
La Paz	162·6	117	e 20 21	[+11]	e 33 25	?	81·8	87·2

Additional readings and notes: Manila MN = +4·8m. Hong Kong readings have been diminished by 10 min. Zi-ka-wei readings have been increased by 1 hour, but apparently a further increase of 90 sec. is needed, PSE = +8m.26s., PSN = +8m.35s., MN = +14·2m. Batavia i_1 = +5m.30s. Osaka MN = +16·0m. Perth iS = +14m.26s. Adelaide e = +17m.30s.? Sydney L = +31·1m., +33·1m., +37·8m. Riverview PR_1 = +11m.18s., MN = +36·2m. Hyderabad gives △ = +29°·1; T_0 = 14h.12m.28s., but it seems that PR_1 has been read as P. Ekaterinburg MZ = +46·0m. Pulkovo MZ = +54·2m., MN = +54·6m. Ksara T_0 = 14h.7m.50s. Hamburg MN = +55·0m. De Bilt MN = +65·4m., MZ = +65·6m. Paris MN = +56·0m. Toledo MNW = +75·7m.

Sept. 14d. Readings also at 0h. (Baku (2), Ekaterinburg (2), and Moncalieri), 1h. (Baku, Ekaterinburg, Riverview, close to Tacubaya (2), Melbourne, and Wellington; 2h. (Baku and Ekaterinburg), 3h. (De Bilt, Pulkovo, Eskdalemuir, Paris, Uccle, close to Tacubaya, and Vera Cruz), 6h. (near Mizusawa), 8h. (Manila), 10h. (Manila), 13h. (Granada), 14h. (Nagoya), 15h. (Kodaikanal, Wellington, and Ekaterinburg), 17h. (Apia and Baku), 18h. (Irkutsk, Ekaterinburg, and Baku), 19h. (Apia), 21h. (Baku), 22h. (Baku), 23h. (Baku and Granada).

Sept. 15d. 20h. 6m. 40s. Epicentre 45°·0N. 11°·5E. (as on 1921 Sept. 12d.).

A = +·693, B = +·141, C = +·707; D = +·199, E = −·980; G = +·693, H = +·141, K = −·707.

A compromise solution. The evidence from Strasbourg, Vienna, and Belgrade conflicts with that from Innsbruck, Rocca di Papa, and Budapest.

		△ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
Venice	E.	0·7	53	e 0 48	+37	(1 27)	+67	—	2·0
	N.	0·7	53	1 8	+57	(1 30)	+70	—	3·0
Innsbruck		2·3	0	e 0 59	+23	i 1 47	+44	—	—
Rocca di Papa	E.	3·4	164	e 0 58	+ 5	1 42	+ 8	—	—
	N.	3·4	164	e 0 17	−36	1 51	+17	—	—
Strasbourg		4·4	326	0 50	−18	1 14	−47	3·4	3·6
Vienna		4·7	45	0 44	−29	1 22	−47	—	1·4
Budapest		5·8	62	e 1 50	+20	—	—	—	—
Belgrade		6·3	88	e 1 13	−23	e 2 8	−44	—	e 2·5

Additional readings: Venice gives S readings as PR. Vienna PZ = +0m.50s., PR = +1m.12s. and 1m.14s., MNZ = +1·5m.

Sept. 15d. Readings 0h. (Granada and Baku), 2h. (close to Rocca di Papa), 3h. (Baku and Ksara), 7h. (close to Granada and Rocca di Papa), 8h. (Granada), 9h. (Granada), 10h. (Granada), 11h. (Mostar), 12h. (Baku and Ekaterinburg), 23h. (Ekaterinburg and near Nagasaki).

Sept. 16d. 2h. 35m. 54s. Epicentre 38°·8N. 70°·0E.

A = +·267, B = +·732, C = +·627 ; D = +·940, E = −·342 ; G = +·214, H = +·589, K = −·779.

T_0 might perhaps be diminished by 2s. or 3s. ; but the negative residuals near 35° are chiefly errors of the tables.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Simla	E.	9·7	140	2 24	− 2	4 12	− 9	5·3	5·6
	N.	9·7	140	2 30	+ 4	4 18	− 3	5·3	6·4
Dehra Dun		10·9	141	2 23	−20	3 46	−66	5·3	6·3
Baku		15·5	282	3 52	+ 6	7 12	+28	—	—
Ekaterinburg		19·0	344	4 33	+ 4	i 8 0	− 2	10·1	11·2
Bombay		20·0	172	4 38	− 3	8 26	+ 3	10·8	12·9
Calcutta	N.	22·6	131	4 39	−33	8 56	−21	12·3	14·1
Hyderabad		22·6	158	—	—	—	—	—	12·1
Ksara		27·7	270	6 4	− 1	10 50	− 4	19·1	—
Kodaikanal		29·4	165	11 42	?S	(11 42)	+18	15·8	34·4
Pulkovo		32·5	323	i 6 40	−13	i 11 54	−22	14·8	20·8
Helwan		32·9	266	e 6 46	−10	12 8	−14	—	23·4
Colombo		33·1	162	—	—	17 6	?L	(17·1)	21·6
Lemberg		34·1	304	e 6 48	−18	e 14 36	?SR_1	—	23·7
Konigsberg		36·4	313	i 7 19	− 6	12 58	−18	e 16·5	24·1
Belgrade		36·8	296	e 7 32	+ 4	e 7 57	?	—	—
Budapest		37·4	300	7 29	− 4	13 31	+ 1	i 19·1	—
Upsala		38·6	320	e 7 31	−12	e 13 26	−20	—	24·4
Vienna		39·1	302	e 7 37	−10	13 55	+ 2	—	29·1
Hong Kong		41·0	101	7 46	−17	14 6	−15	19·4	25·4
Pompeii		41·9	290	e 7 48	−22	—	—	—	—
Venice	E.	42·3	298	8 7	− 6	—	—	—	10·4
	N.	42·3	298	8 21	+ 8	—	—	—	10·5
Innsbruck		42·6	302	e 8 6	− 9	—	—	e 24·1	—
Hamburg		42·8	312	e 8 7	−10	i 17 53	?SR_1	—	30·1
Rocca di Papa		43·0	292	i 8 11	− 7	i 14 38	−10	23·3	31·9
Florence		43·4	297	8 14	− 7	15 36	+42	24·6	29·1
Strasbourg		44·7	304	8 30	− 1	?15 6	− 5	24·7	—
Bergen		44·8	322	—	—	e 14 6	−66	—	—
Taihoku		45·3	93	—	—	—	—	e 28·5	—
Moncalieri		45·6	299	8 18	−19	i 15 1	−21	26·5	34·2
De Bilt		45·7	310	8 36	−12	15 18	− 6	e 24·1	31·7
Besançon		46·2	302	e 8 38	− 3	—	—	25·1	28·1
Uccle		46·4	308	e 8 39	− 4	e 15 25	− 8	e 24·1	—
Paris		48·1	306	e 9 12	+17	e 15 53	− 2	25·1	33·1
Dyce		48·9	319	—	—	16 1	− 4	24·1	28·4
Kew		49·0	310	—	—	—	—	—	35·1
Oxford		49·7	310	—	—	i 16 11	− 4	28·1	35·7
Edinburgh		49·8	316	—	—	i 16 10	− 6	30·1	35·1
Stonyhurst		49·8	312	16 16?	?S	(16 16?)	0	(20·0)	36·8
Manila		50·8	105	9 6	− 6	—	—	33·2	—
Algiers		51·7	290	e 9 10	− 8	e 16 31	− 9	23·1	37·6
Tortosa	E.	51·9	295	9 23	+ 4	16 40	− 3	—	37·6
	N.	51·9	295	9 21	+ 2	16 40	− 3	22·8	35·8
Toledo		55·5	296	e 9 44	+ 1	e 17 30	+ 2	e 25·8	39·7
Granada		56·4	292	i 9 52	+ 4	i 17 44	+ 5	i 29·6	38·3
San Fernando		58·5	293	10 23	+21	18 11	+ 6	36·6	41·1
Ottawa	E.	90·4	337	—	—	e 23 39	[+ 9]	e 41·9	—
Victoria	E.	92·0	9	24 16	?S	(24 16)	−19	51·3	56·6
	N.	92·0	9	24 16	?S	(24 16)	−19	53·3	61·8
Toronto	E.	93·0	338	—	—	e 24 24	−21	44·5	—
	N.	93·0	338	—	—	i 23 56	[+10]	55·1	—
Chicago	N.	96·9	343	—	—	24 12	[+ 5]	53·0	—
La Paz		137·2	289	e 20 6	[+32]	22 19	?PR_1	79·8	88·1

Additional readings : Calcutta PE = +4m.48s. Ksara gives T_0 = 2h.35m.56s. Pulkovo MNZ = +20·3m. Lemberg MN = +23·6m. Colombo gives P = 2h.30s. Konigsberg PR_1 = +8m.44s., eSR_1 = +14m.54s., e = +15m.28s., MN = +22·1m. Hong Kong times have been increased by 1 hour ; S was entered as +19m.26s., which has been taken as L, and L was given as +22·9m. Upsala PR_1E = +8m.53s., MN = +22·6m. Hamburg MN = +25·1m. Vienna PR_1 = +9m.18s., PR_2 = +9m.56s., i = +13m.34s., SR_2 = +17m.33s. Rocca di Papa iPN = +8m.15s., e(L) = +18·3m. Strasbourg SR_1? = +18m.22s. Moncalieri S? = +18m.42s. (?SR_1). De Bilt SR_1 = +18m.47s. Uccle SR_1 = +18m.33s. Paris e = +19m.28s. (?SR_1). Dyce S = +24m.4s. Oxford SR_1 = +20m.1s. Toledo MNW = +38·0m. Granada suggests as epicentre 42°·7N. 72°·3E. San Fernando MN = +42·1m. Ottawa iN = +23m.43s., iE = +24m.6s., iN = +25m.25s, Chicago N = +34m.5s. (?SR_1).

Sept. 16d. 21h. 37m. 36s. Epicentre 40°·0N. 42°·0E. (as on 15d.).

	△	P.	O−C.	S.	O−C.	L.	M.
	°	m. s.	s.	m. s.	s.	m.	m.
Baku	6·0	e 1 42	+10	e 3 18	+34	3·9	4·8
Ksara	7·9	e 1 48	−12	3 23	−11	—	—
Ekaterinburg	20·7	e 3 58	−51	e 7 51	−47	9·9	—
Pulkovo	21·1	(e 4 24)	−30	—	—	e 4·6	—

Sept. 16d. Readings also at 0h. (Baku, Pulkovo, De Bilt, Uccle, Manila, and Granada), 3h. (Venice), 4h. (Manila), 5h. (Nagasaki (2) and Ksara), 6h. (Baku and Ekaterinburg), 8h. (La Paz), 13h. (Baku and Ekaterinburg), 21h. (Ksara).

Sept. 17d. 7h. 4m. 10s. Epicentre 19°·0N. 70°·0W. (as on 1920 Nov. 6d.).

$A = +\cdot323$, $B = -\cdot889$, $C = +\cdot326$; $D = -\cdot940$, $E = -\cdot342$; $G = +\cdot111$, $H = -\cdot306$, $K = -\cdot946$.

A later T_0 would suit the N. American stations better, as suggested by Toronto. But it would only suit the La Paz observations if P is 1 minute in error, and there is a deep focus.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Porto Rico		4·4	99	e 1 3	− 5	—	—	i 1·7	1·9
Georgetown		20·8	344	4 47	− 4	8 15	−25	e 8·8	—
Toronto		25·9	344	e 5 48	+ 1	9 51	−29	12·1	—
Ann Arbor		26·0	336	5 56	+ 8	10 20	− 2	12·7	—
Ottawa		26·8	351	i 5 57	+ 1	e 10 13	−24	e 12·3	—
Chicago		27·2	330	e 5 59	− 1	10 20	−25	15·9	—
La Paz		35·6	177	i 6 58	−20	13 9	+ 5	21·3	24·8
Victoria	E.	51·8	317	—	—	—	—	29·4	33·3
	N.	51·8	317	—	—	—	—	28·3	29·6
Granada		60·1	59	—	—	—	—	e 28·3	29·8
Baku		98·6	43	—	—	—	—	49·8	—

Additional readings: Georgetown SN = +8m.17s. Toronto iPE = +5m.58s., PN = +5m.47s., SN? = +9m.50s. La Paz iP = +17m.0s. No other observatory indicates a second shock except Toronto, with two L's at an interval of 6·2m.

Sept. 17d. 10h. 20m. 30s. Epicentre 37°·5N. 70°·5E. (as on 1923 July 29d.).

$A = +\cdot265$, $B = +\cdot748$, $C = +\cdot609$; $D = +\cdot943$, $E = -\cdot334$; $G = +\cdot203$, $H = +\cdot574$, $K = -\cdot793$.

The epicentre 38°·8N. 70°·0E. of Sept. 16d. 2h. was tried but found to require modification. The residuals indicated the epicentre 37°·5N. 71°·5E., but the adopted position is within the limits of error and has the advantage of former use.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Simla		8·4	137	2 12	+ 5	3 36	−11	—	—
Dehra Dun		9·4	136	1 36	−46	—	—	3·0	4·1
Baku		16·2	287	e 4 10	+15	i 7 18	+18	—	—
Bombay		18·7	173	4 33	+ 8	—	—	—	8·0
Ekaterinburg		20·4	345	i 5 1	+15	i 8 40	+ 8	—	—
Hyderabad		21·2	158	5 11	+16	8 44	− 4	—	—
Calcutta	E.	21·4	129	e 4 34	−24	—	—	8·5	—
	N.	21·4	129	4 43	−15	—	—	8·6	—
Colombo		31·8	162	—	—	—	—	—	20·5
Pulkovo		33·8	324	i 6 55	− 8	i 12 10	−28	14·5	—
Konigsberg		37·6	314	e 9 6	+91	e 17 12	+220	—	19·5
Vienna		40·2	306	e 7 49	− 8	—	—	—	—
Venice		43·3	300	8 30?	+10	—	—	—	—
Rocca di Papa		43·9	294	8 18	− 7	—	—	—	10·3
Manila		50·1	103	e 9 7	− 1	—	—	11·7	—

Additional readings: Ekaterinburg $PR_1 = +5$m.31s., $PR_2 = +5$m.54s., $iS_2 = +8$m.47s. It is suggested that there are two shocks, one from $\phi_1 = 37°52'$N., $\lambda_1 = 72°2'$E., and the other from $\phi_2 = 38°34'$N., $\lambda_2 = 71°45'$E. See note in heading. Vienna gives iZ = +10m.52s. Rocca di Papa $PR_1 = +8$m.48s., and +10m.18s.

Sept. 17d. 16h. 45m. 25s. Epicentre 49°·0N. 174°·0E. (as on 1924 June 30d.).

A = −·652, B = +·068, C = +·755 ; D = +·105, E = +·995 ;
G = −·751, H = +·079, K = −·656.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Irkutsk	42·6	302	8 6	− 9	e 14 43	0	22·6	25·1
Berkeley z.	46·2	79	—	—	—	—	e 40·6	—
Ekaterinburg	60·7	325	i 10 17	0	18 44	+12	30·6	34·9
Pulkovo	67·3	341	—	—	—	—	e 39·6	—
Ottawa	67·8	45	—	—	—	—	e 32·1	—
Granada	93·8	358	—	—	—	—	e 53·6	58·7

Additional readings : Irkutsk MN = +24·9m., MZ = +27·5m. Ekaterinburg MN = +39·4m. Ottawa eLN = +31·4m.

Sept. 17d. Readings also at 1h. (Manila), 2h. (Ithaca and Ekaterinburg), 6h. (Victoria, Ottawa, and Granada ; possibly an anticipation of 7h. 4m.). 9h. (close to Granada and Malaga), 14h. (Baku and Innsbruck), 17h. (close to Taihoku), 18h. (Granada), 19h. (Irkutsk), 23h. (Ekaterinburg)

Sept. 18d. 1h. 8m. 40s. Epicentre 37°·5N. 140°·0E. (as on 1922 Jan. 22d.).

A = −·608, B = +·510, C = +·609 ; D = +·643, E = +·766 ;
G = −·466, H = +·391, K = −·793.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Mizusawa	1·9	28	0 52	+23	1 28	+35	—	—
Nagoya	3·4	227	0 43	−10	—	—	—	—
Osaka	4·6	233	1 11	0	—	—	2·4	3·1
Kobe	4·8	235	1 9	− 5	—	—	2·3	3·8
Sapporo	5·7	10	1 23	− 5	—	—	2·7	—
Nagasaki	9·6	243	2 10	−14	4 11	− 7	4·6	5·4
Zi-ka-wei	16·6	253	3 45	−15	e 6 35	−34	—	11·9
Taihoku	20·0	237	e 4 25	−16	—	—	8·1	10·1
Hong Kong	26·9	243	—	—	—	—	—	15·3
Manila	28·5	221	e 6 32	+19	—	—	14·0	—
Ekaterinburg	53·9	319	i 9 32	0	i 17 9	+ 1	23·3	35·3
Bombay	60·8	272	10 16	− 2	18 30	− 3	—	—
Kucino	65·9	323	18 42	?	19 49	+13	—	—
Baku	66·9	305	i 10 57	0	i 18 51	−58	31·3	—
Pulkovo	67·0	330	i 10 56	− 2	19 52	+ 2	32·3	38·3
Upsala	71·8	334	—	—	e 20 43	− 5	e 37·3	41·9
Konigsberg	74·2	329	—	—	—	—	e 41·3	—
Hamburg	79·2	332	—	—	—	—	e 41·3	—
Vienna	80·7	327	13 15	+52	—	—	—	—
De Bilt	82·2	334	—	—	—	—	e 41·3	—
Uccle	83·5	334	—	—	—	—	e 41·3	—
Innsbruck N.W.	83·6	329	e 12 26	−14	—	—	—	—
Kew	84·5	336	—	—	—	—	—	51·3
Moncalieri	87·0	329	—	—	25 35	?	47·4	—
Rocca di Papa	87·4	324	i 12 53	− 8	i 23 31	−14	e 46·4	51·1
Toledo	95·1	334	—	—	—	—	e 50·2	56·2
Granada	98·1	331	—	—	25 9	−28	i 54·0	56·5
La Paz	147·5	57	18 48	[−64]	—	—	57·0	—

Additional readings and notes : Osaka MN = +2·9m. Kobe MN = +2·5m. and +2·6m. Ekaterinburg SR_1 = +19m.12s., MN = +30·9m., MZ = +35·4m. Pulkovo SR_1 = +24m.14s., MZ = +46·7m. Vienna iZ = +15m.30s. (?PR_1). Rocca di Papa PR_1E = +16m.23s., PR_1N = +16m.37s., SR_1? = +29m.29s. Granada i = +31m.23s. (?SR_1), i = +35m.49s., i = +44m.8s. Toledo MNW = +56·5m.

Sept. 18d. 2h. 53m. 54s. Epicentre 37°·5N. 140°·0E. (as at 1h.).

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Mizusawa	1·9	28	0 52	+23	1 27	+34	—	—
	1·9	28	0 50	+21	1 24	+31	—	—
Nagoya	3·4	227	0 42	−11	—	—	1·7	2·0
Osaka	4·6	233	1 15	+ 4	—	—	2·3	3·0
Kobe	4·8	235	1 11	− 3	—	—	2·4	3·8
Sapporo	5·7	10	e 2 19	+51	(2 19)	−17	3·6	—
Zi-ka-wei	16·6	253	3 44	−16	e 6 47	−22	—	—
Ekaterinburg	53·9	319	9 32	0	17 9	+ 1	24·1	30·9
Baku	66·9	305	—	—	—	—	—	42·7

Additional readings: Mizusawa PN = +0m.50s., SN = +1m.24s. Nagoya MN = +1·9m. Osaka MN = +2·8m. Kobe MZ = +2·6m., MN = +2·8m. Baku MN = +43·0m.

Sept. 18d. Readings also at 0h. (Baku and Ottawa), 1h. (Manila), 2h. (Wellington), 3h. (Strasbourg and Apia), 7h. (Granada), 14h. (Tacubaya), 16h. (Nagasaki), 19h. (Mizusawa), 20h. (La Paz), 22h. and 23h. (Bombay).

Sept. 19d. 0h. 32m. 6s. Epicentre 35°·0S. 75°·0W., given by La Plata.

A = +·212, B = −·791, C = −·574.

		△	P.	O−C.	S.	O−C.	L.	M.
		°	m. s.	s.	m. s.	s.	m.	m.
La Plata	E.	12·9	3 12	0	6 32	+50	6·9	8·4
	N.	12·9	3 12	0	5 47	+ 5	6·9	8·5
La Paz		19·5	4 33	− 2	—	—	—	—
Bombay		147·3	—	—	—	—	81·9	—

La Plata gives the above epicentre, also N = +7m.11s., E = +7m.25s.; T_0 = 0h.32m.0s.

Sept. 19d. 6h. 49m. 30s. Epicentre 21°·5S. 171°·5W. (as on 1918 Feb. 25d.).

A = −·920, B = −·138, C = −·366; D = −·148, E = +·989; G = +·362, H = +·054, K = −·930.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Apia	7·6	358	e 2 48	+53	—	—	4·0	—
Wellington	22·9	209	e 9 25	?S	(e 9 25)	+ 2	e 14·0	15·8
Riverview	35·1	242	—	—	e 13 6?	+ 9	15·9	20·9
Honolulu	44·8	18	—	—	e 18 45	?SR_1	—	24·0
Chicago	99·8	50	—	—	36 11	?	46·7	—
Toronto	106·1	48	—	—	—	—	61·9	—
Ottawa	109·0	47	—	—	—	—	47·5	—
Bombay	120·0	280	—	—	—	—	47·5?	—
Ekaterinburg	128·2	326	—	—	e 29 39	− 9	49·5	65·0
Pulkovo	138·7	343	—	—	—	—	67·5	—
Baku	140·3	309	e 24 16	?PR_1	39 45	?SR_1	63·0	90·3
Eskdalemuir	145·1	12	—	—	—	—	76·5	—
De Bilt	149·3	3	—	—	—	—	e 79·5	—
Uccle	150·5	5	—	—	—	—	e 69·5	—
Strasbourg	152·9	1	—	—	—	—	81·5	—
Rocca di Papa	159·4	351	—	—	—	—	e 89·0	—

Wellington L = +15·3m. Riverview MN = +20·7m. Ekaterinburg e_2 = +38m.12s. (?SR_1), P = +50m.6s., MN = +75·2m., MZ = +79·2m. Baku i = +61m.54s., L = +83·5m., MN = +90·7m. De Bilt eLN = +70·5m. Rocca di Papa eN = +74m.30s., iE = +74m.59s.

Sept. 19d. Readings also at 0h. (Bombay), 3h. (Bombay and Granada), 11h. (Baku, Bombay, Athens, Ekaterinburg (2), Belgrade, and Rocca di Papa), 13h. (Bombay), 14h. (Bombay, Mizusawa, Nagoya, and Edinburgh), 16h. (Bombay), 17h. (Baku, Ekaterinburg, Rocca di Papa, and Perth), 18h. (Manila), 19h. (Athens), 20h. (Tacubaya), 23h. (Ekaterinburg and Manila).

Sept. 20d. 16h. 52m. 15s. Epicentre 9°·0N. 128°·0E. (as on Sept. 14d.).

A = −·608, B = +·778, C = +·156 ; D = +·788, E = +·616 ; G = −·096, H = +·123, K = −·988.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Manila	8·9	310	e 2 31	+16	—	—	—	—
Irkutsk	47·4	340	e 8 37	−13	15 48	+ 2	25·8	—
Ekaterinburg	70·2	328	i 11 10	− 8	i 20 28	0	34·8	—
Pulkovo	86·1	330	—	—	e 23 13	−18	—	—

No additional readings.

Sept. 20d. Readings at 0h. (Granada and De Bilt), 1h. (close to Mizusawa and Nagoya), 2h. (La Paz), 5h. (Ekaterinburg), 6h. (close to Manila), 7h. (close to Mizusawa and Balboa Heights), 10h. (Ekaterinburg), 13h. (La Paz), 14h. (La Paz), 21h. (Irkutsk).

Sept. 21d. 15h. 8m. 20s. Epicentre 9°·0N. 128°·0E. (as on Sept. 20d.).

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Irkutsk	47·4	340	e 8 45	− 5	e 15 49	+ 3	19·7	—
Ekaterinburg	70·2	328	—	—	(20 10)	−18	20·2	22·0

Ekaterinburg gives also MN = +30·9m.

Sept. 21d. 20h. 17m. 35s. Epicentre 45°·0N. 11°·5E. (as on Sept. 15d.).

A = +·693, B = +·141, C = +·707.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Venice	0·7	53	0 25?	+14	—	—	—	1·3
Innsbruck	2·3	0	e 1 0	+24	i 1 53?	+50	—	—
Moncalieri	2·7	271	0 2	−40	0 17	−57	—	—
Zurich	3·1	322	e 0 49	0	i 1 23	− 3	—	—
Rocca di Papa	3·4	164	e 1 55	+62	—	—	—	—

Additional readings: Innsbruck ePNE = +1m.3s. Rocca di Papa ePN = +2m.18s.

Sept. 21d. Readings also at 0h. (Manila), 1h. (Ekaterinburg), 5h. (Apia), 6h. (Baku and Pulkovo), 10h. and 11h. (Ekaterinburg), 13h. (close to Athens, close to Rocca di Papa, close to Baku, and Pulkovo), 14h. (Moncalieri), 15h. (Moncalieri), 17h. (close to Tacubaya and Moncalieri), 18h. (Irkutsk, which with Ekaterinburg at 19h. suggests another repetition from 9°·2N. 128°·2E. at about 18h.30m.), 19h. (Ekaterinburg, Rocca di Papa, and Moncalieri (2)), 20h. (Moncalieri), 21h. (Rocca di Papa).

Sept. 22d. 2h. 0m. 30s. Epicentre 9°·0N. 128°·0E. (as on Sept. 21d.).

A = −·608, B = +·778, C = +·156.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Manila	8·9	310	i 2 12	− 3	(3 30)	−31	i 3·5	4·3
Batavia	26·0	235	e 6 6	+18	i 10 24	+ 2	—	—
Ekaterinburg	70·2	328	—	—	20 14	−14	31·5	—
Baku	75·1	310	—	—	—	—	41·5	—

Manila gives also MN = +3·6m.

Sept. 22d. 7h. 42m. 40s. Epicentre 40°·0N. 42°·0E. (as on Sept. 16d.).

	△	P.	O−C.	S.	O−C.	L.	M.
	°	m. s.	s.	m. s.	s.	m.	m.
Baku	6·0	e 1 33	+ 1	e 3 27	+43	4·8	—
Ekaterinburg	20·7	4 41	− 8	e 8 35	− 3	11·3	12·9

Baku gives S as e, also eS = +3m.44s.

Sept. 22d. 22h. 4m. 0s. Epicentre 36°·0N. 5°·0W. (as on 1923 Oct. 19d.).

A = +·806, B = −·071, C = +·588 ; D = −·087, E = −·996 ;
G = +·585, H = −·015, K = −·809.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Granada		1·6	43	i 0 17	− 7	i 0 39	− 6	i 0·9	1·2
Almeria		2·3	67	0 10	−26	—	—	—	—
Toledo		3·9	11	1 33	+32	2 14	+27	e 2·4	3·0
Moncalieri		13·2	43	2 45	−31	—	—	7·0	—
Uccle		16·3	22	—	—	—	—	e 8·0	—
De Bilt	E.	17·6	21	—	—	—	—	e 9·1	—
Nagasaki		99·3	37	18 25	?PR_1	—	—	—	—

Sept. 22d. Readings also at 4h. (Tacubaya), 7h. (Manila), 8h. (Ekaterinburg), 11h. (Tacubaya), 12h. (Ekaterinburg), 13h. (Kobe and Zante), 15h. (Irkutsk and near Nagasaki), 16h. (Ekaterinburg), 20h. (Nagasaki, Rocca di Papa, Tacubaya, and Merida), 21h. (close to Athens and Ekaterinburg).

Sept. 23d. 23h. 2m. 50s. Epicentre 40°·0N. 42°·0E. (as on 22d.).

A = +·569, B = +·513, C = +·643.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Baku	6·0	85	e 1 46	+14	e 2 43	− 1	3·3	—
Kucino	16·0	352	—	—	—	—	e 9·6	—
Vienna	20·0	303	e 4 42	+ 1	—	—	—	—
Ekaterinburg	20·7	30	4 53	+ 4	8 39	+ 1	10·7	15·8
Hamburg	25·5	313	e 5 10	−33	—	—	—	—
Moncalieri	25·6	293	e 1 20	?	8 23	−111	18·8	—
De Bilt	27·9	308	—	—	—	—	e 17·2	—
Eskdalemuir	33·3	312	—	—	—	—	16·2	—

Additional readings: Ekaterinburg MN = +13·4m., MZ = +16·2m.

Sept. 23d. Readings also at 2h. (Granada, Baku, Ekaterinburg, and Pulkovo), 8h. (Nagasaki), 13h. (Moncalieri), 17h. (Merida), 20h. (Apia and La Paz), 21h. (Moncalieri), 22h. (Irkutsk), 23h. (Tacubaya).

Sept. 24d. 18h. 41m. 20s. Epicentre 37°·5N. 140°·0E. (as on Sept. 18d.).

A = −·608, B = +·510, C = +·609 ; D = +·643, E = +·766 ;
G = −·466, H = +·391, K = −·793.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Mizusawa	E.	1·9	28	0 28	− 1	0 57	+ 4	—	—
	N.	1·9	28	0 25	− 4	1 0	+ 7	—	—
Nagoya		3·4	227	0 51	− 2	—	—	2·2	2·4
Osaka		4·6	233	1 18	+ 7	—	—	2·6	3·5
Kobe		4·8	235	1 20	+ 6	2 10	− 1	2·9	4·2
Sapporo		5·7	10	1 23	− 5	(2 44)	+ 8	2·7	—
Ootomari		9·4	12	3 37	+75	—	—	—	—
Nagasaki		9·6	243	4 47	?S	(4 47)	+29	6·6	—
Zi-ka-wei		16·6	253	e 4 2	+ 2	—	—	—	—
Hong Kong		26·9	243	—	—	—	—	—	18·2
Irkutsk		28·9	312	5 54	−23	e 10 59	−16	14·7	19·2

Continued on next page.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Ekaterinburg	53·9	319	i 9 21	−11	17 8	0	27·2	35·4
Bombay	60·8	272	—	—	—	—	31·7	—
Kucino	65·9	323	—	—	—	—	—	42·9
Baku	66·9	305	e 10 51	− 6	e 22 24	+35	34·7	43·6
Pulkovo	67·0	330	10 44	−14	19 49	− 1	32·7	43·5
Upsala	71·8	334	—	—	—	—	e 43·7	—
Hamburg	79·2	332	—	—	—	—	e 44·7	—
Edinburgh	81·5	340	—	—	—	—	—	56·7
Eskdalemuir	82·0	340	—	—	e 22 35	−11	40·7	—
De Bilt	82·2	334	—	—	—	—	e 43·7	52·6
Uccle	83·5	334	—	—	—	—	e 43·7	—
Strasbourg	84·1	330	—	—	—	—	e 48·7	—
Paris	85·8	334	—	—	—	—	e 51·7	—
Besançon	85·9	330	—	—	—	—	e 51·7	—
Ottawa	91·1	24	—	—	—	—	e 49·7	—
Toronto	91·3	28	—	—	—	—	e 52·8	—
La Paz	147·5	57	19 34	[−18]	—	—	—	—

Additional readings and notes: Nagoya MN = +2·8m. Osaka MN = +3·4m. Kobe MN = +4·0m. Irkutsk MN = +19·0m., MZ = +19·1m. Ekaterinburg MZ = +35·5m., MN = +35·7m. Pulkovo MZ = +43·4m. De Bilt MN = +53·1m., MZ = +53·6m. Ottawa eLN = +53·7m. Toronto LE = +53·7m.

Sept. 24d. 22h. 57m. 0s. Epicentre 82°·0N. 10°·0E. (as on Sept. 7d.).

A = +·137, B = +·024, C = +·990.

Very doubtful.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Pulkovo	22·9	153	5 0	−16	8 35	−48	—	—
Ekaterinburg	28·7	118	6 41	+26	e 11 52	+40	15·0	—

Sept. 24d. Readings also at 0h. (Baku, Ekaterinburg, and close to Tacubaya), 6h. (close to Taihoku (2)), 7h. (La Paz), 16h. (Bombay), 17h. (close to Tacubaya, Nagasaki, and Florence), 18h. (close to Mizusawa), 22h. (Nagasaki).

Sept. 25d. 4h. 1m. 15s. Epicentre 48°·5S. 160°·5W. (as on 1920 Feb. 19d.).

A = −·625, B = −·221, C = −·749; D = −·334, E = +·943; G = +·706, H = +·250, K = −·663.

The failure of the observations near △ = 90° and the reappearance near the antipodes is noteworthy.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Wellington		18·8	283	—	—	—	—	e 8·9	13·2
Riverview		38·4	275	e 7 40	− 1	e 13 45	+ 1	e 16·5	18·2
Adelaide		46·2	266	—	—	e 18 27	?SR_1	21·6	24·3
Victoria	E.	102·1	24	24 27	?[S]	(24 27)	[− 7]	46·0	57·4
	N.	102·1	24	24 25	?[S]	(24 25)	[− 9]	46·1	59·6
Chicago		110·7	50	—	—	27 5	−29	57·2	—
Toronto		116·3	52	—	—	e 29 37	+77	e 56·1	—
Ottawa		119·3	53	—	—	e 29 57	+73	60·8	—
Bombay		128·1	255	—	—	—	—	64·8	—
Ekaterinburg		154·1	304	19 47	[−14]	39 28	?	53·8	—
Eskdalemuir		164·5	55	—	—	43 30	?	81·8	—
Kew		167·0	69	—	—	—	—	—	97·8
Pulkovo		167·2	335	e 20 4	[− 9]	—	—	77·2	89·5
Uccle		170·0	71	—	—	—	—	e 90·8	—
De Bilt		170·2	63	e 20 31	[+16]	e 34 49	?	e 86·8	—
Strasbourg		172·2	90	—	—	—	—	93·8	—
Vienna	z.	177·9	95	e 20 32	[+15]	—	—	—	—

Additional readings and notes: Riverview MN = +18·5m. Chicago N = +49m.24s. Ekaterinburg i = +23m.13s. ($?PR_1$), De Bilt eE = +44m.24s.

Sept. 25d. Readings also at 0h. (Zante), 2h. (Nagasaki), 3h. (Hyderabad), 6h. (close to Tacubaya), 8h. (Baku), 9h. (Manzanillo), 12h. (Nagasaki and La Paz), 20h. (Kodaikanal, Manila, Irkutsk, and Ekaterinburg), 21h. (Pulkovo and La Paz), 23h. (Ekaterinburg).

Sept. 26d. Readings at 2h. (close to Athens), 3h. (La Paz), 4h. (La Paz), 6h. (Athens, Baku, and Ekaterinburg), 12h. (Apia and Manila), 16h. (Ekaterinburg, Uccle, and Ottawa), 17h. (Ekaterinburg), 21h. (Manila), 22h. (Nagasaki), 23h. (Taihoku).

Sept. 27d. 3h. 58m. 0s. Epicentre 9°·0N. 128°·0E. (as on Sept. 22d.).

$A = -\cdot608$, $B = +\cdot778$, $C = +\cdot156$; $D = +\cdot788$, $E = +\cdot616$; $G = -\cdot096$, $H = +\cdot123$, $K = -\cdot988$.

There are many discordances, but no better hypothesis has been found. Melbourne, Sydney, and Perth readings suggest an earlier separate shock, Nagoya a later, and there is overlap at some stations with the following shock.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Manila	8·9	310	e 4 26	?S	(e 4 26)	+25	8·8	—
Hong Kong	18·8	317	7 21	?S	(7 21)	−37	—	16·3
Nagoya	27·4	16	27 52	?	—	—	—	—
Perth	42·5	195	8 25	+10	(14 38)	− 4	15·4	—
Adelaide	45·1	168	(e 9 30)	?PR$_1$	—	—	e 9·5	15·4
Colombo	47·8	273	16 48	?S	(16 48)	+57	—	36·4
Sydney	48·1	154	3 6	?	—	—	17·6	22·3
Riverview	48·1	154	e 11 15	?PR$_1$	e 16 54?	+59	—	20·9
Hyderabad	48·8	285	e 15 54	?S	(e 15 54)	−10	—	52·3
Melbourne	49·4	162	i 11 24	?PR$_1$	—	—	i 17·7	18·2
Bombay	54·2	287	12 0?	?PR$_1$	—	—	—	—
Wellington	66·1	144	i 16 2	?	—	—	e 27·5	34·7
Baku	75·1	310	e 11 56	+ 6	e 22 8	+41	—	—
De Bilt	101·9	328	e 18 47	?PR$_1$	e 28 42	+148	e 70·0	—
Strasbourg	102·3	324	27 0?	?S	e 34 13	?	—	—
Eskdalemuir	104·0	334	—	—	e 29 0?	+147	47·0	—
Granada	115·4	318	—	—	—	—	—	9·0
La Paz	162·6	117	19 12	[−58]	—	—	—	—

Additional readings and notes: Perth gives also e = +7m.35s., S? = +12m.55s., true S is given as L. Riverview MN = +19·8m., MZ = +22·5m. Melbourne gives also e = 3h.52m.6s. Wellington gives L = +30·0m., +31·5m., +32·8m., and +34·4m. Eskdalemuir e = +41m.30s.

Sept. 27d. 4h. 27m. 23s. Epicentre 40°·0N. 42°·0E. (as on Sept. 23d.).

$A = +\cdot569$, $B = +\cdot513$, $C = +\cdot643$; $D = +\cdot669$, $E = -\cdot743$; $G = +\cdot478$, $H = +\cdot430$, $K = -\cdot766$.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Baku		6·0	85	i 1 56	+24	e 3 17	+33	—	—
Lemberg		16·0	314	3 43	− 9	—	—	—	7·3
Belgrade		16·6	294	e 4 13	+13	e 10 1	+172	e 12·8	—
Vienna		20·0	303	e 4 50	+ 9	8 40	+17	—	16·1
Konigsberg		20·6	323	i 5 2	+14	8 56	+20	—	14·1
Pompeii		20·9	280	e 1 55	−177	e 6 15	−147	—	—
Pulkovo		21·1	344	i 5 2	+ 8	i 8 57	+11	10·1	14·2
Rocca di Papa	E.	22·2	284	i 5 12	+ 5	e 9 17	+ 8	e 13·9	15·2
	N.	22·2	284	i 5 21	+14	e 9 23	+14	e 14·5	—
Innsbruck		23·2	299	e 5 26	+ 7	e 9 41	+12	e 15·6	—
Upsala		25·0	331	e 5 41	+ 3	e 10 11	+ 8	12·1	17·6

Continued on next page.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Hamburg	25·5	313	e 5 45	+ 2	e 10 37	+24	e 16·1	18·5
Moncalieri	25·6	293	5 30	−14	9 52	−22	16·9	21·4
Strasbourg	25·8	301	e 4 50	−56	e 9 35	−43	e 14·6	17·6
Besançon	26·7	298	e 5 54	− 1	e 10 47	+12	12·6	17·6
De Bilt	27·9	308	6 8	+ 1	10 58	+ 1	e 16·6	20·0
Uccle	28·2	305	e 6 9	− 1	e 11 1	− 2	—	—
Paris	29·2	301	e 8 11	+111	—	—	13·6	21·6
Algiers	30·5	277	e 6 23	−10	—	—	15·1	20·6
Kew	31·1	306	—	—	—	—	—	24·6
Oxford	31·8	306	—	—	i 12 4	− 1	—	23·0
Stonyhurst	32·7	310	6 47	− 7	12 7	−12	—	24·6
Edinburgh	33·4	314	e 6 37	−23	—	—	—	26·6
Toledo	34·9	285	8 32	+80	—	—	—	19·2
Granada	35·4	280	i 8 30	+77	i 12 53	− 8	15·4	23·6
Ottawa	78·1	321	—	—	—	—	42·6	—

Additional readings and notes: Lemberg MN = +9·6m. Vienna iPZ = +4m.54s., iN = +5m.53s., SR_1 = +9m.32s., SR_2 = +9m.42s. Konigsberg MN = +19·1m. Pulkovo MZ = +15·3m. Upsala MN = +15·4m. Hamburg MN = +17·1m. Strasbourg gives P and S as S and SR_1 of former shock, eSR_2? = +11m.40s. De Bilt MZ = +21·2m., MN = +22·6m. Toledo MN = +18·8m.

Sept. 27d. 10h. 12m. 10s. Epicentre 37°·0N. 53°·0E.

A = +·480, B = +·638, C = +·602; D = +·799, E = −·602;
G = +·362, H = +·480, K = −·799.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Baku	4·2	326	i 4 31	+206	i 5 55	+240	—	8·6
Ekaterinburg	20·4	12	4 48	+ 2	e 8 32	0	10·3	—
Pulkovo	27·0	335	6 0	+ 2	10 40	− 1	—	—

Baku gives also eP = +2m.29s., e = +3m.11s. It is impossible to reconcile all three observations without some assumption of error, and the simplest seems to be that the Baku readings are 4m. too large, and that e_1 and e_2 did not reach the more distant stations. Neither the epicentre 40°·0N.42°·0E. used at 4h. and on several previous dates, nor 35°·5N. 55°·0E. as used on 1923 Sept. 17d. 7h., will suit the observations.

Sept. 27d. 12h. 46m. 40s. Epicentre 35°·0S. 111°·0E. (as on 1920 Feb. 8d.).

A = −·294, B = +·765, C = −·574; D = +·934, E = +·358;
G = +·206, H = −·535, K = −·819.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Perth	5·1	55	—	—	—	—	e 2·7	—
Melbourne	27·3	106	—	—	—	—	—	11·8
Riverview	32·9	100	(e 6 56)	0	e 6 56	?P	e 14·4	15·6
Sydney	32·9	100	7 2	+ 6	—	—	14·6	15·8
Colombo	51·2	319	—	—	—	—	—	22·8
Bombay	65·0	321	—	—	—	—	—	22·3
Baku	86·1	317	—	—	—	—	36·3	—
Ekaterinburg	102·4	334	—	—	—	—	25·3	—
Pulkovo	115·4	326	—	—	—	—	e 56·3	63·0
Strasbourg	123·7	308	—	—	—	—	66·3	—
De Bilt	126·2	312	—	—	—	—	e 65·3	—
Eskdalemuir	131·5	316	—	—	—	—	69·3	—

Additional readings: Riverview MN = +16·0m. Pulkovo MZ = +63·1m.

Sept. 27d. Readings also at 2h. (Ekaterinburg), 3h. (Ottawa), 5h. (Nagasaki and Belgrade), 6h. (Uccle and Manila), 7h. (Ekaterinburg and Taihoku), 8h. (Taihoku and close to Mostar), 9h. (Sydney), 11h. (close to Mostar), 12h. (Toledo), 13h. (Victoria and near Tacubaya), 14h. (Ottawa and Toronto), 18h. (Ekaterinburg and Manila), 22h. (Azores and Bombay).

Sept. 28d. 13h. 34m. 4s. Epicentre 46·5N. 28°·3W. (as on 1923 Sept. 11d.).

$A = +\cdot606$, $B = -\cdot326$, $C = +\cdot725$; $D = -\cdot474$, $E = -\cdot880$; $G = +\cdot639$, $H = -\cdot344$, $K = -\cdot688$.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Azores		9·0	166	21 56	?	—	—	—	—
Bidston		17·5	58	7 9?	?S	(7 9?)	−20	—	8·6
Eskdalemuir		17·9	52	i 4 15	− 1	i 7 38	0	—	8·9
Stonyhurst		18·0	56	(4 11)	− 6	4 11	?P	8·8	10·4
Edinburgh		18·2	50	i 4 19	0	—	—	8·9	10·4
Oxford		18·3	63	i 4 16	− 5	—	—	8·5	10·8
Toledo		18·8	102	i 4 32	+ 5	8 5	+ 7	e 8·9	9·3
Kew		18·9	64	—	—	—	—	—	10·9
Dyce		19·2	46	5 36	+65	9 8	+62	—	15·1
San Fernando		19·3	114	4 42	+ 9	8 26	+18	9·4	10·9
Granada		20·5	108	i 4 55	+ 8	i 8 49	+15	i 10·0	13·0
Paris		20·7	72	i 4 53	+ 4	e 8 41	+ 3	10·4	11·9
Tortosa	E.	21·5	95	i 2 2	−177	i 5 59	−176	7·6	9·4
	N.	21·5	95	i 2 1	−178	i 6 0	−175	7·7	8·2
Uccle		21·8	67	i 5 1	− 2	8 55	− 6	10·4	12·4
De Bilt		22·3	63	5 7	− 2	9 9	− 2	10·6	12·6
Barcelona		22·3	92	e 5 5	− 4	e 9 16?	+ 5	e 10·9	11·8
Besançon		23·3	76	5 19	− 1	9 29	− 2	10·9	12·9
Strasbourg		24·2	72	i 5 26	− 4	i 9 37	−11	12·0	13·6
Zurich		24·9	74	e 5 33	− 4	10 28	+27	—	—
Moncalieri		24·9	80	5 25	−12	10 24	+23	12·7	—
Algiers		25·2	101	e 5 37	− 3	10 6?	− 1	12·9	14·2
Hamburg		25·2	60	e 4 56	−44	—	—	e 12·9	14·8
Innsbruck		26·8	74	e 5 44	−12	—	—	e 15·9	—
Rocca di Papa		29·4	84	6 18	− 4	—	—	i 17·0	18·2
Upsala	N.	29·8	47	—	—	—	—	e 16·9	—
Vienna		29·8	70	e 6 17	− 9	—	—	—	18·4
Ottawa		32·5	286	e 6 53	0	e 12 11	− 5	e 15·9	19·4
Toronto	E.	35·6	284	e 8 34	?PR_1	e 13 0	− 4	e 18·2	22·0
Pulkovo		36·1	47	7 18	− 5	—	—	17·9	—
Chicago		41·8	285	9 29	?PR_1	13 38	−54	17·8	—
Ekaterinburg		52·1	45	—	—	18 47	+122	25·4	30·8
Victoria	E.	59·9	311	—	—	—	—	29·6	33·6
	N.	59·9	311	—	—	—	—	29·2	35·8
La Paz		72·5	221	11 56	+23	—	—	—	—
Irkutsk		73·2	30	11 44	+ 7	21 4	0	39·9	—

Additional readings and notes: Eskdalemuir e = +6m.56s. Toledo iNW = +4m.45s., MNW = +10·5m. San Fernando MN = +11·4m. Granada i = +5m.58s. De Bilt MN = +14·0m. Strasbourg iE = +8m.8s. Rocca di Papa PZ = +6m.16s. Vienna iPZ = +6m.20s., i = +8m.59s., +11m.16s., and +12m.16s. Ottawa PR_1 = +7m.56s., MN = +18·9m.; T_e = 13h.34m.15s. Toronto eN = +18m.11s. (?L). Chicago L = +24·8m. Ekaterinburg MN = +31·3m., MZ = +32·9m.

Sept. 28d. Readings also at 0h. (Taihoku), 4h. (Ekaterinburg, Batavia, and Apia), 5h. (Perth), 10h. (Kobe), 11h. (Mostar, Innsbruck, and close to Taihoku), 12h. (Florence and Irkutsk), 14h. (Mizusawa), 20h. (Florence), 22h. (La Paz), 23h. (Nagoya).

Sept. 29d. Readings at 8h. (Apia), 9h. (Apia), 10h. (Ekaterinburg), 20h. (Manila), 21h. (Ksara), 22h. (La Paz).

Sept. 30d. 8h. 54m. 0s. Epicentre 43°·4N. 72°·0W. (as on 1918 Sept. 12d.).

A = +·225, B = −·691, C = +·687 ; D = −·951, E = −·309 ; G = +·212, H = −·653, K = −·727.

It is not clear whether the epicentre should be moved 3° or 4° north, or whether T_0 should be increased by 40 sec., Ottawa and Harvard being 1 minute in error.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Harvard Univ.		1·2	147	−i 0 15	−33	1 0	+27	1·6	2·0
Ottawa		3·4	309	i 0 48	− 5	e 1 15	−19	—	1·6
Ithaca		3·5	255	e 1 47	+52	e 2 24	+47	—	—
Toronto	E.	5·4	275	i 2 2	+39	i 2 53	+25	—	3·0
	N.	5·4	275	i 2 2	+39	i 2 54	+26	—	3·1
Georgetown		5·8	224	e 2 6	+36	e 3 48	+69	e 4·2	4·4
Cheltenham	E.	5·9	220	—	—	e 4 4	+83	—	4·2
	N.	5·9	220	—	—	e 4 16	+95	—	4·7
Ann Arbor		8·6	267	—	—	e 3 30	−23	—	4·8
Chicago		11·5	267	e 2 45	− 7	e 5 43	+36	—	7·0
Victoria		35·4	296	—	—	—	—	17·1	19·6

Additional readings: Harvard Univ. MN = +1·9m. and 2·1m. Victoria LN = +17·2m., MN = +17·6m. Ottawa MN = +1·3m. ; T_0 = 8h.54m.12s. Ithaca i = +2m.34s.

Sept. 30d. Readings also at 5h. (Tacubaya), 7h. (Manila), 8h. (La Paz), 9h. (Manila), 11h. (Apia), 12h. (Kew). 17h. (Irkutsk), 18h. (Apia and Azores), 22h. (Apia). 23h. (Ekaterinburg and near Athens).

TABLE.

Degrees.	P sec.	S sec.	S − P sec.	Degrees.	P sec.	S sec.	S − P sec.	Degrees.	P sec.	S sec.	S − P sec.
1	15	28	13	51	553	991	438	101	855	1565	710
2	31	55	24	52	560	1004	444	102	860	1575	715
3	47	83	36	53	566	1016	450	103	865	1584	719
4	62	110	48	54	573	1029	456	104	870	1593	723
5	77	137	60	55	579	1041	462	105	874	1602	728
6	92	164	72	56	586	1054	468	106	879	1612	733
7	106	190	84	57	592	1066	474	107	884	1621	737
8	121	217	96	58	599	1079	480	108	888	1630	742
9	136	243	107	59	605	1091	486	109	893	1639	746
10	150	269	119	60	612	1103	491	110	897	1648	751
11	164	294	130	61	619	1116	497	111	902	1657	755
12	179	319	140	62	625	1128	503	112	907	1666	759
13	193	344	151	63	632	1141	509	113	911	1674	763
14	206	368	162	64	638	1153	515	114	916	1682	766
15	219	392	173	65	645	1165	520	115	920	1690	770
16	232	415	183	66	651	1177	526	116	925	1698	773
17	245	438	193	67	658	1190	532	117	929	1706	777
18	257	460	203	68	664	1202	538	118	934	1714	780
19	269	482	213	69	671	1214	543	119	938	1722	784
20	281	503	222	70	677	1226	549	120	942	1729	787
21	293	524	231	71	683	1238	555	121	947	1737	790
22	305	545	240	72	690	1250	560	122	952	1744	792
23	317	565	248	73	696	1262	566	123	957	1752	795
24	328	584	256	74	702	1274	572	124	961	1759	798
25	338	603	265	75	709	1286	577	125	966	1766	800
26	348	622	274	76	715	1297	582	126	970	1773	803
27	358	641	283	77	721	1309	588	127	974	1780	806
28	368	659	291	78	727	1320	593	128	978	1787	809
29	378	677	299	79	733	1332	599	129	983	1794	811
30	388	694	306	80	739	1343	604	130	988	1801	813
31	398	711	313	81	745	1355	610	131	992	1807	815
32	407	728	321	82	750	1366	616	132	996	1814	818
33	416	744	328	83	756	1377	621	133	1001	1821	820
34	425	760	335	84	762	1388	626	134	1005	1827	822
35	433	775	342	85	768	1399	631	135	1009	1833	824
36	442	790	348	86	773	1410	637	136	1014	1840	826
37	450	804	354	87	779	1421	642	137	1018	1846	828
38	458	818	360	88	785	1432	647	138	1023	1852	829
39	466	832	366	89	790	1443	653	139	1027	1858	831
40	475	847	372	90	796	1454	658	140	1031	1864	833
41	483	861	378	91	801	1464	663	141	1035	1869	834
42	491	875	384	92	807	1475	668	142	1039	1875	836
43	498	888	390	93	812	1485	673	143	1043	1881	838
44	506	902	396	94	818	1496	678	144	1047	1886	839
45	513	915	402	95	823	1506	683	145	1051	1892	841
46	520	928	408	96	829	1516	687	146	1055	1897	842
47	527	941	414	97	834	1526	692	147	1059	1902	843
48	534	954	420	98	840	1536	696	148	1063	1907	844
49	540	966	426	99	845	1546	701	149	1067	1912	845
50	547	979	432	100	851	1556	705	150	1071	1917	846

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