The International Seismological Summary for 1924 January, February, March.

FORMERLY THE BULLETIN OF THE BRITISH ASSOCIATION SEISMOLOGY COMMITTEE.

The present number of the Summary deals with 106 epicentres, 22 of which are new and 84 repetitions from old epicentres. In these counts 13 small repetitions in March 5 have not been included.

As regards abnormal focus, there are four cases, viz., on

Date.	d.	h.	Focal Depth.
1924 Jan.	16	21	+·030
Feb.	24	16	+·030
Mar.	5	4	+·030
Mar.	25	21	+·060

Attention may be called to the earthquakes of January 14 (a large number of cases of S_cP_cS or [S] from the epicentre of the great Japan earthquake in 1923 September), March 4 (well observed: see note), March 5 (thirteen repetitions), March 15 (well observed).

This introduction is again necessarily brief: in March and April the writer was in the United States: May and June have been much occupied by preparations for observing the Total Solar Eclipse of June 29.

On 1924 January 17 the steamship *La Touche* reported (via St. Paul Island) that the Pavlof Volcano blew off its southern edge; and the eruption was followed by a violent earthquake lasting seven minutes. It also reported an earthquake at "10.50 on Tuesday morning" (Jan. 15?) at Belkofsky and vicinity (Georgetown Seismol. Despatches).

On 1924 Feb. 21 Capt. J. C. Stewart of ship *S.F. Tolmie* in lat. 40·32′N. long. 126·38′W. experienced a "violent earthquake tremor accompanied by a roar similar to that caused by a heavy squall of wind," followed by other tremors.

On 1924 Mar. 7, earthquake in Derbyshire.

A marble memorial has been erected at Hakodate, Japan, to the memory of Professor John Milne, who was Professor of Geology and Seismology in the Imperial University of Japan from 1876 to 1895. Dr. Milne died in 1913 at Shide, Isle of Wight, and this International Summary is the lineal descendant of the bulletins which he issued thence.

On 1927 May 22d. 22h. 32m. 34s. there occurred a shock in Kansu, not far from that of 1920 Dec. 16, and even more severe. Thanks to telegrams received from Helwan, Hyderabad, and Perth it was possible to assign the epicentre with fair precision in lat. 35·8N. long. 103·4E., and time as above; and these particulars were communicated to *The Times*, appearing in the issue of May 25. No news was forthcoming from the neighbourhood until June 21, when the following paragraph appeared in *The Times*:—

CHINESE CITIES WRECKED BY EARTHQUAKE.

(FROM OUR CORRESPONDENT).

Tientsin, June 20.

Mails which have arrived here describe the havoc caused in Kansu Province by a terrific earthquake on May 23. Several cities were wrecked. At Langchow, the capital of the province, two pagodas nearly 2000 years old were completely razed.

*** In a letter which appeared in *The Times* of May 25 Professor H. H. Turner, of the University Observatory, Oxford, wrote that the seismographs on May 23 recorded a shock, the locality of which was given as lat. 35·8N., long. 103·4E.—a calculation now borne out by our Tientsin Correspondent's telegram. Professor Turner added that the shock was the greatest recorded by the Oxford seismographs, and that it was to be feared that the loss of life and damage had been considerable.

There was also a considerable earthquake on March 7d. 9h. 27m. 34s., epicentre 36°·0N. 134°·0E., as on 1922 Feb. 5.

H. H. TURNER.

University Observatory, Oxford.
1927, June 21.

1924 JANUARY, FEBRUARY, MARCH.

Jan. 1d. Readings at 0h. (Apia), 1h. (Uccle, near Zurich and Strasbourg, and near Tacubaya, Merida, Oaxaca, and Puebla), 3h. (Georgetown and Nagasaki), 4h. (Rio de Janeiro, La Plata, and La Paz), 6h. (Ekaterinburg) 7h. (La Paz and La Plata), 8h. (near Balboa Heights), 10h. (Ekaterinburg), 12h. (near Tashkent), 13h. (near Granada), 15h. (Ekaterinburg and near Tashkent), 16h. (Apia and La Paz), 17h. (near Manila), 18h. (Ekaterinburg), 23h. (Nagasaki).

Jan. 2d. 8h. 55m. 8s. Epicentre 44°·0N. 13°·0E. (as on 1921 April 5d.).

$A = +\cdot701$, $B = +\cdot162$, $C = +\cdot695$; $D = +\cdot225$, $E = -\cdot974$; $G = +\cdot677$, $H = +\cdot156$, $K = -\cdot719$.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Venice	1·5	340	i 0 29	+ 6	—	—	—	1·0
Rocca di Papa	2·2	185	i 0 32	− 2	i 1 5	+ 5	1·3	1·5
Pompeii	3·4	161	e 0 17	−36	e 0 32	−62	—	1·2
Innsbruck N.E.	3·5	342	i 0 55	0	e 2 2	?L	(e 2·0)	—
Mostar	3·5	100	1 15	+20	e 2 9	?L	(e 2·2)	2·5
Moncalieri	3·9	281	1 23	+22	2 19	?	2·7	4·3
Sarajevo	3·9	90	e 0 55	− 6	e 2 4	+17	—	2·3
Zurich	4·6	317	1 8	− 3	2 28	?L	(2·5)	—
Vienna	4·8	28	i 1 12	− 2	2 23	+12	2·8	2·9
Belgrade	5·4	79	e 2 34	+71	i 3 51	+83	—	4·3
Strasbourg	5·8	323	1 29	− 1	e 3 3	+24	3·9	4·0
Besançon	5·9	306	1 30	− 1	2 34	− 7	2·9	—
Paris	8·7	307	e 2 16	+ 4	e 3 43	−13	4·5	6·4
Uccle	9·0	322	2 34	+18	—	—	e 5·1	—
De Bilt	9·6	330	—	—	e 4 52	+34	e 5·7	6·3
Tortosa N.	9·7	255	—	—	—	—	e 5·9	—
Hamburg N.	9·8	349	e 3 13	+46	—	—	e 4·8	5·7
Athens	10·1	123	e 2 31	0	4 29	− 3	e 5·2	7·5
Algiers	10·5	229	—	—	—	—	e 9·8	12·4
Kew	11·6	314	—	—	—	—	—	8·9
Konigsberg N.	11·9	21	—	—	—	—	e 6·6	7·4
Toledo	13·3	258	—	—	e 6 25	+34	e 8·9	10·2
Bidston	14·1	317	—	—	—	—	7·4	9·0
Granada	14·3	247	i 3 31	+ 1	6 26	+11	e 8·9	—
Eskdalemuir	15·4	323	—	—	6 52	+11	—	—
Edinburgh	15·7	324	—	—	—	—	10·9	—
Upsala	16·1	8	—	—	—	—	e 8·9	11·2
Pulkovo	18·9	28	4 29	+ 1	8 11	+11	8·9	10·5
Kucino	19·7	45	—	—	—	—	e 12·4	—
Ekaterinburg	32·2	49	6 26	−24	11 40	−31	15·9	—
Toronto	62·8	305	—	—	—	—	e 61·6	—

Additional readings and notes: Venice iPE = +39s., iPN = +45s. Rocca di Papa SE = +1m.0s., SZ = +1m.1s., SN = +1m.2s. Mostar P = +1m.31s. Sarajevo iP = +1m.6s. Vienna PR_1 = +1m.41s., and several other readings. Belgrade iP = +2m.44s., i = +3m.24s. Strasbourg S = +2m.55s. De Bilt MN = +7·3m., MZ = +7·4m. Tortosa reading has been increased by 12m. Hamburg eLE = +5·0m., MZ = +5·8m., ME = +6·6m. Konigsberg ME = +6·9m. Toledo MNW = +9·6m. Upsala MN = +12·4m. Pulkovo MZ = +13·1m.

Jan. 2d. Readings also at 9h. (near Athens), 10h. (near Mostar and Sarajevo), 14h. (Taihoku), 18h. (Rocca di Papa), 19h. (Perth). 20h. (Ekaterinburg and La Paz), 21h. (Rio Tinto).

Jan. 3d. Readings at 1h. (La Paz and Rocca di Papa), 2h. (Sarajevo and near Mostar), 4h. (near Athens), 5h. (near Tacubaya), 11h. (Taihoku and near Granada), 14h. (Vienna and near Tacubaya), 16h. (Nagasaki).

Jan. 4d. 12h. 20m. 45s. Epicentre 62°·5N. 94°·0E.

A = −·032, B = +·461, C = +·887 ; D = +·998, E = +·070 ; G = −·062, H = +·885, K = −·462.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Ekaterinburg	17·5	266	4 19	+ 8	7 46	+17	9·2	10·7
Kucino	28·6	283	11 1	?S	(11 1)	− 9	15·6	—
Pulkovo	29·6	294	e 6 20	− 4	e 11 19	− 8	13·8	18·8
Baku	34·2	251	6 20	−47	e 7 47	?	—	8·8
De Bilt	45·1	300	—	—	—	—	e 25·2	—
Eskdalemuir	45·9	308	—	—	—	—	24·2	—
Hyderabad	46·3	201	8 41	− 1	—	—	—	12·5

Additional readings: Ekaterinburg MN = +10·6m. Pulkovo SR_1 = +12m.40s. Baku eS = +8m.6s.

Jan. 4d. 21h. 56m. 30s. Epicentre 39°·7N. 105°·0W.
(Denver, as on 1923 Jan. 27d.).

A = −·199, B = −·743, C = +·639 ; D = −·966, E = +·259 ; G = −·165, H = −·617, K = −·769.

Very uncertain.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Chicago		13·3	76	3 21	+ 4	6 5	+14	6·8	—
Ann Arbor		16·2	74	e 4 30	+35	(6 48)	−12	6·8	—
Toronto	E.	19·4	70	i 3 52	−42	(7 38)	−32	7·6	8·9
	N.	19·4	70	i 3 58	−36	(8 11)	+ 1	8·2	9·2
Georgetown	E.	21·5	83	e 4 46	−13	(8 36)	−19	8·6	—
	N.	21·5	83	e 4 40	−19	(8 56)	+ 1	8·9	—
Washington		21·5	83	e 3 50	−69	—	—	—	—
Ottawa		22·2	66	i 5 5	− 2	—	—	12·5	—
De Bilt		70·0	39	—	—	—	—	e 33·5	—
Rio Tinto		72·4	56	24 30	?SR_1	—	—	—	28·0
Ekaterinburg		82·7	9	—	—	—	—	43·5	—

Additional readings: Georgetown eLE = +6·8m., eLN = +6·9m. Ottawa e = +5m.52s., eL = +7·5m. De Bilt eL = +8·5m.

Jan. 4d. Readings also at 1h. (near Zurich), 2h. (La Paz), 3h. (Moncalieri), 5h. (near Manila), 6h. (Florence), 13h. (near Mizusawa), 15h. (near Port au Prince), 19h. (Ekaterinburg), 20h. (near Athens), 21h. (Ekaterinburg and near Merida), 22h. (near Tashkent), 23h. (Nagasaki and near Tashkent).

Jan. 5d. Readings at 0h. (Colombo), 2h. (near Tacubaya), 3h. (Nagoya), 9h. (La Paz and Colombo), 10h. (La Paz and Tacubaya), 11h. (Apia and Ekaterinburg), 13h. (Colombo, Hyderabad, and Bombay), 14h. (Ekaterinburg), 16h. (Florence), 18h. (Georgetown), 20h. (La Paz), 22h. (Florence and near Athens).

Jan. 6d. Readings at 9h. (Fordham), 15h. (near Mizusawa), 17h. (near Merida and Tacubaya), 18h. (Toronto and Victoria), 22h. (Rio Tinto), 23h. (Tacubaya (2)).

Jan. 7d. 9h. 55m. 42s. Epicentre 55°·0N. 160°·0W. (as on 1918 Sept. 12d.).

$A = -·539$, $B = -·196$, $C = +·819$; $D = -·342$, $E = +·940$; $G = -·770$, $H = -·280$, $K = -·574$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Victoria	E.	23·4	90	5 22	+ 1	(9 28)	− 5	9·5	12·6
Berkeley	N.	30·5	109	e 6 27	− 6	11 18	−25	e 15·0	16·6
Honolulu	N.	33·7	177	—	—	—	—	e 14·8	18·0
Chicago		47·5	76	15 40	?S	(15 40)	− 8	28·3	—
Toronto	E.	50·7	67	—	—	i 16 28	+ 1	30·5	—
	N.	50·7	67	—	—	i 16 31	+ 4	29·0	—
Ottawa		51·4	63	—	—	—	—	e 25·2	—
Zi-ka-wei		58·6	281	e 7 48	−135	—	—	—	—
Ekaterinburg		63·4	336	i 10 28	− 6	18 59	− 7	30·3	41·5
Pulkovo		64·9	355	10 44	0	19 25	+ 1	29·8	38·3
Upsala	N.	65·1	1	e 10 40	− 6	—	—	e 33·9	—
Kucino		68·3	350	10 48	−18	19 48	−18	30·3	44·0
Manila		71·8	271	e 11 36	+ 8	(e 20 0)	−48	—	—
De Bilt		72·2	10	i 11 45	+14	—	—	e 36·3	—
Uccle		73·4	10	e 11 54	+16	e 21 12	+ 5	e 36·3	—
Strasbourg		75·9	9	—	—	—	—	e 45·3	—
Zurich		77·2	9	e 11 58	− 4	—	—	—	—
Venice		79·3	7	—	—	—	—	—	12·9
Rocca di Papa		83·0	6	12 30	− 6	22 48	− 9	e 52·3	—
Rio Tinto		84·5	21	31 18	?SR_1	—	—	—	62·3
San Fernando		85·8	21	—	—	—	—	63·1	66·3
Hyderabad		92·3	306	23 54	?S	(23 54)	[+12]	(46·8)	52·3
Bombay		93·5	312	13 16	−19	24 4	[+15]	45·8	57·3
Colombo		100·8	300	53 48	?L	—	—	(53·8)	64·3

Additional readings and notes: Victoria LN = +9·4m., MN = +11·1m. Berkeley eN = +7m.25s. and +12m.46s. Honolulu eE = +13m.45s. Toronto eE = +20m.48s., iN = +25m.10s., = eE, LN = +31·4m., LE = +35·3m. Ottawa eL = +29·3m. Ekaterinburg PR_1 = +13m.0s., PR_2 = +14m.21s., PS = +19m.40s., SR_1 = +24m.2s., SR_2 = +26m.46s., MN = +36·2m., MZ = +43·2m. Pulkovo PR_1 = +13m.53s., PR_2 = +15m.43s., SR_1 = +22m.54s., SR_2 = +27m.36s., MZ = +38·2m. Eskdalemuir (Δ = 68°·1) gives simply 10h. Kucino MN = +40·8m. Manila readings are given as separate P's. Rocca di Papa PE = +12m.34s. Hyderabad P and L are given as separate P's.

Jan. 7d. Readings also at 0h. (Nagasaki), 4h. (La Paz), 6h. (Taihoku), 16h. (Azores), 22h. (near Granada).

Jan. 8d. Readings at 3h. (Ootomari), 6h. (Nagoya), 8h. (La Paz and Rio de Janeiro), 11h. (La Paz, Rio de Janeiro, and near Ootomari), 13h. (near Tashkent), 14h. (Perth), 15h. (near Manila), 17h. (La Paz and La Plata).

Jan. 9d. Readings at 0h. (near Tashkent), 4h. (Tacubaya), 6h. (La Paz and near La Plata), 10h. (Victoria and near Berkeley), 13h. (Apia and La Paz), 14h. (La Paz), 18h. (near Irkutsk and near Mizusawa).

Jan. 10d. 23h. 43m. 50s. Epicentre 40°·7N. 145°·8E. (as on 1919 May 3d.).

$A = -·627$, $B = +·426$, $C = +·652$; $D = +·562$, $E = +·827$; $G = -·539$, $H = +·367$, $K = -·758$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Mizusawa	E.	3·9	247	0 50	−11	1 20	−27	—	—
	N.	3·9	247	0 49	−12	1 32	−15	—	—
Sapporo		4·1	307	0 38	−26	—	—	1·0	—
Nagoya		8·9	234	2 11	− 4	—	—	—	—
Osaka		10·2	237	e 3 31	+58	(4 29)	− 6	4·5	5·6

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Kobe		10·3	238	—	—	—	—	—	6·7
Zi-ka-wei		21·8	252	e 5 2	− 1	—	—	—	—
Ekaterinburg		54·5	318	i 9 15	−21	16 38	−37	24·2	32·6
Pulkovo		66·5	330	e 10 59	+ 4	e 19 51	+ 7	31·7	40·8
De Bilt		81·1	337	—	—	—	—	e 41·2	—
Uccle		82·5	337	—	—	—	—	e 40·2	—
Florence	E.	86·1	330	—	—	—	—	33·7	46·7
Ottawa		86·2	28	—	—	e 23 24	− 8	e 43·7	—
Toronto	E.	86·3	30	—	—	e 23 24	− 9	43·2	—
San Fernando	N.	98·7	338	—	—	—	—	61·2	64·2

Additional readings: Kobe MN = +5·6m. Ekaterinburg SR_1 = +20m.15s., MN = +29·6m., MZ = +33·6m. De Bilt eLN = +43·2m. Ottawa i = +23m.59s. Toronto LE = +40·2m.

Jan. 10d. Readings also at 1h. (Melbourne, Apia, and Azores), 3h. (La Paz), 4h. (near Batavia and Malabar), 5h. (Pompeii and Apia), 9h. (near Tashkent), 14h. (Hong Kong, Taihoku, and Zi-ka-wei), 17h. (near Zurich), 18h. (near Cape Town), 19h. (De Bilt, Algiers, and Ekaterinburg), 23h. (Taihoku, Hong Kong, Ekaterinburg, and Zi-ka-wei).

Jan. 11d. Readings also at 1h. (Tashkent), 3h. (La Paz (2) and near Ootomari), 8h. and 9h. (Zurich), 13h. (near Sapporo and Mizusawa), 15h. (Malabar, Batavia, and near Zurich), 17h. (Fordham), 19h. (near Tacubaya and Merida), 20h. (Riverview, Melbourne, Ekaterinburg, Victoria, Batavia (2), and near Zurich), 21h. (Ottawa and near Tacubaya).

Jan. 12d. 13h. 54m. 36s. Epicentre 54°·5N. 164°·0E. (as on 1917 Jan. 30d.).

A = −·558, B = +·160, C = +·814; D = +·276, E = +·961; G = −·782, H = +·225, K = −·581.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Irkutsk	E.	34·6	290	e 7 14	+ 4	12 10	−39	17·4	21·4
Victoria	N.	43·6	67	14 55	?S	(14 55)	− 1	23·4	24·6
Honolulu	N.	43·7	124	—	—	—	—	e 19·4	—
Hong Kong		49·0	250	—	—	—	—	—	30·4
Pulkovo		59·9	335	i 10 12	+ 1	18 17	− 5	27·4	39·2
Tashkent	E.	59·9	300	—	—	—	—	e 29·4	38·4
Kucino		61·3	329	—	—	e 17 24	−76	30·8	38·2
Chicago		66·0	51	—	—	—	—	e 37·4	—
Ottawa		68·0	41	—	—	—	—	e 40·4	—
Toronto	N.	68·0	44	—	—	—	—	i 35·5	—
De Bilt		72·0	347	—	—	—	—	e 41·4	—
Hyderabad		73·3	276	40 47	?L	—	—	(40·8)	—
Bombay		75·4	282	21 24	?S	(21 24)	− 6	—	—

Additional readings and notes: Victoria LE = +22·7m., ME = +25·0m. Honolulu eE = +16m.24s. Pulkovo PR_1 = +12m.55s., MN = +40·8m. Kucino MN = +37·7m. Ottawa e = +13m.35s., L = +55·4m. Toronto N readings are given for 13h.; several other readings are given for each component, the earliest being entered as LN.

Jan. 12d. Readings also at 0h. (Tashkent), 3h. (Ootomari), 7h. (La Paz, Puebla, and Tacubaya), 9h. (Tashkent and Zurich), 11h. (Colombo), 12h. (Perth, Adelaide, Hyderabad, and Bombay), 13h. (Mizusawa), 16h. (Apia), 21h. (near Nagasaki (2)).

Jan. 13d. 9h. 43m. 27s. (I)
19h. 14m. 47s. (II)
20h. 57m. 30s. (III)
Epicentre 43°·8N. 15°·7E. (as on 1923 Sept. 26d.).

A = +·695, B = +·195, C = +·692; D = +·271, E = −·963; G = +·666, H = +·187, K = −·722.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
I	Sinj	0·7	96	i 0 11	0	i 1 20	0	—	0·4
II		0·7	96	i 0 11	0	i 0 17	− 3	—	0·3
III		0·7	96	i 0 11	0	i 0 21	+ 1	—	0·4
III	Mostar	1·6	106	i 0 38	+14	i 2 0	+75	—	2·3
I	Sarajevo	2·0	88	i 0 31	0	i 0 59	+ 4	—	1·2
II		2·0	88	i 0 32	+ 1	i 1 0	+ 5	—	1·1
III		2·0	88	i 0 22	− 9	i 0 51	− 4	—	1·0
II	Venice	2·9	304	1 19	?S	(1 19)	− 1	—	1·7
III		2·9	304	0 38	− 7	—	—	—	1·6
I	Rocca di Papa	3·0	228	0 50	+ 3	i 1 48	+25	1·9	—
II		3·0	228	0 58	+11	i 1 48	+25	—	—
III		3·0	228	0 49	+ 2	1 33	+10	—	1·8
II	Pompeii	3·1	197	0 22	−27	—	—	—	1·0
III		3·1	197	e 0 26	−23	—	—	—	2·5
III	Belgrade	3·6	71	i 0 56	0	i 2 25	?L	(i 2·4)	2·0
I	Vienna	4·5	6	1 23	+13	—	—	—	2·4
II		4·5	6	1 10	0	i 2 6	+ 2	i 3·3	3·4
III		4·5	6	0 57	−13	1 52	−12	—	2·4
II	Innsbruck	4·6	322	e 1 55	+44	—	—	—	—
III	N.E.	4·6	322	e 1 16	+ 5	e 2 12	+ 6	—	—
I	Zurich	6·1	309	e 1 19	−14	3 25	?L	(3·4)	—
II		6·1	309	e 1 37	+ 4	3 21	?L	(3·4)	—
III		6·1	309	1 23	−10	2 32	−14	—	3·3
I	Athens	8·5	131	e 2 30	+21	—	—	2·6	2·7
III	Hamburg	10·5	341	—	—	—	—	e 5·5	—

Additional readings and notes: Rocca di Papa for I PN = +56s., II PN = +1m.0s., III SE = +1m.36s. Innsbruck III ePNW = +1m.13s. Athens gives its readings for I as at 19h.

Jan. 13d. Readings also at 3h. and 8h. (La Paz), 9h. (near Batavia), 15h. (near Athens), 17h. (Rio Tinto), 19h. (Tashkent and near Port au Prince), 20h. (Nagasaki), 23h. (Bombay).

1924. Jan. 14d. 20h. 50m. 10s. Epicentre 35°·0N. 139°·5E.

(as on 1923 Dec. 31d.).

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

One of the many repetitions of the great Japanese earthquake in 1923 Sept.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tokyo		0·7	16	1 14	+63	—	—	—	—
Nagoya		2·1	274	0 35	+ 2	(0 52)	− 6	0·9	—
Osaka		3·4	266	1 3	+10	—	—	1·8	2·2
Kobe		3·6	266	1 3	+ 7	—	—	1·9	—
Mizusawa	E.	4·3	17	1 12	+ 5	1 58	0	—	—
Sapporo		8·2	9	2 16	+12	—	—	4·1	4·6
Nagasaki		8·4	257	2 11	+ 4	—	—	4·2	4·9
Ootomari		11·9	11	2 53	− 5	—	—	5·5	7·0
Zi-ka-wei		15·6	261	3 47	0	e 6 51	+ 5	—	8·8
Hong Kong		25·5	247	5 30	−13	10 20	+ 7	13·0	16·1
Manila		26·4	224	e 5 50	− 2	i 11 23	+53	—	14·3
Calcutta	E.	46·0	270	9 7	+27	18 33	?SR_1	27·6	31·0
	N.	46·0	270	9 9	+29	17 55	?SR_1	27·2	32·0
Dehra Dun		51·1	282	8 35	−39	15 51	−41	25·2	32·3
Batavia		51·4	223	i 9 7	− 9	i 16 22	−14	25·6	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Simla	N.	51·5	284	9 26	+ 9	16 38	0	26·2	27·9
Tashkent	E.	54·1	299	e 10 2	+28	i 17 44	+34	29·8	34·8
Ekaterinburg		55·5	320	9 35	− 8	i 17 13	−15	24·3	35·0
Honolulu	E.	55·8	87	—	—	17 48	+17	27·0	47·1
	N.	55·8	87	9 50	+ 5	17 30	− 1	26·1	27·1
Hyderabad		56·6	270	10 18	+28	17 59	+18	27·9	36·6
Sitka	E.	58·7	40	10 12	+ 9	18 26	+19	—	—
Bombay		60·5	275	10 19	+ 3	18 32	+ 2	30·6	38·0
Kodaikanal		61·3	265	13 56	?PR_1	—	—	38·2	41·3
Colombo		61·3	260	9 50	−31	19 20	+40	38·1	43·8
Pulkovo		68·9	330	i 11 11	+ 1	i 20 5	− 8	29·8	42·4
Victoria	E.	68·9	45	11 17	+ 7	20 8	− 5	35·3	—
	N.	68·9	45	11 15	+ 5	20 8	− 5	30·8	—
Riverview		69·7	170	e 11 14	− 1	e 20 22	0	e 29·8	32·3
Sydney	E.	69·7	170	20 14	?S	(20 14)	− 8	32·0	35·6
Adelaide		70·0	181	—	—	i 20 26	0	—	42·3
Perth		70·6	201	11 24	+ 3	20 56	+23	36·8	43·8
Melbourne		73·0	176	12 20	+44	21 14	+12	33·4	41·3
Upsala		73·9	334	e 11 39	− 2	i 21 3	−10	e 37·4	47·3
Berkeley		74·9	54	i 11 55	+ 7	i 21 23	− 2	e 31·5	35·5
Konigsberg	E.	76·1	329	i 12 5	+ 9	e 21 32	− 6	e 39·3	49·5
	N.	76·1	329	i 11 55	− 1	e 21 32	− 6	—	49·5
Bergen		77·5	340	12 8	+ 4	21 53	− 2	e 32·8	39·8
Lemberg		77·8	324	e 11 47	−19	e 21 53	− 5	e 40·1	49·4
Ksara		80·8	306	12 26	+ 2	i 22 26	− 7	—	—
Hamburg		81·3	333	e 12 22	− 5	i 22 30	− 8	e 40·8	51·3
Vienna		82·6	326	12 25	− 9	22 43	−10	e 39·3	51·9
Wellington		82·9	154	e 13 2	+27	e 23 2	+ 6	41·8	43·8
Belgrade		83·0	322	e 12 31	− 5	i 22 49	− 8	e 44·4	52·6
Edinburgh		83·7	340	i 17 50	?PR_1	23 10	+ 4	38·8	50·9
Eskdalemuir		84·2	340	12 42	− 1	22 52	[+ 1]	38·8	52·8
De Bilt		84·2	334	12 45	+ 2	22 58	[+ 7]	e 38·8	52·0
Sarajevo		84·7	323	i 12 41	− 5	e 22 59	[+ 5]	e 45·0	52·2
Stonyhurst		85·3	339	12 40	−10	23 3	[+ 5]	—	53·8
Uccle		85·5	334	e 12 44	− 7	23 4	[+ 5]	e 41·8	54·7
Innsbruck		85·5	328	e 12 51	0	e 23 48	+23	e 43·8	55·1
Tucson	E.	85·8	53	12 50	− 2	23 6	[+ 5]	42·4	43·8
Bidston		85·8	339	11 50	−62	21 50	[−71]	38·9	54·2
Athens		86·0	315	e 12 16	−37	22 58	[− 4]	e 42·8	56·6
Strasbourg		86·1	330	12 50	− 4	i 23 7	[+ 4]	e 37·8	51·3
Helwan		86·4	304	e 12 46	− 9	23 9	[+ 4]	—	55·6
Kew		86·6	337	21 50	?	—	—	—	51·8
Zurich		86·7	329	e 12 51	− 6	i 23 11	[+ 4]	e 45·8	—
Oxford		87·0	337	—	—	23 5	[− 4]	37·4	52·6
Besançon		87·9	330	e 13 8	+ 4	23 23	[+ 9]	—	42·8
Paris		87·9	333	e 12 59	− 5	i 23 20	[+ 6]	42·8	47·8
Florence	E.	88·2	325	13 5	− 1	23 20	[+ 4]	43·8	48·3
Pompeii		88·9	321	e 13 8	− 2	—	—	58·8	—
Moncalieri		88·9	328	13 11	+ 1	23 30	[+ 9]	31·2	56·6
Rocca di Papa	E.	89·1	323	i 13 1	−10	23 26	[+ 3]	e 43·9	57·6
	N.	89·1	323	i 13 4	− 7	—	—	e 44·8	57·4
Chicago		91·9	33	13 15	−11	23 31	[− 8]	42·2	—
Ann Arbor		93·2	30	13 26	− 7	23 56	[+ 9]	42·8	—
Ottawa		93·6	23	e 13 25	−11	i 23 50	[+ 1]	e 41·3	54·8
Toronto	E.	93·7	27	e 13 32	− 4	e 23 50	[0]	e 44·4	58·7
	N.	93·7	27	e 13 31	− 5	e 23 53	[+ 3]	e 48·1	62·2
Barcelona		94·1	329	e 16 50	?	23 53	[0]	e 49·0	58·9
Tortosa		95·3	330	13 48	+ 3	24 3	[+ 4]	e 38·8	60·2
Ithaca		95·8	26	—	—	e 23 50	[−11]	50·8	—
Algiers		97·5	326	e 13 59	+ 2	e 24 59	[+49]	44·8	57·8
Toledo		97·9	333	e 14 12	+13	i 24 32	[+19]	e 47·5	63·0
Fordham		98·1	25	—	—	—	—	49·1	—
Georgetown		98·7	28	e 11 39	?	e 24 21	[+ 4]	63·2	—
Washington		98·7	28	e 16 20	?	24 20	[+ 3]	e 47·8	—
Granada		100·1	331	—	—	25 35	[+70]	48·4	54·0
Rio Tinto		100·7	334	24 50	?S	(24 50)	[+23]	—	56·8
Lisbon		100·8	335	—	—	—	—	e 46·2	—
San Fernando		101·7	333	24 50	?S	(24 50)	[+18]	56·3	67·8
Cape Town		132·1	254	—	—	22 51	?PR_1	—	71·5
La Paz		149·2	60	i 19 56	[+ 2]	e 33 59	?	73·2	86·6
La Plata	E.	165·7	95	21 22	[+70]	—	—	78·4	88·3
	N.	165·7	95	21 31	[+79]	35 28	?	69·6	95·2
Rio de Janeiro	E.	167·7	11	i 25 5	?PR_1	(48 13)	?SR_1	85·2	—

For Notes see next page.

NOTES TO JAN. 14d. 20h. 50m. 10s.

Additional readings and notes: Osaka MN = +2·4m. Zi-ka-wei MN = +10·5m. Manila MN = +14·0m. Tashkent iPE = +10m.26s., eE = +22m.50s., and +26m.50s. Ekaterinburg i = +9m.38s., MN = +35·5m., MZ = +36·0m.; all readings increased by 9m. Honolulu eE = +17m.15s., SR_2 = +23m.26s., iLE = +39·2m. Pulkovo PR_1 = +13m.42s., PR_2 = +16m.13s., PS = +20m.52s., SR_1 = +25m.8s., SR_2 = +27m.38s., MZ = +43·3m., MN = +44·4m. Riverview eS = +20m.48s., MZ = +38·5m., MN = +42·0m. T_0 = 20h.50m.6s. Sydney SE = +27m.8s. Adelaide SR_1? = +26m.26s. Perth e = +18m.56s., SR_1 = +27m.44s., L = +41·4m. and +43·6m. Upsala MN = +49·3m. Berkeley iSE = +21m.31s. Bergen readings have been diminished by 1h. Hamburg iPR_1Z = +15m.28s., iPR_1N = +16m.13s., iSR_1N = +27m.40s., iSR_1E = +28m.0s., MN = +55·7m., MZ = +55·8m. Vienna iZ = +12m.35s., iEN = +12m.40s., iZ = +13m.9s., PR_1 = +15m.40s., PR_2 = +17m.49s., iZ = +19m.5s., SR_1 = +23m.17s., iE = +24m.41s., iENZ = +25m.50s., iZ = +27m.21s., SR_1 = +28m.8s. Wellington SR_1 = +28m.26s. T_0 = 20h.50m.58s. Belgrade iP = +12m.42s., PR_1 = +13m.48s., L = +58·1m. Eskdalemuir SR_1 = +28m.50s. De Bilt PR_1Z = +16m.0s., MN = +49·9m., MZ = +52·2m. Uccle SR_1 = +28m.50s., MN = +50·8m. Innsbruck iPR_1NE = +16m.6s., MNW = +52·9m. Athens MN = +52·7m. Strasbourg iPR_1 = +16m.13s., iPR_2 = +18m.1s., MN = +52·0m. Oxford PR_1 = +16m.11s. Paris MN = +53·8m. Moncalieri MN = +57·6m. Ann Arbor PR_1 = +17m.14s., i = +24m.32s., SR_1 = +30m.50s. T_0 = 20h.50m.48s. Ottawa PR_1 = +17m.25s., i = +24m.26s., MN = +56·8m. Toronto iP = +13m.34s., PR_1N = +17m.9s., PR_1E = +17m.11s., iSE = +23m.53s., iSN = +23m.56s., iE = +24m.20s. and +24m.38s., iN = +24m.31s., eN = +30m.53s., eE = +37m.52s. T_0N = 20h.51m.17s. T_0E = 20h.51m.22s. Barcelona eL = +34·9m. Tortosa MN = +59·2m. Algiers PR_1 = +17m.43s., MN = +62·8m. Toledo PR_1NE = +18m.2s., PR_1NW = +18m.4s., MNW = +59·6m. Fordham e = +47m.7s. Georgetown iEN = +17m.50s., LN = +66·1m. Granada PR_1 = +17m.39s., PS = +22m.50s. and +24m.47s., MN = +66·6m. San Fernando S = +36m.50s., MN = +64·3m. La Plata E = +24m.3s. and +33m.51s., $PR_1?N$ = +25m.30s., $PR_2?N$ = +28m.38s., N = +32m.23s., S?N = +38m.35s., $SR_1?N$ = +45m.45s., $SR_1?E$ = +45m.56s., $SR_2?E$ = +51m.32s. Rio de Janeiro SR_1E is given as LE.

Jan. 14d. Readings also at 1h. (Adelaide), 4h. (Taihoku), 5h. (Batavia), 10h. (Tashkent), 21h. (Kobe (2), Osaka (2), and La Paz), 22h. (Riverview, Perth, Adelaide, and near Manila), 23h. (Kodaikanal, near Taihoku (2), and near Kobe).

Jan. 15d. 2h. 55m. 0s. Epicentre 53°·8S. 148°·0E. (as on 1920 Mar. 11d.).

A = −·501, B = +·313, C = −·807; D = +·530, E = +·848;
G = +·684, H = −·428, K = −·591.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Melbourne	16·1	351	—	—	—	—	e 10·8	16·9
Adelaide	20·0	337	i 5 48	+67	e 10 0	+97	i 16·6	20·0
Riverview	20·1	8	e 4 48	+ 7	e 8 53	+30	e 10·6	12·7
Sydney	20·1	8	6 48	+126	—	—	10·2	12·6
Perth	31·7	301	20 26	?L	—	—	(20·4)	29·8
Batavia	58·0	310	e 10 0	+ 1	—	—	—	—
Bombay	96·8	293	22 0	?	—	—	—	—
Ekaterinburg	131·3	313	—	—	—	—	15·0	—
Toronto	147·8	89	—	—	i 36 26	?SR_1	62·7	—
Rocca di Papa	148·2	266	19 32	[−21]	—	—	—	—
Venice	150·6	272	20 3	[+ 6]	—	—	—	—
Ottawa	150·9	89	—	—	—	—	75·0	—
Zurich	153·8	273	e 19 25	[−36]	—	—	—	—
Strasbourg	154·9	275	19 24	[−38]	—	—	—	—

Additional readings: Riverview P = +5m.0s., MN = +13·4m., T_0 = 2h.54m.25s. Perth PR_1 = +23m.36s., S = +25m.45s., L = +28·7m. Toronto iN = +63m.10s., LE = +63·0m. Ottawa eL = +36·0m.

Jan. 15d. 11h. 35m. 28s. Epicentre 22°·0N. 120°·5E.

A = −·471, B = +·799, C = +·375.

	Δ	P.	O−C.	S.	O−C.	L.	M.
	°	m. s.	s.	m. s.	s.	m.	m.
Hokoto	1·7	e 0 18	− 8	(0 42)	− 6	0·7	—
Taihoku	3·2	e 0 50	0	—	—	e 1·3	1·9
Hong Kong	5·9	1 30	− 1	2 42	+ 1	—	4·5
Manila	7·4	e 3 33	?S	(e 3 33)	+12	5·1	—
Zi-ka-wei	9·2	e 3 2	+43	—	—	—	—
Irkutsk	32·7	—	—	—	—	e 15·2	—

Irkutsk L = +18·5m.

Jan. 15d. 19h. 23m. 58s. Epicentre 37°·0N. 141°·0E. (as on 1923 Feb. 11d.).

A = −·621, B = +·503, C = +·602; D = +·629, E = +·777; G = −·468, H = +·379, K = −·799.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Mizusawa	2·1	2	0 31	− 2	0 59	+ 1	—	—
Nagoya	3·8	242	1 58	+59	(2 43)	+59	2·7	3·1
Osaka	5·1	245	1 24	+ 5	(2 20)	0	2·3	2·6
Kobe	5·3	246	1 21	− 1	(2 21)	− 4	2·4	2·7
Irkutsk	29·8	313	10 58	?S	(10 58)	−33	15·0	18·3
Tashkent E.	54·2	298	e 12 2	?PR_1	—	—	—	—
Ekaterinburg	54·8	319	—	—	—	—	24·0	34·6
Bombay	61·6	274	—	—	—	—	36·0	—

Additional readings and notes: Kobe MN = +2·6m., MZ = +2·5m. Ekaterinburg readings have been increased by 1h.

Jan. 15d. Readings also at 0h. (near Nagoya, Osaka, and near Lick), 2h. and 4h. (Nagoya), 6h. (near Osaka), 7h. (Nagoya and near Mizusawa), 10h. (La Paz (2)), 13h. (Apia and Irkutsk), 14h. (Tashkent), 19h. (Nagoya and La Paz), 20h. (Bombay), 21h. (Tashkent and Zi-ka-wei).

Jan. 16d. 21h. 37m. 54s. Epicentre 20°·5S. 178°·5W. (as on 1919 Jan. 1d.).

A = −·936, B = −·025, C = −·350; D = −·026, E = +1·000; G = +·350, H = +·009, K = −·937.

The depth of focus 0·030 assumed on 1919 Jan. 1d. has been retained in this repetition of the shock. An origin further west at about 20°·5S. 180° would be better for the observations. They are not, however, conclusive enough to establish a definite deviation from the above.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	•	•	•	m. s.	s.	m. s.	s.	m.	m.
Apia	−0·4	9·2	45	2 20	+ 7	3 25	−33	—	4·6
Riverview	−2·0	29·9	235	e 5 44	−23	e 10 13	−44	e 12·9	15·9
Melbourne	−2·3	36·0	231	e 7 18	+16	—	—	—	16·8
Honolulu	−2·9	46·3	26	—	—	e 14 42	−12	—	—
Perth	−3·6	59·2	245	9 44	+ 1	17 16	−13	27·6	—
Manila	−3·8	69·1	296	e 10 49	+ 2	—	—	—	—
Nagoya	−3·8	69·9	325	10 54	+ 2	—	—	—	—
Osaka	−3·8	70·4	321	10 58	+ 3	(20 3)	+18	20·0	20·7
Kobe	−3·8	70·6	321	e 10 58	+ 1	(e20 17)	+29	e 20·3	20·4
Malabar	−3·9	72·5	270	11 8	0	i 20 7	− 2	—	—
Batavia	−3·9	73·5	270	i 11 10	− 5	i 20 17	− 4	—	—
Ootomari	−3·9	75·7	334	10 17	−71	—	—	—	—
Zi-ka-wei	−3·9	77·4	311	11 32	− 7	—	—	—	—
Hong Kong	−4·0	78·4	301	11 39	− 6	(21 18)	− 1	21·3	21·4
Victoria E.	−4·1	84·6	32	—	—	(22 8)	−21	22·1	22·4
N.	−4·1	84·6	32	—	—	(22 5)	−24	22·1	22·3
Tacubaya E.	−4·1	87·2	70	11 39	−58	22 39	−19	—	—
Irkutsk	−4·4	98·6	325	e 15 19	+100	(i 23 28)	[−48]	26·1	—
La Paz	−4·4	102·2	114	13 29	−30	i 23 37	[−58]	32·2	44·3
Colombo	−4·5	103·3	272	19 36	?PR_1	—	—	—	—

Continued on next page.

		Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Hyderabad		−4·6	107·9	284	24 6	?S	(24 6)	[−55]	—	29·6
Toronto	N.	−4·6	110·4	49	—	—	i 33 53	?	e 40·8	—
Ottawa		−4·6	113·2	47	—	—	e 24 30	?	e 36·1	—
Bombay		−4·6	113·4	282	e 21 4	?PR$_1$	—	—	—	30·4
Tashkent	E.	−4·6	119·8	307	e 20 42	?PR$_1$	e 28 36	+24	e 29·3	—
Ekaterinburg		—	128·8	325	i 18 29	[−34]	—	—	40·1	—
Kucino		—	135·5	331	22 9	?PR$_1$	32 15	?	48·3	—
Pulkovo		—	135·7	339	18 53	[−38]	28 2	?	39·1	—
Hamburg	Z.	—	146·3	350	19 12	[−38]	—	—	—	—
De Bilt		—	148·0	354	i 19 21	[−32]	—	—	e 42·1	—
Uccle		—	149·5	356	e 19 24	[−31]	—	—	e 42·1	—
Vienna		—	149·8	340	i 19 18	[−38]	—	—	—	—
Strasbourg	Z.	—	151·5	351	i 19 6?	[−52]	—	—	—	—
Innsbruck	N.W.	—	152·0	346	e 19 29	[−30]	—	—	—	—
Zurich		—	152·5	350	e 19 30	[−30]	—	—	—	—
Rocca di Papa		—	156·7	339	19 25	[−39]	—	—	—	—
Granada		—	162·7	14	20 34	[+24]	i 22 10	?PR$_1$	e 49·1	—

Additional: Riverview ePR$_1$ = +6m.39s., ePR$_2$ = +7m.3s., iSR$_1$ = +12m.8s., MN = +14·7m. T$_0$ = 21h.37m.55s. Perth PR$_1$ = +13m.1s., i = +19m.8s., SR$_1$ = +25m.1s., Osaka MN = +20·1m. Zi-ka-wei reading is given for 15d. Toronto LE = +36·4m. Ottawa eE = +25m.36s., e = +28m.30s. Ekaterinburg i = +20m.24s., +21m.43s., +25m.7s., +26m.49s., and +32m.0s., e = +27m.59s., +36m.48s., and +38m.42s. Kucino iPR$_2$ = +28m.34s. Pulkovo PR$_1$ = +21m.55s., SR$_1$ = +33m.30s.

Jan. 16d. Readings also at 2h. (near Athens), 7h. (Tacubaya), 15h. (Ekaterinburg), 16h. (La Paz and Nagoya), 19h. (La Paz and Taihoku), 20h. (La Paz), 21h. (Pulkovo and Ekaterinburg), 23h. (Nagoya and La Paz).

Jan. 17d. Readings at 2h. (Tashkent, Malaga, and near Granada), 3h. (Colombo), 5h. (La Paz, Tortosa, and Zurich), 6h. (near Sarajevo and Belgrade), 9h. (near Athens), 13h. (Batavia), 14h. (Nagoya and near Mizusawa) 16h. (Zi-ka-wei), 23h. (Taihoku).

Jan. 18d. 14h. 56m. 20s. Epicentre 29°·5N. 56°·0E. (as on 1923 Sept. 23d.).
A = +·487, B = +·722, C = +·492; D = +·829, E = −·559;
G = +·275, H = +·408, K = −·870.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tashkent	E.	16·0	39	e 4 44	+52	e 9 6	?L	19·3	10·6
Ksara		17·6	289	5 59	+107	9 27	?L	(9·4)	—
Bombay		18·6	120	4 24	0	7 56	+ 3	10·0	—
Helwan		21·4	277	e 5 13	+15	9 5	+12	—	15·2
Hyderabad		23·8	115	9 40	?S	(9 40)	0	—	16·7
Ekaterinburg		27·6	4	6 2	− 2	10 46	− 6	13·7	15·9
Kucino		29·3	339	—	—	e 11 50	+28	17·7	—
Colombo		31·8	132	14 40	?L	—	—	(14·7)	21·2
Pulkovo		34·9	339	7 6	− 6	12 42	−12	16·2	24·6
Hamburg		41·0	320	—	—	—	— e	21·7	—
Strasbourg		41·2	312	—	—	—	—	23·7	—
Irkutsk		42·0	43	—	—	e 17 53	?	22·7	25·4
De Bilt		43·5	317	—	—	—	— e	22·7	—
Uccle		43·7	315	—	—	—	—	—	27·7
Eskdalemuir		48·9	320	—	—	e 16 11	+ 6	26·7	—

Additional readings: Tashkent eE = +5m.40s. and +7m.0s., iLN = +10·3m., MN = +10·7m. Ekaterinburg MN = +17·1m. Pulkovo SR$_2$ = +15m.22s. Eskdalemuir e = +19m.40s.

Jan. 18d. Readings also at 1h. (Tacubaya), 3h. (Taihoku), 5h. (near Athens), 6h. (Ekaterinburg), 7h. (Tacubaya), 8h. (near Athens), 9h. (Tacubaya), 14h. (Apia), 16h. (Ekaterinburg and Apia (2)), 17h. (Toledo), 18h. (near Kobe), 23h. (near La Paz).

Jan. 19d. Readings at 0h. (near Mizusawa), 2h. (Lisbon and Nagasaki), 4h. (Taihoku), 6h. (Nagoya and near Osaka and Kobe), 8h. (La Paz), 9h. (Nagoya), 12h. (Kobe), 13h. (2) and 14h. (Ekaterinburg), 15h. (Nagoya and Tacubaya (2)), 16h. (Tashkent and Zi-ka-wei), 20h. (La Plata, La Paz, and Rio de Janeiro), 21h. (Tacubaya), 22h. (Nagasaki).

Jan. 20d. 15h. 33m. 48s. Epicentre 35°·0N. 139°·5E. (as on Jan. 14d.).

A = −·623, B = +·532, C = +·574.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Osaka		3·4	266	0 49	− 4	(1 34)	0	1·6	2·2
Kobe		3·6	266	0 58	+ 2	(1 44)	+ 5	1·7	1·8
Mizusawa	E.	4·3	17	1 1	− 6	1 43	−15	—	—

Additional readings: Osaka MN = +2·4m. Mizusawa PN = +1m.0s.

Jan. 20d. 22h. 31m. 20s. Epicentre 23°·0S. 66°·0W. (as on 1916 Aug. 25d.).

A = +·374, B = −·841, C = −·391; D = −·914, E = −·407;
G = −·159, H = +·357, K = −·921.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
La Paz		6·8	343	i 1 51	+ 7	i 3 7	+ 2	3·6	5·0
La Plata	E.	13·8	151	3 13	−10	5 42	−21	6·9	8·2
	N.	13·8	151	3 9	−14	6 21	+18	6·9	7·9
Rio de Janeiro	E.	21·0	94	e 4 35	−18	8 10	−34	9·2	11·9
	N.	21·0	94	i 4 25	−28	i 8 10	−34	9·6	12·0
Toronto	N.	67·8	350	—	—	i 19 25	−35	—	—
Ottawa		68·9	353	—	—	i 20 38	+25	30·7	—
Algiers		88·4	48	—	—	i 23 7	−49	—	—
Eskdalemuir		94·9	31	—	—	e 23 40	[−16]	—	—
Ekaterinburg		129·0	34	e 18 49	[−27]	e 28 53	−61	—	—

Additional readings: Ottawa eL = +27·2m. Ekaterinburg i = +21m.51s., e = +25m.38s. and +27m.35s.

Jan. 20d. Readings also at 1h. (Nagoya), 9h. (La Paz and Ekaterinburg), 10h. (Nagasaki), 11h. (La Paz and near Mizusawa), 12h. (Manila), 13h. (Perth and Ekaterinburg), 16h. (Ekaterinburg), 18h. (La Paz), 20h. (Ekaterinburg).

1924. Jan. 21d. 1h. 52m. 48s. Epicentre **56°·0N. 145°·5E.**

A = −·461, B = +·317, C = +·829; D = +·566, E = +·824;
G = −·683, H = +·470, K = −·559.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Ootomari		9·5	192	2 55	+32	—	—	5·1	5·3
Sapporo		13·2	194	3 31	+15	—	—	6·1	—
Mizusawa		17·1	192	4 13	+ 7	7 28	+ 8	—	—
Osaka		22·4	202	5 8	− 2	(9 10)	− 3	9·2	11·2
Kobe		22·5	203	5 8	− 3	e 8 17	−58	e 11·0	12·2
Nagasaki		25·7	212	5 43	− 2	(10 22)	+ 6	10·4	12·5
Zi-ka-wei		30·0	224	6 27	− 1	—	—	—	—
Taihoku		35·9	221	e 7 12	− 9	—	—	—	—
Hong Kong		40·8	228	7 59	− 2	14 14	− 4	19·4	25·7
Ekaterinburg		43·8	309	i 8 32	+ 8	15 17	+18	19·2	28·3
Manila		45·5	215	e 8 28	− 9	—	—	—	—
Tashkent		49·7	287	e 9 24	+19	e 18 54	?SR_1	e 20·2	45·5
Victoria		52·3	57	9 12	−10	11 8	?PR_1	14·7	20·9
Calcutta		53·3	257	9 40	+12	—	—	—	—
Pulkovo		53·4	325	9 32	+ 3	i 17 7	+ 6	24·7	36·2
Kucino		53·8	320	10 15	+43	17 55	+49	19·9	25·0
Honolulu	E.	53·9	105	—	—	—	—	18·3	19·9
	N.	53·9	105	10 4	+32	14 40	−148	18·7	20·0

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Upsala		57·0	331	i 9 55	+ 3	i 17 46	0	—	34·5
Konigsberg	E.	60·4	327	e 10 17	+ 2	18 31	+ 3	—	26·4
	N.	60·4	327	—	—	18 33	+ 5	—	34·7
Berkeley	E.	60·5	66	i 10 16	0	i 16 31	?	e 23·4	—
	N.	60·5	66	i 10 18	+ 2	i 16 35	?	e 23·4	—
Hyderabad		62·8	263	10 42	+11	—	—	—	—
Hamburg		64·6	333	i 10 42	0	i 19 23	+ 3	—	—
Bombay	E.	64·8	269	e 11 12	+28	—	—	—	—
Edinburgh		65·3	342	—	—	i 19 20	− 9	i 29·0	—
Eskdalemuir	N.	65·9	342	10 44	− 6	i 19 27	− 9	—	—
Stonyhurst		67·1	340	—	—	19 25	−26	—	—
De Bilt		67·1	335	i 10 58	− 1	19 48	− 3	—	—
Vienna		67·5	326	10 12	−49	20 5	+ 9	—	—
Bidston		67·6	340	12 12	+70	18 12	−105	24·4	—
Uccle		68·4	335	e 11 5	− 2	20 0	− 7	30·2	—
Oxford		68·8	340	—	—	i 20 0	−12	—	—
Kew		68·8	339	21 12	?S	(21 12)	+60	—	22·2
Strasbourg		69·5	332	11 12	− 2	20 17	− 3	32·2	40·4
Batavia		69·8	221	i 11 8	− 8	i 20 10	−14	—	—
Innsbruck		69·8	330	i 11 20	+ 4	e 20 27	+ 3	—	—
Zurich		70·6	331	e 10 18	−63	i 20 33	0	—	—
Malabar		70·6	220	11 11	−10	20 16	−17	—	—
Sarajevo		70·7	323	e 11 30	+ 9	—	—	—	—
Colombo		70·8	254	11 42	+20	—	—	—	49·7
Paris		70·8	336	i 11 18	− 4	i 20 28	− 8	37·2	48·2
Besançon		71·4	332	e 11 24	− 2	20 42	− 1	—	—
Chicago		72·5	40	11 52	+19	19 17	−99	43·2	—
Ottawa		72·9	29	e 12 4	+29	e 19 39	−82	e 30·2	33·2
Moncalieri		73·0	330	10 58	−38	21 6	+ 4	32·8	—
Florence	E.	73·0	328	11 37	+ 1	20 7	−55	26·2	30·2
Ann Arbor		73·3	36	12 12	+34	19 42	−84	27·2	—
Toronto	E.	73·4	32	i 12 2	+24	e 19 33	−94	e 29·4	—
	N.	73·4	32	e 12 1	+23	e 19 41	−86	e 29·4	—
Athens		74·0	317	e 11 33	− 9	21 9	− 5	—	—
Rocca di Papa		74·4	325	11 40	− 5	i 21 10	− 9	—	23·0
Helwan		77·7	307	12 6	+ 1	22 2	+ 5	—	—
Barcelona		77·8	333	e 11 52	−14	i 21 45	−13	—	44·4
Georgetown	E.	78·4	33	12 36	+27	e 20 31	−94	39·2	—
Washington		78·4	33	12 35	+26	20 17	−108	—	—
Tortosa	E.	78·8	335	12 6	− 6	21 53	−17	—	—
	N.	78·8	335	12 2	−10	i 21 55	−15	e 39·8	46·1
Toledo		80·7	338	12 9	−14	22 12	−19	e 37·3	55·5
Algiers		81·9	330	e 12 20	−10	i 22 28	−17	37·2	—
Granada		83·2	335	12 28	− 9	i 22 41	−18	e 30·4	34·1
San Fernando		84·5	338	12 48	+ 3	22 54	−20	37·7	—
Tacubaya		87·2	59	11 51	−69	14 57?	?	—	—
Riverview		89·9	175	—	—	i 22 47	−86	e 37·5	40·1
Perth		91·5	205	14 25	+61	—	—	—	—
La Paz		133·0	46	e 18 47	[−38]	32 37	?	—	—
Rio de Janeiro	E.	146·3	14	e 19 5	[−45]	—	—	40·7	—

Additional readings and notes: Mizusawa PN = +4m.12s. Osaka MN = +11·3m. Kobe MN = +11·1m. Nagasaki S = +7m.9s. Ekaterinburg i = +9m.40s. and +10m.16s., iP = +10m.32s., i = +11m.31s., S = +17m.17s., i = +18m.16s., MN = +28·1m., MZ = +29·0m. Tashkent eN = +10m.24s. Victoria MN = +20·1m. Calcutta PN = +9m.48s. Pulkovo iP = +9m.35s., P = +10m.45s. and +11m.20s., PR_1 = +11m.47s., PR_2 = +13m.24s., PS = +17m.39s., S = +18m.27s., and +18m.59s., SR_1 = +21m.36s., MZ = +30·4m., MN = +36·4m. Kucino PR_1 = +11m.43s., PR_2 = +14m.25s., MN = +25·2m. Honolulu LE = +19·8m. Upsala MN = +35·9m. Konigsberg P = +12m.25s. Berkeley ePZ = +12m.21s., iEN = +20m.30s. Hamburg ePR_1 = +16m.12s., eSR_1 = +26m.12s. Edinburgh i = +21m.25s. Eskdalemuir iZ = +12m.31s., eE = +19m.21s. De Bilt iZ = +12m.45s., i = +19m.52s. and +20m.32s. Vienna PR_2 = +15m.33s., iE = +20m.28s., iPS = +20m.41s. Bidston says "no time marks." Uccle PR_1 = +12m.48s., PR_2 = +15m.12s., PR_3 = +16m.48s., SR_1 = +24m.48s. Strasbourg PR_1 = +14m.9s., PR_2 = +15m.43s. Zurich iP = +10m.21s. Paris iP = +13m.4s., MN = +37·2m. Ottawa PR_1 = +14m.38s., i = +21m.44s., MN = +42·2m. Toronto iPN = +12m.3s., iPR_1N = +14m.35s., iSE = +19m.41s., iSN = +19m.43s., iN = +20m.27s. and +21m.45s. Athens readings are given for 20d. Barcelona ? = +23m.19s. Algiers e = +13m.46s., e = +17m.25s. i = +24m.43s. Granada i = +12m.36s., +14m.30s., and +17m.32s. Riverview ePR_1 ? = +16m.20s., MN = +42·4m.

Jan. 21d. Readings also at 4h. (Rocca di Papa and near Sarajevo), 10h. (Irkutsk), 11h. (Zi-ka-wei (2) and Ekaterinburg (2)), 13h. (Zi-ka-wei and Ekaterinburg), 15h. (Irkutsk), 16h. (Apia and Taihoku), 17h. (Ekaterinburg), 20h. (near Batavia and Malabar).

Jan. 22d. 10h. 37m. 40s. Epicentre 42°·0N. 141°·0E. (as on 1923 May 4d.).

A = −·577, B = +·467, C = +·669.

	Δ	P.	O−C.	S.	O−C.	L.	M.
	°	m. s.	s.	m. s.	s.	m.	m.
Sapporo	1·1	0 46	+29	—	—	1·6	3·2
Mizusawa E.	2·9	0 46	+ 1	1 21	+ 1	—	—
Nagoya	7·5	1 43	−11	—	—	3·6	4·1
Osaka	8·5	3 51	?S	(3 51)	+ 1	4·9	5·1
Kobe	8·7	—	—	—	—	—	5·4
Irkutsk	26·6	6 1	+ 7	10 54	+21	13·3	20·3
Ekaterinburg	51·0	i 9 19	+ 6	16 48	+17	24·3	34·6
Tashkent E.	51·9	—	—	—	—	e 23·3	34·3

Additional readings and notes: Sapporo readings have been increased by 3m. Mizusawa PN = +45s. Osaka MN = +5·6m.; all readings are given for 11h. Kobe MN = +6·6m. Irkutsk MN = +16·8m.; readings given for 21d. Ekaterinburg MN = +30·2m., MZ = +34·8m.

Jan. 22d. 11h. 4m. 50s. Epicentre 39°·3N. 33°·2E. (as on 1921 Sept. 26d.).

A = +·648, B = +·424, C = +·633; D = +·548, E = −·837; G = +·530, H = +·347, K = −·774.

Uncertain.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Athens	7·5	263	i 1 53	− 1	2 14	−70	2·8	3·8
Belgrade	11·0	304	e 1 47	−57	i 3 19	−95	—	4·6
Pompeii	14·4	282	e 1 59	−93	10 37	?	—	—
Vienna	15·0	312	3 46	+ 7	e 6 39	+ 7	—	8·3
Rocca di Papa	15·8	286	e 4 13	+24	7 55	+65	—	9·8
Venice	16·5	298	6 10?	?S	(6 10?)	−57	—	—
Kucino	16·8	9	—	—	—	—	e 9·7	11·2
Florence	17·0	292	8 20	?L	—	—	(8·3)	9·2
Innsbruck	17·7	304	e 4 16	+ 3	—	—	8·2	—
Zurich	19·6	302	4 35	− 1	—	—	i 10·2	10·5
Moncalieri	19·6	295	e 2 4	?	8 5	−10	—	12·2
Strasbourg	20·4	305	e 4 47	− 1	(e 8 20)	−12	e 11·2	11·5
Pulkovo	20·6	356	5 23	+35	9 16	+40	10·2	12·0
Besançon	21·2	301	—	—	e 10 52	?L	(e 10·9)	12·2
Hamburg	21·3	320	e 5 10	+13	—	—	e 11·2	14·2
Upsala	22·8	340	—	—	—	—	e 12·8	—
De Bilt	23·2	313	—	—	—	—	e 11·2	—
Uccle	23·2	309	—	—	—	—	e 10·2	—
Paris	23·8	304	—	—	—	—	e 11·2	—
Eskdalemuir	29·0	316	—	—	e 11 10	− 7	15·2	—
Rio Tinto	30·9	280	15 10	?L	—	—	(15·2)	29·2
Bombay	39·7	109	6 10	−102	—	—	—	—

Additional readings: Athens eP = 11h.4m.44s., perhaps intended for T_e, MN = +3·2m. Belgrade SR_1 = +4m.2s. Rocca di Papa ePN = +4m.31s., L = +20·8m. Strasbourg P is given as eZ and eS as ePZ; also eS = +10m.52s., MN = +11·3m. Upsala reading is given as at 12h. Paris L = +24·2m.

Jan. 22d. Readings also at 0h. (Taihoku), 6h. (La Paz), 9h. (Zi-ka-wei and Apia), 14h. (Granada), 15h. (Ekaterinburg), 20h. (Apia), 21h. (near La Paz).

Jan. 23d. Readings at 1h. (Riverview), 3h. (Colombo), 4h. (La Paz and near Tacubaya), 13h. (Nagoya), 22h. (Irkutsk).

Jan. 24d. 2h. 22m. 45s. Epicentre 41°·7N. 8°·5E. (as on 1919 Aug. 24d.).

A = +·738, B = +·110, C = +·665.

		Δ	P.	O−C.	S.	O−C.	M.
		°	m. s.	s.	m. s.	s.	m.
Florence		2·9	0 34	−11	—	—	0·8
Rocca di Papa		3·1	i 1 8	+19	(i 1 34)	+ 8	2·2
Zurich		5·6	i 1 14	−13	2 11	−23	—
Strasbourg		6·8	1 15?	−29	—	—	—
Vienna	Z.	8·6	e 2 22	+12	—	—	3·4

Additional readings and notes: Florence P = +25s. Rocca di Papa gives its two readings as iPN and iPE., also MN = +1·2m.

Jan. 24d. 18h. 34m. 42s. Epicentre 7°·0N. 94°·0E. (as on 1921 March 5d.).

A = −·069, B = +·990, C = +·122; D = +·998, E = +·070; G = −·009, H = +·122, K = −·993.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Colombo		14·1	268	4 18	+51	—	—	8·3	10·6
Calcutta	E.	16·4	341	3 58	+ 1	7 8	+ 4	—	—
	N.	16·4	341	3 56	− 1	7 10	+ 6	—	—
Batavia		18·3	135	e 4 31	+10	e 7 44	− 3	—	—
Hyderabad		18·4	306	4 36	+14	8 4	+15	—	—
Malabar	N.	19·7	136	e 4 35	− 2	e 7 55	−22	—	—
Bombay		23·8	302	5 26	0	(9 42)	+ 2	9·7	9·8
Hong Kong		24·8	50	5 28	− 8	9 44	−15	—	17·3
Manila		27·5	72	e 5 54	− 9	(10 40)	−10	10·7	—
Zi-ka-wei		35·2	43	—	—	e 13 13	+15	(e 17·5)	—
Irkutsk		46·0	9	e 8 31	− 9	14 35	−53	18·3	—
Ekaterinburg		56·2	339	i 9 46	− 1	i 17 23	−13	26·3	33·8
Kucino		65·6	330	12 49	+120	21 24	+112	39·3	—
Pulkovo		71·0	332	i 11 23	0	i 20 27	−11	—	—
Vienna	Z.	76·5	320	i 11 58	0	—	—	—	—
Upsala		77·1	330	—	—	i 21 38	−12	—	—
Hamburg	Z.	80·8	324	e 12 18	− 6	—	—	—	—

Additional readings and notes: Batavia i = +5m.47s. Bombay S = +8m.4s. Zi-ka-wei L is given as S and S as e simply. Ekaterinburg i = +10m.7s., iPS = +18m.0s., i = +19m.24s. Pulkovo PS = +21m.16s. Vienna iZ = +12m.21s.

Jan. 24d. Readings also at 3h. (near Sarajevo), 5h. (Apia), 11h. (near Batavia), 14h. (La Paz), 15h. (Ekaterinburg, Bombay, Riverview, and Perth), 16h. (Kobe, Apia, and Riverview), 17h. and 18h. (La Paz), 23h. (Apia).

Jan. 25d. 5h. 56m. 20s. Epicentre 2°·6S. 105°·8W. (as on 1923 July 4d.).

A = −·272, B = −·961, C = −·045; D = −·962, E = +·272; G = +·012, H = +·044, K = −·999.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Manzanillo		21·6	4	—	—	—	—	12·2	13·0
Tacubaya		22·9	16	5 35	+19	10 6	+43	11·1	13·9
Mazatlan	E.	25·8	359	—	—	—	—	13·2	15·7
Tucson	E.	35·2	354	—	—	e 13 3	+ 5	e 17·4	19·6
La Paz		39·5	112	i 7 54	+ 3	i 13 32	−27	i 16·8	22·7
Berkeley		43·2	341	—	—	i 15 3	+12	e 21·3	—
Chicago		47·3	20	5 38	−191	15 44	− 1	—	—
Ann Arbor		49·1	22	—	—	e 16 28	+21	—	—
Georgetown		49·2	30	—	—	e 16 20	+11	e 30·1	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Toronto	E.	51·9	24	e 16 58	?S	(16 58)	+15	(22·7)	—
	N.	51·9	24	e 16 55	?S	(16 55)	+12	(23·0)	—
Victoria	E.	53·2	347	16 51	?S	(16 51)	− 8	24·3	28·4
	N.	53·2	347	16 51	?S	(16 51)	− 8	26·5	29·2
Ottawa		54·9	25	—	—	e 17 40	+20	e 31·5	33·5
Honolulu	E.	56·1	299	—	—	e 18 2	+27	28·9	32·0
	N.	56·1	299	—	—	17 55	+20	26·0	31·0
Rio de Janeiro	N.	63·9	115	—	—	e 19 10	− 2	29·0	—
Sydney	E.	99·3	234	24 10	?S	(24 10)	[−11]	—	—

Additional readings: Mazatlan LN = +13·4?m., MN = +17·1m. Berkeley eN = +10m.20s., eE = +14m.19s. Toronto iPE = +17m.3s., iPN = +17m.5s., iE = +19m.18s., also several L's. The L's in the column are given as S. Ottawa e = +26m.28s. Honolulu eN = +23m.55s., eE = +24m.35s.

Jan. 25d. 6h. 22m. 36s. Epicentre 18°·5S. 168°·5E. (as on 1922 Aug. 3d.).

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.
Apia		19·5	79	—	—	—	—	26·4	—
Riverview		21·8	222	e 5 1	− 2	i 10 0	+59	e 11·3	14·2
Sydney	E.	21·8	222	(5 42)	+39	5 42	?P	10·2	10·9
Wellington		23·4	168	—	—	i 9 54	+21	i 11·8	13·9
Adelaide		31·2	233	—	—	(e 11 18)	−36	e 11·3	15·9
Manila		57·3	303	e 9 53	− 1	—	—	—	—
Malabar		60·2	274	9 45	−28	18 47	+21	—	—
Batavia		61·2	274	i 10 31	+11	i 18 57	+19	—	—
Hyderabad		95·5	286	13 21	−25	(24 43)	−28	24·7	—
Bombay		101·0	286	5 24	?	—	—	—	—
La Paz		114·2	120	19 39	?PR_1	—	—	—	—
Ekaterinburg		115·1	325	e 19 24	?PR_1	—	—	24·4	50·6
Vienna	Z.	142·6	330	e 19 51	[+ 7]	i 23 48	?PR_1	—	—
Tortosa	E.	155·4	338	19 51	[−11]	—	—	—	—

Additional readings: Riverview iP = +5m.5s., i = +5m.31s., iPR_1 = +5m.48s., +5m.50s., and +5m.56s., PS = +10m.2s. and +10m.18s., MN = +14·3m. T_0 = 6h.21m.17s. Sydney gives as P the P of the previous shock, and as S the P of this shock. Wellington e = 6h.17m.54s., 18m.42s., 19m.54s., and 24m.12s., possibly connected with the shock at 5h. Ekaterinburg MN = +47·8m.

Jan. 25d. Readings also at 2h. (Nagoya), 3h. (Colombo), 6h. (La Paz and near Rocca di Papa), 7h. (Kodaikanal), 12h. (Tashkent), 14h. (Azores), 15h. (near Sarajevo and Mostar), 17h. (Apia and Kobe).

Jan. 26d. 2h. 6m. 10s. Epicentre 1°·5S. 76°·0W. (as on 1919 July 24d.).

A = +·242, B = −·970, C = −·026; D = −·970, E = −·242; G = −·006, H = +·025, K = −1·000.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
La Paz		16·9	153	3 57	− 7	i 7 4	−12	8·6	9·6
Port au Prince		20·4	10	e 5 34	+48	—	—	12·9	—
Tacubaya	E.	30·9	313	6 27	−10	11 15	−35	12·9	—
	N.	30·9	313	6 26	−11	11 16	−34	13·0	—
Rio de Janeiro		38·4	129	e 4 20	−201	—	—	—	—
Toronto	N.	45·2	356	i 8 35	+ 1	—	—	26·1	—
Victoria	N.	64·5	329	19 14	?S	(19 14)	− 5	31·2	38·7
De Bilt	E.	85·7	39	—	—	—	—	e 43·8	—
Wellington		103·3	226	—	—	e 24 2	[−38]	e 44·7	47·0

Additional readings: Port au Prince iP = +6m.1s., PR_1 = +6m.31s. Toronto e?N = +19m.17s.

Jan. 26d. 3h. 21m. 0s. Epicentre 10°·5S. 161°·0E. (as on 1918 Oct. 27d.).

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

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Riverview	25·0	199	e 5 44	+ 6	e 9 54	− 9	—	18·6
Adelaide	31·9	216	—	—	11 42	−25	e 14·3	18·3
Wellington	33·1	163	—	—	e 13 42	+76	e 15·0	17·7
Perth	46·8	235	—	—	(i 15 28)	−10	22·3	26·8
Manila	47·0	302	e 9 0	+13	—	—	—	—
Honolulu	51·3	52	—	—	16 37	+ 2	—	—
Batavia	53·7	279	i 9 50	+19	i 19 5	+120	—	—

Additional readings and notes: Riverview iSR_1 = +11m.12s., MN = +17·3m. Adelaide e = +14m.0s. Perth iS = +19m.1s. and +19m.17s., L = +26·3m. True S is given as iPR_1. Honolulu eN = +17m.0s.

Jan. 26d. 18h. 24m. 20s. Epicentre 32°·5N. 97°·5E. (as on 1923 Aug. 7d.).

A = −·110, B = +·836, C = +·537; D = +·991, E = +·131; G = −·070, H = +·533, K = −·843.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Calcutta	E.	12·8	222	3 17	+ 7	5 17	−22	—	—
	N.	12·8	222	3 47	+37	5 47	+ 8	—	—
Hong Kong		17·9	121	—	—	—	—	—	10·0
Irkutsk		20·4	12	—	—	—	—	15·7	—
Hyderabad		22·8	233	10 31	?L	—	—	(10·5)	—
Bombay		25·9	244	10 0	?S	(10 0)	−20	14·4	—

Bombay gives also S = +13m.8s.

Jan. 26d. Readings also at 0h. (Apia and near Lick), 2h. (Ekaterinburg), 5h. (Rio Tinto), 8h. (near Manila), 14h. and 17h. (La Paz), 18h. (Florence and Tacubaya), 19h. (near Mizusawa), 21h. (Florence and Nagasaki), 22h. (near Mizusawa), 23h. (near Zurich).

Jan. 27d. 4h. 22m. 12s. Epicentre 20°·0N. 121°·0E. (as on 1922 May 16d.).

A = −·484, B = +·806, C = +·342; D = +·857, E = +·515; G = −·176, H = +·293, K = −·940.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Hokoto		3·8	339	0 0	−59	(0 32)	−72	0·5	—
Taihoku		5·1	6	e 1 48	+29	—	—	2·7	2·9
Manila		5·4	180	e 1 19	− 4	—	—	i 2·4	2·9
Hong Kong		6·7	292	1 48	+ 6	3 28	+26	3·9	4·5
Zi-ka-wei		11·2	2	e 5 4	?S	(e 5 4)	+ 5	—	—
Kobe		19·4	37	e 4 38	+ 4	—	—	—	—
Osaka		19·5	38	4 46	+11	—	—	5·7	6·0
Nagoya		20·7	38	4 41	− 8	—	—	—	—
Mizusawa	E.	25·8	38	4 42	−64	5 14	−304	—	—
Batavia		29·7	209	i 6 4	−21	—	—	—	—
Hyderabad		40·3	274	9 23	+86	—	—	—	—
Colombo		42·0	260	11 6	?PR_1	—	—	—	56·3
Kodaikanal		43·0	265	24 18	?L	—	—	(24·3)	—
Bombay		45·3	277	10 48	?PR_1	—	—	—	—
Ekaterinburg		57·3	327	i 9 58	+ 4	i 17 57	+ 7	23·8	32·4
Kucino		69·8	324	—	—	—	—	e 37·8	—
Vienna	z.	84·4	320	12 41	− 3	—	—	—	—
Hamburg	z.	85·7	326	e 12 48	− 4	—	—	—	—
De Bilt		89·0	325	—	—	—	—	e 47·8	56·6
Strasbourg		89·4	322	—	—	—	—	e 54·8	56·8
Uccle		90·1	325	—	—	—	—	e 48·8	—
Eskdalemuir		91·1	331	—	—	—	—	47·8	—
Kew		92·1	327	—	—	—	—	—	60·8
La Paz		170·6	70	20 20	[+ 5]	—	—	—	—

Additional readings: Osaka MN = +6·2m. De Bilt MN = +55·1m., MZ = +57·8m.

Jan. 27d. Readings also at 1h. (near La Paz and near Mizusawa), 8h. (Nagoya, near Mizusawa, and near La Paz), 11h. (near Sarajevo), 21h. (near Port au Prince).

Jan. 28d. 3h. 43m. 28s. Epicentre 1°·0N. 70°·0W. (as on 1918 Dec. 21d.).

$A = +\cdot342$, $B = -\cdot940$, $C = +\cdot017$; $D = -\cdot940$, $E = -\cdot342$; $G = +\cdot006$, $H = -\cdot016$, $K = -1\cdot000$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
La Paz		17·6	174	4 12	0	7 35	+ 4	9·2	10·4
Rio de Janeiro	E.	35·4	134	—	—	e 13 2	+ 1	19·3	21·8
La Plata	E.	37·6	164	i 7 27	− 8	13 13	−19	19·4	23·0
	N.	37·6	164	i 7 24	−11	13 11	−21	19·1	28·1

Jan. 28d. Readings also at 3h. (near Tacubaya), 4h. (Tashkent and Nagoya), 5h. (Batavia), 9h. (near Tacubaya), 10h. (near La Paz), 13h. (near Manila), 18h. (Florence), 22h. (Melbourne).

1924. Jan. 29d. 1h. 54m. 50s. Epicentre **27°·8S. 70°·2W.**

$A = +\cdot300$, $B = -\cdot832$, $C = -\cdot466$; $D = -\cdot941$, $E = -\cdot339$; $G = -\cdot158$, $H = +\cdot439$, $K = -\cdot885$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
La Paz		11·4	10	2 49	− 1	i 5 28	+24	6·6	7·9
La Plata	E.	12·6	127	i 3 10	+ 3	i 5 33	− 1	6·0	6·6
	N.	12·6	127	i 3 9	+ 2	i 5 30	− 4	6·1	7·1
Rio de Janeiro		24·8	85	i 5 10	−26	(9 48)	−11	9·8	16·6
Port au Prince		46·4	357	e 8 43	0	13 30	−123	18·0	—
Tacubaya		54·9	325	9 35	− 3	17 18	− 2	24·3	—
Mazatlan	E.	61·8	323	10 39	+15	19 13	+27	30·3	—
Georgetown	E.	67·0	355	e 10 57	− 1	e 19 50	0	e 41·5	—
	N.	67·0	355	i 10 57	− 1	i 19 53	+ 3	e 41·3	—
Washington		67·0	355	10 56	− 2	19 47	− 3	e 41·2	—
Ithaca		70·5	356	11 17	− 3	20 32	0	35·2	—
Ann Arbor		71·2	350	11 22	− 2	20 34	− 6	e 32·2	—
Chicago		71·4	347	11 27	+ 1	20 26	−17	31·7	—
Toronto	E.	71·9	354	e 11 27	− 2	e 20 44	− 5	35·5	44·2
	N.	71·9	354	i 11 30	+ 1	e 20 46	− 3	37·8	45·0
Ottawa	N.	73·3	357	i 11 39	+ 1	i 21 5	− 1	35·7	47·2
Cape Town		73·9	121	—	—	21 14	+ 1	35·2	40·8
Berkeley	E.	81·8	321	e 12 22	− 7	e 22 32	−12	—	39·1
	N.	81·8	321	i 12 21	− 8	e 22 51	+ 7	e 31·6	39·1
	Z.	81·8	321	i 12 20	− 9	e 22 51	+ 7	—	39·4
Johannesburg		84·7	118	—	—	—	—	43·2	—
San Fernando		88·0	46	13 18	+13	23 30	−22	39·7	59·7
Wellington		88·5	223	e 13 10	+ 2	i 23 34	−24	40·6	43·2
Rio Tinto		88·5	45	10 10	?	—	—	—	48·2
Victoria	E.	89·8	328	12 59	−16	23 52	−20	39·9	48·5
	N.	89·8	328	12 59	−16	23 49	−23	40·6	46·7
Granada		90·1	47	e 13 26	+ 9	23 58	−17	e 41·2	46·9
Toledo		91·4	45	13 11	−12	i 23 43	−45	e 37·8	52·2
Apia		93·5	253	—	—	—	—	53·2	—
Algiers		94·3	50	e 13 28	−12	24 0	[+ 6]	42·2	53·7
Tortosa	N.	94·8	46	—	—	—	—	e 38·2	55·4
Barcelona		96·2	46	—	—	—	—	e 39·4	52·6
Honolulu	E.	98·0	289	—	—	26 55	+79	44·9	46·3
Oxford		99·7	36	13 53	−16	i 24 23	[+ 1]	36·8	55·5
Bidston		99·8	35	20 10	?PR_1	28 10?	?SR_1	38·1	50·1
Kew		100·1	37	24 10	?S	(24 10)	[−14]	—	64·2

Continued on next page.

	Δ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
Paris	100·2	40	—	—	i 24 28	[+ 3]	43·2	56·2
Stonyhurst	100·3	35	—	—	i 24 30	[+ 5]	45·2	53·7
Eskdalemuir	100·8	32	e 14 6	− 8	24 32	[+ 4]	42·2	65·2
Edinburgh	101·0	32	—	—	24 0	[−29]	43·2	62·6
Moncalieri	101·4	45	13 38	−39	24 26	[− 5]	36·4	56·5
Besançon	101·4	43	—	—	—	—	—	51·2
Uccle	102·3	40	e 14 12	−10	24 39	[+ 4]	e 44·2	57·8
Dyce	102·3	31	—	—	24 28	[− 6]	44·8	59·6
Zurich	102·7	44	13 55	−29	24 44	[+ 7]	e 52·2	—
Strasbourg	103·1	42	14 10	−16	e 24 46	[+ 8]	40·2	60·4
Rocca di Papa	103·2	50	e 14 42	+16	24 44	[+ 5]	e 53·9	67·6
Florence	103·2	47	11 40	?	24 40	[+ 1]	33·7	45·2
De Bilt	103·3	39	e 14 11	−16	e 24 46	[+ 7]	e 45·2	65·1
Innsbruck N.W.	104·7	44	e 19 4	?PR_1	—	—	e 45·2	—
Hamburg	106·6	39	e 18 10	?PR_1	—	—	e 53·2	60·2
Melbourne	106·6	209	—	—	(e 28 10)	+73	e 28·2	54·6
Riverview	107·0	215	e 18 23	?PR_1	e 27 59	+58	e 44·2	55·4
Sydney	107·0	215	—	—	48 34	?	54·4	56·6
Bergen	107·2	30	—	—	—	—	e 45·2	—
Vienna	108·2	44	18 1	?PR_1	—	—	e 45·2	63·2
Athens	109·5	57	e 19 0	?PR_1	28 25	+61	51·2	60·0
Helwan	112·6	69	e 19 29	?PR_1	29 13	+82	—	132·5
Upsala	112·7	32	—	—	e 28 58	+66	e 54·8	66·1
Konigsberg	112·8	39	—	—	e 29 16	+84	e 57·7	64·2
Pulkovo	118·9	34	—	—	e 27 54	−47	55·2	73·6
Kucino	122·7	40	e 18 26	[−34]	e 30 10	?	—	68·6
Ekaterinburg	135·0	36	e 19 21	[− 9]	—	—	54·2	100·3
Tashkent E.	144·4	56	e 19 42	[− 5]	—	—	e 79·2	91·4
Colombo	144·8	121	19 46	[− 2]	31 40	?	74·7	80·7
Kodaikanal	144·9	115	41 52	?SR_1	—	—	79·2	85·9
Malabar	144·9	175	i 19 38	[−10]	—	—	e 72·2	—
Bombay	145·1	95	—	—	—	—	65·2	—
Batavia	145·9	174	i 19 43	[− 7]	—	—	70·2	—
Hyderabad	149·4	102	19 52	[− 3]	30 17	?	—	75·0
Mizusawa E.	151·7	302	19 36	[−22]	19 58	?	—	—
Manila	163·2	220	e 20 10	[0]	—	—	e 77·2	87·7
Taihoku	169·3	259	—	—	(e 48 10)	?SR_1	e 78·2	—
Zi-ka-wei	169·4	292	i 20 10	[− 4]	e 31 40	?	—	95·5
Hong Kong	173·3	217	21 33	[+77]	—	—	—	—

Additional readings and notes: Rio de Janeiro MN = +16·9m. Mazatlan PZ = +10m.37s. Ann Arbor SR_1 = +25m.40s., SR_2 = +29m.10s. T_0 = 1h.55m.0s. Toronto iN = +11m.32s., iSE = +20m.48s., eN = +25m.51s., eE = +29m.10s. and +30m.10s., eSR_1N = +29m.18s. T_0E = 1h.54m.59s. T_0N = 1h.55m.2s. Ottawa eSR_2E = +30m.10s., ME = +44·2m. T_0 = 1h.55m.2s. San Fernando MN = +56·2m. Wellington eSR_2 = +33m.4s., e = +37m.10s. T_0 = 1h.55m.21s. Granada iP = +13m.32s., i = +15m.41s., PS = +25m.1s., i = +25m.12s., MN = +47·5m. Toledo MNW = +49·6m. Honolulu LN = +45·2m., MN = +45·9m. Oxford PR_1 = +18m.37s. Paris eZ = +23m.52s. Eskdalemuir ePR_1 = +18m.15s., i = +27m.6s. Moncalieri MN = +59·8m. Uccle PR_1 = +18m.24s., MN = +58·1m. Dyce S = +27m.33s. (O−C. = 0s.). Strasbourg iPR_1? = +18m.19s., eZ = +27m.34s., MN = +73·9m. Rocca di Papa ePZ = +15m.0s., ePE = +17m.5s., PR_1Z = +17m.44s., PR_1N = +19m.55s. Florence PE = +17m.23s. De Bilt ePR_1 = +18m.34s., eNZ = +24m.48s., e = +27m.35s., eE = +33m.14s., MN = +62·4m., MZ = +67·9m. Hamburg eL = +42·2m., MNZ = +62·2m. Riverview MN = +45·0m. Vienna iZ = +19m.11s., PR_2? = +23m.5s., PS? = +28m.43s. Athens MN = +68·6m. Helwan PR_1 = +25m.26s. Upsala e = +26m.28s., eLN = +49·8m., MN = +65·0m. Konigsberg PS = +35m.46s., eE = +40m.46s., Pulkovo iPR_1 = +20m.18s., PR_2 = +25m.48s., Y = +29m.57s., SR_1 = +36m.4s., MZ = +65·2m. Kucino MN = +66·3m. Ekaterinburg gives a large number of i readings, also e = +44m.48s., MN = +62·4m., MZ = +109·1m. Kodaikanal P = +70m.22s. Malabar i = +40m.32s. Batavia L = +76·7m. Mizusawa SN = +19m.56s.; these readings are given as a local shock, but they agree well with the P of the above. Manila MN = +82·9m. Taihoku readings are given as separate eL's. Zi-ka-wei PR_1Z = +25m.10s.

Jan. 29d. 8h. 39m. 12s. Epicentre 45°·0N. 16°·0E. (as on 1923 May 22d.).

$A = +\cdot680$, $B = +\cdot195$, $C = +\cdot707$; $D = +\cdot276$, $E = -\cdot961$; $G = +\cdot679$, $H = +\cdot195$, $K = -\cdot707$.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Sinj	1·3	160	i 0 6	−14	i 0 16	−20	—	0·3
Mostar	2·1	142	i 0 34	+ 1	i 0 53	− 5	—	1·3
Sarajevo	2·1	123	i 0 39	+ 6	i 1 6	+ 8	—	1·2
Travnik	2·1	146	i 0 38	+ 5	i 0 58	0	—	1·5
Venice	2·6	280	e 1 0	+19	e 1 6	− 6	—	2·0
Belgrade	3·2	93	e 1 2	+12	i 1 50	+22	—	2·3
Vienna	3·3	4	i 1 15	+23	2 10	?L	(2·2)	2·8
Florence	3·6	252	1 0	+ 4	1 36	− 3	—	2·2
Innsbruck	3·9	305	i 1 15	+14	i 2 35	?L	(i 2·6)	—
Rocca di Papa	4·0	218	i 0 51	−11	i 1 1	−49	e 1·4	—
Pompeii	4·3	195	1 8	+ 1	1 38	−20	—	2·3
Zurich	5·6	298	e 1 36	+ 9	i 2 54	+20	—	—
Moncalieri	5·8	271	i 1 20	−10	2 58	+19	4·6	—
Strasbourg	6·7	305	e 1 34	− 8	e 2 49	−13	e 4·0	5·5
Besançon	7·3	291	3 22	?S	(3 22)	+ 4	—	3·8
Hamburg	9·4	338	—	—	e 4 18	+ 5	e 5·7	7·4
Uccle	9·7	311	e 4 24	?S	(e 4 24)	+ 3	e 5·6	—
Paris	10·0	298	e 3 50	?S	(e 3 50)	−39	—	—
De Bilt	10·1	319	—	—	—	6·1	—	—
Pulkovo	17·1	25	i 4 20	+14	7 40	+20	9·8	11·8
Kucino	17·5	44	—	—	e 7 48	+19	—	—
Ekaterinburg	29·9	51	6 26	− 1	e 12 6	+34	16·3	19·3

Additional readings and notes: Belgrade eS = +1m.11s. Vienna PR_1 = +1m.56s., S = +2m.27s. Rocca di Papa iPN = +53s. Strasbourg MN = +4·4m. Hamburg MZ = +6·8m. Ekaterinburg MZ = +19·4m.

Jan. 29d. Readings also at 2h. (La Paz (2) and La Plata (3)), 4h. (La Paz), 8h. (La Paz and Tashkent), 14h. (near Tacubaya), 15h. (Manila), 19h. (near Mizusawa), 21h. (near Mobile).

Jan. 30d. 0h. 5m. 24s. Epicentre 25°·0N. 93°·0E.

$A = -\cdot047$, $B = +\cdot905$, $C = +\cdot423$; $D = +\cdot999$, $E = +\cdot052$; $G = -\cdot022$, $H = +\cdot422$, $K = -\cdot906$.

Rough.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Calcutta E.	4·9	240	1 14	− 2	2 9	− 5	3·2	—
Hyderabad	15·5	244	3 43	− 3	6 56	+12	7·9	12·3
Hong Kong	19·6	94	4 12	−24	7 46	−29	—	11·9
Bombay	19·6	256	4 40	+ 4	8 6	− 9	10·1	12·5
Kodaikanal	20·9	228	12 12	?L	—	—	(12·2)	—
Tashkent E.	25·5	316	e 6 0	+17	e 10 24	+11	10·8	—
Zi-ka-wei	25·7	70	e 5 6	−39	—	—	—	—
Taihoku	25·8	84	e 7 41	+115	—	—	—	—
Manila	28·2	106	e 6 20	+10	—	—	—	—
Irkutsk	28·6	15	6 3	−11	10 59?	−11	11·6	—
Batavia	34·0	156	e 6 33	−32	—	—	i 18·6	—
Baku	38·9	305	e 8 23	+38	13 46	− 5	16·6	—
Ekaterinburg	39·4	331	i 7 39	−11	i 13 45	−12	18·6	26·0
Kucino	50·1	322	14 7	?	—	—	23·1	—
Pulkovo	54·9	328	i 9 37	− 1	17 18	− 2	30·6	35·8
Vienna Z.	62·9	314	10 35	+ 4	—	—	—	—
Strasbourg	68·5	316	—	—	—	e 37·6	—	—
De Bilt	69·2	320	—	—	e 20 30	+14	e 36·6	—
Uccle	70·0	318	—	—	—	e 33·6	—	—
Eskdalemuir	73·0	324	—	—	e 21 43	+41	e 35·6	—
La Paz	160·4	292	20 21 [+13]	—	—	—	—	—

Additional readings and notes: Irkutsk PR_1 = +6m.47s. Ekaterinburg i = +14m.10s., MN = +24·0m. Pulkovo SR_1 = +21m.42s. De Bilt eLN = +34·6m. Eskdalemuir e = +26m.36s., and +30m.6s.

Jan. 30d. 4h. 47m. 40s. Epicentre 13°·5N. 143°·0E. (as on 1922 Nov. 10d.).

A = −·777, B = +·585, C = +·233; D = +·602, E = +·799; G = −·186, H = +·140, K = −·972.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Manila	21·4	276	i 5 2	+ 4	(9 7)	+14	9·1	—
Osaka	22·3	343	5 18	+ 9	—	—	6·2	10·3
Kobe	22·4	343	5 15	+ 5	5 45	?	6·4	6·9
Taihoku	23·3	303	e 4 1	−79	—	—	—	—
Mizusawa E.	25·7	355	—	—	10 20	+ 4	—	—
Zi-ka-wei	26·6	315	e 6 10	+16	e 10 20	−13	—	—
Hong Kong	28·8	292	6 10	− 6	—	—	—	—
Batavia	41·0	244	i 7 52	−11	i 13 51	−30	—	—
Riverview	47·9	171	—	—	e 15 14	−39	23·6	24·6
Perth	52·3	210	—	—	i 16 31	−17	22·4	—
Hyderabad	62·1	282	10 33	+ 7	—	—	—	18·8
Colombo	62·4	272	2 20	?	—	—	—	21·3
Ekaterinburg	74·6	326	i 11 52	+ 6	i 21 18	− 3	31·3	40·7
Victoria E.	82·4	41	—	—	—	—	38·3	41·9
Baku	83·7	310	e 12 27	−13	i 22 44	−22	41·4	—
Kucino	87·1	327	e 10 32	?	e 22 8	−94	—	43·9
Pulkovo	89·3	332	i 13 8	− 4	24 25	+19	—	—
De Bilt E.	105·0	335	—	—	—	—	e 52·3	—
Eskdalemuir	105·6	341	12 20	?	—	—	—	—
Uccle	106·3	334	—	—	—	—	e 57·3	—
Strasbourg	106·4	330	—	—	—	—	e 54·3	—
Toronto	111·0	31	—	—	—	—	73·2	—
La Paz	149·8	100	19 57	[+ 1]	—	—	21·0	—

Additional readings: Osaka MN = +7·0m. Kobe MN = +7·3m. Mizusawa SN = +10m.23s. Riverview MN = +27·3m. Ekaterinburg i = +12m.38s., iPS = +21m.48s., SR_1 = +25m.33s. Baku iP = +12m.32s. Pulkovo PR_1 = +16m.45s., iY = +23m.22s. De Bilt eLN = +55·3m. Toronto eN = +47m.5s., eE = +47m.28s.

Jan. 30d. 20h. 54m. 40s. Epicentre 20°·0N. 77°·5W.

A = +·203, B = −·917, C = +·342; D = −·976, E = −·216; G = +·074, H = −·334, K = −·940.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Port au Prince	5·1	105	e 1 24	+ 5	2 18	− 2	3·0	3·4
Merida	11·4	277	5 49	?S	(5 49)	+45	(7·7)	8·9
Cheltenham E.	18·7	2	—	—	—	—	e 9·7	13·2
Georgetown	18·9	1	e 4 31	+ 3	10 17	?L	e 13·5	—
Washington	18·9	1	4 26	− 2	7 56	− 4	e 10·3	—
St. Louis E.	21·6	332	e 6 1	+61	e 8 59	+ 2	e 10·8	12·6
N.	21·6	332	e 6 1	+61	e 9 2	+ 5	e 10·9	12·6
Ithaca	22·4	2	e 5 5	− 5	e 9 18	+ 5	e 12·1	—
Ann Arbor	22·9	348	5 14	− 2	9 20	− 3	e 11·7	—
Chicago	23·4	341	5 18	− 3	9 23	−10	11·5	—
Toronto E.	23·7	356	e 4 40	−45	e 9 40	+ 2	i 13·6	14·3
N.	23·7	356	—	—	e 9 40	+ 2	i 16·3	16·6
Northfield	24·5	9	—	—	—	—	e 14·3	—
Ottawa	25·4	3	e 5 10	−32	e 10 12	+ 1	e 13·8	16·3
Berkeley	42·6	305	—	—	—	—	e 24·8	—
Victoria E.	46·3	320	—	—	—	—	24·9	27·0
N.	46·3	320	—	—	—	—	24·4	26·3
Rio de Janeiro	54·4	142	—	—	—	—	e 85·8	—
Sitka E.	56·0	326	—	—	—	—	e 30·4	31·9
N.	56·0	326	—	—	—	—	e 30·2	31·2
Rio Tinto	63·1	58	21 20	?S	(21 20)	+138	—	32·3
De Bilt	69·9	41	—	—	—	—	e 35·3	—
Strasbourg	72·0	45	—	—	—	—	e 31·3	—
Ekaterinburg	95·6	23	—	—	—	—	38·8	—
Irkutsk	107·7	359	—	—	—	—	51·3	—

Additional readings and notes: Port au Prince MNW = +4·8m. Cheltenham eN = +10m.7s., eE = +10m.34s., eE = +12m.36s. Georgetown iPN = +4m.27s. St. Louis P has been increased by 10m. Ann Arbor readings have been diminished by 1h. Toronto ePR_1N = +5m.18s., iPR_1N = +5m.22s. and +5m.26s., eSE = +9m.43s., eE = +12.m.1s, eN = +12m.55s., iE = +12m.40s. and +13m.30s., iN = +15m.23s. Ottawa ePR_1N = +5m.41s., MN = +16m.8s. T_s = 20h.53m.29s. La Paz (Δ = 37°·6) gives simply 22h. De Bilt eLN = +29·3m.

Jan. 30d. Readings also at 0h. (Manzanillo), 4h. (near Mizusawa), 5h. (Melbourne), 6h. (Hyderabad), 10h. (Taihoku), 13h. (Nagoya (2), near Mizusawa (2), Osaka (2), and Kobe), 14h. (Apia, Victoria, and Toronto), 17h. (Mizusawa and Tacubaya), 22h. (near Tacubaya (2)).

Jan. 31d. 0h. 58m. 40s. Epicentre 18°·0S. 66°·0W. (as on 1923 July 4d.).

A = +·387, B = −·869, C = −·309 ; D = −·914, E = −·407 ;
G = −·126, H = +·282, K = −·951.

Uncertain.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
La Plata	E.	18·4	158	i 4 16	− 6	7 1	−48	8·1	9·6
	N.	18·4	158	i 4 11	−11	7 1	−48	7·9	11·2
Rio de Janeiro	N.	21·9	107	e 4 58	− 6	8 20	−43	10·1	12·6
Tacubaya	E.	49·6	318	8 41	−23	16 26	+12	—	—
	N.	49·6	318	8 34	−30	16 12	− 2	—	—
Georgetown		57·8	351	—	—	e 17 57	+ 1	—	—
Washington		57·8	351	e 11 56	+118	15 35	−141	—	—
Ann Arbor		61·9	348	—	—	i 18 50	+ 3	—	—
Toronto	E.	62·8	350	—	—	i 18 55	− 3	28·5	—
	N.	62·8	350	i 10 34	+ 3	e 18 50	− 8	21·6	—
Chicago		63·0	344	11 30	+58	15 56	−185	—	—
Ottawa		64·0	355	e 10 56	+18	i 19 10	− 3	e 21·5	—
Victoria	E.	83·7	327	—	—	(22 42)	−24	22·7	22·9
	N.	83·7	327	—	—	(24 17)	+71	24·3	25·4
De Bilt		93·2	36	—	—	e 26 8	+81	e 39·3	—
Kucino		112·6	36	—	—	—	—	e 46·3	—
Ekaterinburg		124·7	30	e 37 35	?SR_1	—	—	53·3	—
Hyderabad		146·2	85	21 11	[+81]	—	—	—	—

Additional readings: La Plata E = +5m.4s. T_0 = 0h.59m.21s. Rio de Janeiro iPN = +4m.50s. Georgetown iN = +17m.58s. Toronto iN = +10m.48s., i = +12m.45s. and +14m.39s., iSN? = +18m.59s., iE = +20m.5s., e = +21m.7s., and +21m.15s. Ottawa e = +14m.44s.

Jan. 31d. Readings also at 0h. (Manzanillo and Tacubaya), 1h. (Manila and near Mizusawa), 2h. (Nagasaki and near Mizusawa), 3h. (Baku), 6h. (Ekaterinburg), 7h. (Tashkent), 13h. (near Mizusawa), 14h. (Riverview and Perth), 16h. (Manila (2) and Irkutsk), 19h. (near Nagasaki), 21h. (Tacubaya), 23h. (Taihoku).

Feb. 1d. Readings at 3h. (La Paz), 4h. (La Paz and near Tacubaya), 6h. (near Osaka), 7h. (near Kobe, Nagoya, and Mizusawa), 11h. (Baku), 12h. (Ekaterinburg), 13h. (Apia), 17h. (Ekaterinburg, Baku, Taihoku, and Belgrade), 22h. (La Paz and near Osaka).

Feb. 2d. 22h. 24m. 45s. Epicentre 35°·0N. 143°·0E. (as on 1923 Aug. 12d.).

A = −·654, B = +·493, C = +·574 ; D = +·602, E = +·799 ;
G = −·458, H = +·345, K = −·819.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Mizusawa	E.	4·4	340	1 15	+ 7	1 52	− 9	—	—
Kobe		6·4	266	1 43	+ 5	(2 53)	− 2	2·9	3·6
Sapporo		8·2	351	3 25	?S	(3 25)	−17	5·4	—
Nagasaki		11·1	262	e 2 31	−15	(e 4 55)	− 2	e 4·9	—
Zi-ka-wei		18·4	266	e 4 17	− 5	e 7 49	0	—	—
Hong Kong		28·1	251	—	—	—	—	—	17·2
Manila		28·5	230	e 6 15	+ 2	—	—	—	—
Irkutsk		32·3	314	6 34	−17	11 20	−53	15·2	19·8
Tashkent		56·6	300	—	—	—	—	—	34·8
Ekaterinburg		57·3	320	e 9 57	+ 3	18 13	+23	23·2	36·0
Hyderabad		59·5	271	18 21	?S	(18 21)	+ 4	—	—
Bombay		63·3	275	—	—	19 15	+10	—	—
Kucino		69·2	324	—	—	—	—	25·2	—

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Baku	70·2	306	e 11 19	+ 1	e 20 19	− 9	32·4	44·0
De Bilt	85·4	336	—	—	—	—	e 45·2	—
Uccle	86·7	336	—	—	—	—	e 45·2	—
Strasbourg	87·4	331	—	—	—	—	50·2	—
Florence E.	89·8	329	48 45	?L	—	—	(48·8)	51·2
Rocca di Papa	90·7	326	e 44 15	?L	—	—	e 53·2	57·8
San Fernando	103·0	335	—	—	58 15	. ?L	64·2	66·2
La Paz	146·6	65	20 6	[+15]	—	—	—	—

Additional readings and notes: Mizusawa SN = +1m.58s. Kobe MN = +3·2m. Zi-ka-wei readings are given as at 21h. Hong Kong reading is given as at 23h. Irkutsk MN = +19·7m. Ekaterinburg i = +9m.58s., MN = +35·1m. San Fernando MN = +66·8m.

Feb. 2d. Readings also at 2h. (La Paz), 5h. (near Sapporo and Mizusawa), 6h. (Nagasaki), 7h. (Mizusawa), 8h. (Nagoya and La Paz), 9h. (La Paz), 15h. (near Tacubaya (5)), 17h. (Tashkent, Irkutsk, Zi-ka-wei, near Nagoya, near Nagasaki (2), and near Kobe), 22h. (near Nagoya), 23h. (near Tacubaya (2)).

Feb. 3d. Readings at 3h. (near Tacubaya), 4h. (Tashkent), 9h. (near Manila and near Athens), 10h. (Zi-ka-wei and Hong Kong), 11h. (Perth), 12h. (Ekaterinburg and Victoria), 13h. (Manila), 16h. (Tashkent, Ekaterinburg, Irkutsk, Hong Kong, and near Tacubaya), 18h. (Riverview, near Tacubaya, and near Nagasaki), 19h. (Ekaterinburg).

Feb. 4d. Readings at 4h. (Almeria and near Tacubaya (2)), 10h. (Kobe), 12h. (near Nagasaki and Mizusawa), 13h. (near Tacubaya), 15h. (Florence), 18h. (near Nagasaki), 19h. (near Batavia and Malabar), 20h. (near Tacubaya), 21h. (Irkutsk), 23h. (near Tacubaya).

Feb. 5d. Readings at 1h. (San Fernando and La Paz), 3h. (Riverview, Adelaide, and Wellington), 4h. (near Batavia and Malabar), 5h. (Tashkent), 11h. (near Nagasaki), 12h. (Rocca di Papa and near Athens), 13h. (Apia), 14h. (Zante), 15h. (Manila and Zante), 17h. (Manila), 23h. (near Osaka and Kobe).

Feb. 6d. Readings at 4h. (Ekaterinburg), 9h. (Nagasaki), 11h. (Ekaterinburg and near Tacubaya), 13h. (Apia), 14h. (Perth, Manila, and Ekaterinburg), 15h. (Irkutsk and Ekaterinburg), 17h. (Ekaterinburg), 19h. (near Nagasaki), 20h. (Ekaterinburg (2)), 21h. (Ekaterinburg, Apia, and near Tacubaya), 23h. (Ekaterinburg).

Feb. 7d. 23h. 43m. 45s. Epicentre 43°·8N. 15°·7E. (as on 1924 Jan. 13d.).
A = +·695, B = +·195, C = +·692; D = +·271, E = −·963; G = +·666, H = +·187, K = −·722.

		Δ	Az.	P.	O−C.	S.	O−C.	M.
		°	°	m. s.	s.	m. s.	s.	m.
Mostar		1·6	106	i 0 23	− 1	i 0 41	− 4	0·9
Sarajevo		2·0	88	i 0 33	+ 2	i 0 59	+ 4	1·1
Venice		2·9	304	—	—	—	—	2·2
Rocca di Papa	E.	3·0	228	e 0 49	+ 2	—	—	2·2
	N.	3·0	228	e 0 37	−10	—	—	2·0
Pompeii		3·1	197	e 1 49	+60	—	—	—
Vienna	Z.	4·5	6	e 1 48	+38	—	—	3·1

Additional readings: Sarajevo i = +1m.24s. Rocca di Papa PR_1N = +1m.21s., PR_1E = +1m.35s., PR_2E = +1m.43s., PR_2N = +1m.49s.

Feb. 7d. Readings also at 0h. (Ekaterinburg), 5h. (Ekaterinburg), 10h (Apia and near Manzanillo), 16h. (Manila), 17h. (near Balboa Heights), 19h. (Apia and Taihoku), 20h. (La Paz), 21h. (La Plata), 22h. (La Paz), 23h. (Taihoku).

Feb. 8d. Readings at 0h. (Colombo), 1h. (La Paz and Ekaterinburg), 3h. (La Paz), 6h. (Apia and near Berkeley), 14h. (Ekaterinburg), 18h. (near Athens), 20h. (La Paz and La Plata), 21h. (Ekaterinburg (2)).

Feb. 9d. 1h. 45m. 40s. (I) } Epicentre 43°·8N. 15°·7E. (as on Feb. 7d.).
8h. 18m. 40s. (II) }

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
I	Mostar	1·6	106	i 0 0	−24	i 0 22	−23	—	0·5
II		1·6	106	i 0 20	− 4	i 0 40	− 5	—	0·9
I	Sarajevo	2·0	88	i 0 30	− 1	i 0 57	+ 2	—	1·1
II		2·0	88	i 0 37	+ 6	i 0 39	−16	—	1·0
I	Venice	2·9	304	e 0 42	− 3	—	—	—	1·4
II		2·9	304	e 0 41	− 4	—	—	—	1·4
I	Rocca di Papa	3·0	228	e 0 40	− 7	—	—	—	1·9
II		3·0	228	e 0 41	− 6	—	—	—	1·9
I	Pompeii	3·1	197	e 1 9	+20	e 1 31	+ 5	—	2·0
II		3·1	197	e 1 21	+32	—	—	—	2·3
I	Belgrade	3·6	71	i 1 1	+ 5	i 1 51	+12	—	2·2
II		3·6	71	i 1 7	+11	i 2 2	+23	—	2·3
I	Vienna	4·5	6	1 1	− 9	1 58	− 6	(2·3)	2·5
II		4·5	6	1 1	− 9	1 52	−12	i 2·4	2·5
I	Innsbruck N.E.	4·6	322	e 1 14	+ 3	i 2 21	+15	—	—
II	N.W.	4·6	322	e 1 5	− 6	—	—	—	—
I	Zurich	6·1	309	e 1 28	− 5	—	—	—	3·4
II		6·1	309	e 1 32	− 1	—	—	—	—
I	Hamburg	10·5	341	—	—	—	—	e 5·3	—
II		10·5	341	—	—	—	—	e 5·3	—

Additional readings: Sarajevo I i = +1m.41s. Rocca di Papa I iPE = +48s., PR_1N = +1m.12s., PR_2E = +1m.45s., PR_2N = +1m.56s., MN = +2·1m., II iPE = +49s., PR_1N = +1m.3s., PR_1E = +1m.19s., PR_2N = +1m.41s., PR_2E = +1m.43s. Belgrade II iP = +1m.15s. Vienna I P = +1m.18s., i = +1m.24s., L is given as a second S, II P = +1m.16s., i = +1m.22s., iZ = +1m.55s., L is given as iE. Innsbruck I ePNW = +1m.2s.

Feb. 9d. 22h. 54m. 5s. Epicentre 32°·0N. 88°·0E.

A = +·030, B = +·847, C = +·530; D = +·999, E = −·035; G = +·018, H = +·530, K = −·848.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Simla	E.	9·2	268	e 2 43	+24	4 43	+35	—	7·4
	N.	9·2	268	e 2 25	+ 6	4 31	+23	6·0	8·2
Calcutta	E.	9·5	178	2 50	+27	4 24	+ 8	5·7	—
	N.	9·5	178	2 48	+25	4 10	− 6	5·3	—
Hyderabad		16·9	213	6 33	?	7 15	− 1	7·4	8·3
Bombay		18·9	230	—	—	7 55	− 5	—	—
Kodaikanal		23·8	206	11 37	?L	—	—	(11·6)	—
Hong Kong		25·2	106	—	—	—	—	—	26·9
Colombo		26·2	199	10 31	?S	(10 31)	+ 5	—	14·4
Zi-ka-wei		28·4	83	e 35 11	?	—	—	—	—
Taihoku		30·2	95	—	—	—	—	e 14·9	—
Ekaterinburg		31·1	330	6 37	− 2	12 4	+11	14·9	19·2
Baku		31·6	296	e 6 36	− 7	11 29	−32	14·2	17·9
Manila		34·7	113	—	—	—	—	e 17·9	—
Kucino		41·9	320	—	—	—	—	e 18·9	25·4
Pulkovo		46·7	324	8 16	−29	—	—	19·9	25·5
Upsala	N.	53·0	324	—	—	—	—	e 27·6	—
Hamburg		57·9	317	—	—	—	—	e 30·9	—
Rocca di Papa		59·1	303	—	—	—	—	e 27·4	41·6
Strasbourg		60·4	312	—	—	—	—	28·9	—
De Bilt		61·1	316	—	—	—	—	e 30·9	—
Uccle		61·9	315	—	—	—	—	—	31·9
Kew		64·5	318	—	—	—	—	—	40·9
Eskdalemuir		64·8	321	—	—	—	—	31·9	—
Ottawa		104·1	349	—	—	—	—	e 55·9	—

Additional readings and notes: Calcutta readings have been diminished by 5m. Baku e = +6m.45s., i = +8m.21s. Kucino MN = +24·9m. Upsala eLN = +30·4m. Pulkovo MN = +25·4m.

Feb. 9d. Readings also at 0h. (near Tacubaya), 2h. (Ekaterinburg), 7h. (Ekaterinburg, Pulkovo, Kucino, and near Baku), 8h. (La Paz), 16h. (Apia), 19h. (Taihoku and Florence), 20h. (Florence), 23h. (near Mostar).

Feb. 10d. Readings at 0h. (Florence, near Sarajevo, and near Tacubaya), 4h. (near Mostar and Sarajevo), 5h. (Batavia and near Malabar), 7h. (near Sapporo and Mizusawa), 9h. (Nagoya and near Osaka and Kobe), 12h. (Kobe (2)), 15h. (Ekaterinburg), 18h. (Florence and near La Plata), 21h. (Zi-ka-wei), 22h. (Apia, Kucino, Irkutsk, and Ekaterinburg).

Feb. 11d. 5h. 57m. 24s. Epicentre 8°·0S. 127°·5E. (as on 1923 July 17d.).

A = −·603, B = +·786, C = −·139 ; D = +·793, E = +·609 ;
G = +·085, H = −·110, K = −·990.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Batavia		20·6	274	i 7 1	+133	i 8 41	+ 5	19·2	—
Manila		23·5	344	e 10 8	?S	(e 10 8)	+33	18·8	—
Perth		26·3	203	i 3 56	−115	i 7 42	?	8·7	—
Adelaide		28·8	161	e 5 48	−28	e 10 30	−43	14·4	17·8
Hong Kong		33·0	338	19 41	?L	—	—	(19·7)	29·6
Melbourne		33·7	156	—	—	(10 36)	−120	10·6	—
Riverview		33·8	142	e 6 54	− 9	e 12 18	−20	18·0	22·4
Sydney		33·8	142	—	—	12 54	+16	18·2	21·4
Colombo		49·8	286	16 18	?S	(16 18)	+ 2	28·1	30·7
Kodaikanal		53·1	290	27 24	?L	—	—	(27·4)	—
Hyderabad		54·7	299	17 20	?S	(17 20)	+ 3	—	—
Bombay		60·1	298	e 10 20	+ 7	18 36	+12	32·6	—
Simla		62·0	313	—	—	—	—	e 35·9	—
Ekaterinburg		84·5	330	e 18 11	?PR$_1$	e 24 21	+67	46·6	58·5
Baku		85·9	313	e 22 58	?S	(e 22 58)	−31	38·7	—
Kucino		96·3	326	—	—	—	—	e 48·6	62·1
Pulkovo		100·5	330	—	—	—	—	54·6	70·6
Upsala		106·8	331	—	—	—	—	e 74·6	—
Victoria	E.	108·9	41	—	—	—	—	70·5	78·0
	N.	108·9	41	—	—	—	—	70·7	83·0
De Bilt		115·8	322	—	—	—	—	e 67·6	—
Uccle		116·7	321	—	—	—	—	52·6	—
Eskdalemuir		118·8	330	—	—	e 38 52	?SR$_1$	67·6	—
San Fernando		129·2	311	—	—	—	—	66·1	74·6
Chicago		134·2	37	—	—	—	—	e 79·6	—
Ann Arbor		136·0	33	e 32 12	?	—	—	—	—
Toronto	E.	137·3	28	e 32 6	?	46 11	?SR$_1$	e 82·0	—
	N.	137·3	28	i 31 29	?	e 47 21	?SR$_1$	e 90·7	—
Ottawa	E.	137·6	23	e 32 15	?	e 45 54	?SR$_1$	e 72·1	—
La Paz		151·0	148	e 40 39	?SR$_1$	52 19	?	64·2	66·9

Additional readings: Batavia iN = +7m.1s., iS = +13m.23s. Adelaide eSR$_1$ = +12m.48s.? Riverview eS? = +13m.4s. Colombo S = +23m.6s. Simla eN = +35m.24s. Ekaterinburg S = +27m.25s., MZ = +64·3m. Baku e = +25m.4s., eS = +30m.36s. Kucino MN = +60·7m. Pulkovo MN = +69·2m. De Bilt e = +62m.24s. Eskdalemuir e = +54m.36s. San Fernando MN = +73·1m. Toronto eE = +45m.57s. and several other L readings.

Feb. 11d. 17h. 49m. 24s. Epicentre 35°·0N. 139°·5E. (as on 1924 Jan. 20d.).

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

Possibly erroneous identification.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Nagoya		2·1	274	0 23	−10	—	—	—	—
Osaka		3·4	266	0 59	+ 6	—	—	1·8	2·3
Kobe		3·6	266	1 0	+ 4	(1 39)	0	1·6	1·7
Mizusawa	E.	4·3	17	0 47	−20	1 29	−29	—	—

Additional readings: Osaka MN = +2·4m. Kobe MN = +1·8m. Mizusawa SN = +1m.38s.

Feb. 11d. Readings also at 10h. (Baku (2) and Ekaterinburg), 16h. (Irkutsk), 22h. (Mizusawa (2)).

Feb. 12d. Readings at 3h. (La Paz and La Plata), 13h. (Apia).

Feb. 13d. 22h. 50m. 10s. Epicentre 2°·5S. 121°·0E.

A = −·515, B = +·856, C = −·044 ; D = +·857, E = +·515 ;
G = +·022, H = −·037, K = −·999.

		Δ	Az	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Malabar		14·2	250	3 37	+ 8	6 27	+14	—	—
Batavia		14·6	255	3 42	+ 8	6 12	−10	i 8·4	10·4
Manila		17·1	0	i 4 11	+ 5	(i 7 28)	+ 8	i 7·5	8·7
Hong Kong		25·7	345	5 33	−12	(9 54)	−22	9·9	10·5
Taihoku		27·6	1	e 6 0	− 4	(10 42)	−10	10·7	—
Perth		29·8	189	—	—	12 0	+29	19·3	—
Zi-ka-wei		33·7	2	e 6 27	−35	—	—	—	—
Adelaide		36·2	154	—	—	e 12 20	−53	18·8	21·5
Riverview		42·1	142	e 7 50	−22	e 14 8	−28	e 20·7	23·6
Sydney		42·1	142	8 38	+26	15 2	+26	21·3	22·9
Colombo		42·2	282	11 50	?	19 2	?	24·8	27·8
Kodaikanal		45·2	286	16 2	?S	(16 2)	+44	27·4	32·5
Hyderabad		46·5	297	8 34	−10	15 35	0	23·6	31·1
Bombay		52·0	297	10 31	+71	16 41	− 3	23·0	32·0
Simla	N.	53·6	313	17 2	?S	(17 2)	− 2	29·9	32·0
Wellington		61·8	137	—	—	—	—	e 34·4	35·5
Tashkent	E.	64·2	319	—	—	e 19 50	+35	e 25·3	37·8
Ekaterinburg		76·6	330	i 11 56	− 3	21 39	− 5	33·3	46·4
Baku		77·5	312	e 11 54	−10	21 44	−11	35·8	—
Kucino		88·2	326	13 11	+ 5	e 23 50	− 4	—	41·8
Pulkovo		92·6	330	13 19	−11	23 55	−46	38·8	59·3
Upsala		98·9	330	—	—	e 24 26	−79	e 51·8	—
Hamburg		104·4	325	e 17 50	?PR_1	—	—	e 52·8	—
Florence		105·9	317	19 50	?PR_1	—	—	—	36·8
Strasbourg		107·1	322	—	—	—	—	e 60·8	—
De Bilt		107·6	325	—	—	—	—	e 50·8	67·6
Uccle		108·5	324	—	—	—	—	e 54·8	—
Victoria	E.	108·6	40	—	—	—	—	—	52·3
Dyce		109·4	331	—	—	—	—	57·3	75·3
Edinburgh		110·6	331	—	—	—	—	e 60·8	—
Eskdalemuir		110·9	331	—	—	e 29 50	?	57·8	—
Kew		111·0	325	—	—	—	—	—	70·8
Stonyhurst		111·1	330	—	—	—	—	e 63·8	—
Granada		118·6	312	—	—	—	—	e 89·8	96·1
San Fernando		120·8	312	—	—	—	—	73·3	81·8
Ottawa	E.	134·7	15	—	—	e 39 8	?	e 58·8	—
Toronto	E.	135·1	20	—	—	—	—	58·8	—
Rio de Janeiro	E.	150·3	211	—	—	—	—	72·3	—
La Paz		158·9	155	20 25	[+18]	—	—	79·9	89·7

Additional readings and notes : Manila MN = +8·6m. Perth L = +22·4m. Adelaide SR_1 = +15m.2s. Riverview MN = +22·9m. Wellington gives very many e readings. Tashkent readings have been diminished by 1h. Ekaterinburg PS = +22m.9s., MN = +45·4m., MZ = +49·6m. Baku PS = +22m.14s. Kucino readings have all been diminished by 10min., PR_1 = +16m.26s., MN = +42·1m. Pulkovo PR_1 = +17m.2s., PS = +24m.55s., SR_1 = +30m.2s., SR_2 = +33m.56s., SR_3 = +35m.20s., MN = +54·6m. De Bilt MN = +58·6m., MZ = +73·6m. Victoria MN = +45·8m. San Fernando MN = +80·3m. Toronto eN? = +50m.13s., also several L readings.

Feb. 13d. Readings also at 0h. (Tashkent), 7h. (near Vienna), 10h. (Apia), 12h. and 13h. (La Paz), 14h. (La Paz and La Plata), 17h. (Taihoku), 19h. (near Manila), 20h. (Florence and near Tacubaya), 22h. (La Plata, Rio de Janeiro and La Paz).

Feb. 14d. 18h. 55m. 30s. Epicentre 26°·0N. 96°·0E.

A = −·094, B = +·894, C = +·438 ; D = +·995, E = +·105 ;
G = −·046, H = +·436, K = −·899.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Hong Kong	17·0	99	—	—	(7 23)	+ 5	7·4	8·3
Hyderabad	18·4	246	4 19	− 3	7 43	− 6	—	13·2
Bombay	22·6	256	9 15	?S	(9 15)	− 2	(13·1)	15·1
Zi-ka-wei	22·9	71	—	—	e 8 21	−62	—	12·5
Taihoku	23·0	87	—	—	—	—	e 10·2	—
Colombo	24·5	222	8 18	?S	(8 18)	−96	—	—
Manila	26·0	111	e 8 52	?S	(e 8 52)	−90	—	—
Tashkent E.	26·8	312	—	—	—	—	e 13·5	21·5
Irkutsk	27·0	11	e 10 41	?S	(e 10 41)	0	15·5	17·2
Batavia	33·8	164	—	—	—	—	i 16·4	—
Ekaterinburg	39·8	330	—	—	e 14 23	+20	20·5	25·2
Baku	40·7	303	—	—	—	—	e 17·5	—
Kucino	50·9	321	—	—	—	—	e 28·5	—
Pulkovo	55·6	327	—	—	—	—	26·5	34·0
Upsala	62·0	326	—	—	—	—	e 35·4	—
Hamburg	67·1	320	—	—	—	—	e 38·5	—
De Bilt	70·3	320	—	—	—	—	e 40·5	—
Eskdalemuir	73·8	324	—	—	—	—	39·5	—

Additional readings and notes: Bombay gives S as P and L as S, also L = +15·9m. Zi-ka-wei MN = +11·8m. Tashkent readings have been increased by 1h.

Feb. 14d. 19h. 46m. 26s. Epicentre 43°·8N. 15°·7E. (as on Feb. 9d.).

A = +·695, B = +·195, C = +·692 ; D = +·271, E = −·963 ;
G = +·666, H = +·187, K = −·722.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Sinj	0·7	96	i 0 9	− 2	i 0 20	+ 0	—	0·4
Travnik	1·5	112	i 0 25	+ 2	i 0 46	+ 4	—	0·9
Mostar	1·6	106	i 0 24	0	i 0 44	− 1	—	1·8
Sarajevo	2·0	88	e 0 31	0	i 1 0	+ 5	—	1·1
Venice	2·9	304	e 0 42	− 3	—	—	—	1·5
Rocca di Papa	3·0	228	i 0 50	+ 3	1 44	+21	(1·8)	2·2
Belgrade	3·6	71	e 0 53	− 3	e 1 50	+11	—	2·1
Vienna	4·5	6	1 6	− 4	2 6	+ 2	2·4	2·7
Innsbruck N.E.	4·6	322	i 1 20	+ 9	e 2 14	+ 8	—	—
Zurich Z.	6·1	309	e 1 28	− 5	2 41	− 5	—	—
Strasbourg	7·3	314	2 15	+24	3 57	?L	e 4·6	4·6
Besançon	7·6	300	—	—	e 3 11	−15	—	—
Uccle	10·5	317	—	—	—	—	e 5·6	—
Hamburg	10·5	341	—	—	—	—	e 5·6	—
De Bilt	10·9	323	—	—	—	—	e 5·6	—

Additional readings: Sarajevo i = +1m.52s. Rocca di Papa MN = +2·1m. Belgrade iP = +1m.2s. Vienna P = +1m.22s., iN = +1m.30s., iE = +1m.40s., iE = +1m.42s., PS = +1m.51s., iN = +1m.55s., iE = +1m.57s., PS = +1m.59s., SR_1 = +2m.10s. Innsbruck iNE = +2m.2s. Zurich iZ = +1m.36s.

Feb. 14d. Readings also at 1h. (near Tacubaya), 3h. (Manila and near La Paz), 4h. (Barcelona and near Tortosa), 6h. (near Tacubaya), 8h. (Ottawa, Toronto, and near Merida), 15h. (Tacubaya), 17h. (Bergen), 20h. (Kobe).

Feb. 15d. Readings at 0h. (Taihoku and Mizusawa), 3h. and 4h. (Zante), 5h. (Toronto and La Paz), 7h. (La Paz), 8h. (Nagoya and Nagasaki), 11h. (Nagasaki and La Paz), 12h. (near Tacubaya), 13h. (Ottawa, Wellington, and near Victoria), 14h. (near Tacubaya).

Feb. 16d. 0h. 20m. 35s. Epicentre 15°·0S. 165°·0E. (as on 1923 June 22d.).

$A = -\cdot933$, $B = +\cdot250$, $C = -\cdot259$; $D = +\cdot259$, $E = +\cdot966$; $G = +\cdot250$, $H = -\cdot067$, $K = -\cdot966$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Riverview		22·6	211	e 5 11	− 1	e 9 16	− 1	e 11·2	13·9
Wellington		27·6	164	e 5 11	−53	i 11 3	+11	15·8	19·4
Adelaide		31·0	225	—	—	e 12 25	+34	e 18·0	—
Perth		47·7	240	—	—	e 15 54	+ 4	27·3	—
Honolulu	E.	51·3	46	—	—	e 16 42	+ 7	—	—
Manila		52·6	303	e 9 25	+ 1	—	—	—	—
Batavia		57·7	274	e 10 56	+59	i 17 50	− 5	—	—
Hong Kong		60·0	307	18 58	?S	(18 58)	+35	—	—
Colombo		87·1	278	22 7	?	—	—	(45·6)	62·4
Victoria	E.	89·6	40	23 3	?S	(23 3)	[−23]	42·5	48·7
Ekaterinburg		110·3	324	e 19 4	?PR_1	e 25 47	[+36]	40·4	—
Baku		118·7	307	e 20 43	?PR_1	—	—	56·9	—
Toronto	N.	119·0	47	i 22 20	?PR_1	—	—	43·0	—
Ottawa	E.	121·1	44	25 25	?[S]	e 36 25	?SR_1	e 56·4	—
Kucino		122·8	326	23 16	?	e 32 59	?	e 54·4	—
Pulkovo		124·5	334	e 21 9	?PR_1	—	—	55·4	—
De Bilt		139·6	340	e 19 52	[+13]	e 22 47	?PR_1	e 64·4	—
West Bromwich		139·7	346	39 18	?SR_1	—	—	—	—
Strasbourg		141·6	333	e 19 25	[−17]	—	—	—	22·9
Rocca di Papa		144·1	323	19 33	[−14]	—	—	—	—

Additional readings and notes: $PR_1 = +5$m.31s., $i = +5$m.44s., $PS = +9$m.32s., $SR_1 = +10$m.12s., $MN = +13\cdot3$m. $T_0 = 0$h.20m.23s. Wellington $e = +5$m.41s., $ePR_1 = +6$m.6s., $ePR_2 = +6$m.28s., $e = +9$m.16s., $iS = +12$m.18s., $iSR_1 = +12$m.56s., $iSR_2 = +13$m.51s., and $+14$m.21s., $L = +17\cdot8$m. Adelaide $e = +15$m.19s. and $+19$m.37s. Perth PR_1? $= +11$m.14s., $SR_1 = +19$m.47s. Honolulu $eN = +15$m.50s. Victoria $SE = +29$m.48s., $SN = +29$m.53s., $MN = +49\cdot9$m. Colombo gives L as P of an assumed second shock. Ekaterinburg $e = +25$m.3s. and $+29$m.4s. Baku $e = +30$m.44s., $+36$m.34s., and $+41$m.55s. Toronto $iE = +23$m.40s., $eE = +25$m.17s. and $+36$m.40s., $eN = +31$m.27s. Pulkovo $e = +30$m.49s. De Bilt $eN = +23$m.2s. Strasbourg M may be PR_1.

Feb. 16d. 9h. 1m. 6s. Epicentre 37°·5N. 23°·0E. (as on 1922 Nov. 11d.).

$A = +\cdot730$, $B = +\cdot310$, $C = +\cdot609$; $D = +\cdot391$, $E = -\cdot921$; $G = +\cdot560$, $H = +\cdot238$, $K = -\cdot793$.

The time T_0 is very uncertain, and that adopted is about the median of a number of divergent values given by several of the stations. In consequence the determination should be regarded chiefly as a means of recording the observations.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Sarajevo	N.	7·2	333	e 2 7	+18	i 3 37	+22	(i 3·6)	3·8
Pompeii		7·3	299	e 3 54	?L	—	—	(e 3·9	5·2
Belgrade		7·5	347	i 2 5	+11	i 3 0	−24	—	3·6
Rocca di Papa	E.	9·0	58	5 13	?L	—	—	(5·2)	6·2
Florence	E.	10·9	309	2 24	−19	—	—	—	6·4
Venice		11·2	318	e 3 43	+56	—	—	—	6·9
Vienna		11·5	338	e 2 39	−13	5 43	?L	(5·7)	7·0
Lemberg		12·3	3	e 3 18	+15	—	—	—	7·1
Innsbruck		13·0	323	e 3 6	− 7	e 6 42	?L	(e 6·7)	7·7
Moncalieri		13·7	308	3 22	0	6 2	+ 1	7·4	10·1
Zurich		14·5	318	e 3 45	+12	—	—	e 7·8	—
Strasbourg		15·6	320	2 54	−53	—	—	—	9·9
Konigsberg		17·4	355	—	—	e 8 38	+71	e 8·8	10·2
Hamburg		18·5	335	—	—	e 6 54	−57	e 8·9	11·1
Paris		18·6	314	—	—	—	—	e 9·9	9·9
Uccle		18·8	321	—	—	e 7 46	−12	e 8·7	10·5
De Bilt		19·2	325	—	—	e 7 53	−13	e 9·0	10·6
Kucino		20·8	24	—	—	—	—	e 18·9	—
Baku		21·0	74	e 4 19	−34	e 8 15	−29	9·9	—
Granada		21·1	277	e 3 31	−83	9 3	+17	e 12·9	—
Toledo		21·2	285	e 3 19	−96	9 16	+28	e 14·0	16·6
Upsala		22·6	354	—	—	—	—	e 11·9	13·1
Pulkovo		22·7	10	4 39	−34	8 22	−57	9·9	12·4
Bidston		24·0	320	—	—	8 24	−80	11·4	13·1
Eskdalemuir		25·1	324	—	—	e 9 44	−21	11·9	—
Ekaterinburg		31·4	40	e 6 28	−14	e 11 57	− 1	16·4	18·2

For Notes see next page.

NOTES TO FEB. 16d. 9h. 1m. 6s.

Additional readings: Sarajevo eP = +2m.19s. Rocca di Papa PN = +5m.7s., MN = +6·8m. Strasbourg MN = +9·1m. Hamburg MZ = +11·2m., MN = +15·3m. Baku iS = +8m.21s. Pulkovo MN = +12·9m., MZ = +13·6m. Edinburgh (Δ = 25°·4, Az. = 325°) gives e = 8h.56m., M = 9h.1m. Ekaterinburg MZ = +18·3m., MN = +18·7m.

Feb. 16d. Readings also at 1h. (Manila), 6h. (near Kobe), 10h. (Eskdalemuir, De Bilt, Strasbourg, Pulkovo, Ekaterinburg (2), and near Belgrade), 12h. (Ekaterinburg), 13h. (La Paz), 14h. (Manila and Ekaterinburg), 15h. (Ekaterinburg, Nagoya, Kobe, and near Mizusawa), 17h. (Hong Kong and near Manila), 18h. (Irkutsk (2), Ekaterinburg (2), near Manila and near Mostar).

Feb. 17d. 20h. 12m. 25s. Epicentre 15°·0S. 165°·0E. (as on Feb. 16d.).

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Riverview	22·6	211	e 5 11	− 1	—	—	e 11·5	14·4
Sydney	22·6	211	4 35	−37	—	—	11·8	14·1
Wellington	27·6	164	e 6 5	+ 1	—	—	—	—
Perth	47·7	240	—	—	—	—	26·7	—
Ekaterinburg	110·3	324	—	—	e 38 25	?SR_1	56·1	72·8
Baku	118·7	307	—	—	—	—	67·6	—
Toronto E.	119·0	47	—	—	—	—	69·6	—
Ottawa E.	121·1	44	—	—	e 28 59	+ 1	e 55·6	—
Kucino	122·8	326	—	—	—	—	e 73·6	—
De Bilt	139·6	340	—	—	—	—	e 82·6	—
Strasbourg	141·6	333	—	—	—	—	e 88·6	—

Additional readings and notes: Riverview MN = +12·6m. Wellington eP? = +4m.6s. Strasbourg reading has been diminished by 1h.

Feb. 17d. Readings also at 0h. (Toronto and near Tacubaya), 1h. (Tashkent), 2h. (near Tacubaya), 4h. (Nagoya and near Tacubaya), 5h. (near Tacubaya and Mizusawa), 6h. and 9h. (La Paz), 11h. (near Mizusawa), 13h. (near Tacubaya), 19h. (Ekaterinburg and near Athens), 22h. (Taihoku (2)), 23h. (near La Paz).

1924. Feb. 18d. 17h. 3m. 48s. Epicentre 35°·2N. 34°·7E.

(as on 1919 Aug. 19d.).

A = +·672, B = +·465, C = +·576; D = +·569, E = −·822; G = +·474, H = +·328, K = −·817.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Helwan	6·0	209	i 1 26	− 6	2 32	−12	—	4·3
Athens	9·2	291	e 2 27	+ 8	i 4 50	+42	5·5	7·1
Baku	13·1	62	e 3 31	+17	e 6 2	+16	7·2	—
Belgrade	14·5	316	e 3 36	+ 3	i 8 25	?L	e 14·8	—
Lemberg	16·6	335	e 3 56	− 4	e 7 24	+15	—	11·9
Pompeii	16·8	295	e 4 19	+17	—	—	14·2	—
Rocca di Papa	18·4	298	e 4 24	+ 2	(e 7 54)	+ 5	e 11·0	—
Vienna	18·8	320	e 4 30	+ 3	8 16	+18	i 10·5	12·7
Florence	19·9	303	4 47	+ 7	8 12	− 9	10·2	12·2
Kucino	20·7	6	—	—	e 10 49	?L	(e 10·8)	—
Innsbruck	21·2	312	i 4 55	0	i 8 50	+ 2	e 12·2	14·5
Konigsberg	22·0	338	5 8	+ 3	i 9 14	+ 9	—	15·6
Moncalieri	22·7	304	5 12	− 1	9 18	− 1	12·6	17·7
Zurich	22·9	310	e 5 12	− 4	9 18	− 5	—	—
Strasbourg	24·1	311	i 5 24	− 5	9 38	− 8	e 11·2	16·5
Besançon	24·5	308	i 5 30	− 3	9 48	− 6	—	15·2
Pulkovo	24·7	355	i 5 36	+ 1	9 56	− 1	11·7	16·1
Hamburg	25·2	324	i 5 36	− 4	10 18	+11	15·2	18·3
Algiers	25·5	283	i 4 41	−62	e 9 54	−19	—	21·2

For Notes see next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
De Bilt		26·9	318	5 54	− 3	10 33	− 6	14·2	19·6
Uccle		26·9	315	e 5 49	− 8	10 26	−13	e 14·2	18·7
Upsala		27·0	341	e 5 55	− 3	e 10 49	+ 8	e 15·2	20·1
Paris		27·2	310	i 5 54	− 6	e 10 59	+14	15·2	16·2
Tortosa	N.	27·3	290	—	—	—	—	e 10·2	23·7
Tashkent	E.	27·7	67	e 4 12	?	e 11 12	+18	e 16·7	21·7
Ekaterinburg		27·8	31	i 6 5	− 1	10 44	−11	14·2	20·5
Kew		29·7	314	11 12	?S	(11 12)	−17	—	21·2
Oxford		30·5	314	—	—	11 18	−25	18·5	21·2
Granada		30·7	284	i 6 50	+15	1 12 10	+24	—	—
Toledo		30·8	289	6 29	− 7	11 27	−21	e 17·0	25·6
Bergen		31·5	333	—	—	—	—	e 19·2	—
Stonyhurst		31·8	315	e 6 42	− 3	—	—	—	22·2
Bidston		32·0	315	—	—	—	—	e 13·6	21·0
Eskdalemuir		32·8	320	6 57	+ 2	12 2	−19	16·2	22·7
San Fernando		32·9	282	6 45	−11	14 7	+105	18·2	24·2
Edinburgh		33·0	321	—	—	—	—	e 17·2	23·6
Lisbon		34·9	287	—	—	—	—	—	22·9
Bombay		37·4	109	7 26	− 7	13 18	−12	19·4	27·3
Hyderabad		42·6	104	8 8	− 7	14 34	− 9	21·9	31·7
Kodaikanal		46·2	112	22 6	?L	—	—	29·0	31·4
Colombo		50·1	116	13 0	?	25 42	?L	32·2	36·2
Irkutsk		50·9	48	9 29	+17	16 39	+ 9	27·2	34·0
Hong Kong		69·1	78	—	—	—	—	—	48·2
Zi-ka-wei	Z.	70·2	65	—	—	—	—	e 41·3	—
Cape Town		70·7	195	37 30	?L	—	—	(37·5)	44·1
Ottawa		77·8	319	—	—	e 22 12	+14	e 38·7	—
Manila		78·7	80	—	—	—	—	—	56·2
Toronto		81·0	320	—	—	i 22 35	0	49·0	—
Chicago		86·6	321	—	—	e 23 12	[+ 6]	47·9	—
Rio de Janerio	N.	93·7	245	—	—	e 24 0	[+10]	50·2	—
Victoria	E.	94·2	348	—	—	—	—	52·4	54·5
	N.	94·2	348	24 2	?S	(24 2)	[+ 9]	53·4	56·5
La Paz		109·7	265	18 48	?PR_1	—	—	60·3	75·3
Riverview		128·6	110	—	—	e 51 0	?	71·9	74·9

Additional readings: Athens i = +2m.43s., MN = +5·8m. Baku iP = +3m.38s., iS = +6m.12s. Belgrade iP = +3m.44s., PR_1 = +4m.25s. and 6m.33s., L = +19·8m. Rocca di Papa iPN = +4m.32s., S is given as LE. Vienna iPZ = +4m.32s., PR_1? = +4m.49s., iZ = +5m.18s. and +5m.43s., SR_1 = +8m.37s., i = +10m.57s. and +11m.45s. Konigsberg PR_1 = +5m.33s. Moncalieri MN = +17·2m. Strasbourg MN = +16·2m. Pulkovo MZ = +17·0m., MN = +18·0m. Hamburg iN = +8m.44s., MZ = +18·1m., MN = +18·2m. De Bilt MNZ = +19·2m. Uccle MN = +16·3m. Upsala MN = +19·6m. Tashkent LE = +19·2m. Ekaterinburg MN = +18·4m. Stonyhurst readings are given for 19d. Eskdalemuir MN = +23·1m. San Fernando MN = +26·2m. Toronto LN = +50·3m. Riverview MN = +74·8m.

Feb. 18d. Readings also at 0h. (Manila and Ekaterinburg), 7h. (Georgetown), 8h. (near Tacubaya), 9h. (Apia), 12h. (Port au Prince), 16h. (Apia), 18h. (Ekaterinburg, Simla, Bombay, and Hyderabad), 19h. (Irkutsk), 23h. (near Tacubaya (2) and near Wellington).

Feb. 19d. 6h. 59m. 45s. Epicentre 39°·0N. 47°·5E.

A = +·525, B = +·573, C = +·629; D = +·737, E = −·676; G = +·425, H = +·464, K = −·777.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Helwan		16·1	240	i 4 4	+11	7 21	+24	—	12·4
Tashkent	E.	16·8	75	i 3 51	−11	1 6 45	−28	i 9·2	11·2
Kucino		17·9	342	4 26	+10	e 8 15	+37	—	9·6
Athens		18·6	274	e 4 38	+14	i 8 18	+25	—	13·1
Lemberg		19·8	311	e 4 46	+ 7	e 8 30	+11	—	9·0
Belgrade		20·9	290	e 4 58	+ 6	e 8 55	+13	e 11·3	—
Pulkovo		23·4	338	i 5 21	0	i 9 29	− 4	10·8	16·6
Konigsberg		24·0	320	i 5 44	+16	9 53	+ 9	i 11·7	15·2
Vienna		24·1	303	e 5 32	+ 3	9 44	− 2	—	11·2
Simla		25·4	99	5 33	− 9	9 57	−14	—	17·6

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Rocca di Papa		26·5	287	i 5 54	+ 1	11 4	+32	e 18·9	19·2
Innsbruck		27·3	300	e 6 0	− 1	(e 10 45)	− 1	e 10·8	—
Florence		27·4	292	6 15?	+13	10 15	−33	—	17·2
Upsala		28·1	328	e 6 11	+ 2	i 11 2	+ 1	e 14·0	19·0
Zurich		29·3	299	e 6 16	− 5	11 5	−17	—	—
Hamburg		29·3	312	e 6 17	− 4	e 11 15	− 7	—	17·0
Bombay		29·7	125	6 7	−18	10 59	−30	14·6	20·0
Moncalieri		29·9	295	5 50	−37	11 21	−11	15·9	24·4
Strasbourg		29·9	302	6 15	−12	e 12 9	+37	e 16·2	17·3
De Bilt		31·9	309	6 41	− 5	11 52	−15	e 16·2	23·1
Uccle		32·2	307	e 6 33	−17	e 11 59	−12	e 15·2	20·4
Paris		33·3	300	e 12 2	?S	(e 12 2)	−27	21·2	21·2
Hyderabad		34·5	120	6 46	−23	12 8	−40	25·0	—
Kew		35·2	306	15 15	?	—	—	—	31·2
Tortosa		35·7	286	7 13	− 6	12 52	−14	15·6	24·8
Oxford		35·8	306	i 9 2	+102	—	—	—	29·0
Bidston		36·9	310	6 0?	−89	9 32	?	15·8	21·2
Edinburgh		37·1	312	—	—	—	—	e 23·2	—
Eskdalemuir		37·1	312	e 7 15	−16	i 13 9	−16	17·8	—
Kodaikanal		39·2	129	25 3	?L	—	—	(25·0)	—
Toledo		39·3	286	7 42	− 7	13 45	−11	e 17·8	24·9
Granada		39·7	283	i 7 59	+ 7	i 14 16	+14	i 20·1	23·0
San Fernando		41·9	282	9 45	?PR_1	14 27	− 7	17·2	19·8
Colombo		43·3	131	12 51	?S	(12 51)	−121	27·8	34·8
Hong Kong		58·4	85	9 58	− 3	—	—	—	—
Zi-ka-wei		59·3	73	—	—	—	—	e 30·0	—
Manila		68·1	89	e 11 15	+10	—	—	—	—
Cape Town		77·7	206	—	—	—	—	—	51·6
Ottawa		81·5	324	—	—	i 22 42	+ 1	e 33·8	—
Toronto	E.	84·4	325	—	—	i 23 10	− 2	33·5	—
	N.	84·4	325	—	—	i 23 11	− 1	45·5	—
Chicago		89·4	329	—	—	e 23 35	[+11]	52·8	—
Victoria	E.	92·2	355	24 19	?S	(24 19)	−18	43·6	55·8
	N.	92·2	355	23 54	?S	(23 54)	−43	43·7	57·2
Rio de Janeiro	N.	104·7	252	—	—	e 34 53	?SR_1	57·2	—
La Paz		120·1	273	e 20 35	?PR_1	e 34 25	?SR_1	63·4	69·8
Riverview		120·2	110	—	—	—	—	e 68·2	76·3

Additional readings: Athens i = +4m.48s. Belgrade iP = +4m.59s., PR_1 = +5m.42s., SR_1 = +9m.24s. Pulkovo MZ = +15·9m., MN = +16·8m. Vienna iPZ = +5m.33s., iE = +8m.11s., SR_1? = +10m.3s., MN = +10·4m. Simla MN = +17·2m. Rocca di Papa SN = +11m.13s., L = +17·4m., eLZ = +19·0m. Upsala MN = +17·5m. Hamburg MZ = +15·4m., MN = +19·4m. Moncalieri MN = +25·1m. Strasbourg ePR_1? = +7m.22s., ePR_2? = +7m.45s., eSR_1? = +13m.52s., MN = +16·5m. De Bilt MN = +21·6m., MZ = +26·4m. Paris eS? = +17m.12s. Eskdalemuir e = +15m.3s. Toledo PR_1 = +9m.36s., PR_2NW = +9m.52s., PR_2NE = +9m.53s., MNW = +24·8m. Granada i = +10m.23s., +10m.59s., and +17m.21s. San Fernando MN = +19·2m. Ottawa eE = +26m.45s. Toronto iN = +23m.15s. and +23m.32s., iE = +23m.35s. and +23m.38s., eE = +32m.53s. Riverview MN = +74·8m.

Feb. 19d. Readings also at 0h. (Sydney), 2h. (near Tortosa), 3h. (Barcelona), 12h. (Kobe), 13h. (La Paz), 14h. (Baku (2), Athens, and Manila) 15h, (La Paz, Zi-ka-wei, and Ekaterinburg (2)). 17h. (Baku and Apia) 19h. (Baku, Manila, Irkutsk, and Ekaterinburg), 20h. (Ekaterinburg), 23h. (Stonyhurst).

Feb. 20d. Readings at 1h. (Barcelona), 5h. (La Paz), 7h. (Stonyhurst), 10h. (near Nagasaki), 11h. (Nagoya and near Osaka and Kobe), 16h. (near Algiers), 20h. (Apia and La Paz).

Feb. 21d. 13h. 16m. 18s. Epicentre 37°·7N. 118°·5W. (as on 1923 Feb. 27d.).
A = −·378, B = −·695, C = +·612; D = −·879, E = +·477; G = −·292, H = −·537, K = −·791.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Berkeley		3·0	273	e 0 52	+ 5	i 1 31	+ 8	i 1·6	1·8
Victoria	E.	11·2	343	2 46	− 1	—	—	5·5	7·0
	N.	11·2	343	2 46	− 1	—	—	4·1	6·8
Chicago		24·0	71	—	—	—	—	e 16·7	—
Toronto	N.	30·0	67	—	—	—	—	e 16·5	—
Ottawa	N.	32·5	62	—	—	—	—	e 18·7	—
Honolulu	N.	37·7	257	—	—	—	—	e 13·7	15·8
De Bilt		77·7	31	—	—	—	—	e 36·7	—
Pulkovo		79·2	15	—	—	e 31 17	?	e 38·7	—
Strasbourg		81·5	33	—	—	—	—	41·7	—
Ekaterinburg		85·5	1	—	—	e 22 27	−58	33·7	—

Additional readings: Berkeley ePE = +57s. Toronto LN = +20·0m., LE = +22·0m. Ekaterinburg e = +27m.48s.

Feb. 21d. 22h. 42m. 50s. Epicentre 35°·0N. 139°·5E. (as on 1924 Feb. 11d.).
A = −·623, B = +·532, C = +·574; D = +·649, E = +·760; G = −·436, H = +·372, K = −·819.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Nagoya		2·1	274	0 40	+ 7	—	—	1·3	1·5
Osaka		3·4	266	1 2	+ 9	(1 15)	−19	1·2	1·8
Kobe		3·6	266	0 51	− 5	(0 58)	−41	1·0	1·0
Mizusawa	E.	4·3	17	1 10	+ 3	1 55	− 3	—	—
	N.	4·3	17	1 12	+ 5	1 54	− 4	—	—
Irkutsk		30·3	315	—	—	e 12 31	+52	—	—
Ekaterinburg		55·5	320	e 15 53	?	—	—	26·2	—

Additional readings: Osaka MN = +2·4m. Ekaterinburg e = +21m.33s.

Feb. 21d. Readings also at 11h. (Ekaterinburg), 12h. (Apia), 14h. (Ekaterinburg, Perth, and Manila), 17h. (Nagoya), 22h. (near Athens).

Feb. 22d. 15h. 32m. 40s. Epicentre 42°·8N. 1°·0W. (as on 1923 July 10d.).
A = +·734, B = −·013, C = +·679; D = −·017, E = −1·000; G = +·679, H = −·012, K = −·734.
The epicentre is close to that suggested by De Bilt, viz., 42°·8N. 0°·5W.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tortosa		2·3	159	0 31	− 5	1 0	− 3	—	1·4
Barcelona		2·7	119	0 36	− 6	1 5	− 9	—	1·5
Toledo		3·7	219	1 0	+ 2	—	—	i 2·1	3·0
Puy de Dôme		4·2	41	0 56	− 9	—	—	—	—
Granada		5·9	200	i 1 34	+ 3	3 8	?L	3·3	3·9
Almeria		6·0	191	1 36	+ 4	—	—	—	—
Paris		6·6	21	e 1 51	+10	e 3 10	+10	3·8	—
Besançon		6·6	46	1 55	+14	3 10	+10	—	3·3
Moncalieri		6·7	68	e 2 25	+43	3 44	?L	(3·7)	—
Algiers		6·7	151	e 2 33	+51	e 4 12	?L	(e 4·2)	8·0
San Fernando		7·5	214	—	—	2 38	−46	—	5·3
Zurich		8·2	52	e 1 45	−19	—	—	—	3·9
Strasbourg		8·4	44	2 24?	+17	3 54	+ 7	4·3	5·2
Uccle		8·8	23	e 2 20	+ 7	e 4 26	+28	e 5·2	—
Oxford		9·0	359	—	—	—	—	e 4·7	—
Innsbruck		9·8	58	e 2 8	−19	i 4 48	+25	—	—
De Bilt	Z.	10·2	22	—	—	e 4 26	− 9	—	6·8
Rocca di Papa		10·2	91	—	—	—	—	e 5·4	7·7
Eskdalemuir		12·6	354	—	—	e 5 44	+10	—	8·3
Hamburg		13·0	30	—	—	e 5 20	−24	—	9·0
Edinburgh		13·2	355	—	—	—	—	e 6·6	7·8
Vienna		13·3	60	e 5 46	?S	(e 5 46)	− 5	(e 7·0)	8·4

Additional readings: Toledo MNW = +2·8m., also several other readings. Granada i = +2m.2s., +2m.22s., and +2m.43s. De Bilt ME = +5·5m., MN = +7·0m. Hamburg MZ = +8·5m., MN = +9·5m. Vienna e = +6m.38s., S is given as eP and L as eS.

Feb. 22d. Readings also at 1h. (Nagoya, Osaka, near Mizusawa, and near Lick), 4h. (Ekaterinburg and Riverview), 6h. (Apia), 7h. (near Cape Town), 8h. (La Paz and near Balboa Heights), 10h. (Berkeley and near Victoria), 11h. (Chicago, Toronto, and Ottawa), 12h. (Ekaterinburg), 15h. (Tortosa (2)), 17h. (Ekaterinburg, Manila, Nagasaki, Irkutsk, Kucino, and near Zi-ka-wei), 18h. (De Bilt and near Tortosa), 19h. (Manila), 21h. (Paris), 23h. (near Tacubaya).

Feb. 23d. Readings at 0h. (La Paz and near Rocca di Papa), 5h. (Nagoya), 6h. (Wellington and near Tortosa), 8h. (Pompeii and near Rocca di Papa), 9h. (near La Paz), 10h. (near Tacubaya), 13h. (Ekaterinburg), 14h. (La Paz), 21h. (La Paz, La Plata, and Rio de Janeiro).

Feb. 24d. 5h. 45m. 10s. Epicentre 44°·0N. 127°·0W.

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

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Victoria		5·1	29	1 23	+ 4	—	—	2·4	5·3
Berkeley	N.	7·1	148	2 3	+15	e 3 43	+30	e 4·6	6·6
Lick	E.	7·8	146	i 1 59	+ 1	3 43	+12	—	4·6
	N.	7·8	146	i 2 2	+ 4	4 11	+40	4·5	—
Sitka		14·0	341	2 50	−36	e 6 0	− 8	6·5	—
Chicago		28·7	81	5 50	−25	10 50	−22	18·2	—
Ann Arbor		31·3	79	—	—	e 13 50	+114	19·8	—
Toronto	E.	33·9	75	(e 7 0)	− 4	e 12 34	− 5	—	—
Honolulu	N.	35·1	239	—	—	—	—	e 13·6	17·1
Ottawa		35·8	70	e 5 26	−114	e 13 6	− 1	e 21·8	23·0
Ithaca		36·2	76	—	—	—	—	e 19·8	—
Georgetown		37·2	81	—	—	—	—	e 20·8	—
Washington		37·2	81	—	—	e 13 26	− 1	23·6	—
Edinburgh		69·5	30	—	—	—	—	e 36·8	—
Pulkovo		74·6	12	11 50	+ 4	21 17	− 4	—	—
De Bilt		75·4	28	—	—	e 21 42	+12	e 31·8	—
Uccle		76·2	39	—	—	—	—	e 35·8	—
Ekaterinburg		79·0	356	12 1	−12	21 57	−15	34·8	47·2
Strasbourg		79·3	29	—	—	—	—	e 44·8	—
Kucino		79·4	9	—	—	—	—	e 34·8	—
Baku		94·0	3	e 15 44	+126	e 27 0	+124	46·8	—

Additional readings and notes: Victoria MN = +6·2m. Berkeley eSE = +3m.51s. Lick iN = +2m.54s., iE = +3m.9s., all readings having been diminished by 2m. Sitka SN = +5m.29s. Toronto ePE = +3m.7s., eN = +3m.44s. ; true P is given as ePR_1, iE = +8m.9s., SN = +12m.42s., iSE = +12m.43s. Ottawa ePR_2E = +8m.29s., SR_1 = +17m.38s. Georgetown LEN = +23·8m. Ekaterinburg SR_1 = +26m.54s.

Feb. 24d. 16h. 45m. 55s. Epicentre 45°·0N. 135°·0E (as on 1922 Sept. 15d.).

A = −·500, B = +·500, C = +·707 ; D = +·707, E = +·707 ;
G = −·500, H = +·500, K = −·707.

A focal depth 0·030 has been assumed. Although there is no confirmatory evidence from the antipodes, it was found impossible to reconcile the observations without such a supposition.

		Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Sapporo		−0·0	5·0	111	1 25	+ 8	(2 15)	− 2	2·2	—
Ootomari		−0·0	5·6	70	1 38	+11	(2 38)	+ 4	2·6	2·7
Mizusawa	E.	−0·2	7·4	140	1 36	−13	2 44	−31	—	—
Nagoya		−0·4	9·9	179	2 20	− 3	—	—	—	—
Kobe		−0·4	10·3	179	2 19	−10	—	—	—	—
Nagasaki		−0·6	12·9	200	2 56	− 7	—	—	—	—
Zi-ka-wei		−1·0	17·4	222	3 55	− 2	e 7 3	− 1	—	—
Irkutsk		−1·3	21·4	301	e 3 46	−56	7 31	−54	9·1	—
Ekaterinburg		−2·8	45·9	313	i 8 15	− 4	14 45	− 4	—	—
Pulkovo		−3·5	58·6	325	e 9 44	+ 4	i 17 31	+ 9	23·1	—

Additional readings and notes: Sapporo readings have been increased by 2m. Mizusawa PN = +1m.37s. Irkutsk i = +4m.43s., e = +5m.24s. Ekaterinburg i = +11m.45s. Pulkovo e = +10m.54s.

Feb. 24d. Readings also at 1h. (near La Paz and near Granada), 8h. (Victoria), 9h. (Tortosa), 10h. (near Barcelona), 17h. and 20h. (Wellington).

Feb. 25d. Readings at 2h. (Batavia and near Mizusawa), 3h. (Taihoku), 6h. (Nagasaki, Lisbon, and near Granada), 9h. (Nagasaki), 15h. (near Tortosa), 17h. (La Paz), 18h. (Apia), 19h. (Irkutsk and Victoria), 20h. (Riverview and La Paz).

Feb. 26d. Readings at 6h. (near Toledo), 11h. (Batavia), 12h. (Chicago, Ottawa, and Toronto), 17h. (Nagoya, Almeria, Bombay, Ekaterinburg, Vienna, and near Belgrade and Sarajevo), 22h. (Irkutsk and near Kobe), 23h. (Manila, Hong Kong, Eskdalemuir, Baku, Zi-ka-wei, Tacubaya, and near Taihoku).

Feb. 27d. 21h. 53m. 0s. Epicentre 42°·5N. 1°·0E. (as on 1923 Nov. 19d.).

A = +·737, B = +·013, C = +·676; D = +·017, E = −1·000; G = +·675, H = +·012, K = −·737.

Possibly the same epicentre as on Feb. 22d.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Barcelona	1·4	142	i 0 22	+ 1	(i 0 43)	+ 4	i 0·7	0·9
Tortosa N.	1·7	192	0 27	+ 1	0 48	0	—	0·9
Puy de Dôme	3·5	23	e 0 29	−26	—	—	—	—
Toledo	4·6	236	0 59	−12	—	—	i 2·1	3·1
Moncalieri	5·4	60	2 46	?L	3 28	?	(e 2·8)	—
Besançon	5·9	36	—	—	—	—	e 2·9	—
Granada	6·4	215	e 2 4	+26	i 3 27	?L	3·5	3·7
Zurich	7·2	45	e 1 39	−10	—	—	—	3·7
Strasbourg	7·7	36	e 2 48	+51	e 4 18	?L	e 4·5	5·3
Uccle	8·6	15	e 2 18	+ 8	e 4 24	?L	(e 4·4)	—
De Bilt	10·0	15	—	—	—	—	e 5·0	—
Vienna Z.	12·2	57	e 6 44	?L	—	—	(e 6·7)	—

Additional readings and notes: Barcelona MN = +1·0m. Toledo MNW = +2·9m. Granada i = +2m.13s.; all readings have been diminished by 1h. Zurich readings are given for 22h.

Feb. 27d. Readings also at 0h. (Eskdalemuir), 4h. (Zante and near Lick), 5h. (Tashkent), 12h. (near Wellington), 16h. (near Manila), 23h. (near Tortosa).

Feb. 28d. 10h. 44m. 42s. Epicentre 43°·8N. 15°·7E. (as on 1924 Feb. 14d.).

A = +·695, B = +·195, C = +·692; D = +·271, E = −·963; G = +·666, H = +·187, K = −·722.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Sinj	0·7	96	i 0 10	− 1	i 0 21	+ 1	—	0·4
Travnik	1·5	112	i 0 22	− 1	i 0 44	+ 2	—	0·9
Mostar	1·6	106	i 0 21	− 3	i 0 41	− 4	—	1·2
Sarajevo	2·0	88	i 0 30	− 1	i 0 57	+ 2	—	1·1
Venice	2·9	304	e 0 46	+ 1	—	—	—	1·4
Rocca di Papa	3·0	228	0 44	− 3	1 7	−16	—	—
Pompeii	3·1	197	e 1 5	+16	—	—	—	2·2
Belgrade	3·6	71	e 1 4	+ 8	e 1 51	+12	—	2·2
Vienna	4·5	6	1 8	− 2	2 16	+12	i 2·3	2·7
Innsbruck	4·6	322	i 1 11	0	i 2 28	+22	—	—
Moncalieri	5·8	285	e 2 1	+31	3 10	+31	—	—

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Zurich	6·1	309	e 1 29	− 4	2 45	− 1	—	—
Strasbourg	7·3	314	e 2 53	+62	e 4 21	+63	e 4·8	—
Besançon	7·6	300	e 3 14	?S	(e 3 14)	−12	—	4·3
Hamburg	10·5	341	—	—	—	—	e 5·3	—
Uccle	10·5	317	—	—	—	—	e 5·7	—
De Bilt	10·9	323	—	—	—	—	e 5·3	—
Baku	25·4	86	—	—	—	—	e 13·4	—
Ekaterinburg	30·8	49	—	—	—	—	15·8	—

Additional readings and notes: Venice MN = +3·7m. Rocca di Papa SE = +1m.10s. Vienna i = +1m.22s., P? = +1m.28s., iE = +1m.32s., iN = +1m.35s., iZ = +1m.43s., PS = +2m.1s., iZ = +2m.6s., SR_2 = +2m.31s., MZ = +2·9m., MN = +3·1m. Baku reading has been increased by 20m.

Feb. 28d. Readings also at 0h. (Nagoya, near Kobe, near Wellington, and near La Paz), 9h. (near Manila), 16h. (near Tacubaya), 20h. (near Port au Prince), 21h. (Irkutsk, Hong Kong, and near Manila).

Feb. 29d. 8h. 38m. 12s. Epicentre 50°·0S. 31°·5E. (as on 1923 Aug. 1d.).
A = +·548, B = +·336, C = −·766; D = +·522, E = −·853; G = −·653, H = −·400, K = −·643.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Capetown		18·7	324	4 20	− 5	—	—	—	13·4
Johannesburg		24·0	352	5 36	+ 8	(9 48)	+ 4	9·8	—
Rio de Janeiro	N.	63·0	266	e 11 56	+84	—	—	28·2	—
La Plata	E.	63·7	246	10 32	− 4	19 12	+ 3	33·3	43·8
	N.	63·7	246	10 37	+ 1	19 11	+ 2	27·2	36·4
Colombo		70·6	50	21 0	?S	(21 0)	+27	—	40·1
Adelaide		73·5	126	—	—	e 21 48	+40	—	—
Malabar		75·5	85	i 12 1	+ 9	—	—	—	—
Batavia		75·8	83	12 2	+ 8	12 45	?	—	—
Bombay		78·0	40	12 9	+ 2	22 38	+38	43·6	50·6
Hyderabad		79·1	46	12 13	− 1	—	—	—	37·4
Riverview		80·7	134	—	—	e 22 36	+ 5	e 33·6	39·2
Sydney		80·7	134	23 18	?S	(23 18)	+47	34·9	37·1
Wellington		83·2	153	i 18 18	?PR_1	i 23 2	+ 3	e 46·7	49·1
La Paz		83·4	251	12 34	− 4	i 22 57	− 4	40·9	53·2
Algiers		90·3	338	—	—	—	—	e 47·8	54·3
Baku		91·8	14	13 22	− 4	24 0	−33	43·5	51·8
Granada		92·5	333	i 13 20	−10	i 24 22	−18	—	—
San Fernando		92·6	330	12 12	−78	24 36	− 5	47·8	61·3
Rocca di Papa		93·2	346	i 13 19	−14	24 37	−10	e 48·4	66·0
Toledo		95·1	333	—	—	25 42	+35	e 45·0	60·2
Moncalieri		97·2	344	15 33	+98	31 20	?SR_1	50·0	58·3
Innsbruck	N.E.	98·8	346	—	—	—	—	e 55·8	—
Strasbourg		100·6	344	13 20?	−53	—	—	e 44·8	57·8
Manila		100·8	80	(17 48)	?PR_1	—	—	17·8	—
Paris		101·9	340	—	—	—	—	e 50·8	59·8
Uccle		103·4	343	—	—	e 27 24	+56	e 48·8	61·1
De Bilt		104·5	344	e 18 27	?PR_1	—	—	50·8	62·5
Stonyhurst		107·7	339	—	—	—	—	—	64·8
Upsala		110·4	353	—	—	—	—	e 68·3	—
Ottawa	E.	132·8	293	e 22 48	?PR_1	—	—	e 61·8	—
Toronto	E.	134·0	289	e 22 39	?PR_1	e 33 39	?	e 75·2	—
Chicago		138·1	283	—	—	—	—	e 66·8	—

Additional readings: Riverview MN = +42·1m. Wellington iS = +28m.36s., i = +33m.16s., e = +40m.6s. La Paz iP = +12m.40s., T_s = 8h.38m.20s. Baku PS = +25m.24s. San Fernando MN = +58·3m. Rocca di Papa eZ = +7m.39s., e = +16m.39s., S = +25m.39s., L = +53·6m. Toledo MNW = +63·2m. Paris MN = +56·8m. Uccle e = +33m.6s. De Bilt eN = +33m.22s., MZ = +62·4m. Toronto iE = +22m.52s., iN = +22m.59s. and +23m.3s., eLN = +67·4m. Ekaterinburg records a shock at 9h., but the minute marks failed.

Feb. 29d. Readings also at 2h. (Ekaterinburg and Baku), 7h. (Ekaterinburg), 8h. (Taihoku), 10h. (Florence), 15h. (near Mizusawa), 19h. (Tashkent).

Mar. 1d. 17h. 15m. 30s. Epicentre 43°·8N. 15°·7E. (as on 1924 Feb. 28d.).

$A = +·695$, $B = +·195$, $C = +·692$; $D = +·271$, $E = -·963$; $G = +·666$, $H = +·187$, $K = -·722$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Sinj		0·7	96	i 0 9	− 2	i 0 18	− 2	—	0·4
Mostar		1·6	106	i 0 28	+ 4	i 0 52	+ 7	—	1·2
Sarajevo		2·0	88	i 0 31	0	i 0 59	+ 4	—	1·0
Venice		2·9	304	—	—	i 1 2	−18	—	1·8
Rocca di Papa	E.	3·0	228	e 0 46	− 1	1 17	− 6	1·5	1·9
	N.	3·0	228	i 0 52	+ 5	1 25	+ 2	1·8	1·9
Pompeii		3·1	197	e 1 30	?S	(e 1 30)	+ 4	—	2·5
Florence		3·2	272	e 0 47	− 3	—	—	—	2·0
Belgrade		3·6	71	e 1 4	+ 8	i 1 53	+14	(i 1·9)	2·7
Vienna		4·5	6	0 6	−64	1 15	−49	—	2·8
Innsbruck		4·6	322	i 1 8	− 3	i 2 28	+22	(i 2·5)	—
Zurich		6·1	309	e 1 29	− 4	—	—	—	2·8
Strasbourg		7·3	314	e 2 10	+19	e 3 34	+16	e 4·1	4·5
Besançon		7·6	300	—	—	—	—	4·5	—
Pulkovo		18·2	24	i 4 11	− 8	—	—	—	—

Vienna gives also i = +21s., P = +28s., i = +42s. and +49s., S = +1m.42s.

Mar. 1d. Readings also at 1h. (La Plata and near La Paz), 2h. (Ekaterinburg), 5h. (near Tacubaya), 8h. (Wellington, Batavia, and Malabar), 9h. (Colombo), 12h. (Nagasaki), 13h. (Colombo), 18h. (Florence).

Mar. 2d. 6h. 45m. 40s. Epicentre 37°·5N. 9°·0W. (as on 1921 Oct. 23d.).

$A = +·784$, $B = -·124$, $C = +·609$.

	Δ	P.	O−C.	S.	O−C.	L.	M.
	°	m. s.	s.	m. s.	s.	m.	m.
Lisbon	1·2	0 24	+ 6	0 28	− 5	—	—
Granada	4·3	1 0	− 7	i 1 53	− 5	2·0	2·1
Toledo	4·5	1 12	+ 2	—	—	i 2·4	—
Tortosa	8·1	—	—	e 3 48	+ 8	(4·2)	—

Additional readings and notes: Toledo +1m.27s., +1m.55s., and +2m.11s. Tortosa L is given as SN?.

Mar. 2d. Readings also at 0h. (Nagasaki and Barcelona), 6h. (near Taihoku), 8h. (Nagoya), 9h. (near Kobe), 10h. (Toronto), 12h. (Taihoku), 14h. (near Mizusawa), 15h. (Ekaterinburg), 16h. (near Mizusawa and Sapporo), 19h. (near Tacubaya (5)), 22h. (La Plata).

Mar. 3d. Readings at 1h. (Rio de Janeiro), 2h. (near Belgrade and Sarajevo), 12h. (near Tacubaya and near Oxford and West Bromwich), 16h. (Batavia and near La Paz), 17h. (near Tacubaya), 18h. (near Mizusawa), 19h. (Ekaterinburg (2) and near Sapporo), 21h. (near Manila).

Mar. 4d. 1h. 50m. 30s. Epicentre 37°·0N. 0°·0.

$A = +·799$, $B = 000$, $C = +·602$.

	Δ	P.	O−C.	S.	O−C.	L.	M.
	°	m. s.	s.	m. s.	s.	m.	m.
Granada	2·9	1 0 45	0	1 17	− 3	1·4	1·6
Tortosa	3·9	1 1	0	1 53	+ 6	—	—
Toledo	4·3	1 3	− 4	(1 52)	− 6	1·9	—

Granada gives MN = +1·8m. Toledo a reading at +1m.43s.

Mar. 4d. 2h. 6m. 12s. Epicentre 9°·5N. 84°·0W. (as on 1921 Feb. 11d.).

A = +·103, B = −·981, C = +·165 ; D = −·995, E = −·105 ;
G = +·017, H = −·164, K = −·986.

An anticipation of the shock at Mar. 4d. 10h.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Balboa Heights	E.	4·4	96	1 20	+12	2 0	− 1	2·0	2·1
	N.	4·4	96	1 22	+14	1 58	− 3	2·2	2·2
La Paz		30·4	149	6 32	0	e 12 26	+45	16·9	19·0
Chicago		32·4	355	—	—	—	—	e 20·8	—
Toronto		34·4	6	—	—	—	—	e 17·9	—
Ottawa		36·6	10	—	—	—	—	e 19·8	—
Ekaterinburg		107·7	19	—	—	—	—	56·8	—

Additional readings : Toronto L = +19·4m.

1924. Mar. 4d. 10h. 7m. 36s. Epicentre 9°·5N. 84°·0W.

(as at 2h.).

A = +·103, B = −·981, C = +·165 ; D = −·995, E = −·105 ;
G = +·017, H = −·164, K = −·986.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Balboa Hts.	E.	4·4	96	1 4	− 4	2 8	+ 7	2·8	5·4
	N.	4·4	96	1 14	+ 6	2 6	+ 5	2·3	—
Port au Prince		14·5	50	i 3 35	+ 2	6 48	+28	9·6	13·7
Tacubaya		17·7	305	4 11	− 2	7 36	+ 3	9·3	12·7?
Porto Rico	E.	20·0	62	i 4 54	+13	i 8 36	+13	i 9·9	13·0
	N.	20·0	62	—	—	i 8 42	+19	10·2	9·2
Mazatlan		25·4	305	7 38	+116	12 7	+116	13·8	18·6
St. Louis	E.	29·7	350	e 6 24	− 1	—	—	12·1	13·4
	N.	29·7	350	e 6 19	− 6	—	—	11·4	—
Cheltenham	E.	29·9	11	e 6 39	+12	—	—	i 14·2	17·1
	N.	29·9	11	i 6 27	0	11 13	−19	14·3	18·5
Georgetown	E.	30·0	11	e 6 13	−15	e 11 14	−20	e 13·4	17·4
	N.	30·0	11	e 6 15	−13	i 11 22	−12	—	18·4
Washington		30·0	11	6 16	−12	11 20	−14	14·5	—
La Paz		30·4	149	i 6 33	+ 1	i 11 40	− 1	15·0	16·9
Chicago		32·4	355	6 48	− 4	11 54	−20	14·6	19·9
Ann Arbor		32·8	0	6 42	−13	12 0	−21	14·2	18·3
Ithaca		33·5	10	6 50	−11	12 14	−18	14·5	18·4
Tucson	E.	33·7	316	6 53	− 9	12 20	−16	16·9	21·5
Toronto	E.	34·4	6	6 44	−24	i 12 24	−22	16·6	17·9
	N.	34·4	6	e 6 54	−14	i 12 26	−20	i 18·0	20·1
Denver	E.	35·5	333	—	—	—	—	21·4	23·4
	N.	35·5	333	—	—	—	—	16·4	20·4
Northfield		36·0	15	7 4	−18	11 52	−78	19·1	—
Ottawa		36·6	10	7 15	−12	i 12 56	−22	e 16·4	21·4
Halifax		39·3	24	7 41	− 8	13 50	− 6	e 19·2	—
Lick	E.	43·7	315	i 8 18	− 6	14 34	−24	i 20·4	27·0
	N.	43·7	315	i 8 18	− 6	14 30	−28	i 21·5	23·6
Berkeley	E.	44·5	316	—	—	e 14 59	−10	e 21·0	27·3
	N.	44·5	316	—	—	e 15 5	− 4	e 20·8	27·4
	Z.	44·5	316	i 8 20	−10	e 15 12	+ 3	—	—
La Plata	E.	50·8	153	9 19	+ 7	16 39	+10	26·6	30·9
	N.	50·8	153	9 15	+ 3	16 31	+ 2	26·1	35·8
Victoria	E.	51·0	327	9 10	− 3	16 59	+28	26·4	34·8
	N.	51·0	327	9 14	+ 1	16 44	+13	16·0	29·2
Rio de Janeiro	E.	51·5	131	i 9 18	+ 1	16 39	+ 1	23·9	32·0
	N.	51·5	131	i 9 18	+ 1	16 43	+ 5	—	32·9
Sitka	E.	61·7	331	—	—	—	—	30·4	47·0
	N.	61·7	331	—	—	—	—	30·1	48·8
Honolulu	E.	71·8	289	e 12 4	+36	20 54	+ 6	i 33·0	34·2
	N.	71·8	289	—	—	21 28	+40	e 32·4	30·6
Lisbon		72·6	52	—	—	21 6	+ 9	e 29·0	33·0
Rio Tinto		74·3	54	7 24	?	—	—	—	40·4
San Fernando		74·5	55	11 54	+ 8	21 36	+16	32·4	45·4
Granada		76·6	55	i 12 7	+ 8	i 21 57	+13	e 27·8	39·8

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Eskdalemuir	Z.	77·0	35	12 6	+ 5	—	—	36·4	—
Bidston		77·0	37	10 47	−74	21 48	− 1	32·4	34·7
Edinburgh		77·1	35	e 12 9	+ 7	21 51	+ 1	36·4	44·2
Stonyhurst		77·4	37	—	—	22 4	+11	36·4	40·9
West Bromwich		77·7	38	e 12 4	− 1	i 22 4	+ 7	—	—
Oxford		78·1	40	12 8	0	22 7	+ 6	36·8	41·8
Kew		78·7	39	21 24	?S	(21 24)	−44	—	51·4
Tortosa	E.	79·7	50	12 23	+ 6	22 33	+13	35·0	42·8
	N.	79·7	50	12 23	+ 6	i 22 31	+11	33·7	43·2
Paris		80·6	42	i 12 27	+ 4	i 22 34	+ 4	34·4	37·4
Barcelona		80·9	49	e 12 37	+13	22 39	+ 5	e 34·0	45·4
Bergen		81·5	30	—	—	—	—	e 32·4	—
Uccle		81·6	40	e 12 29	+ 1	22 43	+ 1	35·0	43·7
Algiers		82·0	54	12 34	+ 4	22 48	+ 2	36·4	41·9
De Bilt		82·0	38	12 34	+ 4	22 51	+ 5	e 36·4	44·5
Besançon		83·1	44	—	—	—	—	e 34·4	—
Strasbourg		84·1	42	12 39	− 4	23 6	− 3	40·4	39·8
Moncalieri		84·6	45	12 36	−10	23 4	−11	35·6	47·9
Hamburg		84·7	37	e 12 44	− 2	i 23 13	− 3	e 39·6	53·7
Zurich		84·8	44	e 12 44	− 3	e 23 14	− 3	e 35·4	—
Innsbruck		86·7	43	i 13 3	+ 6	e 23 44	+ 6	e 36·4	39·8
Florence		87·2	45	13 4	+ 4	24 24	+41	35·4	39·4
Upsala	E.	87·6	29	e 12 49	−14	e 23 30	−18	e 40·9	49·8
	N.	87·6	29	—	—	—	—	e 36·9	41·8
Venice		87·6	45	e 12 56	− 7	23 46	− 2	—	38·4
Rocca di Papa		88·6	48	13 9	+ 1	i 24 0	+ 1	e 37·6	56·6
Vienna		89·7	40	i 13 12	− 2	23 47	−24	e 40·9	50·9
Apia		90·1	257	—	—	—	—	42·4	—
Pompeii		90·2	49	e 12 41	−36	e 22 51	−75	42·4	54·4
Belgrade		93·3	44	e 14 29	+55	e 24 12	−36	e 44·5	56·3
Pulkovo		93·5	27	13 30	− 5	24 8	−43	41·4	49·6
Lemberg		94·1	39	—	—	—	—	e 43·8	52·7
Athens		97·8	50	e 13 17	−42	e 24 17	−77	e 35·4	50·4
Kucino		99·0	29	—	—	26 24	+38	31·4	52·3
Wellington		104·6	230	—	—	e 28 17	+100	49·5	52·4
Cape Town		105·6	123	25 6	?[S]	(25 6)	[+16]	50·8	61·4
Helwan		106·5	55	—	—	28 14	+77	—	63·4
Ekaterinburg		107·7	19	e 15 35	+48	28 25	+78	45·4	63·8
Johannesburg		113·9	115	—	—	—	—	60·4	64·4
Baku		114·5	36	—	—	(29 41)	+95	29·7	—
Osaka		122·2	322	e 29 58	?S	(e 29 58)	+52	65·5	69·1
Kobe	N.	122·3	321	—	—	—	—	—	29·8
Riverview		124·0	235	—	—	e 31 15	?	e 58·8	60·4
Sydney		124·0	235	—	—	52 36	?	59·5	66·2
Zi-ka-wei		132·6	330	19 22	[− 2]	e 29 34	?	68·2	76·3
Adelaide		133·6	230	e 23 6	?PR_1	e 33 42?	?	e 58·4	71·9
Simla	N.	135·5	24	—	—	e 47 0	?	—	73·7
Taihoku		137·4	325	—	—	—	—	e 59·1	—
Bombay		143·5	38	19 46	[0]	35 46	?	76·6	88·1
Hong Kong		143·5	331	20 49	[+63]	—	—	—	73·4
Manila		145·5	314	e 19 54	[+ 5]	—	—	70·2	—
Calcutta	E.	147·1	13	20 9	[+18]	—	—	—	—
Hyderabad		148·0	33	19 48	[− 5]	33 52	?	71·7	91·6
Perth		151·0	216	21 23	[+86]	43 16	?SR_1	80·4	—
Kodaikanal		153·0	44	42 42	?SR_1	—	—	96·5	99·5
Colombo		157·0	45	29 24	?	—	—	—	112·4
Batavia		168·8	286	e 21 9	[+55]	—	—	87·2	101·2?

Additional readings: Port au Prince $PR_1NE = +4m.30s.$ Porto Rico $iSR_1 = +9m.4s.$, $T_0 = 10h.7m.53s.$ Cheltenham $eE = +12m.59s.$, $T_0 = 10h.7m.48s.$ La Paz $iPN = +6m.35s.$, $iPR_1 = +7m.8s.$, $iPR_2 = +7m.32s.$, $SN = +11m.32s.$, $SR_1 = +13m.4s.$, $SR_2 = +13m.41s.$, $T_0 = 10h.7m.45s.$ Ann Arbor $MN = +19·7m.$, $T_0 = 10h.7m.30s.$ Tucson $ePR_1E = +8m.10s.$, $eE = +12m.45s.$, $SR_1E = +14m.38s.$, $LE = +20·6m.$, $T_0 = 10h.7m.36s.$ Toronto $iPN = +6m.56s.$, $eSE = +12m.14s.$, $iSN = +12m.20s.$, $SR_1E = +14m.9s.$, and several L's, $T_0E = 10h.7m.24s.$, $T_0N = 10h.7m.36s.$ Ottawa $PR_1N = +8m.48s.$, $T_0 = 10h.7m.40s.$ Halifax $PR_1N = +9m.12s.$, $T_0 = 10h.7m.31s.$ Lick $ePR_2N = +10m.33s.$, $iE = +10m.46s.$, $SR_1N = +17m.17s.$, $SR_2?N = +18m.36s.$ Berkeley $iZ = +8m.22s.$, $iE = +21m.19s.$ La Plata $PR_1N = +11m.19s.$, $SR_1E = +20m.31s.$, $SR_1N = +20m.38s.$, $E = +23m.36s.$, $N = +23m.47s.$, $T_0 = 10h.7m.44s.$ Rio de Janeiro $SR_1 = +20m.24s.$ Sitka $eN = +26m.30s.$, $LE = +38·4m.$ Honolulu $eN = +20m.30s.$, and $+24m.16s.$, $eSR_1N = +29m.45s.$, $eSR_1E = +30m.32s.$ San Fernando $MN = +42·4m.$ Granada $PR_1 = +12m.47s.$, $MN = +43·8m.$

Continued on next page.

Bidston P = +14m.47s. (?PR_1). Edinburgh SR_1 = +27m.24s. Stonyhurst SR_1? = +27m.39s. Paris SR_1 = +27m.23s., MN = +35·4m. Barcelona MN = +39·6m. Uccle SR_1 = +28m.15s., SR_2 = +31m.29s., MN = +36·8m. Algiers MN = +46·9m. De Bilt MN = +38·1m. Strasbourg PR_1 = +16m.6s., PR_2 = +18m.24s., PR_3 = +19m.9s., SR_1 = +28m.54s., SR_2 = +32m.24s., MN = +38·6m. Moncalieri MN = +39·9m. Hamburg SR_1 = +28m.55s., SR_2 = +32m.35s., eLN = +36·0m., eLZ = +39·9m., MZ = +40·4m., MN = +44·0m. Innsbruck MNW = +42·4m. Rocca di Papa PR_1 = +13m.26s. Vienna PS = +24m.10s., i = +27m.15s., SR_1 = +30m.18s. Pulkovo PR_1 = +17m.12s., PS = +25m.1s. SR_1 = +30m.18s., MZ = +49·0m. Lemberg e = +50m.54s. Athens MN = +51·4m. Kucino SR_1 = +28m.24s. Wellington ePR_1? = +19m.6s., e = +24m.42s., eSR_1 = +34m.0s., e = +37m.42s., +40m.48s., +43m.0s., and +46m.48s. Cape Town S = +33m.55s. Helwan e = +18m.4s. (?PR_1), PR_1 = +25m.11s. Belgrade L = +53·4m. Ekaterinburg i = +18m.58s. and +26m.15s., PS = +30m.1s., MN = +63·4m., MZ = +63·6m. Baku PR_1 = +20m.30s., PR_2 = +25m.49s. Osaka MN = +87·1m. Riverview ePR_1 = +21m.44s., eS = +31m.47s., SR_1 = +38m.14s., MN = +63·9m. Zi-ka-wei SR_1Z = +35m.20s., MN = +78·1m., MZ = +87·4m. Adelaide iSR_1? = +40m.12s. Calcutta PN = +20m.28s. Batavia LE = +46m.32s. (?SR_1).

Mar. 4d. 11h. 43m. 36s. Epicentre 9°·5N. 84°·0W. (as at 10h.).

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Balboa Hts.	E.	4·4	96	1 16	+ 8	2 16	+15	2·6	3·4
Port au Prince		14·5	50	e 3 28	− 5	—	—	—	—
Tacubaya	N.	17·7	305	4 12	− 1	7 19	−14	8·1	—
Porto Rico	E.	20·0	62	4 53	+12	9 48	+85	e 11·7	12·7
	N.	20·0	62	—	—	8 36	+13	e 11·1	—
Mazatlan	E.	25·4	305	7 47	+125	12 27?	+136	—	—
	N.	25·4	305	7 43	+121	12 31	+140	—	—
Cheltenham	E.	29·9	11	—	—	11 42	+10	15·5	17·4
Georgetown		30·0	11	—	—	—	—	e 15·6	—
Washington		30·0	11	6 20	− 8	11 14	−20	14·5	—
La Paz		30·4	149	6 35	+ 3	i 11 42	+ 1	15·0	17·4
Chicago		32·4	355	6 46	− 6	11 52	−22	14·6	20·4
Ann Arbor		32·8	0	6 12	−43	11 48	−33	14·2	18·4
Ithaca		33·5	10	—	—	e 12 9	−23	15·9	18·4
Tucson	E.	33·7	316	e 7 30	+28	12 23	−13	17·6	21·4
Toronto	E.	34·4	6	—	—	e 12 18	−28	17·2	19·6
	N.	34·4	6	—	—	e 12 16	−30	i 18·4	19·6
Northfield		36·0	15	7 4	−18	12 4	−66	18·4	—
Ottawa		36·6	10	7 20	− 7	12 54	−24	e 16·4	19·9
Berkeley		44·5	316	—	—	—	—	e 23·6	27·0
La Plata	E.	50·8	153	9 16	+ 4	16 38	+ 9	27·2	30·3
	N.	50·8	153	9 19	+ 7	16 40	+11	26·2	27·0
Victoria	E.	51·0	327	—	—	—	—	27·1	31·1
	N.	51·0	327	—	—	—	—	24·8	29·2
Sitka	E.	61·7	331	—	—	—	—	e 26·5	—
San Fernando		74·5	55	—	—	20 36	−44	36·9	42·4
Toledo		76·3	51	—	—	—	—	e 32·9	40·4
Granada		76·6	55	i 12 21	+22	i 22 13	+29	e 32·4	43·1
Eskdalemuir	Z.	77·0	35	—	—	—	—	43·4	—
Edinburgh		77·1	35	—	—	—	—	e 36·4	42·4
Tortosa	N.	79·7	50	—	—	—	—	e 33·4	42·7
De Bilt		82·0	38	—	—	—	—	e 36·4	44·3
Strasbourg		84·1	42	e 12 42	− 1	e 23 14	+ 5	e 36·4	46·4
Hamburg		84·7	37	e 12 47	+ 1	e 23 37	+21	e 36·0	45·4
Florence		87·2	45	11 14	?	18 54	?	—	38·4
Rocca di Papa		88·6	48	e 13 9	+ 1	(e 19 36)	?PR_1	e 41·6	56·6
Cape Town		105·6	123	—	—	—	—	—	61·7

Additional readings: Cheltenham e = +8m.14s., SR_1E = +13m.24s., LN = +17·5m. Ithaca eL = +14·7m. Toronto iSE = +12m.20s. Ottawa i = +8m.39s. and +9m.10s., T_g = 11h.43m.54s. Berkeley eLN = +23·9m., eLZ = +24·6m. La Plata SR_1 = +20m.42s. and +24m.18s., T_g = 11h.43m.38s. Sitka eN = +26m.6s. Toledo MNW = +40·2m. De Bilt MN = +38·2m., MZ = +44·1m. Strasbourg MN = +52·7m. Hamburg MN = +40·4m., MZ = +54·4m.

NOTE TO THE ABOVE SHOCKS.

Direct comparison of the observations of the thirteen West Indian earthquake shocks recorded during this month at :—

4d. 2h.	11d. 20h.	24d. 20h.
4d. 10h.	12d. 2h.	25d. 14h.
4d. 11h.	20d. 9h.	25d. 15h.
11d. 10h.	24d. 11h. and 28d. 4h.	27d. 8h.

indicates that they are probably repetitions from a single focus which can be determined with accuracy for the large earthquake of 4d. 10h. It is, however, necessary to assume corrections to the La Paz S reading in six cases, −1m. for 4d. 2h., 11d. 20h., 12d. 2h., and 20d. 9h., and −2m. for 27d. 8h. and 28d. 4h., but if these can be justified as errors in film reading or in making a reduction to G.M.T. the identification is well established.

Mar. 4d. Readings also at 3h. (near Tacubaya), 4h. (Tashkent), 5h. (near Tacubaya), 6h. (Kobe), 10h. (Tacubaya, La Paz, and near Balboa Heights), 12h. (La Paz, Toronto, near Balboa Heights, and near Manila), 13h. (Toronto, La Paz, and near Balboa Heights), 14h. (La Paz and Granada), 17h. (Toronto, Ottawa, and Georgetown), 23h. (Rio de Janeiro).

Mar. 5d. 3h. 7m. 20s. Epicentre 35°·0N. 139°·5E. (as on 1924 Feb. 21d.).

A = −·623, B = +·532, C = +·574.

	Δ	P.	O−C.	S.	O−C.	L.	M.
	°	m. s.	s.	m. s.	s.	m.	m.
Nagoya	2·1	0 33	0	—	—	1·3	1·6
Osaka	3·4	0 59	+ 6	—	—	2·0	2·9
Kobe	3·6	1 29	?S	(1 29)	−10	2·0	2·1

Osaka gives also MN = +2·8m.

Mar. 5d. 4h. 24m. 54s. Epicentre 5°·5S. 130°·0E. (as on 1923 Mar. 28d.).

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

A deep focus is assumed for this as for previous shocks from this origin. A depth +0·030 fits the present case.

		Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Manila		−1·4	22·0	336	e 5 1	+13	—	—	—	—
Batavia		−1·4	23·0	267	i 4 50	−10	i 8 54	− 3	—	—
Perth		−2·0	29·6	205	5 47	−17	(10 54)	+ 2	18·9	—
Adelaide		−2·0	30·5	166	—	—	i 11 18	+10	—	17·1
Hong Kong		−2·1	31·9	331	6 21	− 5	11 24	− 7	14·1	14·6
Riverview		−2·3	34·5	148	e 6 32	−18	i 11 41	−30	e 14·1	19·2
Sydney		−2·3	34·5	148	7 6	+16	11 48	−23	17·6	19·6
Zi-ka-wei		−2·4	37·6	350	e 7 14	− 1	e 12 54	− 4	—	—
Osaka		−2·5	40·4	7	8 8	+31	(13 54)	+17	13·9	18·2
Nagoya		−2·6	41·2	10	8 26	+43	—	—	—	—
Colombo		−3·2	51·6	282	0 6	?	(15 36)	−23	15·6	26·1
Wellington		−3·3	53·6	140	10 18	+69	16 24	+ 1	22·9	32·1
Kodaikanal		−3·4	54·7	286	12 36	?PR_1	—	—	—	—
Hyderabad		−3·4	55·8	296	8 35	−47	(16 15)	−34	16·2	22·6
Bombay		−3·6	61·3	295	10 9	+12	(16 16)	−99	16·3	17·3
Ekaterinburg		−4·1	83·6	330	e 12 20	+ 4	e 22 23	+ 5	41·1	97·8
Kucino		−4·3	95·7	325	24 39	?S	(24 39)	+11	e 37·9	—
Pulkovo		−4·4	99·6	330	e 13 38	− 6	i 23 59	[−23]	50·1	60·2
Victoria	E.	—	105·1	41	24 35	?S	(24 35)	[−12]	51·4	—
	N.	—	105·1	41	—	—	34 31	?SR_1	44·1	—

Continued on next page.

		Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Upsala		—	105·8	331	—	—	i 24 27	[−24]	e 55·3	—
Vienna		—	109·7	320	e 18 6	?PR_1	e 24 41	[−28]	e 53·1	63·1
Hamburg		—	111·8	326	e 18 24	[− 3]	i 24 58	[−19]	56·1	—
Rocca di Papa		—	113·8	313	17 18	?	e 21 48	?PR_1	—	37·3
Florence		—	114·3	316	—	—	16 36	?	—	61·1
Strasbourg		—	115·0	321	19 24	?PR_1	e 28 57	+47	43·1	—
De Bilt		—	115·1	325	e 20 1	?PR_1	—	—	e 58·1	62·0
Uccle		—	116·1	324	—	—	e 25 12	[−20]	e 45·1	—
Moncalieri		—	116·3	319	8 53	?	19 37	?PR_1	29·5	—
Edinburgh		—	117·5	331	e 19 6	[+20]	—	—	—	—
Granada		—	127·2	312	i 22 0	?PR_1	32 42	?	—	—
Rio Tinto		—	129·1	313	21 6	?PR_1	—	—	—	34·1
Tacubaya		—	130·2	70	19 0	[−19]	22 16	?PR_1	23·1	—
Toronto	E.	—	133·9	28	e 21 17	?PR_1	e 28 23	?	e 39·4	—
	N.	—	133·9	28	e 21 44	?PR_1	i 28 25	?	35·4	—
Ottawa		—	134·3	25	—	—	28 29	?	57·1	—
La Paz		—	151·6	141	19 41	[−17]	—	—	—	—

Additional readings and notes: Perth S = +10m.6s., L = +10·9m. and +22·9m. Riverview MZ = +17·8m., MN = +18·0m., T_e = 4h.24m.51s. Osaka MN = +17·7m. Wellington e? = 4h.18m.30s., ? = +2m.26s. Hyderabad S = +12m.55s. Bombay S = +13m.54s. Ekaterinburg iP = +12m.28s., iS = +22m.28s., PS = +23m.20s., SR_1 = +28m.6s., MZ = +101·9m. Pulkovo PR_1 = +17m.10s. Victoria SE = +33m.38s.? Rocca di Papa PR_1 = +23m.48s. Strasbourg ePR_1 = +22m.31s., iPR_1 = +25m.3s. De Bilt e = +25m.11s., +26m.23s. and +29m.2s., MN = +65·7m., MZ = +70·4m. Toronto SR_1E = +33m.51s. Ottawa PR_1? = +22m.25s., SR_1? = +33m.43s., eL = +40·1m.

Mar. 5d. Readings also at 1h. (Colombo), 2h. (near Tacubaya), 3h. (near Algiers), 6h. (De Bilt, Pulkovo, and Uccle), 7h. (near Tacubaya), 8h. (Zante), 9h. (Colombo), 12h. (Chicago, Georgetown, Washington, Toronto, Rio Tinto, Strasbourg, De Bilt, Ekaterinburg, near Tacubaya, and near Balboa Heights), 13h. (Toronto and La Paz), 17h. (Florence and Ekaterinburg), 18h. (Irkutsk, La Paz, and near Tacubaya), 23h. (Apia).

Mar. 6d. 9h. 19m. 56s. Epicentre 19°·5S. 66°·0W.

A = +·383, B = −·861, C = −·334; D = −·914, E = −·407; G = −·136, H = +·305, K = −·943.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
La Paz		3·6	325	i 0 59	+ 3	1 37	− 2	1·7	1·8
La Plata	E.	17·0	156	i 4 5	0	i 7 28	+10	—	—
Chicago		64·5	342	—	—	e 16 4	?	—	—
Ottawa		65·5	353	—	—	i 19 8	−23	—	—
Ekaterinburg		126·0	33	e 20 56	?PR_1	e 38 4	?SR_1	49·1	—

Mar. 6d. Readings also at 1h. (Ekaterinburg), 2h. (Colombo), 3h. (Barcelona), 6h. (Batavia), 10h. (Toronto), 12h. (Georgetown, Toronto, and Ottawa), 22h. (near Oxford and near La Paz).

Mar. 7d. 20h. 59m. 45s. Epicentre 1°·0S. 124°·0E.

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

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Manila	15·9	349	e 4 41	+50	—	—	6·2	—
Batavia	17·9	253	4 15	− 1	i 7 39	+ 1	—	—
Perth	31·9	192	4 15?	−151	—	—	—	—
Riverview	41·6	145	e 11 33	?	e 14 33	+ 4	—	19·6
Irkutsk	55·8	346	—	—	(17 15)	−16	17·2	—
Ekaterinburg	76·6	330	i 11 59	0	i 21 47	+ 3	e 24·0	—
Baku	78·6	312	—	—	e 22 7	0	—	—

No additional readings.

Mar. 7d. Readings also at 1h. (Ekaterinburg), 3h. (near Athens), 4h. (Baku), 7h. (Sydney and Riverview), 8h. (Toronto, Ottawa, and Ekaterinburg), 10h. (near Tacubaya), 11h. (Irkutsk), 14h. (Ekaterinburg), 16h. (Algiers), 18h. (Toronto, Georgetown, Ottawa, and near Balboa Heights), 19h. (Ekaterinburg).

Mar. 8d. Readings at 9h. (Toronto, De Bilt, Ekaterinburg, Nagoya, and near Mizusawa), 11h. (Taihoku (3)), 14h. (Batavia), 18h. (Taihoku), 20h. near Manila), 21h. (Ekaterinburg).

Mar. 9d. Readings at 6h. (Ekaterinburg), 7h. (Baku), 9h. (Toronto), 11h. (Apia, La Plata, and near Lick and Berkeley), 12h. (Apia and near La Paz), 13h. (Ekaterinburg and La Paz), 14h. (Ekaterinburg), 17h. (Apia), 18h. (Ekaterinburg), 20h. (Nagoya and Ekaterinburg), 21h. (near Irkutsk).

Mar. 10d. 18h. 0m. 24s. Epicentre 2°·8S. 74°·5W.

A = +·267, B = −·962, C = −·049 ; D = −·964, E = −·267 ;
G = −·013, H = +·047, K = −·999.

Apparently not the same epicentre as on Mar. 16d. 1h.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
La Paz	15·0	156	i 3 41	+ 2	i 6 36	+ 4	7·9	8·3
Rio de Janeiro	36·4	128	—	—	e 13 6	−10	—	—
Toronto N.	46·6	355	—	—	i 15 25	−11	27·1	—
Ottawa	48·2	359	—	—	i 16 6	+10	e 20·6	—
Granada	76·6	51	12 13	+14	—	—	12·6	13·2
Tortosa	80·6	48	12 30	+ 7	14 59?	?	—	—
Eskdalemuir	81·8	34	—	—	e 21 47	−57	—	—
De Bilt	85·8	38	i 12 54	+ 2	e 24 12	+44	—	—
Hamburg	89·0	37	i 13 9	− 1	e 22 36	−87	—	—
Vienna Z.	92·7	41	13 26	− 5	—	—	—	—
Pulkovo	99·8	30	—	—	e 25 6	−48	—	—
Ekaterinburg	115·4	25	—	—	e 26 23	−110	—	—
Irkutsk	130·5	1	e 21 31	?PR_1	(e 28 19)	?	e 29·3	—

Additional readings and notes: Granada and Tortosa give their readings as local shocks. Tortosa PZ = +12m.28s. Irkutsk i = +22m.44s., e = +23m.15s.

Mar. 10d. Readings also at 7h. (Ekaterinburg), 8h. (Ekaterinburg and Victoria), 15h. (Berkeley), 21h. (Ekaterinburg).

1924. Mar. 11d. 10h. 41m. 8s. Epicentre 9°·5N. 84°·0W.

(as on March 4d.).

A = +·103, B = −·981, C = +·165 ; D = −·995, E = −·105 ;
G = +·017, H = −·164, K = −·986.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Balboa Hts.	E.	4·4	96	0 12	−56	1 28	−33	2·3	4·6
	N.	4·4	96	0 12	−56	1 24	−37	2·2	3·0
Tacubaya	N.	17·7	305	4 8	− 5	7 42	+ 9	8·5	—
Porto Rico	E.	20·0	62	4 41	0	8 31	+ 8	11·4	13·0
	N.	20·0	62	4 49	+ 8	8 44	+11	10·7	8·9
Cheltenham		29·9	11	e 14 10	?	—	—	16·6	17·7
Georgetown		30·0	11	e 5 37	−51	e 11 15	−19	16·4	17·5
Washington		30·0	11	—	—	e 11 52	+18	15·9	—
La Paz		30·4	149	e 6 27	− 5	11 38	− 3	15·4	21·9
Chicago		32·4	355	e 5 52	−60	11 12?	−62	—	—
Ann Arbor		32·8	0	—	—	e 12 34	+13	e 16·9	—
Ithaca		33·5	10	e 6 37	−24	e 12 7	−25	e 17·4	18·4
Tucson	E.	33·7	316	—	—	—	—	e 17·3	21·0
Toronto	E.	34·4	6	1 8 9	+61	e 12 0	−46	i 17·8	19·6
	N.	34·4	6	5 57	−71	12 0	−46	i 18·9	20·2

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Northfield		36·0	15	—	—	—	—	e 16·9	—
Ottawa		36·6	10	e 6 22	−65	12 44	−34	e 17·9	20·2
Berkeley		44·5	316	—	—	—	—	e 23·7	—
Victoria	E.	51·0	327	—	—	—	—	29·9	34·9
	N.	51·0	327	—	—	—	—	28·9	32·9
Rio de Janeiro		51·5	131	e 9 15	− 2	—	—	26·3	32·5
Honolulu	E.	71·8	289	—	—	—	—	e 32·9	—
Rio Tinto		74·3	54	17 52	?PR_1	—	—	—	35·9
San Fernando		74·5	55	—	—	21 36	+16	34·4	45·4
Toledo		76·3	51	e 11 56	− 1	i 21 44	+ 3	33·7	41·2
Granada		76·6	55	i 12 6	+ 7	i 21 51	+ 7	29·5	38·0
Eskdalemuir	E.	77·0	35	—	—	21 46?	− 3	32·9	—
Edinburgh		77·1	35	—	—	—	—	e 36·9	44·2
Stonyhurst		77·4	37	e 21 52	?S	(e 21 52)	− 1	39·5	—
Dyce		77·6	33	—	—	—	—	36·9	43·4
Oxford		78·1	40	—	—	21 57	− 4	36·8	41·5
Kew		78·7	39	33 52	?L	—	—	(33·9)	51·9
Tortosa	E.	79·7	50	12 25	+ 8	22 26	+ 6	—	43·0
	N.	79·7	50	—	—	22 31	+11	33·4	43·1
Paris		80·6	42	—	—	e 22 29	− 1	34·9	37·9
Uccle		81·6	40	—	—	e 22 34	− 8	e 34·9	37·9
Algiers		82·0	54	e 12 28	− 2	e 22 38	− 8	—	43·9
De Bilt		82·0	38	e 12 30	0	e 22 45	− 1	e 34·9	45·3
Strasbourg		84·1	42	12 37	− 6	23 2	− 7	e 36·9	43·0
Moncalieri		84·6	45	e 12 24	−22	22 53	−22	41·3	—
Hamburg	Z.	84·7	37	e 12 45	− 1	e 23 5	−11	e 38·9	45·9
Florence	E.	87·2	45	11 52	−68	—	—	—	40·9
Upsala		87·6	29	—	—	e 23 16	−32	e 40·9	50·0
Rocca di Papa		88·6	48	e 13 28	+20	—	—	23·5	—
Vienna	Z.	89·7	40	13 7	− 7	24 4	− 7	e 41·4	51·4
Kucino		99·0	29	24 42	?S	(24 42)	[+23]	e 39·9	51·7
Cape Town		105·6	123	25 26	?S	(25 26)	[+36]	—	58·9
Ekaterinburg		107·7	19	e 19 41	?PR_1	e 25 5	[+ 5]	46·9	59·8
Baku		114·5	36	—	—	e 27 31	−35	53·4	—
Taihoku		137·4	325	76 38	?L	—	—	77·9	—
Hong Kong		143·5	331	—	—	—	—	—	91·9
Bombay		143·5	38	24 52	?PR_1	—	—	—	—
Manila		145·5	314	e 20 21	[+32]	—	—	—	—
Hyderabad		148·0	33	65 1	?L	—	—	(65·0)	96·4
Colombo		157·0	45	89 10	?	—	—	95·5	100·4

Additional readings: Cheltenham LN = +16·4m., MN = +20·0m. Georgetown eLEN? = +13·9m. La Paz iS? = +13m.7s., L = +18·4m., T_o = 10h.41m.2s. Ann Arbor S? = +14m.28s. Ithaca e = +7m.34s., and +14m.28s., i = +15m.19s. Toronto iN = +11m.15s., eE = +11m.30s., eE = +14m.15s., iE = +14m.54s. Ottawa ePR₁? = +8m.4s., SR_1? = +15m.26s., SR_2? = +16m.14s. Berkeley eN = +11m.22s. (?PR_1), eE = +23m.52s., eZ = +24m.52s. Honolulu eN = +31m.22s. Toledo MNW = +45·1m. Granada i = +14m.57s., +22m.34s., and +25m.38s. Paris MN = +35·9m. De Bilt MN = +38·1m., MZ = +43·9m. Strasbourg PR_1 = +15m.50s., SR_1 = +28m.52s., SR_2 = +33m.4s., MN = +41·3m. Hamburg MN = +40·9m. Upsala MN = +47·0m. Ekaterinburg MN = +58·6m., MZ = +61·9m.

Mar. 11d. 14h. 39m. 32s. Epicentre 47°·0N. 147°·0E.

A = −·572, B = +·371, C = +·731; D = +·545, E = +·839; G = −·613, H = +·398, K = −·682.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Ootomari	2·9	263	1 32	+47	(2 32)	+72	2·5	—
Sapporo	5·6	228	1 45	+18	—	—	3·0	—
Mizusawa	9·0	210	2 13	− 3	3 51	−12	—	—
Osaka	15·1	219	3 0	−40	(6 48)	+14	6·8	7·8
Zi-ka-wei	25·2	240	e 5 33	− 7	e 10 5	− 2	—	—
Irkutsk	27·8	297	6 5	− 1	11 1	+ 6	14·5	19·6
Hong Kong	36·1	236	—	—	—	—	—	22·5
Manila	39·0	222	e 13 28	?S	(e 13 28)	−24	—	—
Ekaterinburg	50·5	315	i 9 11	+ 1	—	—	24·5	32·9
Kucino	61·4	323	—	—	—	—	e 33·5	—
Hyderabad	62·8	268	19 8	?S	(19 8)	+10	—	—

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Upsala	65·5	334	i 10 49	+ 1	e 20 39	+68	e 38·5	—
Baku	65·9	304	i 10 58	+ 8	i 20 6	+30	40·5	—
Hamburg	73·0	335	i 11 34	− 2	—	—	44·5	—
Vienna	75·5	329	i 11 52	0	—	—	—	13·0
De Bilt	75·6	337	i 11 51	− 2	—	—	e 43·5	—
Uccle	77·0	337	e 11 57	− 4	—	—	—	44·5
Innsbruck	78·1	330	i 12 6	− 2	—	—	—	—
Strasbourg	78·2	333	i 12 4	− 4	—	—	43·5	—
Zurich	78·9	332	i 12 8	− 4	—	—	—	—
Paris	79·4	338	i 12 9	− 6	—	—	46·5	—
Moncalieri	81·3	332	e 11 36	−51	—	—	—	—
Rocca di Papa	82·4	327	i 11 16	−76	(e 22 48)	− 2	e 22·8	—
Pompeii	82·6	325	e 13 28	+54	—	—	—	—
Tortosa N.	87·2	335	12 53	− 7	23 16	−27	e 48·5	57·6
Rio Tinto	92·0	340	50 28	?L	—	—	(50·5)	59·5
La Paz	137·9	53	19 37	[+ 1]	—	—	—	—

Additional readings: Osaka MN = +7·2m. Irkutsk MN = +15·6m., MZ = +19·7m. Ekaterinburg i = +10m.18s., e = +16m.37s., i = +18m.53s., e = +20m.49s., and +22m.27s., MN = +28·9m. Baku e = +30m.28s.

Mar. 11d. 20h. 34m. 6s. Epicentre 9°·5N. 84°·0W. (as on Mar. 4d.).

A = +·103, B = −·981, C = +·165; D = −·995, E = −·105; G = +·017, H = −·164, K = −·986.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Balboa Hts. E.	4·4	96	1 18	+10	2 34	+33	3·3	4·1
N.	4·4	96	0 54	−14	2 12	+11	2·9	16·2
Tacubaya	17·7	305	4 4	− 9	7 36	+ 3	8·4	—
La Paz	30·4	149	e 6 33	+ 1	12 45	+64	16·9	21·8
Chicago	32·4	355	—	—	—	—	e 13·9	—
Ann Arbor	32·8	0	—	—	—	—	e 14·4	—
Toronto	34·4	6	—	—	—	—	e 14·5	18·9
Ottawa	36·6	10	—	—	—	—	e 32·9	82·9
Victoria	51·0	327	—	—	—	—	—	34·4
Rio de Janeiro	51·5	131	—	—	—	—	e 36·4	—
Paris	80·6	42	—	—	—	—	e 39·9	42·9
Uccle	81·6	40	—	—	—	—	—	40·9
De Bilt E.	82·0	38	—	—	e 22 36	−10	e 40·9	—
Strasbourg	84·1	42	—	—	—	—	e 36·9	—
Moncalieri	84·6	45	—	—	e 19 28	?	21·7	—
Pulkovo	93·5	27	e 16 48	?PR_1	—	—	43·4	55·4
Kucino	99·0	29	—	—	—	—	e 45·4	55·4
Ekaterinburg	107·7	19	—	—	e 24 54	[− 6]	43·9	59·7
Baku	114·6	36	—	—	—	—	e 62·4	—
Irkutsk	117·8	354	—	—	—	—	55·9	—

Additional readings and notes: Toronto iE = +14m.52s., LN = +15·1m., iN = +27m.34s. Ottawa readings have been increased by 1h. Victoria MN = +35·7m. Rio de Janeiro readings have been increased by 1h. De Bilt eLN = +35·9m. Pulkovo MZ = +49·3m., MN = +49·5m. Kucino MN = +53·9m. Ekaterinburg MN = +62·8m., MZ = +64·1m. Baku e = +66m.6s. and +74m.24s.

Mar. 11d. 22h. 44m. 5s. Epicentre 4°·0S. 82°·5W.

A = +·130, B = −·989, C = −·070; D = −·991, E = −·131; G = −·009, H = +·069, K = −·998.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
La Paz	18·8	132	i 4 36	+ 9	1 8 16	+18	10·1	10·9
Tacubaya	28·6	325	6 17	+ 3	—	—	—	15·7
La Plata E.	38·4	148	7 39	− 2	13 24	−20	21·8	25·3
N.	38·4	148	7 45	+ 4	13 33	−11	21·2	30·5
Rio de Janeiro	42·5	121	e 8 10	− 5	14 33	− 9	20·4	27·6

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Chicago		46·0	355	—	—	e 17 55	?SR_1	—	—
Ann Arbor		46·3	0	—	—	—	—	e 19·9	—
Toronto		47·7	3	—	—	—	—	20·2	—
Ottawa		49·8	6	—	—	—	—	e 26·9	—
Victoria	E.	63·4	331	—	—	—	—	31·5	32·9
Granada		83·6	52	i 14 36	+116	(e 25 6)	+121	e 60·9	65·7
Toledo		83·8	50	e 12 42	+ 1	e 23 10	+ 3	—	—
Stonyhurst		87·4	37	—	—	—	—	42·9	—
Tortosa	E.	87·4	49	13 17	+16	23 39	− 6	—	—
	N.	87·4	49	13 12	+11	23 35	−10	36·9	—
Paris		89·8	42	e 13 28	+13	e 23 59	−13	44·9	—
Uccle		91·1	40	—	—	e 24 7	−18	e 38·9	45·9
De Bilt		91·7	38	—	—	e 24 17	−15	e 43·9	—
Moncalieri		93·0	45	e 12 22	−70	17 31	?PR_1	—	—
Strasbourg		93·2	42	e 13 37	+ 4	e 24 31	−16	e 36·9	—
Hamburg		94·7	37	e 13 37	− 5	—	—	e 46·9	—
Rocca di Papa		96·5	49	e 13 54	+ 2	e 25 8	−13	—	—
Pulkovo		104·8	29	e 18 6	?PR_1	24 30	[−16]	51·9	56·3
Kucino		110·0	31	—	—	e 29 55	+147	e 58·9	—
Ekaterinburg		119·7	22	e 20 39	?PR_1	e 30 15	+88	50·9	67·0
Baku		123·9	41	—	—	—	—	e 66·2	—
Hyderabad		157·0	53	84 35	?L	—	—	(84·6)	102·5
Colombo		162·2	80	90 55	?L	—	—	(90·9)	100·9

Additional readings and notes: La Plata PR_1N = +9m.21s., SR_1 = +16m.50s. N = +24m.54s., and +27m.45s., T_o = 22h.44m.26s. Toronto LN = +18·6m., and several other L's. Ottawa reading is increased by 1h. Victoria LN = +30·2m. Granada eS is given as eP. Strasbourg PR_1 = +17m.10s., SR_1 = +30m.54s. De Bilt eLN = +39·9m. Pulkovo MZ = +58·3m.

Mar. 11d. Readings also at 0h. (Nagoya), 4h. (near Mizusawa), 5h. (Taihoku), 13h. (Taihoku, near Nagasaki (2), and near La Paz), 16h. (Tacubaya, Toronto, and near Balboa Heights), 17h. (Ottawa, De Bilt, Ekaterinburg, and Strasbourg), 18h. (near Osaka), 19h. (Port au Prince, Ekaterinburg, and near Balboa Heights), 20h. (Toronto), 21h. (Port au Prince and near Tashkent), 23h. (Stonyhurst and near Tashkent).

Mar. 12d. 2h. 50m. 20s. Epicentre 9°·5N. 84°·0W. (as on Mar. 11d.).

A = +·103, B = −·981, C = +·165; D = −·995, E = −·105; G = +·017, H = −·164, K = −·986.

The Balboa Heights and Tacubaya observations suggest that this may be a repetition from the epicentre of Mar. 4d. 10h., but we should have to assume numerous errors in the other observations.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Balboa Hts.	E.	4·4	96	1 2	− 6	2 22	+21	3·1	4·2
	N.	4·4	96	1 2	− 6	2 18	+17	3·1	3·9
Tacubaya		17·7	305	3 49	−14	—	—	—	—
La Paz		30·4	149	e 8 8	?PR_1	e 12 40	+59	15·5	20·8
Chicago		32·4	355	—	—	e 9 40	?	—	—
Toronto	E.	34·4	6	—	—	—	—	14·7	—
Ottawa		36·6	10	—	—	—	—	e 23·7	25·7
Victoria		51·0	327	—	—	—	—	—	37·4
Rio de Janeiro		51·5	131	—	—	(e 16 18)	−20	e 16·3	—
Granada		76·6	55	i 8 46	−193	i 17 52	−232	e 20·4	23·9
Paris		80·6	42	—	—	—	—	e 39·7	—
Uccle		81·6	40	—	—	—	—	e 34·7	—
De Bilt	E.	82·0	38	—	—	—	—	e 40·7	—
Strasbourg		84·1	42	—	—	—	—	e 37·7	—
Pulkovo		93·5	27	—	—	e 23 18	[−31]	44·7	50·7
Kucino		99·0	29	—	—	—	—	e 43·7	—
Ekaterinburg		107·7	19	—	—	—	—	44·7	64·4

Additional readings: Toronto eLN = +15·2m., MN = +21·2m. Granada i = +12m.22s. De Bilt eLN = +35·7m. Pulkovo MZ = +50·3m. Ekaterinburg MN = +61·5m.

Mar. 12d. 13h. 52m. 40s. Epicentre 72°·8N. 2°·5E.

$A = +\cdot295$, $B = +\cdot013$, $C = +\cdot955$; $D = +\cdot044$, $E = -\cdot999$; $G = +\cdot954$, $H = +\cdot042$, $K = -\cdot296$.

The epicentre 72°·0N. 2°·8W. used on 1919 Sept. 12d. was tried and found distinctly not so good as that now adopted.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Bergen		12·5	173	—	—	—	—	e 19·3	—
Upsala		14·2	148	e 3 24	− 5	e 6 24	+11	e 7·1	10·5
Dyce		15·7	190	3 51	+ 3	6 39	− 9	8·0	9·3
Pulkovo		16·9	126	i 4 0	− 4	7 20	+ 4	8·3	9·8
Eskdalemuir	Z.	17·7	191	i 4 19	+ 6	—	—	—	—
Stonyhurst		19·0	189	—	—	—	—	—	11·0
Hamburg		19·5	166	i 4 37	+ 2	i 8 17	+ 4	e 9·8	10·3
Bidston		19·5	190	(4 32)?	− 3	—	—	4·5?	12·3
De Bilt	E.	20·8	175	4 52	+ 1	8 40	0	e 9·3	13·1
	N.	20·8	175	4 52	+ 1	—	—	e 10·3	12·7
Kew		21·4	185	—	—	—	—	—	9·3
Uccle		22·0	177	e 5 6	+ 1	9 5	0	e 10·3	12·3
Kucino		22·3	121	i 5 30	+21	9 31	+20	11·6	13·5
Paris		24·0	180	i 5 28	0	e 9 44	0	13·3	14·3
Strasbourg		24·4	172	i 5 30	− 2	9 59	+ 7	12·3	14·3
Vienna		25·4	158	e 5 40	− 2	10 24	+13	e 12·8	15·8
Innsbruck		25·8	166	e 5 44	− 2	—	—	—	—
Ekaterinburg		27·7	93	6 2	− 3	10 47	− 7	12·3	16·2
Moncalieri		27·9	172	e 5 54	−13	10 15	−42	13·6	—
Tortosa	N.	32·0	182	—	—	11 40	−28	e 16·3	22·8
Toledo		33·1	190	—	—	—	—	e 18·2	—
Rio Tinto		35·3	193	9 20	?PR_1	—	—	—	17·3
Granada		35·8	190	—	—	i 12 14	−53	i 17·4	19·7
Algiers		36·0	179	—	—	e 13 56	+46	22·8	—
Baku		39·5	118	7 43	− 8	13 47	−12	20·3	—
Ottawa		43·8	275	—	—	—	—	e 23·3	—
Irkutsk		44·0	60	8 21	− 5	14 53	− 9	23·3	—
Toronto	N.	46·4	278	—	—	i 15 35	+ 2	25·4	—
Chicago		50·5	285	—	—	—	—	e 22·3	—
Victoria	N.	53·2	319	17 23	?S	(17 23)	+24	30·0	32·4

Additional readings: Upsala MN = +8·3m. Pulkovo MZ = +9·7m. Hamburg MNZ = +11·3m. De Bilt MZ = +14·0m. Kucino PR_1 = +6m.6s., MN = +13·2m. Strasbourg SR_1 = +11m.8s., MN = +17·3m. Innsbruck eNW = +5m.50s. Ekaterinburg i = +6m.5s., iPS = +10m.56s., MN = +17·2m., MZ = +17·5m. Irkutsk PR_1 = +10m.11s., SR_1 = +18m.21s. Toronto eE = +26m.5s., iE = +27m.42s. Victoria ME = +32·8m.

Mar. 12d. 14h. 18m. 15s. Epicentre 72°·8N. 2°·5E. (as at 13h.).

$A = +\cdot295$, $B = +\cdot013$, $C = +\cdot955$.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Pulkovo	16·9	126	i 4 1	− 3	—	—	8·8	9·7
Hamburg	19·5	166	e 4 39	+ 4	—	—	—	12·8
Strasbourg	24·4	172	e 6 31	+59	e 10 50	+58	14·8	16·8
Innsbruck	25·8	166	e 5 39	− 7	—	—	—	—
Ekaterinburg	27·7	93	5 57	− 8	—	—	12·8	17·7
Baku	39·5	118	—	—	—	—	22·8	—

Ekaterinburg gives also MN = +17·4m.

Mar. 12d. 23h. 3m. 45s. Epicentre 34°·0N. 142°·5E. (as on 1915 July 8d.).

$A = -\cdot658$, $B = +\cdot505$, $C = +\cdot559$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Nagoya		4·7	286	1 4	− 9	(1 55)	−14	1·9	2·3
Mizusawa	E.	5·2	348	1 17	− 3	2 14	− 8	—	—
Osaka		5·9	279	1 41	+10	(2 42)	+ 1	2·7	3·4
Kobe		6·1	279	1 37	+ 4	(2 41)	− 5	2·7	2·9
Ekaterinburg		57·8	320	e 9 51	− 7	—	—	27·2	—
Kucino		69·9	325	—	—	—	—	e 40·2	—
Baku		70·6	306	—	—	—	—	e 41·2	—

Additional readings: Mizusawa SN = +2m.15s. Nagoya MN = +2·4m. Osaka MN = +3·5m.

Mar. 12d. Readings also at 1h. (near Batavia and Malabar), 9h. (Nagasaki), 11h. (Baku, Taihoku, Ekaterinburg, and near Osaka), 15h. (Almeria, Tashkent, and near Granada), 18h. (near Athens), 21h. (Kingston).

Mar. 13d. 10h. 32m. 30s. Epicentre 45°·0N. 135°·0E. (as on 1924 Feb. 24d.).

A = −·500, B = +·500, C = +·707 ; D = +·707, E = +·707 ;
G = −·500, H = +·500, K = −·707.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Sapporo		5·0	111	1 20	+ 3	—	—	3·1	—
Ootomari		5·6	70	1 20	− 7	2 33	− 1	2·5	—
Mizusawa	E.	7·4	140	1 52	0	3 45	+24	—	—
	N.	7·4	140	1 53	+ 1	3 43	+22	—	—
Osaka		10·3	178	5 41	?L	—	—	(5·7)	—
Hong Kong		28·3	224	12 42	?L	—	—	(12·7)	23·0

Mar. 13d. 10h. 41m. 54s. Epicentre 65°·0N. 153°·0E.

A = −·377, B = +·192, C = +·906 ; D = +·454, E = +·891 ;
G = −·808, H = +·411, K = −·423.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Ekaterinburg		41·4	305	—	—	—	—	e 33·1	53·1
Victoria		44·9	70	—	—	—	—	—	16·0
Pulkovo		48·1	325	8 56	+ 1	15 58	+ 3	21·6	27·5
Kucino		49·6	318	—	—	e 16 31	+17	23·1	27·6
Hamburg		58·1	335	—	—	—	—	e 30·1	34·1
Baku		59·1	300	e 10 5	− 1	—	—	24·6	—
De Bilt	E.	60·4	337	—	—	—	—	e 32·1	—
Strasbourg		63·3	335	—	—	—	—	e 30·1	37·1
Ottawa		63·3	36	—	—	22 25	?	e 29·1	—
Paris		63·9	340	—	—	—	—	e 43·1	—
Toronto	E.	64·0	40	—	—	—	—	32·5	—
Georgetown		69·0	40	—	—	—	—	e 21·1	—
Rio Tinto		76·0	344	40 6	?L	—	—	(40·1)	48·1

Additional readings and notes: Ekaterinburg e = +35m.34s. and +39m.31s., i = +41m.46s., MN = +52·8m., MZ = +57·9m. Pulkovo i = +10m.8s., MZ = +33·7m. De Bilt eLN = +30·1m. Toronto LN = +33·0m. Georgetown eE = +23m.6s. Rio Tinto P has been increased by 1h.

Mar. 13d. 12h. 47m. 40s. Epicentre 16°·0N. 38°·5E. (as on 1915 Sept. 23d.).

A = +·752, B = +·598, C = +·276 ; D = +·623, E = −·783 ;
G = +·216, H = +·172, K = −·961.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Helwan		15·2	335	e 3 43	+ 1	6 30?	− 7	—	8·7
Baku		26·3	20	e 5 57	+ 6	—	—	13·3	—
Tashkent	E.	36·6	40	—	—	e 13 50	+32	—	17·3
Strasbourg		41·1	329	—	—	—	—	e 21·3	—
Tortosa	N.	41·1	315	—	—	—	—	15·9	17·7
Paris		43·9	326	—	—	—	—	21·3	22·3
Toledo		43·9	312	—	—	—	—	e 15·9	19·4
Ekaterinburg		44·1	17	e 32 30	?	e 40 55	?	52·3	—
Pulkovo		44·1	354	—	—	—	—	e 21·7	—
Uccle		44·6	329	—	—	—	—	—	17·3
De Bilt		44·7	331	—	—	—	—	e 17·3	—
Stonyhurst		49·3	329	—	—	—	—	22·3	25·7
Eskdalemuir	z.	50·5	331	—	—	—	—	e 27·3	—
Edinburgh		50·8	331	—	—	—	—	e 23·3	26·3
Irkutsk		62·6	39	—	—	—	—	35·3	—

Additional readings and notes: Tashkent readings have been increased by 1h. Strasbourg e = +26m.57s. Tortosa ME = +20·6m. Paris e = +19m.20s. Toledo MNW = +19·9m.; all readings increased by 1h. Pulkovo e = 12h.48m.32s., L = +30·3m.

Mar. 13d. Readings also at 5h. (Taihoku), 6h. (Manila), 8h. (near La Paz), 12h. (Cape Town and Johannesburg), 13h. (Algiers), 14h. (Perth), 15h. (Manila; Irkutsk, and near Batavia), 16h. (Baku), 18h. (Florence), 19h. (Nagoya), 23h. (Nagoya and near Mizusawa).

Mar. 14d. 2h. 23m. 30s. Epicentre 54°·5N. 164°·0E. (as on 1924 Jan. 12d.).

$A = -\cdot558$, $B = +\cdot160$, $C = +\cdot814$; $D = +\cdot276$, $E = +\cdot961$; $G = -\cdot782$, $H = +\cdot225$, $K = -\cdot581$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Victoria	E.	43·6	67	14 49	?S	(14 49)	− 7	22·6	23·5
	N.	43·6	67	14 57	?S	(14 57)	+ 1	22·6	23·7
Honolulu	N.	43·7	124	—	—	—	—	e 26·5	—
Hong Kong		49·0	250	—	—	—	—	—	32·5
Ekaterinburg		52·5	319	9 30	+ 7	16 46	− 4	26·5	34·0
Pulkovo		59·9	335	10 8	− 3	18 12	−10	27·5	34·1
Kucino		61·3	329	e 14 35	+254	e 23 22	+282	30·5	39·5
Upsala	N.	62·6	342	e 10 37	+ 8	—	—	36·4	—
Chicago		66·0	51	—	—	e 23 30	?SR_1	38·8	—
Ottawa		68·0	41	—	—	e 20 4	+ 2	e 32·5	—
Toronto	N.	68·0	44	19 23	?S	(19 23)	−39	37·0	—
Baku		69·7	313	i 11 14	− 1	e 20 19	− 3	36·5	—
Hamburg		69·8	345	i 11 14	− 2	—	—	39·5	—
De Bilt		72·0	347	11 27	− 3	20 49	− 1	e 35·5	—
Uccle		73·2	347	—	—	—	—	e 36·5	—
Vienna	Z.	73·7	339	11 36	− 4	—	—	—	—
Strasbourg		75·0	345	e 11 45	− 4	—	—	e 40·5	—
Bombay		75·4	282	38 30	?L	—	—	(38·5)	—
Paris		75·5	347	—	—	—	—	e 41·5	—
Innsbruck		75·6	341	i 11 54	+ 1	—	—	41·5	—
Zurich		76·0	344	e 11 51	− 4	e 19 42	−115	—	—
Moncalieri		78·5	343	e 12 10	0	22 48	+42	44·1	—
Florence		79·0	340	11 0	−73	—	—	—	44·5
Rocca di Papa		80·6	339	—	—	—	—	e 47·3	54·3
Tortosa	N.	83·7	348	—	—	—	—	e 44·5	55·0
San Fernando		88·6	352	—	—	—	—	51·5	61·0

Additional readings and notes: Ekaterinburg $iPR_1 = +11$m.32s., $SR_1 = +23$m.1s., $MZ = +34\cdot2$m.; all readings have been diminished by 32m. Pulkovo $MNZ = +39\cdot5$m. Kucino $MN = +39\cdot1$m. Ottawa e = +28m.15s. Toronto $S = +27$m.49s., $LE = +36\cdot6$m.

Mar. 14d. Readings also at 0h. (Taihoku, Baku, Mizusawa, and Ekaterinburg), 1h. and 2h. (Mizusawa), 10h. (Nagoya), 14h. (near Zurich), 16h. (La Paz and Rio de Janeiro), 20h. (Granada), 22h. (near La Paz).

Mar. 15d. 2h. 46m. 50s. Epicentre 10°·0N. 123°·0E. (as on 1922 Feb. 27d.).

$A = -\cdot536$, $B = +\cdot826$, $C = +\cdot174$; $D = +\cdot839$, $E = +\cdot545$; $G = -\cdot095$, $H = +\cdot146$, $K = -\cdot985$.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Manila	5·0	337	e 2 5	?S	(e 2 5)	−12	4·2	5·9
Hong Kong	14·9	327	—	—	—	—	—	13·2
Zi-ka-wei	21·2	356	e 4 59	+ 4	e 8 57	+ 9	—	—
Batavia	22·8	225	5 10	− 5	—	—	—	—
Ekaterinburg	66·7	329	—	—	—	—	30·2	—
Baku	70·7	310	—	—	—	—	e 35·2	—
De Bilt	98·4	327	—	—	—	—	e 62·2	—

Manila gives also $MN = +6\cdot2$m.

1924. Mar. 15d. 10h. 31m. 12s. Epicentre **49°·0N. 144°·0E.**
(as on 1922 Feb. 9d.).

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

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Ootomari		2·4	200	0 48	+ 9	—	—	1·3	1·8
Sapporo		6·2	198	1 45	+10	2 17	−32	3·3	4·1
Mizusawa	E.	10·1	193	2 36	+ 5	5 20	?L	(5·3)	—
Osaka		15·6	207	3 50	+ 3	—	—	7·0	7·9
Kobe		15·7	208	3 48	0	7 27	+39	8·3	9·2
Nagasaki		19·6	218	4 28	− 8	(8 22)	+ 7	8·4	10·6
Zi-ka-wei		24·5	232	e 5 24	− 9	e 9 20	−34	—	15·8
Taihoku		29·7	224	6 20	− 5	11 28	− 1	17·2	20·1
Hong Kong		35·6	231	7 3	−15	12 37	−27	16·7	22·3
Manila		39·2	217	e 7 36	−12	13 37	−17	21·8	—
Sitka	E.	46·3	49	8 43	+ 1	15 56	+24	24·0	28·4
Ekaterinburg		47·7	314	i 8 43	− 9	i 15 32	−18	20·8	27·3
Calcutta	N.	50·9	261	9 14	+ 2	—	—	—	—
Tashkent	E.	51·1	291	c 6 18	−176	e 13 6	−206	i 23·8	28·8
Simla	N.	52·3	276	8 6	−76	(16 24)	−24	(24·5)	31·8
Honolulu	E.	53·2	100	9 40	+13	i 17 32	+33	i 23·5	26·0
	N.	53·2	100	—	—	17 48	+49	—	25·8
Victoria	E.	57·1	52	9 59	+ 6	18 11	+24	29·2	30·2
	N.	57·1	52	9 59	+ 6	18 3	+16	29·1	37·3
Pulkovo		58·7	327	10 4	+ 1	18 8	+ 1	26·8	32·2
Hyderabad		61·0	265	10 16	− 3	18 30	− 6	32·3	38·6
Upsala		62·8	334	e 10 35	+ 4	e 18 59	+ 1	e 28·7	37·5
Baku		63·1	301	i 10 34	+ 1	i 19 6	+ 4	40·0	—
Bombay		63·6	270	10 33	− 3	19 5	− 3	33·7	35·3
Batavia		64·0	223	i 10 40	+ 2	e 19 14	+ 1	e 29·0	—
Berkeley	N.	64·6	61	10 40	− 2	e 19 43	+23	e 30·1	—
Lick		65·3	61	i 11 2	+15	i 19 55	+26	e 32·4	—
Bergen		65·7	340	20 8	?S	(20 8)	+35	30·8	39·8
Konigsberg	E.	65·9	329	e 13 42	+172	—	—	e 34·8	38·8
Kodaikanal		67·0	261	20 0	?S	(20 0)	+10	41·2	44·3
Colombo		68·0	256	11 0	− 4	20 0	− 2	39·7	46·3
Lemberg		68·6	323	—	—	e 20 12	+ 3	e 37·4	38·4
Dyce		70·2	341	—	—	20 35	+ 7	33·0	46·9
Hamburg		70·4	334	i 11 22	+ 3	e 20 33	+ 2	35·8	40·6
Edinburgh		71·6	342	—	—	e 20 48	+ 3	32·8	59·1
Vienna		72·8	327	11 35	0	21 5	+ 5	35·3	41·3
De Bilt		73·1	335	11 38	+ 1	21 2	− 1	e 33·8	42·8
Stonyhurst		73·3	340	—	—	21 20	+14	34·3	42·1
Bidston		73·9	340	11 43	+ 2	20 48	−25	31·8	40·1
Belgrade		74·1	322	e 11 49	+ 6	e 21 15	0	e 29·9	—
Uccle		74·4	335	11 45	0	21 15	− 4	33·8	43·5
Oxford		75·0	340	11 57	+ 8	21 23	− 3	33·5	43·9
Kew		75·1	338	—	—	—	—	—	47·8
Strasbourg		75·4	332	11 51	0	21 31	+ 1	e 36·8	41·6
Innsbruck	N.E.	75·4	330	—	—	e 21 32	+ 2	e 36·8	48·2
	N.W.	75·4	330	i 11 51	0	e 21 30	0	—	41·4
Ksara		75·5	308	11 24	−28	20 58	−34	—	—
Sarajevo		75·7	324	—	—	—	—	e 41·3	—
Zurich		76·2	331	e 11 58	+ 2	e 21 36	− 3	e 36·8	—
Travnik		76·5	324	—	—	—	—	e 40·1	—
Venice		76·6	329	e 11 56	− 3	e 20 48?	−56	e 33·2	46·0
Paris		76·7	335	i 12 8	+ 9	e 21 36	− 9	36·8	49·8
Besançon		77·2	333	—	—	—	—	e 40·8	—
Athens		78·4	317	e 12 7	− 2	22 1	− 4	e 38·8	51·8
Florence		78·5	329	12 3	− 7	21 58	− 8	38·8	42·8
Chicago		78·6	37	21 56	?S	(21 56)	−11	37·0	—
Moncalieri		78·6	330	12 43	+32	22 33	+26	38·2	47·0
Ottawa		79·5	27	i 22 19	?S	(i 22 19)	+ 1	e 36·6	47·8
Ann Arbor		79·6	34	22 36	?S	(22 36)	+17	e 37·8	—
Rocca di Papa		79·7	326	e 12 0	−17	i 22 18	− 2	e 39·7	55·4
Toronto	E.	79·9	30	e 22 21	?S	(e 22 21)	− 1	37·2	46·3
	N.	79·9	30	e 22 18	?S	(e 22 18)	− 4	e 37·0	46·8
St. Louis		80·2	40	—	—	—	—	e 43·7	46·2
Helwan		81·0	306	i 12 23	− 2	22 25	−10	—	43·9
Northfield		81·5	26	—	—	—	—	e 37·8	—
Ithaca		81·9	29	—	—	—	—	41·8	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Riverview		83·1	175	e 12 36	− 1	e 22 57	− 1	e 36·2	44·1
Sydney		83·1	175	22 54	?S	(22 54)	− 4	36·1	37·5
Barcelona		83·5	332	—	—	—	—	e 40·5	49·2
Tortosa	E.	84·6	334	—	—	23 4	−11	40·7	50·5
	N.	84·6	334	e 12 35	−11	23 3	−12	40·0	48·2
Perth		84·8	204	12 46	− 1	i 23 11	− 6	e 41·2	—
Georgetown		84·9	30	e 12 53	+ 6	e 23 17	− 1	e 40·4	—
Washington		84·9	30	—	—	23 13	− 5	43·8	—
Toledo		86·8	336	12 52	− 6	23 18	[+10]	e 40·0	52·0
Algiers		87·5	330	e 12 54	− 8	e 22 22	−85	48·5	—
Lisbon		89·1	340	—	—	23 36	[+13]	e 36·6	46·1
Granada		89·2	335	e 12 47	−24	23 46	[+22]	e 35·8	48·1
Rio Tinto		89·4	338	35 48	?SR_1	—	—	—	61·8
San Fernando		90·6	338	—	—	24 13	− 7	46·8	51·8
Wellington		94·3	158	13 26	−14	i 24 55	− 4	46·4	53·8
Cape Town		137·5	270	—	—	—	—	—	83·4
La Paz		138·4	50	e 19 43	[+ 6]	e 33 29	?	69·0	75·1

Additional readings and notes: Sapporo MN = +4·6m.; all readings have been increased by 2m. Mizusawa SN = +5m.18s. Osaka MN = +9·4m. Kobe MN = +9·8m. Zi-ka-wei iP = +5m.26s., PSZ = +9m.57s., MN = +16·4m., MZ = +16·8m. Hong Kong PR_1 = +8m.18s. Sitka eN = +18m.21s., SR_1E = +19m.37s., LE = +25·8m., LN = +26·2m. Ekaterinburg iPR_1 = +10m.10s., SR_2 = +18m.27s., MZ = +31·6m. Calcutta PE = +9m.2s. Tashkent eE = +7m.24s., ePR_2? = +9m.36s., ePR_2? = +9m.48s., eE = +15m.18s., SR_2 = +17m.48s., eE = +27m.36s. Simla eE = +8m.24s. Honolulu eN = +17m.30s., eE = +22m.16s., eN = +22m.48s., T_e = 10h.31m.4s. Pulkovo MZ = +36·4m. Upsala MN = +37·8m. Batavia i = +11m.37s. Berkeley eN = +27m.59s., LE = +31·5m. Lick LN = +31·9m. Konigsberg eLN = +33·2m. Lemberg eSE = +20m.26s. Hamburg iPS = +21m.30s., eSR_2 = +28m.54s., MZ = +45·1m. Vienna PR_1 = +14m.8s., PR_2 = +15m.58s., i = +20m.0s., PS = +21m.39s. Bidston readings have all been diminished by 8m. Belgrade PR_1 = +15m.12s. Oxford P was suspected at +10m.16s. De Bilt MN = +49·3m., MZ = +51·8m. Uccle SR_1 = +26m.0s. Strasbourg eSR_1 = +26m.31s., eSR_2 = +29m.46s., MN = +45·5m. Travnik, L = +42·0m. and +44·9m. Paris MN = +43·8m. Athens MN = +44·0m., T_e = 10h.31m.26s. Chicago S = +30m.21s. Moncalieri MN = +44·8m. Ottawa eS = +28m.50s., SR_2 = +32m.59s., L = +58·8m. Ann Arbor S = +28m.4s., Rocca di Papa iPE = +12m.27s. Toronto iN = +22m.25s., iPE = +22m.33s., S = +29m.3s., and several L readings. St. Louis MN = +46·1m. Riverview MN = +45·6m., T_e = 10h.31m.18s. Barcelona MN = +47·3m. Perth iY = +22m.4s.; all readings diminished by 1h. Toledo MNW = +49·7m. Granada i = +20m.7s., MN = +53·3m. Wellington PR_1 = +17m.15s., iSR_2 = +35m.25s., T_e = 10h.30m.47s., also another set of readings. La Paz iPR_1 = +23m.17s. PR_1 = +28m.9s.

Mar. 15d. Readings also at 0h. (near Zurich), 5h. (Granada), 6h. (Nagoya), 8h. (Nagasaki), 12h. (Ootomari), 15h. (Irkutsk), 17h. (near Athens), 18h. and 23h. (Kobe).

Mar. 16d. 1h. 22m. 36s. Epicentre 2°·0S. 72°·0W. (as on 1922 Jan. 17d.).

A = +·309, B = −·950, C = −·035; D = −·951, E = −·309; G = −·011, H = +·033, K = −·999.

Apparently not the same epicentre as on Mar. 10d. 18h.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
La Paz		15·0	166	i 3 45	+ 6	i 7 26	+54	8·4	9·5
Port au Prince		20·5	359	e 4 52	+ 5	8 41	+ 7	—	—
La Plata	E.	35·4	160	i 6 57	−20	12 26	−35	18·0	—
	N.	35·4	160	i 6 58	−19	12 29	−32	17·2	17·3
Washington		41·2	356	—	—	e 11 24	?PR_1	—	—
Chicago		46·0	346	e 10 24	?PR_1	—	—	—	—
Toronto	E.	46·1	354	—	—	e 14 59	−30	i 22·4	—
	N.	46·1	354	i 8 51	+10	e 14 54	−35	23·9	—
Ottawa		47·5	358	e 9 8	+17	15 17	−31	e 18·2	—

Continued on next page.

		Δ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
Victoria	E.	67·1	327	19 15	?S	(19 15)	−36	33·7	39·0
Oxford		79·8	38	—	—	22 24	+ 3	—	—
Edinburgh		80·0	33	—	—	e 22 24	+ 1	—	—
Paris		81·4	40	i 11 33	+ 6	i 22 43	+ 4	28·4	—
Uccle		83·0	39	e 12 32	− 4	22 46	−11	—	—
De Bilt		83·7	38	12 37	− 3	22 52	−14	e 41·4	—
Moncalieri		84·2	45	e 13 26	+43	23 42	+32	—	—
Strasbourg		84·8	41	e 12 46	− 1	e 23 16	− 1	e 37·4	—
Zurich		85·1	43	e 12 44	− 5	e 23 3	−17	—	—
Hamburg		86·9	37	e 12 53	− 5	i 23 37	− 3	—	—
Rocca di Papa		87·4	48	i 13 21	+20	i 23 21	−24	—	24·8
Ekaterinburg		113·6	26	—	—	e 25 18	[− 6]	—	—

Additional readings: La Plata E = +7m.23s., N = +7m.25s., PS?N = +11m.3s., and +11m.40s., EN = +13m.16s., N = +15m.22s., E = +16m.12s., N = +16m.35s., T_0 = 1h.22m.35s. Toronto iSN = +14m.56s. and several other L's. Ottawa SR? = +16m.17s. Victoria PN = +19m.13s., LN = +33·6m. Paris eS = +22m.32s. De Bilt eLN = +37·4m. Rocca di Papa e = +15m.21s. Ekaterinburg e = +29m.19s.

Mar. 16d. 10h. 17m. 20s. Epicentre 35°·0N. 6°·0E.

A = +·815, B = +·086, C = +·574; D = +·105, E = −·995; G = +·570, H = +·060, K = −·819.

		Δ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
Algiers		3·0	307	e 0 48	+ 1	—	—	1·6	2·0
Barcelona		7·1	336	e 1 15	−33	(3 11)	− 2	3·4	6·3
Tortosa	E.	7·3	326	1 54	+ 3	3 26	+ 8	4·0	—
	N.	7·3	326	1 53	+ 2	3 33	+15	—	5·9
Granada		8·1	288	i 2 6	+ 3	3 42	+ 2	i 4·2	5·1
Rocca di Papa		8·5	36	e 2 9	0	—	—	4·7	7·1
Pompeii		8·8	47	e 2 25	+12	—	—	—	7·7
Toledo		9·3	305	2 17	− 3	i 4 9	− 1	e 4·6	5·4
Florence		9·6	24	2 25	+ 1	—	—	—	4·3
San Fernando		10·0	282	—	—	4 35	+ 6	—	8·2
Moncalieri		10·1	7	e 3 41	+70	4 29	− 3	6·3	8·5
Venice		11·5	23	—	—	—	—	—	14·7
Besançon		12·2	0	—	—	—	—	e 6·7	—
Zurich		12·5	8	e 3 5	− 1	7 40	?L	(7·7)	—
Lisbon		12·7	291	—	—	—	—	—	5·8
Innsbruck		12·9	17	e 3 7	− 5	—	—	e 6·7	8·9
Strasbourg		13·6	5	e 3 23	+ 2	e 6 17	+19	6·7	8·3
Paris		14·1	351	i 3 24	− 3	e 6 17	+ 7	7·7	10·7
Belgrade		14·7	44	e 3 31	− 4	—	—	e 11·6	—
Vienna		15·3	27	e 3 41	− 2	—	—	9·2	10·2
Uccle		15·8	356	e 3 44	− 5	—	—	—	9·4
De Bilt		17·1	358	4 2	− 4	e 7 12	− 8	—	10·0
Oxford		17·6	345	—	—	(7 40)	+ 9	7·7	11·4
Hamburg		18·8	7	e 4 22	− 5	e 7 33	−25	e 9·9	12·9
Bidston		19·5	344	—	—	7 54	−19	10·2	12·5
Stonyhurst		19·8	345	—	—	(6 40)	−99	6·7	9·9
Eskdalemuir	z.	21·3	345	e 4 59	+ 2	i 8 41	− 9	—	—
Edinburgh		21·8	346	—	—	i 8 52	− 9	—	14·2
Helwan		21·9	96	e 5 5	+ 1	9 20	+17	—	15·5
Konigsberg		22·2	22	—	—	9 1	− 8	e 14·1	12·7
Dyce		22·9	349	—	—	9 12	−11	12·7	13·7
Upsala		26·0	14	—	—	e 10 34	+12	e 13·6	15·8
Pulkovo		29·3	25	6 25	+ 4	11 45	+23	13·2	15·8
Baku		34·9	67	—	—	e 12 10	−44	20·7	—
Ekaterinburg		42·3	41	8 0	−13	14 16	−23	18·7	26·8
Ottawa		60·6	307	—	—	—	—	e 28·7	—
Toronto		63·7	306	—	—	—	—	33·7	—
Victoria	N.	85·2	330	—	—	—	—	49·3	51·1

Additional readings: Algiers iP = +56s. Barcelona ? = +2m.3s., MN = +6·0m. Granada i = +4m.1s. Rocca di Papa ePN = +2m.39s., eLE = +4·3m., eLN = +4·5m. Toledo MNW = +5·9m. Florence PE = +2m.55s. Moncalieri MN = +7·9m. Paris MN = +9·1m. De Bilt MZ = +11·8m. Hamburg MN = +14·8m. Upsala MN = +18·1m. Pulkovo MN = +20·0m., MZ = +21·2m. Ekaterinburg SR_4 = +17m.26s., MN = +24·3m., MZ = +26·6m.

Mar. 16d. Readings also at 6h. (near Mizusawa), 9h. (Baku), 16h. (Almeria and Taihoku), 17h. (La Paz), 18h. (near Irkutsk), 20h. (Ekaterinburg and near Ootomari), 21h. (Pulkovo and De Bilt), 23h. (near Tacubaya).

Mar. 17d. Readings at 5h. (Hong Kong), 8h. (La Paz (2)), 10h. (Paris), 13h. (Tortosa), 14h. (Ekaterinburg, Irkutsk, and near Ootomari), 23h. (Victoria).

Mar. 18d. 19h. 35m. 0s. Epicentre 6°·0S. 105°·0E. (as on 1919 April 24d.).

A = −·257, B = +·961, C = −·104 ; D = +·966, E = +·259 ;
G = +·027, H = −·101, K = −·994.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Batavia		1·9	96	i 0 31	+ 2	0 51	− 2	—	—
Malabar		2·9	115	0 44	− 1	i 1 12	− 8	—	—
Manila		26·0	38	e 6 0?	+12	—	—	—	—
Perth		27·9	160	—	—	e 10 13	−44	—	—
Colombo		28·2	297	10 48	?S	(10 48)	−15	15·6	20·0
Hong Kong		29·7	17	7 28	+63	—	—	—	18·0
Kodaikanal		31·9	301	16 42	?L	—	—	(16·7)	—
Bombay		40·3	310	7 43	−14	13 58	−13	—	—
Riverview		51·0	130	e 10 6	+53	e 18 6	+95	e 28·2	29·4
Sydney		51·0	130	—	—	26 6	?L	33·0	34·8
Irkutsk		58·2	359	i 9 57	− 3	i 18 1	0	33·0	37·2
Baku		68·5	319	—	—	i 20 8	0	34·0	—
Ekaterinburg		72·4	336	i 11 31	− 1	i 20 49	− 6	32·0	44·2
Pulkovo		87·6	331	i 12 50	−13	i 23 30	−18	49·0	58·8
Vienna	Z.	93·5	320	e 13 19	−16	i 17 5	?PR_1	—	—
Strasbourg		99·3	318	—	—	—	—	e 62·0	—
De Bilt		100·8	322	—	—	—	—	e 56·0	—
La Paz		156·5	197	e 19 55	[− 9]	—	—	—	—

Additional readings: Perth e = +11m.47s. Riverview MN = +30·1m.
Irkutsk MZ = +38·2m., MN = +38·3m. Ekaterinburg PS = +21m.31s.,
MZ = +44·8m., MN = +45·0m. Pulkovo MN = +54·3m., MZ = +61·2m.

Mar. 18d. Readings also at 0h. (Ekaterinburg), 2h. (Ekaterinburg and near Batavia and Malabar), 4h. and 5h. (La Paz), 11h. (Tacubaya), 18h. (La Paz).

Mar. 19d. Readings at 0h. (near Tacubaya), 2h. (near Taihoku), 5h. (Batavia and Ekaterinburg), 6h. (Pulkovo and Baku), 8h. (near Mostar), 10h. (De Bilt, Ekaterinburg, Sydney, Nagasaki, and Apia), 11h. (Pulkovo), 12h. (Apia), 14h. (near Tacubaya), 16h. (La Plata and La Paz), 18h. (La Paz), 21h. (Taihoku (2)).

Mar. 20d. 9h. 56m. 12s. Epicentre 9°·5N. 84°·0W. (as on Mar. 12d.).

A = +·103, B = −·981, C = +·165 ; D = −·995, E = −·105 ;
G = +·017, H = −·164, K = −·986.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Balboa Hts.	E.	4·4	96	1 22	+14	2 40	+39	3·4	3·7
	N.	4·4	96	1 19	+11	2 37	+36	3·3	3·5
Georgetown		30·0	11	—	—	—	—	16·8	—
La Paz		30·4	149	e 6 32	0	12 38?	+57	17·8	22·4
Chicago		32·4	355	—	—	—	—	e 14·3	—
Toronto		34·4	6	—	—	—	—	16·0	—
Ottawa		36·6	10	—	—	—	—	e 15·8	—
Rio Tinto		74·3	54	40 48	?L	—	—	(40·8)	43·8
De Bilt	N.	82·0	38	—	—	—	—	e 36·8	—
Strasbourg		84·1	42	—	—	—	—	e 37·8	—
Pulkovo		93·5	27	—	—	—	—	e 47·3	—
Ekaterinburg		107·7	19	e 17 24	?PR_1	—	—	34·8	39·6
Riverview		124·0	235	—	—	—	—	e 62·0	—

De Bilt gives also eLE = +40·8m.

Mar. 20d. Readings also at 10h. (near Nagoya, Osaka, Mizusawa (2), and Sapporo), 14h. (Rio de Janeiro and near Mizusawa), 15h. (near La Plata), 16h. (La Paz, and near Tacubaya), 17h. (Ekaterinburg and Strasbourg), 18h. (Ekaterinburg), 19h. (La Paz, Irkutsk, and Rocca di Papa).

Mar. 21d. Readings at 1h. (near Tacubaya), 11h. (near Mizusawa), 12h. (near Taihoku (2)), 13h. (near Manila), 16h. (Hong Kong and Irkutsk), 18h. (Ekaterinburg), 20h. (Rio de Janeiro).

Mar. 22d. 12h. 51m. 55s. (I)
13h. 8m. 38s. (II) } Epicentre 55°·0N. 35°·0W. (as on 1919 Nov. 28d.).

$A = +\cdot470$, $B = -\cdot329$, $C = +\cdot819$; $D = -\cdot574$, $E = -\cdot819$; $G = +\cdot671$, $H = -\cdot470$, $K = -\cdot574$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
I	Edinburgh	17·9	75	i 4 35	+19	—	—	—	11·1
II		17·9	75	i 4 24	+ 8	i 8 25	+47	9·9	10·9
I	Eskdalemuir Z.	18·0	76	i 4 22	+ 5	—	—	—	—
II		18·0	76	i 4 24	+ 7	(7 22)	−18	7·4	—
I	Dyce	18·2	69	—	—	8 28	+44	10·8	—
II		18·2	69	4 11	− 8	8 1	+17	9·2	11·8
I	Bidston	18·6	82	10 5	?L	—	—	(10·1)	—
II		18·6	82	—	—	—	—	8·1	11·3
I	Stonyhurst	18·8	80	4 31	+ 4	—	—	—	12·1
II		18·8	80	(i 4 42)	+15	i 4 42	?P	9·4	10·7
I	Oxford	20·2	85	—	—	i 8 52	+25	10·4	12·4
II		20·2	85	4 45	+ 2	i 8 55	+28	10·4	11·9
I	Kew	20·9	84	5 5	+13	—	—	—	—
II		20·9	84	—	—	—	—	—	12·4
I	Paris	23·6	89	e 5 29	+ 5	e 9 46	+10	13·1	13·1
II		23·6	89	i 5 29	+ 5	e 9 47	+11	12·4	13·4
I	De Bilt	23·7	80	e 5 24	− 1	—	—	e 12·1	—
II		23·7	80	5 32	+ 7	9 51	+13	e 11·4	14·4
I	Uccle	23·8	83	—	—	e 9 47	+ 7	e 12·1	—
II		23·8	83	e 5 26	0	e 9 46	+ 6	e 11·7	14·0
I	Toledo	25·5	113	e 5 38	− 5	e 10 35	+22	e 12·4	—
II		25·5	113	5 40	− 3	9 22	−51	11·2	12·6
I	Hamburg	25·8	74	—	—	—	—	e 14·1	—
II		25·8	74	e 5 52	+ 6	—	—	e 13·4	14·4
II	Rio Tinto	25·8	120	13 22	?L	—	—	(13·4)	16·4
I	Strasbourg	26·8	86	5 5	−51	—	—	e 14·1	—
II		26·8	86	e 5 55	− 1	e 10 37	0	e 13·4	15·0
I	Tortosa N.	27·3	106	e 5 59	− 2	—	—	—	—
II	N.	27·3	106	6 1	0	10 43	− 3	12·9	13·4
I	Ottawa	27·3	266	—	—	—	—	e 15·1	—
II		27·3	266	—	—	—	—	12·1	15·4
II	Barcelona	27·7	104	e 6 40	+35	—	—	e 13·7	—
II	Granada	27·7	117	6 19	+14	10 10	−44	i 11·5	13·4
II	Zurich	27·9	88	e 6 7	0	—	—	e 14·4	—
II	Upsala E.	28·0	58	—	—	—	—	e 13·4	17·4
II	N.	28·0	58	—	—	—	—	e 12·4	18·1
I	Moncalieri	28·7	94	e 2 20	?	14 46	?L	(14·8)	—
II		28·7	94	—	—	—	—	e 10·1	19·2
II	Innsbruck	29·5	86	e 6 34	+11	e 10 10	−76	e 15·4	—
II	Ithaca	29·6	262	—	—	—	—	15·4	—
I	Toronto	30·5	266	—	—	—	—	e 17·2	—
II	E.	30·5	266	—	—	e 11 34	− 9	e 16·3	17·8
II	N.	30·5	266	i 4 49	?	11 32	−11	16·1	18·3
I	Konigsberg	31·1	66	i 4 8	?	—	—	—	—
II		31·1	66	—	—	—	—	e 17·1	21·9
I	Florence	31·4	90	18 5	?L	—	—	(18·1)	—
II		31·4	90	—	—	—	—	—	16·9
II	Algiers	31·6	109	—	—	—	—	e 15·4	17·4
II	Vienna Z.	31·9	80	6 42	− 4	—	—	—	21·9
I	Rocca di Papa	33·5	92	e 17 39	?L	—	—	(e 17·6)	—
II		33·5	92	i 6 42	−19	—	—	e 18·1	22·7
II	Ann Arbor	33·8	269	—	—	—	—	e 19·2	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
I	Pulkovo	34·1	55	e 6 59	− 7	e 12 35	− 7	17·1	—
II		34·1	55	i 7 4	− 2	12 34	− 8	14·9	20·4
I	Chicago	36·3	271	—	—	—	— e	15·1	—
II	Kucino	39·5	59	—	—	e 17 22	?SR_1	20·6	24·9
I	Ekaterinburg	49·1	47	16 22	?S	(16 22)	+15 e	24·9	—
II		49·1	47	—	—	i 16 25	+18	21·4	35·5
II	Victoria E.	51·4	302	12 2	?PR_1	16 57	+21	27·0	29·8
II	Irkutsk	66·9	26	e 11 26	+29	e 21 13	+84	36·4	—
II	La Paz	76·9	213	12 11	+11	—	—	—	—

Additional readings to shock II : De Bilt II eZ = +7m.8s., MN = +13·9m. Toledo II MNW = +13·6m. Hamburg II iN = +7m.54s. Strasbourg II e = +10m.50s. and +11m.30s., MN = +15·6m. Tortosa II PE = +6m.4s. Moncalieri II MN = +18·5m. Toronto II iN = +11m.35s., iSEN = +11m.37s., iE = +15m.32s. Pulkovo II MZ = +19·7m., MN = +21·6m. Ekaterinburg II MN = +28·2m. Victoria II LN = +25·9m., MN = +30·0m. Irkutsk II e = +24m.52s. and +28m.14s. ; all readings given as e simply.

Mar. 22d. Readings also at 0h. (Apia), 2h. (Mizusawa), 3h. (Ekaterinburg), 5h. (Taihoku), 6h. (Almeria and near Granada), 8h. (near Kobe), 11h. (Ekaterinburg), 13h. (near Kobe and Nagoya), 14h. (Strasbourg and De Bilt), 15h. (Strasbourg, De Bilt, Ekaterinburg, and Paris), 19h. (Apia), 20h. (Irkutsk and Vienna), 23h. (Mizusawa, Ekaterinburg, and near Sapporo).

Mar. 23d. Readings at 12h. (near Taihoku), 13h. (near Osaka and Mizusawa), 14h. (Ekaterinburg), 21h. (Tashkent, La Paz, and Manila), 22h. (Nagasaki and Ekaterinburg).

Mar. 24d. 11h. 40m. 15s. Epicentre 9°·5N. 84°·0W. (as on 1924 Mar. 20d.).

A = +·103, B = −·981, C = +·165 ; D = −·995, E = −·105 ; G = +·017, H = −·164, K = −·986.

An anticipation of the shock at 20h.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Balboa Hts.	E.	4·4	96	1 23	+15	2 29	+28	2·6	2·7
	N.	4·4	96	1 8	0	2 14	+13	2·3	2·7
La Paz		30·4	149	6 26	− 6	12 31	+50	16·6	20·6
Chicago		32·4	355	—	—	e 12 45	+31	—	—
Toronto	E.	34·4	6	—	—	—	—	15·2	—
Ottawa		36·6	10	—	—	e 17 27	? e	19·8	—
Victoria	E.	51·0	327	—	—	—	—	34·4	—
Ekaterinburg		107·7	19	—	—	e 30 2	+175	41·8	—

Additional reading : Toronto LN = +18·5m.

Mar. 24d. 20h. 29m. 0s. Epicentre 9°·5N. 84°·0W. (as at 11h.).

A = +·103, B = −·981, C = +·165 ; D = −·995, E = −·105 ; G = +·017, H = −·164, K = −·986.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Balboa Hts.	E.	4·4	96	1 32	+24	2 16	+15	3·1	4·2
	N.	4·4	96	1 30	+22	2 18	+17	2·9	4·3
Port au Prince		14·5	50	e 3 34	+ 1	6 20	0	9·7	—
Tacubaya		17·7	305	4 19	+ 6	7 49	+16	8·7	14·7
Porto Rico	E.	20·0	62	4 58	+17	8 42	+19	—	9·0
	N.	20·0	62	4 53	+12	8 49	+26	—	9·0
Georgetown	N.	30·0	11	e 7 0	+32	11 36	+ 2	18·4	—
Washington		30·0	11	6 26	− 2	11 27	− 7	16·5	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
La Paz		30·4	149	6 31	− 1	11 18	−23	13·8	15·4
Chicago		32·4	355	e 7 0	+ 8	12 35	+21	—	—
Ann Arbor		32·8	0	6 54	− 1	12 24	+ 3	e 15·0	—
Ithaca		33·5	10	e 8 2	+61	e 14 54	+142	18·5	—
Toronto	E.	34·4	6	e 8 21	?PR_1	e 13 10	+24	e 18·1	19·8
	N.	34·4	6	i 8 15	?PR_1	e 13 15	+29	18·7	22·1
Ottawa		36·6	10	6 56	−31	13 0	−18	e 18·0	20·5
Berkeley	E.	44·5	316	—	—	—	—	e 24·9	—
La Plata	E.	50·8	153	12 48	?	—	—	30·0	30·6
Victoria	E.	51·0	327	19 8	?SR_1	—	—	29·1	37·6
Rio Tinto		74·3	54	24 0	?SR_1	—	—	—	41·0
Toledo		76·3	51	10 59	−58	i 21 52	+11	e 33·2	38·4
Granada		76·6	55	12 1	+ 2	i 21 56	+12	i 34·2	38·2
Edinburgh		77·1	35	—	—	—	—	e 48·0	—
Oxford		78·1	40	—	—	—	—	—	42·5
Tortosa		79·7	50	e 12 26	+ 9	22 27	+ 7	e 33·0	—
Paris		80·6	42	—	—	e 22 45	+15	41·0	—
Uccle		81·6	40	—	—	e 22 43	+ 1	e 34·0	—
De Bilt		82·0	38	12 34	+ 4	22 48	+ 2	e 42·0	44·8
Algiers		82·0	54	—	—	e 22 49	+ 3	42·0	—
Strasbourg	Z.	84·1	42	12 40	− 3	23 6	− 3	37·0	—
Moncalieri		84·6	45	e 12 18	−28	23 39	+24	35·6	—
Hamburg		84·7	37	—	—	e 23 0	−16	e 42·0	—
Upsala	E.	87·6	29	—	—	e 23 17	−31	e 51·0	—
Rocca di Papa		88·6	48	13 11	+ 3	—	—	58·5	67·5
Vienna		89·7	40	e 13 11	− 3	24 6	− 5	—	—
Pulkovo		93·5	27	13 35	0	24 2	−49	41·0	51·2
Kucino		99·0	29	—	—	—	—	i 102·5	—
Cape Town		105·6	123	—	—	—	—	—	58·6
Ekaterinburg		107·7	19	e 19 13	?PR_1	i 25 18	[+18]	45·0	60·6
Baku		114·5	36	—	—	e 26 30	−96	53·0	—
Irkutsk		117·8	354	—	—	—	—	53·0	—
Riverview		124·0	235	—	—	—	—	e 65·6	74·7
Manila		145·5	314	—	—	—	—	—	19·9

Additional readings: Georgetown eLE? = +14·3m. Toronto iSN = +13m.20s., eE = +14m.45s., SR_1E = +15m.13s., SR_1N = +15m.35s. Ottawa PR_1 = +8m.28s., SR_1 = +15m.20s., SR_2 = +16m.8s., T_e = 20h.28m.16s. Berkeley eN = +18m.10s. La Plata PN = +12m.49s., T_e = 20h.32m.43s. Victoria PN = +19m.6s., MN = +35·3m. Granada i = +12m.14s., PR_1 = +13m.57s., PS = +22m.43s. Tortosa iPN = +12m.46s. De Bilt eN = +23m.2s., eLN = +35·0m., MN = +38·3m., MZ = +45·0m. Pulkovo PR_1 = +17m.18s., SR_1 = +28m.42s., MZ = +51·9m., MN = +56·9m. Ekaterinburg MZ = +67·0m., MN = +70·8m.

Mar. 24d. Readings also at 0h. (near Osaka, Kobe, and Nagasaki), 3h. (Nagoya), 6h. (Manila), 19h. (La Paz), 20h. (Ottawa and Toronto), 23h. (Apia and Stonyhurst).

Mar. 25d. 11h. 33m. 32s. Epicentre 53°·8S. 148°·0E. (as on 1924 Jan. 15d.).

A = −·501, B = +·313, C = −·807; D = +·530, E = +·848; G = +·684, H = −·428, K = −·591.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Riverview	20·1	8	e 5 0	+18	e 8 57	+32	e 10·5	11·4
Sydney	20·1	8	4 40	− 2	—	—	10·6	12·5
Wellington	21·8	66	—	—	(e 8 41)	−20	(e 12·7)	13·1
Baku	125·9	291	—	—	—	—	e 66·5	—
Ekaterinburg	131·3	313	—	—	—	—	53·5	—
Toronto	147·8	89	—	—	—	—	68·8	—
Vienna	149·7	280	20 1	[+ 6]	—	—	—	—
Ottawa	150·9	89	—	—	—	—	e 62·5	—

Additional readings and notes: Wellington gives S as PR_1 and L as S. Riverview eP = +5m.33s., MN = +12·2m., T_e = 11h.33m.27s. Baku e = +82m.28s.

Mar. 25d. 14h. 6m. 48s. (I) } Epicentre 9°·5N. 84°·0W. (as on 24d.).
15h. 3m. 18s. (II) }

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
II Balboa Hts.	E.	4·4	96	1 30	+22	2 34	+33	3·0	3·9
II	N.	4·4	96	1 18	+10	2 6	+ 5	2·5	3·9
I Port au Prince		14·5	50	i 3 42	+ 9	7 54	?L	(7·9)	10·3
II		14·5	50	i 3 36	+ 3	—	—	10·3	—
I Tacubaya		17·7	305	4 19	+ 6	7 52	+19	8·7	15·2
II		17·7	305	4 11	− 2	7 45	+12	8·4	12·7
I Porto Rico	E.	20·0	62	4 41	0	8 30	+ 7	12·2	—
I	N.	20·0	62	4 49	+ 8	8 40	+17	15·8	16·1
I Georgetown		30·0	11	e 6 22	− 6	13 39	+125	e 16·4	—
II		30·0	11	e 6 9	−19	13 55	+141	e 16·6	—
I Washington		30·0	11	6 20	− 8	11 34	0	16·2	—
II		30·0	11	6 16	−12	11 52	+18	16·0	—
I La Paz		30·4	149	6 25	− 7	e 11 34	− 7	15·0	21·7
II		30·4	149	e 6 32	0	i 11 53	+12	15·3	20·5
I Chicago		32·4	355	6 49	− 3	12 14	0	—	—
II		32·4	355	6 36	−16	17 42	?L	(17·7)	—
I Ann Arbor		32·8	0	e 6 42	−13	12 36	+15	e 14·5	—
II		32·8	0	6 30	−25	12 42	+21	e 17·7	—
I Ithaca		33·5	10	i 8 7	?PR_1	e 12 12	−20	e 17·2	—
II		33·5	10	e 7 42	?PR_1	e 12 18	−14	18·2	—
I Toronto	E.	34·4	6	—	—	12 57	+11	17·3	19·7
I	N.	34·4	6	i 6 57	−11	e 12 57	+11	18·2	23·4
II	E.	34·4	6	—	—	—	—	34·7	—
I Ottawa		36·6	10	e 7 12	−15	e 12 53	−25	e 17·5	20·2
II		36·6	10	i 7 5	−22	e 12 56	−22	e 17·7	20·4
I Berkeley		44·5	316	i 8 21	− 9	—	—	e 25·4	—
I La Plata	E.	50·8	153	9 22	+10	16 26	− 3	—	30·0
I	N.	50·8	153	9 22	+10	16 24	− 5	30·4	30·5
II	N.	50·8	153	9 20	+ 8	16 22	− 7	—	30·9
I Victoria	E.	51·0	327	13 10	?PR_1	19 10	?SR_1	26·5	37·5
II	N.	51·0	327	13 10	?PR_1	19 15	?SR_1	31·2	33·3
I Rio Tinto		74·3	54	24 12	?	—	—	—	42·2
II		74·3	54	28 42	?	—	—	—	42·7
I Toledo		76·3	51	12 1	+ 4	21 47	+ 6	e 33·1	41·3
II		76·3	51	e 11 59	+ 2	21 45	+ 4	e 32·3	41·7
I Granada		76·6	55	e 12 5	+ 6	i 21 52	+ 8	—	38·9
II		76·6	55	12 7	+ 8	i 21 55	+11	e 32·7	40·6
I Edinburgh		77·1	35	—	—	e 22 12	+22	—	44·2
II		77·1	35	—	—	—	—	e 42·7	—
I Stonyhurst		77·4	37	—	—	—	—	—	41·2
II		77·4	37	—	—	—	—	—	44·7
I Oxford		78·1	40	—	—	22 12	+11	36·2	42·4
II		78·1	40	—	—	—	—	39·3	44·7
I Kew		78·7	39	37 12	?L	—	—	(37·2)	53·2
I Tortosa	E.	79·7	50	12 22	+ 5	22 27	+ 7	—	—
I	N.	79·7	50	12 21	+ 4	22 17	− 3	33·4	43·8
II		79·7	50	e 12 21	+ 4	22 23	+ 3	•35·7	—
I Paris		80·6	42	e 12 23	0	e 22 26	− 4	41·2	44·2
II		80·6	42	e 17 51	?PR_1	e 22 29	− 1	41·7	47·7
I Uccle		81·6	40	e 12 27	− 1	e 22 38	− 4	e 34·2	39·2
II		81·6	40	—	—	—	—	e 34·7	—
I De Bilt	E.Z.	82·0	38	12 29	− 1	22 44	− 2	e 39·2	44·8
I	N.	82·0	38	—	—	e 22 58	+12	e 35·2	48·2
II	E.Z.	82·0	38	12 30	0	22 46	0	e 41·7	44·7
II	N.	82·0	38	—	—	23 0	+14	e 36·7	38·2
I Strasbourg	Z.	84·1	42	12 36	− 7	e 23 4	− 5	31·2	45·9
II	Z.	84·1	42	12 35	− 8	23 0	− 9	37·7	—
I Moncalieri		84·6	45	e 12 54	+ 8	23 22	+ 7	e 35·7	—
I Hamburg		84·7	37	e 12 44	− 2	e 23 18	+ 2	e 39·2	—
II		84·7	37	i 12 48	+ 2	e 23 7	− 9	e 43·7	—
I Innsbruck	N.W.	86·7	43	e 12 55	− 2	—	—	—	—
I Upsala		87·6	29	—	—	e 23 18	−30	e 41·2	52·6
II		87·6	29	—	—	e 23 12	−36	—	52·1
I Rocca di Papa		88·6	48	12 6	−62	21 21	−158	—	—
II	Z.	88·6	48	e 13 4	− 4	—	—	—	—
I Vienna		89·7	40	13 8	− 6	23 55	−16	e 44·2	50·2
II		89·7	40	13 8	− 6	24 2	− 9	—	56·2
I Pulkovo		93·5	•27	13 23	−12	23 58	[+ 9]	41·2	51·3
II		93·5	27	13 35	0	23 58	[+ 9]	40·2	51·8
I Kucino		99·0	29	23 18	?	—	—	—	54·7

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
I Cape Town	105·6	123	—	—	—	—	—	58·8
I Ekaterinburg	107·7	19	e 19 10	?PR_1	25 15	[+15]	39·2	58·8
II	107·7	19	—	—	—	—	47·7	59·8
I Baku	114·5	36	e 21 6	?PR_1	—	—	50·9	—
I Manila	145·5	314	e 19 41	[− 8]	—	—	21·3	—
II	145·5	314	e 19 50	[+ 1]	—	—	—	—
I Colombo	157·0	45	89 42	?L	—	—	(89·7)	102·2

Additional readings: Georgetown II ePN = +6m.20s. Washington I PR_1 = +7m.22s., II PR_1 = +7m.14s. La Paz I PR_1 = +7m.30s., T_0 = 14h.6m.41s. Chicago II PR_1 = +7m.42s. Ann Arbor I PR_1 = +7m.54s., T_0 = 14h.6m.6s., II SR_1E = +14m.42s., T_0 = 15h.2m.0s. Ithaca II e = +14m.42s. Toronto I iPR_1N = +8m.7s. and +8m.14s., iPR_1E = +8m.12s., iSR_1E = +14m.31s., and several L's, II LN = +40·1m. Ottawa I PR_2 = +8m.32s., SR_1 = +15m.4s., SR_2 = +15m.36s., T_0 = 14h.6m.49s., II PR_1 = +8m.12s., SR_1 = +14m.57s., SR_2 = +15m.42s., T_0 = 15h.3m.0s. Berkeley I eLN = +27·2m. La Plata II ME = +37·3m., T_0 = 15h.3m.45s. Victoria I LN = +25·2m., MN = +35·7m., II LE = +32·5m., ME = +33·4m. Toledo I MNW = +40·0m., II MNW = +40·9m. Granada I iP = +12m.10s., II PS = +22m.19s. Eskdalemuir (Δ = 77°·0) gives simply 14h. Paris I LN = +35·2m. Innsbruck I eNE = +12m.58s. Rocca di Papa II PEN = +13m.13s. Pulkovo I PR_1 = +17m.17s., SR_1 = +29m.0s., MZ = +51·6m., MN = +55·1m., II MZ = +52·0m., MN = +56·2m. Ekaterinburg I MZ = +67·0m., MN = +70·5m., II MZ = +62·4m., MN = +62·7m., e = +87m.28s., and +91m.10s.

Mar. 25d. 21h. 6m. 42s. Epicentre 43°·0N. 131°·0E.

A = −·480, B = +·552, C = +·682; D = +·755, E = +·656; G = −·447, H = +·515, K = −·731.

A depth of focus 0·060 has been assumed in spite of the slightness of the shock, since the T_0 is so well determined. On any other hypothesis the two stations Ekaterinburg and Pulkovo must be thrown badly out of agreement with the Japanese.

		Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Mizusawa	E.	−0·5	8·5	114	2 7	+ 6	3 38	+ 1	—	—
Osaka		−0·6	9·0	156	2 6	− 1	—	—	4·3	5·1
Irkutsk		−2·4	20·1	307	—	—	—	—	i 7·6	—
Ekaterinburg		−5·1	45·1	313	e 7 50	− 5	i 13 59	− 8	e 16·8	—
Pulkovo		−6·1	58·6	325	e 9 23	0	i 16 50	0	—	—

Mizusawa gives also SN = +3m.40s.

Mar. 25d. Readings also at 2h., 5h., and 6h. (La Paz), 10h. (Ekaterinburg, Manila, and near Mizusawa), 11h. (Ekaterinburg), 12h. (Nagoya), 17h. (Zi-ka-wei), 19h. (Taihoku), 22h. (near Batavia, Malabar, and Taihoku).

Mar. 26d. 17h. 8m. 33s. Epicentre 47°·0N. 10°·0E. (as on 1918 Mar. 21d.).

A = +·672, B = +·118, C = +·731; D = +·174, E = −·985; G = +·720, H = +·127, K = −·682.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Zurich	1·0	291	e 0 17	+ 2	i 0 44	+16	—	—
Innsbruck	1·0	74	− i 0 11	−26	—	—	—	—
Strasbourg	2·2	317	0 29	− 5	1 2	+ 2	1·2	1·4
Venice	2·3	134	i 0 27	− 9	1 0 50	−13	—	2·2
Moncalieri	2·5	218	0 41	+ 2	1 27	+18	2·0	—
Vienna	4·5	71	0 35	−35	1 58	− 6	—	2·2
Paris	5·3	292	e 1 43	+21	e 3 0	+35	e 2·6	3·4
Uccle	5·3	318	e 1 21	− 1	—	—	e 2·8	—
Rocca di Papa	5·6	158	e 1 12	−15	e 2 9	−25	—	—
De Bilt	6·0	328	—	—	—	—	e 3·2	—
Hamburg	6·6	0	—	—	e 2 27?	−33	i 3·6	4·4

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Mostar	6·6	121	i 1 41	0	i 2 5	−55	—	2·5
Sarajevo	6·7	115	—	—	e 3 7	+ 5	—	—
Oxford	8·7	308	—	—	—	—	i 4·6	—
Upsala	13·6	16	—	—	e 5 48	−10	e 7·4	—
Pulkovo	17·5	36	3 38	−33	6 52	−37	8·0	9·0
Kucino	19·4	53	—	—	e 8 27	+17	—	—
Ekaterinburg	32·0	53	—	—	—	—	15·4	—

Additional readings: Strasbourg i = +38s. Vienna PR_2 = +1m.19s. and +1m.50s.; also several other readings. Hamburg MN = +5·6m., MZ = +5·7m. Oxford i = +4m.55s., Upsala eS = +7m.0s.

Mar. 26d. 20h. 2m. 20s. Epicentre 16°·5S. 180° (as on 1923 July 12d).

A = −·959, B = 000, C = +·284; D = 000, E = +1·000; G = +·284, H = 000, K = −·959.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Apia	8·4	73	e 2 10	+ 3	—	—	—	4·7
Wellington	25·2	189	i 5 39	− 1	10 27	+20	13·2	17·7
Riverview	31·2	230	e 6 47	+ 7	e 11 51	− 3	e 14·2	17·0
Sydney	31·2	230	7 52	+72	11 52	− 2	15·7	18·2
Adelaide	41·3	236	—	—	—	—	—	25·5
Honolulu	43·5	31	—	—	—	—	e 18·4	21·0
Perth	59·7	242	—	—	24 33	?SR_1	27·8	30·6
Manila	66·1	295	e 11 40	+48	—	—	—	—
Hong Kong	75·2	299	—	—	—	—	—	40·7
Irkutsk	94·5	323	e 13 47	+ 6	(24 59)	− 2	40·7	—
Kodaikanal	104·8	277	77 22	?L	—	—	(77·4)	—
Ekaterinburg	119·7	326	e 20 38	?PR_1	e 28 30	−17	47·7	72·3
Baku	130·9	310	e 23 6	?PR_1	e 40 0	?SR_1	60·9	—
Pulkovo	131·5	340	e 21 57	?PR_1	—	—	61·7	75·9
Edinburgh	140·5	2	—	—	—	—	e 86·7	—
Eskdalemuir	141·1	2	—	—	27 40	?	—	—
Hamburg	142·1	350	—	—	—	—	e 82·7	—
Stonyhurst	142·6	2	—	—	—	—	—	87·7
De Bilt	144·2	354	e 20 43	[+56]	e 41 52	?SR_1	68·7	—
Oxford	144·7	2	—	—	—	—	76·2	—
Vienna	145·5	340	19 56	[+ 7]	e 29 46	—	—	—
Ucqle	145·5	356	—	—	—	—	e 69·7	—
Strasbourg	147·3	349	20 6	[+14]	e 38 35	?SR_1	e 73·7	82·7
Paris	147·6	357	e 20 5	[+13]	e 42 21	?SR_1	78·7	—
Moncalieri	150·8	349	—	—	e 53 5	?	80·8	—
Rocca di Papa	152·5	339	20 14	[+15]	—	—	—	—
Toledo	156·4	8	e 67 17	?	—	—	e 79·0	86·9
Rio Tinto	158·0	14	75 40	?L	—	—	(75·7)	87·7

Additional readings and notes: Wellington i = +6m.47s. and +7m.39s., and several L's, T_e = 20h.1m.55s. Riverview PS = +12m.18s., MN = +17·2m., T_i = 20h.2m.47s. Honolulu MN = +21·4m. Irkutsk gives its S as the P of a second shock for which S = +31m.19s. Ekaterinburg e = +26m.14s., +30m.19s., and +36m.41s., MN = +58·2m., MZ = +76·2m. Pulkovo MZ = +77·6m. Vienna eZ = +21m.4s. Strasbourg eL = +42·7m., e = +55m.32s. Toledo MNW = +85·8m.

Mar. 26d. 20h. 22m. 50s. Epicentre 17°·0N. 112°·0W. (as on 1919 July 9d.).

A = −·358, B = −·887, C = +·292; D = −·927, E = +·375; G = −·110, H = −·271, K = −·956.

Very uncertain.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Berkeley	N.	22·7	339	—	—	—	—	e 14·3	—
Chicago		32·4	36	6 45	− 7	12 0	−14	e 27·2	—
Victoria	E.	32·8	347	12 14	?S	(12 14)	− 7	16·6	20·7
Ann Arbor		35·0	39	—	—	—	—	e 33·2	—
Washington		37·5	47	—	—	—	—	e 35·2	—
Toronto		38·3	40	e 8 0	+20	e 14 18	+36	20·9	—
Ottawa		41·4	40	e 8 28	+22	e 14 40	+13	e 19·2	33·2

Additional readings and notes: Victoria LN = +17·0m., MN = +20·3m., P has been increased by 10m. Toronto PE = +8m.10s., eE = +13m.55s., eN = +14m.3s., LN = +31·3m. Ottawa e = +9m.28s., SR_1? = +17m.40s., T_e = 20h.23m.28s.

Mar. 26d. 20h. 51m. 30s. Epicentre 42°·5N. 15°·5E. (as on 1923 Oct. 1d.).

$A = +·710$, $B = +·197$, $C = +·676$; $D = +·267$, $E = -·964$; $G = +·651$, $H = +·181$, $K = -·737$.

Very uncertain.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Pompeii		1·9	203	e 0 24	− 5	e 0 35	−18	—	0·8
Mostar		1·9	63	i 0 30	+ 1	i 1 2	+ 9	—	1·7
Rocca di Papa		2·2	250	i 0 43	+ 9	i 1 4	+ 4	—	1·3
Sarajevo		2·5	58	—	—	—	—	e 1·4	—
Vênice		3·7	323	e 3 6	?	—	—	—	3·7
Innsbruck		5·6	330	—	—	—	—	e 3·0	—
Vienna	Z.	5·7	6	e 2 21	?S	(e 2 21)	−15	—	—
Strasbourg		8·1	320	—	—	—	—	e 6·4	—

Additional readings and notes: Rocca di Papa MN = +1·4m. Sarajevo e = +2m.40s., L is also given simply as e. Venice ePZ = 20h.49m.52s. Strasbourg reading is involved with those of the shock from the antipodes.

Mar. 26d. Readings also at 1h. (Ottawa, Toronto, and near Athens), 4h. (La Paz), 5h. (La Paz and Granada), 6h. (Ekaterinburg), 7h. (Ekaterinburg), 8h. (near Port au Prince), 11h. (La Paz and La Plata), 14h. (Ekaterinburg, Sydney, Wellington, Apia, and near Taihoku), 15h. (Ekaterinburg, La Paz, and Ottawa), 18h. (Innsbruck), 19h. (near Zurich), 23h. (La Paz and La Plata).

Mar. 27d. 8h. 29m. 45s. Epicentre 9°·5N. 84°·0W. (as on Mar. 25d.).

$A = +·103$, $B = -·981$, $C = +·165$; $D = -·995$, $E = -·105$; $G = +·017$, $H = -·164$, $K = -·986$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Balboa Hts.	E.	4·4	96	1 1	− 7	1 57	− 4	2·4	2·8
	N.	4·4	96	1 13	+ 5	1 59	− 2	2·5	3·0
Tacubaya		17·7	305	4 42	+29	8 32	+59	9·3	—
La Paz		30·4	149	7 7	+35	13 57	+136	20·6	21·8
Chicago		32·4	355	—	—	e 12 35	+21	—	—
Toronto	E.	34·4	6	i 8 47	?PR_1	—	—	17·5	—
Ottawa		36·6	10	—	—	—	—	e 15·2	—
Victoria	E.	51·0	327	22 53	?SR_1	—	—	30·4	39·6
Paris		80·6	42	—	—	—	—	e 51·2	—
Uccle		81·6	40	—	—	—	—	—	43·2
De Bilt		82·0	38	—	—	—	—	e 47·2	—
Vienna	Z.	89·7	40	13 33	+19	—	—	—	—
Pulkovo		93·5	27	—	—	—	—	e 50·2	—
Ekaterinburg		107·7	19	—	—	—	—	49·2	—
Riverview		124·0	235	—	—	—	—	e 48·6	52·2

Additional readings: Toronto iE = +15m.15s., eE = +15m.40s., eN = +15m.45s., iE = +15m.58s., LN = +19·5m. Victoria LN = +30·2m., MN = +36·8m. Riverview MN = +53·6m.

Mar. 27d. Readings also at 0h. (Ekaterinburg (2)), 2h. (Ekaterinburg and Kucino), 7h. (near Nagasaki), 10h. (near La Paz), 13h. (Victoria), 14h. (near Athens), 17h. (Riverview and Perth), 18h. (La Paz (2)), 20h. (Pulkovo, Ekaterinburg, and Irkutsk), 21h. (Apia and Vienna), 22h. (Tortosa).

Mar. 28d. 4h. 57m. 0s. Epicentre 9°·5N. 84°·0W. (as on Mar. 27d.).

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Balboa Hts.	E.	4·4	96	1 2	− 6	2 8	+ 7	2·3	2·5
	N.	4·4	96	1 2	− 6	2 6	+ 5	2·5	2·8
Tacubaya		17·7	305	4 14	+ 1	7 57	+24	—	—
La Paz		30·4	149	6 37	+ 5	13 35	+114	19·8	21·8
Chicago		32·4	355	—	—	—	—	e-14·0	—

Balboa Heights readings have been diminished by 1h. Chicago reading may belong to the following shock.

Mar. 28d. 5h. 0m. 15s. Epicentre 55°·0N. 35°·0W. (as on Mar. 22d.).

$A = +\cdot470$, $B = -\cdot329$, $C = +\cdot819$; $D = -\cdot574$, $E = -\cdot819$; $G = +\cdot671$, $H = -\cdot470$, $K = -\cdot574$.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Edinburgh	17·9	75	e 4 15	− 1	—	—	—	12·8
Eskdalemuir z.	18·0	76	4 19	+ 2	(7 45)	+ 5	7·8	—
Oxford	20·2	85	4 45	+ 2	i 8 46	+19	10·6	11·6
Kew	20·9	84	—	—	—	—	—	11·8
Paris	23·6	89	e 5 15	− 9	—	—	12·8	14·8
De Bilt	23·7	80	e 5 17	− 8	e 9 46	+ 8	e 11·8	14·2
Uccle	23·8	83	e 5 45	+19	e 9 9	−31	e 11·8	—
Toledo	25·5	113	e 5 28	−15	e 8 18	−115	e 11·9	13·6
Hamburg	25·8	74	e 5 45	− 1	—	—	e 14·8	17·8
Strasbourg	26·8	86	10 45	?S	(10 45)	+ 8	—	14·8
Ottawa	27·3	266	—	—	e 10 45	− 1	14·8	—
Toronto E.	30·5	266	—	—	(11 45)	+ 2	15·4	—
Rocca di Papa	33·5	92	e 6 45	−16	—	—	e 18·4	—
Pulkovo	34·1	55	6 57	− 9	12 28	−14	15·8	20·6
Ekaterinburg	49·1	47	9 5	+ 4	e 16 21	+14	21·8	—
Victoria E.	51·4	302	—	—	—	—	27·1	29·5
N.	51·4	302	—	—	—	—	27·4	30·0

Additional readings: De Bilt MN = +14·6m. Hamburg MN = +15·8m. Toronto LN = +17·5m. Pulkovo MN = +23·0m.

Mar. 28d. 13h. 54m. 12s. Epicentre 34°·0N. 140°·0E.

$A = -\cdot635$, $B = +\cdot533$, $C = +\cdot559$.

If we accept the Mizusawa P and S this cannot be a repetition from 35°·0N. 139°·5E. (Mar. 5).

	Δ	P.	O−C.	S.	O−C.	L.	M,
	°	m. s.	s.	m. s.	s.	m.	m.
Nagoya	2·8	0 52	+ 8	(1 12)	− 5	1·2	2·3
Osaka	3·8	1 47	?S	(1 47)	+ 3	2·3	4·3
Kobe	4·1	1 44	?S	(1 44)	− 9	2·3	2·7
Mizusawa E.	5·2	1 19	− 1	2 23	+ 1	—	—

Additional readings: Kobe MN = +2·5m. Mizusawa SN = +2m.24s.

Mar. 28d. Readings also at 9h. (Innsbruck and near Zurich), 11h. (near Taihoku), 14h. (Irkutsk and Ekaterinburg), 22h. (Apia and near Mizusawa), 23h. (Ekaterinburg).

Mar. 29d. Readings at 0h. (Paris, Ekaterinburg, and Rio Tinto), 4h. (Kobe and near Athens), 6h. (Zante (2)), 7h. (La Paz), 15h. (Irkutsk), 20h. (near Balboa Heights).

Mar. 30d. 0h. 8m. 55s. Epicentre 50°·5N. 129°·5W. (as on 1923 Oct. 13d.).

A = −·405, B = −·491, C = +·772 ; D = −·772, E = +·636 ;
G = −·491, H = −·595, K = −·636.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Victoria		4·5	115	1 17	+ 7	—	—	2·8	3·2
Sitka	E.	7·4	334	—	—	3 2	−19	3·7	4·4
	N.	7·4	334	—	—	—	—	3·9	4·7
Berkeley	E.	13·6	155	i 3 27	+ 6	i 6 19	+21	i 7·6	8·8
	N.	13·6	155	i 3 25	+ 4	e 6 29	+31	i 7·4	8·8
Lick	E.	14·3	154	i 3 42	+12	i 6 37	+22	i 8·2	9·2
Denver		20·3	113	—	—	—	—	6·1	8·1
Tucson	E.	22·8	136	5 7	− 8	9 46	+25	14·1	15·1
Chicago		29·8	91	3 3	−203	9 23	−128	—	—
St. Louis		30·0	98	—	—	—	—	e 16·1	—
Ann Arbor		32·1	88	—	—	e 13 53	+103	16·9	20·2
Toronto	E.	34·1	83	—	—	e 12 25	−17	i 15·5	18·9
	N.	34·1	83	—	—	e 12 26	−16	e 15·6	19·0
Ottawa		35·5	78	e 8 43	+85	e 12 49	−14	e 14·5	19·6
Ithaca		36·6	82	—	—	—	—	19·1	—
Honolulu		36·8	229	—	—	—	—	15·2	18·5
Northfield		38·1	77	—	—	—	—	e 19·1	—
Georgetown		38·2	88	—	—	20 31	?L	(20·5)	—
Washington		38·2	88	—	—	e 15 5	+84	20·1	—
Cheltenham	N.	38·4	88	—	—	—	—	e 20·7	21·3
Tacubaya		39·3	133	7 31	−18	—	—	22·7	25·6
Dyce		64·0	29	—	—	—	—	33·8	39·8
Edinburgh		64·7	30	—	—	e 19 35	+14	e 34·1	38·7
Eskdalemuir	Z.	65·2	30	e 10 5	−41	—	—	35·1	—
Upsala		66·5	17	—	—	e 19 35	− 9	e 37·1	42·6
Stonyhurst		66·6	32	—	—	—	—	e 31·2	39·6
Bidston		66·8	32	—	—	—	—	32·6	43·1
Pulkovo		68·6	11	11 6	− 2	20 10	+ 1	32·1	41·6
Oxford		68·8	32	—	—	i 20 15	+ 3	32·1	40·1
Kew		69·4	32	—	—	—	—	—	43·1
Hamburg		70·5	25	—	—	e 22 5	+93	e 35·1	45·1
De Bilt		70·5	28	e 11 2	−18	e 20 44	+12	e 34·1	43·4
Uccle		71·3	29	—	—	e 23 5	+143	e 36·1	40·1
Ekaterinburg		72·4	355	e 10 34	−58	20 12	−43	31·1	48·4
Paris		72·5	31	—	—	e 22 5	+69	38·1	42·1
Kucino		73·3	8	—	—	21 3	− 3	—	39·3
Strasbourg		74·4	28	—	—	e 26 5	?SR_1	e 37·1	44·1
Vienna		77·1	23	e 12 3	+ 1	e 23 20	+90	—	45·1
Moncalieri		77·6	30	11 55	−10	21 50	− 6	32·7	38·4
Toledo		77·8	40	—	—	—	—	e 40·8	43·7
Tortosa	E.	78·8	38	—	—	—	—	e 43·1	48·1
	N.	78·8	38	—	—	—	—	40·3	52·7
Barcelona		78·8	35	—	—	e 19 51	−139	e 40·8	47·3
Rocca di Papa		82·1	28	12 15	−16	23 28	−19	e 46·8	52·9
La Paz		85·8	124	12 57	+ 5	25 23	+115	52·4	55·8
Baku		89·2	1	e 11 14	−117	21 39	−146	43·6	—
Riverview		109·4	240	—	—	e 26 59	−24	e 49·6	50·6

Additional readings and notes: Berkeley iPZ = +3m.26s. Lick iE = +4m.1s., iSR_1E = +6m.54s., iE = +7m.17s. Ann Arbor MN = +17·9m. Toronto eSE = +12m.28s., iSN = +12m.31s. Honolulu MN = +19·2m. Georgetown eEN? = +16m.5s., SN? = +20m.27s. Cheltenham eE = +20m.34s. Tacubaya LN = +22·5m., MN = +25·5m. Upsala MN = +42·4m. De Bilt MZ = +43·8m., MN = +44·0m. Ekaterinburg PS = +20m.53s., MN = +43·1m. Paris readings given for 29d. Kucino MN = +44·5m. Moncalieri readings have been diminished by 10m. Toledo MNW = +45·7m. Rocca di Papa eE = +12m.27s. Riverview MN = +60·1m. ; all readings except the first have been increased by 30m.

Mar. 30d. Readings also at 0h. (Osaka, Manila, Hong Kong, and La Paz), 4h. (Rio de Janeiro), 9h. (La Paz), 12h. (Ottawa, Toronto, and near Victoria), 16h. (Malabar, Batavia, and Ekaterinburg), 18h. (Ekaterinburg), 19h. (La Paz), 20h. (Tashkent, Riverview, Manila, Irkutsk (2), and La Paz), 22h. (near Manila), 23h. (Tashkent and near Manila).

Mar. 31d. 16h. 51m. 50s. Epicentre 40°·0N. 76°·0E. (as on 1920 June 14d.).

$A = +\cdot185$, $B = +\cdot743$, $C = +\cdot643$; $D = +\cdot970$, $E = -\cdot242$; $G = +\cdot155$, $H = +\cdot624$, $K = -\cdot766$.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Tashkent	5·3	286	e 1 46	+24	2 22	− 3	—	2·8
Ekaterinburg	19·6	335	i 4 31	− 5	i 8 10	− 5	9·7	10·5
Hyderabad	22·6	174	9 20	?S	(9 20)	+ 3	—	—
Irkutsk	22·9	48	e 9 46	?S	(e 9 46)	+23	13·2	—
Pulkovo	34·5	320	6 39	−30	12 1	−47	15·2	—
De Bilt	48·6	310	—	—	—	—	e 27·2	—

Additional readings: Tashkent SE = +2m.40s. Ekaterinburg MZ = +11·8m.; readings given for 30d. Irkutsk S = +12m.23s.? De Bilt eE = +30m.10s.

Mar. 31d. Readings also at 4h. (Apia), 13h. (near Nagasaki), 14h. (near Mizusawa and near Baku), 15h. (near Manila (2)), 16h. (Nagoya and near Osaka and Kobe), 17h. (Irkutsk), 19h. (Nagoya). 20h. (Taihoku and near Osaka).

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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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