The International Seismological Summary.

1941 April, May, June.

INTERNATIONAL GEODETIC AND GEOPHYSICAL UNION.
ASSOCIATION OF SEISMOLOGY.
FORMERLY THE BULLETIN OF
THE BRITISH ASSOCIATION SEISMOLOGY COMMITTEE.

The Director of the I.S.S. wishes to express his thanks to U.N.E.S.C.O. and H.M. Treasury for financial support, which has covered the cost and preparation of this volume.

The second quarter of 1941 contains 127 Epicentres, of which 82 are repetitions from previous Epicentres.

Cases of abnormal focal depth are noticed as below :—

April	2d.	18h.	41·8N.	138·6E.	0·030
	3d.	14h.	22·5S.	66·0W.	0·015
	3d.	15h.	22·5S.	66·0W.	0·015
	7d.	2h.	20·5S.	177·5W.	0·070
	14d.	19h.	36·5N.	71·0E.	0·030
	15d.	16h.	16·4S.	71·0W.	0·030
	18d.	6h.	21·0S.	169·5E.	Suggested Deep
	30d.	9h.	33·9N.	141·9E.	0·010
May	7d.	12h.	18·5S.	169·1E.	0·005
	8d.	10h.	17·8S.	178·8W.	0·070
	15d.	15h.	36·3N.	71·0E.	0·030
	17d.	21h.	36·3N.	71·0E.	0·025
June	13d.	15h.	19·0N.	102·5W.	Suggested Deep
	13d.	22h.	18·3N.	145·2E.	0·025
	16d.	10h.	36·4N.	140·6E.	0·010
	18d.	11h.	16·3N.	98·6W.	0·005
	21d.	17h.	20·5S.	179·0W.	0·070
	23d.	9h.	1·8S.	119·6E.	Base of Superficial Layers
	27d.	17h.	17·1N.	93·4W.	0·020

Thanks are also due to the Director of the Meteorological Office and the Superintendent of Kew Observatory for hospitality extended to the staff, and assistance with the administration.

KEW OBSERVATORY,
RICHMOND, SURREY.

February, 1952.

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1941 APRIL, MAY, JUNE.

April 1d. 10h. 40m. 58s. Epicentre 55°·8N. 153°·8W.

$A = -·5067$, $B = -·2493$, $C = +·8253$; $\delta = +2$; $h = -7$;
$D = -·442$, $E = +·897$; $G = -·740$, $H = -·364$, $K = -·565$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		9·6	16	e 2 16	− 5	i 3 42	−30	i 4 52	S*	i 5·1
Sitka		10·3	72	e 2 27	− 5	i 4 9	−21	i 2 44	PP	i 4·5
Victoria		19·9	98	i 4 34	− 2	i 8 20	+ 5	—	—	9·0
Seattle		21·0	99	e 7 0	?	e 9 12	SS	—	—	i 11·0
Spokane	N.	23·7	95	i 5 20	+ 6	i 9 40	+13	—	—	i 19·2
Ferndale		24·6	114	e 5 14	− 9	e 11 20	SSS	—	—	—
Ukiah		26·3	115	e 5 27	−12	e 10 5	− 6	e 6 11	PP	i 12·1
Berkeley		26·9	116	e 5 48	+ 3	i 10 42	+22	e 6 10	PP	e 12·7
Butte		27·4	92	e 5 47	− 2	i 10 28	0	e 11 21	SS	e 12·8
Saskatoon		27·6	77	e 5 38	−13	10 50	+18	e 6 36	PP	14·0
Santa Clara	N.	28·3	116	—	—	e 10 56	+13	—	—	—
Lick		28·4	116	e 6 4	+ 6	—	—	—	—	e 13·1
Bozeman		28·5	92	i 6 15	+16	i 10 46	0	i 7 1	PP	i 13·3
Fresno	N.	29·8	115	e 6 14	+ 3	—	—	e 8 26	?	—
Tinemaha		30·3	113	i 6 17	+ 2	—	—	—	—	—
Logan		30·5	98	6 18	+ 1	e 11 8	−10	e 13 9	SS	e 14·6
Haiwee		31·2	113	i 6 23	0	—	—	—	—	—
Salt Lake City		31·2	100	e 6 21	− 2	e 11 31	+ 2	e 7 37	PP	i 13·1
Santa Barbara	Z.	31·6	117	i 6 28	+ 2	—	—	—	—	—
Mount Wilson		32·7	115	i 6 36	0	—	—	—	—	—
Pasadena		32·7	115	i 6 37	+ 1	i 11 56	+ 4	i 7 51	PP	i 14·9
Riverside		33·2	115	e 6 41	+ 1	—	—	—	—	—
Honolulu		34·6	186	i 8 10	PP	i 12 42	+20	—	—	i 14·8
Denver	E.	35·6	96	—	—	e 13 2	+24	—	—	e 20·7
Tucson		38·0	109	i 7 22	+ 1	i 12 56	−18	i 8 48	PP	i 16·4
Lincoln		39·7	86	i 7 35	− 1	i 13 36	− 4	i 9 11	PP	e 16·5
Chicago U.S.C.G.S.		44·1	80	e 8 20	+ 8	i 14 38	− 7	e 17 40	SS	i 18·3
Florissant		44·6	84	e 8 14	− 2	i 14 47	− 5	i 18 6	SS	—
St. Louis		44·8	84	e 8 18	+ 1	i 14 53	− 2	i 8 26	pP	i 23·0
Mizusawa		45·2	277	e 8 14	− 6	15 8	+ 7	—	—	—
Cape Girardeau		46·1	86	e 8 27	− 1	e 15 9	− 5	e 9 53	PP	e 23·5
Toronto		47·3	72	e 10 32	PP	15 24	− 7	19 21	SSS	23·0
Vladivostok		47·6	288	e 8 40	+ 1	—	—	—	—	—
Buffalo		48·1	72	i 8 49	+ 6	i 15 39	− 3	i 10 45	PP	—
Ottawa		48·1	68	8 41	− 2	15 36	− 6	18 20	SS	e 23·0
Shawinigan Falls		48·9	64	8 47	− 3	15 48	− 5	—	—	27·0
Pittsburgh		49·2	76	e 8 52	0	e 15 50	− 8	—	—	—
Scoresby Sund		49·4	20	e 8 49	− 4	i 15 57	− 3	i 10 47	PP	i 19·9
Seven Falls		49·5	63	9 0	+ 6	15 58	− 4	19 47	SSS	24·0
Ivigtut		49·6	38	9 0k	+ 5	15 57	− 6	19 54	SSS	24·0
Pennsylvania		50·1	74	e 9 8	+ 9	e 16 21	+11	—	—	e 15·6
Fordham		52·2	71	i 9 20	+ 5	i 16 37	− 2	—	—	—
Philadelphia		52·2	72	e 9 19	+ 4	e 16 30	− 9	e 20 9	SS	e 23·6
Weston		52·5	67	i 9 15	− 2	16 56	+13	20 26	SS	—
East Machias		52·8	63	e 10 9	+50	i 16 40	− 7	e 19 8	S_eS	e 24·3
Columbia		53·2	81	e 9 26	+ 4	i 16 49	− 3	e 20 31	SS	e 23·4
Irkutsk		54·6	313	e 9 33	+ 1	17 8	− 3	e 9 44	pP	—
Halifax		54·8	61	13 20	PPP	22 32	SSS	—	—	26·0
Bergen		63·0	12	e 10 31	0	e 19 1	0	—	—	31·0
Bermuda		63·4	71	e 14 3	PPP	i 18 57	− 9	i 20 27	S_eS	i 26·0
Sverdlovsk		64·3	340	i 10 39	0	i 19 16	− 1	i 10 53	pP	—
Upsala		64·5	6	i 10 41	0	i 19 16	− 3	i 19 37	PS	e 30·0
Pulkovo		64·7	358	i 10 40	− 2	i 19 19	− 3	10 55	pP	—
Semipalatinsk		65·0	326	e 10 44	0	—	—	—	—	—
Aberdeen		65·1	17	i 19 21	S	(i 19 21)	− 6	i 23 40	SS	e 30·0

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Copenhagen		68·3	9	e 11 4	− 1	20 5	− 1	13 37	PP	—
Moscow		68·5	353	i 11 4	− 2	i 20 3	− 5	11 18	pP	—
Stonyhurst		68·8	19	—	—	20 2?	− 9	(28 2?)	SSS	28·0
Kew		70·3	18	e 11 21	+ 4	e 20 34	+ 5	e 13 54	PP	32·0
Oxford		70·4	19	—	—	i 20 31	+ 1	—	—	—
De Bilt		71·1	13	i 11 24k	+ 2	i 20 39	+ 1	e 14 22	PP	e 35·0
Potsdam		71·6	9	i 11 24a	− 1	i 20 47	+ 3	i 11 39	P_cP	e 32·0
Uccle		72·2	15	e 11 28	− 1	i 20 49	− 2	i 14 17	PP	e 36·0
Warsaw		72·3	4	11 28a	− 1	20 59	+ 7	e 14 5	PP	e 34·0
Almata		72·4	324	e 11 32	+ 2	—	—	—	—	—
Jena		72·9	10	e 11 32	− 1	e 21 2	+ 3	—	—	e 34·0
Frunse		73·5	326	11 40	+ 4	e 21 14	+ 8	—	—	—
San Juan		73·7	81	e 12 17	+39	i 21 2	− 6	e 14 3	PP	e 33·1
Paris		73·9	17	i 11 42	+ 3	—	—	—	—	30·0
Prague		74·1	8	e 9 17	?	e 21 11	− 1	e 26 20	SS	e 38·0
Strasbourg		74·8	12	e 11 45	+ 1	e 21 21	+ 1	e 26 15	SS	—
Stuttgart		74·8	11	e 11 43	− 1	e 21 10	−10	e 14 28	PP	e 39·0
Manila		75·4	274	i 11 50	+ 3	i 21 30	+ 3	—	—	35·6
Basle		75·8	14	e 11 48	− 2	e 21 42	+11	—	—	—
Andijan		76·1	326	e 11 54	+ 3	—	—	—	—	—
Zurich		76·1	13	e 11 50	− 1	e 21 49	+14	—	—	—
Tashkent		76·6	328	i 11 55	+ 1	i 21 31	− 9	12 11	pP	—
Chur		76·8	12	e 12 0	+ 5	—	—	—	—	—
Budapest		76·9	5	e 21 42	S	(e 21 42)	− 1	i 22 22	PS	e 38·5
Clermont-Ferrand		77·0	17	e 11 58	+ 2	—	—	—	—	e 41·0
Kesckemet	z.	77·5	6	e 18 2	?	—	—	—	—	—
Kalossa		77·9	6	e 12 2	+ 1	—	—	—	—	—
Triest		78·4	10	e 12 22	+18	i 21 56	− 4	—	—	e 38·5
Theodosia		79·3	353	e 12 8	− 1	e 22 12	+ 3	—	—	—
Sebastopol		79·8	355	12 15	+ 3	e 22 24	+10	—	—	—
Coimbra		79·9	27	e 11 34	−38	i 22 12	− 4	e 15 32	PP	e 41·6
Yalta		79·9	355	12 11	− 1	—	—	—	—	—
Bucharest		80·0	0	e 12 13	0	e 22 19	+ 2	e 15 13	PP	33·0
Lisbon		81·2	28	—	—	i 22 30	+ 1	—	—	38·5
Toledo		81·3	24	i 12 19	− 1	i 22 32	+ 2	—	—	33·9
Sofia		81·8	2	e 12 7	−15	e 22 35	0	—	—	—
Rome		82·0	11	i 12 23	0	e 22 16	−21	i 15 28	PP	—
Baku		82·1	342	i 12 25	+ 1	i 22 35	− 3	—	—	—
Granada		83·9	24	i 12 32k	− 1	i 23 2	+ 6	13 2	pP	43·3
San Fernando		84·0	27	—	—	e 22 58	+ 1	e 33 2	?	e 40·5
Almeria		84·5	24	e 12 6	−30	22 59	− 3	12 28	P_cP	40·6
Algiers		85·7	19	e 12 40	− 2	e 23 18	+ 4	—	—	e 42·0
Calcutta	N.	86·0	304	e 12 53	+10	i 23 5	[− 3]	e 15 52	PP	—
Agra	N.	86·4	315	—	—	e 23 7	[− 3]	e 28 43	SS	—
Ksara		90·4	352	e 13 17	+13	e 24 18	+20	—	—	—
Huancayo		93·5	107	e 8 49	?	—	—	e 17 21	PP	i 23·9
Helwan		94·6	356	e 13 26	+ 2	23 59	[0]	17 11	PP	—
Hyderabad	N.	94·8	311	e 13 25	0	23 56	[− 4]	24 14	S	40·1
Bombay		95·8	316	e 13 33	+ 4	i 24 4	[− 1]	i 17 20	PP	—
Medan		96·8	287	e 14 21	?	i 24 21	[+10]	—	—	e 52·0
Riverview		100·8	224	—	—	e 25 42	+15	—	—	e 49·1
La Paz		101·1	103	e 18 47	?	i 24 32	[0]	56 2	Q	62·5
Kodaikanal	E.	101·7	309	e 17 18?	PKP	i 24 36	[+ 1]	—	—	i 48·0
Christchurch		103·0	205	27 15	PS	—	—	46 2	Q	50·0
Colombo	E.	103·5	305	—	—	24 46	[+ 2]	—	—	53·1
Adelaide		107·1	233	—	—	e 48 40	?	—	—	e 53·6
Rio de Janeiro	E.	120·0	87	—	—	e 26 2	[+12]	—	—	e 60·7

Additional readings :—
College e = +2m.40s., i = +4m.33s. and +4m.43s.
Sitka i = +2m.34s., +4m.13s., and +4m.22s.
Victoria eE = +7m.8s.
Seattle i = +7m.19s.
Ferndale ePN = +5m.28s.
Ukiah e = +7m.14s., eP_cP = +8m.35s., iS = +10m.20s.
Berkeley ePZ = +5m.54s., eEN = +6m.0s., ePPZ = +7m.15s., eE = +10m.11s., eZ = +10m.30s., iSN = +10m.48s., iSSZ = +11m.38s.
Butte i = +7m.30s., e = +8m.39s. and +12m.2s.

Continued on next page.

Bozeman iPPP = +7m.23s., iP_cP = +8m.19s., e = +8m.38s., i = +12m.7s., +12m.45s., and +13m.9s.
Logan S = +11m.21s.
Salt Lake City e = +10m.34s.
Honolulu e = +9m.27s., i = +9m.40s., +10m.50s., and +13m.45s.
Tucson i = +7m.31s., +8m.19s., +9m.40s., +11m.31s., and +13m.14s., iSS =15m.16s.
Lincoln i = +14m.47s.
Chicago U.S.C.G.S. e = +11m.23s., eSS = +18m.0s.
Florissant eEN = +15m.3s., iE = +15m.6s., iS_cSN = +18m.22s.
St. Louis iZ = +8m.31s., ePPE = +9m.50s., ePPPE = +10m.30s., iSZ = +14m.56s., iSSN = +18m.17s.
Cape Girardeau ePN = +8m.34s., iE = +15m.18s., eSSEN = +18m.26s., eE = +22m.4s.
Buffalo i = +10m.4s. and +10m.22s., iPPP = +11m.34s.
Scoresby Sund i = +11m.9s., e = +14m.23s., i = +16m.10s., iSS = +18m.43s.
Pennsylvania e = +9m.40s. All readings have been reduced by 1h.
Philadelphia e = +9m.33s., i = +18m.27s., e = +19m.57s.
Weston i = +10m.45s. and +16m.38s.
East Machias e = +13m.17s. and +17m.0s., eSS = +20m.21s.
Columbia i = +17m.8s., e = +21m.45s.
Halifax SSS = +24m.2s.?
Upsala ePE = +10m.48s., eSSN = +24m.2s.?, eSSSE = +26m.32s., eSSSN = +27m.2s.?
Aberdeen iE = +19m.44s., iSE = +27m.8s., iN = +27m.23s.
Copenhagen +20m.21s. and +24m.38s.
Kew ePPPZ = +15m.41s., eSS = +25m.2s.?, eSSSEN = +28m.32s.?
De Bilt iSS = +25m.11s., eSSS = +28m.52s.
Potsdam iPN = +11m.30s., iPPPZ = +15m.51s., iPSZ = +21m.0s., iSSN = +25m.35s., iN = +25m.47s.
Uccle iNZ = +11m.34s., SSN = +25m.33s.
Warsaw PN = +11m.32s., eZ = +13m.11s., PPPZ? = +15m.51s., PSZ = +21m.21s., eSSE = +25m.30s., eSSN = +25m.42s., eE = +27m.25s.
San Juan e = +23m.9s., i = +24m.21s., iSS = +26m.16s., i = +26m.52s.
Prague eSSS = +30m.2s.
Stuttgart iPZ = +11m.47s.
Manila i = +12m.25s.
Budapest iE = +22m.50s.
Clermont-Ferrand e = +13m.50s.
Coimbra PPP = +16m.36s., i = +22m.43s., SS = +26m.14s., SS = +27m.46s., SSS = +32m.6s.
Bucharest eE = +12m.33s., eN = +14m.19s., eE = +16m.53s., eN = +17m.8s., ePS = +23m.6s.
Lisbon Z = +21m.1s., iSE = +22m.26s., E = +24m.46s. and +33m.26s.
Rome ePPPN = +16m.59s., e = +18m.37s., eN = +18m.58s., iSN = +22m.41s., eN = +22m.55s., iPSN = +26m.34s., iN = +27m.27s., iSSN = +28m.4s., iN = +30m.12s., iSSS = +30m.53s., iNZ = +34m.44s., iN = +41m.12s.
Granada P_cP = +12m.56s., PP = +15m.47s., pPP = +16m.1s., PPP = +17m.32s., SKS = +22m.35s., PS = +24m.8s., SS = +28m.56s., sSS = +29m.14s., SSS = +31m.54s.
Almeria PP = +15m.42s., S_cS = +23m.21s., PPS = +24m.22s., SS = +28m.27s., SSS = +32m.16s.
Calcutta iS = +23m.20s., iS_cS = +23m.28s., ePSN = +24m.13s., eSSN = +28m.56s.
Huancayo e = +10m.26s., +13m.47s., +17m.50s., and +19m.40s.
Helwan SEN = +24m.40s., SSE = +31m.11s.
Bombay iSN = +24m.20s., iPSE = +24m.59s., iPSN = +25m.6s., iE =eN = +26m.24s., eSSEN = +31m.40s.
Medan SE = +24m.33s.
Long waves were also recorded at Wellington, Branner, San Francisco, Tananarive, Marseilles, and Arapuni.

April 1d. 22h. 3m. 54s. Epicentre 55°·8N. 153°·8W. (as at 10h.).

A = −·5067, B = −·2493, C = +·8253; δ = +2; h = −7;

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		9·6	16	—	—	e 4 19	+ 7	e 4 56	S*	i 5·7
Riverside	z.	33·2	115	i 6 39	− 1	—	—	—	—	—
Tucson		38·0	109	i 7 22	+ 1	—	—	—	—	—
St. Louis		44·8	84	e 7 4	−73	—	—	e 10 22	PPP	—
Vladivostok		47·6	288	e 8 39	0	e 15 40	+ 5	—	—	—
Sverdlovsk		64·3	340	e 10 36	− 3	e 19 25	+ 8	—	—	—
Moscow		68·5	353	e 11 1	− 5	—	—	—	—	—
Frunse		73·5	326	11 42	+ 6	—	—	—	—	—
Tashkent		76·6	328	e 11 51	− 3	e 21 39	− 1	—	—	—
Baku		82·1	342	—	—	22 45	+ 7	—	—	—

Additional readings :—
Tucson i = +7m.31s. and +7m.43s.
St. Louis eZ = +8m.20s.
Long waves were also recorded at Sitka, Ottawa, Berkeley, Columbia, Bermuda, Philadelphia, Scoresby Sund, Chicago U.S.C.G.S., and Ukiah.

April 1d. Readings also at 2h. (Mount Wilson, Riverside, and Tucson), 3h. (near Mizusawa), 4h. (Riverview), 6h. (near Batavia, near Bucharest, Sofia, and Medan), 7h. (near Santa Clara, Berkeley (2), San Francisco, Lick (2), Fresno, and Branner), 9h. (Huancayo, Branner, Lick, Berkeley, Tucson, and La Paz), 10h. (Huancayo and Tucson (2)), 11h. (near Berkeley, Branner, Lick, Fresno, San Francisco), 12h. (Toledo, Wellington, and Christchurch), 13h. (Bergen), 16h. (near Almata), 18h. (near Cape Girardeau), 19h. (La Paz and Rome), 20h. (near Amboina), 21h. (near Rome), 22h. (Lincoln).

April 2d. 15h. Pacific shock.

Sydney e =50m.48s. and 55m.30s.
Brisbane eN =51m.36s., iN =55m.48s.
Riverview iZ =51m.46s. and 52m.33s., iE =56m.3s., eLN =56·9m.
Manila iP =57m.59s., iSEN =67m.12s.
Pasadena iP =59m.22s., iZ =60m.24s.
Mount Wilson iPZ =59m.23s., iZ =60m.31s.
Riverside iPZ =59m.23s., eZ =60m.21s., iZ =63m.3s.
Tinemaha ePZ =59m.30s.
Tucson iP =59m.39s., i =59m.57s., 60m.37s., 60m.48s., and 61m.15s.
Stuttgart ePZ =66m.24s.
Neuchatel eP =66m.27s.
Zurich eP =66m.30s.
Basle eP =66m.32s.

April 2d. 18h. 4m. 49s. Epicentre 41°·8N. 138°·6E. Focal depth 0·030.

Intensity IV at Hatinohe; II-III at Urakawa, Miyako, and Kakioka.
Epicentre 41°·8N. 138°·6E. Depth 150km. Macroseismic radius over 300km.
See Seismological Bulletin of the Central Met. Obs., Japan, for the year 1941; Tokyo, 1950, p. 19. Macroseismic chart, p. 19.

$A = -\cdot5608$, $B = +\cdot4944$, $C = +\cdot6641$; $\delta = -4$; $h = -2$;
$D = +\cdot661$, $E = +\cdot750$; $G = -\cdot498$, $H = +\cdot439$, $K = -\cdot748$.

	Δ	Az.	P.	O−C.	S.	O−C.
	°	°	m. s.	s.	m. s.	s.
Mori	1·5	78	0 37	+ 1	1 5	+ 1
Aomori	1·9	121	0 40	0	1 9	− 1
Akita	2·4	151	0 46a	+ 1	1 20	+ 1
Hatinohe	2·6	120	0 46	− 1	1 20	− 3
Mizusawa	3·3	144	0 54	− 1	i 1 34	− 3
Miyako	3·4	130	1 5	+ 9	1 40	+ 1
Aikawa	3·8	185	1 3	+ 2	—	—
Sendai	4·0	152	1 2	− 1	1 48	− 4
Hukusima	4·3	160	1 6	− 1	1 53	− 6
Wazima	4·6	197	1 15a	+ 4	2 11	+ 6
Nagano	5·1	184	1 20a	+ 3	—	—
Vladivostok	5·1	287	i 1 19	+ 2	i 2 25	+ 8
Onahama	5·2	157	1 19	+ 1	2 14	− 5
Toyama	5·2	192	1 21a	+ 3	—	—
Utunomiya	5·3	169	1 4	−15	2 4	−17
Maebasi	5·4	173	1 20	− 1	2 25	+ 2
Nemuro	5·4	70	1 14k	− 7	2 12	−11
Mito	5·6	165	1 21	− 2	2 25	− 3
Kumagaya	5·7	174	1 25	+ 1	2 27	− 3
Kakioka	5·7	167	1 24	0	2 28	− 2
Tukubasan	5·7	168	1 16	− 8	—	—
Tokyo	6·2	171	1 31	0	2 42	0
Hunatu	6·3	179	1 32	0	2 42	− 2
Tyosi	6·3	163	1 30	− 2	2 41	− 3
Yokohama	6·4	173	1 33a	0	2 47	+ 1
Gihu	6·5	194	1 37a	+ 2	2 53	+ 4
Misima	6·7	178	1 46	+ 9	3 6	+13
Hikone	6·8	197	1 41a	+ 3	3 1	+ 5
Nagoya	6·8	192	1 38	0	2 56	0
Mera	6·9	172	1 38	− 2	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.
		°	°	m. s.	s.	m. s.	s.
Osima		7·0	175	1 40	− 1	2 54	− 6
Hamamatu		7·1	186	1 47	+ 5	—	—
Kameyama		7·1	194	1 46	+ 4	—	—
Kyoto		7·1	200	1 43	+ 1	—	—
Osaka		7·5	200	1 49	+ 2	3 22	+10
Kobe		7·6	203	1 49 a	0	3 11	− 3
Owase		7·9	195	1 51	− 2	3 23	+ 2
Hatidyozima		8·7	169	1 58	− 5	—	—
Andijan		48·6	292	c 8 25	+ 2	15 12	+ 6
Samarkand		52·8	293	8 54	0	16 3	− 1
Tinemaha	z.	74·8	55	c 11 15	− 2	—	—
Haiwee	z.	75·6	55	i 11 20	− 2	—	—
Mount Wilson	z.	76·8	56	i 11 26	− 2	—	—
Pasadena	z.	76·8	56	i 11 26	− 2	—	—
Riverside	z.	77·3	56	e 11 28	− 3	—	—
Tucson		82·5	55	i 11 58	− 1	—	—

Additional reading :—
Kobe S = + ·3m.15s.

April 2d. Readings also at 1h. (Tucson), 3h. (Riverview), 5h. (La Paz), 11h. (near Mizusawa), 12h. (near La Paz and near Calcutta), 16h. (Simferopol and near Sebastopol), 21h. (Tucson), 23h. (Ksara, Samarkand, and Tashkent).

April 3d. 3h. 46m. 46s. Epicentre 44°·4N. 17°·3E. (given by Belgrade).

Intensity V at Jajce (Bosnia).
Epicentre 44°21′N. 17°16′E. Macroseismic radius 15km.
Prof. J. Mihailovic.
Annuaire de l'Institut Seismologique de Beograd Microseismique et Macroseismique. Annee XXI, 1941, p. 46.

A = + ·6844, B = + ·2132, C = + ·6972 ; δ = − 5 ; h = − 3 ;
D = + ·297, E = − ·955 ; G = + ·666, H = + ·207, K = − ·717.

	△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Belgrade	2·3	79	i 1 1 a	P_g	i 1 36	S_g	i 1 47	SS	—
Rome	4·3	236	e 1 21	P*	2 19	S_g	i 1 32	P_g	i 2·8
Sofia	4·7	109	e 1 26	P*	e 2 42	S_g	e 1 44	P_g	—
Chur	6·0	297	e 1 32	0	—	—	—	—	—
Ravensburg	6·3	305	e 2 2	P_g	i 3 35	S_g	—	—	—
Bucharest	6·3	87	e 2 29	?	e 3 2	+12	e 3 18	S*	5·5
Zurich	6·8	299	e 1 44 a	0	e 3 24	S_g	—	—	—
Ebingen	6·9	306	—	—	e 3 35	S*	e 3 54	S_g	—
Stuttgart	7·1	311	i 1 50	+ 2	i 3 17	+ 7	i 2 21	P_g	—
Basle	7·5	299	e 1 51	− 2	e 4 3	S_g	—	—	—
Jena	7·6	331	e 1 56	+ 1	e 3 14	− 9	—	—	e 3·4
Neuchatel	7·7	293	e 1 56	0	e 3 58	S*	—	—	—
Strasbourg	7·8	306	—	—	e 4 9	S_g	—	—	—
Potsdam	8·5	342	—	—	e 4 31	S_g	—	—	i 5·0

Additional readings :—
Belgrade i = + 1m.8s. and + 2m.8s., e = + 3m.31s.
Rome eZ = + 1m.42s., e = + 2m.27s.
Sofia eN = + 2m.56s.
Ravensburg eN = + 2m.6s., eP_gE = + 2m.11s., eN = + 2m.30s. and + 2m.53s., i = + 3m.20s.
Bucharest eS = + 3m.59s.
Stuttgart eNW = + 1m.54s. and + 2m.3s., iNW = + 2m.36s., eZ = + 2m.47s., iNW = + 2m.58s., iS_gZ = + 3m.56s., iS_gNE = iS_gNW = + 4m.0s.
Strasbourg e = + 4m.21s.
Potsdam eN = + 4m.40s., eZ = + 4m.46s.
Long waves were recorded at Warsaw.

April 3d. 14h. 55m. 4s. Epicentre 22°·5S., 66°·0W. Depth of focus 0·015.
(Foreshock of 3d. 15h.).

A = +·3762, B = −·8448, C = −·3805; δ = −1; h = +4;
D = −·914, E = −·407; G = −·155, H = +·348, K = −·925.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
La Paz		6·3	341	i 1 46	+14	i 2 48	+ 5	i 2 56	SS	i 3·1
Huancayo		13·7	318	i 3 15	+ 5	i 5 31	− 8	4 9	PPP	i 5·9
La Plata		14·2	152	3 16	0	5 50	− 1	—	—	6·6
Rio de Janeiro	E.	21·0	96	e 3 56	−39	e 8 23	+ 7	—	—	—
San Juan		40·6	0	e 10 24	PPP	i 13 18	−10	i 16 35	sS	i 18·7
Vera Cruz	N.	50·8	323	e 8 48	− 1	—	—	—	—	—
Tacubaya	N.	52·8	320	e 9 4	0	—	—	—	—	—
Bermuda		54·5	2	—	—	e 16 34	−10	—	—	e 23·1
Columbia		58·0	346	e 10 32	+50	e 17 25	− 5	—	—	—
Cape Girardeau	N.	63·2	340	e 10 11	− 6	e 18 32	− 4	i 11 10	PcP	—
Florissant		64·9	340	e 10 26	− 2	i 18 50	− 7	20 0	PPS	—
Harvard		64·9	357	i 11 27	+59	—	—	i 12 23	pP	—
St. Louis	Z.	64·9	340	i 10 27	− 1	i 18 52	− 5	—	—	—
Chicago, U.S.C.G.S.		67·0	343	—	—	e 19 6	−17	i 20 7	PS	—
East Machias		67·0	359	—	—	i 19 22	− 1	—	—	—
Lincoln		69·2	337	e 13 3	PP	e 19 39	−10	e 24 37	SS	—
Tucson		69·3	321	i 10 54	− 1	i 19 44	− 6	e 13 36	PP	—
Seven Falls		69·4	357	—	—	e 19 48	− 3	—	—	27·9?
Riverside		74·5	318	i 11 24k	− 2	—	—	i 12 18	pP	—
Mount Wilson		75·0	318	i 11 28k	− 1	—	—	e 12 20	pP	—
Pasadena		75·1	318	i 11 28k	− 2	i 20 51	− 5	i 12 22	pP	—
Salt Lake City		76·0	326	—	—	i 20 58	− 8	e 22 33	PPS	—
Haiwee		76·2	320	i 11 35k	− 1	—	—	—	—	—
Santa Barbara		76·2	317	e 11 34k	− 2	—	—	e 12 30	pP	—
Tinemaha		77·0	320	i 11 39k	− 1	—	—	e 12 34	pP	—
Fresno	N.	77·7	319	e 11 46	+ 2	e 21 17	− 7	—	—	—
Lick		79·3	319	e 11 56	+ 3	e 21 35	− 6	—	—	—
Berkeley		80·0	319	i 11 55	− 2	—	—	—	—	—
San Fernando		81·4	46	—	—	e 22 7	+ 4	—	—	—
Ukiah		81·4	319	e 12 58	pP	—	—	—	—	—
Granada		83·5	46	—	—	e 23 2	+38	—	—	—
Almeria		84·1	47	12 26	+ 8	—	—	e 13 1	pP	—
Ivigtut		84·6	9	—	—	22 34	− 1	—	—	—
Toledo		84·7	44	12 23	+ 2	—	—	12 34	sP	—
Algiers		87·8	49	e 10 56?	?	i 23 7	+ 2	—	—	—
Rome		96·6	48	e 13 17	+ 1	i 23 35	[− 5]	e 25 53	PS	e 43·9
Scoresby Sund		97·8	13	—	—	e 23 42	[− 4]	—	—	—
Honolulu		99·5	289	e 13 6	−24	e 23 36	[−18]	e 19 38	PPP	—
Potsdam	E.	101·1	37	—	—	i 23 58	[− 4]	—	—	—
Bucharest		106·8	48	—	—	i 24 23	[− 5]	—	—	—
Helwan	E.	106·9	64	—	—	i 24 20	[− 8]	—	—	—
Ksara		111·7	62	e 18 56	PP	e 24 47	[− 2]	—	—	—
Bombay		141·4	87	e 22 22	PP	e 32 17	PS	—	—	—

Additional readings :—
Huancayo i = +4m.28s. and +5m.38s.
La Plata SN = +5m.32s. and S*E = +6m.8s.
San Juan e = +12m.14s. and +13m.8s., iSS = +16m.48s., i = +17m.40s. and +16m.58s.
Cape Girardeau eScSN = +20m.16s.
Florissant eE = +20m.22s.
St. Louis iZ = +11m.20s.
Chicago U.S.C.G.S. i = +19m.11s.
Lincoln e = +17m.8s.
Tucson i = +11m.11s., +11m.32s., +12m.27s., +12m.59s., +17m.48s., and +21m.1s., esSS = +23m.59s., iSSS = +27m.19s., i = +29m.10s.
Pasadena iN = +21m.21s.
Lick eSE = +21m.1s.
Toledo pPZ = +12m.29s.
Algiers e = +22m.19s.
Rome e = +18m.0s., eE = +24m.27s., e = +37m.0s. and +39m.55s.
Scoresby Sund e = +25m.1s. and +30m.40s.
Honolulu e = +16m.31s., +20m.21s., and +21m.3s.
Potsdam iE = +29m.43s.
Helwan eE = +25m.12s.
Bombay eN = +22m.36s. and eE = +23m.52s.

April 3d. 15h. 21m. 27s. Epicentre 22°·5S. 66°·0W. (as at 14h.). Depth 0·015.

Felt at Taltal, Vallenar, and Copiapo (Chili). Epicentre 25°·0S. 69°·0W. Deep.

Observatorio astronomico La Plata, Boletin sismologico, 1941.

$A = +·3762$, $B = -·8448$, $C = -·3805$; $\delta = -1$; $h = +4$;
$D = -·914$, $E = -·407$; $G = -·155$, $H = +·348$, $K = -·925$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
La Paz		6·3	341	i 1 46	+14	i 2 41	− 2	—	—	2·7
Huancayo		13·7	318	e 3 17	+ 7	i 5 44	+ 5	i 3 33	PP	7·3
La Plata		14·2	152	3 16a	0	i 5 43	− 8	—	—	6·6
Balboa Heights		34·0	337	e 6 34	+ 1	e 11 49	+ 1	—	—	16·6
Merida	E.	49·0	331	e 8 30	− 6	—	—	—	—	—
Vera Cruz	N.	50·8	323	e 8 50	+ 1	—	—	—	—	—
Tacubaya	N.	52·8	320	e 9 3	− 1	—	—	—	—	—
Columbia		58·0	346	e 9 41	− 1	i 17 27	− 3	i 19 30	sS	e 25·2
Philadelphia		62·7	353	i 10 16	+ 3	i 18 27	− 3	e 24 11	SS	—
Cape Girardeau		63·2	340	e 10 16	− 1	i 18 35	− 1	i 11 17	PcP	—
Fordham		63·4	354	i 10 12	− 6	i 18 31	− 8	e 11 9	pP	i 39·2
Pennsylvania		63·9	351	e 10 24	+ 3	e 18 42	− 3	—	—	—
Pittsburgh		64·0	350	i 10 17	− 5	i 18 41	− 5	i 10 35	pP	—
Florissant		64·9	340	e 10 26	− 2	i 18 54	− 3	i 11 26	pP	—
Harvard		64·9	357	i 10 27	− 1	e 18 57	0	e 11 28	pP	e 25·6
St. Louis	N.	64·9	340	i 10 29	+ 1	i 18 51	− 6	i 11 27	pP	—
Buffalo		66·2	351	i 10 35	− 1	i 19 10	− 3	e 11 36	pP	—
Halifax		66·8	3	10 36	− 4	19 16	− 4	25 15	SSS	30·6
Chicago U.S.C.G.S.		67·0	343	e 10 37	− 4	i 19 15	− 8	e 26 49	SSS	27·6
East Machias		67·0	359	i 10 50	+ 9	i 19 23	0	e 13 21	PP	—
Toronto		67·0	350	i 10 38	− 3	i 19 24	+ 1	25 51	SSS	30·6
Ottawa		68·1	353	i 10 48	0	i 19 35	− 1	26 33	SSS	e 31·6
Shawinigan Falls		69·0	356	10 54	0	19 45	− 1	—	—	—
Lincoln		69·2	337	e 10 52	− 3	19 40	− 9	e 21 19	sS	e 28·1
Tucson		69·3	321	i 10 54	− 1	i 19 49	− 1	i 21 23	sS	i 28·3
Seven Falls		69·4	357	11 0	+ 4	i 19 50	− 1	27 3	SSS	33·6
Riverside		74·5	318	i 11 24k	− 2	e 20 45	− 4	—	—	—
Mount Wilson		75·0	318	i 11 28k	− 1	e 42 10	SKPPKP	i 38 58	P′P′	—
Pasadena		75·1	318	i 11 28k	− 2	i 20 50	− 6	i 12 30	pP	—
Salt Lake City		76·0	326	i 11 35	0	e 21 3	− 3	i 12 59	pP	e 29·0
Haiwee		76·2	320	i 11 34k	− 2	e 21 6	− 2	e 38 44	P′P′	—
Logan		76·2	327	i 11 38	+ 2	i 21 13	+ 5	i 23 15	sS	—
Santa Barbara		76·2	317	i 11 34k	− 2	e 21 2	− 6	—	—	—
Tinemaha		77·0	320	i 11 39k	− 1	e 21 13	− 3	e 38 45	P′P′	—
Fresno	N.	77·7	319	e 11 43	− 1	e 22 16	PS	—	—	—
Bozeman		79·2	330	i 11 52	0	i 21 37	− 3	i 13 20	pP	e 32·9
Lick		79·3	319	e 11 53	0	e 21 38	− 3	—	—	—
Santa Clara		79·5	319	i 10 57	−57	i 21 51	+ 8	i 13 0	pP	—
Branner		79·7	319	e 11 55	0	e 21 45	0	—	—	—
Berkeley		80·0	319	e 11 55	− 2	e 21 54	+ 6	i 12 24	pP	i 39·2
San Francisco		80·0	319	e 12 33?	+36	e 22 33?	+45	—	—	—
Butte		80·2	330	i 11 56	− 2	i 21 47	− 3	e 13 15	pP	e 35·0
Lisbon		80·9	43	e 12 7	+ 6	21 58	0	13 11	pP	—
San Fernando		81·4	46	i 12 15	+11	i 22 4	+ 1	—	—	33·6
Ukiah		81·4	319	e 11 58	− 6	i 22 0	− 3	e 13 8	pP	—
Coimbra		82·2	42	i 12 14	+ 6	i 22 12	+ 1	27 40	SS	38·7
Ferndale		82·9	320	e 12 13	+ 1	e 22 2	−16	—	—	—
Granada		83·5	46	i 12 18	+ 3	i 22 20	− 4	13 3	pP	42·9
Spokane		83·7	328	i 12 17	+ 1	i 22 13	−13	e 24 17	sS	—
Johannesburg		83·8	116	i 12 21	+ 5	e 22 21	− 6	—	—	—
Almeria		84·1	47	i 12 22	+ 4	i 22 36	+ 6	12 35	pP	35·3
Ivigtut		84·6	9	i 12 21k	+ 1	22 34	− 1	—	—	—
Toledo		84·7	44	i 12 24	+ 3	i 22 33	− 3	13 22	pP	—
Seattle		86·2	326	e 12 41	+13	i 22 46	− 4	i 25 0	sS	i 31·1

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Victoria		87·3	326	12 34	+ 1	22 41	−20	27 51	SS	36·6
Algiers		87·8	49	i 12 44	+ 8	i 22 50	−15	13 40	pP	34·6
Clermont-Ferrand		92·3	41	i 13 1	+ 4	e 23 20	−26	—	—	e 42·6
Oxford		93·0	34	i 16 15	PP	i 23 15	[− 5]	—	—	—
Kew		93·4	34	i 13 4	+ 2	i 23 19	[− 3]	i 13 16	P_cP	—
Paris		93·5	38	i 13 7	+ 5	e 23 20	[− 2]	e 17 46	pPP	33·6
Stonyhurst		93·6	32	e 13 1	− 2	i 23 21	[− 2]	i 17 11	PP	44·6
Edinburgh		94·4	30	—	—	i 23 33	[+ 5]	—	—	—
Christchurch		95·1	218	—	—	i 23 43	[+12]	39 26	Q	45·3
Neuchatel		95·3	41	e 12 40	−30	e 23 37	[+ 4]	e 17 12	PP	—
Uccle		95·5	37	i 13 16	+ 5	i 23 33	[0]	14 9	pP	—
Aberdeen		95·6	29	i 14 10	+58	i 23 28	[− 6]	36 28	Q	39·5
Basle		95·9	41	e 13 16	+ 3	e 24 24	+ 7	e 23 34	SKS	—
Zurich		96·4	41	e 13 16	+ 1	e 24 21	0	e 14 15	pP	—
Strasbourg		96·5	40	e 13 16	0	24 19	− 3	e 14 15	pP	32·6
De Bilt		96·6	36	i 13 32k	+16	i 23 38	[− 2]	i 14 20	pP	48·6
Rome		96·6	48	i 13 23a	+ 7	i 23 38	[− 2]	i 14 19	pP	i 46·6
Chur		96·8	41	e 13 22	+ 5	e 23 37	[− 4]	—	—	—
Stuttgart		97·4	40	e 13 21	+ 1	e 24 33	+ 4	e 14 18	pP	e 40·6
Scoresby Sund		97·8	13	e 13 24	+ 2	e 23 42	[− 4]	e 17 38	PP	—
Sitka		98·3	329	i 17 29	PP	i 24 34	− 3	e 19 43	PPP	i 38·6
Apia		98·9	251	e 12 29	−58	e 30 4	SS	24 44	PS	40·6
Honolulu		99·5	289	e 9 46	?	(e 23 43)	[−11]	—	—	e 23·7
Jena		99·7	39	e 13 33	+ 3	e 24 57	+ 8	e 23 57	SKS	e 44·6
Copenhagen		100·1	34	e 13 44	+12	24 55	+ 3	i 24 6	SKS	—
Bergen		100·5	28	15 33?	?	e 24 43	−13	—	—	32·6
Potsdam		101·1	37	i 13 38	+ 1	i 25 7	+ 6	i 14 38	pP	e 32·6
Prague		101·1	40	e 16 48	?	e 23 57	[− 5]	—	—	e 32·6
Budapest		102·7	44	e 18 13	?	24 6	[− 3]	—	—	e 38·6
Belgrade		103·1	47	e 17 56	?	e 24 3	[− 8]	—	—	e 34·6
Tananarive		103·1	117	e 17 39	PP	25 26	+ 9	24 9	SKS	43·1
Kecskemet	z.	103·3	45	e 22 15	PKS	e 28 35	SKKS	—	—	—
Warsaw		105·7	39	e 13 59	P	24 20	[− 3]	e 33 5	SS	e 38·6
Upsala		106·1	31	e 14 5	P	e 25 42	0	18 43	PP	e 43·6
College		106·7	334	e 18 36	PP	24 26	[− 2]	e 27 13	PS	e 51·1
Bucharest		106·8	48	e 16 18	P_cP	i 24 23	[− 5]	28 0	PS	35·6
Helwan		106·9	64	18 33	PKP	25 16	[+47]	19 25	PP	—
Ksara		111·7	62	e 18 9	[−10]	24 55	[+10]	—	—	—
Sebastopol		112·1	49	e 18 40	[+20]	—	—	—	—	—
Pulkovo		112·3	32	14 39	P	24 45	[− 6]	19 7	PP	—
Simferopol		112·5	49	e 18 24	[+ 3]	—	—	—	—	—
Yalta		112·5	50	e 18 25	[+ 4]	26 1	SKKS	—	—	—
Sydney		113·7	213	e 19 27	PP	27 45	S	—	—	—
Riverview		113·8	213	e 14 33	P	i 25 1	[+ 4]	e 19 7	PP	e 47·5
Moscow		115·8	37	18 29	[+ 2]	24 59	[− 6]	19 34	PP	—
Sotchi		116·3	51	18 37	[+ 9]	—	—	—	—	—
Brisbane	N.	117·6	217	i 19 33	PP	i 24 57	[−14]	i 26 15	SS	—
Piatigorsk		118·8	51	18 34	[+ 1]	—	—	—	—	—
Adelaide		119·3	202	i 19 46	PP	i 25 3	[−15]	i 20 56	PP	30·5
Erevan		119·5	55	e 18 43	[+ 9]	—	—	—	—	—
Grozny		120·7	52	18 50	[+13]	25 42	[+20]	—	—	—
Baku		123·7	55	i 20 47	PP	i 25 37	[+ 5]	—	—	—
Perth		125·8	182	20 38	P	30 48	PS	—	—	—
Sverdlovsk		128·4	34	i 18 51	[− 1]	i 25 48	[+ 2]	i 21 3	PP	—
Samarkand		136·8	56	19 6	[− 1]	—	—	—	—	—
Tashkent		138·2	52	i 19 6	[− 4]	25 52	[−14]	i 22 5	PP	—
Tchimkent		138·2	50	i 19 10	[0]	—	—	—	—	—
Andijan		140·6	52	e 19 16	[+ 2]	—	—	—	—	—
Bombay		141·4	87	e 19 14	[− 2]	i 28 57	SKKS	i 22 52	PKS	—
Frunse		141·5	49	e 19 14	[− 2]	—	—	—	—	—
Semipalatinsk		141·7	34	e 19 14	[− 2]	—	—	—	—	—
Almata		143·0	46	e 19 19	[0]	—	—	—	—	—
Kodaikanal	E.	143·0	102	i 19 15	[− 4]	i 28 58	SKKS	—	—	—
Colombo	E.	143·7	110	19 18	[− 2]	29 8	SKKS	—	—	74·2
Hyderabad		146·4	92	e 15 0	P	26 39	[+20]	19 34	PP	53·1

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Nemuro		146·6	316	19 24	[− 1]	—	—	—	—	—
Dehra Dun	N.	147·0	68	e 19 11	[−15]	—	—	—	—	e 40·7
Agra	E.	147·1	74	e 19 27	[+ 1]	—	—	29 22	SKKS	—
Irkutsk		149·4	11	e 19 33	[+ 4]	29 48	SKKS	23 11	PP	—
Sapporo		149·4	319	20 8	[+39]	20 45	?	—	—	—
Mori		150·4	318	e 19 27	[− 4]	i 19 43	?	—	—	—
Amboina		150·5	209	19 29	[− 2]	i 19 34	?	—	—	e 34·6
Batavia		150·6	165	i 19 30	[− 1]	—	—	—	—	—
Mizusawa		151·6	312	e 19 34	[+ 1]	—	—	—	—	—
Sendai		152·1	310	19 32	[− 1]	31 4	SKKS	—	—	—
Titizima		154·0	286	19 27	[− 9]	—	—	—	—	—
Tokyo Cen. Met. Obs.		154·0	305	e 19 32	[− 4]	30 48	SKKS	e 42 13	SS	e 74·5
Yokohama		154·2	306	e 19 43	[+ 7]	—	—	—	—	—
Vladivostok		154·6	327	19 37	[0]	26 57	[+27]	22 51	PP	—
Medan		156·0	139	e 19 12	[−27]	i 43 19	SS	—	—	e 57·6
Calcutta	N.	156·3	85	e 20 25	[+46]	e 30 48	SKKS	e 20 37	PKP_2	e 69·3
Kobe		157·8	307	19 41	[− 1]	28 11	?	—	—	—
Koti		159·6	306	19 43	[− 1]	28 45	?	—	—	—
Hukuoka		161·8	310	e 19 33?	[−14]	—	—	—	—	36·6
Miyazaki		161·9	303	e 19 40	[− 7]	23 57	?	—	—	44·3
Naha		167·0	289	19 52	[+ 2]	—	—	—	—	—
Zi-ka-wei	E.	169·1	324	e 19 49	[− 2]	i 21 11	?	—	—	47·4
Manila		169·7	221	i 19 53k	[+ 1]	31 5	SKKS	—	—	—
Taihoku		172·7	291	20 12	[+19]	—	—	—	—	—

Additional readings :—
La Paz iSN = +2m.36s.
Huancayo iS = +6m.0s.
Balboa Heights eSN = +11m.54s., eE = +13m.26s., eN = +13m.37s.
Columbia i = +9m.44s., e = +10m.24s., +10m.39s., and +13m.17s., i = +17m.34s. and +19m.0s.
Philadelphia i = +15m.39s., e = +19m.46s.
Cape Girardeau iN = +10m.19s. and +10m.25s., iPPN = +12m.43s., iEN = +18m.41s. and +18m.53s., iS_cSN = +20m.20s.
Fordham i = +18m.37s., +19m.49s., +21m.30s., and +26m.13s.
Pennsylvania i = +10m.29s.
Pittsburgh eS = +18m.37s., isS = +19m.1s.
Florissant iPNZ = +10m.29s., iPZ = +10m.33s., eE = +18m.45s. and +18m.51s., iZ = +18m.59s., iE = +19m.57s., +20m.2s., and +20m.30s., isSE = +20m.39s.
Harvard eE = +19m.58s.
St. Louis iN = +10m.34s., iPSN = +19m.19s., iN = +19m.53s., isSN = +20m.29s., iN = +21m.43s.
Buffalo i = +10m.50s., e = +12m.0s., +25m.6s., +27m.50s., and +33m.26s.
Chicago U.S.C.G.S. eS = +19m.2s., e = +20m.17s. and +25m.55s.
East Machias i = +11m.46s., +20m.28s., +21m.1s. and +27m.0s.
Toronto e = +20m.49s.
Lincoln e = +17m.49s., i = +19m.59s.
Tucson i = +11m.42s., +12m.28s., +13m.16s., and +15m.7s., iPPP = +15m.12s., i = +20m.23s. and +23m.56s.
Pasadena iEN = +22m.30s., iPKP,PKPZ = +38m.58s., ipPKP,PKPZ = +40m.1s., eSKPPKPZ = +42m.10s.
Salt Lake City i = +11m.55s., ePP = +13m.21s., e = +17m.3s., i = +21m.37s., +22m.43s., and +23m.43s., isSS = +26m.15s.
Logan e = +21m.7s. and +22m.2s., i = +22m.51s., eSS = +27m.52s.
Tinemaha eSKP,PKPZ = +42m.4s.
Bozeman i = +12m.10s. and +13m.51s., iPP = +15m.1s., i = +21m.45s., +21m.53s., and +23m.15s., iSS = +28m.28s., iSSS = +30m.55s.
Lick eN = +23m.16s., eE = +23m.25s.
Branner iE = +12m.13s., iN = +12m.21s., eE = +12m.27s.
Berkeley iPN = +11m.59s., iN = +12m.3s., eZ = +13m.7s., iSE = +22m.44s., iSKSN = +23m.55s., eN = +29m.27s., eN = +33m.9s., eE = +33m.15s.
Butte ePP = +15m.0s., e = +19m.58s., i = +21m.59s. and +23m.19s., eSS = +28m.55s.
Lisbon iPE = +12m.18s., N = +13m.19s. and +14m.5s., SE = +22m.1s., Z = +22m.8s. and +22m.22s., pSE = +23m.8s., N = +23m.21s., sSE = +23m.26s., N = +34m.3s.? E = +35m.2s.
Ukiah ePP = +15m.16s., epPP = +16m.2s., e = +17m.46s. and +18m.18s., eS = +21m.47s., i = +22m.18s., isS = +23m.41s., i = +27m.35s., iSS = +29m.0s.
Coimbra i = +12m.27s., SSS = +30m.8s., i = +32m.28s. and +34m.42s.
Ferndale eN = +22m.18s.
Granada P_cP = +12m.24s., sP = +13m.33s., PP = +15m.51s., pPP = +16m.36s., SKS = +22m.46s., sS = +23m.44s., sPS = +24m.42s., SS = +28m.43s., sSS = +30m.10s.

Continued on next page.

Spokane iP$_c$PN = +12m.20s., iPPPE = +13m.27s., iN = +22m.34s.
Johannesburg iEN = +24m.15s.
Almeria PP = +15m.33s., PPP = +17m.23s., S$_c$S = +21m.51s., SS = +28m.1s., SSS = +31m.22s.
Ivigtut +13m.21s., +22m.27s., +23m.45s., +24m.6s., +24m.27s., and +28m.15s.
Toledo PP = +15m.54s., sS = +24m.10s.
Seattle i = +22m.32s., +27m.22s., and +29m.34s.
Victoria i = +24m.50s.
Algiers iPP = +15m.52s.
Clermont-Ferrand iP = +13m.4s.
Kew eZ = +14m.2s., iZ = +17m.0s., ePPPEZ = +18m.3s.?, Z = +25m.15s., eSSS = +32m.3s.?
Paris ePP = +13m.59s.
Christchurch i = +24m.11s., iZ = +26m.28s., iE = +30m.53s., iN = +37m.35s., iZ = +41m.33s.
Uccle iZ = +13m.27s., ePPEN = +17m.19s., iN = +24m.13s., iSE = +25m.13s., iE = +31m.13s., iSSE = +32m.51s., iSSSE = +36m.51s.
Aberdeen iN = +24m.18s., iSSSEN = +30m.49s.
Basle ePP = +17m.19s.
Zurich ePP = +17m.3s., eSKS = +23m.37s.
Strasbourg ePP = +17m.16s., ePPP = +18m.59s., epPPP = +20m.29s., SKS = +23m.40s.
De Bilt ePP = +17m.33s., epPP = +18m.23s., iSS = +31m.13s.
Rome iZ = +13m.31s., iE = +13m.34s. and +16m.10s., ePPE = +17m.21s., iE = +18m.8s., i = +18m.13s., iSKKS = +24m.24s., iPPS = +26m.56s., i = +27m.57s., iSS = +29m.7s., i = +30m.55s. and +34m.34s., iQ = +40m.12s.
Stuttgart eSKSNE = +23m.41s., iSKS = +23m.47s., eSSN = +31m.13s., esSSE = +33m.8s., eSSSN = +37m.3s.
Scoresby Sund i = +14m.24s., e = +18m.59s., iS = +23m.45s., i = +24m.35s., iPS = +26m.6s., sSS = +31m.23s., e = +32m.17s.
Sitka e = +17m.40s., e = +22m.34s., i = +26m.10s., e = +27m.37s., esSS = +31m.2s., e = +31m.57s., iSS = +33m.3s.
Apia PPS = +25m.19s.
Honolulu e = +11m.16s. and +12m.46s., i = +16m.7s., e = +17m.44s. and +23m.30s.
Jena eN = +19m.33s., eE = +25m.3s., e = +31m.33s. and +33m.33s., eN = +41m.3s.
Copenhagen +17m.58s., +25m.13s., +26m.51s., and +32m.15s.
Potsdam eNW = +13m.45s., iZ = +13m.52s., ePPNW = +17m.57s., iPPEZ = +18m.0s., iSKSE = +23m.59s., iSKS = +24m.2s., ipSZ = +26m.35s., ipSE = +26m.42s., iZ = +29m.52s., iSSZ = +32m.16s., isSSZ = +33m.35s.
Prague eE = +17m.50s., e = +25m.15s., e = +26m.33s.
Budapest eN = +18m.33s.?, S?E = +24m.16s., iE = +25m.36s., eE = +27m.13s.
Belgrade e = +18m.10s., +20m.0s., and +28m.24s.
Tananarive SKKS = +24m.54s., PS = +26m.48s., SS = +32m.30s., SSS = +36m.33s.
Warsaw iPPPZ = +18m.35s., SZ = +24m.23s., PSZ = +25m.18s., ePSN = +25m.25s., iN = +25m.48s., eE = +26m.25s., eE = +27m.30s., iSSZ? = +29m.32s., eZ = +30m.59s., SSSE = +33m.21s., SSSZ = +33m.29s., iN = +37m.49s.
Upsala ePPN = +18m.46s., epPPP = +22m.46s., SKSE = +24m.19s., iE = +25m.10s., eE = +27m.28s., eN = +31m.33s.?, eE = +34m.57s., eSSS = +37m.33s.?
College eS = +25m.41s., e = +30m.23s., esSS = +33m.15s., and +34m.45s., eSSS = +37m.36s., e = +39m.0s.
Bucharest ePPN = +17m.50s., eEN = +18m.45s., iSN = +24m.26s., eSSN = +28m.4s.
Helwan PSE = +29m.21s.
Ksara e = +19m.22s., +20m.15s., and +28m.33s.
Pulkovo PKP = +18m.18s., S = +26m.35s.
Riverview iEN = +19m.14s., iZ = +20m.37s., eE = +26m.35s., eN = +26m.43s., eZ = +28m.35s., ePSEN = +28m.41s., ePPSE = +29m.39s., eSSN = +34m.47s., eE = +35m.58s., eQN = +43m.51s.
Adelaide SS = +26m.57s., S$_c$S = +29m.38s.
Perth i = +22m.6s., PPP = +27m.13s., S = +32m.3s., PS = +33m.11s., SS = +38m.38s., SSS = +42m.8s.
Bombay iE = +19m.16s., i = +19m.31s. and +20m.22s., iN = +20m.48s., iE = +21m.13s., eN = +22m.36s., +23m.9s., and +23m.59s., iE = +30m.12s. and +32m.23s., iSS = +41m.14s., iE = +45m.52s.
Hyderabad PSN = +29m.23s., SSN = +36m.0s.
Agra P$_c$PE? = +19m.39s., iE = +20m.29s., PP?E = +22m.56s., PPPE = +24m.3s., SSE = +33m.56s., iE = +41m.49s.
Batavia PEN = +19m.34s., iE = +21m.13s., iN = +21m.16s.
Tokyo i = +31m.41s.
Medan ePN = +19m.54s., iN = +24m.7s., iE = +24m.15s., iN = +43m.23s.
Calcutta ePP = +24m.5s., ePSKS = +34m.23s., iSS = +43m.32s., eSSS = +49m.27s.
Manila iZ = +21m.11s., iE = +22m.15s., iN = +31m.25s. and +33m.15s., iE = +37m.23s.
Long waves were also recorded at Arapuni, Wellington, and Rio de Janeiro.

April 3d. Readings also at 0h. (Lick and Fresno), 3h. (Tashkent, Samarkand, and Andijan), 4h. (Tchimkent and Warsaw), 5h. (Sotchi), 6h. (College), 10h. (Warsaw), 15h. (Tchimkent), 16h. (Tinemaha, Haiwee, Tucson (2), Pasadena, Mount Wilson, and Andijan), 19h. (near Ottawa), 21h. (Riverside (2), Tucson (2), Pasadena, and Mount Wilson (2)), 23h. (near Amboina).

April 4d. 15h. 32m. 23s. Epicentre 19°·6N. 120°·6E. (as on 1939 April 26d.).

$A = -\cdot4799$, $B = +\cdot8115$, $C = +\cdot3334$; $\delta = -1$; $h = +5$;
$D = +\cdot861$, $E = +\cdot509$; $G = -\cdot170$, $H = +\cdot287$, $K = -\cdot943$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Manila		5·0	176	i 1 13a	− 5	i 2 16	− 2	—	—	—
Medan		26·7	238	5 44	+ 1	10 15	− 2	—	—	—
Calcutta	N.	30·2	283	e 7 9	PP	e 12 53	SS	e 9 37	PcP	e 18·1
Irkutsk		35·0	343	e 6 37	−19	e 12 25	− 3	—	—	—
Agra	E.	39·7	291	(9 16)	PP	(13 33)	− 7	(16 42)	SS	—
Colombo	E.	41·5	259	—	—	e 14 7	0	—	—	—
Andijan		46·1	309	e 8 33	+ 5	15 20	+ 6	—	—	—
Tashkent		48·5	309	e 8 48	+ 2	e 15 53	+ 5	—	—	—
Sverdlovsk		57·5	327	e 9 52	− 1	17 51	+ 1	—	—	—
Baku		63·0	307	e 10 20	−11	—	—	—	—	—
Moscow		70·1	324	e 11 13	− 3	e 20 22	− 5	—	—	—
Pulkovo		73·4	329	e 11 39	+ 3	21 7	+ 2	—	—	—
Helwan		79·9	298	—	—	i 22 17	+ 1	—	—	—

Agra ePE = 33m.9s. The other readings are recorded as SE, SSE, and SSS?E respectively.
Long waves were also recorded at Bombay, Scoresby Sund, and other European stations.

April 4d. 22h. 0m. 19s. Epicentre 45°·9N. 83°·0E.

$A = +\cdot0851$, $B = +\cdot6931$, $C = +\cdot7158$; $\delta = 0$; $h = -4$;
$D = +\cdot993$, $E = -\cdot122$; $G = +\cdot087$, $H = +\cdot710$, $K = -\cdot698$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Semipalatinsk		4·9	340	i 1 17	0	2 6	− 9	i 1 35	Pg	—
Almata		5·1	240	i 1 20	0	2 8	−12	1 39	Pg	—
Andijan		9·3	240	e 2 24	+ 7	—	—	—	—	—
Tchimkent		10·3	254	i 2 32	0	—	—	—	—	—
Tashkent		10·9	250	i 2 42	+ 2	i 4 49	+ 5	—	—	—
Samarkand		13·3	248	i 3 6	− 7	—	—	—	—	—
Irkutsk		15·3	58	i 3 40	+ 1	6 33	+ 3	—	—	—
Sverdlovsk		17·7	316	i 4 8	− 2	7 21	− 5	—	—	—
Agra	E.	19·1	193	4 26	− 1	7 50	− 7	—	—	—
Calcutta	N.	23·7	168	e 5 15	+ 1	i 9 35	+ 8	i 5 25	pP	—
Baku		24·7	270	e 5 27	+ 3	—	—	—	—	—
Grozny		26·5	278	5 43	+ 2	—	—	—	—	—
Piatigorsk		28·1	282	5 41	−14	—	—	—	—	—
Bombay		28·2	201	e 5 57	+ 1	e 10 47	+ 6	e 7 16	PPP	—
Erevan		28·5	273	6 7	+ 8	—	—	—	—	—
Moscow		29·9	307	6 10	− 2	11 3	− 6	—	—	—
Theodosia		33·0	287	e 6 41	+ 2	e 11 54	− 3	—	—	—
Pulkovo		33·7	314	e 6 44	− 1	e 12 3	− 5	—	—	—
Yalta		34·0	286	6 46	− 2	e 12 10	− 3	—	—	—
Sebastopol		34·4	287	e 6 52	+ 1	e 12 17	− 2	—	—	—
Ksara		37·6	268	e 7 20	+ 2	e 16 2	SSS	—	—	—
Colombo	E.	38·9	185	—	—	e 17 11	?	—	—	21·8
Bucharest		39·4	289	—	—	e 16 28	SS	—	—	e 19·4
Warsaw		40·0	304	e 7 38	0	e 16 15	SS	e 17 38	SSS	e 21·7
Upsala		40·1	315	—	—	e 16 41?	SS	—	—	—
Sofia		42·0	288	e 8 7	+13	e 17 23	SSS	—	—	—
Copenhagen		43·8	310	8 14	+ 5	14 42	+ 2	—	—	22·7
Manila	N.	44·6	122	e 9 30	SS	15 4	+12	—	—	—
Potsdam		44·6	306	e 8 15	− 1	i 14 51	− 1	i 15 3	PS	e 20·7
Prague		44·6	302	e 19 24	?	e 21 47	L	—	—	(e 21·8)
Jena		46·0	303	e 8 21	− 6	e 19 47	SSS	e 10 5	PP	e 24·2
Stuttgart		48·3	302	e 8 45	0	—	—	—	—	e 25·1
Chur		48·9	300	e 8 49	− 1	—	—	—	—	—
Zurich		49·3	300	e 8 50a	− 3	—	—	—	—	—
Rome		49·4	292	e 8 53a	0	e 16 2	+ 2	e 20 31	SSS	e 27·7

Continued on next page.

	△ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	Supp. m. s.		L. m.
Basle	49·8	300	e 8 55	− 1	—	—	—	—	—
Uccle	50·2	307	e 9 1	+ 1	e 16 11	0	e 19 6	SS	e 25·7
Neuchatel	50·4	300	e 9 0	− 1	—	—	—	—	—
Clermont-Ferrand	53·4	301	e 9 24k	0	—	—	—	—	—
Tucson	101·2	12	e 14 0	+ 6	—	—	i 18 8	PP	e 23·6

Additional readings :—
Semipalatinsk P* = +1m.27s., S* = +2m.17s., S_g = +2m.33s.
Almata S_g = +2m.40s.
Calcutta esPN = +5m.33s.
Bombay eE = +8m.6s., iE = +12m.14s.
Bucharest eE = +18m.50s.
Warsaw eZ = +18m.11s., eN = +20m.14s., eE = +20m.38s. and +21m.8s., eN = +21m.13s.
Potsdam eSSN = +17m.59s., eSSZ = +18m.4s., eSSE = +18m.7s., iN = +19m.50s., iE = +19m.56s.
Jena e = +22m.59s.
Rome e = +18m.48s., +21m.50s., and +23m.56s.
Uccle eN = +19m.56s.
Tucson i = +19m.17s.
Long waves were also recorded at College, Sitka, Bergen, Kodaikanal, Paris, Kew, De Bilt, and Strasbourg.

April 4d. Readings also at 0h. (near Samarkand), 2h. (near Almeria, Toledo, and Granada), 3h. (La Plata), 4h. (Huancayo, La Paz (2), Tucson, Mount Wilson, Riverside, Pasadena, Rome, and Paris), 5h. (De Bilt, near Rome, Kew, and Paris), 6h. (near Erevan), 7h. (La Paz), 8h. (near Shawingan Falls, Ottawa, and Harvard), 9h. (Clermont-Ferrand, Stuttgart, Riverview, Coimbra, Arapuni, Wellington, Riverside, Mount Wilson, Tucson, and near Toledo), 11h. (Riverside, Mount Wilson, Tucson, and La Paz), 12h. (Algiers and near Granada), 14h. (Rome (2)), 15h. (Kodaikanal), 16h. (Tashkent, Andijan, and Samarkand), 18h. (Auckland and Cape Girardeau), 19h. (Sofia, near Bucharest, and Tucson), 20h. (Tucson and Mizusawa), 21h. (Tucson, Tinemaha, Amboina, Riverside, Mount Wilson, and Pasadena), 22h. (Tacubaya), 23h. (Batavia).

April 5d. 9h. 58m. 37s. Epicentre 39°·3N. 72°·1E. (as given by stations of U.S.S.R.).

A = +·2385, B = +·7384, C = +·6308 ; δ = +3 ; h = −1 ;
D = +·952, E = −·307 ; G = +·194, H = +·600, K = −·776.

		△ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	Supp. m. s.		L. m.
Andijan		1·5	8	e 0 23	− 5	i 0 43	− 6	—	—	—
Samarkand		4·0	277	1 8	+ 4	i 2 20	S_g	—	—	—
Almata		5·4	41	1 21	− 3	—	—	—	—	—
Semipalatinsk		12·5	25	2 52	−10	5 33	+10	—	—	—
Agra	E.	13·1	156	e 3 15	+ 5	e 5 28	−10	—	—	—
Grozny		20·2	291	e 4 27	−12	—	—	—	—	—
Calcutta	N.	21·7	136	—	—	e 9 1	+10	—	—	e 12·3
Moscow		28·2	318	e 6 0	+ 4	e 9 56	−45	—	—	—
Pulkovo		33·2	322	e 6 44	+ 4	—	—	—	—	—

Agra gives also 1E = +5m.39s.
Long waves were also recorded at Bombay, Warsaw, Potsdam, and De Bilt.

April 5d. 16h. 49m. 48s. Epicentre 34°·6N. 131°·7E.

Intcnsity VI at Shisakizima ; V at Hamada, Hirosima, Matuyama, Izuka, Matsue, Hukuoka, Sakai, Saga, Simonoseki, and Hashihama ; IV at Tadotu, Oita, Kumamoto, Koti, Simidu, Tu, and Saigo ; II-III at Toyooka and Uwazima.
Epicentre 34°·6N. 131°·7E. Shallow.
See Bulletin of the Central Met. Obs. Japan for the year 1941, Tokyo 1950, pp. 20-21.

H. Kawasumi.
Epicentre in the vicinity of Susa, Abu-gori, Yamaguti prefecture. Felt in most parts of Tyugoku and Sikoku, and some parts of Kyusyu and Kingi districts. Felt strongly in epicentral region but with little damage.
See Seismology in Japan, 1939-1947. Bulletin of the Seismological Society of America, Vol. 39, 1949, p. 160.

$A = -\cdot5488$, $B = +\cdot6159$, $C = +\cdot5652$; $\delta = -3$; $h = 0$;
$D = +\cdot747$, $E = +\cdot665$; $G = -\cdot376$, $H = +\cdot422$. $K = -\cdot825$.

	△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m.	s.	m.
Hamada	0·4	45	0 10	− 3	0 17	− 4	—	—	—
Hirosima	0·6	109	0 13k	− 2	0 24	− 2	—	—	—
Matuyama	1·1	131	0 14k	− 8	0 29	−10	—	—	—
Izuka	1·3	221	0 22a	− 3	0 38	− 6	—	—	—
Hukuoka	1·5	226	0 26a	− 2	0 46	− 3	—	—	—
Koti	1·8	125	0 34k	+ 2	0 58	+ 2	—	—	—
Kumamoto	2·0	205	0 34a	− 1	1 2	0	—	—	—
Simidu	2·1	150	0 35a	− 2	1 4	0	—	—	—
Unzendake	2·2	213	0 31	− 7	1 10	+ 4	—	—	—
Muroto	2·4	123	0 40k	− 1	1 6	− 6	—	—	—
Sumoto	2·6	95	0 44k	0	1 25	S_g	—	—	—
Toyooka	2·7	70	0 45k	0	1 25	S*	—	—	—
Taikyu	2·8	296	0 37	−10	1 29	S*	—	—	—
Kobe	2·9	88	0 46	− 2	1 12	−12	—	—	—
Wakayama	2·9	97	0 47k	− 1	1 24	0	—	—	—
Osaka	3·2	89	0 51	− 1	1 30	− 2	—	—	—
Tomie	3·2	231	0 52	0	1 36	+ 4	—	—	—
Kyoto	3·3	82	0 53k	0	1 44	S*	—	—	—
Siomisaki	3·6	108	0 55	− 3	1 52	S*	—	—	—
Owase	3·7	97	0 56	− 4	2 1	S_g	—	—	—
Hikone	3·8	78	1 0	− 1	1 58	S*	—	—	—
Kameyama	3·9	85	1 2	0	2 6	S_g	—	—	—
Gihu	4·2	77	1 6k	− 1	2 12	S*	—	—	—
Nagoya	4·4	81	1 10k	0	2 19	S*	—	—	—
Keizyo	4·9	309	1 29	P*	—	—	—	—	—
Hamamatu	5·0	87	1 14a	− 4	2 31	S*	—	—	—
Toyama	5·0	64	1 18	0	2 42	S_g	—	—	—
Zinsen	5·0	307	1 34	P*	—	—	—	—	—
Wazima	5·1	55	1 16	− 4	2 29	+ 9	—	—	—
Omaesaki	5·3	88	1 23	+ 1	2 55	S_g	—	—	—
Shizuoka	5·5	85	1 20k	− 5	2 38	+ 8	—	—	—
Kohu	5·7	78	1 28	0	2 52	S*	—	—	—
Nagano	5·7	67	1 30k	+ 2	3 0	S*	—	—	—
Hunatu	5·9	79	1 30	− 1	3 2	S*	—	—	—
Misima	6·0	83	1 33	+ 1	2 43	0	—	—	—
Aikawa	6·3	55	1 36	0	—	—	—	—	—
Maebasi	6·3	71	1 36	0	3 10	S*	—	—	—
Kumagaya	6·5	74	1 39	0	2 21	−34	—	—	—
Nake	6·5	197	1 40	+ 1	—	—	—	—	—
Yokohama	6·6	80	1 53	P*	3 23	S*	—	—	—
Mera	6·7	85	1 46	+ 4	3 37	S_g	—	—	—
Tokyo Cen. Met. Ob.	6·7	78	1 53	P*	3 27	S*	—	—	—
Tukubasan	7·0	74	1 52	+ 6	3 40	S*	—	—	—
Utunomiya	7·0	71	1 44	− 2	3 40	S*	—	—	—
Kakioka	7·1	74	1 48	0	3 45	S*	—	—	—
Mito	7·4	74	1 59	+ 7	3 47	S*	—	—	—
Hukusima	7·7	64	2 2	+ 6	—	—	—	—	—
Sendai	8·2	62	2 7	+ 4	2 54	−44	—	—	—
Mizusawa	8·8	56	e 2 7	− 4	3 59	+ 6	—	—	—
Dairen	9·1	301	2 21	+ 7	3 35	−25	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Zi-ka-wei	N.	9·3	251	e 3 12	+55	i 5 20	S_g	—	—	i 5·9
Aomori		9·5	47	2 20	0	4 24	+14	—	—	—
Hatinohe		9·8	50	2 27	+ 3	4 19	+ 2	—	—	—
Mori		10·2	40	2 32	+ 1	4 37	+10	—	—	—
Sapporo		11·3	38	2 48	+ 2	—	—	—	—	—
Manila		22·2	210	i 4 58k	− 2	9 16	+16	—	—	—
Irkutsk		26·4	321	e 5 36	− 4	e 10 13	+ 1	—	—	—
Calcutta		39·7	265	e 10 24	· ?	e 16 36	SS	—	—	—
Semipalatinsk		40·2	310	e 12 33	?	—	—	—	—	—
Almata		42·8	300	e 8 0	− 1	—	—	—	—	—
Agra		46·2	276	e 8 19	− 9	e 15 16	+ 1	18 28	SS	—
Andijan		46·6	296	e 8 34	+ 2	—	—	—	—	—
Tashkent		48·7	296	e 8 51	+ 3	e 15 53	+ 3	—	—	—
Samarkand		50·8	296	9 0	− 4	—	—	—	—	—
Bombay	E.	54·2	269	—	—	e 17 10	+ 4	—	—	—
Colombo	E.	55·0	253	—	—	e 21 42	SS	—	—	—
Moscow		64·4	321	e 10 33	− 7	e 19 8	−10	—	—	—

Additional reading :—
Kobe +1m.21s.
Long waves were also recorded at Medan, Auckland, and other European stations.

April 5d. Readings also at 0h. (Andijan, Samarkand, and near Sotchi), 1h. (Triest), 2h. (Tucson, Medan, and near Sotchi), 5h. (Sitka, College, and Tucson), 6h. (Columbia), 7h. (Sofia and Paris), 9h. (Amboina and Manila), 10h. (Tucson and near Tashkent), 11h. (near Mizusawa), 12h. (Branner, Berkeley, near Fresno, San Francisco, Lick, and Tucson), 13h. (Medan), 14h. (near Mizusawa), 15h. (Tacubaya and Tucson), 16h. (Balboa Heights and La Paz), 19h. (near Medan and Calcutta), 21h. (La Paz), 22h. (near Lick).

April 6d. 22h. 55m. 16s. Epicentre 13°·6N. 89°·0W.

Felt in the coastal villages of San Salvador, damage sustained at 10 places.

Epicentre 13°·3N. 89°·4W. (Strasbourg).
13°24′N. 89°21′W. (Tacubaya).

J. P. Rothé.
Chronique seismologique. Revue pour l'Etude des Calamités, tome VII, No. 21, Genève 1944, p. 57.

$A = +·0170$, $B = -·9722$, $C = +·2337$; $\delta = +8$; $h = +6$;
$D = -1·000$, $E = -·017$; $G = +·004$, $H = -·234$, $K = -·972$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Salvador		0·3	300	i 1 14	+63	—	—	—	—	—
Merida	N.	7·3	356	e 1 59	+ 9	—	—	—	—	—
Vera Cruz	E.	8·9	311	e 2 12	0	—	—	—	—	—
Balboa Heights		10·3	115	e 2 28	− 4	—	—	—	—	—
Tacubaya	N.	11·3	302	e 2 48	+ 2	—	—	—	—	—
Columbia		21·6	19	e 4 51	− 3	e 8 53	+ 4	e 9 41	SSS	e 11·9
San Juan		22·5	74	e 5 4	+ 2	e 9 9	+ 4	e 5 34	PP	i 11·6
Cape Girardeau		23·6	359	e 5 11	− 2	e 9 27	+ 2	i 5 16	pP	—
St. Louis		25·0	357	e 5 21	− 6	e 9 51	+ 2	e 11 47	SS	e 13·0
Florissant		25·1	357	e 5 24	− 4	i 9 53	+ 2	—	—	13·0
Tucson		27·3	318	i 5 46	− 2	e 10 21	− 6	i 6 46	PP	e 11·9
Lincoln		27·9	349	—	—	e 11 35	SS	—	—	e 12·0
Chicago U.S.C.G.S.		28·2	2	—	—	e 10 42	+ 1	—	—	e 14·9
Bermuda		28·9	46	e 6 6	+ 3	e 10 55	+ 2	—	—	e 13·4
Huancayo		28·9	152	i 6 1	− 2	e 11 2	+ 9	i 6 49	PP	i 13·7

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.			L.
		°	°	m. s.	s.	m. s.	s.	m. s.			m.
Fordham		30·2	24	i 6 14	0	e 11 32	+19	—	—		—
Buffalo		30·5	15	e 6 13	− 4	—	—	—	—		—
Toronto		31·1	14	—	—	e 11 32	+ 4	—	—		16·7
Riverside	z.	32·8	314	i 6 37	0	—	—	—	—		—
Mount Wilson	z.	33·4	314	i 6 42	0	—	—	—	—		—
Pasadena		33·4	314	e 6 44	+ 2	—	—	—	—		e 16·2
Ottawa		33·6	17	e 6 42	− 2	e 12 8	+ 2	—	—		17·7
Salt Lake City		33·6	328	—	—	e 12 19	+13	—	—		e 19·9
Logan		34·3	330	e 6 46	− 4	—	—	—	—		e 21·2
Tinemaha		35·1	318	e 6 56	− 1	—	—	—	—		—
La Paz		36·3	144	7 14	+ 7	13 54	+66	—	—		20·7
Bozeman		37·0	335	—	—	e 13 0	+ 1	—	—		e 17·1
Victoria		44·9	328	—	—	e 18 32	SS	—	—		24·7

Additional readings :—
Columbia e = +10m.14s.
San Juan i = +6m.21s., e = +6m.58s., iS = +9m.27s., i = +10m.2s.
Cape Girardeau esSEN = +9m.39s.
St. Louis ePN = +5m.25s., iPN = +5m.28s. and +5m.31s., eSN = +9m.57s., iN = +10m.50s., eE = +10m.57s.
Florissant iPZ = +5m.29s., iZ = +5m.33s.
Tucson i = +6m.11s., +7m.29s., +8m.18s., and +9m.48s.
Chicago U.S.C.G.S. e = +11m.8s.
Huancayo i = +7m.57s., e = +8m.14s.
Fordham i = +6m.25s.
Ottawa iZ = +6m.46s.
Long waves were also recorded at Kew, Paris, De Bilt, Scoresby Sund, and other American stations.

April 6d. Readings also at 0h. (Lick), 1h. (Huancayo and La Paz), 3h. (Tucson), 4h. (near Lick and Auckland), 6h. (near Neuchatel, Zurich, Chur, and Basle), 7h. (Florissant, St. Louis, Columbia, Lincoln, Salt Lake City, Chicago U.S.C.G.S., Bozeman, Butte, and Tucson), 8h. (Sydney, Riverview, Riverside, Tinemaha, Mount Wilson, Manila, Vladivostok, La Paz, and Tucson), 9h. (Perth, Sitka, Auckland, Arapuni, Wellington, Christchurch, Huancayo, Amboina, and La Paz), 11h. (Tucson), 12h. (Sofia), 14h. (near Mizusawa, near Amboina, and La Paz), 15h. (Port au Prince), 16h. (Samarkand), 18h. (Riverview), 21h. (Tacubaya), 23h. (near Andijan).

April 7d. 2h. 40m. 45s. Epicentre 20°·5S. 177°·5W. (as on 1941 Feb. 22d.). Depth 0·070.

A = −·9365, B = −·0409, C = −·3481; δ = −12; h = +5;
D = −·044, E = +·999; G = +·348, H = +·015, K = −·937.

		△	Az.	P.	O−C.	S.	O−C.	Supp.			L.
		°	°	m. s.	s.	m. s.	s.	m. s.			m.
Apia		8·6	40	i 2 0	− 4	i 3 30	−12	—	—		—
Santa Barbara	z.	77·5	46	e 11 7	0	—	—	—	—		—
Pasadena		78·3	47	i 11 10a	− 1	—	—	i 13 6	pP		—
Mount Wilson	z.	78·5	47	i 11 12a	0	—	—	e 13 5	pP		—
Riverside	z.	78·8	47	i 11 14	0	—	—	e 13 8	pP		—
Haiwee		79·6	45	i 11 18	0	—	—	e 13 11	pP		—
Tinemaha		80·0	44	i 11 19	− 1	—	—	i 13 16	pP		—
Tucson		82·5	52	i 11 34	+ 1	—	—	i 13 29	pP		—
Jena		148·8	348	e 18 39	[− 9]	—	—	e 19 25	pPKP		—
Uccle	z.	149·7	359	i 18 55k	[+ 6]	—	—	—	—		—
Stuttgart		151·3	350	e 18 53a	[+ 2]	—	—	—	—		—
Basle		152·7	353	e 19 0	[+ 7]	—	—	e 21 8	pPKP		—
Zurich		152·7	352	e 19 1k	[+ 8]	—	—	—	—		—
Chur		153·1	350	e 18 55	[+ 1]	—	—	e 21 3	pPKP		—
Clermont-Ferrand		154·8	358	e 18 59	[+ 3]	—	—	—	—		—

Stuttgart also gives i = +18m.59s.

April 7d. 20h. 8m. 31s. Epicentre 30°·5S. 72°·0W. (as on 1937 Jan. 8d.).

$A = +·2667$, $B = -·8209$, $C = -·5050$; $\delta = +3$; $h = +2$;
$D = -·951$, $E = -·309$; $G = -·156$, $H = +·480$, $K = -·863$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
La Plata	N.	12·6	114	2 58	−5	4 53	−33	—	—	5·8
	Z.	12·6	114	2 53	−10	5 5	−21	—	—	6·0
La Paz		14·4	15	3 36	+9	i 6 24	+15	—	—	6·5
Huancayo		18·6	349	i 4 29	+8	i 8 12	SS	i 4 42	PP	i 9·9
Rio de Janeiro		26·8	80	i 10 0	S	(i 10 0)	−19	—	—	e 13·2
Cape Girardeau		69·4	345	e 11 9	−3	—	—	—	—	—
Tucson		72·4	327	i 11 30	0	—	—	i 14 24	PP	—
La Jolla		76·2	322	e 12 2	+10	—	—	—	—	—
Riverside	Z.	77·1	322	i 11 56	−1	—	—	—	—	—
Mount Wilson	Z.	77·7	322	i 11 59	−1	—	—	—	—	—
Pasadena		77·7	322	e 11 58	−2	—	—	—	—	—
Santa Barbara		78·7	321	i 12 4	−2	—	—	—	—	—
Haiwee		79·1	324	i 12 8	0	—	—	—	—	—
Tinemaha		80·0	324	i 12 11	−2	—	—	—	—	—
Medan		151·8	160	19 29?	[−21]	—	—	—	—	—

Additional readings :—
Huancayo i = +4m.59s., +5m.58s., and +9m.11s.
Cape Girardeau eEN = +11m.21s.
Tucson i = +11m.41s., +12m.0s., +12m.10s., +13m.17s., +13m.46s., and +15m.21s.
Riverside iZ = +12m.8s.
Mount Wilson iZ = +12m.10s.
Pasadena i = +12m.10s.
Santa Barbara eZ = +12m.16s.
Haiwee iZ = +12m.19s.
Tinemaha i = +12m.22s.

April 7d. 23h. Local European shock.

Chur eP_g = 14m.22s., iS_g = 14m.34s.
Zurich eP_g = 14m.36s., eS_g = 15m.4s.
Basle eP_g = 14m.47s., eS_g = 15m.17s.
Neuchatel eP_g = 14m.48s., eS_g = 15m.20s.
Ravensburg eE = 14m.56s., iN = 15m.6s.
Stuttgart eP_g = 15m.1s., e = 15m.8s., iSNW = 15m.31s., eEN = 15m.38s., iS_gEN = 15m.45s.
Ebingen e = 15m.26s.
Strasbourg e = 15m.42s., i = 15m.48s.
Jena eE = 16m.9s., 16m.48s., and 16m.55s.

April 7d. 23h. 29m. 17s. Epicentre 17°·5N. 78°·4W.

Strong in Jamaica. Epicentre 17°·6N. 78°·3W. (U.S.C.G.S.). Magnitude 7·1.

See Seismological Notes. Bulletin of the Seismological Society of America, Vol. 31, 1941, p. 257.

$A = +·1919$, $B = -·9348$, $C = +·2989$; $\delta = +2$; $h = +5$;
$D = -·980$, $E = -·201$; $G = +·060$, $H = -·293$, $K = -·954$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Port au Prince		5·9	79	i 1 32	+1	i 2 27	−13	2 53	S*	—
Balboa Heights		8·6	187	e 2 10	+1	e 2 53	−55	—	—	3·5
Merida	E.	11·2*	290	i 2 37	−7	—	—	—	—	—
San Juan		11·7	84	i 2 49	−2	i 5 22	SS	i 3 15	PP	—
Mobile		15·8	328	3 57	PP	6 52	+10	7 22	SS	8·0
Columbia		16·6	352	i 3 59	+3	i 7 2	+2	e 4 37	PPP	e 8·2
Oaxaca	E.	17·5	271	i 4 14	+7	—	—	—	—	—
Bermuda		19·2	38	i 4 26	−2	i 8 9	+10	i 4 54	PPP	—
Tacubaya	E.	19·8	279	i 4 31	−4	—	—	—	—	—
Little Rock		21·2	327	e 4 50	+1	i 8 49	+8	i 5 0	PP	11·7

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Georgetown		21·3	5	i 4 49	− 1	e 8 53	+10	—	—	—
Cape Girardeau		22·1	337	e 4 53	− 6	i 9 6	+ 8	—	—	i 11·5
Philadelphia		22·6	10	i 5 2	− 1	i 9 12	+ 5	i 9 53	SS	i 10·2
Pittsburgh		22·9	358	i 5 4	− 2	i 8 52	−21	—	—	—
Pennsylvania		23·2	2	i 5 10	+ 1	i 9 24	+ 6	e 9 45	SS	—
St. Louis		23·5	337	i 5 9	− 3	i 9 28	+ 5	i 5 26	PP	i 12·0
Fordham		23·6	11	i 5 11	− 2	i 9 20	− 5	i 5 56	PPP	—
Florissant		23·7	337	i 5 11	− 3	e 9 29	+ 2	i 5 39	PP	—
Guadalajara	z.	23·8	283	e 5 19	+ 4	—	—	—	—	—
Ann Arbor		25·1	325	(e 5 25)	− 3	(i 9 49)	− 2	(5 55)	PP	(i 12·7)
Buffalo		25·3	0	i 5 30	0	i 9 57	+ 3	i 6 12	PPP	e 14·3
Chicago U.S.C.G.S.		25·5	344	i 5 33	+ 1	i 9 48	− 9	i 6 29	PPP	i 11·8
Harvard		25·6	14	e 5 30	− 2	e 10 0	+ 1	—	—	e 17·2
Toronto		26·1	359	5 40	+ 3	10 12	+ 5	—	—	12·7
Ottawa		27·9	5	5 53	− 1	10 43	+ 6	6 49	PPP	14·0
Lincoln		28·1	333	i 5 56	+ 1	i 10 33	− 7	i 6 28	PP	i 13·4
East Machias		28·7	18	e 5 25	−36	i 10 46	− 4	i 7 3	PPP	13·2
Shawinigan Falls		29·3	9	6 3	− 3	11 8	+ 9	—	—	15·7
Huancayo		29·5	175	i 6 7	− 1	i 11 16	+14	i 7 4	PP	i 12·7
Halifax		29·8	23	6 14	+ 3	11 7	0	12 25	SS	14·7
Seven Falls		30·2	11	6 19	+ 5	11 24	+11	13 7	SSS	14·7
Denver		32·0	319	e 6 52	+22	e 11 46	+ 4	e 7 24	PP	e 18·4
Tucson		32·7	304	i 6 33	− 3	i 11 43	− 9	i 7 29	PP	i 14·6
La Paz		35·3	162	6 55	− 4	i 12 39	+ 6	i 8 23	PP	17·7
Salt Lake City		36·9	317	e 7 14	+ 2	i 12 58	0	i 8 26	PP	i 17·9
Logan		37·4	319	e 7 12	− 4	13 0	− 5	8 26	PP	e 21·2
La Jolla		38·1	303	e 7 18	− 4	—	—	—	—	—
Riverside		38·5	304	i 7 23a	− 3	—	—	i 8 33	PP	—
Bozeman		39·1	325	e 7 29	− 2	i 13 25	− 6	e 8 50	PP	i 16·2
Mount Wilson		39·1	304	i 7 28a	− 3	—	—	—	—	—
Pasadena		39·2	304	i 7 28a	− 3	i 13 34	+ 2	i 8 55	PP	e 18·7
Haiwee		39·6	307	i 7 30	− 5	—	—	—	—	—
Butte		40·1	325	e 7 45	+ 6	i 13 40	− 6	i 9 17	PP	i 19·9
Tinemaha		40·1	308	i 7 37	− 2	e 13 48	+ 2	—	—	—
Santa Barbara		40·5	303	i 7 42	0	—	—	—	—	—
Fresno	N.	41·1	307	e 7 45	− 2	e 14 4	+ 3	e 9 40	PP	e 24·3
Saskatoon		41·1	335	7 58	+11	14 7	+ 6	9 22	PP	18·7
Lick		42·7	307	e 7 59	− 1	e 14 41	+17	—	—	e 19·9
Santa Clara		43·0	307	i 8 7	+ 4	i 14 35	+ 6	—	—	—
Branner		43·2	307	e 8 3	− 1	e 14 33	+ 1	i 9 55	PP	e 17·8
Berkeley		43·3	307	e 8 1	− 4	i 14 42	+ 9	i 9 43	PP	e 21·5
San Francisco		43·5	307	e 7 43?	−24	e 13 43?	−53	—	—	—
Spokane		43·8	323	e 8 5	− 4	e 14 45	+ 5	e 9 58	PcP	—
Ukiah		44·4	309	e 8 17	+ 3	e 14 51	+ 2	i 9 49	PcP	e 22·9
Ferndale		45·6	310	e 8 28	+ 4	e 15 3	− 3	—	—	e 26·9
Seattle		46·8	320	e 9 34	+61	i 16 15	+51	e 11 28	PP	i 20·4
Victoria		47·8	321	8 46	+ 5	15 34	− 4	10 39	PP	23·7
Ivigtut		48·6	20	8 43	− 4	15 54	+ 5	10 55	PP	—
Rio de Janeiro		52·9	138	i 9 22	+ 2	i 16 45	− 3	—	—	i 28·7
La Plata		55·6	159	9 45	+ 5	17 25	0	10 33	PcP	28·8
Sitka		57·8	328	e 10 2	+ 7	i 17 58	+ 4	e 12 16	PP	i 31·3
Scoresby Sund		62·7	19	e 10 26	− 3	i 19 13	+16	i 11 10	PcP	i 26·6
Lisbon		63·2	56	10 41	+ 9	19 5	+ 2	12 51	PP	31·5
Coimbra		63·7	54	e 10 24	−12	19 4	− 6	12 13	PP	28·3
College		65·6	335	e 10 53	+ 5	e 19 27	− 6	e 13 1	PP	i 34·2
San Fernando		65·7	58	i 11 8	+20	i 19 52	+18	e 20 40	PS	31·7
Toledo		67·1	54	e 10 57	0	19 56	+ 5	—	—	—
Edinburgh		67·4	37	11 11	+12	e 19 58	+ 3	20 13	PS	—
Granada		67·7	57	e 10 58	− 3	i 20 12	+14	11 15	PcP	i 31·9
Stonyhurst		67·8	39	e 10 47	−15	i 19 49	−11	—	—	31·7

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Aberdeen		68·1	35	i 11 21	+17	i 20 4	+ 1	i 20 35	PS	31·7
Almeria		68·6	57	e 11 0	− 7	20 14	+ 5	13 58	PP	32·9
Kew		69·1	42	i 11 10k	0	e 20 26	+11	i 11 47	PcP	e 31·7
Bagneres		70·0	50	—	—	e 20 43	+17	—	—	e 33·0
Paris		71·1	45	i 11 31	+ 9	i 20 49	+11	—	—	22·7
Clermont-Ferrand		71·8	47	e 11 27	+ 1	—	—	—	—	e 33·8
Bergen		71·9	32	e 11 33	+ 6	e 20 50	+ 2	—	—	e 31·7
Uccle		72·1	42	i 11 29a	+ 1	i 20 40	−10	i 13 59	PP	30·7
De Bilt		72·5	41	i 11 39a	+ 9	i 20 58	+ 4	e 25 43?	SS	e 33·7
Algiers		73·0	57	e 11 37	+ 4	e 22 1	PPS	—	—	32·7
Honolulu		74·3	288	e 12 22	+41	i 21 26	+11	i 15 51	PPP	i 31·8
Neuchatel		74·3	45	e 11 37	− 4	e 21 37	+22	—	—	—
Strasbourg		74·6	44	11 45	+ 2	e 21 27	+ 9	—	—	e 32·7
Basle		74·6	45	e 11 39	− 4	e 21 19	+ 1	—	—	—
Zurich		75·3	45	e 11 44	− 3	e 21 49	+23	—	—	—
Stuttgart		75·5	44	i 11 49a	+ 1	e 21 29	+ 1	e 22 43	PS	34·7
Chur		76·1	45	e 11 51	0	e 21 38	+ 3	—	—	e 35·4
Copenhagen		76·2	36	e 11 53	+ 1	21 40	+ 4	14 41	PP	—
Jena		76·6	42	e 11 55	+ 1	e 21 55	+15	e 27 1	SS	e 33·7
Potsdam		77·2	39	i 12 11	+14	i 22 10	PS	e 12 22	PcP	34·7
Upsala		78·0	32	e 12 9	+ 7	e 21 54	− 1	e 26 43?	SS	e 32·7
Prague		78·6	42	e 11 54	−11	e 22 8	+ 6	e 27 1	SS	e 33·7
Rome		79·2	51	e 12 9k	+ 1	i 22 8	0	i 22 57	PS	i 36·9
Triest		79·2	46	i 12 15	+ 7	i 22 19	+11	i 15 4	PP	e 36·6
Ogyalla		81·5	43	e 12 1	−20	e 22 53	PS	—	—	e 35·7
Warsaw		82·0	39	12 32a	+ 9	22 35	− 2	f 15 12	PP	e 37·7
Budapest		82·2	43	e 12 30	+ 6	e 22 43	+ 4	—	—	e 38·7
Kalossa		82·5	44	e 12 51	+25	e 24 13	PPS	—	—	e 42·7
Kecskemet		82·8	44	12 29	+ 2	—	—	—	—	e 42·7
Pulkovo		84·1	29	e 12 51	+17	e 23 6	+ 8	—	—	—
Sofia		86·6	47	e 12 46	0	e 23 25	+ 2	24 6	PS	—
Bucharest		87·9	45	e 12 55	+ 2	e 23 6	[−14]	e 16 16	PP	40·7
Moscow		89·4	31	e 13 2	+ 2	23 31	[+ 2]	25 11	PS	—
Theodosia		93·6	41	e 14 20	+61	—	—	—	—	—
Apia		97·2	257	—	—	i 42 48	?	—	—	e 48·0
Helwan		97·6	56	e 13 46	+ 8	24 25	[+10]	17 43	PP	—
Sverdlovsk		98·4	22	e 13 49	+ 8	24 16	[− 3]	26 31	PS	—
Ksara		99·3	51	—	—	e 24 32	[+ 8]	—	—	—
Baku		105·0	39	i 14 51	+40	25 2	[+11]	28 3	PS	—
Semipalatinsk		109·8	14	e 18 24	PKP	—	—	—	—	—
Irkutsk		110·5	358	e 19 14	PP	—	—	—	—	—
Mizusawa		112·6	327	38 42	S	(38 42)	SSS	—	—	50·3
Arapuni		112·7	235	—	—	e 25 43?	[+20]	33 43	?	53·2
Auckland		113·6	237	—	—	e 24 43?	[−43]	33 43?	?	50·7
Tchimkent		113·6	26	i 19 2	[+22]	—	—	—	—	—
Vladivostok		113·6	336	e 18 24	[−16]	26 27	{− 3}	i 20 4	PPP	—
Wellington		113·9	232	—	—	e 26 43?	{+11}	35 38	SS	53·7
Tashkent		114·3	27	18 49	[+ 7]	25 48	[+19]	19 41	PP	—
Samarkand		114·6	30	e 19 17	[+35]	26 53	{+16}	—	—	—
Frunse		115·0	23	e 19 53	PP	—	—	—	—	—
Almata		115·4	20	e 19 53	PP	—	—	—	—	—
Christchurch		115·5	229	—	—	29 51	PS	36 9	SSP	55·7
Andijan		116·0	26	19 3	PP	e 29 51	PS	—	—	—
Dehra Dun	N.	127·3	26	e 21 15?	PP	—	—	—	—	e 62·2
Tananarive		128·8	100	e 23 23	PPP	25 44	[−32]	37 56	SS	57·6
Agra		130·1	27	e 21 32	PP	39 2	SS	43 45	SSS	62·4
Riverview		132·9	239	e 21 54	PP	—	—	—	—	e 61·9
Bombay		134·1	40	e 19 50	[+30]	i 29 18	{+32}	e 21 57	PP	e 65·6
Calcutta	N.	138·1	18	e 19 57	[+30]	e 26 58	[+22]	i 22 30	PP	e 66·0
Hyderabad	N.	138·5	35	e 22 26	PP	36 24	PSKS	—	—	66·9
Manila		142·8	327	i 20 3a	[+28]	—	—	22 43	PP	66·7
Kodaikanal	E.	143·6	43	19 43?	[+ 6]	i 42 26	SS	—	—	—
Colombo	E.	147·6	44	20 1	[+17]	—	—	—	—	79·0
Medan		158·8	8	e 20 28	[+29]	—	—	—	—	e 76·7
Batavia		167·7	335	19 3	[−65]	—	—	—	—	e 72·7

For Notes see next page.

NOTES TO APRIL 7d. 23h. 29m. 17s.

Additional readings :—
San Juan i = +2m.53s.
Columbia e = +6m.21s., i = +7m.17s.
Bermuda i = +8m.28s.
Little Rock i = +4m.54s.
Cape Girardeau iEN = +5m.2s.
Philadelphia i = +5m.8s. and +7m.10s.
Pennsylvania i = +5m.21s.
St. Louis iE = +5m.17s., iPPPE = +5m.58s., iE = +9m.51s., iSSE = +10m.21s.
Fordham iS = +9m.24s.
Florissant i = +5m.17s., iEN = +5m.21s., iN = +5m.29s.
Ann Arbor (+11m.13s.); 7 minutes have been subtracted from all readings.
Buffalo i = +5m.53s. and +6m.36s.
Chicago U.S.C.G.S. i = +6m.48s., +8m.16s., +9m.31s., and +10m.18s.
Harvard iPZ = +5m.33s.
Ottawa iE = +11m.15s., SS = +11m.55s.
Lincoln iP_cP = +8m.39s.
East Machias i = +6m.1s., +7m.17s., and +8m.33s., iP_cP = +9m.13s., i = +11m.9s. and +11m.38s.
Huancayo i = +6m.40s., +6m.56s., +8m.13s., and +11m.47s.
Denver ePN = +6m.55s., eN = +7m.9s., iE = +7m.57s., iN = +8m.38s., eE = +11m.16s., iN = +12m.2s., eSSEN = +13m.16s., eSSSN = +13m.43s., eN = +16m.16s.
Tucson i = +6m.44s., +7m.10s., +8m.16s., +10m.55s., and +12m.36s.
La Paz iPZ = +7m.1s., iP_cPZ = +9m.31s., iN = +14m.2s., iS_cS = +16m.47s.
Salt Lake City iP = +7m.18s., i = +8m.45s., +10m.8s., and +14m.5s., iSS = +15m.4s., i = +15m.32s.
Logan iP = +7m.19s.
Bozeman e = +8m.41s., iP_cP = +9m.17s., i = +11m.40s., +14m.40s., and +15m.5s.
Pasadena iE = +8m.7s., eE = +13m.15s.
Butte i = +13m.15s., e = +15m.18s., eSS = +16m.30s.
Fresno eN = +17m.27s.
Saskatoon SSS = +17m.7s.
Branner eN = +8m.15s.
Berkeley eN = +8m.5s., iPPZ = +9m.56s., iZ = +14m.20s., eN = +14m.50s., iZ = +18m.10s., eN = +18m.31s.
Spokane eSSSEN = +18m.12s.
Ukiah e = +8m.25s., +8m.52s., +12m.8s., and +14m.7s., i = +18m.6s., eSS = +18m.24s., i = +18m.58s.
Ferndale eE = +15m.13s.
Seattle e = +14m.8s.
Victoria SS = +18m.43s.
Ivigtut +19m.19s. and +20m.1s.
La Plata PE = +10m.7s., P_cPE = +10m.55s., PPE = +11m.49s., PP?Z = +11m.52s., PPPN = +12m.37s., SN = +17m.31s., SSE = +21m.1s., SSN = +21m.19s., E = +23m.31s., SSS?N = +23m.49s., N = +25m.25s., E = +26m.7s., N = +26m.37s.
Sitka e = +13m.37s., i = +18m.7s., iS_cS = +19m.51s., iSS = +21m.48s., e = +24m.38s.
Scoresby Sund iP = +10m.34s., iPP = +13m.18s., i = +14m.17s. and +14m.53s., iSS = +23m.9s.
Lisbon SE = +19m.16s.?, S_cSN? = +20m.56s., S_cSE? = +21m.10s., N = +26m.25s., +27m.29s., and +28m.49s., Z = +28m.55s., E = +29m.31s. and +30m.25s.
Coimbra e = +11m.20s., PS = +19m.48s., SS = +23m.20s., SSS = +25m.50s.
College e = +12m.8s., +15m.7s., and +18m.54s., eS_cS = +20m.52s., e = +22m.47s. and +23m.16s., eSS = +24m.15s., i = +26m.48s.
San Fernando eSSEN = +24m.20s., eSSSN = +27m.40s.
Granada PP = +13m.33s., PS = +20m.49s., S_cS = +21m.23s., SS = +24m.58s., SSS = +27m.8s., G = +30m.7s.
Aberdeen iSSE = +24m.28s., iSSSEN = +26m.48s.
Almeria PS = +20m.38s., S_cS = +21m.14s., SS = +25m.8s., SSS = +28m.4s.
Kew iE = +11m.57s., ePP = +14m.28s., e = +16m.32s., eS_cSN = +21m.14s., SKSE = +21m.22s., eSSEZ = +24m.36s., eSSS = +28m.13s.?
Clermont-Ferrand ePP = +12m.14s.
Uccle iEZ = +11m.36s., iZ = +12m.6s. and +12m.12s., iSE = +20m.46s., iSSSE = +28m.47s.
Honolulu e = +12m.42s.
Basle e = +11m.53s.
Stuttgart eSSE = +26m.31s., eSSSSN = +33m.43s.
Copenhagen +12m.0s. and +21m.53s.
Jena ePN = +12m.1s., eE = +12m.3s., eN = +12m.7s.
Potsdam iSKSE = +22m.19s., iSKSNW = +22m.24s., iNW = +24m.50s.
Upsala eSN = +21m.57s.
Prague eSSS = +30m.13s.
Rome eSS = +27m.28s., iE = +33m.3s.
Ogyalla ePE = +12m.5s., eN = +13m.43s.?
Warsaw iZ = +14m.3s., SN = +22m.43s., iPSN = +23m.12s., eN = +26m.35s., eSSE = +31m.26s.
Budapest PN = +12m.33s., eE = +23m.2s.

Continued on next page.

Sofia ePEN = +12m.56s., eN = +23m.34s. and +24m.26s.
Bucharest eSEN = +23m.46s., ePSE = +24m.41s., PPSN = +25m.19s., eSS = +30m.0s.
Moscow S = +23m.59s.
Helwan SE = +25m.25s., PSE = +26m.31s., PPSE = +27m.13s., SSE = +32m.7s.
Sverdlovsk eS = +24m.56s.
Baku S = +26m.31s.
Wellington Q = +47·7m.
Christchurch iN = +39m.25s., eEZ = +40m.43s., eN = +42m.59s., iNZ = +44m.11s., QE = +49m.13s.
Tananarive SKKS = +27m.58s.
Agra iE = +30m.3s., PPSE = +33m.59s.
Riverview eZ = +22m.24s. and +23m.5s., eE = +23m.25s.
Bombay ePKSE = +22m.58s., iN = +23m.24s., iE = +23m.33s., eN = iE = +25m.36s., iE = +27m.56s., iSSE = +40m.5s.
Calcutta iSKPN = +23m.23s., iPPSN = +34m.41s.
Manila PPP = +25m.46s.
Medan ePE = +20m.40s.
Batavia P?Z = +19m.14s.
Long waves were also recorded at Adelaide, Marseilles, and Mazatlan.

April 7d. Readings also at 6h. (near Mizusawa), 9h. (near Spokane), 10h. (Tinemaha, Riverside, Mount Wilson, and Pasadena), 11h. (Tucson), 17h. (near Samarkand), 18h. (near Amboina), 22h. (near La Paz), 23h. (Fresno, Pasadena (2), Balboa Heights (3), Tucson (2), Haiwee, Apia, Tinemaha, Riverside (2), and Mount Wilson (2)).

April 8d. 3h. 47m. 4s. Epicentre 17°·5N. 78°·4W. (as on 1941 April 7d.).

$A = +\cdot1919$, $B = -\cdot9348$, $C = +\cdot2989$; $\delta = +2$; $h = +5$;

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Port au Prince		5·9	79	—	—	e 2 23	−17	—	—	i 4·3
Balboa Heights		8·6	187	e 2 17	+ 8	—	—	—	—	—
San Juan		11·7	84	—	—	e 5 19	+15	—	—	i 6·7
Columbia		16·6	352	—	—	e 7 9	+ 9	—	—	e 8·8
Philadelphia		22·6	10	—	—	e 9 21	+14	—	—	e 10·6
St. Louis		23·5	337	e 5 11	− 1	e 9 31	+ 8	—	—	e 12·2
Florissant		23·7	337	e 5 16	+ 2	e 9 33	+ 6	—	—	—
Chicago U.S.C.G.S.		25·5	344	—	—	e 10 2	+ 5	—	—	e 11·3
Tucson		32·7	304	i 6 34	− 2	—	—	i 8 53	PcP	—
La Paz	z.	35·3	162	e 8 6	+67	—	—	—	—	—
Riverside	z.	38·5	304	i 7 24	− 2	—	—	—	—	e 23·3
Pasadena	z.	39·2	304	e 7 30	− 1	—	—	—	—	—
Tinemaha	z.	40·1	308	i 7 37	− 2	—	—	—	—	—

Additional readings :—
Port au Prince i = +2m.49s.
St. Louis iZ = +5m.15s., eN = +9m.21s., eE = +9m.27s.
Florissant ePN = +5m.20s., eN = +5m.30s.
Tucson i = +6m.44s., +7m.30s., +7m.52s., +8m.12s., +8m.26s., and +9m.26s.

April 8d. 10h. 6m. 26s. Epicentre 17°·5N. 78°·4W. (as at 3h.).

$A = +\cdot1919$, $B = -\cdot9348$, $C = +\cdot2989$; $\delta = +2$; $h = +5$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Port au Prince		5·9	79	e 1 55	P_g	i 3 1	S*	—	—	e 7·3
Balboa Heights		8·6	187	e 2 7	− 2	—	—	—	—	—
Merida	E.	11·2	290	i 2 47	+ 3	—	—	—	—	—
San Juan		11·7	84	e 2 53	+ 2	e 5 6	+ 2	—	—	i 6·3
Columbia		16·6	352	—	—	e 7 13	+13	—	—	e 8·9
Bermuda		19·2	38	e 4 12	−16	—	—	—	—	e 8·1
Cape Girardeau		22·1	337	i 4 54	− 5	e 8 59	+ 1	e 9 54	SSS	—
Philadelphia		22·6	10	e 7 53	?	e 9 20	+13	—	—	e 12·3
St. Louis		23·5	337	i 5 11	− 1	e 9 32	+ 9	i 5 19	pP	e 12·1
Fordham		23·6	11	e 5 7	− 6	e 9 47	+22	e 10 3	SS	e 12·6
Florissant		23·7	337	i 5 13	− 1	e 9 29	+ 2	i 5 31	PP	—
Buffalo		25·3	0	e 5 38	+ 8	—	—	—	—	—
Weston		25·5	14	e 5 31	− 1	e 9 59	+ 2	—	—	—
Ottawa		27·9	5	e 5 58	+ 4	—	—	—	—	13·6
Lincoln		28·1	333	—	—	e 10 48	+ 8	—	—	e 17·0
Huancayo		29·5	175	e 6 12	+ 4	e 11 34	+32	e 7 6	PP	e 13·1
Tucson		32·7	304	i 6 36	0	i 11 44	− 8	i 7 42	PP	e 13·0
La Paz	Z.	35·3	162	e 6 54	− 5	—	—	—	—	20·6
Riverside	Z.	38·5	304	i 7 27 a	+ 1	—	—	—	—	—
Mount Wilson	Z.	39·1	304	e 7 30	− 1	—	—	—	—	—
Pasadena		39·2	304	e 7 30	− 1	—	—	—	—	—
Haiwee		39·6	307	e 7 44	+ 9	—	—	—	—	—
Tinemaha		40·1	308	i 7 39	0	—	—	—	—	—
Santa Barbara	Z.	40·5	303	e 7 41	− 1	—	—	—	—	—
Fresno	N.	41·1	307	e 7 48	+ 1	—	—	—	—	—

Additional readings :—
St. Louis iPPZ = +5m.46s., iSSZ = +10m.11s.
Florissant eN = +9m.10s. and +9m.14s., eE = +9m.38s., +9m.47s., and +9m.51s.
Tucson i = +7m.14s. and +8m.51s.
Long waves were also recorded at Chicago U.S.C.G.S.

April 8d. Readings also at 1h. (La Paz), 2h. (Brisbane, Riverview, Perth, Auckland, Christchurch, Wellington, and Adelaide), 3h. (Huancayo, Arapuni, and Bombay), 6h. (near Erevan), 12h. (Sydney), 14h. (Tacubaya), 15h. (La Paz), 17h. (Huancayo), 18h. (Tucson and La Paz), 19h. (near Piatigorsk and near Grozny), 20h. (near Batavia), 21h. (Tucson (2)), 22h. (Tucson, Tinemaha, Apia, and Mount Wilson), 23h. (Harvard).

April 9d. 10h. 54m. 35s. Epicentre 39°·0N. 74°·0E. (as on 1940 Dec. 27d.).

$A = +\cdot2148$, $B = +\cdot7490$, $C = +\cdot6268$; $\delta = +2$; $h = -1$;
$D = +\cdot961$, $E = -\cdot276$; $G = +\cdot173$, $H = +\cdot603$, $K = -\cdot779$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		
	°	°	m. s.	s.	m. s.	s.	m. s.		
Andijan	2·1	324	e 0 36	− 1	i 1 0	− 4	—		—
Frunse	3·9	8	e 1 2	0	1 56	+ 6	i 1 9		P*
Tashkeut	4·2	305	e 1 11	+ 4	2 0	+ 3	—		—
Almata	4·8	27	e 1 17	+ 2	2 3	− 9	e 1 35		P_g
Samarkand	5·5	279	—	—	2 42	+12	—		—
Semipalatinsk	12·2	19	—	—	5 7	− 9	—		—
Baku	18·6	282	—	—	7 55	+ 9	—		—
Sverdlovsk	19·9	338	4 30	− 6	8 15	0	—		—
Grozny	21·7	290	e 5 3	+ 8	—	—	—		—

Almata gives S_g = +2m.29s.
Long waves were also recorded at Potsdam, Warsaw, and De Bilt.

April 9d. 17h. 8m. 24s. Epicentre 28°·8N. 115°·5W.

$A = -\cdot3779$, $B = -\cdot7922$, $C = +\cdot4793$; $\delta = +12$; $h = +2$;
$D = -\cdot903$, $E = +\cdot431$; $G = -\cdot206$, $H = -\cdot433$, $K = -\cdot878$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
La Jolla		4·3	340	e 1 14	+ 6	e 1 58	− 2	—	—	—
Tucson		5·3	49	i 1 7	−15	i 1 58	−27	i 1 34	PP	i 2·2
Riverside		5·4	344	i 1 19	− 5	i 2 29	+ 1	—	—	—
Mount Wilson		5·8	339	e 1 30	+ 1	i 2 41	+ 3	—	—	—
Pasadena		5·8	338	e 1 27	− 2	e 2 35	− 3	—	—	—
Haiwee		7·6	345	e 2 9	+14	e 3 35	+12	—	—	—
Tinemaha		8·6	345	e 2 5	− 4	i 4 10	+22	i 2 30	PP	—
Fresno	N.	8·7	337	e 2 16	+ 6	e 4 2	+12	—	—	—
Lick		10·0	331	e 2 40	+13	i 4 50	+28	—	—	i 5·1
Santa Clara		10·1	329	e 4 21	S	(e 4 21)	− 4	4 48	SSS	e 5·2
Branner		10·2	329	—	—	e 4 56	+29	5 3	SSS	i 5·4
Berkeley		10·6	331	e 2 30	− 6	i 4 32	− 5	3 7	PPP	i 5·3
San Francisco		10·6	330	e 4 36?	S	(e 4 36?)	− 1	—	—	—
Ukiah		12·1	331	e 3 52	PPP	e 5 17	+ 3	—	—	e 6·1
Salt Lake City		12·3	13	e 3 10	+11	e 5 3	−15	—	—	i 5·9
Denver		14·0	36	i 3 27	+ 5	i 6 5	+ 6	i 3 31	PP	i 7·3
Bozeman		17·2	10	e 3 57	− 6	e 7 10	− 4	i 4 2	PP	e 9·1
Butte		17·3	7	e 4 1	− 3	e 8 0	+44	4 46	PPP	e 9·8
Tacubaya	N.	17·6	118	e 4 25	+17	—	—	—	—	—
Lincoln		19·5	49	i 4 25	− 6	—	—	5 5	PPP	e 9·6
Florissant		23·1	58	e 5 3	− 5	i 9 12	− 4	—	—	i 11·7
Cape Girardeau		23·3	64	e 5 7	− 3	—	—	—	—	e 12·1
Chicago, U.S.C.G.S.		26·1	52	i 5 35	− 2	e 9 54	−13	10 17	SS	e 13·2
Columbia		29·8	70	—	—	e 11 7	0	—	—	e 14·3
Buffalo		32·6	54	i 6 37	+ 2	—	—	—	—	e 16·6
Ottawa		35·4	51	6 58	− 2	12 36	+ 2	—	—	e 18·1
Vermont		36·9	54	—	—	e 12 57	− 1	—	—	e 18·4
Harvard		37·8	57	e 7 21	+ 1	—	—	—	—	e 19·3
East Machias		41·1	54	e 9 0	PP	e 16 37	SS	e 9 55	PPP	e 17·3
San Juan		46·1	92	e 10 37	PP	e 15 27	+13	—	—	e 17·9
Huancayo		56·2	131	i 9 59	+15	e 18 7	+34	e 22 8	SS	e 29·4

Additional readings :—
Tucson i = +1m.19s., +1m.46s., and +2m.5s.
Fresno iPN = +2m.34s., iSN = +4m.11s.
Branner eE = +5m.14s.
Berkeley iN = +4m.9s., iZ = +4m.20s., and eSN = +5m.5s.
Denver iEN = +4m.3s., eEN = +6m.53s., and eN = +7m.2s.
Bozeman e = +8m.19s.
Long waves were also recorded at Guadalajara and other American and European stations.

April 9d. Readings also at 0h. (near Yalta and near Oxford), 6h. (near Rome), 8h. (Tucson and Merida), 15h. (Fresno, Tucson, and Harvard), 16h. (Tucson, Fresno, and near Grozny), 17h. (Lick and Tucson), 18h. (Fresno), 19h. (near Tashkent, and Tucson), 20h. (Granada).

April 10d. 14h. 30m. 12s. Epicentre 16°·3N. 98°·6W. (as on 1939, June 8d.).

$A = -\cdot1436$, $B = -\cdot9496$, $C = +\cdot2789$; $\delta = +15$; $h = +5$;
$D = -\cdot989$, $E = +\cdot150$; $G = -\cdot042$, $H = -\cdot276$, $K = -\cdot960$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Oaxaca	E.	1·9	68	0 31	− 3	—	—	—	—	—
Puebla		2·8	8	—	—	e 1 37	S_g	—	—	—
Tacubaya	N.	3·1	350	e 0 51	0	—	—	—	—	—
Vera Cruz	E.	3·7	39	0 58	− 2	—	—	—	—	—
Guadalajara	N.	6·3	315	—	—	i 3 4	S*	—	—	—
Tucson		19·4	328	i 4 30	0	e 8 8	+ 4	i 4 57	PPP	i 10·2
Cape Girardeau		22·4	18	e 6 1	+59	e 10 3	+58	i 6 11	pP	—
St. Louis		23·4	16	i 5 9	− 2	e 9 23	+ 2	i 5 19	pP	e 13·3
Riverside	Z.	24·4	321	i 5 23	+ 2	—	—	—	—	—
Mount Wilson	Z.	25·0	321	i 5 27	0	—	—	—	—	—
Pasadena		25·0	321	e 5 29	+ 2	—	—	—	—	—
Haiwee	Z.	26·2	324	i 5 39	+ 1	—	—	—	—	—
Tinemaha		27·1	324	e 5 47	+ 1	—	—	—	—	—

Additional readings :—
Tucson i = +4m.40s., +5m.29s., +6m.1s., and +7m.19s., e = +8m.18s., i = +9m.58s.
Riverside iZ = +5m.33s.
Mount Wilson iZ = +5m.39s.
Pasadena e = +5m.37s.
Tinemaha iZ = +5m.58s.
Long waves were also recorded at Merida, Salt Lake City, and Huancayo.

April 10d. Readings also at 2h. (near Mizusawa), 8h. (Huancayo), 9h. (near Almata), 10h. (La Paz), 13h. (near Sebastopol), 14h. (Huancayo), 16h. (near Algiers), 17h. (Tacubaya), 18h. (La Paz, near Harvard, near Samarkand, and Tucson), 20h. (San Juan, and Port au Prince), 23h. (Tacubaya).

April 11d. Readings at 0h. (near Mizusawa), 3h. (near Andijan), 6h. (near Andijan), 8h. (near Triest, and Tucson), 11h. (near Grozny), 12h. (La Paz and near Amboina), 13h. (near Batavia and near Almata, and Tchimkent), 14h. (near Medan), 15h. (near Samarkand, Almata, and Andijan), 17h. (Balboa Heights), 20h. (near Lick and Fresno), 22h. (Medan), 23h. (Tucson).

April 12d. Readings at 0h. (near Ottawa), 1h. (near Tchimkent, Almata, Samarkand, and Andijan), 5h. (Tananarive and Paris), 7h. (near Almata and Andijan), 9h. (near Batavia), 11h. (Rome), 14h. (Rome), 16h. (near Irkutsk), 17h. (Tucson, and near Spokane), 18h. (La Paz), 21h. (near Mizusawa), 22h. (near Mizusawa).

April 13d. Readings at 3h. (Riverview), 7h. (near Tashkent, Samarkand, and Andijan), 9h. (Tucson and near Apia), 12h. (Fresno and Lick), 13h. (near Andijan and Almata), 18h. (near Branner), 19h. (Balboa Heights).

April 14d. 16h.

Felt VI at Santa Cruz (California).
Epicentre N.E. of Santa Cruz 37°·1N. 121°·9W. Macroseismic area 5000 square miles.

F. Neumann.
United States Earthquakes, 1941, Washington, 1943, p. 9. Chart p. 8.

The above determination does not appear to fit the readings.

Tucson i = 14m.46s., 14m.51s., 15m.24s., 16m.30s., 17m.37s., and 18m.14s., iL = 19·2m.
Riverside ePZ = 15m.16s.
Pasadena ePZ = 15m.22s.
Mount Wilson ePZ = 15m.23s.
Haiwee ePZ = 15m.46s.
Tinemaha ePZ = 15m.57s.
Branner iP_gEN = 16m.58s., iS_gEN = 17m.4s.
Lick iP_gEN = 16m.58s., iEN = 17m.1s., iSE = 17m.4s.
San Francisco iP_gEN = 17m.0s.
Berkeley iE = 17m.6s., iZ = 17m.9s., iEN = 17m.18s.
Fresno ePN = 17m.21s., iSN = 17m.39s.
Santa Clara iP = 18m.0s., iS = 18m.6s.

April 14d. 19h. 32m. 44s. Epicentre 36°·5N. 71°·0E. Depth 0·030.
(As on 1937, March 15d.).

$A = +·2623$, $B = +·7619$, $C = +·5922$; $\delta = -1$; $h = 0$;
$D = +·946$, $E = -·326$; $G = +·193$, $H = +·560$, $K = -·806$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Andijan		4·4	15	e 1 11	+ 3	—	—	—	—
Samarkand		4·5	317	1 7	− 2	—	—	—	—
Tashkent		5·0	347	i 1 16	0	2 12	− 2	—	—
Almata		8·2	33	1 57	0	—	—	—	—
Dehra Dun	N.	8·5	134	e 2 45	+45	4 5	S*	—	—
Agra	E.	11·1	145	2 28	− 6	4 23	−12	—	—
Bombay	E.	17·6	176	e 3 54	+ 2	e 7 17	SS	—	—
	N.	17·6	176	i 3 53	+ 1	i 7 14	SS	—	—
Calcutta	N.	20·5	129	e 4 50	PP	e 8 15	+22	—	—
Grozny		20·5	298	4 25	+ 3	7 48	− 5	—	—
Sverdlovsk		21·5	345	4 34	+ 2	8 20	+ 9	i 5 12	pP
Kodaikanal	E.	26·8	168	—	—	e 9 16?	−23	—	—
Irkutsk		28·2	45	e 6 52	PP	—	—	—	—
Moscow		29·7	322	e 5 45	− 2	—	—	i 6 50	PP
Pulkovo		34·9	326	i 6 39	+ 7	e 11 53	+ 7	—	—
Copenhagen		43·4	317	i 7 41	− 1	—	—	—	—
Stuttgart		45·9	306	i 8 1a	− 1	—	—	—	—

Bombay also gives iN = +4m.44s. and +5m.0s.

April 14d. Readings also at 1h. (near Sofia (4)), 2h. (Manila, near Mizusawa, and near Sofia (14), 3h. (Potsdam, De Bilt, Kew, Riverview, and near Rome), 5h. (near Amboina), 6h. (Lisbon), 7h. (La Paz and Huancayo), 11h. (near Rome (2)), 12h. (Neuchatel, Tinemaha, Haiwee, Tucson, Clermont-Ferrand, Tananarive, and near Apia), 13h. (Huancayo), 15h. (near Theodosia, Rome (2), La Paz, near Amboina, Huancayo), 16h. (Rome), 17h. (near Neuchatel and Zurich), 20h. (near Branner).

April 15d. 3h. 45m. 5s. Epicentre 15°·0S. 176°·0W. (as on 1941, January 25d.).

$A = -·9640$, $B = -·0674$, $C = -·2572$; $\delta = -1$; $h = +6$;
$D = -·068$, $E = +·998$; $G = +·257$, $H = +·018$, $K = -·966$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Apia		4·3	74	e 1 14	P*	i 2 11	S*	—	—	—
Auckland		23·3	199	i 2 55?	?	—	—	—	—	—
Wellington		27·4	196	(5 20)	−29	5 20	P	—	—	12·9
Riverview		35·1	232	i 6 22	−35	i 12 36	+ 6	e 8 4	PP	e 15·1
Sydney		35·1	232	e 12 52	S	(e 12 52)	+22	—	—	e 19·2
Santa Barbara	Z.	72·6	48	e 11 38	+ 7	—	—	—	—	—
Berkeley		72·8	43	e 11 32	0	e 21 17	PS	—	—	e 38·2
Pasadena		73·6	48	e 11 33	− 4	—	—	—	—	e 32·9
Mount Wilson	Z.	73·7	48	i 11 34	− 4	—	—	—	—	—
Riverside	Z.	74·1	48	i 11 36	− 4	—	—	—	—	—
Haiwee		74·7	46	e 11 41	− 2	—	—	—	—	—
Tinemaha		75·0	45	e 11 43	− 2	—	—	—	—	—
Vladivostok		75·0	323	e 7 59	?	i 12 7	?	—	—	—
Tucson		78·0	53	i 11 57	− 5	i 21 31	−24	i 14 45	PP	i 36·0
Victoria		78·6	33	—	—	e 22 18	+16	—	—	43·9
Logan		81·7	42	e 12 20	− 2	e 22 41	+ 7	—	—	e 40·3
Butte		83·3	39	—	—	(e 23 1)	+11	—	—	e 23·0
Bozeman		84·1	40	—	—	(e 23 1)	+ 3	—	—	e 23·0
Lincoln		91·8	49	—	—	e 24 17	+ 6	—	—	e 48·1
Florissant		95·9	52	—	—	e 24 45	− 1	—	—	—
St. Louis		96·0	52	i 13 30	0	e 24 50	+ 3	e 17 23	PP	—
Huancayo		97·0	105	—	—	e 23 50	[−22]	e 30 58	SS	e 43·6
La Paz	Z.	102·2	111	e 31 15	?	—	—	—	—	48·9
Philadelphia		107·7	53	—	—	e 26 32	S	e 34 17	SS	e 50·4
Agra	E.	110·7	293	—	—	e 39 45	SSS	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Warsaw		140·5	344	19 28 a	[− 3]	—	—	c 22 48	PP	e 80·9
Potsdam		142·0	351	i 19 30	[− 4]	—	—	—	—	e 84·9
De Bilt		143·0	359	i 19 35 a	[− 1]	—	—	—	—	e 76·9
Kew	N.	143·5	4	i 19 36	[− 1]	—	—	e 20 14	PKP_2	e 76·9
Jena		143·7	351	e 19 39	[+ 2]	—	—	—	—	—
Uccle		144·3	1	e 19 38	[0]	e 42 27	SS	—	—	—
Stuttgart		146·1	354	e 19 38 k	[− 3]	—	—	—	—	—
Paris		146·3	2	i 19 43	[+ 2]	—	—	—	—	77·9
Basle		147·4	355	e 19 39	[− 4]	—	—	—	—	—
Zurich		147·5	354	e 19 45	[+ 2]	—	—	—	—	—
Chur		147·9	353	e 19 48	[+ 4]	—	—	—	—	—
Clermont-Ferraud		149·3	2	e 19 50	[+ 4]	—	—	—	—	—
Rome		152·2	347	e 19 46 k	[− 5]	e 43 20	SS	e 24 24	PP	e 74·2

Additional readings :—
Wellington i = +10m.55s.
Sydney eS = +17m.13s.
Berkeley eSSSE = +30m.43s., eSSSN = +30m.56s.
Tucson i = +12m.3s., +12m.33s., +15m.28s., +15m.43s., +16m.14s., and +27m.29s.
Florissant eSEN = +24m.50s.
St. Louis eN = +32m.18s.
Huancayo i = +25m.40s.
Philadelphia e = +28m.20s.
Warsaw iZ = +19m.42s., eZ = +20m.18s.
Potsdam iPKPN = +19m.34s., iZ = +19m.40s. and +19m.44s., eE = +20m.10s.
Jena e = +20m.23s.
Stuttgart iP = +19m.44s.
Rome eZ = +20m.16s., eN = +30m.9s., ePSKSN = +34m.12s., ePSN = +37m.17s., eN = +38m.42s.
Long waves were also recorded at San Juan, Honolulu, Arapuni, Christchurch, and other American stations.

April 15d. 6h. 56m. 19s. Epicentre 15°·0S. 176°·0W. (as at 3h.).

A = −·9640, B = −·0674, C = −·2572 ; $\delta = -1$; $h = +6$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Apia		4·3	74	e 1 27	P_g	e 2 18	S_g	—	—	—
Auckland		23·3	199	3 46	?	7 51	?	—	—	9·7
Arapuni		24·1	197	—	—	e 9 23	−12	—	—	—
Riverview		35·1	232	e 8 11	PP	(e 15 11)	SSS	—	—	e 15·2
Honolulu		40·2	27	—	—	e 15 1	?	e 17 35	SSS	e 22·2
Berkeley		72·8	43	—	—	e 20 13	−45	e 21 53	PS	e 39·0
Pasadena	Z.	73·6	48	e 11 37	0	—	—	—	—	e 33·7
Mount Wilson	Z.	73·7	48	e 11 38	0	—	—	—	—	—
Riverside	Z.	74·1	48	e 11 40	0	—	—	—	—	—
Haiwee	Z.	74·7	46	e 11 44	+ 1	—	—	—	—	—
Tinemaha	Z.	75·0	45	e 11 47	+ 2	—	—	—	—	—
Tucson		78·0	53	i 12 1	− 1	e 21 55	0	—	—	e 36·8
Logan		81·7	42	e 12 17	− 5	—	—	—	—	e 40·9
Florissant	N.	95·9	52	—	—	e 24 55	+ 9	—	—	e 49·4
St. Louis		96·0	52	—	—	e 24 57	+10	—	—	e 42·8
Huancayo		97·0	105	—	—	e 25 38	+43	e 31 1	SS	e 54·3
Philadelphia		107·7	53	—	—	e 34 21	SSP	—	—	e 55·3
Agra	E.	110·7	293	—	—	e 25 9	[− 6]	—	—	—
Warsaw	Z.	140·5	344	e 19 33 a	[+ 2]	—	—	c 22 55	PP	e 90·7
Potsdam		142·0	351	e 19 24	[−10]	—	—	—	—	e 88·7
De Bilt	Z.	143·0	359	i 19 41 k	[+ 5]	—	—	—	—	96·7
Kew		143·5	4	e 19 42	[+ 5]	—	—	—	—	e 77·7
Clermont-Ferrand		149·3	2	e 18 55	[−51]	—	—	—	—	—

For Notes see next page.

NOTES TO APRIL 15d. 6h. 56m. 19s.

Additional readings :—
Honolulu e = +19m.49s.
Berkeley iN = +35m.13s., eE = +35m.26s.
Tucson i = +12m.6s., +12m.19s., and +12m.50s., e = +13m.26s.
Huancayo e = +45m.29s.
Philadelphia e = +51m.11s.
Warsaw eZ = +19m.55s. and +20m.56s.
Potsdam iPZ = +19m.34s., iZ = +19m.58s.
Long waves were also recorded at Rome, Uccle, La Paz, Wellington, Bozeman, Vermont, San Juan, Christchurch, Harvard, Ukiah, Salt Lake City, and East Machias.

April 15d. 16h. 34m.35s. Epicentre 16°·4S. 71°·0W. Depth 0·030.
(as on 1937 March 29d.).

A = +·3125, B = −·9075, C = −·2806 ; δ = −5 ; h = +5 ;
D = −·946, E = −·326 ; G = −·091, H = +·265, K = −·960.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
La Paz		2·8	92	i 0 46	− 3	i 1 20	− 7	—	—	i 1·4
Huancayo		6·0	315	e 1 24	− 4	i 2 14	−23	i 1 48	pP	i 3·2
La Plata	E.	21·8	149	4 44	+ 9	8 43	sS	6 7	?	—
	N.	21·8	149	4 47	+12	8 37	sS	5 7	PP	—
Balboa Heights		26·6	343	e 5 17	− 3	—	—	—	—	—
St. Louis	E.	58·3	343	i 9 26	− 8	i 17 4	−12	—	—	—
Harvard	Z.	58·6	0	i 9 42	+ 6	—	—	—	—	—
Tucson		61·6	322	i 9 57	+ 1	—	—	i 10 40	pP	—
Riverside	Z.	66·8	319	i 10 31a	+ 2	—	—	—	—	—
Mount Wilson	Z.	67·4	319	i 10 35a	+ 2	—	—	—	—	—
Pasadena	Z.	67·4	319	i 10 35a	+ 2	—	—	—	—	—
Haiwee	Z.	68·6	321	e 10 41	0	—	—	—	—	—
Tinemaha		69·4	321	e 10 49	+ 4	—	—	—	—	—

Additional readings :—
Huancayo i = +2m.10s. and +20m.47s.
Tucson e = +10m.1s., i = +13m.7s., e = +13m.32s. and +16m.37s.

April 15d. 17h. 29m. 41s. Epicentre 1°·7N. 122°·0E. (as on 1941 Jan. 12d.).

A = −·5327, B = +·8458, C = +·0295 ; δ = +2 ; h = +7 ;
D = +·846, E = +·533 ; G = −·016, H = +·025, K = −1·000.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Amboina		8·0	132	2 2	+ 2	3 33	0	—	—	—
Manila		12·8	357	e 3 10	+ 4	5 46	SS	—	—	7·1
Batavia		17·2	243	4 3	0	7 23	+ 9	—	—	—
Medan		24·0	277	5 14	− 3	9 22	−10	—	—	—
Agra	E.	49·3	307	e 8 59	+ 6	e 16 6	+ 7	19 34	SS	—
Irkutsk		52·6	347	9 17	− 1	e 16 40	− 4	—	—	—
Almata		57·7	324	e 9 57	+ 2	—	—	—	—	—
Frunse		59·0	322	e 10 17	+13	—	—	—	—	—
Andijan		59·4	318	10 2	− 4	18 13	− 2	—	—	—
Tashkent		61·7	318	e 10 21	− 1	e 18 48	+ 4	—	—	—
Samarkand		62·7	315	e 10 27	− 2	—	—	—	—	—
Sverdlovsk		73·4	332	i 11 35	− 1	e 21 1	− 4	—	—	—

Long waves were also recorded at Rome.

April 15d. 19h. 9m. 51s. Epicentre 18°·8N. 103°·0W.

18°17′N. 103°19′W. (Tacubaya).
18°·8N. 103°·0W. (U.S.C.G.S.).
18°·9N. 103°·5W.; depth =100km. (J.S.A.).

Disastrous at Colima; great damage at Coalcoman, Carapan, Las Truchas, Arteaga, Uruapan, and Manzanillo; felt violently at Tuxpan, Zapoltiltic, Huescalpa, Ciudad Guzman, Sayula, and Patzuraro; shocks felt at Tepic, Puebla, and at Vera Cruz, 800km. from the epicentre. The epicentre was in the area of Coalcoman.

J. P. Rothé.
18°·8N. 103°·0W. Magnitude 7·6.
Chronique seismologique, Revue pour l'Etude des Calamités, tome VII, No. 21, Genève 1944, p. 57.

Paolo Emilio Valle.
Epicentre to the East of Colima (Mexico). 19°32′·7N. 102°49·6′W.
Dromocrone e velocita apparenti delle onde spaziali relative al terremoto del 15 Aprile, 1941, XIX (Messico Centrale).
Estratto da "La Ricerche Scientifica," Anno 13°, N.8-9 Agosto-Settembre, 1942, XX, Pag. 476 et Public de l'Institut Geophysique de Rome, N. 76.

M. P. Collins and L. Don Leet.
Epicentre microseismique: 19°04′N. 103°06′W.; depth 100km. Repartition des compressions et dilatations en 4 quadrants.
The Mexican earthquakes of April 15, 1941, and Feb. 22, 1943.
Transactions of the American Geophysical Union, pp. 315-316, Washington, 1944.

$A = -·2131$, $B = -·9230$, $C = +·3203$; $\delta = -7$; $h = +4$;
$D = -·974$, $E = +·225$; $G = -·072$, $H = -·312$, $K = -·947$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Guadalajara	Z.	1·9	350	i 0 25	− 9	—	—	—	—	—
Tacubaya	N.	3·7	78	i 1 7	P*	—	—	—	—	—
Puebla	N.	4·5	87	e 1 21	P*	—	—	—	—	—
Mazatlan	N.	5·4	325	i 1 29	+ 5	—	—	—	—	—
Oaxaca	N.	6·1	105	i 1 40	P*	—	—	—	—	—
Vera Cruz	E.	6·5	86	i 1 53	P*	—	—	—	—	—
Chihuahua	Z.	10·2	345	i 2 40	+ 9	—	—	—	—	—
Merida		12·8	78	e 3 15	+ 9	—	—	—	—	—
Tucson		15·1	334	i 3 40	+ 4	i 6 29	+ 4	3 47	PP	i 7·4
Mobile		17·9	46	i 4 19	+ 7	i 7 42	+12	4 37	PP	—
La Jolla		19·0	322	i 4 26a	0	—	—	—	—	—
Riverside		19·8	323	i 4 35a	0	e 8 22	+ 9	—	—	—
Mount. Wilson		20·4	323	i 4 40a	− 1	—	—	—	—	—
Pasadena		20·4	323	i 4 41a	0	—	—	—	—	i 8·6
Denver		21·0	357	e 4 47	0	e 8 29	− 8	e 5 5	pP	e 10·1
Santa Barbara		21·5	321	e 4 53a	+ 1	i 8 55	+ 8	—	—	—
Haiwee		21·7	326	i 4 56a	+ 1	e 9 1	+10	—	—	—
Cape Girardeau	E.	21·9	31	i 4 38	−19	i 8 40	−14	—	—	—
Lincoln		22·6	14	i 5 5	+ 2	i 8 13	−54	—	—	—
Tinemaha		22·6	327	e 5 3	0	e 9 12	+ 5	—	—	—
St. Louis		22·7	26	i 5 4	0	i 9 12	+ 3	i 5 24	pP	i 11·8
Florissant		22·8	26	i 5 5	0	i 9 14	+ 3	i 5 29	PP	—
Fresno	N.	23·2	325	i 5 11	+ 2	e 9 20	+ 2	—	—	e 12·1
Salt Lake City		23·2	343	i 5 10	+ 1	i 9 19	+ 1	i 5 49	PP	i 11·1
Logan		24·1	344	i 5 19	+ 3	—	—	—	—	—
Balboa Heights	E.	24·7	109	e 5 25	+ 1	9 48	+ 4	10 44	SS	13·0
	N.	24·7	109	e 5 23	− 1	9 54	+10	10 59	SS	12·9
Lick		24·7	323	e 5 25	+ 1	e 9 47	+ 3	—	—	e 11·6
Columbia		24·8	47	i 5 23	− 2	i 9 43	− 3	i 5 57	PP	11·3
Santa Clara		24·8	323	i 5 29	+ 4	i 9 51	+ 5	—	—	—
Branner		25·0	322	i 5 28	+ 1	e 9 50	+ 1	—	—	e 11·5
Berkeley		25·4	323	i 5 27	− 4	e 9 57	+ 1	—	—	e 11·8
San Francisco		25·4	322	i 4 9?	?	e 8 9?	?	—	—	—
Chicago U.S.C.G.S.		26·5	25	i 5 39	− 2	i 10 1	−13	6 26	PP	i 13·8
Ukiah		26·8	325	i 5 44	0	i 10 22	+ 3	6 42	PP	e 12·3
Bozeman		27·6	348	i 5 50	− 1	i 10 32	0	i 6 46	PP	i 13·1

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Butte	z.	28·3	348	i 5 57	0	i 10 41	− 2	i 6 18	PP	i 13·1
Ferndale		28·4	324	i 6 11	+13	e 10 29	−16	e 7 10	PPP	e 13·2
Ann Arbor		28·6	31	i 5 51	− 9	i 10 45	− 3	6 39	PP	14·1
Port au Prince		29·0	86	i 6 16	+12	i 11 8	+14	7 7	PPP	14·2
Pittsburgh		29·3	37	i 6 4	− 2	—	—	—	—	—
Georgetown		30·1	43	i 6 12	− 1	—	—	—	—	—
Pennsylvania		30·7	39	i 6 16	− 3	e 12 35	SS	i 7 36	PPP	e 16·0
Spokane		31·1	342	i 6 20	− 2	i 11 25	− 3	i 14 10	SSS	e 13·7
Buffalo		31·5	35	i 6 23	− 3	i 12 49	SS	i 7 28	PP	e 15·9
Toronto		31·8	33	i 6 27	− 1	11 35	− 3	7 39	PPP	15·2
Philadelphia		31·9	44	i 6 28a	− 1	i 11 32	− 8	e 7 23	PP	e 15·1
Seattle		32·8	336	e 8 9?	PPP	—	—	—	—	—
Fordham		33·2	43	i 6 38	− 2	i 11 59	− 1	i 7 34	PP	—
Saskatoon		33·4	357	6 42	0	i 12 4	+ 1	8 9	PPP	16·2
Victoria		34·0	336	i 6 46	− 2	i 12 20	+ 7	8 13	PPP	16·2
Ottawa		34·9	34	i 6 54	− 1	i 12 23	− 4	8 13	PP	i 16·6
San Juan		34·9	84	i 6 57	+ 2	i 12 30	+ 3	8 23	PPP	i 17·6
Harvard		35·6	41	i 6 59a	− 2	i 12 30	− 8	i 8 26	PP	—
Vermont		35·7	38	i 7 2	0	i 12 37	− 2	i 8 27	PP	i 17·3
Bermuda		36·8	61	i 7 12	+ 1	12 51	− 5	i 8 31	PP	i 15·3
Shawinigan Falls		37·2	35	7 13	− 2	13 5	+ 3	8 52	PPP	19·5
Seven Falls		38·6	35	7 24	− 2	13 19	− 4	9 6	PPP	18·2
East Machias		39·4	41	i 7 32	− 1	i 13 16	−19	i 9 8	PP	i 16·6
Huancayo		41·0	136	i 7 47	+ 1	i 13 51	− 8	i 9 51	PPP	16·4
Halifax		41·7	43	7 49	− 3	e 14 0	−10	9 38	PP	e 21·2
Sitka		45·5	336	e 8 16	− 7	i 14 59	− 6	i 10 14	PP	17·9
La Paz		49·1	133	i 8 49	− 2	i 15 49	− 7	i 11 33	PPP	i 22·8
Honolulu		51·3	283	i 9 8	0	i 16 25	− 1	i 10 16	PcP	i 21·7
College		54·8	338	i 9 33	− 1	i 17 4	−10	i 11 55	PP	i 25·6
La Plata		68·4	141	11 4	− 2	20 4	− 3	13 45	PP	27·9
Scoresby Sund		69·4	21	i 11 11	− 1	i 20 13	− 5	i 13 49	PP	i 28·6
Rio de Janeiro		71·6	122	i 11 15	−10	i 20 50	+ 6	—	—	i 35·1
Apia		75·1	249	—	—	21 20	− 4	26 31	SS	30·6
Edinburgh		80·0	35	12 13	0	22 16	− 1	15 9	PP	—
Aberdeen		80·2	33	i 12 14	0	i 22 16	− 3	i 15 17	PP	38·1
Stonyhurst		81·1	36	i 12 17	− 1	i 22 25	− 3	27 48	SS	39·9
Lisbon		81·4	53	12 19	− 1	i 22 31	0	15 29	PP	38·1
Coimbra		81·5	50	12 16	− 5	i 22 25	− 7	23 14	PS	34·2
Oxford		82·5	38	i 12 23	− 3	i 22 52	+10	—	—	e 37·1
Bergen		82·5	28	i 12 27	+ 1	i 22 48	+ 6	i 23 48	PS	e 40·2
Kew		83·1	38	i 12 28a	− 1	i 22 48	0	e 15 50	PP	e 40·2
San Fernando		84·3	54	i 12 38	+ 3	i 23 0	0	15 52	PP	36·2
Toledo		84·8	50	i 12 38	+ 1	i 23 0	− 5	—	—	—
Paris		85·8	40	i 12 42	0	i 23 3	−12	16 8	PP	—
De Bilt		86·0	36	i 12 43	0	i 23 7	[− 1]	—	—	e 40·2
Granada		86·0	52	i 12 47k	+ 4	i 22 59	[− 9]	12 58	PcP	e 41·3
Uccle		86·1	38	i 12 43a	− 1	i 23 7	[− 1]	i 16 10	PP	e 40·2
Bagneres		86·6	45	e 12 48	+ 2	i 23 11	[− 1]	17 53	PPP	e 41·8
Almeria		87·0	52	i 12 48	0	23 6	[− 8]	16 7	PP	36·6
Clermont-Ferrand		87·4	42	e 12 49	− 1	e 23 34	+ 4	—	—	e 42·1
Copenhagen		88·1	31	i 12 53k	− 1	23 20	[− 1]	24 37	PS	—
Upsala		88·1	26	i 13 0	+ 6	i 23 17	[− 4]	i 16 28	PP	e 42·2
Strasbourg		89·1	38	13 0	+ 2	e 23 27	[0]	i 24 50	PS	38·2
Neuchatel		89·3	40	e 12 58	− 1	e 23 27	[− 1]	—	—	—
Basle		89·4	39	e 12 59	− 1	e 23 26	[− 3]	—	—	—
Stuttgart		89·8	38	i 13 1k	− 1	i 23 32	[0]	16 31	PP	e 38·2
Marseilles		90·0	44	e 13 15	+12	i 23 31	[− 2]	e 16 45	PP	e 43·1
Jena		90·1	35	i 13 2	− 1	i 23 34	[+ 1]	e 16 32	PP	e 34·2
Potsdam		90·1	34	i 13 2k	− 1	i 23 32	[− 1]	i 13 15	PcP	e 30·2
Zurich		90·1	39	e 13 1a	− 2	e 23 33	[0]	e 16 26	PP	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Chur		90·9	39	e 13 7k	0	—	—	—	—	—
Algiers		91·1	51	i 13 9	+ 1	i 23 29	[−10]	e 29 29	SS	38·2?
Nemuro		91·9	317	13 11	0	23 35	[− 9]	16 51	PP	42·5
Prague		92·1	35	e 13 11	− 1	i 23 42	[− 3]	e 25 3	PS	e 36·2?
Pulkovo		93·0	22	e 13 18	+ 1	i 23 56	[+ 6]	e 17 10	PP	—
Warsaw		94·2	31	e 13 15	− 7	i 23 52	[− 5]	17 7	PP	e 39·2
Sapporo		94·7	318	13 22	− 2	e 24 17	[+18]	—	—	40·0?
Arapuni		94·8	230	13 39	+14	e 24 15	[+15]	17 21	PP	43·7
Rome		95·2	43	i 13 27	0	i 24 5	[+ 3]	i 17 3	PP	i 45·3
Ogyalla	E.	95·4	36	e 13 54	+26	i 24 2	[− 3]	e 14 34	?	38·7
	N.	95·4	36	13 30	+ 2	i 24 4	[− 1]	i 13 38	P_cP	41·2
Kalossa		95·6	36	e 13 39	+11	e 24 9	[+ 4]	e 26 3	PS	e 40·2
Mori	E.	95·7	318	e 12 43	−46	e 23 34	[−31]	—	—	e 44·7
Budapest		96·1	36	13 33	+ 2	i 24 5	[− 2]	13 41	P_cP	e 39·7
Wellington		96·5	228	13 35	+ 3	24 4	[− 5]	17 30	PP	45·1
Kecskemet	Z.	96·8	36	13 34	0	e 24 16	[+ 6]	—	—	e 47·2
Mizusawa		96·9	315	e 13 35	+ 1	24 35	[+24]	—	—	—
Sendai		97·5	314	13 36	− 1	24 28	[+14]	26 16	PS	44·8
Moscow		98·6	21	13 40	− 2	i 24 17	[− 3]	17 43	PP	—
Christchurch		98·8	227	13 41	− 2	24 19	[− 2]	17 43	PP	44·5
Tokyo Cen. Met. Ob.		99·6	313	e 13 48	+ 2	i 24 33	[+ 8]	—	—	45·8
Yokohama		99·8	312	e 13 49	+ 2	e 24 26	[0]	—	—	e 41·3
Nagano		100·1	314	13 52	+ 3	24 51	[+24]	—	—	—
Bucharest		101·8	35	e 13 55	− 1	i 24 30	[− 6]	e 25 23	SKKS	41·2
Kobe		103·3	314	14 1	− 2	24 40	[− 2]	—	—	—
Sverdlovsk		103·4	9	14 4	0	i 24 39	[− 4]	i 18 14	PP	—
Koti		105·1	314	14 13	+ 2	24 45	[− 6]	e 18 29	PP	50·3
Hamada		105·3	315	18 23	PP	24 45	[− 7]	—	—	—
Irkutsk		105·3	343	e 14 10	− 2	24 51	[− 1]	18 42	PP	—
Sebastopol		105·5	31	—	—	24 49	[− 4]	—	—	—
Simferopol		105·5	31	14 18	+ 5	24 47	[− 6]	—	—	—
Istanbul		105·7	37	14 28	P	24 58	[+ 4]	18 34	PP	e 62·2
Yalta		105·9	31	14 15	P	—	—	—	—	—
Zinsen		107·1	320	15 35	P	26 27	?	18 16	PP	48·3
Hukuoka		107·2	315	e 18 57	PP	28 22	PS	—	—	39·2
Miyazaki		107·5	313	18 34	PP	33 19	SS	—	—	44·4
Dairen		109·0	324	20 0	PP	28 17	PS	—	—	—
Brisbane		110·5	247	e 17 51	[−43]	i 28 45	PS	i 19 9	PP	—
Riverview		113·1	240	e 14 45	P	e 35 26	SS	i 19 27	PP	50·6
Sydney		113·1	240	e 17 54	[−45]	i 28 51	PS	—	—	49·2
Naha		113·5	310	19 18	[+38]	—	—	—	—	68·2
Helwan		114·6	44	e 15 15	P	25 45	[+15]	19 45	PP	—
Ksara		114·6	38	e 16 13	?	26 47	{+10}	e 19 43	PP	—
Baku		115·9	23	e 19 16	[+31]	25 58	[+23]	i 20 13	PP	—
Almata		118·2	359	18 50	[+ 1]	—	—	—	—	—
Frunse		118·6	2	19 8	[+18]	—	—	—	—	—
Tchimkent		118·8	6	18 53	[+ 3]	—	—	—	—	—
Tashkent		119·8	7	e 18 53	[+ 1]	i 25 48	[− 1]	e 30 9	PS	—
Andijan		120·6	4	18 52	[− 2]	—	—	—	—	—
Samarkand		121·1	9	18 59	[+ 4]	—	—	—	—	—
Adelaide		123·6	240	37 49	SSP	—	—	42 19	SSS	—
Manila		125·4	304	i 19 5a	[+ 2]	—	—	20 52	PP	57·7
Amboina		127·8	280	19 7	[− 1]	—	—	—	—	e 33·2?
Dehra Dun	N.	131·7	358	e 19 32	[+17]	e 28 35	{+ 5}	(e 33 5?)	PPS	e 66·6
Agra		134·3	357	19 25	[+ 5]	28 42	{− 5}	21 58	PP	—
Calcutta		137·4	344	e 19 21	[− 5]	29 14	{+ 9}	22 30	PP	i 68·3
Bombay		142·3	6	e 19 27	[− 8]	i 29 26	{− 9}	i 22 50	PP	62·2
Perth		142·7	241	23 39	P	41 29	SS	32 21	?	67·6
Hyderabad	E.	144·0	357	19 38	[+ 1]	33 24	PS	—	—	59·6
Batavia		148·4	289	19 43	[− 2]	—	—	—	—	e 43·2?
Medan		149·2	314	e 19 46	[0]	i 42 29	SS	—	—	e 67·2
Kodaikanal	E.	151·2	0	i 19 52	[+ 3]	42 37	SS	—	—	—
Tananarive		152·1	95	e 19 54	[+ 3]	30 34	{+ 4}	23 30	PP	52·7

For Notes see next page.

NOTES TO APRIL 15d. 19h. 9m. 51s.

Additional readings :—
Tucson i = +3m.53s., +6m.1s., +6m.49s., and +7m.7s.
Mobile iSS = +8m.14s.
Denver iN = +4m.51s., eE = +5m.10s., iN = +5m.15s., isPN = +5m.22s., isPEN = +5m.28s., iE = +5m.36s. and +6m.4s., iN = +6m.47s., eEN = +8m.47s., isSN = +9m.5s., isSE = +9m.14s.
St. Louis iE = +5m.16s., iPPE = +5m.34s., iE = +5m.42s., isSE = +9m.43s., iSSE = +10m.14s.
Salt Lake City i = +6m.16s., +6m.40s., +7m.41s., and +8m.31s., iPcP = +8m.29s., i = +8m.57s. and +10m.0s.
Lick eSN = +9m.39s.
Columbia i = +5m.31s., +6m.5s., +7m.7s., and +8m.12s.
Berkeley eN = +5m.31s., eSE = +9m.54s.
Chicago U.S.C.G.S. i = +5m.49s., +7m.22s., and +7m.40s., iPcP = +8m.44s., i = +9m.24s. and +10m.27s.
Ukiah i = +5m.57s., +6m.5s., +7m.12s., and +7m.46s., iPcP = +8m.43s., i = +11m.23s.
Bozeman i = +6m.13s., +7m.55s., and +8m.18s., iPcP = +8m.51s., i = +10m.0s. and +11m.28s.
Butte i = +10m.51s., +11m.1s., and +11m.38s.
Ann Arbor SS = +12m.15s.
Port au Prince PPP = +7m.24s., SS = +12m.26s.
Spokane iEN = +7m.36s.
Philadelphia e = +7m.4s., i = +7m.54s., iSS = +13m.28s.
Fordham iPPP = +7m.59s., iSS = +14m.14s.
Saskatoon SS = +14m.9s.?
Victoria SS = +13m.48s.
Ottawa SS = +14m.25s.
San Juan i = +7m.4s. and +10m.40s.
Harvard iZ = +11m.32s., iSSEN = +15m.12s.
Vermont iPP = +8m.18s., i = +15m.57s.
Bermuda i = +8m.26s., +8m.43s., +12m.22s., +13m.5s., +13m.46s., and +14m.21s.
Shawinigan Falls SSS = +15m.51s.
Seven Falls SSS = +16m.3s.
East Machias i = +7m.51s., +8m.24s., +9m.46s., +11m.41s., and +13m.42s.
Huancayo i = +8m.17s. and +14m.2s.
Halifax SSS = +17m.19s.
Sitka i = +8m.29s., e = +8m.37s. and +11m.1s., eS = +14m.34s., e = +14m.51s., i = +15m.11s.
La Paz iN = +16m.13s., iScS = +18m.45s., iSSN = +19m.11s.
Honolulu iScS = +18m.53s.
College i = +10m.0s. and +13m.50s., iScS = +19m.18s., iSS = +20m.48s., i = +21m.35s.
La Plata iPN = +11m.9s., PcPZ = +11m.27s., E = +18m.39s., PSE = +20m.39s., SSE = +24m.9s., SSN = +24m.39s.
Scoresby Sund i = +11m.57s., +12m.41s., +14m.59s., +16m.28s., and +21m.9s., iSS = +24m.26s., i = +25m.27s., +27m.4s., and +27m.47s.
Apia SSS = +29m.37s.
Edinburgh PcP = +12m.23s., i = +13m.41s., e = +13m.55s., i = +15m.54s., PPP = +17m.17s., i = +27m.8s., SS = +27m.44s., SSS = +31m.7s., i = +34m.19s., e = +35m.54.s
Aberdeen iSSEN = +27m.44s., iSSSEN = +31m.32s., QN = +34·0m.
Stonyhurst i = +12m.26s. and +23m.18s., SSS = +31m.8s.
Lisbon iEZ = +12m.36s., N = +12m.44s., SZ = +22m.35s., N = +23m.55s., eN = +32m.57s., iN = +33m.57s., E = +34m.9s.
Coimbra i = +23m.2s., iE = +25m.30s.
Bergen iPcP? = +12m.59s., eSS = +27m.58s., eSSS = +31m.52s.
Kew iPcPEZ = +12m.45s., ePPP = +17m.26s., iZ = +21m.58s., e = +23m.40s., iZ = +24m.19s., eSS = +28m.9s.?, eSSS = +31m.39s.?, eQEN = +60·9m.
San Fernando PPE = +17m.40s., PSE = +23m.54s., SSEN = +28m.37s., SSSEN = +32m.0s.
Paris PcP = +12m.54s., PPP = +17m.47s.
De Bilt iSKS = +22m.41s.
Granada PP = +15m.46s., PPP = +17m.33s., iPS = +23m.41s., SS = +28m.15s., SSS = +31m.24s., Q = +35m.9s.
Uccle iEN = +12m.53s., iZ = +12m.57s., iE = +22m.18s., iSSE = +28m.54s., iSSSE = +32m.26s.
Bagneres eSKS = +22m.59s., iS = +23m.26s., e = +24m.52s., eSSS = +33m.12s.
Almeria PcP = +13m.5s., PPP = +18m.13s., iS = +23m.24s., ScS = +23m.47s., PS = +24m.14s., PPS = +24m.49s., SS = +29m.12s., SSS = +33m.22s.
Upsala iN = +16m.6s., eE = +22m.22s., iPS = +24m.46s., eSS = +29m.9s.?, eSSSN = +33m.9s.?
Strasbourg iPPP = +19m.19s., iS = +23m.51s., eSS = +29m.37s.
Basle eS = +23m.58s.
Stuttgart i = +13m.18s. and +13m.30s., e = +15m.37s., ePPPN = +18m.49s., eNE = +22m.29s., eSEN = +23m.55s., ePSE = +25m.1s., eSSEN = +29m.54s., eSSSE = +33m.33s., ePKPPKP = +38m.36s.

Continued on next page.

Marseilles eS = +23m.38s., eSS = +30m.9s.
Jena iSKSZ = +23m.27s., iSE = +24m.0s., iSN = +24m.3s., iPSN = +24m.38s., and +24m.57s., iPSZ = +25m.2s., eE = +29m.54s., eN = +30m.9s.
Potsdam iPE = +13m.5s., iPPEZ = +16m.42s., iPPN = +16m.49s., iSKSEN = +23m.27s., iPSZ = +24m.59s., iPSN = +25m.3s., iPSE = +25m.11s., iPPSE = +25m.22s., iPPSZ = +25m.28s., iNZ = +27m.41s., iSSNZ = +29m.41s., iSSE = +29m.48s.
Zurich e = +29m.53s.
Prague eSS = +29m.45s., eSSS = +33m.57s.
Pulkovo S = +24m.26s., iPS = +25m.0s.
Warsaw iPZ = +13m.23s., PPPZ = +18m.50s., iSKSZ = +23m.56s., iSE = +24m.17s., iSZ = +24m.22s., iPSZ = +25m.49s., PSE = +25m.53s., iZ = +26m.37s., iSSZ = +30m.21s., SSN? = +30m.26s., iE = +32m.13s., iE = +37m.8s.
Arapuni PS = +26m.27s., Q = +38·7m.
Rome i = +13m.39s., iEZ = +17m.17s., iPPPN = +19m.16s., iE = +23m.28s., iSKSN = +23m.48s., i = +24m.34s., iN = +25m.31s., iE = +25m.37s., iPS = +25m.46s., iPPS = +26m.6s., iE = +26m.52s., i = +27m.36s., +28m.17s., and +30m.17s., iSS = +31m.3s., iSSS = +34m.58s., i = +43m.23s.
Kalossa ePN = +13m.45s., iE = +25m.29s.
Budapest ePPN = +16m.35s., eE = +17m.35s., eS$_c$SE = +24m.16s., ePSN = +24m.36s., ePSE = +24m.40s., eE = +26m.5s., iN = +26m.10s., eE = +28m.31s. and +28m.38s., eSSN = +29m.13s., eN = +30m.49s., eE = +31m.25s., ePKKSE = +35m.13s., ePKKSN = +35m.23s., eSKKSN = +39m.3s.
Wellington S = +24m.59s., PS = +26m.24s., i = +30m.39s., SS? = +32m.2s., SSS = +35m.24s., Q = +38·7m.
Sendai S = +24m.57s., SS = +31m.42s.
Moscow S = +25m.9s., PS = +26m.33s.
Christchurch SSZ = +33m.1s.
Bucharest ePEN = +13m.58s., ePP = +17m.18s., ePPPE = +19m.15s., eSKSE = +23m.55s., eSKSN = +23m.58s., SSSEN = +33m.48s.
Sverdlovsk iS = +25m.40s., iPS = +27m.23s.
Koti ePPP = +20m.56s., SKKS = +25m.51s., PS = +27m.36s., PPS = +28m.37s., SS = +33m.24s., SSS = +37m.11s.
Irkutsk iP = +14m.10s.
Zinsen S = +27m.7s., SS = +33m.34s.
Brisbane iE = +18m.51s., iN = +34m.39s., iE = +34m.57s., iN = +45m.51s.
Riverview PPPE = +21m.53s., ePSE = +29m.9s., PPSE = +30m.1s., eN = +38m.42s., SSSE = +39m.39s., eQN = +46m.51s.
Sydney e = +25m.30s.
Naha e = +53m.10s.
Helwan SKKSEN = +26m.41s., PSEN = +29m.17s., PPSE = +30m.15s., SSE = +35m.33s.
Ksara ePS = +29m.22s.
Tashkent eP = +15m.17s.
Dehra Dun i?N = +22m.49s., e?N = +31m.6s. (PPS given as S).
Agra SKPNE = +22m.51s., PPSN = +33m.53s., iSSE = +39m.38s., SSN = +39m.44s., SSSE = +44m.38s., iE = +54m.52s., iN = +55m.26s.
Calcutta iSKPN = +22m.57s., iSSN = +41m.16s., iSSSN = +46m.40s.
Bombay ePKPE = +19m.32s., iEN = +20m.13s., iPKSE = +23m.23s., iPKSN = +23m.35s., iN = +36m.23s., iE = +38m.40s., iSS = +41m.14s., iSSN = +46m.19s., iSSS?E = +46m.42s., iE = +54m.59s.
Perth i = +38m.56s.
Hyderabad PPE = +24m.11s., SSE = +39m.0s.
Batavia PEN = +19m.48s.
Tananarive SS = +43m.21s., SSS = +48m.12s.

April 15d. 19h. 45m. 59s. Epicentre 18°·8N. 103°·0W. (as at 19h.9m.).

A = −·2131, B = −·9230, C = +·3203; $\delta = -7$; $h = +4$.

	△	Az.	P.		O−C.	S.		O−C.	Supp.		L.
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Puebla		N. 4·5	87	i 1 27	P_g	—		—	—	—	—
Mazatlan		N. 5·4	325	i 1 35	P*	—		—	—	—	—
Oaxaca		Z. 6·1	105	i 1 43	P*	—		—	—	—	—
Vera Cruz		Z. 6·5	86	i 1 57	P*	—		—	—	—	—
Chihuahua		Z. 10·2	345	i 2 41	PP	—		—	—	—	—
Merida		N. 12·8	78	e 3 16	PP	—		—	—	—	—
Tucson		15·1	334	i 3 39	+ 3	i 6	31	+ 6	i 3 44	PP	i 8·3
La Jolla		19·0	322	e 4 25	− 1	—		—	—	—	—
Riverside		Z. 19·8	323	e 4 33	− 2	—		—	—	—	—
Mount Wilson		20·4	323	i 4 39	− 2	—		—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Pasadena		20·4	323	i 4 39	− 2	i 8 38	+13	—	—	—
Denver		21·0	357	i 5 4	PP	e 8 39	+ 2	—	—	e 11·1
Santa Barbara		21·5	321	i 4 53	+ 1	—	—	—	—	—
Haiwee		21·7	326	i 4 55	0	—	—	—	—	—
Tinemaha		22·6	327	i 5 2	− 1	—	—	—	—	—
St. Louis	N.	22·7	26	i 5 1	− 3	i 9 9	0	—	—	—
Fresno	N.	23·2	325	e 5 10	+ 1	—	—	—	—	—
Balboa Heights		24·7	109	e 5 23	− 1	9 41	− 3	—	—	—
Lick		24·7	323	e 5 24	0	—	—	—	—	—
Berkeley		25·4	323	e 5 29	− 2	—	—	—	—	—
San Francisco		25·4	322	e 4 1?	?	—	—	—	—	—
Pennsylvania		30·7	39	i 6 13	− 6	—	—	—	—	—
Shawinigan Falls		37·2	35	e 7 11	− 4	—	—	—	—	20·0
La Paz	Z.	49·1	133	i 8 50	− 1	—	—	—	—	—
Kew	Z.	83·1	38	i 12 26	− 3	—	—	—	—	—
San Fernando	E.	84·3	54	e 12 36	+ 1	—	—	—	—	—
Toledo	Z.	84·8	50	i 12 34	− 3	—	—	—	—	—
Granada		86·0	52	i 12 42k	− 1	i 23 36	+19	—	—	—
Clermont-Ferrand		87·4	42	i 12 48a	− 2	—	—	—	—	—
Copenhagen		88·1	31	e 12 52	− 2	—	—	—	—	—
Stuttgart		89·8	38	i 12 58k	− 4	—	—	—	—	—
Batavia		148·4	289	19 42	[− 3]	—	—	—	—	—
Medan		149·2	314	19 50	[+ 4]	—	—	—	—	—

Additional readings :—
Tucson i = +3m.57s., +4m.13s., +4m.43s., +6m.22s., +6m.56s., and +7m.57s.
Denver iE = +5m.11s., iN = +5m.39s. and +6m.5s., eSN = +7m.39s., iE = +9m.1s., eE = +10m.57s.
Pennsylvania i = +6m.55s.
Long waves were also recorded at Saskatoon.

April 15d. 22h. 37m. 20s. Epicentre 18°·8N. 103°·0W. (as at 19h.).

A = −·2131, B = −·9230, C = +·3203 ; $\delta = -7$; $h = +4$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tacubaya	Z.	3·7	78	1 15	P_g	—	—	—	—	—
Vera Cruz	N.	6·5	86	—	—	i 3 41	S_g	—	—	—
Tucson		15·1	334	e 3 39	+ 3	—	—	i 4 15	PPP	i 8·2
Riverside	Z.	19·8	323	i 4 34	− 1	—	—	e 4 47	PP	—
Mount Wilson	Z.	20·4	323	i 4 39	− 2	—	—	i 4 52	PP	—
Pasadena	Z.	20·4	323	e 4 38	− 3	—	—	—	—	—
Haiwee	Z.	21·7	326	e 4 56	+ 1	—	—	—	—	—
Tinemaha	Z.	22·6	327	e 5 2	− 1	—	—	—	—	—

Tucson also gives i = +3m.51s.

April 15d. 23h. 42m. 59s. Epicentre 18°·8N. 103°·0W. (as at 22h.).

A = −·2131, B = −·9230, C = +·3203 ; $\delta = -7$; $h = +4$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tacubaya	E.	3·7	78	1 5	P*	—	—	—	—	—
Oaxaca		6·1	105	—	—	e 3 3	S*	—	—	—
Vera Cruz	Z.	6·5	86	e 1 37	− 2	—	—	—	—	—
Chihuahua	Z.	10·2	345	—	—	i 5 48	S_g	—	—	—
Tucson		15·1	334	e 3 41	+ 5	i 6 33	+ 8	i 3 52	PP	i 8·2
La Jolla	Z.	19·0	322	e 4 28	+ 2	—	—	—	—	—
Riverside		19·8	323	i 4 35	0	—	—	—	—	—
Mount Wilson		20·4	323	i 4 41	0	—	—	—	—	—
Pasadena		20·4	323	i 4 43	+ 2	—	—	—	—	—
Santa Barbara	Z.	21·5	321	e 4 55	+ 3	—	—	—	e 10·4	—

Continued on next page,

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Haiwee	z.	21·7	326	e 4 56	+ 1	—	—	—	—	—
Cape Girardeau		21·9	31	e 4 57	0	e 8 57	+ 3	e 5 3	pP	—
Lincoln		22·6	14	—	—	e 9 19	+12	—	—	e 11·6
Tinemaha		22·6	327	i 5 6	+ 3	—	—	—	—	—
St. Louis		22·7	26	i 5 4	0	e 9 11	+ 2	i 5 21	pP	—
Florissant		22·8	26	i 5 5	0	e 9 12	+ 1	i 5 22	pP	—
Salt Lake City		23·2	343	e 5 12	+ 3	e 9 41	+23	—	—	e 12·7
Chicago U.S.C.G.S.		26·5	25	e 5 39	− 2	e 10 29	+15	e 11 2	SS	e 13·8
Pennsylvania		30·7	39	e 7 21	PP	—	—	—	—	—
Philadelphia		31·9	44	e 7 10	PP	e 13 35	SS	—	—	e 18·3
Ottawa		34·9	34	e 6 53	− 2	—	—	e 8 7	PP	17·0
Shawinigan Falls		37·2	35	e 7 12	− 3	—	—	—	—	21·0
Toledo	z.	84·8	50	i 12 35	− 2	—	—	—	—	—

Additional readings :—
Tucson i = +4m.19s., +6m.13s., +7m.38s., and +7m.57s.
Riverside iZ = +4m.54s.
Pasadena iZ = +5m.0s.
Cape Girardeau iN = +5m.14s.
Florissant iEN = +5m.18s., iSN = +9m.16s., eN = +9m.33s.
Long waves were also recorded at Bozeman and Columbia.

April 15d. Readings also at 0h. (Amboina), 3h. (La Paz), 9h. (near Manila), 12h. (Christchurch, Wellington, and Auckland), 14h. (near Algiers), 15h. (Ksara and Theodosia), 18h. (near Bagneres), 19h. (La Paz), 20h. (Adelaide and La Paz), 21h. (Tchimkent, Tucson (2), Mount Wilson, Riverside, and Tacubaya (2)), 22h. (Tacubaya), 23h. (Almata).

April 16d. 1h. 38m. 20s. Epicentre 18°·8N. 103°·0W. (as on 1941 April 15d.).

A = −·2131, B = −·9230, C = +·3203; $\delta = -7$; $h = +4$.

		Δ	Az.	P.	O−C.	S,	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tacubaya	z.	3·7	78	1 4	+ 4	—	—	—	—	—
Mazatlan	n.	5·4	325	i 1 25	+ 1	—	—	—	—	—
Oaxaca	z.	6·1	105	1 44	P*	—	—	—	—	—
Vera Cruz	z.	6·5	86	e 1 46	+ 7	—	—	—	—	—
Chihuahua	z.	10·2	345	i 2 43	PP	—	—	—	—	—
Tucson		15·1	334	i 3 41	+ 5	i 6 40	SS	i 3 56	PPP	i 7·9
La Jolla	z.	19·0	322	e 4 27	+ 1	—	—	—	—	—
Riverside		19·8	323	e 4 36	+ 1	—	—	i 4 54	PP	—
Mount Wilson		20·4	323	i 4 41	0	—	—	—	—	—
Pasadena		20·4	323	i 4 41	0	i 8 38	+13	i 4 58	PP	—
Santa Barbara	z.	21·5	321	e 3 53	−59	—	—	—	—	—
Haiwee	z.	21·7	326	e 4 58	+ 3	—	—	—	—	—
Cape Girardeau		21·9	31	e 5 0	+ 3	e 8 59	+ 5	—	—	—
Lincoln		22·6	14	e 5 2	− 1	e 9 20	+13	—	—	e 11·9
Tinemaha		22·6	327	i 5 6	+ 3	—	—	—	—	—
St. Louis	e.	22·7	26	i 5 3	− 1	i 9 11	+ 2	i 5 21	pP	—
Florissant		22·8	26	i 5 4	− 1	e 9 12	+ 1	i 5 21	pP	—
Salt Lake City		23·2	343	e 5 10	+ 1	e 9 25	+ 7	e 9 49	SS	e 12·7
Columbia		24·8	47	e 6 0	PP	e 10 16	+30	—	—	e 10·9
Berkeley		25·4	323	—	—	e 9 40	−16	—	—	—
Chicago U.S.C.G.S.		26·5	25	e 5 37	− 4	e 10 17	+ 3	—	—	e 12·4
Ukiah		26·8	325	—	—	e 10 50	+31	—	—	e 13·0
Bozeman		27·6	348	e 7 0	PPP	e 10 59	+27	—	—	e 11·4
Pittsburgh	z.	29·3	37	i 6 2	− 4	—	—	—	—	—
Georgetown		30·1	43	e 7 1	PP	e 11 17	+ 5	—	—	—
Pennsylvania		30·7	39	e 6 15	− 4	—	—	—	—	—
Buffalo		31·5	315	i 6 22	− 4	—	—	—	—	—
Philadelphia		31·9	44	i 7 39	PP	e 11 50	+10	—	—	e 17·1
Fordham		33·2	43	e 6 37	− 3	—	—	e 7 55	PP	—
Victoria		34·0	336	—	—	e 12 10	− 3	—	—	17·7

Continued on next page,

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ottawa		34·9	34	i 6 51	− 4	e 12 22	− 5	e 8 13	PP	18·7
San Juan		34·9	84	e 6 49	− 6	e 12 22	− 5	—	—	e 17·1
Harvard	z.	35·6	41	e 6 55	− 6	e 13 3	+25	—	—	e 24·7
Vermont		35·7	38	e 8 28	PP	e 12 48	+ 9	—	—	e 21·4
Weston		35·7	41	e 6 58	− 4	—	—	—	—	—
Shawinigan Falls		37·2	35	e 7 11	− 4	—	—	—	—	20·7
Seven Falls		38·6	35	e 8 52	PP	—	—	—	—	19·7
East Machias		39·4	41	e 9 27	PPP	e 13 58	+23	—	—	e 16·6
La Paz	z.	49·1	133	8 40	−11	—	—	—	—	26·7
Toledo	z.	84·8	50	i 12 35	− 2	—	—	—	—	—
Granada		86·0	52	i 12 44a	+ 1	—	—	—	—	e 47·5
Amboina		127·8	280	30 29	PS	—	—	—	—	—

Additional readings :—
Tucson i = +4m.13s., +5m.12s., +5m.54s., and +7m.1s.
Florissant iN = +9m.32s.
Salt Lake City e = +6m.52s.
Chicago U.S.C.G.S. e = +8m.56s.
Philadelphia e = +10m.55s.
Amboina ePN = +30m.44s.
Long waves were also recorded at Paris, De Bilt, Uccle, Seattle, Sitka, and Potsdam.

April 16d. 2h. 1m. 22s. Epicentre 18°·8N. 103°·0W. (as at 1h.).

A = −·2131, B = −·9230, C = +·3203 ; $\delta = -7$; $h = +4$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tacubaya	z.	3·7	78	1 12	P_g	—	—	—	—	—
Vera Cruz	N.	6·5	86	e 1 58	P*	—	—	—	—	—
Tucson		15·1	334	e 3 40	+ 4	—	—	i 3 53	PP	i 8·5
Riverside	z.	19·8	323	e 4 35	0	—	—	i 4 52	PP	—
Mount Wilson	z.	20·4	323	i 4 40	− 1	—	—	i 4 56	PP	—
Pasadena	z.	20·4	323	i 4 40	− 1	—	—	i 4 56	PP	—
Haiwee	z.	21·7	326	e 5 0	+ 5	—	—	—	—	—
Tinemaha	z.	22·6	327	e 5 1	− 2	—	—	—	—	—
St. Louis		22·7	26	i 5 3	− 1	e 9 14	+ 5	i 5 20	pP	—
Florissant		22·8	26	i 5 4	− 1	e 9 11	0	e 5 22	pP	—

Additional readings :—
Tucson i = +4m.6s., +5m.2s., and +7m.18s.
Florissant iN = +5m.17s.
Long waves were also recorded at Lincoln.

April 16d. Readings also at 0h. (Tacubaya (3) and Butte), 1h. (Tacubaya), 2h. (Tacubaya (2), Tinemaha, Pasadena, Mount Wilson, Riverside, and Tucson), 3h. (Tacubaya), 4h. (San Juan, Basle, Tucson, Huancayo, Tacubaya (4), and La Paz), 5h. (Tucson, Tacubaya, Riverside, Mount Wilson, and Pasadena), 6h. (Tacubaya, Riverside, Mount Wilson, Pasadena, Victoria, Tinemaha, and Tucson), 12h. (Granada, Tinemaha, Pasadena, Mount Wilson, and Riverside), 13h. (Calcutta, Bombay, Agra, Tashkent, Tucson, Tacubaya, and near La Paz), 14h. (De Bilt and Potsdam), 15h. (Tucson, La Paz, Huancayo, Tinemaha, Pasadena, Harvard, Mount Wilson, and Riverside), 16h. (Butte), 17h. (near Samarkand), 21h. (near Harvard), 22h. (Mizusawa).

April 17d. Readings at 0h. (Potsdam, Agra, Semipalatinsk, near Almata, Andijan, Frunse, Tashkent, and Tchimkent), 1h. (Samarkand, Tashkent, Tchimkent, near Almata, Andijan, and Frunse), 2h. (Mizusawa), 3h. (Tacubaya), 5h. (near Apia and near Manila), 6h. (Grozny and near Erevan), 7h. (La Paz, near Almata, and Andijan), 10h. (near Ottawa and near Mizusawa), 15h. (Riverside, Tucson, Tacubaya, and Vera Cruz), 19h. (Pasadena, Mount Wilson, Riverside, Tinemaha, Tucson, and Tacubaya), 20h. (Tucson and near Amboina).

April 18d. 5h. 23m. 14s. Epicentre 15°·3N. 119°·9E. (as on 1938 Nov. 18d.).

Damage at Manila.

J. P. Rothé.
Chronique séismologique, Revue pour l'Etude des Calamités, tome VII, No. 21, Genève 1944, p. 54.

$A = -\cdot4811$, $B = +\cdot8365$, $C = +\cdot2622$; $\delta = -6$; $h = +6$;
$D = +\cdot867$, $E = +\cdot498$; $G = -\cdot131$, $H = +\cdot227$, $K = -\cdot965$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Manila		1·2	124	i 0 26k	+ 2	i 0 42	+ 1	—	—	—
Isigakizima		9·8	23	2 17	− 7	4 15	− 2	—	—	—
Taihoku		9·8	9	2 33	+ 9	4 26	+ 9	—	—	—
Naha		13·1	32	3 16	+ 6	6 4	SSS	—	—	—
Kumamoto		20·0	27	4 41	+ 3	—	—	—	—	—
Amboina		20·6	155	e 4 23	−20	—	—	—	—	—
Medan		23·9	244	4 46?	−30	i 9 32	+ 2	—	—	—
Osaka		23·9	33	3 44	?	7 48	?	—	—	—
Batavia		25·0	212	i 5 24a	− 3	9 43	− 6	—	—	—
Gihu		25·1	35	5 27	− 1	10 4	+13	—	—	17·3
Nagano		26·8	33	5 53	+ 9	—	—	—	—	—
Vladivostok		29·6	18	e 6 8	− 1	e 11 4	0	—	—	—
Irkutsk		38·9	345	7 29	0	13 26	− 2	—	—	—
Colombo	E.	40·1	262	7 39	0	13 43	− 3	9 21	PP	21·1
Agra	E.	40·6	294	e 7 40	− 3	13 43	−11	9 24	PPP	—
Kodaikanal	E.	41·6	269	e 7 46?	− 5	—	—	—	—	—
Bombay		45·0	282	e 8 20	+ 1	i 14 57	− 1	i 10 14	PP	21·3
Almata		46·0	317	e 8 30	+ 3	—	—	—	—	—
Frunse		47·4	315	e 8 38	0	—	—	—	—	—
Andijan		48·3	312	e 8 49	+ 4	e 15 46	+ 1	—	—	—
Samarkand		52·0	308	9 15	+ 2	—	—	—	—	—
Sverdlovsk		60·7	327	i 10 15	0	18 26	− 6	—	—	—
Baku		65·1	308	10 48	+ 3	i 19 31	+ 4	—	—	—
Moscow		73·2	324	i 11 33	− 2	20 56	− 6	—	—	—
Theodosia		75·5	313	11 48	0	21 26	− 2	—	—	—
Simferopol		76·4	313	11 54	+ 1	—	—	—	—	—
Pulkovo		76·7	329	11 53	− 2	—	—	—	—	—
Sebastopol		76·9	313	11 51	− 5	—	—	—	—	—
Helwan		81·3	298	i 12 19k	− 1	i 22 25	− 5	—	—	—
Bucharest		82·1	314	e 19 58	?	22 38	0	—	—	—
Upsala		82·9	330	—	—	e 22 46?	0	—	—	—
Warsaw		83·4	323	e 12 28a	− 2	e 22 46	− 5	e 16 29	PP	e 45·8
Sofia		84·5	312	e 12 37	+ 1	—	—	—	—	—
Potsdam		87·9	324	i 12 50a	− 3	e 23 16	[− 4]	e 23 45	S_cS	e 35·8
Stuttgart		91·7	322	i 13 9a	− 1	—	—	—	—	—
De Bilt		92·4	326	—	—	e 25 19	PS	—	—	e 46·8
Rome		92·4	314	e 12 50	−24	e 23 34	[−12]	e 26 7	PS	—
Zurich		92·7	321	e 13 12a	− 3	—	—	—	—	—
Uccle		93·5	325	e 13 19	0	e 23 52	[− 1]	—	—	e 38·8
Victoria		95·3	37	—	—	e 23 58	[− 5]	—	—	46·8
Paris		95·6	323	e 12 46?	−42	—	—	—	—	55·8
Kew		95·7	337	—	—	e 25 57	PS	—	—	e 47·8
La Paz	z.	172·2	102	20 10a	[0]	i 32 22	{+ 8}	i 25 26	PP	—

Additional readings :—
Agra iE = +7m.55s., sS?E = +14m.3s., SSSE = +16m.53s.
Bombay iE = +18m.23s.
Warsaw eZ = +12m.38s., eN = +22m.49s.
Potsdam eSZ = +13m.30s., iSE = +13m.33s., iPSZ = +24m.29s.
Stuttgart e = +15m.36s.
Rome eZ = +13m.11s., eSN = +24m.8s., eSE = +24m.14s.
Long waves were also recorded at Aberdeen and Scoresby Sund.

April 18d. 6h. 15m. 49s. Epicentre 21°·0S. 169°·5E. (as on 1938 July 5d.).

A = −·9188, B = +·1703, C = −·3563; δ = +15; h = +4;
D = +·182, E = +·983; G = +·350, H = −·065, K = −·934.

Pasadena suggests depth 100km.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane		16·3	244	i 4 5	PP	i 7 11	SS	—	—	—
Auckland		16·5	195	4 11?	PP	—	—	—	—	—
Arapuni		17·8	165	—	—	8 11?	SSS	—	—	—
New Plymouth		18·4	198	4 24	+ 6	7 46	+ 5	—	—	—
Tuai		18·9	163	4 26	+ 2	7 57	+ 4	—	—	—
Riverview		20·6	228	i 4 49k	+ 6	i 8 41	+12	i 5 19	pP	e 10·6
Wellington		20·7	169	4 43	− 1	8 29	− 2	5 1	pP	—
Christchurch		22·6	174	5 5	+ 2	9 2	− 5	—	—	11·2
Adelaide		30·5	237	e 11 11	S	(e 11 11)	− 7	i 13 32	SSS	17·0
Amboina		43·7	289	8 0	− 8	14 21	−18	—	—	—
Manila		59·3	303	i 10 30k	+24	i 18 12	− 2	—	—	—
Batavia		62·3	275	i 10 26k	0	i 18 48	− 4	—	—	—
Berkeley		86·8	48	i 12 46	− 1	e 23 11	[− 2]	i 13 12	pP	e 46·2
Santa Barbara	Z.	86·9	53	e 12 44	− 4	—	—	i 13 12	pP	—
Pasadena		87·9	53	i 12 49k	− 4	—	—	i 13 16	pP	—
Mount Wilson	Z.	88·1	53	i 12 50	− 4	—	—	i 13 19	pP	—
Riverside	Z.	88·4	53	i 12 52	− 3	—	—	i 13 20	pP	—
Tinemaha		89·2	50	i 12 56	− 3	—	—	—	—	—
Victoria		91·4	39	—	—	e 22 11?	?	—	—	51·2
Colombo	E.	92·1	277	13 14	+ 2	23 39	[− 6]	—	—	—
Tucson		92·7	57	i 13 12	− 3	(e 24 7)	−11	i 17 16	PP	e 24·1
Bombay		102·6	285	—	—	e 24 32	[− 7]	—	—	—
Huancayo		108·4	112	—	—	e 26 19	{+25}	e 29 48	PPS	e 44·4
Samarkand		112·5	305	—	—	e 25 13	[− 9]	—	—	—
San Juan		127·8	83	e 22 22	PPP	—	—	—	—	e 29·4
Moscow		130·3	328	i 22 25	PKS	e 31 18	PS	—	—	—
Pulkovo		131·7	334	e 22 28	PKS	e 31 27	PS	—	—	—
Theodosia		135·4	313	e 22 40	PKS	—	—	—	—	—
Simferopol		136·7	314	e 22 47	PKS	—	—	—	—	—
Sebastopol		136·8	314	e 22 50	PKS	—	—	—	—	—
Warsaw		140·4	330	e 22 56	PKS	—	—	—	—	—
Potsdam		143·8	335	e 19 34	[− 3]	—	—	—	—	—
Sofia		144·4	315	e 19 37	[− 1]	—	—	—	—	—
Jena		145·5	334	e 19 39	[− 1]	—	—	—	—	—
De Bilt		146·7	343	i 19 43a	[+ 1]	—	—	—	—	72·2
Stuttgart		148·1	336	i 19 43a	[− 1]	—	—	—	—	—
Uccle	Z.	148·1	343	e 19 43	[− 1]	—	—	—	—	—
Strasbourg		148·8	337	e 19 50	[+ 5]	—	—	—	—	—
Chur		149·5	335	e 19 44	[− 3]	—	—	—	—	—
Zurich		149·5	336	e 19 42k	[− 5]	—	—	—	—	—
Basle		149·8	336	e 19 45	[− 2]	—	—	—	—	—
Neuchatel		150·4	336	e 19 46	[− 2]	—	—	—	—	—
Rome		151·6	322	e 19 47	[− 2]	e 30 16	{−11}	e 23 21	PP	—

Additional readings :—
Riverview isP?N = +5m.50s., iE = +9m.12s., iZ = +9m.16s., sS? = +9m.29s.
Wellington sPZ = +5m.16s., P_cP = +8m.46s., sS = +8m.59s., SS = +9m.23s., i = +10m.10s., P_cS = +12m.21s., S_cS? = +16m.1s.
Adelaide i = +11m.49s., iSN = +14m.29s., SS = +14m.51s., P_cP = +15m.9s., i = +15m.29s.
Berkeley eN = +22m.57s.
Mount Wilson eZ = +13m.59s.
Riverside eZ = +13m.59s.
Tinemaha iZ = +13m.23s.
Tucson i = +13m.21s., +13m.47s., +14m.48s., and +15m.45s.
Huancayo e = +26m.26s.
Potsdam eN = +19m.51s.
Jena eEN = +19m.42s.
Stuttgart iP = +19m.46s., e = +20m.15s., i = +20m.36s. and +21m.40s.
Zurich e = +19m.47s.k
Rome iPKP_2Z = +19m.54s.
Long waves were also recorded at Paris.

April 18d. 13h. 25m. 26s. Epicentre 6°·0S. 103°·8E. (as on 1937 March 15d.).

Intensity II at Pagaralam (Sumatra). Epicentre 5°·7N. 103°·5E. (Batavia).
Meteorologische en Geophysische Dienst te Batavia, Serie A., No. 44. Aardbevingen in Ned-Indië, Waargenomen gedurende het jaar, 1941, p. 17.

$A = -\cdot2372$, $B = +\cdot9659$, $C = -\cdot1038$; $\delta = 0$; $h = +7$;
$D = +\cdot971$, $E = +\cdot239$; $G = +\cdot025$, $H = -\cdot101$, $K = -\cdot995$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Batavia		3·0	93	e 1 8a	P_g	—	—	—	—	—
Medan		10·8	332	e 2 43	+ 4	—	—	—	—	i 5·7
Manila		26·6	40	i 5 53k	+11	i 11 11	SS	—	—	—
Colombo	E.	27·1	297	5 49	+ 3	10 11	−13	—	—	15·7
Perth		28·2	157	8 47	?	12 7	SS	12 39	SSS	13·1
Kodaikanal	E.	30·8	302	e 6 34?	+14	i 12 11	+48	i 14 7	?	—
Calcutta	N.	32·1	333	e 5 50	−41	e 11 20	−23	e 13 22	SS	e 16·0
Taihoku		35·3	29	6 56	− 3	9 49	?	—	—	—
Miyakozima		37·1	34	7 7	− 7	—	—	—	—	—
Bombay		39·3	309	e 7 26	− 6	i 13 39	+ 5	e 8 50	PP	i 20·4
Naha		39·5	35	7 48	+14	—	—	—	—	—
Agra		41·3	324	e 8 16	+27	i 13 53	−11	i 17 23	SSS	—
Adelaide		43·1	137	e 12 55	?	i 18 4	SSS	—	—	22·1
Dehra Dun	N.	43·8	328	e 8 26	+17	e 10 42?	PPP	—	—	e 13·5
Brisbane	N.	51·3	120	i 6 40	?	—	—	—	—	i 26·6
Riverview		51·8	129	e 6 55	?	e 16 51	+18	—	—	e 27·1
Almata		54·7	337	e 9 22	−11	—	—	—	—	—
Andijan		54·7	330	e 9 24	− 9	—	—	—	—	—
Vladivostok		55·1	26	e 9 33	− 3	i 17 33	+15	—	—	—
Frunse		55·4	335	e 9 7	−31	—	—	—	—	—
Tananarive		56·2	251	e 10 35	+51	17 17	−16	22 51	SSS	—
Samarkand		56·7	326	—	—	9 40	ScS	—	—	—
Irkutsk		58·0	0	e 10 1	+ 4	18 7	PS	—	—	—
Semipalatinsk		59·8	344	e 10 14	+ 5	—	—	—	—	—
Baku		67·6	318	e 11 11	+10	i 19 54	− 3	—	—	—
Auckland		71·2	127	i 17 14	?	20 44	+ 4	i 21 14	PS	—
Erevan		71·2	316	e 11 5	−18	—	—	—	—	—
Grozny		71·7	319	11 45	+19	20 54	+ 9	—	—	—
Wellington		71·8	132	12 44	?	20 50	+ 4	31 4	Q	35·6
Helwan	E.	77·9	302	e 13 1	+60	e 22 4	+10	e 14 4	PP	—
Théodosia		79·3	317	e 12 14	+ 5	—	—	e 14 17	PP	—
Istanbul		82·5	312	12 42	+16	22 40	− 2	—	—	e 68·0
Bucharest		85·4	315	e 13 6	+26	e 22 38	[−26]	—	—	36·1
Pulkovo		86·9	331	e 12 50	+ 2	e 23 20	[+ 6]	—	—	—
Warsaw		90·3	322	e 12 34?	−30	e 23 58	+ 1	—	—	e 53·6
Upsala		93·2	330	—	—	e 24 14	− 9	—	—	e 48·6
Rome		94·9	311	e 13 29	+ 4	e 24 3	[+ 2]	30 24	SS	e 45·4
Potsdam		95·2	322	e 13 46	+19	i 24 37	− 3	i 26 30	PPS	51·6
Uccle		100·6	320	—	—	e 31 52	SS	—	—	e 53·6
Paris		101·9	318	e 22 34?	?	i 28 35	PPS	—	—	58·6
Kew		103·5	321	e 20 37	PPP	24 34?	[−10]	e 28 34?	PPS	e 42·6
Scoresby Sund		107·0	343	e 23 54	?	e 34 38	SSP	—	—	e 62·0
Victoria		121·8	35	—	—	26 34?	[+38]	—	—	70·6
Berkeley		127·6	46	e 22 30	PKS	—	—	—	—	e 61·5
Bozeman		130·3	31	e 23 4	PKS	—	—	—	—	e 65·1
Pasadena	Z.	132·2	48	e 22 47	PKS	e 32 9	PS	—	—	e 63·6
Seven Falls		138·8	354	—	—	e 40 34?	SS	—	—	73·6
Ottawa		140·8	359	—	—	e 41 10	SS	—	—	73·6
Chicago U.S.C.G.S.		142·9	14	—	—	e 28 14	?	e 33 30	PS	e 76·1
St. Louis		145·1	19	i 19 41	[+ 2]	e 30 5	{+14}	i 22 3	PP	—
La Paz	Z.	156·3	200	e 23 6	?	—	—	—	—	75·6
Huancayo		162·0	184	e 20 51	[+48]	—	—	i 24 39	PP	e 74·1

Additional readings :—
Batavia iPE = +1m.11s., iE = +2m.21s., iN = +4m.33s.
Bombay eE = +8m.2s., e?E = +8m.50s., eN =iE = +9m.26s., iSE = +13m.44s., iSSE = +17m.1s., iE = +17m.45s., eN = +18m.6s., iE = +20m.26s.

Continued on next page.

Riverview iEN = +17m.18s.
Tananarive EN = +17m.38s.
Helwan eE = +22m.58s.
Istanbul PSKS = +24m.48s., SS = +34m.2s.
Warsaw eZ = +13m.48s., eN = +23m.52s.
Upsala eN = +24m.25s., eE = +34m.8s., eN = +34m.16s., eE = +41m.16s., eN = +44m.34s.?
Rome eE = +21m.57s., eSKKSN = +24m.37s., eSN = +25m.2s., iPPSE = +27m.19s., eN = +28m.3s. and +37m.36s.
Potsdam eE = +21m.27s.
Uccle eE = +42m.22s.
Scoresby Sund e = +32m.30s.
Berkeley eE = +22m.33s.
Bozeman e = +23m.43s.
Pasadena eZ = +23m.13s.
Chicago U.S.C.G.S. e = +33m.44s.
St. Louis iZ = +19m.49s. and +20m.29s., eN = +23m.35s., iN = +37m.21s.
Huancayo e = +28m.37s. and +45m.26s.
Long waves were also recorded at Prague, Aberdeen, Sydney, Sitka, Butte, College, East Machias, Zinsen, De Bilt, Arapuni, and San Juan.

April 18d. Readings also at 0h. (Sofia), 6h. (Sydney and Scoresby Sund), 8h. (Almata), 9h. (near Théodosia), 11h. (Kodaikanal), 13h. (San Juan), 15h. (near Frunse, Andijan, and near Apia), 20h. (Manila (2)).

April 19d. 7h. 53m. 41s. Epicentre 39°·0N. 97°·0E.

This is not intended to be an approximate determination of epicentre.

$A = -\cdot0950$, $B = +\cdot7734$, $C = +\cdot6268$; $\delta = +5$; $h = -1$;
$D = +\cdot992$, $E = +\cdot122$; $G = -\cdot076$, $H = +\cdot622$, $K = -\cdot779$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Irkutsk		14·2	18	i 3 23	− 1	i 6 9	+ 5	—	—	—
Almata		15·7	292	i 3 45	+ 1	—	—	—	—	—
Semipalatinsk		16·4	319	i 3 55	+ 2	7 11	+15	8 17	SSS	—
Frunse		17·4	290	—	—	—	—	7 45	SS	—
Dehra Dun	N.	17·8	247	e 4 7	− 4	e 7 34	+ 6	e 6 1	?	e 9·9
Calcutta	N.	18·0	207	i 4 22k	+ 9	i 7 51	SS	i 4 32	PP	e 9·3
Andijan		19·0	284	e 4 27	+ 1	—	—	—	—	—
Agra		19·8	239	i 4 32	− 3	i 8 14	+ 1	—	—	—
Zi-ka-wei	N.	21·4	104	e 4 47	− 4	8 41	− 4	—	—	i 11·4
Samarkand		23·2	282	5 13	+ 4	—	—	—	—	—
Zinsen		23·3	85	5 9	− 1	9 54	+34	—	—	—
Karenko		25·7	118	e 5 37	+ 4	7 58	?	—	—	—
Vladivostok		26·5	70	i 5 41	0	i 10 15	+ 1	—	—	—
Bombay		29·0	233	e 6 2	− 2	e 10 46	− 8	i 7 46	?	—
Sverdlovsk		29·7	320	i 6 11	+ 1	i 11 2	− 4	—	—	—
Kobe		30·7	86	e 6 6	−13	12 56	SS	—	—	—
Gihu		31·7	84	6 29	+ 2	—	—	—	—	—
Manila		32·2	133	i 6 31a	− 1	13 6	SS	—	—	19·3
Nagano		32·4	82	6 39	+ 5	—	—	—	—	—
Kodaiakanal	E.	33·5	218	i 6 44k	+ 1	i 12 27	+22	—	—	i 17·8
Medan		35·3	177	6 59	0	—	—	—	—	—
Colombo	E.	35·5	210	7 1	+ 1	—	—	—	—	—
Baku		35·9	288	8 8	PP	i 12 54	+12	—	—	—
Erevan		40·0	290	7 46	+ 8	13 52	+ 8	—	—	—
Sotchi		42·6	296	—	—	—	—	9 54	PP	—
Théodosia		45·2	299	8 20	0	15 5	+ 4	—	—	—
Pulkovo		45·8	321	i 8 23	− 2	e 15 8	− 1	—	—	—
Batavia		45·9	166	i 8 26	0	—	—	—	—	i 25·0
Simferopol		46·1	300	8 28	0	—	—	10 18	PP	—
Yalta		46·2	299	8 28	0	15 16	+ 1	—	—	—
Ksara		48·7	284	e 8 50	+ 2	e 16 0	+10	—	—	—
Istanbul		50·8	296	9 10	+ 6	16 37	+17	20 13	SS	32·8
Bucharest		51·7	301	9 13a	+ 2	i 16 41	+ 9	e 10 56	PP	25·3
Upsala		52·2	322	9 17	+ 2	e 16 38	− 1	i 11 15	PP	e 24·0
Warsaw		52·4	312	9 19a	+ 3	e 16 45	+ 3	e 11 5	PP	e 25·3

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Helwan		53·9	282	i 9 27	0	17 3	+ 1	10 34	PP	—
Sofia		54·2	300	e 9 31	+ 2	e 17 14	+ 8	e 22 19	SSS	e 32·5
Kesckemet	Z.	55·0	306	—	—	e 15 35	?	—	—	—
Budapest		55·2	307	9 38	+ 1	—	—	e 25 49	?	28·8
Kalossa		55·6	306	e 9 39	− 1	—	—	—	—	—
Ogyalla	E.	55·6	308	e 9 19?	−21	—	—	—	—	e 25·8
Copenhagen		56·0	318	i 9 42a	− 1	17 36	+ 6	—	—	—
Potsdam		56·9	315	e 9 45	− 4	i 17 45	+ 3	—	—	e 21·3
Prague		57·0	311	9 49	− 1	e 17 48	+ 5	—	—	e 28·3
Bergen		57·8	326	e 9 54	− 1	e 17 44	−10	—	—	e 26·3
Jena		58·4	313	e 9 57	− 3	—	—	—	—	e 26·3
Stuttgart		60·7	312	i 10 14a	− 1	e 18 35	+ 3	e 12 26	PP	e 29·3
Chur		61·3	310	e 10 19	− 1	—	—	—	—	—
De Bilt		61·4	316	i 10 22k	+ 2	i 18 47	+ 7	—	—	e 31·3
Strasbourg		61·6	312	e 10 55	+33	—	—	—	—	—
Zurich		61·7	311	e 10 14a	− 8	—	—	—	—	—
Rome		61·8	303	i 10 22a	− 1	i 18 49	+ 3	i 12 39	PP	i 27·9
Basle		62·2	311	e 10 15	−11	—	—	—	—	—
Scoresby Sund		62·4	342	—	—	e 19 2	+ 9	e 22 50	SS	e 35·3
Uccle		62·5	316	i 10 27a	− 1	—	—	12 43	PP	e 32·3
Neuchatel		62·8	311	e 10 28	− 2	—	—	—	—	—
Paris		64·5	313	e 10 41	0	e 19 27	+ 8	—	—	29·3
Kew		64·7	317	i 10 42k	0	19 22	0	11 26	PcP	e 31·8
College		64·8	26	—	—	e 19 21	− 2	e 26 47	SSS	e 35·6
Toledo		73·4	308	e 11 35	− 1	i 21 11	+ 6	11 47	PcP	35·8
Almeria		74·2	305	11 38	− 2	21 27	+13	11 55	PcP	42·3
Granada		74·8	306	i 11 42k	− 2	i 21 25	+ 5	12 4	PcP	42·7
Coimbra		75·9	311	10 8	?	21 36	+ 4	—	—	37·2
Lisbon		77·2	310	11 59	+ 2	21 51	+ 4	15 13	PP	39·3
Victoria		85·8	26	e 12 42	0	23 21	+ 6	—	—	46·3
Riverview		88·1	138	i 12 57	+ 3	e 23 39	+ 2	—	—	e 50·8
Butte		91·3	19	—	—	i 24 5	− 1	—	—	e 48·0
Bozeman		92·0	19	—	—	e 23 46	[+ 2]	—	—	e 43·9
Berkeley		95·4	30	e 23 25	?	i 24 5	[+ 2]	—	—	e 46·3
Ottawa		95·7	354	13 27	− 2	24 6	[+ 1]	—	—	e 44·3
Harvard		98·2	350	e 13 39	− 1	—	—	—	—	e 43·8
Lincoln		99·6	9	—	—	e 23 42	?	e 26 51	PS	—
Mount Wilson	Z.	100·2	28	e 13 48	− 1	e 17 19	PP	—	—	—
Pasadena		100·3	28	e 17 58	PP	e 32 25	SS	—	—	e 50·7
Philadelphia		101·1	352	e 24 31	SKS	(e 24 31)	[− 1]	—	—	e 43·4
Florissant	N.	102·3	5	—	—	e 24 33	[− 5]	—	—	—
St. Louis		102·5	5	e 18 3	PP	e 24 35	[− 4]	—	—	—
Tucson		104·5	23	e 17 38	PKP	i 25 3	[+15]	e 27 44	PS	e 42·0
Huancayo		152·3	343	e 19 54	[+ 3]	e 28 11	PKKP	e 23 34	PP	e 80·6
La Paz		154·1	326	i 19 55k	[+ 2]	30 25	{−16}	i 23 55	PP	81·3

Additional readings :—
Calcutta eSSN = +8m.9s.
Bombay SE = +10m.54s.
Batavia PN = +8m.38s.
Bucharest eScSE = +18m.56s., eSSEN = +20m.8s.
Upsala eSSE = +20m.37s.
Warsaw eSZ? = +16m.52s., eE = +19m.6s., eN = +19m.10s. and +20m.16s., eEZ = +20m.52s., eN = +23m.9s.
Helwan SSE = +19m.19s., SSSE = +21m.19s.
Potsdam iPEZ = +19m.48s.a.
Rome eN = +11m.58s., ePSN = +20m.19s., eSSSN = +25m.4s.
Basle e = +10m.24s.
Scoresby Sund e = +25m.56s.
Kew ePPPZ = +14m.49s., iScSE = +20m.40s., eSSS = +26m.49s.
College e = +20m.32s.
Almeria PP = +14m.36s., PPP = +16m.29s., ScS = +21m.52s., PS = +22m.15s., PPS = +22m.35s., SS = +26m.40s.
Granada iPP = +14m.27s., ePPP = +16m.49s., PS = +22m.4s., ScS = +22m.11s., eSS = +27m.22s., eSSS = +31m.12s.
Berkeley eE = +23m.41s., eN = +24m.45s.
St. Louis eZ = +20m.1s., eN = +25m.51s., +27m.11s., +28m.1s., and +40m.55s.
Tucson ePKP = +18m.3s., i = +18m.31s., iPP = +19m.0s., e = +20m.30s., i = +30m.56s.
Huancayo eSS = +43m.50s.
La Paz iPPPZ = +27m.15s.
Long waves were also recorded at Aberdeen, San Fernando, Tananarive, San Juan, and other American and Japanese stations."

April 19d. Readings also at 1h. (near Manila), 2h. (near Spokane), 3h. (Ksara), 6h. (La Paz, Almata, and near Andijan), 8h. (near Theodosia), 10h. (Harvard and near Almata), 15h. (near Mizusawa), 16h. (near Theodosia), 19h. (Tucson and near Branner), 20h. (near Mizusawa), 23h. (Toledo).

April 20d. 17h. 38m. 25s. Epicentre 39°·2N. 70°·7E. (as on 1940, November, 17d.).

Damage in the region of Garm (Republic of Tadjikistan); shock felt strongly at Stalinabad. Epicentre 39°·0N. 70°·8E. (Strasbourg).

J. P. Rothé.
Chronique Séismologique, Revue pour l'Etude des Calamités, tome VII, No. 21, Geneva, 1944, p. 52.

$A = +\cdot2568$, $B = +\cdot7334$, $C = +\cdot6295$; $\delta = +9$; $h = -2$;
$D = +\cdot944$, $E = -\cdot331$; $G = +\cdot208$, $H = +\cdot594$, $K = -\cdot777$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Andijan		2·0	39	i 0 40	+ 5	1 9	+ 7	—	—	—
Tashkent		2·4	333	i 0 43	+ 2	—	—	—	—	—
Samarkand		2·9	279	i 0 47	− 1	—	—	—	—	—
Tchimkent		3·1	345	i 0 55	+ 4	—	—	—	—	—
Frunse		4·7	38	1 18	+ 4	2 14	+ 4	—	—	—
Almata		6·2	47	1 38	+ 3	—	—	—	—	—
Dehra Dun	N.	10·7	144	e 3 7	+29	i 4 58	+19	—	—	i 6·4
Semipalatinsk		13·1	28	3 7	− 3	5 28	−10	—	—	—
Agra		13·5	151	3 7	− 8	5 32	−15	—	—	—
Baku		16·0	281	i 3 50	+ 2	i 6 47	+ 1	—	—	—
Sverdlovsk		18·9	343	i 4 20	− 4	i 7 49	− 4	—	—	—
Grozny		19·2	290	4 28	0	8 6	+ 7	—	—	—
Erevan		20·2	281	4 39	0	8 27	+ 6	—	—	—
Bombay		20·3	175	i 4 39	− 1	i 8 23	0	i 8 30	SS	10·3
Piatigorsk		21·2	293	4 45	− 4	8 37	− 4	—	—	—
Calcutta		22·4	133	e 5 5k	+ 3	i 9 19	+15	e 8 46	PcP	i 12·1
Sotchi		23·6	290	5 11	− 2	9 31	+ 6	—	—	—
Irkutsk		26·6	49	e 5 42	0	10 14	− 2	—	—	—
Theodosia		26·7	295	5 40	− 3	10 14	− 3	—	—	—
Moscow		27·5	318	i 5 48	− 2	i 10 26	− 4	6 3	pP	—
Yalta		27·6	293	5 49	− 2	10 32	0	—	—	—
Ksara		28·4	269	e 5 58	0	e 10 50	+ 5	—	—	—
Kodaikanal	E.	29·5	167	i 6 10	+ 2	i 10 57	− 5	12 25	SS	14·8
Istanbul		31·7	288	6 25	− 2	11 18	−19	—	—	19·6
Pulkovo		32·6	322	i 6 34	− 1	i 11 47	− 4	e 6 48	pP	—
Bucharest		33·2	294	e 6 41	+ 1	i 12 1	+ 1	e 7 41	PP	17·6
Helwan		33·5	266	i 6 41k	− 2	12 8	+ 3	7 48	PP	—
Colombo	E.	33·6	164	6 39	− 5	13 9	+63	—	—	—
Sofia		35·6	291	c 7 1	0	i 12 37	− 1	e 8 16	PP	18·7
Warsaw		36·3	309	c 7 4k	− 3	12 47	− 1	e 8 21	PP	e 15·6
Kecskemet	Z.	37·5	300	7 18	+ 1	—	—	—	—	e 28·1
Budapest		37·8	301	7 20	0	i 13 12	+ 1	8 42	PP	e 19·1
Kalossa		38·0	300	7 20	− 1	c 13 13	− 1	i 8 48	PP	e 21·6
Ogayalla	E.	38·4	301	7 25	0	13 21	+ 1	8 57	PP	18·1
	N.	38·4	301	7 31	+ 6	e 13 17	− 3	e 16 37	SS	17·6
Upsala		38·8	320	7 26	− 2	i 13 22	− 4	i 8 49	PP	e 18·6
Potsdam		41·2	309	e 7 45	− 3	i 14 1	− 1	i 8 8	pP	21·6
Copenhagen		41·4	314	e 7 48k	− 2	i 14 3	− 2	9 19	PP	—
Jena		42·7	306	e 7 54	− 6	i 14 14	−10	i 9 19	PP	e 18·6
Zinsen		43·3	75	8 9	+ 4	14 36	+ 3	—	—	—
Medan		43·6	138	8 10	+ 2	i 15 13	+35	—	—	—
Rome		43·6	293	i 8 5a	− 3	i 14 37	− 1	9 32	PP	e 21·1
Stuttgart		44·2	304	e 8 11a	− 1	i 14 45	− 1	9 51	PP	e 22·3
Chur		44·4	302	e 8 12	− 2	c 14 44	− 5	e 9 56	PP	—
Zurich		44·9	303	e 8 18a	0	e 14 50	− 6	e 9 58	PP	—
Bergen		45·0	321	i 8 20	+ 1	i 14 54	− 4	10 0	PP	20·6
Strasbourg		45·1	304	e 8 21	+ 1	i 14 58	− 1	e 10 3	PP	22·6
Vladivostok		45·3	65	e 8 23	+ 2	i 13 53	?	8 41	pP	—
Basel		45·5	302	e 8 20	− 3	e 15 2	− 3	—	—	—
De Bilt		46·0	309	i 8 30k	+ 3	i 15 13	+ 1	e 18 15	SS	22·6
Neuchatel		46·0	303	e 8 25	− 2	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Uccle		46·8	308	e 8 32	− 1	i 15 22	− 2	10 0	PP	22·6
Hukuoka		47·6	78	e 15 41	S	(e 15 41)	+ 6	—	— e	25·4
Paris		48·5	305	8 45	− 1	15 42	− 6	e 10 39	PP	23·6
Clermont-Ferrand		49·0	301	e 8 47k	− 3	—	—	—	— e	27·3
Miyazaki		49·1	80	8 53	+ 2	15 54	− 2	—	—	31·4?
Aberdeen		49·2	318	i 15 54	S	(i 15 54)	− 4	i 19 41	SS	26·9
Kew		49·5	310	i 8 52	− 2	i 15 58	− 4	i 11 8	PP e	23·6
Koti		50·0	77	9 1	+ 3	16 11	+ 2	—	—	—
Oxford		50·0	310	i 8 55	− 3	i 16 2	− 7	e 19 35?	SS	—
Edinburgh		50·1	315	—	—	e 15 40	−30	—	—	—
Stonyhurst		50·2	312	—	—	i 16 9	− 2	i 20 4	SS	28·6
Manila		50·3	105	i 9 2a	+ 2	i 16 21	+ 8	—	—	25·6
Kobe		50·8	74	9 4	0	16 24	+ 4	—	—	—
Mori	N.	51·7	63	9 10	− 1	e 16 27	− 5	—	— e	27·9
Nagoya		51·9	73	9 15	+ 3	16 44	+ 9	—	—	—
Sapporo		51·9	62	9 13	+ 1	16 39	+ 4	—	—	28·9
Algiers		52·2	290	9 12	− 3	e 18 50	?	i 12 18	PPP	30·6
Nagano		52·2	71	9 17	+ 2	16 42	+ 3	—	—	—
Mizusawa		53·3	67	e 9 23	0	16 51	− 3	—	—	—
Sendai		53·5	68	9 25	+ 1	16 55	− 2	—	—	—
Tokyo		53·7	72	9 29	+ 3	17 1	+ 2	—	— e	31·8
Yokohama		53·8	73	e 9 30	+ 4	17 3	+ 2	—	—	—
Scoresby Sund		54·5	337	e 9 35	+ 3	i 17 17	+ 7	i 12 53	PPP e	27·4
Toledo	Z.	56·0	296	i 9 40	− 3	i 17 28	− 2	—	—	—
Almeria		56·2	293	i 9 38	− 6	i 17 23	−10	9 52	pP	25·6
Granada		56·9	294	i 9 45k	− 4	i 17 41	− 1	10 41	P_cP e	29·5
Coimbra		58·9	299	10 7	+ 4	i 18 7	− 1	—	—	31·3
San Fernando		59·0	296	e 10 5	+ 1	e 18 5	− 5	—	—	26·6
Lisbon		60·1	298	10 8	− 3	i 18 23	− 1	21 59	SS	28·6
Tananarive		61·7	205	—	—	e 23 29	SS	—	—	29·6
College		72·0	17	e 11 30	+ 2	i 20 49	0	e 14 1	PP e	30·6
Sitka		81·1	15	e 12 22	+ 4	i 22 30	+ 2	e 15 0	PP e	40·5
Seven Falls		87·5	335	12 59	+ 8	23 35	+ 4	e 23 16	SKS	41·6
East Machias		88·3	332	e 12 54	− 1	e 23 41	+ 2	29 55	SS e	42·7
Shawinigan Falls		88·6	336	12 56	0	23 24	−18	—	—	—
Ottawa		90·5	338	13 5	0	24 5	+ 6	23 35	SKS e	44·6
Harvard		91·8	332	e 13 10	− 1	e 23 50	[+ 7]	—	— e	30·2
Victoria		91·8	9	16 59	PP	23 46	[+ 3]	24 16	SKKS	41·6
Weston		91·8	332	i 13 10	− 1	e 23 42	[− 1]	—	—	—
Seattle		92·8	9	e 27 12	?	—	—	—	— e	46·5
Toronto		93·2	339	—	—	e 23 49	[− 2]	—	—	52·6
Butte		95·1	1	e 14 9	+43	e 24 1	[0]	e 17 45	PP e	41·7
Bozeman		95·5	1	e 13 49	+21	e 24 3	[− 1]	e 17 18	PP e	41·1
Pittsburgh		96·3	336	—	—	i 24 6	[− 2]	—	—	—
Chicago, U.S.C.G.S.		96·9	344	i 14 14	+40	i 24 13	[+ 2]	e 26 47	PS e	55·9
Bermuda		97·7	323	—	—	e 24 15	[0]	—	— e	46·7
Lincoln		99·5	350	e 15 39	?	e 33 53	?	e 27 45	PPS e	51·8
Salt Lake City		100·4	2	e 18 0	PP	i 24 29	[0]	—	— e	50·0
Florissant		100·5	345	e 14 4	+13	e 24 28	[− 1]	26 50	PS	—
St. Louis		100·6	345	e 14 3	+12	i 24 30	[0]	26 52	PS e	47·4
Ukiah		101·0	11	—	—	e 24 35	[+ 3]	e 27 8	PS e	45·8
Cape Girardeau		101·7	343	—	—	e 24 39	[+ 4]	—	—	—
Berkeley		102·4	10	e 18 16	PP	i 24 40	[+ 1]	—	— e	47·3
Columbia		102·6	336	—	—	e 24 40	[+ 1]	e 36 46	SSS e	45·2
Santa Clara		102·9	10	—	—	e 25 53	+ 8	27 37	PS e	48·2
Tinemaha		103·6	7	e 18 27	PP	—	—	—	—	—
Fresno	N.	103·8	9	e 18 11	PP	e 24 49	[+ 4]	—	—	—
Haiwee	Z.	104·6	7	i 14 1	− 8	—	—	—	—	—
Mount Wilson		106·5	7	e 14 20	P	—	—	i 29 47	PKKP	—
Pasadena		106·6	7	e 14 19	P	e 24 36	[−21]	e 18 19	PP e	48·7
Riverside	Z.	106·8	7	e 14 18	P	—	—	18 34	PP	—
Tucson		108·9	1	e 14 31	P	e 26 4	[+56]	i 19 0	PP e	43·6
San Juan		109·9	316	e 17 0	?	e 25 10	[− 2]	e 34 38	SS e	49·3
Wellington		123·8	119	—	—	37 35?	SS	58 35?	Q	66·6
La Paz		137·6	70	e 19 17	[− 9]	i 40 23	SS	—	—	71·6
Huancayo		139·6	303	e 19 37	[+ 7]	e 34 44	PPS	e 40 52	SS e	59·6

For Notes see next page.

NOTES TO APRIL 20d. 17h. 38m. 25s.

Additional readings :—
Bombay iN = +5m.32s., iE = +5m.59s., iSE = +6m.15s., iN = +8m.36s. and +9m.14s.
Calcutta iSN = +9m.26s.
Moscow sS = +10m.54s.
Pulkovo sS = +12m.17s.
Bucharest iSE = +12m.7s., eSSN = +13m.58s., eS_cS = +17m.6s.
Helwan PPPEZ = +7m.56s., P_cPE = +9m.23s., SSN = +13m.53s., S_cSN = +17m.5s.
Sofia ePN = +7m.4s., iSE = +12m.40s.
Warsaw ePN = +7m.8s., eZ = +8m.32s. and +10m.25s., SSN = +14m.36s., SSE = +14m.40s., iZ = +14m.46s., eE = +15m.22s.
Budapest PPN = +9m.2s., P_cPN = +9m.29s., iSSN = +15m.52s., eE = +15m.55s., eN = +16m.32s., iE = +16m.35s., S_cSN = +17m.32s., S_cSE = +17m.35s.
Kalossa iN = +9m.16s. and +9m.59s.
Ogyalla SSE = +16m.1s.
Upsala ePN = +7m.29s., SSE = +15m.56s., SSSE = +17m.8s., SSSN = +17m.13s.
Potsdam iEZ = eN = +7m.49s., iN = +7m.52s., iPPEZ = +9m.22s., iPPN = +9m.29s., ipPPNZ = +9m.47s., iSN = +13m.58s., iE = +16m.30s., iZ = +16m.34s.
Copenhagen +16m.53s.
Jena iPN = +7m.58s., iE = +9m.34s., iSE = +13m.59s., e = +17m.34s.
Medan iSE = +15m.33s.
Rome eN = +10m.0s., ePPP = +10m.14s., eN = +15m.23s., eSS?N = +17m.32s., eSSS = +18m.24s.
Stuttgart i = +8m.35s. and +8m.44s., iPP = +10m.4s., eSSNE = +18m.2s., iSSNE = +18m.7s.
Chur e = +12m.9s.
Zurich eSS = +18m.11s.
Bergen eSS = +18m.12s.
Strasbourg iSS = +18m.13s.
Uccle iSSN = +18m.47s.
Aberdeen iEN = +18m.44s.
Kew iP_cPZ = +10m.17s., eS_cSEN = +18m.46s., eSS = +21m.35s.?
Manila ePEN = +9m.5s.
Scoresby Sund i = +19m.22s., eSS = +20m.51s.
Almeria P_cP = +10m.40s., PP = +11m.45s., PPP = +13m.5s., P_cS = +14m.33s., sS = +17m.42s., S_cS = +19m.21s., SSS = +23m.9s.
Granada PP = +12m.55s., PPP = +14m.15s., PS = +18m.12s.
Coimbra i? = +20m.19s.
Lisbon S_cSN = +19m.59s., S_cSE = +20m.8s.
College e = +15m.49s., eSSE = +25m.34s., e = +29m.11s.
Sitka i = +22m.50s., e = +27m.42s. and +30m.55s., eSS = +32m.28s.
East Machias iS = +23m.22s., i = +24m.39s., e = +32m.58s.
Harvard iZ = +13m.14s.
Butte iS = +24m.44s., ePS = +25m.52s.
Bozeman iPS = +26m.1s., eSS = +31m.0s.
Chicago, U.S.C.G.S. i = +21m.34s. and +23m.1s., eSKS = +24m.56s.
Bermuda e = +25m.6s. and +37m.12s.
Salt Lake City iS = +25m.30s., e = +37m.22s.
Florissant eSKKSN = +25m.4s., eE = +25m.24s., eSN = +25m.28s., ePSZ = +26m.53s.
St. Louis iSKKSN = +25m.26s., ePSZ = +26m.55s., ePPSN = +27m.42s.
Ukiah e = +27m.43s. and +36m.48s.
Cape Girardeau eSEN = +25m.44s.
Berkeley eE = +18m.27s., eZ = +24m.36s., iSZ = +26m.19s.
Columbia e = +30m.17s.
Mount Wilson ePKKPEZ = +17m.38s., iZ = +18m.42s.
Pasadena ePKPNZ = +17m.49s., eSE = +26m.12s., ePSN = +27m.58s., ePKKPZ = +29m.39s.
Tucson iPKP = +18m.14s., i = +21m.0s., iPS = +28m.7s., iS = +28m.22s., i = +33m.0s., iSS = +33m.49s., i = +34m.28s.
San Juan e = +21m.40s., e = +30m.37s., e = +33m.15s.
Huancayo iPP = +23m.7s., e = +28m.0s., +40m.15s., and +45m.46s.
Long waves were also recorded at Arapuni, Riverview, and Honolulu.

April 20d. 22h. 23m. 5s. Epicentre 37°·5N. 36°·0E.

A = +·6434, B = +·4675, C = +·6062 ; δ = 0 ; h = −1 ;
D = +·588, E = −·809 ; G = +·490, H = +·356, K = −·795.

	△	Az.	P.	O−C.	S.	O−C.	Supp.	
	°	°	m. s.	s.	m. s.	s.	m. s.	
Ksara	3·7	184	e 1 0	0	i 2 1	S_g	—	—
Sebastopol	7·3	346	1 53	+ 3	—	—	—	—
Simferopol	7·5	350	e 2 2	P*	—	—	—	—
Theodosia	7·5	357	e 1 58	+ 5	3 33	+13	—	—
Moscow	18·3	4	e 4 12	− 5	e 7 39	0	—	—
Stuttgart	22·4	310	e 4 59	− 3	—	—	e 5 22	PP
Pulkovo	22·6	353	e 5 0	− 3	e 9 12	+ 5	—	—
Sverdlovsk	25·3	32	e 5 30	0	e 9 57	+ 3	—	—

April 20d. Readings also at 0h. (Coimbra and near Rome), 1h. (Sitka), 2h. (La Paz), 7h. (near Amboina), 9h. (near Ferndale), 12h. (Brisbane, Riverview, Sydney, and Manila), 18h. (Semipalatinsk, Samarkand, near Mizusawa, Almata (2), Frunse, Andijan (4), Tashkent (4), and Tchimkent (3)), 19h. (Andijan (2) and Tchimkent), 21h. (Tchimkent (2), Andijan (2), Tashkent (2), Honolulu, and Istanbul).

April 21d. 2h. 54m. 4s. Epicentre 53°·6N. 166°·6W. (as on 1938 July 24d.).

U.S. Coast and Geodetic Survey. Epicentre 53°N. 166°W.
Jesuit Seismological Association. Epicentre 53°N. 165°·5W.

$A = -·5798$, $B = -·1381$, $C = +·8030$; $\delta = +5$; $h = -7$;
$D = -·232$, $E = +·973$; $G = -·781$, $H = -·186$, $K = -·596$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		14·7	33	e 3 33	+ 2	e 6 34	+18	e 3 47	PP	i 8·6
Sitka		18·0	66	i 4 12	− 1	i 7 34	+ 2	i 4 57	PP	i 8·5
Victoria		27·3	84	5 57	+ 9	10 27	0	—	—	11·9
Seattle		28·3	85	e 9 52	?	e 13 37	?	—	—	e 16·5
Ukiah		32·7	98	e 9 4	?	e 11 47	− 5	—	—	e 14·0
Honolulu		32·9	164	e 7 4	+26	e 12 3	+ 7	e 14 9	?	i 14·4
Berkeley		34·1	98	i 6 50	+ 2	(e 12 10)	− 4	—	—	e 15·5
Santa Clara	E.	34·6	100	—	—	e 12 32	+10	—	—	—
Butte		34·9	79	—	—	e 12 21	− 6	—	—	e 14·6
Bozeman		36·0	79	e 7 6	+ 1	i 12 35	− 9	e 8 35	PP	e 14·7
Tinemaha	Z.	37·0	96	e 7 11	− 2	—	—	—	—	—
Haiwee	Z.	37·8	97	e 7 18	− 2	—	—	—	—	—
Santa Barbara	Z.	37·9	101	e 7 19	− 1	—	—	—	—	—
Salt Lake City		38·4	87	e 9 5	PP	e 13 12	− 8	—	—	e 16·2
Pasadena		39·0	100	i 7 27	− 3	e 13 23	− 6	e 8 56	PP	—
Mount Wilson	Z.	39·1	100	e 7 26	− 5	—	—	—	—	—
Riverside	Z.	39·6	100	e 7 31	− 4	—	—	—	—	—
Vladivostok		41·0	282	e 7 49	+ 3	i 13 56	− 3	—	—	—
Tucson		44·7	95	i 8 14	− 2	e 14 48	− 6	e 10 26	PP	e 18·2
Irkutsk		50·3	308	e 9 1	+ 1	—	—	—	—	—
Chicago U.S.C.G.S.		51·7	69	—	—	e 16 23	− 9	e 18 55	S_eS	e 22·9
Florissant		52·3	74	e 9 11	− 4	i 16 28	−12	e 16 50	PS	—
St. Louis		52·5	74	e 9 15	− 2	i 16 37	− 6	i 16 57	PS	e 22·8
Scoresby Sund		53·6	15	—	—	e 16 24	−34	e 20 51	SS	e 23·8
Ottawa		55·7	59	9 36	− 4	17 16	−10	—	—	28·9
Seven Falls		56·9	55	—	—	e 17 39	− 3	—	—	28·9
Fordham		59·2	60	i 10 6	+ 1	i 18 19	+ 7	—	—	e 31·9
Harvard		59·9	58	e 10 6	− 4	e 18 14	− 7	—	—	e 30·9
Philadelphia		59·9	63	e 10 3	− 7	e 18 11	−10	e 22 9	SS	e 28·6
Weston		60·1	58	i 10 6	− 5	e 18 16	− 8	—	—	—
East Machias		60·3	54	e 10 4	− 9	e 18 17	− 9	e 22 34	SS	e 30·7
Columbia		61·0	72	—	—	e 18 23	−12	e 20 2	S_eS	e 29·1
Sverdlovsk		63·4	334	10 35	+ 1	19 6	0	10 49	?	—
Pulkovo		66·2	352	10 51	− 1	e 19 35	− 5	—	—	—
Upsala	N.	66·8	359	—	—	e 20 51	S_eS	—	—	—
Manila		68·0	265	i 11 5a	+ 2	20 8	+ 6	—	—	—
Moscow		69·2	346	11 10	0	e 20 13	− 3	—	—	—
Bermuda		71·1	62	—	—	20 26	−12	e 24 58	SS	e 39·6
Tashkent		74·0	321	e 11 39	0	e 21 3	− 8	—	—	—
De Bilt		74·4	6	—	—	e 21 21	+ 5	e 26 46	SS	e 35·9
Potsdam		74·4	2	i 11 41k	− 1	i 21 15	− 1	—	—	e 35·9
Uccle		75·7	8	e 11 56	+ 7	e 21 30	0	—	—	e 35·9
Samarkand		76·3	321	e 12 27	+35	e 22 17	+40	—	—	—
Paris		77·5	9	e 12 1	+ 2	—	—	—	—	e 43·9
Stuttgart		77·9	3	i 12 1k	0	—	—	—	—	—
Clermont-Ferrand		80·6	9	e 13 16	+60	—	—	—	—	—
Baku		81·2	334	e 12 28	+ 9	e 22 33	+ 4	—	—	—
San Juan		81·4	71	e 12 21	+ 1	i 22 23	− 8	—	—	e 29·9
Bucharest		81·8	351	—	—	e 22 34	− 1	—	—	44·9
Istanbul		84·7	349	12 48	+11	23 6	+ 2	—	—	e 48·2

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Rome		84·9	1	e 12 31	− 7	e 23 10	+ 4	—	—	—
Toledo		85·3	14	i 12 41	+ 1	23 5	− 5	—	—	44·2
Medan		89·9	276	13 58	+56	23 44	−10	—	—	—
Bombay		91·6	305	—	—	e 23 37	[− 5]	—	—	48·9
Batavia	z.	92·9	264	13 15	− 1	—	—	—	—	—
Huancayo		100·3	96	—	—	e 32 24	SS	—	—	e 43·4
La Paz		108·1	93	e 13 46	P	i 25 2	[− 2]	—	—	53·9

Additional readings and notes :—
College e = +7m.59s.
Sitka e = +7m.26s., i = +7m.48s. and +8m.23s.
Berkeley ePPPN = +11m.21s., eSN = +14m.30s., eSE = +14m.40s.; the reading entered as S is given as eP_cSZ.
Pasadena eSSZ = +16m.8s.
Riverside iZ = +8m.25s.
Tucson i = +8m.24s., e = +11m.57s.
Chicago U.S.C.G.S. e = +19m.16s.
Florissant eZ = +9m.21s., eN = +18m.56s., eS_cSE = +19m.19s.
St. Louis eN = +19m.3s.
Scoresby Sund eS_cS = +19m.32s.
Philadelphia e = +19m.53s. and +24m.50s.
Upsala eE = +20m.57s.
Bermuda e = +21m.22s.
Bombay eN = +23m.59s., eE = +24m.30s.
Long waves were also recorded at Agra, Kodaikanal, Lincoln, Toronto, Arapuni, and Kew.

April 21d. 3h. 25m. 9s. Epicentre 16°·1S. 168°·3E. (as on 1940 July 21d.).

A = −·9413, B = +·1949, C = −·2756; δ = −1; h = +6;
D = +·203, E = +·979; G = +·270, H = −·056, K = −·961.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Riverview		23·5	217	i 5 12a	0	i 9 17	− 6	—	—	e 11·4
Sydney		23·5	217	—	—	e 9 3	−20	—	—	—
Wellington		25·7	170	5 14	−19	9 31	−30	5 37	pP	14·9
Christchurch		27·6	173	5 51?	0	10 6	−26	—	—	14·8
Mount Wilson	z.	86·0	53	12 55	+12	—	—	—	—	—
Riverside	z.	86·4	53	e 12 58	+13	—	—	—	—	—
Tucson		91·0	57	e 13 20	+13	—	—	—	—	—
Stuttgart		143·2	337	e 19 51a	[+15]	—	—	—	—	—
Rome		146·9	325	e 20 2	[+20]	e 30 23	{+22}	—	—	—

Additional readings :—
Wellington PPZ = +6m.4s., iZ = +7m.43s., sS? = +10m.11s., Q = +11·8m.
Tucson i = +13m.28s. and +13m.35s.

April 21d. 18h. 32m. 5s. Epicentre 53°·6N. 166°·6W. (as at 2h.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		14·7	33	e 3 48	+17	e 6 33	+17	e 7 35	SS	e 8·1
Sitka		18·0	66	e 4 10	− 3	i 7 37	+ 5	e 4 34	PP	e 8·9
Victoria		27·3	84	e 6 19	+31	—	—	—	—	9·9
Ukiah		32·7	98	—	—	e 11 50	− 2	—	—	e 14·2
Honolulu		32·9	164	—	—	e 13 0	+64	—	—	e 15·4
Berkeley		34·1	98	—	—	i 12 11	− 3	—	—	e 14·6
Bozeman		36·0	79	—	—	e 12 35	− 9	—	—	e 15·1
Tinemaha	z.	37·0	96	i 7 16	+ 3	—	—	—	—	—
Pasadena		39·0	100	e 7 32	+ 2	—	—	—	—	e 16·9
Mount Wilson	z.	39·1	100	e 7 31	0	—	—	—	—	—
Riverside	z.	39·6	100	e 7 36	+ 1	—	—	—	—	—
Tucson		44·7	95	e 8 17	+ 1	i 14 41	−13	—	—	e 18·4
Florissant		52·3	74	e 9 15	0	i 16 32	− 8	—	—	—
St. Louis		52·5	74	e 9 12	− 5	e 16 31	−12	e 18 55	?	e 23·9
Ottawa		55·7	59	9 39	− 1	17 18	− 8	—	—	27·9

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Seven Falls		56·9	55	—	—	e 17 13	−29	—	—	29·9
Philadelphia		59·9	63	—	—	e 18 11	−10	e 22 22	SS	e 28·5
Columbia		61·0	72	e 12 36	PP	—	—	—	—	e 28·5
Sverdlovsk		63·4	334	e 10 36	+ 2	19 6	0	—	—	—
Manila		68·0	265	e 11 18	+15	i 12 35	?	—	—	—
Moscow		69·2	346	e 11 1	− 9	e 20 4	−12	—	—	—
Frunse		70·5	318	e 11 24	+ 6	—	—	—	—	—
Tashkent		74·0	321	e 11 39	0	e 21 3	− 8	—	—	—
Baku		81·2	334	e 12 29	+10	e 22 39	+10	—	—	—
Rome	z.	84·9	1	e 12 40a	+ 2	—	—	—	—	—

Additional readings :—
Tucson i = +8m.33s., +8m.54s., +9m.27s., and +10m.29s.
Florissant eEN = +16m.53s.
Philadelphia e = +18m.34s. and +19m.52s.
Columbia e = +14m.41s. and +23m.30s.
Long waves were also recorded at Butte, Santa Clara, East Machias, Scoresby Sund, Potsdam, Paris, and Warsaw.

April 21d. 22h. Pacific shock.

Apia i =31m.52s., eL =36m.
Wellington PZ =32m.30s., pP?Z =32m.50s., sP? =33m.5s., PPZ =33m.30s., iZ = 34m.17s., P_cPZ =35m.30s., S =37m.20s., Q =38m.10s., R =40m.
Riverview iPZ =32m.47s.a, iPPPZ =33m.21s., iPPPEN =33m.27s., iN =33m.57s., i =34m.27s., iSEN =36m.56s., iZ =37m.1s., SSN =37m.37s., eLEZ =38m.48s.
Christchurch PPZ =33m.45s., N =36m.39s., S =37m.42s., Q =38m.51s., R =40m.30s.
Arapuni S =36m.18s., Q? =36m.54s.
Adelaide eN =36m.36s., iN =37m.57s., i =38m.10s., 39m.40s., 40m.0s., 42m.7s., 42m.20s., 44m.0s., 44m.53s., 45m.13s., 46m.0s., 46m.14s., 46m.50s., 48m.0s., and 48m.14s.
Sydney e =37m.0s., eL =40·0m.
Manila iPZ =37m.44s.k, SN = +46m.25s.
Honolulu e =38m.8s. and 43m.42s., eSS =49m.22s., eL =52m.38s.
Berkeley iPZ =40m.28s., iE =40m.36s., eN =41m.16s., iE =41m.39s., eE =52m.0s., eN =56m.54s., eLE =66m.24s.
Pasadena ePZ =40m.33s., eL =67m.6s.
Mount Wilson ePZ =40m.34s.
Riverside ePZ =40m.36s.
Santa Clara eZ =40m.40s.
Tucson iP =40m.57s., i =41m.11s., e =42m.13s. and 44m.42s., i =45m.41s. and 46m.7s., iL =69m.55s.
Potsdam ePKPZ =47m.15s., ePPZ =50m.27s., ePPN =50m.30s., eE =50m.52s., L =107m.
De Bilt eZ =47m.24s.k, iZ =47m.58s., L =105m.
Uccle ePKP =47m.27s., iZ =47m.30s.
Stuttgart eP =47m.29s.k
Kew iPKPZ =47m.31s.a, eL =103m.
Zurich eP =47m.31s.k.
Rome ePKPZ =47m.32s.k, epPKP =48m.12s., ePPN =49m.29s., eSKPZ =51m.7s., ePPPN =52m.37s., eSSN =70m.29s.
Chur eP =47m.32s.
Basle eP =47m.33s.
Neuchatel eP =47m.36s.
Paris ePKP =47m.36s., $ePKP_2$ =48m.39s., PKS =51m.35s., PP =53m.10s., eL =108m.
Clermont-Ferrand PKP =47m.41s.a, e =51m.20s.
Perth i =51m.0s. and 54m.25s., eL =55m.33s.
Sitka e =51m.30s., eL =67m.45s.
Victoria e =51m.30s., L =69m.
Bozeman e =52m.47s., 54m.45s., and 58m.36s., eL =72·2m.
Philadephia ePS =58m.3s., e =67m.12s., eL =85m.28s.
Seven Falls e =65m., L =87m.
Long waves were also recorded at Huancayo and other American stations.

April 21d. Readings also at 0h. (Andijan, Tchimkent, and near Tashkent), 2h. (near Tashkent), 4h. (La Paz, Tchimkent, near Andijan, and near Tashkent), 6h. (Tchimkent, and near Tashkent), 7h. (Frunse, Medan, and near Tashkent), 8h. (La Paz, San Juan, Huancayo, Bermuda, Tucson, Mount Wilson, Pasadena, and Riverside), 10h. (near Tashkent and Andijan), 14h. (Almata, Tchimkent, near Andijan, and Tashkent), 15h. (Auckland, Christchurch, Wellington, Riverview, Berkeley, and Rome), 18h. (Harvard and Tucson), 21h. (near Andijan), 22h. (near Amboina), 23h. (Arapuni, Wellington, Frunse, Tchimkent, near Andijan, and Tashkent),

April 22d. Readings at 1h. (Guadalajara, Tacubaya, Tucson, Riverside, Frunse, near Andijan, and Tashkent), 4h. (Andijan and near Tashkent), 7h. (Merida, Vera Cruz, Tacubaya, Tucson, La Paz, and La Plata), 8h. (near Rome, near Mizusawa, and near Sebastopol), 9h. (Strasbourg), 10h. (Tucson), 11h. (Manila and near Medan), 13h. (near Medan (2)), 14h. (Samarkand and near Andijan), 15h. (Tchimkent, Samarkand, near Andijan, and Tashkent), 16h. (Mount Wilson, Pasadena, Riverside, Tucson, and Riverview), 20h. (Mount Wilson, Pasadena, Riverside, Tinemaha, and Tucson), 22h. (near Granada).

April 23d. Readings at 0h. (Balboa Heights), 1h. (near Mizusawa), 5h. (Tucson, Manila, and near Amboina), 6h. (Haiwee, Mount Wilson, Palomar, Pasadena, Riverside Tinemaha, Tucson (2), Medan, and near Batavia), 11h. (near Lick), 13h. (near Manila), 15h. (Tucson, Mount Wilson, Riverside, Samarkand, and near Andijan), 19h. (Tacubaya), 20h. (Rome, Sofia, and near Grozny), 22h. (Balboa Heights).

April 24d. 1h. 4m. 19s. Epicentre 17°·5N. 78°·4W. (as on April 8d.).

$A = +\cdot1919$, $B = -\cdot9348$, $C = +\cdot2989$; $\delta = +2$; $h = +5$;

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Balboa Heights		8·6	187	e 1 41?	−28	—	—	—	—	—
San Juan		11·7	84	e 3 40	?	e 5 8	+ 4	—	—	e 6·1
Columbia		16·6	352	e 6 41	?	e 7 9	+ 9	—	—	e 8·8
Bermuda		19·2	38	e 4 25	− 3	e 8 23	+24	—	—	—
Philadelphia		22·6	10	—	—	e 9 13	+ 6	—	—	e 12·1
St. Louis		23·5	337	e 5 11	− 1	e 9 26	+ 3	—	—	e 12·0
Florissant		23·7	337	e 5 17	+ 3	e 9 36	+ 9	—	—	—
Chicago		25·5	344	—	—	e 10 2	+ 5	—	—	e 12·7
Harvard		25·6	14	i 5 32	0	i 10 19	+20	—	—	—
Ottawa		27·9	5	e 5 58	+ 4	—	—	—	—	13·7
Huancayo		29·5	175	e 6 3	− 5	—	—	e 8 16	?	e 11·9
Tucson		32·7	304	i 6 40	+ 4	—	—	i 7 46	PP	e 22·8
Palomar	z.	37·9	304	e 7 19	− 1	—	—	—	—	—
Riverside	z.	38·5	304	e 7 22	− 4	—	—	—	—	—
Mount Wilson	z.	39·1	304	e 7 35	+ 4	—	—	—	—	—
Pasadena	z.	39·2	304	i 7 31	0	—	—	—	—	—
Tinemaha	z.	40·1	308	e 7 42	+ 3	—	—	—	—	—

Additional readings :—
St. Louis iPZ = +5m.16s.
Florissant iPZ = +5m.21s., eE = +9m.25s., +9m.49s., and +10m.2s.
Tucson e = +7m.24s., i = +8m.0s., +9m.5s., and +9m.52s.
Palomar iZ = +7m.25s.
Riverside iZ = +7m.30s.
Long waves were also recorded at East Machias.

April 24d. Readings also at 1h. (near Mizusawa), 2h. (Huancayo), 4h. (Tucson), 6h. (College), 7h. (Tacubaya), 10h. (Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, and Riverview), 11h. (near Erevan), 12h. (Rome), 13h. (near Mizusawa), 14h. (near Andijan, Samarkand, and Tashkent), 15h. (near Manila), 16h. (Tucson), 19h. (near Branner), 21h. (Haiwee, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, and Mizusawa).

April 25d. 3h. Tokyo suggests 36°·09N. 139°·91E.

Tokyo, Imp. Univ. P = 59m.32s., S = 59m.40s.
Tukubasan P = 59m.35s., S = 59m.41s.
Komaba P = 59m.35s., S = 59m.43s.
Mitaka P = 59m.35s., S = 59m.44s.
Titibu P = 59m.35s., S = 59m.45s.
Kamakura P = 59m.35s., S = 59m.47s.
Togane P = 59m.35s., S = 59m.47s.
Koyama P = 59m.35s., S = 59m.51s.
Kiyosumi P = 59m.35s., S = 59m.52s.
Susaki P = 59m.47s., S = 60m.5s.
Mizusawa ePE = 60m.15s., iSE = 61m.3s.

April 25d. 12h. 11m. 39s. Epicentre 26°·1N. 116°·6W.

$A = -·4026$, $B = -·8040$, $C = +·4376$; $\delta = 0$; $h = +3$;
$D = -·894$, $E = +·448$; $G = -·196$, $H = -·391$, $K = -·899$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
La Jolla		6·8	355	e 1 41	− 3	—	—	—	—	—
Palomar	Z.	7·2	359	i 1 46	− 3	—	—	—	—	—
Riverside	Z.	7·9	355	e 1 57	− 2	i 3 33	+ 3	—	—	—
Tucson		7·9	38	i 1 47	−12	i 3 0	−30	i 2 39	P_g	i 3·5
Pasadena		8·1	355	e 2 3	+ 1	i 3 40	+ 5	—	—	e 3·4
Mount Wilson	Z.	8·2	352	e 2 3	0	—	—	—	—	—
Santa Barbara	Z.	8·7	343	e 2 15	+ 5	—	—	—	—	—
Haiwee		10·1	354	e 2 32	+ 4	—	—	—	—	—
Fresno	N.	10·9	346	e 2 43	+ 3	e 5 19	SSS	—	—	—
Tinemaha		11·0	353	e 2 44	+ 2	e 5 18	SSS	—	—	—
Lick		12·0	340	e 3 7	PP	e 7 2	L	—	—	(e 7·0)
Branner		12·2	339	e 3 7	PP	—	—	—	—	—
Berkeley		12·7	339	e 3 13	PP	e 5 57	SS	e 6 13	SSS	e 6·5
Salt Lake City		15·1	14	e 3 33	− 3	e 6 11	−14	—	—	e 7·2
Bozeman		20·0	12	e 4 28	− 9	—	—	—	—	e 11·5
Butte		20·1	10	e 4 35	− 3	e 8 40	SS	—	—	e 11·1
Lincoln		22·1	44	—	—	e 8 42	−16	—	—	e 11·4
Florissant		25·4	54	e 5 31	0	e 10 0	+ 4	—	—	—
St. Louis		25·4	54	e 5 29	− 2	e 9 39	−17	—	—	e 12·1
Ottawa		37·9	49	e 7 21	+ 1	—	—	—	—	19·3
Fordham		38·2	56	e 7 22	− 1	—	—	—	—	e 19·3

Additional readings :—
Tucson i = +1m.53s., +2m.6s., +2m.24s., and +3m.9s.
Lick eN = +3m.10s., eSE = +3m.16s.
Bozeman e = +5m.40s.
Florissant eE = +5m.47s.
St. Louis eZ = +7m.23s., eSN = +9m.52s.
Long waves were also recorded at Ferndale, College, Chicago, U.S.C.G.S., East Machias, Philadelphia, Ukiah, Seattle, and Harvard.

April 25d. Readings also at 0h. (Tucson), 1h. (Tucson and near Medan), 3h. (Manila), 5h. (near Mizusawa), 6h. (near Tashkent), 11h. (Basle, Strasbourg, Zurich, near Bagneres, and Clermont-Ferrand), 12h. (near Erevan, Piatigorsk, and Sotchi), 15h. (Samarkand, Tashkent, and near Andijan), 16h. (near Branner, Samarkand, and near Andijan), 18h. (Tucson), 22h. (Sitka).

April 26d. 7h. Would appear to be a foreshock of 23h., but the readings do not fit. Russian suggested epicentre 40°·0N. 72°·5E.

Samarkand eP = 9m.3s.
Andijan eP = 9m.11s.
Tashkent iP = 9m.16s., eS_g = 10m.4s.
Tchimkent iP = 9m.29s.
Frunse P = 9m.44s.
Almata P = 10m.1s.
Baku eP = 11m.50s., eS = 14m.52s.
Sverdlovsk P = 13m.4s., S = 16m.19s.
Pulkovo eP = 14m.34s., eS = 19m.45s.

April 26d. 23h. 10m. 53s. Epicentre 38°·6N. 70°·5E. (as on 1940, August 8d.).

$A = +·2615$, $B = +·7386$, $C = +·6213$; $\delta = -7$; $h = -1$;
$D = +·943$, $E = -·334$; $G = +·207$, $H = +·586$, $K = -·784$.

	△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Andijan	2·6	34	i 0 43	− 1	i 1 12	− 5	—	—	—
Samarkand	2·9	291	i 0 48	0	—	—	—	—	—
Tashkent	2·9	341	0 46	− 2	—	—	—	—	—
Tchimkent	3·8	352	e 0 57	− 4	—	—	—	—	—
Frunse	5·3	35	i 1 19	− 3	i 2 34	+ 9	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Almata		6·8	44	e 1 40	− 4	—	—	—	—	—
Dehra Dun	N.	10·4	141	e 3 24	+50	e 4 44	SS	—	—	e 5·8
Agra	E.	13·1	148	e 3 11	+ 1	e 5 28	−10	—	—	—
Semipalatinsk		13·7	27	e 3 11	− 7	i 6 56	+64	—	—	—
Baku		16·0	283	e 4 0	PP	i 7 4	SS	—	—	—
Grozny		19·3	293	i 4 35	+ 6	—	—	—	—	—
Sverdlovsk		19·4	344	i 4 23	− 7	i 7 57	− 7	—	—	—
Bombay		19·7	175	i 4 39	+ 5	e 8 30	+20	e 4 58	PP	10·2
Erevan		20·1	284	3 44	−54	7 44	−35	—	—	—
Calcutta	N.	22·1	131	e 5 3	+ 4	i 9 6	+ 8	—	—	i 12·2
Irkutsk		27·1	49	5 45	− 1	10 22	− 2	—	—	—
Ksara		28·3	272	e 6 5	+ 8	e 11 21	+38	—	—	—
Moscow		28·3	321	e 5 52	− 5	10 32	−11	6 7	pP	—
Kodaikanal	E.	28·9	167	—	—	e 11 40	+47	—	—	15·3
Istanbul		31·7	289	e 11 43	S	(e 11 43)	+ 6	—	—	—
Colombo	E.	32·7	164	—	—	e 12 7?	+15	—	—	i 17·5
Pulkovo		33·0	324	e 6 37	− 2	e 11 50	− 7	—	—	—
Helwan		33·3	267	e 6 46	+ 5	e 12 10	+ 8	—	—	—
Bucharest		33·4	296	e 8 37	PPP	e 12 11	+ 8	—	—	15·1
Warsaw		36·6	309	e 7 9	− 1	e 12 47	− 6	e 8 37	PP	e 17·1
Upsala		39·2	322	e 8 56	PP	e 13 22	−10	—	—	e 16·0
Prague		40·8	307	e 16 7?	PP	—	—	—	—	—
Potsdam		41·5	310	e 7 48	− 2	i 14 4	− 3	i 9 25	PP	e 19·1
Copenhagen		41·7	315	e 7 52	0	14 7	− 3	9 26	PP	22·1
Jena		42·5	308	e 8 1	+ 2	e 15 7	PS	—	—	e 19·1
Rome		43·7	294	e 10 16	PPP	e 14 39	0	—	—	e 20·6
Stuttgart		44·4	305	e 8 12	− 2	—	—	e 9 50	PP	—
Chur		44·5	303	e 8 13	− 2	—	—	—	—	—
Zurich		45·1	303	e 8 19	− 1	—	—	—	—	—
Neuchatel		46·2	303	e 8 27	− 1	—	—	—	—	—
De Bilt	N.	46·3	310	—	—	i 18 47	SS	—	—	e 25·1
Uccle		47·1	309	e 8 41	+ 6	—	—	e 10 24	PP	e 23·1
Paris		48·7	307	—	—	e 15 47	− 3	e 22 4	?	26·1
Clermont-Ferrand		49·1	302	e 8 51	0	—	—	—	—	—
Aberdeen		49·6	318	—	—	i 19 44	SS	—	—	e 27·3
Kew		49·8	311	—	—	e 16 7?	+ 1	—	—	e 19·1
Manila		50·3	105	e 9 16	+16	16 23	+10	—	—	—
Scoresby Sund		55·0	337	—	—	e 17 19	+ 2	—	—	e 31·4
Toledo		56·1	297	i 9 45	+ 2	18 37	+65	—	—	—

Additional readings :—
Bombay $iP_ePEN = +8m.47s.$
Ksara $e = +11m.52s.$
Warsaw $eZ = +8m.37s.$, $eS = +12m.51s.$, $e = +14m.55s.$, $eE = +15m.31s.$, $eZ = +15m.38s.$
Potsdam $ePE = +7m.51s.$, $iPZ = +7m.56s.$, $ePPN = +9m.32s.$, $iSE = +14m.8s.$, $eZ = +16m.41s.$, $iSS = +16m.49s.$
Copenhagen +17m.2s.
Stuttgart $i = +8m.18s.$
Aberdeen $iE = +19m.51s.$
Long waves were also recorded at Bergen, College, Berkeley, Tucson, Salt Lake City, and Pasadena.

April 26d. Readings also at 0h. (Guadalajara, Tacubaya, Andijan, and near Tashkent), 2h. (Frunse, Tashkent, near Almata, Andijan, and Tchimkent), 3h. (Sverdlovsk), 5h. (Tucson), 10h. (Guadalajara, Tacubaya, Huancayo, La Paz, Tucson, La Jolla, Mount Wilson, Pasadena, Riverside, Palomar, Tinemaha, and near Apia), 12h. (near Baku), 13h. (Tucson), 17h. (Manila and Vladivostok), 18h. (Arapuni, Wellington, Berkeley, Tucson, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, and Huancayo), 19h. (near Harvard (2)), 20h. (near Sebastopol and Yalta), 22h. (Sitka), 23h. (Huancayo and La Paz),

April 27d. 5h. 34m. 27s. Epicentre 18°·5N. 79°·0W.

$A = +·1811$, $B = -·9316$, $C = +·3154$; $\delta = +15$; $h = +5$;
$D = -·982$, $E = -·191$; $G = +·060$, $H = -·310$, $K = -·949$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Port au Prince		6·3	89	e 0 44	−52	—	—	i 1 54	P*	—
Balboa Heights		9·5	184	e 1 33?	−47	—	—	—	—	—
San Juan		12·2	89	e 3 4	+ 6	i 5 14	− 2	—	—	e 5·9
Columbia		15·5	354	—	—	e 6 52	SS	e 7 15	SSS	e 8·8
Bermuda		18·7	40	e 4 19	− 3	—	—	e 4 31	PP	e 8·0
Philadelphia		21·6	8	e 4 55	+ 1	e 9 1	+12	—	—	e 11·4
Florissant		22·5	335	e 5 6	+ 4	e 9 15	+10	e 9 35	SS	—
Chicago U.S.C.G.S.		24·4	13	—	—	e 9 53	+14	—	—	e 12·7
Ottawa		26·9	4	—	—	e 10 33	+13	—	—	e 13·6
Huancayo		30·6	173	e 6 13	− 5	e 11 41	+21	e 8 49	PcP	e 12·8
Tucson		31·7	302	i 6 28	+ 1	—	—	i 7 5	PP	e 17·8
La Paz		36·4	162	e 7 10	+ 2	—	—	—	—	18·0
Palomar	z.	36·9	301	i 7 13	+ 1	—	—	—	—	—
Riverside	z.	37·5	302	e 7 17	0	—	—	—	—	—
Mount Wilson	z.	38·1	302	e 7 20	− 2	—	—	—	—	—
Pasadena	z.	38·1	302	e 7 22	0	—	—	e 9 2	PP	—
Tinemaha	z.	39·0	307	e 7 32	+ 2	—	—	—	—	—
Berkeley		42·3	306	—	—	e 18 2	SSS	—	—	e 26·8

Additional readings :—
Port au Prince i = +1m.33s.
San Juan e = +4m.49s.
Florissant eSN = +9m.18s., eE = +9m.30s.
Huancayo e = +10m.36s.
Tucson i = +8m.6s.
Berkeley eE = +8m.8s.
Long waves were also recorded at Salt Lake City.

April 27d. 11h. Undetermined shock.

Amboina PEN = 25m.48s., SEN = 27m.3s.
Manila iPZ = 27m.39s. a, ePN = 27m.41s., iS = 30m.26s.
Batavia PEZ = 28m.2s., SEN = 31m.17s.
Medan ePE = 28m.50s., ePN = 29m.9s.
Rome eZ = 34m.10s., eE = 34m.23s., iS_gN = 34m.30s.
Pasadena eZ = 42m.34s.
Mount Wilson eZ = 42m.36s.
Tucson i = 42m.46s.
Agra iE = 43m.0s.
Bombay eE = 43m.14s., eEN = 44m.0s. and 44m.18s.
Long waves were also recorded at Aberdeen.

April 27d. 13h. 1m. 24s. Epicentre 39°·5N. 35°·2E. (as on 1940 July 31d.).

Intensity VII at Yozgat (Akdagmadeni). Felt at Ankara.

J. P. Rothé.
Chronique seismologie, "Revue pour l'Etude des Calamités," tome VII, No. 21, Genèva 1944, p. 50.

$A = +·6322$, $B = +·4460$, $C = +·6335$; $\delta = -8$; $h = -1$;
$D = +·576$, $E = -·817$; $G = +·518$, $H = +·365$, $K = -·774$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Istanbul	5·0	290	1 22	+ 4	2 45	S_g	1 39	P_g	—
Yalta	5·0	351	1 18	0	—	—	—	—	—
Sebastopol	5·3	347	e 1 21	− 1	—	—	—	—	—
Sotchi	5·3	38	1 21	− 1	—	—	—	—	—
Simferopol	5·5	352	e 1 25	0	—	—	—	—	—
Theodosia	5·5	1	i 1 25	0	—	—	—	—	—
Ksara	5·7	174	e 1 32	+ 4	i 2 52	S*	—	—	—
Erevan	7·2	81	(1 57)	+ 8	1 57	P	—	—	—
Piatigorsk	7·4	49	1 45	− 7	—	—	—	—	—
Bucharest	8·4	309	e 2 10	+ 4	i 3 59	+16	5 12	S_g	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Grozny		8·8	61	(e 2 23)	+12	e 2 23	P	—	—	—
Sofia		9·5	294	e 2 26	+ 6	e 4 26	+16	—	—	—
Helwan		10·1	199	e 2 30	+ 2	e 4 41	+16	—	—	—
Baku		11·3	81	e 2 48	+ 2	i 5 11	+17	—	—	—
Kecskemet	z.	13·5	308	e 3 17	+ 2	—	—	—	—	e 7·6
Kalossa	N.	13·8	306	e 3 22	+ 3	—	—	—	—	8·1
Budapest		14·2	310	e 3 32	+ 8	i 6 26	+22	—	—	e 7·5
Ogyalla		14·9	310	3 39	+ 5	—	—	—	—	e 7·6
Warsaw		16·1	327	e 3 44k	− 5	i 7 0	+11	7 33	SS	e 7·6
Moscow		16·3	5	3 47	− 5	6 51	− 2	—	—	—
Rome		17·4	285	e 4 4a	− 2	i 7 33	+14	i 4 25	PPP	e 8·9
Prague		18·1	313	i 4 16k	+ 2	7 45	+10	—	—	e 9·6
Chur		20·0	301	e 4 37	0	e 8 25	+ 8	—	—	—
Potsdam		20·0	318	i 4 34	− 3	i 8 20	+ 3	i 5 16	PPP	e 9·6
Jena		20·1	314	i 4 36	− 2	e 8 30	+11	—	—	e 9·6
Pulkovo		20·5	353	i 4 37	− 5	i 8 23	− 4	—	—	—
Stuttgart		20·8	306	e 4 45	0	i 8 37	+ 4	e 5 9	PP	e 11·0
Zurich		20·8	301	e 4 42	− 3	e 8 35	+ 2	—	—	—
Basle		21·5	301	e 4 50	− 2	e 8 55	+ 8	—	—	—
Strasbourg		21·6	306	e 5 0	+ 6	e 9 4	+15	e 5 56	PP	—
Neuchatel		21·8	300	e 4 55	− 1	—	—	—	—	—
Copenhagen		22·2	325	e 4 59	− 1	9 1	+ 1	—	—	—
Upsala		23·2	337	e 5 5	− 4	e 9 17	− 1	—	—	e 13·6
Sverdlovsk		24·0	36	e 5 16	− 1	9 33	+ 1	—	—	—
De Bilt		24·2	312	e 5 20	+ 1	e 9 46	+11	—	—	11·6
Uccle		24·3	308	e 5 22	+ 2	e 9 35	− 2	—	—	11·6
Clermont-Ferrand		24·4	296	e 5 21	0	—	—	—	—	—
Samarkand		24·4	81	e 5 22	+ 1	—	—	—	—	—
Paris		25·1	303	e 5 26	− 2	9 36?	−15	e 8 23	?	12·6
Algiers		25·4	274	e 7 13	?	e 10 36	+40	—	—	e 20·6
Tchimkent		26·0	73	i 5 13	−23	—	—	—	—	—
Kew		27·4	309	e 5 50	+ 1	e 11 16	+48	e 6 34	PP	e 15·1
Bergen		28·0	330	e 6 15	+20	e 10 58	+20	—	—	e 16·6
Oxford		28·0	309	e 5 52	− 3	i 11 28	SS	—	—	e 15·6
Andijan		28·3	76	e 5 57	0	—	—	—	—	—
Almeria		29·6	278	5 54	−15	10 38	−26	6 14	pP	15·6
Frunse		29·7	71	e 6 4	− 6	—	—	—	—	—
Aberdeen	N.	29·9	321	—	—	i 11 11	+ 2	—	—	15·6
Toledo		30·0	283	i 6 12	0	e 11 48	+38	—	—	16·8
Edinburgh		30·1	316	—	—	e 10 42	−30	—	—	—
Granada		30·4	279	i 6 29k	+13	i 11 38	+22	7 30	PP	16·6
Almata		31·3	69	e 6 23	− 1	—	—	—	—	—
Semipalatinsk		33·2	56	e 7 11	+31	—	—	—	—	—
Agra	E.	37·5	96	e 7 12	− 5	12 57	−10	8 33	PP	—
Bombay		38·4	112	e 7 34	+ 9	e 14 16	+56	e 9 15	PP	18·6
Scoresby Sund		42·5	336	e 7 58	− 1	e 14 30	+ 8	e 9 51	PP	e 20·8
Kodaikanal	E.	47·5	117	e 8 36?	− 2	e 15 36	+ 2	19 32	SS	24·2
Calcutta	N.	47·9	95	—	—	e 14 6	?	e 15 13	?	e 19·5
Irkutsk		48·0	51	e 8 42	− 1	19 12	SS	e 10 34	PP	—
Colombo	E.	51·6	118	9 35	+25	—	—	—	—	28·7
Ivigtut		53·3	323	9 23	0	—	—	—	—	—
Vladivostok		68·6	53	—	—	e 20 0	− 9	20 50	PS	—
Seven Falls		71·5	316	—	—	e 20 48	+ 5	—	—	32·6
Ottawa		75·2	317	e 11 48	+ 2	e 21 36?	+11	—	—	e 28·6
Bermuda		77·1	301	—	—	e 21 46	0	—	—	e 37·2
Manila		77·7	82	e 14 44	?	—	—	—	—	—
Philadelphia		78·6	313	—	—	e 22 9	+ 7	—	—	—
Victoria		90·4	346	—	—	e 24 36?	+38	—	—	—
Tucson		102·0	332	i 14 15	+18	i 24 9	[−28]	i 24 59	SKKS	40·6
Mount Wilson	z.	102·6	338	e 17 32	PP	—	—	—	—	e 51·2
Palomar	z.	103·0	336	e 18 16	PP	—	—	—	—	—

Additional readings and notes :—
Bucharest S*EN = +4m.42s.
Helwan iE = +3m.48s., i = +4m.48s.

Continued on next page.

Warsaw ePN = +3m.47s.
Rome i = +5m.1s., eSSZ = +8m.11s.
Potsdam iPNZ = +4m.37s.a, iPPE = +5m.21s., iSZ = +8m.24s., iSSSN = +9m.1s., iSSSZ = +9m.7s.
Stuttgart iNW = +4m.55s., ePP = +5m.17s., sSNE = +8m.44s.
Copenhagen i = +9m.11s.
Upsala iPN = +5m.12s., iS = +9m.31s., iE = +10m.8s., eE = +12m.51s.
De Bilt iP = +5m.24s., iS = +9m.51s.
Kew eP$_c$S?E = +12m.8s., eQEN = +12·6m.
Almeria PP = +6m.55s., PPP = +7m.6s., P$_c$P = +9m.6s., P$_c$S = +12m.54s., S$_c$S = +16m.46s.
Aberdeen iE = +12m.16s.
Granada eSS = +13m.52s.
Agra SSS?E = +15m.47s.
Bombay eN = +9m.46s. and +12m.2s., eE = +17m.0s.
Scoresby Sund e = +10m.24s.
Tucson e = +14m.52s., +18m.10s., and +18m.23s.
Long waves were also recorded at Lisbon, Bozeman, Ukiah, East Machias, Butte, Berkeley, Pasadena, San Juan, Huancayo, and La Paz.

April 27d. Readings also at 1h. (Almata and Frunse), 3h. (La Paz), 4h. (near Ksara), 5h. (La Paz and Tucson), 7h. (Tashkent, Tchimkent, and Andijan), 9h. (near Manila), 10h. (near Mizusawa), 11h. (Tucson, Coimbra, and Medan), 12h. (Coimbra), 13h. (Istanbul), 14h. (Huancayo), 15h. (Rome, Brisbane, Riverview, Sydney, Wellington, Arapuni, Christchurch, Adelaide, and La Paz), 16h. (Paris and Kew), 17h. (near San Francisco, Lick, Branner, and Berkeley), 18h. (Ksara, Warsaw, Sofia, Sebastopol, Simferopol, Theodosia, Bucharest, and Istanbul), 19h. (San Juan, Branner, and Lick), 20h. (Frunse, near Branner, Lick, Berkeley, San Francisco, Samarkand, Tchimkent, Andijan, and Tashkent), 21h. (Sverdlovsk, Tchimkent, Andijan, Tashkent, Samarkand, Frunse, and Almata).

April 28d. 8h. Local Japanese shock.
Tokyo Imperial University gives Epicentre 35°·64N. 140°·0E.
Kamakura P = 1m.43s., S = 1m.53s.
Kiyosumi P = 1m.43s., S = 1m.52s.
Komaba P = 1m.43s., S = 1m.50s.
Koyama P = 1m.43s., S = 1m.57s.
Mitaka P = 1m.43s., S = 1m.51s.
Titibu P = 1m.43s., S = 1m.56s.
Togane P = 1m.43s., S = 1m.50s.
Tokyo Imp. Univ. P = 1m.43s., S = 1m.50s.
Tukubasan P = 1m.43s., S = 1m.52s.
Mizusawa ePE = 2m.37s., S = 3m.28s.

April 28d. 19h. 43m. 38s. Epicentre 18°·8N. 103°·0W. (as on 1941 April 16d.).

$A = -·2131$, $B = -·9230$, $C = +·3203$; $\delta = -7$; $h = +4$;

		△	Az.	P.	O−C.	S.	O−C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Guadalajara	N.	1·9	350	0 41	P$_g$	—	—	— —	—
Tacubaya	N.	3·7	78	1 6	P*	—	—	— —	—
Puebla		4·5	87	e 1 18	P*	—	—	— —	—
Oaxaca	N.	6·1	105	—	—	e 2 18	−27	— —	—
Vera Cruz	E.	6·5	86	e 1 48	P*	—	—	— —	—
Tucson		15·1	334	e 3 38	+ 2	e 7 1	SSS	i 3 51	PP i 7·7
La Jolla	Z.	19·0	322	e 4 25	− 1	—	—	— —	—
Palomar	Z.	19·1	322	i 4 24a	− 3	—	—	— —	—
Riverside		19·8	323	e 4 33a	− 2	—	—	— —	—
Mount Wilson	Z.	20·4	323	e 4 39a	− 2	—	—	— —	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Pasadena		20·4	323	i 4 39$_a$	− 2	i 8 29	+ 4	—	—	—
Santa Barbara		21·5	321	e 4 51	− 1	—	—	—	—	—
Halwee	Z.	21·7	326	e 4 54	− 1	—	—	—	—	—
Lincoln		22·6	14	e 5 12	+ 9	e 8 33	−34	—	—	e 11·0
Tinemaha		22·6	327	e 5 3	0	—	—	—	—	—
St. Louis		22·7	26	i 4 42	−22	e 8 57	−12	i 5 0	pP	e 10·8
Florissant		22·8	26	i 5 4	− 1	e 9 17	+ 6	i 5 14	pP	—
Fresno	N.	23·2	325	i 4 12	−57	—	—	—	—	e 13·7
Lick		24·7	323	e 5 23	− 1	—	—	—	—	e 13·8
Columbia		24·8	47	e 5 13	−12	e 9 43	− 3	e 5 54	PP	e 10·5
Santa Clara	N.	24·8	323	e 5 27	+ 2	e 10 3	+17	—	—	—
Berkeley		25·4	323	e 5 30	− 1	e 10 6	+10	—	—	e 12·5
San Francisco	N.	25·4	322	e 5 38	+ 7	—	—	—	—	—
Chicago U.S.C.G.S.		26·5	25	e 5 31	−10	e 9 53	−21	—	—	e 10·5
Bozeman		27·6	348	i 6 55	PPP	e 11 0	+28	e 11 32	SS	e 13·0
Butte		28·3	348	e 7 1	PPP	e 12 9	SS	—	—	e 15·1
Philadelphia		31·9	44	e 7 13	PP	e 11 5	−35	—	—	i 18·4
Fordham		33·2	43	e 6 47	+ 7	e 14 6	SS	e 7 44	PP	e 18·4
Victoria		34·0	336	e 6 46	− 2	—	—	e 8 28	PPP	18·4
Ottawa		34·9	34	6 52	− 3	12 46	+19	8 22	PPP	19·4
San Juan		34·9	84	e 7 4	+ 9	e 12 24	− 3	—	—	i 15·6
Shawinigan Falls		37·2	35	e 7 16	+ 1	—	—	—	—	20·4
Seven Falls		38·6	35	e 9 9	PP	—	—	—	—	23·4
East Machias		39·4	41	e 7 23	−10	(e 16 48)	SSS	e 9 20	PP	e 16·8
Huancayo		41·0	136	e 7 41	− 5	e 13 48	−11	—	—	i 20·5
La Paz	Z.	49·1	133	i 8 54	+ 3	—	—	—	—	25·4
Kew		83·1	38	i 12 27	− 2	e 22 50	+ 2	e 34 22	Q	e 39·4
Toledo		84·8	50	i 12 36	− 1	23 51	PS	—	—	—
Paris		85·8	40	e 12 47	+ 5	—	—	—	—	46·4
De Bilt		86·0	36	e 12 44	+ 1	e 23 22	+ 5	—	—	e 41·4
Granada		86·0	52	i 12 43$_a$	0	23 31	+14	—	—	45·6
Uccle		86·1	38	e 12 45	+ 1	23 23	+ 5	—	—	41·4
Almeria		87·0	52	e 12 38	−10	—	—	—	—	e 67·4
Potsdam		90·1	34	—	—	e 23 22	[−11]	—	—	e 40·4
Vladivostok		100·4	42	e 13 46	− 4	e 23 26	[−63]	—	—	—

Additional readings :—
Tucson i = +4m.0s., +4m.18s., +5m.15s., +5m.48s., and +7m.10s.
St. Louis iZ = +4m.49s., iPPZ = +5m.12s., isSN = +9m.30s., eSSN = +10m.36s.
Florissant iNZ = +5m.10s., eSN = +9m.24s., esSN = +9m.45s., eN = +9m.58s.
Berkeley eN = +5m.34s., iSN = +10m.17s.
San Juan e = +10m.46s., i = +12m.37s.
Huancayo i = +7m.51s. and +8m.0s.
Kew eEN = +23m.4s.
Potsdam eN = +23m.34s.
Long waves were also recorded at Ferndale, Ukiah, Warsaw, Bermuda, Scoresby Sund, College, Harvard, Honolulu, Seattle, Sitka, Denver, and Merida.

April 28d. Readings also at 1h. (Riverside, Mount Wilson, Tinemaha, Pittsburgh, and Tucson), 3h. (Tucson), 4h. (Bombay, Istanbul, and Ksara), 8h. (Bergen (3)), 9h. (near Ksara, and Helwan), 14h. (near Batavia), 15h. (Samarkand, Tchimkent, and Andijan), 17h. (Stuttgart), 20h. (Tacubaya, and near Branner), 21h. (near Algiers).

April 29d. 1h. 35m. 42s. Epicentre 26°·9S. 116°·3E.

Scale VIII in the S.W. of Western Australia.

Epicentre 26° 55′S., 116°15′E. (Pasadena).

$A = -\cdot3949$, $B = +\cdot8007$, $C = -\cdot4503$; $\delta = -16$ $h = +2$;
$D = +\cdot897$, $E = +442$; $G = +\cdot199$, $H = -\cdot404$, $K = -\cdot893$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Perth		5·0	183	1 15	− 3	—	—	—	—	—
Adelaide		20·7	119	i 4 43	− 1	8 28	− 3	i 4 55	PP	i 10·4
Batavia		22·5	337	i 4 54k	− 8	9 14	+ 9	9 33	SS	—
Amboina		25·8	29	5 20	−14	9 58	− 4	—	—	—
Riverview		30·8	112	i 6 28	+ 8	i 11 21	− 2	i 6 44	pP	e 14·4
Sydney		30·8	112	—	—	e 10 36	−47	—	—	i 18·3
Medan		34·8	329	6 56	+ 2	12 9	−16	i 14 48	SS	—
Manila		41·5	8	i 7 53k	+ 3	i 14 9	+ 2	—	—	20·3
Christchurch		48·9	125	8 38	− 5	15 29	−12	8 52	pP	24·3
Colombo	E.	48·7	309	8 39	− 9	15 54	+ 4	—	—	21·9
Wellington		49·7	122	8 48a	− 8	15 53	−11	9 3	pP	24·3
Auckland		50·0	116	—	—	14 18?	?	—	—	—
Arapuni		50·6	119	—	—	16 18?	+ 1	e 19 48	SS	27·3
Tuai		51·7	120	9 6	− 5	16 21	−11	9 21	pP	—
Kodaikanal	E.	52·7	310	e 9 21	+ 3	e 16 38	− 8	—	—	24·3
Calcutta	N.	56·1	329	i 9 47	+ 4	i 17 24	− 8	10 56	PcP	e 27·4
Miyazaki		60·3	16	9 40	−33	18 21	− 5	—	—	—
Bombay		62·0	312	e 10 18	− 6	i 18 33	−15	—	—	e 28·4
Tananarive		63·1	262	—	—	e 18 22	?	19 21	PS	e 29·3
Kobe		63·8	18	10 29	− 7	18 43	−28	—	—	—
Nagoya		64·8	20	e 11 7	+24	—	—	—	—	—
Agra	E.	65·1	323	e 10 22	−23	18 57	−30	e 12 47	PP	—
Nagano		66·5	19	e 11 18	+24	—	—	—	—	—
Vladivostok		71·2	13	e 11 24	+ 1	i 20 47	+ 7	—	—	—
Sapporo		73·4	19	11 38	+ 2	—	—	—	—	—
Almata		78·6	332	e 12 4	− 1	—	—	—	—	—
Andijan		78·7	327	e 12 0	− 6	21 49	−14	—	—	—
Irkutsk		79·5	353	e 12 4	− 6	—	—	—	—	—
Samarkand		80·6	324	12 20	+ 4	22 12	−11	—	—	—
Tashkent		80·6	326	i 12 18	+ 2	e 22 11	−12	—	—	—
Tchimkent		81·2	327	i 12 47	+28	—	—	—	—	—
Baku		91·0	316	e 13 17	+10	i 23 32	[− 7]	—	—	—
Sverdlovsk		95·7	332	e 13 22	− 7	i 23 54	[−10]	26 3	PS	—
Helwan		98·9	298	e 13 45	+ 2	i 24 6	[−15]	e 17 39	PP	—
Theodosia		102·5	313	e 18 9	PP	—	—	—	—	—
Istanbul		105·2	307	18 5	PP	24 45	[− 6]	—	—	65·3
Moscow		105·8	325	e 14 15	P	24 42	[−12]	i 18 28	PP	—
Bucharest		108·4	310	e 18 48	PP	e 24 56	[−10]	—	—	28·3?
Sofia		108·7	308	e 19 7	PP	e 28 12	PS	—	—	—
Pulkovo		110·9	326	14 44	P	25 10	[− 6]	19 4	PP	—
Warsaw		113·9	317	19 37k	PP	35 ,34	SS	28 56	PS	e 59·3
Rome		117·3	304	e 19 47	PP	e 29 28	PS	—	—	—
Potsdam		118·7	317	e 19 59	PP	e 29 49	PS	i 20 10	PP	e 53·3
Stuttgart		120·7	312	e 18 46	[− 8]	—	—	—	—	—
De Bilt		123·5	316	i 20 35	PP	i 25 55	[− 6]	e 23 25	PPP	e 59·3
Uccle		124·0	315	e 20 36	PP	e 25 54	[− 9]	e 23 31	PPP	e 51·3
Paris		125·1	312	e 18 55	[− 8]	—	—	e 20 53	PP	63·3
Kew		127·0	315	i 18 58	[− 8]	e 27 48	{−12}	e 21 5	PP	e 59·3
Almeria		127·8	297	i 19 2	[− 6]	26 6	[− 8]	21 10	PP	63·3
Toledo	Z.	129·4	299	e 18 57	[−14]	—	—	22 5	PP	—
Victoria		129·5	47	e 33 18?	PPS	—	—	—	—	55·3
Berkeley		130·1	61	e 19 6	[− 6]	i 38 54	SS	—	—	e 65·4
Scoresby Sund		130·4	342	e 21 32	PP	i 22 40	SKP	—	—	e 62·9
Santa Barbara	Z.	131·8	67	e 19 11	[− 4]	—	—	e 22 52	PPP	—
Fresno	N.	132·0	63	e 18 12	[−64]	—	—	21 28	PP	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.			L.
		°	°	m. s.	s.	m. s.	s.	m. s.			m.
Pasadena		133·0	67	i 19 11	[− 7]	e 39 48	SS	e 21 53		PP	e 55·1
Mount Wilson	Z.	133·1	67	e 19 12	[− 6]	i 22 38	SKP	i 21 52		PP	—
Tinemaha		133·2	63	e 19 13	[− 5]	—	—	—		—	—
Riverside	Z.	133·7	67	e 19 16	[− 3]	e 22 58	SKP	e 21 6		PP	—
Haiwee	Z.	134·2	64	e 19 15	[− 5]	e 22 58	SKP	—		—	—
La Paz		136·6	174	19 18	[− 6]	22 54	SKP	22 44		PP	69·3
Tucson		139·0	70	i 19 14	[−15]	e 26 26	[−12]	i 22 31		PP	i 55·9
Huancayo		139·7	162	e 19 19	[−11]	i 29 28	{+ 9}	e 23 4		PP	e 64·6
Tacubaya	N.	146·6	95	i 19 42	[0]	—	—	—		—	—
Florissant		154·8	54	i 19 48	[− 6]	e 30 32	{−13}	28 8		PPP	—
St. Louis		154·9	54	i 19 48	[− 6]	e 30 31	{−14}	i 43 36		SSP	—
Ottawa		159·2	23	e 19 53	[− 7]	—	—	—		—	73·3
Fordham		163·8	28	i 19 58	[− 7]	31 23	{− 9}	e 28 38		PPP	—
San Juan		171·2	165	e 20 46	[+36]	i 31 56	{−13}	e 26 46		PP	77·6
Bermuda		174·5	8	e 25 22	PP	e 47 11	SS	—		—	—

Additional readings :—
Adelaide iSN = +8m.18s., SS? = +8m.38s.
Amboina SE = +9m.48s.
Riverview iPP = +7m.12s., iPPPE = +7m.29s., iZ = +8m.30s., iP$_c$P? = +10m.2s., eE = +11m.24s., iE = +11m.32s., iN = +12m.22s., iSSN = +12m.49s., iE = +13m.50s.
Medan iEN = +14m.20s.
Manila iPEN = +7m.56s.
Christchurch eNZ = +20m.1s.
Colombo SE = +15m.38s.
Wellington pP$_c$P = +10m.20s., pPP?Z = +11m.0s., iZ = +12m.23s., S$_c$PZ = +13m.55s., i = +20m.33s., Q = +21·3m.
Calcutta eSS = +20m.58s.
Bombay iPE = +10m.27s., eE = +12m.47s., eN = +18m.38s., iE = +18m.50s., eN = +19m.2s., eE = +25m.34s.
Tananarive EN = +18m.46s.
Agra PS = +19m.17s., SS = +22m.52s.
Sverdlovsk S = +24m.13s.
Helwan iEN = +25m.0s.
Moscow PS = +27m.2s.
Pulkovo SKKS = +26m.14s.
Potsdam ePKPE = +20m.3s.
Stuttgart e = +18m.57s. and +19m.26s.
De Bilt iPP = +20m.45s., iE = +27m.28s., eSS = +37m.18s.?, eSSS = +43m.18s. ?
Uccle eE = +20m.43s., eSKKSE = +27m.29s., ePSE = +30m.30s., eSSN = +37m.26s., eSSSE = +42m.6s.
Paris ePPP = +23m.39s.
Kew eZ = +20m.54s., eSS = +38m.18s.?, e = +40m.48s.?, eSS = +43m.18s. ?
Almeria PKS = +22m.38s., PPP = +23m.54s., SKKS = +27m.50s.
Berkeley eE = +22m.40s., iZ = +22m.47s.
Pasadena iZ = +19m.24s., eZ = +21m.39s., eSKP = +22m.34s., iEN = +22m.44s.
Mount Wilson eZ = +19m.24s., iZ = +22m.56s.
Riverside eZ = +19m.56s., iZ = +22m.40s.
Scoresby Sund i = +22m.28s., e = +31m.25s., e = +37m.12s.
Tucson i = +19m.26s., +19m.35s., +19m.55s., and +21m.31s., iPP = +21m.51s., i = +27m.45s., +34m.38s., and +49m.26s.
Huancayo e = +19m.34s., i = +34m.47s. and +37m.25s.
Florissant iZ = +19m.58s., eN = +43m.44s.
St. Louis eE = +36m.37s.
San Juan e = +22m.36s. and +42m.31s.
Long waves were also recorded at Brisbane and other American and European stations.

April 29d. Readings also at 1h. (near La Paz), 4h. (La Paz, Huancayo, Harvard, Riverside, and Mount Wilson), 6h. (Tacubaya), 14h. (Harvard), 15h. (Apia, Arapuni, Auckland, Wellington, Tucson, Pasadena, and Riverside), 16h. (Paris, Harvard, Berkeley, and Huancayo), 17h. (Harvard, Rome, near Andijan, and near Neuchatel), 19h. (Tucson and Kew), 23h. (La Paz, near Frunse, and Almata).

April 30d. 9h. 45m. 48s. Epicentre 33°·9N. 141°·9E. Depth of focus 0·010.

Intensity IV at Onahama ; II-III at Osima, Yokohama, Tukubasan, Mito, Tokyo, Kakioka, Utunomiya, Miyako, and Shirakawa.
Epicentre 33°·9N. 141°·9E. Macroseismic radius greater than 300km. Shallow.

See Seismological Bulletin of the Central Met. Obs., Japan, for the year 1941, Tokyo, 1950, pp. 21-22. Macroseismic chart, p. 21.

$A = -·6546$, $B = +·5132$, $C = +·5552$; $\delta = +12$; $h = 0$;
$D = +·617$, $E = +·787$; $G = -·437$, $H = +·343$, $K = -·832$.

	△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Hatidyozima	1·9	295	0 30	− 2	—	—	—	—	—
Kiyosumi	1·9	311	0 42	+10	1 16	+21	—	—	—
Mera	2·0	301	0 33	0	1 5	+ 8	—	—	—
Togane	2·1	323	0 42	+ 8	1 18	+18	—	—	—
Tyosi	2·1	335	0 32	− 2	1 0	0	—	—	—
Yokohama	2·2	310	0 37	+ 1	1 10	+ 8	—	—	—
Osima	2·3	293	0 35	− 2	1 5	0	—	—	—
Kamakura	2·4	306	0 42	+ 4	1 15	+ 8	—	—	—
Komaba	2·5	314	0 39	− 1	1 15	+ 5	—	—	—
Susaki	2·5	288	0 38	− 2	1 17	+ 7	—	—	—
Tokyo, Cen. Met. Obs.	2·5	316	0 41 a	+ 1	1 14	+ 4	—	—	—
Tokyo, Imp. Univ.	2·5	316	0 38	− 2	1 16	+ 6	—	—	—
Mitaka	2·6	312	0 42	+ 1	1 17	+ 5	—	—	—
Kakioka	2·7	329	0 41	− 2	1 17	+ 3	—	—	—
Misima	2·7	297	0 41 a	− 2	1 17	+ 3	—	—	—
Mito	2·7	335	0 40 k	− 3	1 14	0	—	—	—
Tukubasan	2·7	328	0 42	− 1	1 21	+ 7	—	—	—
Koyama	2·8	301	0 42	− 2	1 21	+ 4	—	—	—
Hunatu	3·0	302	0 46	− 1	1 27	+ 5	—	—	—
Kumagaya	3·0	318	0 46	− 1	1 28	+ 6	—	—	—
Omaesaki	3·1	283	0 48	0	—	—	—	—	—
Shizuoka	3·1	290	0 43	− 5	1 29	+ 5	—	—	—
Titibu	3·1	312	0 42	− 6	1 24	0	—	—	—
Utunomiya	3·1	328	0 44 k	− 4	1 22	− 2	—	—	—
Kohu	3·2	302	1 0	+10	1 43	+16	—	—	—
Macbasi	3·4	318	0 52	0	1 46	+14	—	—	—
Hamamatu	3·6	284	0 56	+ 1	—	—	—	—	—
Hukusima	4·0	344	0 55 k	− 5	1 41	− 5	—	—	—
Nagano	4·1	313	1 2	0	1 52	+ 3	—	—	—
Nagoya	4·3	289	0 59	− 6	2 2	+ 8	—	—	—
Sendai	4·4	350	1 0	− 6	1 50	− 6	—	—	—
Gihu	4·5	291	1 8 a	+ 1	2 4	+ 5	—	—	—
Kameyama	4·6	284	1 8	− 1	2 5	+ 4	—	—	—
Toyama	4·7	308	1 9	− 1	2 9	+ 5	—	—	—
Hikone	4·9	288	1 10	− 3	1 23	−46	—	—	—
Aikawa	5·1	325	1 13	− 3	2 15	+ 1	—	—	—
Siomisaki	5·1	267	1 18	+ 2	—	—	—	—	—
Kyoto	5·2	284	1 19	+ 2	—	—	—	—	—
Mizusawa	5·3	354	1 15	− 3	i 2 12	− 6	—	—	—
Osaka	5·3	280	1 18	0	—	—	—	—	—
Wazima	5·3	312	1 19 a	+ 1	—	—	—	—	—
Kobe	5·6	280	1 22 a	0	2 30	+ 4	—	—	—
Wakayama	5·6	277	1 19	− 3	2 25	− 1	—	—	—
Miyako	5·8	1	1 16	− 9	2 19	−12	—	—	—
Sumoto	5·8	275	1 28 k	+ 3	2 45	+14	—	—	—
Akita	6·0	346	1 30	+ 2	2 30	− 6	—	—	—
Toyooka	6·0	287	1 29	+ 1	3 37	+61	—	—	—
Muroto	6·4	266	1 34	+ 1	4 26	?	—	—	—
Hatinohe	6·6	358	1 28	− 8	2 40	−10	—	—	—
Titizima	6·8	178	1 27	−12	2 37	−18	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Aomori		7·0	352	1 40	− 2	2 58	− 2	—	—	—
Matuyama		7·6	272	1 49	− 1	—	—	—	—	—
Hirosima		7·9	276	1 54	0	—	—	—	—	—
Hamada		8·2	280	1 57	− 1	3 39	+ 9	—	—	—
Mori		8·3	353	1 57	− 2	3 25	− 7	—	—	—
Miyazaki		9·0	260	2 3	− 6	6 45	?	—	—	—
Sapporo		9·1	358	2 5	− 5	3 47	− 5	—	—	—
Izuka		9·3	272	2 12	− 1	6 6	?	—	—	—
Kumamoto		9·4	267	2 16a	+ 2	—	—	—	—	—
Hukuoka		9·5	271	2 19	+ 3	6 25	?	—	—	—
Kagosima		9·8	260	2 24	+ 4	—	—	—	—	—
Nemuro		9·8	16	2 8	−12	2 51	?	—	—	—
Unzendake		9·8	265	2 0	−20	—	—	—	—	—
Husan		10·7	280	2 35	+ 3	5 4	SS	—	—	—
Taikyu		11·1	284	2 38	+ 1	5 25	L	—	—	(5·4)
Keizyo		12·6	291	3 3	+ 6	—	—	—	—	—
Naha		14·5	242	3 24	+ 2	—	—	—	—	—
Taito		21·3	246	4 44	+ 4	—	—	—	—	—
Manila		27·0	230	e 5 37	+ 2	10 59	+56	—	—	—
Irkutsk		32·5	317	6 42	pP	—	—	—	—	—
Semipalatinsk		47·2	311	e 8 28	+ 3	—	—	—	—	—
Calcutta		48·1	272	e 12 19	PPP	—	—	—	—	—
College		51·5	32	e 8 58	0	e 16 13	+ 4	—	—	e 23·1
Batavia		51·9	227	9 3	+ 2	16 24	+10	—	—	—
Honolulu		54·2	87	—	—	e 17 4	+18	—	—	e 23·5
Andijan		54·4	299	e 9 19	0	e 17 3	+15	—	—	—
Agra	E.	54·7	282	9 19	− 2	16 48	− 4	11 15	PP	—
Tchimkent		56·0	302	e 9 36	+ 5	i 17 24	+14	—	—	—
Tashkent		56·5	301	e 9 35	+ 1	e 17 29	+13	—	—	—
Sverdlovsk		57·8	321	9 45	+ 1	i 17 46	+13	—	—	—
Bombay	E.	62·6	276	e 10 25	+ 9	i 18 51	sS	—	—	e 37·8
	N.	62·6	276	e 10 30	+14	e 18 53	sS	—	—	—
Colombo	E.	63·0	260	—	—	18 55	sS	—	—	—
Kodaikanal	E.	63·2	265	e 10 32	+12	i 18 55	sS	—	—	—
Riverview	E.	67·9	172	e 13 43	PP	e 19 53	+13	—	—	—
Victoria		68·3	46	—	—	e 19 54	+10	—	—	27·2
Moscow		70·1	324	11 5	+ 1	20 14	+ 8	—	—	—
Baku		70·4	307	e 11 14	+ 8	e 20 29	+20	—	—	—
Pulkovo		71·1	331	e 11 13	+ 3	e 20 29	+12	—	—	—
Berkeley		74·2	55	e 10 57	−31	e 20 56	+ 4	—	—	e 30·5
Lick		74·9	55	e 11 31	− 1	—	—	—	—	e 37·3
Sotchi		75·3	313	11 38	+ 4	—	—	—	—	—
Upsala		75·9	335	—	—	e 21 19	+ 8	—	—	e 40·2
Fresno		76·5	55	(11 30)	−11	—	—	—	—	—
Tinemaha		77·3	55	i 11 45	− 1	—	—	—	—	—
Santa Barbara		77·7	57	i 11 48	0	—	—	—	—	—
Haiwee	z.	78·0	55	i 11 47	− 2	—	—	—	—	—
Mount Wilson	z.	79·0	57	i 11 53	− 2	—	—	—	—	—
Pasadena		79·0	57	i 11 52	− 3	—	—	—	—	e 33·4
Warsaw		79·9	329	e 12 1	+ 1	e 22 5	+11	e 12 36	pP	e 43·2
La Jolla	z.	80·3	58	e 12 2	0	—	—	—	—	—
Palomar	z.	80·3	57	i 12 1	− 1	—	—	—	—	—
Copenhagen		80·9	334	i 12 6	+ 1	22 16	+12	—	—	—
Bucharest		82·7	320	e 15 34	PP	e 22 37	+15	—	—	45·2
Istanbul		83·2	316	12 26	+ 9	22 48	PS	—	—	—
Potsdam		83·2	332	i 12 19a	+ 2	—	—	—	—	e 44·2
Tucson		85·1	55	i 12 26	0	—	—	i 13 4	pP	i 39·7
De Bilt		86·4	335	i 12 33	0	e 23 12	+13	—	—	e 45·2
Stuttgart		87·5	331	e 12 40	+ 2	—	—	e 13 22	pP	—
Uccle		87·7	335	e 12 42	+ 3	—	—	—	—	e 44·2
Helwan		88·8	306	e 12 51	+ 7	i 23 16	− 5	—	—	—
Rome		91·4	325	e 12 48	− 8	e 23 40	− 5	e 16 38	PP	e 41·2
La Paz	z.	147·9	65	19 37	[+ 6]	—	—	—	—	—

For Notes see next page.

NOTES TO APRIL 30d. 9h. 45m. 48s.

Additional readings :—
Agra SS = +20m.23s.
Berkeley eP = +11m.28s., eSE = +21m.2s., eSZ = +21m.6s.
Fresno, 15 minutes have been added to the reading.
Warsaw iPZ = +12m.4s.
Tucson i = +12m.34s., +13m.20s., +13m.42s., +16m.14s., and +16m.42s.
Rome ePSN = +24m.58s., ePPS = +25m.54s., eSS = +30m.16s.
Long waves were also recorded at Arapuni, Wellington, Scoresby Sund, Huancayo, and other European and American stations.

April 30d. 22h. 45m. 21s. Epicentre 36°·8N. 143°·2E.

A = −·6427, B = +·4808, C = +·5964 ; δ = −8 ; h = −1 ;
D = +·599, E = +·801 ; G = −·478, H = +·357, K = −·803.

		Δ	Az.	P.	O−C.	S.	O−C.
		°	°	m. s.	s.	m. s.	s.
Mizusawa		2·8	325	i 0 53	P*	i 1 28	S*
Irkutsk		31·3	313	e 6 29	+ 5	—	—
Andijan		54·0	298	e 9 28	0	—	—
Tchimkent		55·4	301	e 10 5	+27	—	—
Tashkent		56·0	300	e 9 43	0	e 17 32	+ 2
Sverdlovsk		56·3	320	e 9 45	0	17 39	+ 5
Moscow		68·4	324	e 11 6	0	e 20 9	+ 2
Pulkovo		69·1	331	e 11 15	+ 5	e 20 23	+ 8
Tinemaha	z.	74·8	56	i 11 35	− 9	—	—
Santa Barbara	z.	75·3	59	i 11 48	+ 1	—	—
Haiwee	z.	75·5	57	i 11 49	+ 1	—	—
Pasadena	z.	76·5	59	i 11 52	− 2	—	—
Mount Wilson	z.	77·5	59	i 11 55	− 4	—	—
Palomar	z.	77·8	59	i 12 1k	0	—	—
La Jolla	z.	77·9	59	e 12 1	0	—	—
Copenhagen		78·8	335	i 12 8	+ 2	—	—
Tucson		82·6	57	i 12 27	+ 1	—	—
Stuttgart		85·5	332	i 12 42k	+ 1	—	—

Additional readings :—
Tinemaha iZ = +11m.45s.
Santa Barbara iZ = +11m.59s.
Haiwee iZ = +12m.1s.
Pasadena i Z = +12m.3s.
Palomar iZ = +12m.13s.
Tucson e = +12m.58s., i = +13m.31s.
Stuttgart i = +12m.54s.
Long waves were also recorded at Paris, Kew, Uccle, De Bilt, Potsdam, Warsaw, Salt Lake City, and Sitka.

April 30d. Readings also at 1h. (near Lick, and La Paz), 4h. (Tacubaya), 5h. (La Plata, Huancayo, and La Paz), 8h. (Zi-ka-wei), 10h. (Tucson (2)), 13h. (Amboina, La Plata, and near Mizusawa), 14h. (Manila), 16h. (Stuttgart, Ravensburg, near Zurich, Neuchatel, Chur, Jena, and Strasbourg), 17h. (Tucson), 19h. (Almata, and near Andijan).

May 1d. 7h. 7m. 48s. Epicentre 53°·6N. 166°·6W. (as on 1941, April 21d.).

$A = -·5798$, $B = -·1381$, $C = +·8030$; $\delta = +5$; $h = -7$;
$D = -·232$, $E = +·973$; $G = -·781$, $H = -·186$, $K = -·596$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		14·7	33	e 3 32	+ 1	e 6 34	SS	—	—	e 7·9
Ukiah		32·7	98	—	—	e 11 49	− 3	—	—	e 14·0
Berkeley		34·1	98	—	—	i 12 6	− 8	—	—	e 13·5
Tinemaha		37·0	96	e 7 12	− 1	—	—	—	—	—
Haiwee	z.	37·8	97	i 7 20	0	—	—	—	—	—
Santa Barbara	z.	37·9	101	e 7 21	+ 1	—	—	—	—	—
Pasadena		39·0	100	i 7 29	− 1	—	—	e 9 39	PPP	e 17·4
Mount Wilson		39·1	100	i 7 29	− 2	—	—	—	—	—
Palomar	z.	40·4	100	i 7 39	− 2	—	—	—	—	—
La Jolla	z.	40·5	100	e 7 41	− 1	—	—	—	—	—
Tucson		44·7	95	i 8 16	0	i 18 23	SSS	—	—	i 21·0
Florissant		52·3	74	e 9 15	0	i 16 31	− 9	e 9 23	pP	—
Sverdlovsk		63·4	334	i 10 35	+ 1	e 19 6	0	—	—	—
Pulkovo		66·2	352	e 10 25	−27	e 18 37	−63	—	—	—
Tchimkent		73·0	320	e 11 36	+ 3	—	—	—	—	—
Andijan		73·2	318	e 11 37	+ 2	—	—	—	—	—
Tashkent		74·0	321	e 11 40	+ 1	e 21 30	+19	—	—	—

Additional readings :—
College e = +3m.40s.
Berkeley iN = +12m.47s.
Tinemaha eZ = +7m.25s.
Palomar iZ = +7m.53s.
Tucson i = +8m.30s., +8m.49s., +8m.58s., +9m.11s., and +12m.58s.
Florissant esSE = +16m.51s.
Long waves were also recorded at Honolulu, Chicago, Scoresby Sund, Kew, and Uccle.

May 1d. Readings also at 1h. (Samarkand and near Andijan), 5h. (La Plata), 7h. (near Apia), 9h. (Medan), 10h. (near Triest and Wellington), 11h. (near Amboina), 13h. (near Berkeley, Branner, San Francisco, Fresno, and Lick), 14h. (Tucson, Pasadena, and Tinemaha), 18h. (near Andijan, Tchimkent, Tashkent, and near La Paz), 19h. (Tashkent, Sverdlovsk, Riverview, Sydney, Harvard, Manila, Andijan, Tucson, and Amboina), 20h. (near Florissant, St. Louis, Huancayo, and Wellington), 21h. (near Batavia).

May 2d. 9h. 55m. 0s. Epicentre 6°·7S. 153°·0E. (as on 1940, October 31d.).

$A = -·8850$, $B = +·4509$, $C = -·1159$; $\delta = -3$; $h = +7$;
$D = +·454$, $E = +·891$; $G = +·103$, $H = -·053$, $K = -·993$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane	E.	20·7	179	e 4 58	PP	i 8 57	SS	—	—	—
	N.	20·7	179	i 4 49	+ 5	i 8 54	SS	—	—	—
Riverview		27·1	183	e 6 2	+16	i 10 42	+18	—	—	e 13·6
Sydney		27·1	183	e 6 48?	+62	e 10 42	+18	—	—	e 14·0
Adelaide		31·1	203	e 6 11	−11	i 11 47	+19	—	—	(i 17·4)
Arapuni		37·4	151	—	—	e 11 0?	?	18 0?	?	—
Manila		38·1	304	i 7 21a	− 1	13 17	+ 1	—	—	17·6
Wellington		39·5	154	7 38	+ 4	13 43	+ 6	7 58	pP	19·5
Christchurch		40·5	158	7 48	+ 6	14 0?	+ 8	9 45	PPP	21·5
Batavia		45·9	268	8 25	− 1	15 13	+ 2	—	—	—
Vladivostok		53·2	341	e 9 12	−10	i 16 49	− 3	—	—	—
Medan		55·2	279	9 50	+13	17 20	0	—	—	—
Honolulu		55·8	59	—	—	e 22 45	SSS	—	—	e 26·6
Agra	E.	79·8	299	e 11 55	−17	21 58	−16	—	—	—
Bombay	E.	82·9	290	i 12 30	+ 2	i 22 45	− 1	—	—	—
College		83·5	21	—	—	e 21 8	?	—	—	e 34·3
Almata		84·5	315	e 12 34	− 2	—	—	—	—	—
Andijan		87·3	311	e 12 47	− 3	—	—	—	—	—
Tchimkent		89·6	313	i 12 58	− 3	—	—	—	—	—
Tashkent		89·7	311	i 12 57	− 4	23 26	[− 5]	25 3	PS	—
Berkeley		89·9	52	—	—	e 24 33	+39	—	—	e 40·6

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Victoria		90·8	41	—	—	e 24 0	− 2	—	—	43·0
Samarkand		91·2	309	13 0	− 8	—	—	—	—	—
Pasadena	z.	92·7	56	i 13 27	+12	—	—	—	—	e 41·7
Mount Wilson	z.	92·9	56	e 13 11	− 5	—	—	—	—	—
Tinemaha		93·0	54	e 13 13	− 4	—	—	—	—	—
Palomar	z.	93·7	57	i 13 32	+12	—	—	—	—	—
Sverdlovsk		96·9	327	i 13 28	− 6	23 59	[−12]	17 23	PP	—
Tucson		98·7	58	e 13 55	+13	—	—	—	—	i 44·8
Baku		104·3	311	18 17	PP	24 59	[+12]	28 57	PPS	—
Moscow		109·7	328	e 14 26	P	25 2	[− 9]	18 51	PP	
Pulkovo		111·8	324	19 12	PP	e 27 4?	{+47}	e 28 46	PS	—
Florissant		114·8	50	i 19 45	PP	e 29 11	PS	e 30 41	PPS	—
St. Louis		115·0	50	e 19 13	[+30]	e 26 48	{+ 8}	e 19 46	PP	e 50·1
Simferopol		115·0	316	19 24	[+41]	—	—	—	—	—
De Bilt		127·6	336	i 21 4	PP	—	—	—	—	e 58·0
Triest		127·6	325	e 19 0?	[− 7]	—	—	—	—	—
Paris		131·2	336	e 21 25?	PP	—	—	—	—	70·0
San Juan		140·2	69	e 17 56	?	e 33 19	PS	—	—	e 67·3

Additional readings :—
Adelaide L given as S.
Wellington sPZ = +8m.13s., PPZ = +9m.25s., SS = +17m.0s.
Christchurch P_eSE = +13m.30s., SSEN = +17m.30s.?, QN = +18·4m.
Batavia eSE = +15m.17s.
Medan SN = +17m.44s.
Bombay iN = +23m.1s., iE = +23m.5s.
Tashkent iS = +23m.48s.
Pasadena eE = +21m.33s.
Mount Wilson iZ = +13m.30s.
Tinemaha iZ = +13m.34s.
Sverdlovsk PS = +26m.3s.
Tucson e = +15m.55s., +16m.56s., +18m.52s., +20m.29s., and +29m.18s.
Moscow PPS = +29m.30s.
St. Louis eEN = +29m.6s., eE = +39m.54s.
San Juan e = +18m.3s.
Long waves were also recorded at Kew, Scoresby Sund, Huancayo, and other American stations.

May 2d. Readings also at 5h. (Tucson), 6h. (near Andijan), 8h. (Tacubaya, Tucson, Mount Wilson, Tinemaha, Vladivostok, and near Mizusawa), 9h. (Mizusawa, Bucharest, Sofia, and near Istanbul), 13h. (near Baku, near Grozny, and Piatigorsk), 14h. (Basle), 20h. (near La Paz), 21h. (Tananarive).

May 3d. 2h. 10m. 33s. Epicentre 33°·3N. 23°·5E.

A = +·7681, B = +·3340, C = +·5464 ; δ = +9 ; h = +1 ;
D = +·399, E = −·917 ; G = +·501, H = +·218, K = −·838.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Helwan		7·5	115	e 2 7	+14	i 3 35	+15	i 4 15	S_g	—
Istanbul		8·9	28	2 12	0	4 31	SS	3 45	PS	5·4
Sofia		9·4	0	e 2 18	0	e 5 26	S_g	—	—	—
Ksara		10·3	85	2 47	+15	—	—	—	—	e 5·9
Bucharest		11·3	10	e 2 45?	− 1	e 4 45	− 9	—	—	e 5·2
Triest		14·4	332	—	—	e 6 11	+ 2	—	—	—
Chur		17·2	326	e 4 5	+ 2	—	—	—	—	—
Zurich		18·0	327	e 4 13	0	—	—	—	—	—
Basle		18·6	327	e 4 22	+ 1	—	—	—	—	—
Neuchatel		18·6	326	e 4 21	0	—	—	—	—	—
Warsaw		19·0	357	—	—	e 7 27?	−28	—	—	e 11·4
Jena	N.	19·7	340	e 3 31	−63	—	—	—	—	—
Potsdam		20·5	343	e 4 37	− 5	e 8 24	− 3	—	—	e 11·4
Uccle		22·4	329	e 5 9	+ 7	e 9 3	− 1	—	—	—
Moscow		24·5	21	e 5 17	− 5	e 9 32	− 8	—	—	—
Kew		25·1	326	—	—	e 9 57?	+ 6	—	—	e 13·4
Pulkovo		26·9	10	e 5 40	− 5	e 10 14	− 6	—	—	—
Sverdlovsk		34·6	36	i 6 50	− 3	—	—	—	—	—
Andijan		39·3	65	7 38	+ 6	13 44	+10	—	—	—

For Notes see next page.

NOTES TO MAY 3d. 2h. 10m. 33s.

Additional readings :—
Helwan iE = +4m.45s.
Bucharest eN = +2m.57s., eE = +3m.3s., eN = +3m.21s., +3m.42s., eS = +4m.32s.
Jena ePE = +3m.34s.
Potsdam eEN = +8m.18s., iN = +8m.32s.
Long waves were also recorded at Belgrade and De Bilt.

May 3d. Readings also at 1h. (Tucson and near Stuttgart), 2h. (Paris and near Andijan), 4h. (near Andijan), 5h. (Sverdlovsk, Colombo, and Kodaikanal), 6h. (Tucson and near Apia), 8h. (near Medan), 11h. (Samarkand, Tashkent, and Tchimkent), 12h. (Sverdlovsk), 14h. (Fresno and Lick), 17h. (Tacubaya and Tucson (2)), 18h. (St. Louis and Salt Lake City), 19h. (near Mizusawa), 20h. (Berkeley, College, Haiwee, Mount Wilson, Pasadena, Tinemaha, and Tucson), 21h. (St. Louis, Scoresby Sund, Almata, Tchimkent, and near Andijan).

May 4d. 21h. Tokyo suggests Epicentre 36°13′N. 140°00′E.

Tokyo, I.U. P = 33m.45s., S = 33m.53s.
Tukubasan P = 33m.46s., S = 33m.51s.
Mitaka P = 33m.46s., S = 33m.55s.
Titibu P = 33m.46s., S = 33m.56s.
Togane P = 33m.46s., S = 33m.56s.
Kamakura P = 33m.46s., S = 33m.57s.
Koyama P = 33m.46s., S = 34m.3s.
Komaba P = 33m.47s., S = 33m.55s.
Susaki P = 34m.1s., S = 34m.19s.
Mizusawa ePEN = 34m.26s., SEN = 35m.3s.

May 4d. 22h. 7m. 32s. Epicentre 25°·8S. 137°·0E. (as on 1938, April 17d.).

A = −·6593, B = +·6148, C = −·4329 ; δ = +6 ; h = +3 ;
D = +·682, E = +·731 ; G = +·317, H = −·295, K = −·901.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Adelaide		9·2	172	i 2 8	− 8	i 4 4	+ 1	—	—	i 4·5
Brisbane	N.	14·4	101	e 4 15	PPP	i 6 1	− 8	—	—	—
Riverview		14·7	127	i 3 26a	− 5	6 13	− 3	3 32	PP	8·1
Sydney		14·7	127	—	—	e 6 10?	− 6	—	—	e 8·1
Amboina	E.	23·6	340	5 16	+ 3	9 26	+ 1	—	—	—
Christchurch		33·9	132	i 10 13?	?	13 13	?	15 28	Q	18·5
Batavia		34·8	300	6 54	0	i 12 25	0	—	—	—
Wellington		34·8	126	7 58?	PP	12 38?	+13	14 58	SSS	17·5
Manila		43·1	338	i 8 6	+ 2	i 14 26	− 4	—	—	—
Colombo		64·3	293	—	—	e 26 58	SSS	—	—	—
Kodaikanal	E.	68·1	295	—	—	i 20 5	+ 2	—	—	—
Vladivostok		68·7	358	e 11 4	− 3	i 20 10	0	—	—	—
Bombay	N.	76·6	299	—	—	21 41	+ 1	—	—	—
Agra	E.	77·4	309	—	—	e 20 39	?	e 26 19?	SS	—
Irkutsk		82·8	340	e 12 31	+ 4	—	—	—	—	—
Sverdlovsk		104·2	327	18 16	PP	24 41	[− 6]	27 30	PS	—
Pasadena	Z.	115·7	63	i 18 41	[− 3]	—	—	e 19 55	PP	—
Mount Wilson	Z.	115·8	63	i 18 41	[− 4]	—	—	e 19 40	PP	—
Palomar	Z.	116·5	54	19 42	PP	—	—	—	—	—
Tucson		121·2	66	i 18 52	[− 3]	e 26 26	[+32]	e 20 2	PP	e 45·7
La Paz		131·4	148	e 22 38	PP	—	—	—	—	—
Paris		138·0	315	e 22 53?	PP	—	—	—	—	83·5?
Kew		138·8	320	e 22 58	PP	—	—	—	—	e 72·5
Toledo		144·7	303	19 35	[− 4]	—	—	20 15	?	—
Harvard	Z.	151·3	47	i 19 53	[+ 4]	—	—	—	—	—

Additional readings :—
Adelaide iSN = +3m.48s., i = +3m.58s.
Riverview eN = +6m.19s., iEZ = +6m.29s., iZ = +6m.57s., iEZ = +7m.29s., iE = +7m.45s.
Batavia PE = +6m.58s., S?N = +11m.55s.
Tucson e = +22m.37s., i = +28m.59s. and +30m.36s., eSS = +37m.4s., i = +40m.33s.
Long waves were also recorded at Arapuni, Salt Lake City, Potsdam, and Uccle,

May 4d. Readings also at 3h. (Tacubaya and Tucson (2)), 8h. (Huancayo), 9h. (Balboa Heights), 11h. (Brisbane, Christchurch, Manila, Mount Wilson, Pasadena, and Tinemaha), 16h. (near Triest), 21h. (near Grozny), 22h. (near Toledo, Adelaide, Brisbane, Riverview, and Harvard), 23h. (Adelaide, Riverview, Sydney, Manila, Brisbane, and Harvard).

May 5d. 15h. 18m. 23s. Epicentre 46°·5N. 126°·9E.

Destructive at Suihua (Manchuria). Epicentre 46·5N. 126°·9E.

Hirosi Kawasumi: "On the earthquake of May 6, 1941, that originated in the Suika district, Northern Manchuria," "Zinsin" Journal of the Seismological Society of Japan, Vol. 13, 1941.

$A = -\cdot4148$, $B = +\cdot5524$, $C = +\cdot7231$; $\delta = +8$; $h = -4$;
$D = +\cdot800$, $E = +\cdot600$; $G = -\cdot434$, $H = +\cdot578$, $K = -\cdot691$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Vladivostok		4·9	132	i 1 16	− 1	i 2 11	− 4	—	—	—
Mizusawa	E.	12·8	120	e 3 8	+ 2	5 39	+ 9	—	—	—
Irkutsk		15·8	300	3 47	+ 2	6 53	+11	—	—	—
Taihoku		21·8	193	e 4 44	−12	11 21	L	—	—	(11·4)
Semipalatinsk		30·8	295	e 6 19	− 1	—	—	—	—	—
Manila		32·2	189	i 6 34k	+ 2	i 11 52	+ 7	—	—	16·0
Almata		35·1	283	e 7 0	+ 3	—	—	—	—	—
Andijan		39·2	282	7 36	+ 5	—	—	—	—	—
Calcutta	N.	39·2	245	e 7 45	+14	i 14 0	+28	1 9 45	P_cP	—
Tchimkent		40·4	285	i 7 43	+ 2	—	—	—	—	—
Sverdlovsk		40·8	310	i 7 44	− 1	i 13 57	+ 1	—	—	—
Dehra Dun	N.	40·9	294	e 8 13	+27	e 14 25	+27	e 17 39	SSS	e 20·9
Agra	E.	42·9	290	e 7 53	− 9	i 14 17	−10	9 33	PP	20·5
College		47·3	35	e 10 29	PP	e 15 32	+ 1	e 19 0	SS	e 24·3
Hyderabad	N.	49·3	250	8 53	0	15 57	− 2	10 51	PP	—
Medan		49·3	218	e 9 14	+21	19 42	SS	—	—	i 29·4
Bombay		51·9	256	i 9 16	+ 4	i 16 40	+ 5	i 11 19	PP	e 28·7
Moscow		53·1	315	9 17	− 4	16 45	− 6	—	—	—
Pulkovo		54·3	322	e 9 27	− 3	e 17 4	− 3	—	—	—
Kodaikanal	E.	55·3	245	e 9 41	+ 3	—	—	—	—	e 29·2
Colombo	E.	56·4	239	9 54	+ 9	—	—	—	—	—
Upsala		59·4	326	10 6	0	e 18 9	− 6	e 23 26	SS	e 28·6
Theodosia		60·2	305	e 10 13	+ 1	—	—	—	—	—
Simferopol		61·0	306	10 17	− 1	—	—	—	—	—
Scoresby Sund		61·2	348	i 10 17	− 2	—	—	e 14 1	PP	e 30·5
Yalta		61·2	305	11 55?	+96	—	—	—	—	—
Warsaw	Z.	63·0	318	e 10 29a	− 2	—	—	—	—	e 31·6
Copenhagen		64·3	325	e 10 38	− 1	—	—	—	—	—
Honolulu		64·9	84	e 12 46	PP	e 18 53	−31	23 9	SS	e 30·0
Bucharest		65·7	309	e 10 48	0	e 19 34	0	e 13 4	PP	30·6
Istanbul		66·3	305	10 58	+ 6	19 49	+ 7	—	—	—
Potsdam		66·4	322	i 10 52	− 1	i 19 43	0	i 11 22	P_cP	e 30·5
Ksara		67·0	295	e 10 59	+ 2	e 19 57	+ 7	—	—	—
Prague		67·5	320	—	—	e 29 57	SSSS	—	—	e 37·1
Jena	E.	68·1	321	e 11 1	− 3	—	—	—	—	e 32·6
Sofia		68·3	309	e 11 8	+ 3	e 17 19	?	e 32 1	?	e 37·5
Belgrade		68·4	312	e 12 18	+72	e 20 38	+31	—	—	e 30·1
De Bilt		69·8	325	i 11 13a	− 1	i 20 25	+ 2	i 13 53	PP	e 35·6
Stuttgart		70·7	321	e 11 19	− 1	e 20 5	−29	e 13 51	PP	—
Triest		71·0	317	e 11 15	− 7	e 20 4	−33	e 13 59	PP	e 35·6
Uccle		71·2	326	e 11 20	− 3	e 20 41	+ 1	13 58	PP	e 36·6
Chur		72·1	320	e 11 28	0	—	—	—	—	e 37·1
Zurich		72·1	321	e 10 56a	−32	—	—	—	—	—
Basle		72·4	321	e 11 28	− 2	—	—	—	—	—
Kew		72·4	328	11 27k	− 3	e 21 7?	+14	e 15 51	PPP	e 37·6
Helwan		72·5	294	11 31	+ 1	e 20 51	− 3	14 13	PP	—
Ivigtut		72·6	357	11 27	− 4	—	—	—	—	—
Neuchatel		73·1	321	e 11 32	− 2	—	—	—	—	—
Paris		73·5	325	11 36	0	e 20 33	−33	e 14 20	PP	32·6
Clermont-Ferrand		75·7	322	i 11 48	− 1	—	—	—	—	e 44·2

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Berkeley		75·7	50	i 11 49	0	e 26 7	SS	—	—	e 35·2
Lick		76·4	50	e 11 54	+ 1	—	—	—	—	—
Fresno	N.	77·8	49	e 11 57	− 4	—	—	—	—	—
Tinemaha	Z.	78·3	48	i 12 3a	0	i 14 57	PP	—	—	—
Haiwee		79·2	48	i 12 9	+ 1	i 15 1	PP	—	—	—
Santa Barbara	Z.	79·6	50	i 12 10	0	i 15 4	PP	—	—	—
Mount Wilson		80·6	49	i 12 17	+ 1	i 15 8	PP	—	—	—
Pasadena		80·6	49	i 12 15a	− 1	e 23 0	+37	i 15 9	PP	e 37·4
Riverside	N.	81·2	49	e 12 21	+ 2	—	—	—	—	—
Palomar	Z.	81·9	49	e 12 21a	− 2	i 15 15	PP	—	—	—
La Jolla	Z.	82·1	50	e 12 22	− 2	—	—	—	—	—
Toledo		83·5	323	i 12 31	0	i 15 24	PP	—	—	—
Almeria		85·4	321	12 27	−13	22 41	[−22]	12 39	pP	46·6
Granada		85·6	322	i 11 41	−60	i 22 41	[−24]	i 16 3	PP	e 46·7
Tucson		85·9	46	i 12 43	0	e 23 25	+ 9	i 15 36	PP	e 35·7
Ottawa		86·3	16	e 12 43	− 2	—	—	—	—	e 35·6
Lisbon		86·5	326	12 46	0	—	—	—	—	49·1
East Machias		88·2	10	—	—	e 32 30	SSS	—	—	e 39·7
Florissant		88·8	29	i 12 55	− 2	e 23 41	− 3	e 16 24	PP	42·7
Philadelphia		91·7	17	—	—	e 30 6	SS	e 37 29	?	e 42·3
La Paz	N.	147·6	26	i 19 49	[+ 5]	—	—	—	—	79·6

Additional readings :—
Calcutta iSS = +16m.43s.
Agra SSSE = +17m.49s.
Hydcrabad S_cSN = +18m.35s., SSN = +19m.45s.
Scoresby Sund e = +24m.38s. and +25m.18s.
Honolulu e = +13m.58s., +19m.51s., +21m.10s., +24m.4s., and +26m.1s.
Bucharest $eP_cP?$ = +11m.14s., ePP?E = +13m.19s., eS?N = +19m.17s., eS_cSE = +20m.35s., eSS?E = +23m.33s.
Potsdam iSKSEN = iS_cSEN = +20m.47s.
Prague e = +36m.12s.
Belgrade e = +22m.13s. and +25m.53s.
De Bilt iPPP = +15m.30s.
Triest ePPP = +15m.43s., e = +20m.31s.
Kew e = +28m.37s.?
Helwan PPPE = +15m.55s.
Paris ePPP = +15m.37s.?, eSKKS = +21m.38s.
Coimbra (△ = 84°·9), eP = 57m.41s., ? = +59m.17s., S = 62m.40s., ? = 64m.40s., eL = +66m.40s.
Almeria PP = +15m.39s., PPP = +17m.31s., S_cS = +22m.55s., SS = +26m.59s., SSS = +31m.27s.
Tucson i = +13m.8s. and +13m.42s., e = +18m.8s., eSKS = +24m.20s., i = +26m.51s., eSS = +28m.45s.
Lisbon PN = +13m.2s.
Florissant ePSE = +24m.48s., eSSE = +29m.30s., eE = +41m.21s.
Long waves were also recorded at Tananarive, Huancayo, and other American and European stations.

May 5d. Readings also at 1h. (Mount Wilson, Tinemaha, and Tucson), 2h. (Tacubaya and Tucson), 4h. (near Andijan and Almata), 7h. (near Grozny), 8h. (Huancayo), 9h. (Zurich and near Triest), 11h. (near Grozny), 12h. (Triest), 15h. (Agra, Colombo, and near Branner), 16h. (near Fresno), 17h. (near Manila), 20h. (Guadalajara, Tacubaya, Tucson, Mount Wilson, and Tinemaha), 23h. (near Medan).

May 6d. 3h. 11m. 43s. Epicentre 37°·4N. 114°·0W. (as quoted by Pasadena).

A = −·3239, B = −·7275, C = +·6048 ; δ = −5 ; h = −1 ;
D = −·914, E = +·407 ; G = −·246, H = −·553, K = −·796.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Haiwee		3·4	249	i 1 0	P*	—	—	—	—	—
Tinemaha		3·4	267	e 0 50	− 5	i 1 43	S*	i 1 10	P_g	—
Mount Wilson		4·6	227	e 1 9	− 3	e 2 23	S*	—	—	—
Fresno	N.	4·7	261	e 1 21	P*	e 2 23	S*	—	—	e 2·7
Pasadena		4·7	227	e 1 11	− 3	e 2 27	S*	—	—	—
Tucson		5·8	152	e 1 28	− 1	i 2 22	−16	i 1 55	P_g	1 3·6
Lick		6·1	283	e 1 55	P_g	e 3 1	S*	—	—	—

Additional readings :—
Tucson i = +3m.2s. and +3m.23s.
Lick eN = +1m.58s.

May 6d. 16h. 55m. 30s. Epicentre 39°·6N. 70°·3E. (as on 1941, February 26d.).

$A = +·2604$, $B = +·7273$, $C = +·6349$; $\delta = -13$; $\lambda = -2$;
$D = +·941$, $E = -·337$; $G = +·214$, $H = +·598$, $K = -·773$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Andijan		1·9	54	i 0 36	+ 2	—	—	—	—	—
Tashkent		1·9	336	i 0 37	+ 3	i 1 10	S_g	—	—	—
Samarkand		2·6	272	0 49	P*	—	—	—	—	—
Almata		6·2	51	1 34	− 1	—	—	—	—	—
Dehra Dun	N.	11·2	143	e 2 44	0	e 4 37	−15	—	—	e 6·1
Semipalatinsk		12·9	29	i 3 4	− 3	—	—	—	—	—
Agra	E.	14·0	150	e 2 54	−28	5 25	−34	—	—	—
Sverdlovsk		18·4	343	i 4 15	− 3	i 7 46	+ 5	—	—	—
Grozny		18·7	291	4 25	+ 3	—	—	—	—	—
Bombay		20·7	174	i 4 39	− 5	i 8 25	− 6	i 8 36	P_cP	i 10·8
Calcutta		22·9	133	e 4 49	−17	e 8 52	−21	—	—	e 11·2
Hyderabad	N.	23·2	160	5 0	− 9	9 20	+ 2	—	—	12·0
Irkutsk		26·6	50	e 5 45	+ 3	10 19	+ 3	—	—	—
Moscow		27·0	317	5 43	− 2	10 23	+ 1	6 7	pP	—
Simferopol		27·1	295	e 5 47	+ 1	e 10 28	+ 4	—	—	—
Ksara		28·1	269	e 5 56	+ 1	e 10 50	+10	e 11 42	SS	—
Kodaikanal	E.	29·9	167	e 6 45?	PP	—	—	—	—	i 15·3
Pulkovo		32·1	323	e 6 27	− 4	e 11 41	− 2	6 50	pP	—
Bucharest		32·9	294	—	—	e 12 2	+ 6	—	—	e 15·9
Helwan		33·2	266	—	—	i 12 3	+ 3	—	—	17·6
Colombo	E.	33·7	163	—	—	e 13 14	SS	—	—	—
Sofia		35·1	291	e 7 2	+ 5	e 12 36	+ 6	—	—	e 20·7
Warsaw		35·8	309	e 7 3	0	e 12 30?	−11	e 8 17	PP	e 21·5
Upsala		38·3	320	e 8 45	PP	e 15 54?	SS	i 16 45	SSS	e 20·5
Potsdam		40·7	309	e 7 48	+ 4	e 13 47	− 8	e 9 6	PP	e 24·5
Copenhagen		40·9	314	e 7 45	− 1	14 0	+ 2	9 20	PP	22·5
Triest		41·3	299	e 7 52	+ 3	e 13 51	−13	e 20 10	?	—
Zurich		44·4	302	e 9 14	+60	—	—	—	—	—
Bergen		44·5	321	—	—	e 19 30?	SSS	—	—	—
De Bilt		45·6	311	—	—	e 15 10	+ 4	i 18 30	SS	e 25·5
Uccle		46·3	308	e 8 27	− 2	e 18 48	SS	—	—	e 26·5
Kew		49·0	309	—	—	e 15 55	0	e 19 30?	SS	e 25·5
Manila		50·8	106	e 8 59	− 5	16 15	− 5	—	—	—
Toledo		55·5	297	i 9 36	− 3	18 14	+50	—	—	—
Almeria		55·7	293	e 9 45	+ 5	e 17 33	+ 7	—	—	36·5
Granada		56·4	294	—	—	i 18 34	PPS	—	—	33·6
Coimbra		58·4	298	e 4 7	?	—	—	(e 24 0)	SSS	e 24·0
Tucson		108·5	1	i 18 41	PP	—	—	—	—	—

Additional readings :—
Bombay $eP_cP?N = +8m.38s.$, $iSSE = +8m.58s.$
Warsaw $eZ = +15m.5s.$, $eE = +15m.10s.$
Upsala $iN = +20m.26s.$
Potsdam $eNW = +16m.30s.$, $eE = +16m.40s.$, $iE = +23m.21s.$, $iNW = +23m.32s.$
Manila $ePEN = +9m.5s.$
Coimbra $eE = +5m.7s.$, $e = +10m.37s.$ and $+11m.7s.$
Tucson $i = +18m.56s.$ and $+19m.4s.$
Long waves were also recorded at Jena, Paris, and Scoresby Sund.

May 6d. Readings also at 3h. (Lick and Fresno), 4h. (Ukiah), 9h. (Manila), 11h. (near Medan), 12h. (Clermont-Ferrand), 14h. (Triest), 15h. (La Paz), 16h. (Ksara), 17h. (near Amboina), 19h. (near Almata), 21h. (Amboina, Samarkand, Tashkent, Andijan, and Tucson).

May 7d. 12h. 19m. 39s. Epicentre 18°·58. 169°·1E. Focal depth 0·005.

$A = -·9319$, $B = +·1795$, $C = -·3154$; $\delta = +14$; $h = +5$;
$D = +·189$, $E = +·982$; $G = +·310$, $H = -·060$, $K = -·949$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane	N.	17·3	236	i 3 58	− 1	e 7 7	0	—	—	—
Apia		18·9	80	(e 4 22)	+ 4	8 21?	+38	e 4 45	PP	—
Auckland		19·0	164	4 4	−15	i 7 46	+ 1	i 4 12	pP	—
Arapuni		20·3	166	—	—	8 39?	+27	—	—	—
New Plymouth		20·9	169	4 41?	+ 2	8 21	− 2	—	—	—
Tuai		21·4	163	4 40	− 4	8 29	− 4	—	—	—
Riverview		22·1	222	i 4 50k	− 1	i 8 39	− 6	i 5 15	pP	e 11·2
Sydney		22·1	222	e 4 51	0	e 8 39	− 6	—	—	e 11·4
Wellington		23·2	170	4 55	− 7	8 52	−13	5 19	pP	13·4
Christchurch		25·1	175	5 31	+11	9 24	−13	6 2	sP	13·4
Adelaide		31·6	233	i 11 8	S	(i 11 8)	−14	—	—	17·8
Honolulu		51·1	42	e 12 45	?	e 17 17	?	—	—	e 21·8
Manila		57·7	301	i 10 19k	+33	17 43	+ 5	—	—	—
Batavia		61·8	274	i 10 14	0	19 2	+31	—	—	—
Vladivostok		70·2	333	i 11 10	+ 2	i 20 17	+ 4	11 44	pP	—
Medan		72·7	280	11 57	+34	e 20 53	+11	—	—	—
Branner		85·2	49	e 12 43	+12	e 18 49	PP	—	—	—
Ukiah		85·3	47	e 22 1	?	e 22 56	+ 1	—	—	e 38·1
Berkeley		85·4	49	i 12 31	− 1	e 23 4	+ 8	—	—	—
Lick		85·6	49	e 12 34	+ 1	—	—	—	—	—
Pasadena		86·7	53	i 12 36a	− 2	e 25 3	?	—	—	—
Mount Wilson		86·8	53	e 12 38	0	—	—	—	—	—
La Jolla		86·9	55	i 12 39	0	—	—	—	—	—
Riverside		87·2	54	e 12 41	+ 1	—	—	—	—	—
Haiwee		87·7	52	i 12 44	+ 1	—	—	—	—	—
Tinemaha		87·9	51	i 12 45	+ 1	—	—	—	—	—
Irkutsk		90·0	326	e 13 10	+16	—	—	—	—	—
Colombo	E.	91·4	277	—	—	22 21?	?	—	—	—
Tucson		91·6	57	i 13 2	+ 1	i 25 47	PPS	i 16 59	PP	i 42·0
Kodaikanal	E.	94·7	279	—	—	i 23 36	[− 7]	—	—	—
Bozeman		96·2	44	—	—	e 24 29	− 4	e 31 56	SS	e 44·6
Agra	E.	99·2	295	e 18 3	PP	i 23 44	[−23]	—	—	—
Bombay		101·5	286	e 17 26	PKP	e 24 12	[− 6]	e 25 18	S	—
Florissant		109·4	54	e 19 54	PP	e 26 28	SKKS	e 28 25	PS	—
Huancayo		109·6	111	e 18 22	[+ 9]	—	—	e 28 22	PS	e 51·6
Chicago		111·8	51	—	—	e 28 55	PS	—	—	—
Sverdlovsk		115·4	324	18 32	[− 4]	29 3	PS	i 29 51	pPS	—
Columbia		116·3	60	—	—	e 25 11	[−10]	e 30 15	PS	—
Moscow		128·1	327	e 18 57	[− 3]	—	—	19 35	pPKP	—
Warsaw		138·1	331	e 19 17	[− 1]	—	—	—	—	e 27·4
Istanbul		139·1	311	18 21?	[−60]	—	—	—	—	—
Bucharest		139·7	318	e 20 27	?	e 22 53	PP	—	—	e 23·6
Sofia		142·3	317	e 19 36	[+11]	e 23 3?	PP	—	—	—
Jena		143·0	336	e 19 21	[− 6]	—	—	—	—	—
De Bilt	Z.	144·2	343	e 19 25	[− 3]	—	—	—	—	—
Uccle	Z.	145·6	344	i 19 31a	[0]	e 23 29	PP	—	—	—
Stuttgart		145·7	336	e 19 30	[− 1]	—	—	i 20 9	pPKP	—
Kew	Z.	146·1	348	i 19 32k	[0]	—	—	e 20 9	pPKP	—
Triest		146·1	329	e 19 31	[− 1]	—	—	e 20 10	pPKP	—
Strasbourg		146·4	338	19 49	[+16]	—	—	e 20 20	pPKP	—
Chur		147·1	335	e 19 32	[− 2]	—	—	—	—	—
Zurich		147·1	336	e 19 35	[+ 1]	—	—	—	—	—
Basle		147·3	336	e 19 42	[+ 8]	—	—	e 20 16	pPKP	—
Paris		147·9	343	i 19 37	[+ 2]	e 23 8	PP	i 20 16	pPKP	33·4
Neuchatel		148·0	337	e 19 40	[+ 5]	—	—	—	—	—
Toledo	Z.	157·9	346	i 20 23	[+33]	—	—	—	—	—
Granada		160·3	343	i 19 57	[+ 5]	26 25	[−24]	i 24 52	PP	79·4

For Notes see next page.

NOTES TO 7d. 12h. 19m. 39s.

Additional readings and notes :—
Brisbane eSE = +7m.11s.
Apia eP? = +2m.58s., iZ = +4m.35s., P is given as PP.
Auckland sP? = +4m.48s., i = +4m.59s., S = +7m.26s., iE = +8m.11s. and +8m.46s.
Riverview i = +8m.45s., isSEZ = +9m.29s.
Wellington iZ = +5m.6s., sP?Z = +5m.44s., iZ = +6m.8s. and +7m.53s., pP_cPZ = +9m.21s., sS = +9m.38s., SS = +9m.59s., lZ = +11m.41s., P_cS = +12m.11s.
Christchurch iZ = +10m.40s.?, iEN = +11m.51s.
Adelaide PP = +11m.31s., iSN = +14m.56s., i = +15m.1s., P_cP = +15m.12s., SS = +15m.20s., phases have been wrongly identified.
Honolulu e = +18m.25s. and +20m.53s.
Batavia PE = +10m.17s., SN = +19m.14s.
Medan eSE = +21m.27s.
Ukiah iSKS = +24m.3s., e = +35m.54s. and +39m.6s.
Berkeley eE = +23m.51s.
Tucson i = +13m.10s., +13m.36s., and +14m.44s., e = +16m.56s., i = +17m.25s., +19m.55s., and +21m.23s.
Bozeman e = +24m.59s., +25m.44s., +26m.55s., and +36m.1s.
Florissant eSE = +26m.56s., eN = +27m.7s., ePKKPE = ePPSE = +29m.17s., iZ = +30m.25s., eE = +30m.29s., iE = +35m.20s.
Huancayo e = +18m.57s., i = +21m.33s., e = +33m.43s. and +44m.34s.
Sverdlovsk SS = +35m.27s.
Columbia e = +34m.0s.
Warsaw eZ = +19m.57s., eN = +22m.21s.?, eE = +23m.21s.?
Uccle iZ = +20m.9s.
Triest e = +20m.34s.
Strasbourg i = +20m.57s.
Chur i = +19m.35s.
Granada PKP_2 = +21m.13s., sPP = +27m.20s., SKKS = +30m.27s., sSKS = +31m.15s., SKSP = +34m.13s., iPPS = +38m.33s., SS = +44m.9s., sSS = +46m.25s., Q = +70·4m.
Long waves were also recorded at College.

May 7d. 19h. 33m. 47s. Epicentre 42°·9N. 147°·7E.

A = −·6211, B = +·3926, C = +·6782 ; δ = −14 ; h = −3 ;
D = +·534, E = +·845 ; G = −·573, H = +·362, K = −·735.

		Δ	Az.	P.	O−C.	S.	O−C.
		°	°	m. s.	s.	m. s.	s.
Mizusawa	E.	6·2	235	e 1 36	+ 1	i 2 33	−15
Vladivostok		11·6	276	e 2 55	+ 5	e 5 18	+17
Sverdlovsk		54·0	317	i 9 20	− 8	i 16 48	−15
Tashkent		56·1	297	—	—	e 17 16	−16
Tinemaha		68·5	59	e 11 8	+ 2	—	—
Haiwee	Z.	69·3	59	i 11 12	+ 1	—	—
Mount Wilson	Z.	70·4	61	e 11 19	+ 1	—	—
Pasadena	Z.	70·4	61	i 11 18	0	—	—
Tucson		76·3	59	e 11 53	+ 1	—	—

Tucson gives also e = +12m.9s., i = +12m.33s. and +12m.37s.

May 7d. Readings also at 0h. (La Paz), 2h. (near Manila), 5h. (Triest), 6h. (Huancayo), 9h. (near Granada), 12h. (near Grozny), 13h. (Tucson), 14h. (near Andijan), 15h. (Auckland), 16h. (near Branner and near Tananarive), 17h. (Tucson), 20h. (near Sotchi), 22h. (Samarkand and near Amboina).

May 8d. 10h. 21m. 43s. Epicentre 17°·8S. 178°·8W. Depth 0·070 (as on 1940, Jan. 1d.).

$A = -·9526$, $B = -·0199$, $C = -·3038$; $\delta = +14$; $h = +5$;
$D = -·021$, $E = +1·000$; $G = +·304$, $H = +·006$, $K = -·953$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Apia		7·9	60	i 1 56	0	i 3 29	+ 1	—	—	—
Auckland		19·8	195	4 14?	+16	7 24	+13	5 33?	pP	—
Arapuni		20·8	192	—	—	7 5?	−22	—	—	—
Tuai		21·2	187	4 11	− 1	7 23	−11	14 21	S_eS	—
New Plymouth		22·1	194	4 25	+ 5	8 1	+12	—	—	—
Wellington		24·0	192	4 37	0	8 12	− 8	6 8?	pP	17·3
Christchurch		26·7	193	5 0	− 1	8 52	−11	6 40?	pP	17·8
Brisbane		27·7	245	i 5 14	+ 4	i 9 17	− 1	i 12 17	SS	—
Riverview		31·2	233	i 5 45k	+ 5	i 10 13	0	i 7 14?	pP	—
Sydney		31·2	233	e 7 29	pP	e 10 14	+ 1	—	—	—
Honolulu		44·0	29	i 7 25	0	i 13 17	− 5	e 9 36	PP	e 18·8
Palau		52·4	294	8 33	+ 4	—	—	—	—	—
Amboina		53·7	279	i 8 37	− 1	i 15 30	− 5	—	—	—
Perth		60·2	243	i 16 55	SP	i 18 17	?	i 24 19	SSS	—
Yokohama		66·0	324	9 59	− 1	18 5	− 4	—	—	—
Tokyo, Cen. Met. Ob.		66·1	324	12 2	PP	i 20 7	?	—	—	—
Sendai		67·4	327	10 9	+ 1	18 21	− 5	—	—	—
Manila		67·5	295	i 10 11k	+ 2	18 19	− 8	i 11 20	pP	—
Nagano		67·7	324	10 12	+ 2	18 28	− 1	—	—	—
Nagoya		67·7	322	10 9	− 1	—	—	—	—	—
Mizusawa		67·9	328	e 10 10	− 2	e 18 23	− 9	—	—	—
Naha		68·0	308	8 45	?	—	—	—	—	—
Kobe		68·1	321	10 13	0	18 31	− 3	—	—	—
Koti		68·4	318	10 15	+ 1	18 36	− 1	—	—	—
Miyazaki		68·7	316	10 10	− 6	i 18 33	− 8	—	—	—
Kumamoto		69·7	316	10 22	0	—	—	—	—	—
Mori		70·4	330	10 28	+ 2	18 57?	− 3	—	—	—
Sapporo		70·8	331	10 30	+ 1	e 11 34	?	—	—	—
Taihoku		72·0	305	10 35	− 1	—	—	—	—	—
Batavia		73·3	269	i 10 43k	0	i 19 25	− 8	i 20 13	S_eS	—
Vladivostok		75·6	325	i 10 57	+ 1	i 19 57	− 1	—	—	—
Branner		76·5	43	e 11 0	− 1	e 20 11	+ 4	—	—	—
San Francisco		76·5	44	e 11 0	− 1	e 20 1	− 6	—	—	—
Santa Barbara		76·5	47	i 10 59	− 2	—	—	—	—	—
Berkeley		76·7	44	i 11 1	− 1	20 3	− 6	i 13 3	PP	—
Lick		76·8	43	e 11 1	− 2	e 20 5	− 5	—	—	—
Ukiah		76·8	42	e 11 2	− 1	i 20 4	− 6	i 23 41	sS	—
La Jolla		77·4	50	i 11 5	− 1	e 20 12	− 5	—	—	—
Pasadena		77·4	48	i 11 4a	− 2	e 20 11	− 6	i 14 3	PP	e 31·7
Mount Wilson		77·5	48	i 11 4a	− 3	—	—	e 13 5	pP	—
Fresno	N.	77·7	45	e 11 7	− 1	e 20 13	− 7	—	—	—
Riverside		77·9	48	e 11 8	− 1	e 20 15	− 7	—	—	—
Haiwee		78·6	46	i 11 12	0	e 20 24	− 5	—	—	—
Tinemaha		78·9	45	i 11 13a	− 1	e 20 28	− 4	e 13 19	pP	—
Tucson		81·9	52	i 11 29	− 1	e 20 56	− 7	i 13 31	pP	e 33·6
Seattle		82·4	36	—	—	i 22 10	?	—	—	—
Victoria		82·4	35	e 11 32	0	i 20 59	− 9	e 14 47	PP	—
Sitka		83·3	23	—	—	i 21 4	−13	—	—	—
Medan		84·0	275	11 41	+ 1	21 9	−14	—	—	—
Salt Lake City		85·1	44	e 11 44	− 1	i 21 18	−16	i 25 9	sS	—
Logan		85·6	43	i 11 49	+ 1	i 21 21	−18	i 15 15	PP	—
College		85·7	12	i 11 47	− 1	i 21 28	−12	e 25 15	sS	—
Butte		87·2	40	—	—	i 21 44	−10	i 21 25	S_eS	—
Bozeman		87·9	40	i 11 57	− 2	i 21 33	−27	i 25 35	sS	—
Lincoln		95·6	49	e 12 32	− 2	e 23 3	− 4	e 16 31	PP	—
Huancayo		98·9	105	e 14 49	pP	i 22 36	[− 4]	i 30 28	SS	—
Florissant		99·7	52	e 12 52	− 1	i 22 32	[−13]	e 14 55	pP	—
St. Louis		99·8	52	e 12 53	0	i 22 33	[−12]	e 14 57	pP	—
Chicago		102·5	49	e 17 0	PP	e 22 45	[−13]	e 28 3	sS	—
La Paz		103·7	113	e 17 42	PP	i 22 57	[− 7]	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Kodaikanal	E.	106·0	276	e 17 17?	PP	i 23 8	[− 5]	i 27 26	PS	—
Columbia		106·0	58	e 17 47	PP	e 23 2	[−11]	e 27 11	pS	—
Pittsburgh		107·8	53	e 17 58	PP	—	—	—	—	—
Agra	E.	109·4	294	e 17 29	PP	i 23 4	[−24]	i 24 6	SKKS	—
Philadelphia		111·5	54	e 20 50	PPP	i 23 25	[−11]	28 10	pS	—
Ottawa		111·6	48	e 17 36	[− 3]	e 24 31	[+55]	—	—	30·8
Bombay		112·7	283	e 18 22	[+41]	e 23 33	[− 8]	e 28 18	pS	—
Harvard		114·4	51	e 18 46	PP	29 10	PPS	—	—	—
San Juan		116·4	76	e 18 58	PP	i 23 46	[− 8]	e 29 33	sS	—
East Machias		117·5	47	e 19 16	PP	i 23 49	[−10]	e 37 54	sSS	—
Tchimkent		117·6	309	e 18 37	PP	—	—	—	—	—
Scoresby Sund		125·5	10	i 20 2	PP	e 27 13	S	i 36 19	SS	—
Copenhagen		141·2	350	e 18 28	[− 8]	—	—	—	—	—
Warsaw	Z.	142·3	341	18 33k	[− 5]	—	—	e 21 51	PP	e 27·3
Potsdam		144·2	349	e 18 40	[− 1]	—	—	—	—	—
Ksara		145·1	303	e 18 45	[+ 3]	e 32 24	PS	—	—	—
De Bilt		145·6	356	i 18 44k	[+ 1]	e 40 17	SS	e 45 57	SSS	—
Jena		145·9	348	i 18 41	[− 3]	—	—	—	—	—
Bucharest		146·2	327	e 18 43	[− 1]	e 20 34	?	(22 18)	PP	22·3
Kew	Z.	146·4	2	i 18 44a	[− 1]	e 21 50	sPKP	e 20 54	pPKP	—
Istanbul		146·7	319	18 54	[+ 9]	—	—	22 4	PP	—
Uccle	Z.	147·0	357	e 18 43k	[− 3]	—	—	i 21 2	pPKP	—
Stuttgart	Z.	148·4	352	e 18 46k	[− 2]	—	—	—	—	—
Belgrade		148·6	333	e 19 11	[+23]	e 26 44	SKKS	(e 42 14)	SSS	e 42·2
Sofia		148·8	327	i 18 53	[+ 4]	e 42 11	SS	—	—	—
Paris		149·0	358	e 18 47	[− 2]	—	—	—	—	38·3
Basel		149·9	351	i 18 47	[− 2]	—	—	—	—	—
Zurich		149·9	351	i 18 47	[− 2]	—	—	—	—	—
Helwan		150·0	299	18 48	[− 1]	28 27	SKKS	19 20	pPKP	—
Chur		150·2	349	i 18 48	[− 1]	—	—	—	—	—
Triest		150·3	342	i 18 19	[−30]	—	—	19 12	?	—
Neuchatel		150·5	352	e 18 49	[− 1]	—	—	—	—	—
Clermont-Ferrand		152·1	356	e 18 52a	[0]	—	—	—	—	—
Coimbra		156·2	18	e 15 45	P	25 35	[+17]	(38 47)	PPS	38·8
Toledo		157·6	10	i 18 58	[− 2]	e 29 6	SKKS	—	—	—
Granada		160·2	11	i 19 0	[− 3]	29 36	SKKS	21 57	sPKP	82·1
Almeria		160·8	9	e 19 8	[+ 4]	—	—	23 20	PP	48·3

Additional readings :—
Auckland i = +4m.31s., +4m.54s., and +5m.52s., sP? = +6m.45s., i = +7m.37s. and +7m.47s., P_cP = +8m.4s., i = +9m.11s. and +9m.56s., S_cP? = +10m.8s., i = +13m.17s. and +13m.27s.
Wellington sP? = +7m.11s., i = +7m.37s., iZ = +8m.47s., pP_cPZ = +10m.17s., $sP_cP?Z$ = +11m.52s., i = +14m.17s., S_cS = +14m.32s.
Christchurch i = +7m.42s., iEN = +11m.50s., iZ = +13m.17s., S_cSEN = +14m.47s.
Brisbane iN = +14m.56s., iE = +14m.59s.
Riverview iEZ = +7m.24s., isS?EZ = +13m.11s., iEN = +15m.14s.
Honolulu e = +12m.1s., i = +13m.26s.
Manila iE = +10m.43s.
Branner iPEN = +11m.11s.
San Francisco ePE = +11m.3s.
Berkeley iZ = +20m.7s., iE = +22m.29s., iSSN = +23m.17s., iE = +23m.43s.
Ukiah e = +16m.55s., iS_cS = +20m.21s., i = +20m.30s.
Pasadena e = +13m.4s., eZ = +13m.51s., iEN = +23m.49s.
Mount Wilson eZ = +14m.3s.
Tinemaha eZ = +14m.22s.
Tucson i = +11m.53s. and +14m.8s., iPP = +14m.33s., i = +15m.50s., isP = +21m.45s., i = +24m.36s., eSS = +26m.43s., isSS = +29m.35s.
Seattle i = +22m.50s., e = +25m.29s.
Salt Lake City e = +11m.59s., iPP = +15m.6s., i = +27m.57s., esSS = +30m.22s.
Logan i = +15m.22s.
College eS_cS = +21m.15s., esSS = +30m.51s., e = +30m.59s.
Bozeman ePP = +15m.42s., i = +21m.51s. and +22m.22s., esPS = +26m.27s., e = +28m.35s. and +31m.5s.
Lincoln eSKS = +22m.41s., e = +24m.36s., ePS = +25m.39s.
Huancayo e = +15m.26s., i = +24m.8s., iPS = +26m.13s., i = +26m.18s., e = +39m.44s.
Florissant iPKP = PPZ = +17m.1s., iSKKSE = +23m.9s., iSE = +23m.39s., iPSE = +25m.14s., isSKSE = +26m.17s.
St. Louis iN = +23m.12s., iSN = +23m.40s., ePPSN = +25m.15s., eN = +26m.18s.

Continued on next page.

Chicago ePP = +17m.20s., e = +23m.30s., eS = +24m.0s., eSP = +25m.40s., epS = +26m.40s., eSS = +31m.15s., e = +37m.42s.
La Paz PPZ? = +20m.27s.
Columbia eSP = +26m.14s.
Pittsburgh i = +18m.1s.
Agra iE = +17m.59s. and +18m.8s., eE = +25m.30s.
Philadelphia i = +24m.30s., iS = +25m.16s., iSP = +27m.25s.
Ottawa e = +18m.27s., +25m.19s., and +27m.22s.
Bombay eEN = +18m.35s., iEN = +20m.57s., iSKS?E = +24m.42s., eE = +27m.4s., iE = +28m.26s.
Harvard eEZ = +27m.49s.
San Juan i = +24m.59s., e = +27m.54s., esPS = +31m.28s., iSS = +34m.28s.
East Machias i = +25m.11s., e = +25m.18s., eSP = +28m.4s., e = +30m.29s. and +40m.1s.
Scoresby Sund e = +26m.6s. and +31m.43s.
Belgrade e = +20m.54s.
Warsaw eZ = +22m.56s.
Ksara e = +22m.11s.
Jena ePE = +18m.46s., iN = +18m.56s., iE = +19m.1s.
Bucharest eN = +18m.48s.
Kew eZ = +25m.17s.? and +31m.17s.?, eEN = +34m.17s.? and +40m.28s.
Uccle iZ = +18m.47s., eZ = +19m.38s.
Stuttgart iPKPZ = +18m.51s., eZ = +19m.40s.
Belgrade e = +20m.54s.
Sofia eEN = +28m.23s. and +40m.47s.?
Paris ePKP$_2$ = +21m.8s.
Basle i = +18m.53s. and +19m.2s.
Zurich iZ = +18m.53s.
Helwan P$_c$PEZ = +18m.56s.?, sSE = +29m.11s., PSE = +29m.26s.
Chur i = +18m.55s.
Granada PP = +24m.12s., iPPS = +37m.11s., SS = +41m.29s.
Long waves were also recorded at San Fernando.

May 8d. Readings also at 2h. (near Amboina), 3h. (Tucson and near Amboina), 6h. (Reykjavik and Scoresby Sund), 7h. (Granada, Paris, Kew, De Bilt, Warsaw, and Ivigtut), 8h. (near Sofia), 12h. (near Neuchatel, Basle, Chur, and Zurich, Jena and Stuttgart, and Triest), 14h. (Fresno), 17h. and 19h. (Harvard (2)), 20h. (near Andijan and Samarkand).

May 9d. 5h. 32m. 40s. Epicentre 14°·2N. 122°·1E. (as on 1938, Feb. 5d.).

$A = -\cdot5154$, $B = +\cdot8216$, $C = +\cdot2438$; $\delta = +10$; $h = +6$;
$D = +\cdot847$, $E = +\cdot531$; $G = -\cdot130$, $H = +\cdot206$, $K = -\cdot970$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Manila		1·1	290	i 0 31 a	+ 9	0 59	+20	—	—	—
Karenko		9·7	357	2 43	+21	3 51	−24	—	—	—
Naha		13·0	23	3 22	+13	5 58	+23	—	—	—
Zi-ka-wei	N.	16·9	358	e 4 28	+29	8 2	?	—	—	13·0
Amboina		18·8	161	4 5	−18	7 28	−22	—	—	e 8·3
Miyazaki		19·6	24	4 26	− 6	8 5	− 3	—	—	—
Hukuoka		20·7	19	e 4 48	+ 4	8 44	+13	—	—	—
Matuyama		21·8	24	4 57	+ 1	8 56	+ 4	—	—	—
Taikyu		22·3	12	5 4	+ 3	9 11	+ 9	—	—	—
Hamada		22·5	21	5 2	0	9 2	− 3	—	—	—
Titizima		22·7	51	5 3	− 1	—	—	—	—	—
Kobe		23·6	27	5 13	0	9 27	+ 2	—	—	—
Kameyama		24·3	29	5 23	+ 3	9 45	+ 8	—	—	—
Dairen		24·6	358	5 23	0	10 10	+28	—	—	—
Batavia		25·3	217	5 25	− 5	i 10 5	+11	—	—	e 12·3
Medan		25·4	248	5 27	− 4	9 58	+ 2	—	—	e 14·3
Yokohama		26·4	33	e 5 58	+18	e 11 5	+53	—	—	—
Tokyo		26·6	32	e 6 13	+31	11 8	+52	—	—	—
Mizusawa		29·9	30	e 5 59	−13	e 11 50	+41	—	—	—
Vladivostok		30·0	14	6 9	− 3	—	—	—	—	—
Calcutta	N.	33·0	289	e 6 51	+12	e 12 5	+ 8	e 9 43	P$_c$P	e 16·2
Sapporo		33·2	25	e 9 22	?	14 17	?	—	—	—
Irkutsk		40·6	342	7 50	+ 7	13 58	+ 4	—	—	—
Hyderabad	N.	42·0	280	7 59	+ 5	14 15	+ 1	17 8	SS	21·4
Colombo	E.	42·1	264	e 7 44	−11	14 18	+ 2	9 40	PP	25·6

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		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Agra	E.	43·0	294	7 50	−13	14 21	− 8	9 27	PP	—
Kodaikanal	E.	43·8	271	i 8 12k	+ 3	14 45	+ 5	—	—	21·3
Perth		46·3	186	8 31	+ 2	i 15 12	− 4	17 47	SS	22·3
Bombay	E.	47·4	282	e 9 18	+40	i 15 36	+ 4	i 10 34	PP	21·3
	N.	47·4	282	e 8 42	+ 4	i 15 38	+ 6	e 10 41	PP	—
Almata		48·2	316	8 50	+ 6	—	—	—	—	—
Andijan		50·6	311	9 6	+ 4	—	—	—	—	—
Brisbane	N.	51·2	143	e 8 53	−14	i 16 4	−21	—	—	—
Adelaide		51·3	162	—	—	i 16 28	+ 2	—	—	i 32·7
Samarkand		54·3	309	e 9 26	− 4	—	—	—	—	—
Riverview		55·2	150	e 9 26	−11	i 17 13	− 7	i 11 30	PP	—
Sydney		55·2	150	e 9 35	− 2	e 17 14	− 6	e 22 2?	SSS	e 25·4
Sverdlovsk		62·7	327	i 10 27	− 2	i 18 56	− 1	—	—	—
Baku		67·4	309	e 11 5	+ 6	20 12	+17	—	—	—
Auckland		70·8	137	i 11 0?	−20	17 5	?	27 20?	Q	—
Arapuni		72·2	138	—	—	21 20?	+29	14 20?	PP	30·3
Wellington		73·5	141	—	—	20 50	−16	13 50?	PP	35·8
Christchurch		73·7	144	—	—	20 55	−13	30 20?	SSS	32·0
Moscow		75·3	324	11 43	− 4	21 24	− 2	—	—	—
Honolulu		75·9	71	—	—	e 22 28	?	e 26 26	SS	e 31·8
College		77·3	25	—	—	e 21 38	−10	e 29 31	SSS	e 32·5
Pulkovo		78·7	329	e 12 4	− 2	22 3	0	—	—	—
Simferopol		78·7	313	e 12 5	− 1	e 21 58	− 5	—	—	—
Ksara		79·1	301	e 12 14?	+ 6	e 22 15	+ 8	—	—	43·8
Tananarive		80·4	247	—	—	—	—	e 28 7	SS	39·1
Helwan		83·7	299	e 12 32	0	22 50	− 4	—	—	—
Bucharest		84·4	314	e 12 36	0	(22 50)	−11	e 17 2	PP	22·8
Sitka		84·8	31	—	—	e 23 1	− 4	—	—	—
Upsala		84·9	330	e 13 17	+39	23 11	+ 5	e 28 20?	SS	e 41·3
Warsaw		85·5	323	e 12 40	− 1	e 23 6	− 6	e 24 6	PS	e 44·3
Belgrade		88·2	315	—	—	e 24 4	+26	—	—	e 44·8
Copenhagen		89·1	328	e 13 2	+ 4	23 26?	[− 1]	—	—	—
Potsdam	E.	90·1	325	—	—	e 23 54	− 1	—	—	—
Prague		90·2	322	—	—	e 30 20?	SS	e 37 32?	?	e 43·3
Bergen		90·3	334	e 21 20?	?	—	—	—	—	e 42·3
Jena	E.	91·5	323	—	—	e 25 56	PS	—	—	e 47·3
Scoresby Sund		92·0	349	e 15 18	?	e 23 43	[− 1]	e 16 59	PP	e 38·9
Triest		92·3	318	—	—	e 23 56	[+10]	—	—	e 51·3
Stuttgart		93·8	322	—	—	e 23 50?	[− 4]	e 33 2?	SS	e 46·3
De Bilt		94·5	326	e 13 25	+ 2	e 24 0	[+ 2]	i 26 7	PS	e 46·3
Victoria		95·0	37	e 16 20?	PP	(24 20?)	[+19]	—	—	24·3
Uccle		95·1	326	e 13 29	+ 3	e 24 5	[+ 3]	e 17 18	PP	e 47·3
Aberdeen		95·3	333	e 16 28	PP	e 24 46	+ 5	—	—	e 46·4
Seattle		95·9	37	—	—	e 24 40	− 6	—	—	—
Stonyhurst		97·5	331	—	—	e 24 11	[− 3]	e 39 51	?	e 49·3
Paris		97·7	324	e 13 46	+ 8	(25 20?)	+19	e 17 38	PP	25·3
Kew		97·8	327	e 13 20?	−18	e 27 50?	PPS	e 31 50?	SS	e 45·3
Clermont-Ferrand		98·9	322	e 17 49	PP	—	—	—	—	e 53·5
Ukiah		99·3	46	—	—	e 24 26	[+ 2]	e 26 23	PS	e 39·6
Berkeley		100·6	47	—	—	e 24 31	[+ 1]	i 26 33	PS	e 41·4
Santa Clara	E.	101·0	47	—	—	e 24 28	[− 4]	—	—	—
Butte		102·5	35	—	—	e 25 37	− 4	—	—	e 40·9
Bozeman		103·5	35	—	—	e 24 39	[− 5]	—	—	—
Pasadena		105·2	48	—	—	e 25 56	− 8	e 33 45	SS	e 44·1
Salt Lake City		106·0	40	—	—	e 24 51	[− 4]	—	—	e 44·5
Toledo		106·5	319	e 17 9	PP	—	—	—	—	49·7
Almeria		107·2	316	—	—	e 27 19	PS	—	—	57·3
Granada		107·8	317	i 18 56	PKP	25 30	{−20}	29 40	PPS	57·3
Coimbra		109·0	323	e 18 50	PKP	30 43	?	—	—	e 55·8
Tucson		111·5	46	e 18 38	[+ 2]	e 34 42	SS	e 19 25	PP	46·1
Seven Falls		117·4	10	—	—	e 36 20	SS	—	—	53·3

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Chicago	117·8	26	e 28 58	PS	—	—	—	—	e 52·6
St. Louis	119·4	29	e 19 26	[+34]	e 29 2	PS	e 20 26	PP	—
East Machias	120·7	7	e 30 45	PS	e 36 53	SS	e 41 3	SSS	e 55·6
Harvard	122·2	11	e 20 36	PP	e 37 20	SS	—	—	e 55·3
Philadelphia	123·8	15	e 20 41	PP	e 31 18	PS	e 36 32	SS	—
Columbia	127·3	24	e 22 33	?	e 26 32	[+19]	—	—	e 57·4
San Juan	146·6	14	i 19 48	[+ 6]	e 27 38	[+49]	e 41 54	SS	e 67·6
Huancayo	162·9	85	e 20 13	[+ 9]	i 28 45	PPP	e 44 20	SS	67·4
La Paz	169·9	105	e 20 23	[+14]	i 26 48	[−23]	—	—	75·3

Additional readings :—
Hukuoka ePE = +4m.51s.
Batavia SN = +10m.8s.
Mizusawa eSE = +12m.57s.
Calcutta eSS = +13m.44s., iS_cS = +17m.24s.
Hyderabad S_cS = +18m.2s.
Colombo iPE = +7m.57s., SSE = +17m.48s.
Agra P_cP = +9m.43s., S_cS? = +17m.53s.
Perth i = +10m.20s., SSS = +18m.55s.
Bombay iPSN = +15m.45s., ePSE = +15m.48s.
Adelaide i = +15m.57s., +18m.35s., +18m.46s., +19m.0s., and +22m.37s.
Riverview iE = +17m.32s., SSE = +20m.48s., SSSE = +22m.52s.
Auckland SS = +22m.20s.?
Wellington SSS? = +29m.50s.?, Q = +31·3m.
Christchurch eEN = +24m.20s.? and +27m.40s.
Tananarive N = +32m.39s., E = +37m.40s.
Bucharest eEN = +13m.2s.
Upsala eSE = +22m.56s., eN = +35m.20s.?
Warsaw eSN? = +23m.16s., eE = +24m.37s., eZ = +25m.10s., eE = +29m.2s., eZ = +29m.19s., eSSN? = +29m.26s.
Belgrade e = +25m.59s.
Potsdam eNW = +24m.13s.
Scoresby Sund ePS = +25m.42s.
Uccle eN = +22m.8s., eE = +23m.21s., ePSE = +26m.2s.
Aberdeen iN = +23m.30s., eN = +35m.36s.
Kew eEN = +23m.50s.? and +39m.50s.?
Ukiah e = +27m.46s., eSS = +31m.48s., e = +33m.9s. and +37m.27s.
Berkeley eN = +25m.50s., eE = +25m.56s., eSSE = +31m.48s., iN = +31m.52s., iE = +33m.0s., iSSSE = +36m.36s., iN = +36m.54s.
Bozeman eS = +25m.55s., e = +30m.49s.
Pasadena eZ = +37m.6s.
Granada PP = +23m.27s., SKKS = +30m.29s., S = +31m.30s., PS = +32m.33s., PPS = +33m.14s., SS = +38m.59s., SSS = +42m.35s.; all phases wrongly identified.
Coimbra ePN = +19m.15s., e = +23m.20s. and +26m.47s., eN = +35m.50s., SS = +37m.37s., SSS = +40m.47s.
Tucson i = +19m.31s., +21m.45s., +26m.39s., +27m.40s., +30m.25s., and +41m.46s.
St. Louis eN = +33m.2s.
San Juan i = +21m.32s., e = +25m.46s., +28m.38s., +30m.29s., and +40m.48s.
Huancayo i = +22m.12s., e = +26m.8s. and +35m.10s., i = +39m.36s. and +46m.15s.
Long waves also recorded at Budapest, Lisbon, and San Fernando.

May 9d. 9h. 31m. 56s. Epicentre 36°·2N. 142°·2E.

Intensity IV at Tyosi, Onahama, Mito, Kakioka, and Tukubasan; II-III at Hukusima, Tokyo, Yokohama, and Takyama (International Code).

Seismological Bull. Cen. Met. Obs. Japan, 1941, Tokyo 1950, pp. 23-24. Epicentre 36°·2N. 142°·1E. Map p. 23. Macroseismic radius 200-300km.

A = −·6391, B = +·4958, C = +·5880; δ = +1; h = 0;
D = +·613, E = +·790; G = −·465, H = +·360, K = −·809.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tyosi	1·2	247	0 25a	+ 1	0 39	− 2	—	—	—
Onahama	1·3	305	0 25k	0	0 38	− 6	—	—	—
Mito	1·4	277	0 27k	0	0 42	− 4	—	—	—
Togane	1·6	247	0 40	+10	1 1	+10	—	—	—
Kakioka	1·6	271	0 30	0	0 40	−11	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tukubasan		1·7	271	0 30	− 1	0 39	−15	—	—	—
Utunomiya		1·9	281	0 33	− 1	0 53	− 6	—	—	—
Kiyosumi		2·0	237	0 40	+ 5	1 4	+ 2	—	—	—
Tokyo Cen. Met. Ob.		2·0	256	0 38 a	+ 3	1 3	+ 1	—	—	—
Tokyo Imp. Univ.		2·0	256	0 38	+ 3	1 2	0	—	—	—
Hukusima		2·1	318	0 36 a	− 1	1 0	− 4	—	—	—
Komaba		2·1	255	0 37	0	1 2	− 2	—	—	—
Mitaka		2·2	256	0 40	+ 2	1 6	0	—	—	—
Yokohama		2·2	250	0 41	+ 3	1 16	+10	—	—	—
Kamakura		2·3	248	0 40	0	1 8	− 1	—	—	—
Kumagaya		2·3	269	0 40 a	0	1 10	+ 1	—	—	—
Mera		2·3	236	0 42	+ 2	1 7	− 2	—	—	—
Sendai		2·3	333	0 40 a	0	1 6	− 3	—	—	—
Maebasi		2·5	275	0 43	0	1 20	+ 6	—	—	—
Titibu		2·5	265	0 40	− 3	1 6	− 8	—	—	—
Osima		2·7	238	0 46	+ 1	1 14	− 5	—	—	—
Koyama		2·8	252	0 40	− 7	1 16	− 6	—	—	—
Misima		2·8	248	0 48 k	+ 1	1 36	+14	—	—	—
Hunatu		2·9	256	0 47	− 1	1 22	− 2	—	—	—
Kohu		3·0	259	0 51	+ 1	1 31	+ 4	—	—	—
Mizusawa	N.	3·0	344	0 50	0	1 22	− 5	—	—	—
Susaki		3·0	240	0 50	0	1 32	+ 5	—	—	—
Shizuoka		3·3	248	0 54	+ 1	1 38	+ 3	—	—	—
Nagano		3·3	278	0 55	+ 2	1 27	− 8	—	—	—
Miyako		3·4	356	1 0	+ 5	1 37	0	—	—	—
Aikawa		3·6	301	0 58 a	0	1 44	+ 2	—	—	—
Omaesaki		3·6	245	1 3	+ 5	1 50	+ 8	—	—	—
Akita		3·9	335	1 11	+ 9	1 40	−10	—	—	—
Toyama		4·1	281	1 6 a	+ 1	1 59	+ 4	—	—	—
Hatinohe		4·3	355	1 10	+ 2	1 59	− 1	—	—	—
Nagoya		4·4	258	1 10	0	1 57	− 5	—	—	—
Wazima		4·4	289	1 9 a	− 1	2 5	+ 3	—	—	—
Gihu		4·5	259	1 11	0	2 9	+ 4	—	—	—
Aomori		4·7	348	1 19	+ 5	2 33	S_g	—	—	—
Hikone		4·9	262	1 18	+ 1	2 29	S*	—	—	—
Kameyama		4·9	255	1 17	0	2 57	?	—	—	—
Kyoto		5·4	259	1 21	− 3	2 37	+ 9	—	—	—
Owase		5·4	250	1 22	− 2	2 45	S*	—	—	—
Osaka		5·7	256	1 31	+ 3	2 28	− 7	—	—	—
Kobe		5·9	258	1 32	+ 1	2 36	− 4	—	—	—
Mori		6·0	349	1 43	+11	2 39	− 4	—	—	—
Toyooka		6·0	266	1 33	+ 1	3 3	S*	—	—	—
Wakayama		6·1	253	1 25	− 9	3 0	S*	—	—	—
Sumoto		6·2	255	1 48	+13	3 2	S*	—	—	—
Sapporo		6·9	355	1 47	+ 2	3 40	S_g	—	—	—
Koti		7·6	252	1 56	+ 1	3 31	+ 8	—	—	—
Matuyama		8·1	256	2 0	− 2	3 55	S*	—	—	—
Hirosima		8·2	260	2 3	0	4 2	S*	—	—	—
Simidu		8·3	249	1 53	−11	5 34	?	—	—	—
Hamada		8·4	264	2 14	+ 8	4 21	S*	—	—	—
Titizima		9·1	180	2 20	+ 6	3 54	− 6	—	—	—
Kumamoto		10·1	254	2 28	0	4 37	+12	—	—	—
Vladivostok		10·5	314	2 24	−11	4 29	− 6	—	—	—
Kagosima		10·7	248	4 56	S	(4 56)	+17	—	—	—
Taikyu		11·1	272	2 44	+ 1	4 49	0	—	—	—
Yakusima		11·3	243	1 48	−58	4 26	−28	—	—	—
Naha		15·9	235	2 54	−53	—	—	—	—	—
Manila		28·7	228	e 6 0	− 1	12 21	?	—	—	—
Irkutsk		31·1	313	e 6 22?	0	e 11 29?	+ 1	—	—	—
Medan		51·5	242	e 9 8	− 1	—	—	—	—	e 33·1
Andijan		53·5	298	e 9 24	0	e 16 55	− 2	—	—	—
Batavia		53·6	226	9 25	0	i 17 57	+59	—	—	—
Agra	E.	54·5	280	9 18	−14	e 16 57	−13	9 29	pP	—
Tchimkent		55·0	300	i 9 34	− 1	—	—	—	—	—
Sverdlovsk		56·2	319	i 9 43	− 1	i 17 30	− 3	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Bombay		62·7	274	e 10 30	+ 1	e 19 20	+23	—	—	—
Kodaikanal	E.	63·7	264	e 10 4?	−32	—	—	—	—	—
Moscow		68·4	324	i 11 4	− 2	20 1	− 6	—	—	—
Baku		69·2	306	e 11 18	+ 8	—	—	—	—	—
Pulkovo		69·2	330	e 11 10	0	e 20 12	− 4	—	—	—
Grozny		70·4	310	11 29	+11	—	—	—	—	—
Ukiah		71·4	56	—	—	e 20 48	+ 6	e 21 32	PS	e 40·6
Berkeley		72·7	57	i 20 5	S	e 21 58	PS	—	—	e 39·2
Scoresby Sund		73·0	355	—	—	e 21 0	0	—	—	e 37·9
Upsala		74·0	335	e 11 28	−11	e 21 28	+17	—	—	e 36·1
Bozeman		75·2	44	—	—	e 21 25	0	—	—	—
Santa Barbara	Z.	76·3	58	i 11 56	+ 4	—	—	—	—	—
Pasadena		77·5	57	e 12 5	+ 6	e 21 52	+ 2	—	—	—
Mount Wilson	Z.	77·5	57	e 12 6	+ 7	—	—	—	—	—
Warsaw		78·1	328	e 12 3a	+ 1	e 14 54	PP	—	—	e 43·1
Copenhagen		78·9	334	e 12 7	0	—	—	—	—	—
Bucharest		81·1	320	e 11 19	−59	e 22 26	− 2	—	—	33·1
Tucson		83·6	55	e 12 35	+ 4	—	—	—	—	—
Sofia		83·7	320	e 12 34	+ 2	e 22 46?	− 8	e 23 14	?	45·1
De Bilt		84·4	336	e 12 36	0	e 23 4	+ 3	e 15 49	PP	e 43·1
Stuttgart		85·6	331	e 12 42	+ 1	—	—	—	—	e 46·6
Uccle		85·8	336	e 12 44	+ 2	—	—	e 16 1	PP	e 42·1
Triest		86·2	327	—	—	e 23 4	[− 5]	—	—	e 47·1
Kew		86·7	338	12 48	+ 1	23 20	− 4	e 16 12	PP	e 41·1
Helwan		87·6	306	e 12 52	+ 1	(23 28)	− 4	i 16 34	PP	—
Paris		88·1	335	e 12 56	+ 2	—	—	e 16 30?	PP	49·1
Florissant	E.	91·0	39	—	—	i 24 6	+ 3	i 30 7	SS	—
St. Louis		91·2	39	e 13 17	+ 9	e 24 11	+ 6	—	—	—
La Paz	Z.	146·7	62	i 19 54a	[+12]	—	—	—	—	79·1

Additional readings :—
Kobe +2m.44s.
Agra sSE = +17m.20s. SSE = +20m.43s.,
Ukiah e = +30m.20s., +34m.13s., and +36m.33s.
Berkeley eSSN = +30m.24s., iSSSE = +34m.38s. ; the readings entered above are given as iPPE and ePPPN.
Warsaw eZ = +16m.46s. and +18m.4s.
Bucharest ePEN = +12m.4s.?, eE = +13m.34s., eN = +14m.11s., eE = +15m.21s.
Tucson i = +12m.46s., +12m.57s., and +13m.21s., e = +14m.29s.
Kew P_ePZ = +13m.0s., e = +38m.34s.
Helwan SE = +22m.28s. ; true S is given as PSE.
St. Louis eZ = +13m.38s.
Long waves were also recorded at Wellington, Huancayo, and other American and European stations.

May 9d. 9h. 37m. 59s. Epicentre 36°·2N. 142°·2E. (as for previous shock).

Intensity IV at Onahama, Tyosi, Tukubasan, Mito, Utunomiya, and Hukusima ; II-III at Kakioka, Yokohama, and Tateyama. Macroseismic radius 200-300km.

Seismological Bulletin of Cen. Met. Obs. Japan, 1941. Tokyo 1950, pp. 24-25, map. p. 24.

	△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tyosi	1·2	247	0 22a	− 2	0 37	− 4	—	—	—
Onahama	1·3	305	0 17	− 8	0 30	−14	—	—	—
Mito	1·4	277	0 28	+ 1	0 43	− 3	—	—	—
Kakioka	1·6	271	0 29	− 1	0 45	− 6	—	—	—
Tukubasan	1·7	271	0 27	− 4	0 46	− 8	—	—	—
Utunomiya	1·9	281	0 31	− 3	0 49	−10	—	—	—
Tokyo Cen. Met. Ob.	2·0	256	0 37	+ 2	1 1	− 1	—	—	—
Hukusima	2·1	318	0 40a	+ 3	1 5	+ 1	—	—	—
Yokohama	2·2	250	0 52	+14	1 22	+16	—	—	—
Kumagaya	2·3	269	0 39	− 1	1 7	− 2	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m.	s.	m.
Mera		2·3	236	0 58	+18	1 25	+16	—	—	—
Sendai		2·3	333	0 33$_a$	− 7	1 3	− 6	—	—	—
Maebasi		2·5	275	0 42	− 1	1 18	+ 4	—	—	—
Osima		2·7	238	0 46	+ 1	1 12	− 7	—	—	—
Misima		2·8	248	0 51	+ 4	1 41	+19	—	—	—
Hunatu		2·9	256	0 47	− 1	1 20	− 4	—	—	—
Kohu		3·0	259	0 48	− 2	1 33	+ 6	—	—	—
Mizusawa	E.	3·0	344	0 58	+ 8	1 44	S_g	—	—	—
Shizuoka		3·3	248	1 27	S	(1 27)	− 8	—	—	—
Nagano		3·3	278	0 53	0	1 25	−10	—	—	—
Miyako		3·4	356	0 57	+ 2	1 34	− 3	—	—	—
Aikawa		3·6	301	0 57	− 1	1 43	+ 1	—	—	—
Hatidyozima		3·6	213	1 5	+ 7	2 5	S_g	—	—	—
Omaesaki		3·6	245	1 1	+ 3	1 48	+ 6	—	—	—
Hamamatu		3·9	250	0 50	−12	1 23	−27	—	—	—
Toyama		4·1	281	1 3	− 2	1 57	+ 2	—	—	—
Hatinohe		4·3	355	1 13	+ 5	1 59	− 1	—	—	—
Nagoya		4·4	258	2 3	S	(2 3)	+ 1	—	—	—
Wazima		4·4	289	1 7	− 3	2 3	+ 1	—	—	—
Gihu		4·5	259	1 12	+ 1	2 5	0	—	—	—
Aomori		4·7	348	1 37	P_g	2 31	S_g	—	—	—
Hikone		4·9	262	1 21	+ 4	2 19	+ 4	—	—	—
Kameyama		4·9	255	1 19	+ 2	2 52	S_g	—	—	—
Kyoto		5·4	259	1 26	+ 2	2 44	S*	—	—	—
Owase		5·4	250	1 33	P*	2 50	S*	—	—	—
Kobe		5·9	258	2 41	S	(2 41)	+ 1	—	—	—
Mori		6·0	349	1 38	+ 6	2 33	−10	—	—	—
Toyooka		6·0	266	1 43	P*	3 4	S*	—	—	—
Wakayama		6·1	253	1 34	0	3 7	S*	—	—	—
Sumoto		6·2	255	2 8	P_g	3 13	S*	—	—	—
Muroto		7·2	249	2 45	+56	—	—	—	—	—
Koti		7·6	252	1 55	0	3 34	+11	—	—	—
Nemuro		7·6	19	3 9	S	(3 9)	−14	—	—	—
Matuyama		8·1	256	2 2	0	4 5	S*	—	—	—
Hirosima		8·2	260	2 4	+ 1	4 0	S*	—	—	—
Hamada		8·4	264	4 22	S_g	—	—	—	—	—
Titizima		9·1	180	2 17	+ 3	3 40	−20	—	—	—
Izuka		9·8	258	4 51	S*	—	—	—	—	—
Miyazaki		9·9	248	2 31	+ 6	4 31	+11	—	—	—
Kagosima		10·7	248	4 54	S	(4 54)	+15	—	—	—
Yakusima		11·3	243	2 47	+ 1	5 23	S*	—	—	—
Naha		15·9	235	2 31	−76	—	—	—	—	—
Calcutta		48·3	269	e 8 30	−15	—	—	—	—	—
Sverdlovsk		56·2	319	i 9 41	− 3	i 17 27	− 6	—	—	—
Moscow		68·4	324	11 1	− 5	19 59	− 8	—	—	—
Bozeman		75·2	44	—	—	e 21 25	0	—	—	e 34·5
Mount Wilson	z.	77·5	57	e 12 0	+ 1	—	—	—	—	—
Pasadena	z.	77·5	57	e 11 58	− 1	—	—	—	—	—
Tucson		83·6	55	i 12 32	0	e 16 29	PP	—	—	i 37·6
St. Louis	N.	91·2	39	—	—	e 24 7	+ 2	—	—	—

Tucson gives also e = +13m.37s. and +14m.24s., i = +34m.13s.

May 9d. 13h. Tokyo Imperial University Earthquake Observatory gives Epicentre 36°·27N. 140°·67E.
Tokyo Imp. Univ. P = 14m.33s., S = 14m.48s.
Tukubasan P = 14m.34s., S = 14m.42s.
Togane P = 14m.34s., S = 14m.46s.
Komaba P = 14m.34s., S = 14m.49s.
Mitaka P = 14m.34s., S = 14m.50s.
Titibu P = 14m.34s., S = 14m.50s.
Kamakura P = 14m.34s., S = 14m.52s.
Kiyosumi P = 14m.34s., S = 14m.52s.
Koyama P = 14m.34s., S = 15m.0s.
Susaki P = 14m.52s., S = 15m.25s.
Mizusawa ePE = 14m.56s., S = 15m.29s.

May 9d. Readings also at 2h. (Amboina), 6h. (near Algiers and near Manila), 9h. (Mizusawa and near Manila), 10h. (near Mizusawa (2)), 11h. (Tucson and near Manila), 12h. (Tucson, Mount Wilson, Pasadena, Columbia, Granada, Kew, and Paris), 13h. (near Andijan), 14h. (Triest, near Bucharest and Sofia), 15h. (La Paz), 18h. (near Manila), 19h. (Lick, near Berkeley, Branner, and San Francisco).

May 10d. 16h. Eastern Europe.

Belgrade iP_g = 49m.12s.a, iPP = 49m.58s., iS = 50m.26s., iSS = 50m.34s., i = 50m.48s.
Kalossa PN = 49m.34s., PSE = 49m.58s., iN = 50m.4s., eLE = 50m.44s.
Kesckemet PZ = 49m.43s., eSZ = 50m.9s.
Budapest PE = 49m.48s., PSN = 50m.20s., SE = 50m.26s., LE = 50m.47s.
Triest eP = 49m.55s., iS = 50m.26s., i = 50m.35s.
Sofia eEN = 50m.0s., eSEN = 51m.24s.
Chur eP = 50m.33s., eS = 52m.21s.
Ogyalla PE = 50m.34s., PN = 50m.42s., eE = 51m.
Zurich eP = 50m.42s., eS = 52m.40s.
Basle eP = 50m.51s., eS = 53m.12s.
Jena e = 50m.54s., 51m.11s. and 52m.14s., eL = 52m.35s.
Neuchatel eP = 50m.55s.
Stuttgart i = 52m.2s., eEN = 53m.1s.
Potsdam eZ = 53m.0s., eNW = 53m.18s.?, eE = 53m.36s.?
Long waves were also recorded at De Bilt and Kew.

May 10d. Readings also at 0h. (near Amboina), 1h. (Bombay, Kodaikanal, Baku, Tashkent and near Mizusawa), 3h. (near Mizusawa), 16h. (Tacubaya), 17h. (Tucson, Riverside, Auckland, Christchurch, Tuai, and Wellington), 18h. (near Branner), 22h. (La Paz), 23h. (Almata, Samarkand, near Andijan, and Tchimkent).

May 11d. 5h. 7m. 44s. Epicentre 13°·8S. 74°·2W.

A = +·2645, B = −·9348, C = −·2370 ; δ = −2 ; h = +6 ;
D = −·962, E = −·272 ; G = −·065, H = +·228, K = −·972.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		2·1	328	i 0 40	P_g	i 0 56	− 8	—	—	—
La Paz		6·4	115	i 1 42a	+ 4	i 3 4	+11	—	—	4·0
Balboa Heights		23·2	347	e 5 16	+ 7	—	—	—	—	—
Rio de Janeiro		30·7	111	e 6 16	− 3	—	—	—	—	e 16·9
San Juan		33·0	14	e 6 40	+ 1	e 12 5	+ 8	e 7 58	PP	i 14·6
Philadelphia		53·5	359	e 9 23	− 1	e 16 44	−13	—	—	e 24·7
St. Louis		54·3	344	e 9 27	− 3	e 17 4	− 3	i 9 35	pP	e 21·4
Fordham		54·4	0	i 9 32	+ 1	e 17 21	+12	18 16	PPS	e 30·3
Florissant		54·5	344	e 9 31	− 1	e 17 11	+ 1	e 19 12	?	—
Weston		56·0	3	e 9 42	− 1	—	—	—	—	—
Harvard		56·1	3	i 9 44	+ 1	—	—	—	—	—
Tucson		57·7	323	i 9 49	− 6	—	—	—	—	e 23·6
East Machias		58·6	6	e 10 13	+12	e 18 10	+ 6	e 22 41	SSS	e 27·0
Ottawa		58·9	358	10 2	− 1	18 16	+ 8	25 16?	?	33·3
Seven Falls		60·7	3	—	—	e 18 41	+ 9	—	—	28·3
Riverside	z.	62·8	320	i 10 24	− 6	—	—	—	—	—
Tinemaha	z.	65·4	322	e 10 42	− 5	—	—	—	—	—
Bozeman		67·9	332	e 11 30	+28	e 19 29	−32	—	—	—
Berkeley		68·3	321	i 11 8	+ 3	e 20 5	− 1	—	—	e 35·6
Granada		83·4	50	e 12 18a	−12	i 23 22	+31	—	—	—
Toledo		84·1	47	12 35	+ 1	25 18	?	—	—	46·3
Kew		90·9	37	—	—	e 25 16	PS	—	—	e 39·3
Paris		91·7	41	—	—	e 25 16	PS	—	—	53·3
Scoresby Sund		91·7	15	—	—	e 24 16	+ 6	—	—	e 33·8
Wellington		96·1	225	—	—	e 44 46	?	—	—	49·3

Additional readings :—
San Juan e = +10m.5s.
St. Louis eZ = +10m.37s., iSN = +17m.10s., eE = +19m.12s.
Tucson i = +10m.45s., e = +15m.23s.
East Machias e = +15m.52s.
Berkeley eE = +20m.11s.
Long waves were also recorded at Columbia, De Bilt, Potsdam, Ukiah, Warsaw, La Plata, and Bombay.

May 11d. 13h. 28m. 42s. Epicentre 12°·9N. 91°·4W. (as on 1941 Jan. 3d.).

$A = -\cdot0238$, $B = -\cdot9748$, $C = +\cdot2218$; $\delta = 0$; $h = +6$;
$D = -1\cdot000$, $E = +\cdot024$; $G = -\cdot005$, $H = -\cdot222$, $K = -\cdot975$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Vera Cruz	N.	7·7	325	1 50	− 6	—	—	—	—	—
Tacubaya	N.	9·9	312	2 18	− 7	—	—	—	—	—
Columbia		23·0	22	e 5 26	+19	e 9 7	− 7	—	—	—
San Juan		24·9	74	e 6 0	PP	(e 10 7)	+20	e 6 25	PPP	e 11·1
St. Louis		25·7	2	e 5 37	+ 4	e 10 9	+ 8	e 6 7	PP	—
Florissant		25·8	2	i 5 38	+ 4	e 10 11	+ 9	—	—	—
Tucson		26·2	321	e 5 38	0	e 10 11	+ 2	—	—	i 10·4
Huancayo		29·5	146	e 6 12	+ 4	—	—	—	—	e 17·0
Philadelphia		30·5	26	—	—	e 11 27	+ 9	—	—	e 14·2
La Jolla	Z.	30·9	316	e 6 29	+ 9	—	—	—	—	—
Riverside	Z.	31·6	317	e 6 27	+ 1	—	—	—	—	—
Pasadena	Z.	32·2	317	e 6 40	+ 8	—	—	—	—	e 19·5
Salt Lake City		33·1	332	—	—	e 12 2	+ 3	—	—	e 15·0
Tinemaha	Z.	34·0	321	e 6 48	0	—	—	—	—	—
Ottawa		35·0	19	e 7 1	+ 5	e 12 42	+14	—	—	e 17·3
Bozeman		36·7	339	—	—	e 12 58	+ 4	—	—	e 19·6
Victoria		44·2	331	—	—	e 14 48	+ 2	—	—	24·3

Additional readings :—
San Juan e = +6m.33s.
St. Louis eSSN = +10m.59s.
Tucson i = +5m.52s., +6m.7s., and +6m.40s.
Philadelphia e = +12m.6s.
Long waves were also recorded at other American stations.

May 11d. 22h. Local Japanese shock. Tokyo Imp. University gives Epicentre 35°·85N. 139°·54E.
Tokyo Imp: Univ. P = 27m.26s., S = 27m.38s.
Susaki P = 27m.28s., S = 27m.48s.
Kamakura P = 27m.29s., S = 27m.41s.
Kiyosumi P = 27m.29s., S = 27m.42s.
Komaba P = 27m.29s., S = 27m.41s.
Koyama P = 27m.29s., S = 27m.44s.
Mitaka P = 27m.29s., S = 27m.41s.
Titibu P = 27m.29s., S = 27m.37s.
Togane P = 27m.29s., S = 27m.42s.
Tukubasan P = 27m.29s., S = 27m.39s.
Mizusawa ePE = 28m.0s., SE = 28m.38s.

May 11d. Readings also at 3h. and 4h. (near Amboina), 5h. (Huancayo and near La Paz), 7h. (near Lick), 9h. (Balboa Heights), 12h. and 15h. (Tacubaya), 17h. (Bucharest, Sofia, Belgrade, Warsaw, Potsdam, Basle, Triest, Zurich, De Bilt, Uccle, Stuttgart, Kew, and Agra), 19h. (Andijan, Samarkand, and Tchimkent), 21h. (De Bilt, Paris, Potsdam, Warsaw, Triest, and near Grozny).

May 12d. Readings at 1h. (Tacubaya and Tucson), 2h. (Belgrade), 3h. (Potsdam, Warsaw, De Bilt, Uccle, near Bucharest, Sofia, Samarkand, and near Andijan), 4h. (Tacubaya, San Juan, Oaxaca, Vera Cruz, Tucson, Berkeley, Ukiah, Pasadena, Riverside, Salt Lake City, Philadelphia, Harvard, Columbia, Triest, and Zurich), 5h. (Scoresby Sund, St. Louis, Seattle, and La Paz), 7h. (Tucson and near Apia), 8h. (La Plata), 11h. (Lick), 17h. (Jena), 20h. (near Apia), 21h. (near San Juan).

May 13d. 16h. 1m. 46s. Epicentre 40°·4N. 126°·0W.

Intensity V at Loleta, Santa Cruz, and Ferndale ; felt uniformly at San Francisco, Ukiah, Eureka, and in Oregan at De Foe Bay and Knappa. Epicentre in the area of Cap Mendocino, 40°·4N. 126°·0W. (U.S.C.G.S.).

F. Neumann.
United States Earthquakes, 1941. Washington 1943, p. 10.

$$A = -\cdot4489,\ B = -\cdot6178,\ C = +\cdot6456 ; \quad \delta = -1 ; \quad h = -2 ;$$
$$D = -\cdot809,\ E = +\cdot588 ; \quad G = -\cdot379,\ H = -\cdot522,\ K = -\cdot764.$$

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ferndale		1·3	83	i 0 28	+ 3	i 0 51	+ 7	—	—	—
Ukiah		2·5	121	i 0 28	−15	i 0 58	−16	i 1 16	S*	i 1·7
Berkeley		3·8	130	i 0 58	− 3	i 1 52	+ 5	—	—	i 2·9
San Francisco		3·8	132	e 0 59	− 2	i 1 51	+ 4	—	—	—
Branner		4·2	133	i 1 4	− 3	i 2 0	+ 3	—	—	i 6·1
Santa Clara		4·4	133	e 1 17	P*	i 2 20	S*	—	—	—
Lick		4·6	130	e 1 10	− 2	e 2 12	+ 5	—	—	e 3·8
Fresno	N.	6·1	123	e 1 34	0	—	—	i 1 53	P*	i 4·9
Tinemaha		6·9	114	e 1 48	+ 3	e 3 27	S*	—	—	—
Seattle		7·7	18	i 1 53	− 3	—	—	—	—	i 3·9
Santa Barbara		7·8	139	e 1 53	− 5	e 3 28	0	—	—	—
Victoria		8·3	14	2 2	− 2	i 3 47	+ 7	—	—	—
Mount Wilson		8·8	132	i 2 9	− 2	i 3 55	+ 2	—	—	—
Pasadena		8·8	132	e 2 9k	− 2	i 3 54	+ 1	—	—	e 4·3
Riverside		9·4	130	i 2 18	0	i 4 8	+ 1	—	—	—
Spokane		10·1	38	i 2 20	− 8	i 4 20	− 5	—	—	i 5·5
Logan		10·8	78	i 2 44	+ 5	4 57	SS	—	—	—
Salt Lake City		10·8	83	e 2 40	+ 1	e 4 52	+10	e 2 55	PPP	i 5·7
Butte		11·3	56	i 2 44	− 2	i 4 46	− 8	—	—	i 5·5
Bozeman		12·1	59	i 2 56	− 1	i 5 21	+ 7	i 3 14	PPP	i 6·6
Tucson		14·7	119	i 3 32	+ 1	i 5 18	−58	i 3 37	PP	i 8·1
Denver		16·0	86	e 4 7	PPP	e 7 13	SS	—	—	e 8·2
Saskatoon		17·7	42	4 15	+ 5	7 47	SS	—	—	9·2
Sitka		18·2	344	e 4 6	−10	—	—	—	—	—
Lincoln		22·3	80	e 4 59	− 2	i 9 11	+ 9	—	—	i 12·6
Florissant		27·4	83	i 5 51	+ 2	i 10 44	+16	i 11 52	SSS	—
St. Louis		27·5	83	e 5 50	0	i 10 34	+ 4	i 11 47	SS	i 13·1
College		27·6	340	e 5 48	− 3	e 10 19	−13	—	—	e 12·7
Cape Girardeau		28·4	85	e 5 58	0	e 11 3	+18	i 12 50	?	e 14·7
Chicago U.S.C.G.S.		28·8	75	e 6 0	− 2	i 10 54	+ 3	—	—	e 13·1
Tacubaya	N.	31·1	125	e 6 30?	+ 8	—	—	—	—	—
Mobile		32·1	96	—	—	12 6	+23	—	—	17·9
Honolulu		33·0	244	—	—	e 10 44	?	—	—	e 13·4
Vera Cruz	Z.	33·2	121	e 7 54	PP	—	—	—	—	—
Toronto		34·4	69	6 56	+ 5	12 19	0	14 28	SS	16·2
Pennsylvania		36·2	74	e 7 36	+30	e 12 55	+ 8	e 15 56?	SSS	—
Ottawa		36·7	65	7 9	− 1	13 1	+ 7	8 45	PP	e 17·6
Georgetown		37·3	76	e 7 18	+ 2	e 12 56	− 8	8 45	PP	—
Philadelphia		38·4	74	e 7 26	+ 1	e 13 20	0	8 44	PP	e 16·1
Shawinigan Falls		38·5	63	7 28	+ 2	13 32?	+10	8 58	PP	18·2
Vermont		38·6	66	e 7 29	+ 3	13 17	− 6	—	—	e 16·3
Fordham		39·1	71	e 7 27	− 4	i 13 33	+ 2	i 9 5	PP	i 19·6
Seven Falls		39·7	61	7 36	0	i 13 49	+ 9	9 7	PP	e 20·2
Harvard		40·3	69	e 7 39	− 1	e 13 51	+ 2	e 16 31	SS	e 19·2
East Machias		42·6	64	e 8 1	+ 2	e 14 25	+ 2	i 9 45	PP	e 17·5
Halifax		45·2	64	8 23	+ 3	15 7	+ 6	18 26	SS	23·2
Bermuda		49·0	79	e 8 54	+ 4	16 0	+ 6	19 33	SS	23·2
Ivigtut		50·0	39	8 57	− 1	16 10	+ 1	11 2?	PP	24·2
San Juan		55·5	95	e 9 47	+ 8	i 17 27	+ 3	e 11 37	PP	i 24·1
Scoresby Sund		56·9	23	i 9 48	− 1	i 17 42	+ 1	e 12 57	PPP	25·6

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		70·1	127	e 11 17	+ 1	e 20 26	− 1	i 25 23	SS	i 35·3
Bergen		71·9	23	—	—	e 21 29	PPS	—	—	e 37·2
Aberdeen		72·0	28	—	—	i 20 57	PS	—	—	33·8
Stonyhurst		74·3	31	—	—	e 29 14?	SSS	—	—	40·2
Upsala		75·7	19	—	—	e 21 37	+ 7	e 25 44?	SS	e 33·2
Kew		77·0	32	e 11 56	0	21 42	− 3	e 14 44	PP	e 35·2
Copenhagen		78·0	23	—	—	21 58	+ 3	—	—	34·2
La Paz		78·0	124	e 12 2	0	21 46	− 9	27 29	SS	36·1
De Bilt		78·6	29	e 12 5k	0	e 22 4	+ 2	e 15 4	PP	e 34·2
Uccle		79·3	31	e 12 8	− 1	i 22 11	+ 2	e 14 56	PP	e 34·2
Paris		80·2	32	e 12 16?	+ 2	e 22 19	0	15 22	PP	35·2
Potsdam		81·0	25	e 12 18	0	i 22 35	+ 8	i 15 36	PP	e 31·2
Coimbra		81·7	43	12 17	− 5	22 13	−21	15 13	PP	e 39·2
Jena	N.	81·8	26	e 12 26	+ 4	e 23 14	PS	—	—	e 40·2
Lisbon		82·4	46	12 41?	+16	22 48?	+ 7	23 26?	PS	41·6
Stuttgart		82·8	28	i 12 26	− 1	e 22 56	+11	e 15 39	PP	e 36·4
Clermont-Ferrand		82·9	34	e 12 20	− 8	—	—	—	—	e 43·8
Basle		83·2	30	e 14 28	?	—	—	—	—	—
Neuchatel		83·4	31	e 12 29	− 1	—	—	—	—	—
Prague		83·4	25	—	—	e 23 39	PS	—	—	e 36·2
Warsaw		83·4	20	e 12 31	+ 1	e 22 55	+ 4	e 23 41	PS	e 40·2
Toledo		84·2	42	e 12 32	− 2	24 2	PS	12 40	P_eP	40·8
San Fernando		85·6	46	—	—	e 23 14	+ 1	—	—	e 41·2
Granada		86·5	43	i 12 59	+13	22 43	[−28]	16 45	PP	42·8
Triest		87·1	27	e 12 43	− 6	e 22 45	[−30]	—	—	e 41·0
Bucharest		91·9	20	—	—	e 23 26	[−18]	24 57	PS	37·2
Sofia		92·3	23	e 17 17	PP	e 23 56?	[+10]	e 25 37	PS	31·2
Istanbul		95·8	19	18 14?	PP	32 34	?	—	—	—
Manila		97·3	296	17 30	PP	26 24	PS	—	—	44·6
Rio de Janeiro		99·3	112	—	—	e 24 29	[+ 6]	—	—	e 44·2
Ksara		104·3	16	e 16 45	?	—	—	e 18 49	PP	—
Riverview	E.	106·2	239	—	—	e 27 0	PS	e 33 52	SS	e 48·7
Helwan	Z.	107·0	21	—	—	e 29 2	PPS	—	—	—
Agra	E.	109·2	337	—	—	e 29 16	PPS	—	—	—
Kodaikanal	E.	125·9	332	—	—	e 26 30	[+22]	—	—	—

Additional readings :—
Ferndale iP_gN = +34s., iE = +49s., iL = +1m.1s.
Ukiah i = +41s.
Berkeley iNZ = +1m.1s.
Fresno iN = +1m.39s.
Salt Lake City iS = +4m.56s.
Butte i = +2m.51s.
Bozeman i = +3m.41s., +5m.39s., and +5m.52s.
Tucson i = +4m.16s.
Denver iE = +4m.28s.
Sitka i = +4m.16s.
Lincoln i = +5m.11s.
Florissant iEZ = +5m.55s., eEN = +10m.33s., iN = +10m.50s., iE = +10m.54s.
St. Louis eN = +9m.53s., eSN = +10m.43s.
College e = +10m.29s.
Chicago U.S.C.G.S. iP = +6m.8s.
Ottawa SSS = +15m.38s.
Georgetown eS = +13m.2s.
Shawinigan Falls SS = +16m.20s.?
Fordham iSE = +13m.37s., iSS = +16m.27s.
Seven Falls SSS = +17m.2s.?
Harvard iSE = +14m.1s.
East Machias i = +8m.7s.
San Juan e = +13m.47s., i = +17m.49s. and +20m.52s., iSS = +21m.24s.
Scoresby Sund e = +11m.3s. and +14m.25s., i = +20m.27s.
Huancayo i = +21m.22s.
Upsala eN = +21m.44s. and +29m.14s., eE = +30m.14s.
Kew ePPPZ = +16m.38s., eZ = +22m.40s., eSS = +26m.44s., eQEN = +31m.14s.?
La Paz iSN = +22m.2s.
De Bilt iPS = +22m.59s., eSS = +26m.59s., eSSS = +31m.14s.?
Uccle eZ = +18m.32s., eSSN = +27m.22s.
Paris eSKKS = +22m.27s.?, SS = +26m.14s.?, SSS = +31m.8s.
Potsdam ePN = +12m.22s., eE = +12m.44s.?, iZ = +18m.48s., iPSN = +23m.14s., iPSZ = +23m.20s., iZ = +27m.9s., iSS?N = +27m.27s?E = +27., iSSm.36s.

Continued on next page.

Coimbra PE = +12m.53s., PP = +15m.32s., i = +23m.14s., SS = +30m.12s.
Jena eN = +21m.26s.
Lisbon PE = +13m.5s., SE = +22m.52s.?, PS?E = +23m.32s.?
Stuttgart ePSNE = +23m.33s., eSSN = +28m.34s.
Warsaw eN = +23m.0s.
Granada S = +23m.37s., iPS = +24m.15s.
Triest eS = +23m.36s.
Bucharest eN = +26m.26s.
Sofia eN = +20m.2s.
Ksara readings have been increased by 1h.
Long waves were also recorded at Budapest, Strasbourg, Guadalajara, Algiers, Belgrade, Tananarive, Christchurch, Columbia, Wellington, and Bombay.

May 13d. Readings also at 0h. (San Juan), 1h. and 7h. (near La Paz), 10h. (Ferndale), 12h. (Helwan, Tchimkent, Tashkent, and Andijan), 15h. (near Mizusawa), 17h. (near Granada, San Fernando, and near Toledo), 18h. (near Almata), 20h. (near Lick, San Francisco, Berkeley, Branner, and Ukiah), 21h. (Cape Girardeau), 22h. (near Manila and Branner), 23h. (near La Paz).

May 14d. 7h. 8m. 8s. Epicentre 25°·8N. 98°·4E. (as on 1937 Feb. 23d.).

$A = -\cdot1317$, $B = +\cdot8918$, $C = +\cdot4329$; $\delta = +5$; $h = +3$;
$D = +\cdot989$, $E = +\cdot146$; $G = -\cdot062$, $H = +\cdot428$, $K = -\cdot902$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Calcutta	N.	9·7	253	e 3 19	+57	i 6 2	?	—	—	i 7·4
Agra	E.	18·3	278	e 4 8	− 9	7 43	+ 4	—	—	—
Dehra Dun	N.	18·5	290	e 3 21?	−58	e 7 30	−14	—	—	e 10·0
Hyderabad		20·3	250	e 4 41	+ 1	8 38	+15	—	—	11·1
Zi-ka-wei	N.	20·9	70	e 3 30	−76	—	—	—	—	i 11·3
Medan		22·1	180	5 17	+18	11 13	L	—	—	(11·2)
Manila	Z.	23·9	114	i 5 17k	+ 1	i 10 16	SS	—	—	14·0
Bombay		24·6	259	e 5 26	+ 3	1 9 55	+13	e 6 9	PP	i 13·6
Almata		24·7	320	e 5 28	+ 4	—	—	—	—	—
Kodaikanal	E.	25·1	237	i 4 27	−61	i 10 7	+16	e 5 36	P	14·5
Colombo	E.	25·8	227	5 52?	+18	—	—	—	—	—
Andijan		26·3	310	e 5 38	− 1	—	—	—	—	—
Irkutsk		26·8	8	5 42	− 2	10 24?	+ 5	—	—	—
Tashkent		28·6	310	e 5 59	− 1	e 10 49	+ 1	—	—	—
Tchimkent		28·8	313	e 6 1	− 1	—	—	—	—	—
Vladivostok		32·3	49	e 6 27	− 6	e 11 44	− 2	—	—	—
Sverdlovsk		41·1	329	7 49	+ 2	14 2	+ 1	—	—	—
Baku		42·6	303	—	—	e 14 30	+ 7	—	—	—
Pulkovo		57·1	326	e 9 56	+ 6	e 17 48	+ 3	—	—	—
Stuttgart		70·6	315	i 11 19	0	—	—	e 14 20	PP	—

Additional readings :—
Medan PN = +5m.21s.
Bombay iE = +10m.18s., eN = +10m.34s., iSSE = +11m.9s., eS_eSE = +16m.21s.
Stuttgart i = +11m.34s.
Long waves were also recorded at Batavia, Taihoku, Butte, Bozeman, College, and other European stations.

May 14d. 8h. 36m. 20s. Epicentre 39°·3N. 22°·4E.

$A = +\cdot7174$, $B = +\cdot2957$, $C = +\cdot6308$; $\delta = +1$; $h = -1$;
$D = +\cdot381$, $E = -\cdot925$; $G = +\cdot583$, $H = +\cdot240$, $K = -\cdot776$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sofia		3·5	12	e 0 52	− 5	i 1 32	− 8	—	—	—
Istanbul		5·4	69	1 28	+ 4	(2 17)	−11	3 0	S_g	—
Belgrade		5·7	346	i 0 3	?	i 1 39	−56	—	—	e 7·5
Bucharest		5·8	27	e 1 25	− 4	i 2 49	+11	i 1 45	P*	—
Kalossa		7·7	342	e 2 5	+ 9	—	—	e 2 10	P*	e 4·3
Kecskemet	z.	7·8	347	e 1 55	− 3	e 4 1	S*	—	—	4·4
Budapest		8·5	345	2 8	+ 1	e 3 46	+ 1	i 4 26	S*	4·7
Triest		9·0	318	e 2 18	+ 5	e 3 52	− 6	(i 4 55)	S_g	e 5·7
Ogyalla	E.	9·1	342	e 3 7	+53	e 4 3	+ 3	—	—	4·7
Yalta		10·2	56	e 2 25	− 6	—	—	—	—	—
Simferopol		10·4	53	e 2 28	− 6	—	—	—	—	—
Theodosia		11·2	55	2 44	0	—	—	—	—	—
Helwan		11·9	139	1 2 52k	+ 2	5 4	− 5	i 3 37	PP	—
Chur		12·0	313	e 2 58	+ 3	e 5 0	−11	—	—	e 6·3
Ksara		12·1	112	e 2 58	+ 1	e 5 25	+11	—	—	—
Prague		12·2	335	e 2 55	− 3	e 5 28	+12	—	—	e 6·2
Ravensburg		12·6	317	e 3 3	0	e 6 1	SS	e 3 58	PPP	—
Zurich		12·9	313	e 3 4	− 3	—	—	—	—	—
Warsaw		13·0	356	e 3 9k	0	e 5 35	0	e 6 43	SSS	e 7·0
Stuttgart		13·4	319	e 3 10	− 4	e 6 7	SS	i 3 26	PP	e 7·2
Basle		13·6	313	e 3 13	− 4	e 6 51	+61	—	—	e 7·5
Neuchatel		13·6	309	e 3 14	− 3	—	—	—	—	e 7·9
Jena		13·9	330	e 3 15	− 6	e 6 22	SS	—	—	e 6·7
Strasbourg		14·0	316	e 4 13	+51	e 6 10?	+11	—	—	—
Potsdam		14·6	337	i 3 29k	− 1	i 6 31	SS	—	—	7·7
Algiers		15·5	267	e 3 46	+ 4	e 7 20	SSS	—	—	11·7
Paris		17·1	310	e 4 1	− 1	e 7 7	− 5	—	—	e 9·3
Uccle		17·1	318	e 4 10	+ 8	7 22	+10	—	—	8·9
De Bilt		17·5	323	i 4 7a	0	i 7 30	+ 9	—	—	e 8·7
Copenhagen		17·7	341	e 4 11k	+ 1	7 37	+11	—	—	8·7
Grozny		18·0	71	4 16	+ 3	7 36	+ 4	—	—	—
Moscow		19·3	27	4 22	− 7	7 51	−11	—	—	—
Almeria		19·7	272	4 13	−21	8 21	+11	4 49	PP	10·7
Kew		20·0	316	4 36a	− 1	8 18	+ 1	4 49	PP	e 10·7
Toledo		20·4	280	e 4 16	−25	i 8 29	+ 4	5 11	pP	—
Granada		20·5	274	i 4 23a	−19	i 8 42	+15	4 50	pP	—
Oxford		20·6	315	4 42	− 1	e 8 32	+ 3	—	—	i 11·9
Baku		21·1	80	e 4 57	+ 9	i 8 46	+ 7	—	—	—
Pulkovo		21·1	12	4 50	+ 2	e 8 40	+ 1	—	—	—
Stonyhurst		22·3	320	—	—	e 9 11	+ 9	—	—	—
Coimbra		23·7	283	e 5 17	+ 3	9 32	+ 5	—	—	12·6
Lisbon		24·5	279	5 25?	+ 3	9 44	+ 4	—	—	13·2
Sverdlovsk		30·5	43	6 14	− 3	11 15	− 3	—	—	—
Tashkent		35·5	73	6 57	− 3	—	—	—	—	—
Scoresby Sund		38·7	339	e 8 53	PP	e 14 4	+39	—	—	e 21·2
Agra	E.	47·4	88	—	—	e 15 21	−11	—	—	—
Bombay	N.	47·8	101	e 8 43	+ 2	—	—	e 10 39	PP	—
Vladivostok		76·1	45	e 11 49	− 2	—	—	—	—	—

Additional readings :—
Sofia iEN = +55s.
Istanbul S given as PP, SS = +3m.40s.
Belgrade i = +22s., iPP = +33s., iPPS = +1m.12s.
Bucharest iP*NZ = +1m.48s.
Kalossa eN = +2m.43s., ePE = +3m.2s. and +3m.48s.
Budapest ePN = +2m.23s., eN = +3m.58s.
Triest e = +2m.47s., +3m.47s., +4m.9s., and +4m.27s., S_g given as S, eSS = +5m.20s.
Helwan S*Z = +5m.55s., S_gE = +6m.31s., P_cPE = +8m.46s.
Ravensburg eE = +5m.26s., eN = +5m.30s.
Warsaw eS?E = +5m.43s., eZ = +6m.52s.
Jena iPZ = +3m.26s., eSN = +6m.28s.

Continued on next page,

Potsdam iE = +4m.30s., iSSSE = +7m.2s.
Paris eS = +7m.21s., e = +9m.18s.
Almeria PPP = +5m.0s., P_cP = +7m.45s., SS = +9m.25s., SSS = +9m.41s.
Kew eQEN = +10m.10s.?
Granada PP = +5m.15s., ePPP = +5m.46s., P_cP = +7m.16s., sS = +9m.24s., SS = +10m.33s., S_cP = +10m.42s., P_cS = +11m.14s.
Oxford iS = +8m.39s.
Coimbra ePN = +5m.21s.
Lisbon PZ = +5m.34s.?, SN = +9m.47s.
Long waves were also recorded at Bergen and San Fernando.

May 14d. Readings also at 1h. (Bozeman), 3h. (near Manila), 4h. (Mizusawa and near Ferndale), 5h. and 8h. (near Manila), 9h. (near Andijan), 13h. (near Bucharest), 18h. (Tucson and Branner), 19h. (near Batavia and near Andijan), 20h. (Tucson), 22h. (Tucson and Wellington).

May 15d. 15h. 19m. 47s. Epicentre 36°·3N. 71°·0E. (as on 1941 March 11d.). Depth 0·030.

Intensity VIII at Srinagar, VI at Drosh, V at Muzzafferabad, IV at Chakdara Fort, Peshawar, Cherat, and Parachinar.

Epicentre Hindou-Kouch 38°·0N. 74°·0E. Depth 200km.? (Bombay).

See Government of India Seismological Bulletin for 1941, p. 45.

$A = +·2630$, $B = +·7638$, $C = +·5894$; $\delta = -5$; $h = 0$;
$D = +·946$, $E = -·326$; $G = +·192$, $H = +·557$, $K = -·808$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Andijan		4·6	14	1 13	+ 2	—	—	—	—	—
Samarkand		4·6	319	1 2	− 9	—	—	—	—	—
Tashkent		5·2	347	i 1 17	− 1	—	—	—	—	—
Tchimkent		6·1	351	i 1 29	− 1	—	—	—	—	—
Frunse		7·1	22	1 46	+ 4	—	—	—	—	—
Almata		8·3	32	2 8	+10	—	—	—	—	—
Dehra Dun	N.	8·4	133	e 1 44?	−15	i 3 20	−12	—	—	—
Agra	E.	10·9	145	i 2 29	− 2	i 4 27	− 3	3 16	sP	—
Semipalatinsk		15·6	22	3 32	+ 2	—	—	—	—	—
Bombay		17·4	174	i 4 2	pP	i 7 24	sS	i 4 50	pP	—
Hyderabad		19·9	159	—	—	8 3	+21	—	—	—
Sverdlovsk		21·7	345	4 38	+ 4	i 8 24	+ 9	i 5 14	pP	—
Kodaikanal	E.	26·6	166	—	—	e 8 38	−58	—	—	—
Irkutsk		28·4	44	e 5 48	+12	e 10 30	+25	—	—	—
Moscow		29·8	321	5 47	− 1	e 10 25	− 2	—	—	—
Pulkovo		35·1	325	e 6 34	0	e 11 48	− 1	—	—	—
Vladivostok		46·4	62	e 8 13	+ 7	—	—	—	—	—

Additional readings:—
Bombay iE = +5m.14s., iSN = +7m.26s., eEN = +8m.47s.
Long waves were also recorded at Clermont-Ferrand.

May 15d. Readings also 0h. (near Lick), 3h. (Mount Wilson, Riverside, Tucson, near Lick, Branner, Fresno, and Pasadena), 4h. (Copenhagen, Jena, Stuttgart, Mount Wilson, Riverside, Tucson (2), and Pasadena), 5h. (near Tucson), 6h. (Almata, Tchimkent, Tashkent, near Apia, Andijan, Branner, Fresno, and near Lick), 9h. (Sofia and Tucson), 15h. (Tucson, near Lick, Mount Wilson, Riverside, and Pasadena), 16h. (near Lick), 17h. (Pasadena, Riverside, Mount Wilson, and Tucson), 22h. (Tucson).

May 16d. 1h. 27m. 48s. Epicentre 39°·3N. 22°·4E. (as on 1941 May 14d.).

$A = +\cdot7174$, $B = +\cdot2957$, $C = +\cdot6308$; $\delta = +1$; $h = -1$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sofia		3·5	12	e 0 56	− 1	i 1 23	−17	i 2 6	S_g	—
Istanbul		5·4	69	1 29	+ 5	2 34	+ 6	—	—	—
Belgrade		5·7	346	i 0 0	?	i 1 31	−64	i 3 16	S_g	e 5·6
Bucharest		5·8	27	e 1 27	− 2	e 2 51	S*	e 2 6	P_g	—
Kalossa		7·7	342	e 2 9	P*	—	—	e 2 12	P*	4·2
Budapest		8·5	345	2 8	+ 1	e 3 55	+10	e 4 25	S*	e 4·8
Triest		9·0	318	e 2 22	+ 9	i 3 45	−13	i 5 5	S_g	—
Ogyalla	E.	9·1	342	4 3	S	(4 3)	+ 3	—	—	5·7
Theodosia		11·2	55	2 45	+ 1	4 48	− 4	—	—	—
Helwan		11·9	139	i 2 54	0	5 4	− 5	5 21	SS	—
Chur		12·0	313	e 2 53	− 2	e 5 11	0	—	—	—
Ksara		12·1	112	e 3 3	+ 6	—	—	—	—	e 7·5
Prague		12·2	335	e 2 52	− 6	e 5 32?	SS	—	—	—
Zurich		12·9	313	e 3 7a	0	e 5 35	+ 2	—	—	e 5·8
Warsaw		13·0	356	e 4 11	+62	e 6 36	+61	—	—	e 8·2
Stuttgart		13·4	319	e 3 13?	− 1	—	—	e 3 26	PP	—
Basle		13·6	313	e 3 15	− 2	e 5 44	− 6	—	—	—
Neuchatel		13·6	309	e 3 15	− 2	—	—	—	—	—
Jena	N.	13·9	330	e 3 22	+ 1	—	—	i 3 35	PP	e 7·7
Strasbourg		14·0	316	e 3 52	PP	e 5 54	− 5	—	—	7·7
Potsdam		14·6	337	e 3 43	+13	e 6 12?	+ 1	—	—	i 9·2
Clermont-Ferrand		15·6	301	e 3 49	+ 6	—	—	—	—	—
Paris		17·1	310	e 4 10	+ 8	e 7 22	+10	e 8 21	SSS	9·2
Uccle		17·1	318	e 4 '6?	+ 4	7 20	+ 8	—	—	e 9·2
De Bilt		17·5	323	—	—	e 7 36	+15	—	—	e 9·2
Copenhagen		17·7	341	e 4 16	+ 6	7 43	SS	—	—	9·2
Grozny		18·0	71	e 4 21	+ 8	7 42	+10	—	—	—
Moscow		19·3	27	4 28	− 1	8 3	+ 1	—	—	—
Almeria		19·7	272	4 30	− 4	8 10	0	5 2	PPP	—
Kew		20·0	316	4 39	+ 2	e 8 21	+ 4	e 10 12?	Q	10·7
Toledo		20·4	280	e 4 38	− 3	e 8 45	SS	—	—	—
Granada		20·5	274	i 4 33a	− 9	i 8 44	+17	4 48	pP	11·4
Upsala		20·8	353	i 4 43	− 2	8 35	+ 2	—	—	—
Baku		21·1	80	e 4 49	+ 1	e 8 44	+ 5	—	—	—
Pulkovo		21·1	12	e 4 48	0	e 8 37	− 2	—	—	—
Coimbra		23·7	283	e 5 3	−11	9 38	+11	—	—	e 12·2
Sverdlovsk		30·5	43	6 16	− 1	11 16	− 2	—	—	—
Andijan		37·9	72	7 34	+14	—	—	e 9 27	PPP	—
Vladivostok		76·1	45	11 51	0	—	—	—	—	—

Additional readings :—
Sofia iEN = +1m.32s.
Istanbul S_gS_g = +3m.20s.
Belgrade iPP = +28s., e = +54s., iPPS = +1m.17s., i = +1m.44s., iSS = +2m.4s., i = +2m.26s.
Bucharest ePN = +1m.30s., iZ = +1m.53s. and +2m.19s., eSNZ = +2mr.54s., eS_gEN = +3m.47s.
Kalossa eN = +2m.59s.
Budapest eE = +4m.28s.
Triest i = +2m.39s. and +2m.52s.
Ogyalla eE = +4m.52s.
Helwan PPZ = +2m.57s.
Warsaw eSZ = +6m.42s., eSE = +6m.46s., eE = +7m.40s., eN = +7m.58s.
Stuttgart i = +3m.29s.
Jena eZ = +3m.28s.
Potsdam iE = +8m.10s.?, iZ = +8m.14s.
Almeria PPP = +5m.16s., P_cP = +8m.36s., SS = +9m.30s., P_cS = +11m.36s.
Granada P_cP = +7m.20s., sS = +9m.29s., S_cP = +10m.43s.

May 16d. 2h. 36m. 32s. Epicentre 40°·4N. 126°·0W. (as on 1941 May 13d.).

$A = -\cdot4489$, $B = -\cdot6178$, $C = +\cdot6456$; $\delta = -1$; $h = -2$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ferndale		1·3	83	e 0 30	+ 5	e 0 53	+ 9	—	—	—
Ukiah		2·5	121	e 0 42	− 1	i 1 22	S_g	—	—	i 2·1
Berkeley		3·8	130	e 1 0	− 1	i 1 54	S*	i 1 7	P*	—
San Francisco		3·8	132	e 0 59	− 2	e 1 51	+ 4	—	—	—
Branner		4·2	133	e 1 7	0	i 3 2	+65	—	—	—
Santa Clara	Z.	4·4	133	e 1 10	0	e 2 9	+ 7	—	—	e 3·5
Lick		4·6	130	e 1 10	− 2	i 2 9	+ 2	—	—	—
Fresno	N.	6·1	123	e 1 34	0	e 2 56	+11	—	—	—
Tinemaha	Z.	6·9	114	e 1 49	+ 4	—	—	—	—	—
Seattle		7·7	18	e 2 49	P_g	—	—	—	—	—
Mount Wilson	Z.	8·8	132	e 2 10	− 1	e 3 55	+ 2	—	—	—
Pasadena		8·8	132	i 2 8	− 3	i 3 55	+ 2	—	—	—
Riverside	Z.	9·4	130	e 2 18	0	i 4 9	+ 2	—	—	—
Bozeman		12·1	59	e 2 53	− 4	e 5 59	SSS	—	—	e 7·7
Tucson		14·7	119	i 3 33	+ 2	e 6 39	SS	i 3 46	PP	e 10·3
Florissant	E.	27·4	83	e 5 58	+ 9	e 10 44	+16	—	—	—
Ottawa		36·7	65	—	—	e 13 4?	+10	—	—	21·5

Additional readings :—
Ferndale eEN = +46s. and +1m.27s.
Ukiah e = +59s., eS = +1m.27s., i = +1m.40s.
Berkeley iZ = +1m.38s., iNZ = +1m.50s.
Bozeman e = +7m.3s.
Tucson i = +4m.3s., +4m.12s., and +4m.46s., e = +8m.49s.
Long waves were also recorded at Columbia, East Machias, Philadelphia, Chicago U.S.C.G.S., Butte, Harvard, and Salt Lake City.

May 16d. 4h. 49m. 26s. Epicentre 40°·4N. 126°·0W. (as at 2h.).

$A = -\cdot4489$, $B = -\cdot6178$, $C = +\cdot6456$; $\delta = -1$; $h = -2$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ferndale		1·3	83	—	—	e 0 44	0	—	—	3·2
Ukiah		2·5	121	—	—	e 1 41	+27	—	—	e 3·6
San Francisco		3·8	132	e 0 58	− 3	i 1 49	+ 2	—	—	—
Branner		4·2	133	e 1 5	− 2	e 2 0	+ 3	—	—	—
Lick		4·6	130	e 1 9	− 3	e 2 8	+ 1	—	—	—
Fresno	N.	6·1	123	e 2 4	P_g	e 2 53	+ 8	—	—	—
Tinemaha		6·9	114	e 1 49	+ 4	e 4 13	?	—	—	—
Mount Wilson	Z.	8·8	132	—	—	e 4 1	+ 8	—	—	—
Pasadena	Z.	8·8	132	—	—	i 3 54	+ 1	—	—	i 6·3
Riverside		9·4	130	—	—	e 4 50	S*	—	—	—
Tucson		14·7	119	e 3 37	+ 6	i 6 20	+ 4	e 3 48	PP	e 12·0

Additional readings :—
Tucson i = +3m.42s., +6m.1s., and +6m.40s.
Long waves were also recorded at Salt Lake City and Bozeman.

May 16d. 7h. 14m. 29s. Epicentre 23°·7N. 99°·4E.

A = −·1497, B = +·9044, C = +·3996; δ = +3; h = +4;
D = +·987, E = +·163; G = −·065, H = +·394, K = −·917.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Calcutta		10·2	266	e 2 40	+ 9	i 4 49	SS	i 5 38	S_g	—
Agra		19·6	284	i 4 20	−12	i 8 1	− 7	—	—	9·7
Medan		20·0	183	4 36	− 1	i 8 29	+12	—	—	i 10·6
Dehra Dun		20·1	294	e 4 33	− 5	e 8 15	− 4	—	—	11·1
Taihoku		20·2	82	e 4 41	+ 2	8 41	SS	—	—	10·7
Hyderabad		20·6	256	4 39	− 4	8 25	− 4	4 55	PP	10·3
Zi-ka-wei		20·9	65	e 4 46	0	8 38	+ 3	—	—	11·5
Manila	Z.	22·3	111	i 5 1a	0	i 9 21	+19	i 5 35	PP	i 12·1
Dairen		24·2	47	5 20	+ 1	9 49	+14	—	—	—
Kodaikanal	E.	24·8	243	i 5 20a	− 5	i 9 50	+ 4	—	—	12·2
Colombo	E.	25·1	231	5 28	− 1	9 58	+ 7	—	—	12·8
Bombay		25·2	264	e 5 29	0	i 9 53	+ 1	i 6 6	PP	—
Naha		25·7	79	5 52	+19	10 25	+24	—	—	—
Almata		26·9	322	5 49	+ 4	—	—	—	—	—
Frunse		28·0	318	5 52	− 3	—	—	—	—	—
Andijan		28·3	313	e 6 0	+ 3	—	—	—	—	—
Irkutsk		28·8	7	i 6 2	0	i 10 52	+ 1	—	—	—
Hukuoka		28·9	64	e 6 1	− 2	15 45	L	—	—	(15·7)
Miyazaki		29·4	67	10 53	S	(10 53)	− 8	—	—	(16·2)
Hamada		30·5	62	11 43	S	(11 43)	+25	—	—	(17·2)
Semipalatinsk		30·5	336	6 19	+ 2	—	—	—	—	—
Batavia		30·6	165	6 18	0	i 11 23	+ 3	—	—	14·5
Tashkent		30·7	313	i 6 17	− 2	e 11 20	− 1	—	—	—
Matuyama		30·8	64	6 33	+13	15 38	L	—	—	(15·6)
Samarkand		31·6	307	6 20	− 6	—	—	—	—	—
Kobe		33·0	63	6 37	− 2	14 25	SSS	—	—	—
Nagoya		34·5	62	6 58	+ 6	16 38	L	—	—	(16·6)
Yokohama		36·7	62	e 7 51	+41	—	—	—	—	e 18·8
Tokyo Cen. Met. Ob.		36·8	62	e 7 8	− 3	15 4	SS	e 9 25	PPP	20·2
Sendai		38·1	58	7 20	− 2	13 7	− 9	—	—	—
Mizusawa		38·4	56	7 25	0	13 18	− 2	—	—	—
Mori		38·7	51	e 7 27	0	—	—	—	—	20·5
Amboina		39·1	131	7 29	− 2	13 49?	+18	(16 31?)	SS	16·5
Sapporo		39·5	50	e 6 43	−51	—	—	—	—	20·5
Sverdlovsk		43·4	330	i 8 7	+ 1	i 14 35	0	—	—	—
Baku		44·5	304	8 16	+ 1	i 14 58	+ 7	—	—	—
Grozny		48·0	307	e 8 45	+ 2	—	—	—	—	—
Piatigorsk		50·0	308	e 10 58	PP	—	—	—	—	—
Moscow		55·0	323	9 37	+ 2	17 18	+ 1	—	—	—
Theodosia		55·5	309	9 41	+ 2	17 24	0	—	—	—
Simferopol		56·4	310	e 9 49	+ 4	17 34	− 2	—	—	—
Pulkovo		59·8	327	10 4	− 5	i 18 14	− 6	—	—	—
Helwan		60·3	292	i 10 7	− 6	18 37	+11	12 37	PP	—
Istanbul		60·3	305	e 10 18	+ 5	—	—	—	—	—
Bucharest		62·1	309	e 10 19	− 6	e 18 50	+ 1	e 10 54	P_cP	25·5
Sofia		64·4	307	e 10 44	+ 4	e 19 13	− 5	e 15 20	PPP	e 34·5
Warsaw		64·6	318	(e 10 31)	−10	(19 20)	− 1	(e 20 49)	PS	(e 32·5)
Upsala		65·7	327	e 10 50	+ 2	19 33	− 1	e 26 54?	SSS	e 31·5
Belgrade		66·0	310	e 9 59	−51	e 18 36	−62	e 10 39	P_cP	e 25·5
Kecskemet	Z.	66·2	312	e 11 31?	+39	—	—	—	—	—
Budapest	N.	66·5	313	e 11 5	+11	e 20 56	PPS	—	—	35·5
Kalossa		66·8	312	e 11 1	+ 5	—	—	—	—	—
Ogyalla	E.	67·0	313	e 12 1	+64	—	—	—	—	e 36·0
Copenhagen		69·1	323	e 11 12	+ 2	20 17.	+ 2	24 47	SS	31·5
Prague		69·1	317	e 12 31?	?	e 19 31?	−44	e 24 31?	SS	e 32·5
Potsdam		69·4	320	e 11 17	+ 5	i 20 20	+ 2	—	—	e 27·5
Triest		70·5	312	e 11 13	− 5	i 20 31?	− 1	i 13 37	PP	—
Jena		70·6	317	e 11 19?	0	e 20 31?	− 2	e 28 31?	SSS	e 32·5
Bergen		71·7	329	i 11 33	+ 7	e 20 45	0	e 29 13	SSS	e 35·0
Stuttgart		72·3	316	e 11 32	+ 3	e 20 52	0	e 13 45	PP	e 35·9

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane	N.	72·6	132	—	—	e 21 0	+ 4	—	—	—
Chur		73·0	314	e 11 32	− 1	—	—	—	—	e 38·9
Zurich		73·5	315	e 11 34	− 2	e 20 58	− 8	—	—	—
Strasbourg		73·7	316	e 11 43	+ 5	e 21 9	+ 1	e 26 1	SS	38·5
Basle		74·1	315	e 11 40	0	e 21 9	− 3	—	—	—
De Bilt		74·2	320	e 11 38	− 2	i 21 16	+ 2	e 25 56	SS	e 36·5
Neuchatel		74·7	315	e 11 42	− 1	—	—	—	—	—
Riverview		75·5	138	i 21 37	S	(i 21 37)	+ 9	—	—	e 39·4
Sydney		75·5	138	—	—	e 21 49?	PS	—	—	e 40·3
Aberdeen	N.	76·4	327	i 21 42	S	(i 21 42)	+ 4	(i 30 18)	SSS	37·5
Paris		76·9	317	11 58	+ 2	21 42	− 1	29 31?	SSS	34·5
Scoresby Sund		77·4	343	i 12 5	+ 7	i 21 54	+ 5	e 27 41	SS	e 35·2
Clermont-Ferrand		77·6	314	e 12 0	0	—	—	—	—	e 42·4
Kew		77·6	321	12 1	+ 1	i 21 51	0	12 8	P_cP	e 37·5
College		77·9	24	—	—	e 21 54	0	e 22 14	PS	e 37·3
Stonyhurst		77·9	324	—	—	e 21 31?	−23	—	—	41·5
Toledo		84·8	311	e 12 36	− 1	23 7	+ 2	—	—	—
Almeria		85·0	308	12 37	− 1	i 23 3	[+ 2]	13 5	P_cP	41·5
Granada		85·7	309	12 58 a	P_cP	i 23 6	[0]	16 4	PP	e 41·0
Sitka		87·1	26	—	—	i 25 11	PPS	e 29 35	SS	e 46·1
Coimbra		87·6	313	12 56	+ 5	23 36	+ 4	16 21	PP	43·5
San Fernando	N.	87·8	309	—	—	e 23 37	+ 3	e 26 59	?	e 40·5
Lisbon		88·8	312	12 54?	− 3	23 46	+ 2	16 36	PP	44·1
Ivigtut		91·5	345	—	—	23 39	[− 3]	—	—	—
Christchurch		94·7	137	—	—	e 38 1?	?	45 31?	Q	54·5
Wellington		95·1	134	—	—	e 40 31?	?	—	—	56·5
Victoria		98·6	27	—	—	i 24 25	[+ 5]	(35 31)	SSS	35·5
Butte		104·8	22	—	—	e 24 49	[− 1]	e 33 31	SS	e 37·8
Tucson		105·0	29	i 18 53	PP	i 26 39	+37	i 20 0	PPP	i 58·3
Bozeman		105·6	22	e 20 52	PPP	e 24 57	[+ 4]	e 27 52	PS	e 50·6
Uklah		105·9	34	—	—	e 24 54	[0]	e 33 36	SS	e 51·2
Berkeley		107·3	34	e 16 20	P?	e 24 2	[−59]	e 17 47	PKP	i 55·3
Seven Falls		109·0	352	—	—	e 26 43	{+45}	—	—	46·5
Salt Lake City		109·6	25	—	—	e 25 16	[+ 6]	e 28 29	PS	e 52·0
East Machias		110·2	350	—	—	e 26 31	{+25}	i 38 41	SSS	e 45·7
Ottawa		111·1	357	—	—	e 25 19?	[+ 2]	e 28 43?	PS	54·5
Mount Wilson	z.	112·3	33	e 19 13	PP	—	—	—	—	—
Pasadena		112·3	33	e 19 14	PP	e 28 52	PS	—	—	e 34·8
Toronto		112·3	359	—	—	e 28 7?	PS	—	—	38·5
Riverside		112·8	33	e 18 44	[+ 5]	—	—	—	—	—
Chicago U.S.C.G.S.		114·5	7	—	—	e 25 27	[− 3]	e 26 37	SKKS	e 52·4
Philadelphia		116·5	355	e 21 42	PPP	e 26 50	{ 0}	—	—	e 40·1
Florissant		117·2	9	e 19 40	PP	e 25 39	[− 1]	i 30 26	PPS	—
St. Louis		117·3	9	—	—	e 26 55	{ − 1}	e 29 47	PS	—
Bermuda		122·3	344	—	—	e 29 15	?	e 36 42	SS	e 57·3
Columbia		122·6	0	—	—	e 30 3	PS	e 41 40	SSS	e 60·8
San Juan		135·9	340	e 22 3	PP	e 27 55	{−61}	e 41 58	SSP	e 48·9
Rio de Janeiro		145·7	265	—	—	e 35 31	PPS	—	—	—
La Paz		166·3	299	e 19 57	[−10]	31 47	{+ 3}	49 21	?	79·0
Huancayo		167·4	336	e 20 20	[+12]	e 31 41	{ − 9}	e 45 40	SS	e 57·0

Additional readings :—
Calcutta $iS_gEN = +6m.12s.$
Medan $iSE = +8m.33s.$, $iN = +9m.39s.$
Zi-ka-wei $iE = +4m.51s.$, $iN = +8m.46s.$, $+10m.48s.$, and $+11m.11s.$
Taihoku $eP = +4m.45s.$
Bombay $iP_cPE = +9m.3s.$, $eP_cPN = +9m.23s.$, $iSE = +10m.6s.$, $iSSE = +10m.46s.$, $iSSN = +11m.7s.$
Miyazaki L given as S.
Hamada L given as S.
Tokyo Cen. Met. Ob. $i = +15m.18s.$
Mizusawa $ePN = +7m.28s.$
Helwan $iPZ = +10m.31s.$, $PPPEZ = +13m.49s.$, $SE = +19m.58s.$, $SSE = +22m.31s.$
Bucharest $P_cPN = +11m.3s.$, $ePP?E = +12m.26s.$, $eE = +13m.45s.$, $ePSE = +19m.6s.$, $eS_cS?NE = +20m.0s.$, $eSSN = +22m.51s.$
Warsaw $ePZ = +10m.47s.$ a, $SS?N = +23m.5s.$, $SSS?Z = +26m.6s.$; all readings have been diminished by 1m.

Continued on next page.

Upsala eSE = +19m.37s., eSSSE = +27m.1s.?
Belgrade ePP = +12m.29s., eS_cS = +19m.59s., eSS = +23m.38s.
Budapest eE = +30m.31s.
Copenhagen ? = +21m.18s. and +27m.55s.
Prague e = +27m.49s.?
Potsdam eNW = +11m.31s.?
Triest iSS = +25m.5s., iSSS = +28m.23s.
Jena eN = +28m.48s.
Stuttgart eSSSE = +29m.11s., eSSSN = +29m.21s.
Strasbourg i = +12m.3s.
De Bilt eSSS = +29m.31s.
Riverview iSE = +30m.37s., eSSN = +34m.46s., eSSSN = +37m.19s.
Scoresby Sund e = +12m.31s.
Kew eSSN = +27m.1s.?, eSSS = +31m.1s.?, eQEN = +33m.31s.?
College eSS = +27m.18s., e = +30m.46s.
Almeria PP = +16m.0s., S_cS = +23m.31s., PPS = +24m.3s., SS = +28m.43s., SSS = +32m.5s.
Granada PPP = +17m.36s., SS = +28m.40s., SSS = +31m.32s.
Sitka e = +32m.49s.
Coimbra SS = +29m.21s.
Lisbon PZ = +13m.0s., PE = +13m.22s., SSE = +29m.21s.
Ivigtut S = +24m.2s.
Christchurch eN = +40m.31s.?
Wellington i = +44m.31s.
Victoria eN = +25m.22s.
Tucson i = +19m.26s., e = +19m.45s., i = +21m.28s., e = +21m.40s., iS = +28m.2s., iPPS = +31m.11s., iSS = +35m.48s.
Bozeman eSS = +33m.17s., e = +34m.3s.
Ukiah e = +38m.15s.
Berkeley eE = +17m.59s. and +25m.2s., eN = +25m.8s., iPPSZ = +28m.9s., eE = +43m.31s.?, eN = +45m.25s.
East Machias e = +28m.38s., i = +34m.47s., e = +42m.31s.
Ottawa eE = +26m.19s.? and +34m.49s., e = +38m.55s.
Riverside eZ = +19m.31s.
Chicago U.S.C.G.S. e = +27m.19s.
Philadelphia eS = +27m.31s., e = +34m.40s.
Florissant eN = +27m.0s., eE = +27m.47s., iN = +30m.52s.
St. Louis iN = +30m.52s., eE = +36m.7s., eN = +40m.17s. and +44m.7s.
Columbia e = +31m.50s. and +34m.36s.
San Juan eSKS = +22m.35s., e = +23m.50s., eSS = +35m.36s., e = +45m.47s. and +48m.7s.
Huancayo e = +22m.56s., i = +37m.38s., i = +46m.6s., +50m.5s., and +52m.24s.
Long waves were also recorded at Lincoln, Seattle, Adelaide, Honolulu, Auckland, Algiers, Besancon, Santa Clara, Uccle, and Harvard.

May 16d. 8h. 46m. 13s. Epicentre 36°·3N. 71°·0E. (as on 1941 May 15d.).

A = +·2630, B = +·7638, C = +·5894 ; δ = −5 ; h = 0 ;
D = +·946, E = −·326 ; G = +·192, H = +·557, K = −·808.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Andijan		4·6	14	e 1 10	− 2	i 2 4	− 3	—	—	—
Samarkand		4·6	319	1 8	− 4	—	—	—	—	—
Tashkent		5·2	347	i 1 17	− 4	e 2 31	+ 9	—	—	—
Tchimkent		6·1	351	i 1 29	− 5	e 2 31	−14	—	—	—
Frunse		7·1	22	e 1 43	− 5	—	—	—	—	—
Almata		8·3	32	2 3	− 1	—	—	—	—	—
Agra	E.	10·9	145	e 2 56	PP	4 30	−14	—	—	—
Semipalatinsk		15·6	22	e 3 48	+ 5	—	—	—	—	—
Bombay		17·4	174	e 4 13	+ 7	e 7 34	+ 5	e 4 40	PP	e 9·1
Grozny		20·6	299	e 4 43	0	8 41	+12	—	—	—
Sverdlovsk		21·7	345	4 47	− 8	8 41	−10	—	—	—
Moscow		29·8	321	6 24	+13	11 28	+21	—	—	—
Pulkovo		35·1	325	7 11	+14	12 52	+22	—	—	—

Andijan also gives P_g = +1m.24s., is_g = +2m.16s.
Long waves were also recorded at Scoresby Sund, Ivigtut, and Potsdam.

May 16d. 13h. 7m. 21s. Epicentre 11°·0N. 70°·0W. Approximate.

A = +·3358, B = −·9227, C = +·1896; δ = +9; h = +6;
D = −·940, E = −·342; G = +·065, H = −·178, K = −·982.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Juan		8·3	27	e 2 3	− 1	i 5 44	?	—	—	i 9·9
Balboa Heights		9·6	259	2 14	− 7	—	—	—	—	—
Bermuda		21·7	12	—	—	e 9 8	+17	—	—	—
Huancayo		23·5	193	i 5 12	0	9 26	+ 3	—	—	i 12·6
La Paz		27·4	176	6 7	+18	i 10 49	+21	—	—	14·2
St. Louis		32·9	330	e 6 4	−34	(e 11 57)	+ 1	—	—	e 11·9
Florissant	E.	33·1	330	—	—	e 11 38	−21	—	—	—
Tucson		43·1	306	e 8 5	+ 1	—	—	i 9 52	PP	e 20·2
Riverside	Z.	48·9	306	i 8 51	+ 1	—	—	—	—	—
Mount Wilson	Z.	49·5	306	e 8 56	+ 2	—	—	—	—	—
Pasadena	Z.	49·5	306	e 8 56	+ 2	—	—	—	—	—
Tinemaha	Z.	50·5	309	i 9 4	+ 2	—	—	—	—	—
Toledo	Z.	64·6	51	e 10 41	0	—	—	—	—	—
Granada		64·7	54	e 11 9	+27	19 16	− 6	19 39	PS	e 36·8

Additional readings :—
San Juan i = +4m.11s., +5m.0s., +5m.28s., +6m.11s., +7m.3s., and +7m.28s.
Huancayo e = +5m.18s., +5m.48s., and +6m.35s., i = +9m.19s. and +10m.39s.
St. Louis eZ = +6m.37s.
Tucson i = +8m.29s., e = +13m.18s. and +17m.2s.
Granada SS = +22m.48s., SSS = +24m.49s.
Long waves were also recorded at La Plata, Rio de Janeiro, Berkeley, Columbia, East Machias, Philadelphia, De Bilt, Kew, and Paris.

May 16d. Readings also at 0h. (Tucson), 2h. (San Francisco and Berkeley), 4h. (Tucson, San Francisco, Branner, Santa Clara, Lick, Fresno, Berkeley, Tinemaha, and Mount Wilson), 9h. (Tinemaha, Mount Wilson, Pasadena, and Riverside), 10h. (near Almata), 13h. (near Frunse), 14h. (near Mizusawa), 15h. (Auckland, Tinemaha, Mount Wilson, Pasadena, Riverside, and Tucson), 17h. (Tucson), 18h. (near Ferndale), 21h. (near Toledo, Granada, and Almeria), 22h. (near La Paz), 23h. (Huancayo).

May 17d. 2h. 24m. 53s. Epicentre 10°·6S. 165°·5E.

A = −·9518, B = +·2461, C = −·1828; δ = −10; h = +6;
D = +·250, E = +·968; G = +·177, H = −·046, K = −·983.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane	E.	20·5	213	i 4 49	+ 7	i 8 37	+10	i 5 36	PP	—
Apia		22·4	102	4 52	−10	8 36	−28	5 12	PP	—
Riverview		26·6	208	i 5 41	− 1	i 10 14a	− 2	i 10 28	SS	e 12·9
Sydney		26·6	208	i 5 40	− 2	i 10 19	+ 3	i 8 7	?	13·1
Auckland		27·5	164	6 7?	+17	10 57	+27	6 59	PPP	12·5
Arapuni		28·8	164	6 19?	+17	11 1	+10	—	—	13·0
New Plymouth		29·4	167	6 8	+ 1	10 42?	−19	—	—	13·1
Tuai		30·0	163	6 14?	+ 2	10 59?	−11	—	—	13·1
Wellington		31·6	167	6 27	+ 1	11 32	− 3	7 23	PP	13·8
Christchurch		33·4	172	6 44	+ 2	11 52	−11	(13 7?)	SS	13·1
Adelaide		34·5	221	i 6 52	0	i 12 10	−10	i 7 52	PP	18·1
Palau		35·7	299	(6 41)	−21	(12 17)	−22	—	—	—
Amboina		37·6	279	7 15	− 3	12 59	− 9	—	—	e 18·1
Honolulu		48·0	50	i 8 38	− 5	i 15 32	− 9	i 10 18	PP	i 19·1
Perth		50·4	238	i 9 7	+ 6	i 16 27	+13	11 9	PP	23·2
Manila		50·7	300	i 9 5a	+ 2	16 33	+15	—	—	24·6
Naha		51·9	316	9 19	+ 7	16 42	+ 7	—	—	—
Yokohama		51·9	334	9 7	− 5	e 16 30	− 5	—	—	21·0
Tokyo, Cen. Met. Ob.		52·1	334	e 9 15	+ 1	16 36	− 2	—	—	21·4
Gihu		53·2	332	9 18	− 4	16 52	0	—	—	—
Kobe		53·4	330	9 27	+ 3	17 1	+ 6	—	—	—
Koti		53·4	327	9 21	− 3	16 50	− 5	—	—	—
Miyazaki		53·4	325	9 14	−10	16 53	− 2	—	—	22·7
Nagano		53·5	334	9 28	+ 4	17 8	+11	—	—	—
Mizusawa		54·4	338	e 9 31	0	e 14 49	?	—	—	22·4

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Hamada		55·2	327	9 39	+ 2	17 23	+ 3	—	—	—
Hukuoka		55·2	324	9 37	0	17 24	+ 4	i 23 29	SSS	—
Akita		55·3	337	9 42	+ 4	17 28	+ 7	—	—	23·1
Taihoku		55·6	311	e 9 42	+ 2	17 17	− 8	—	—	—
Mori		57·2	339	9 51	0	17 51	+ 5	i 11 5	PP	23·8
Sapporo		57·8	341	9 58	+ 3	17 57	+ 3	—	—	23·9
Batavia		58·1	270	9 56	− 2	—	—	—	—	e 26·1
Zinsen		60·1	325	10 11	0	18 30	+ 6	—	—	—
Vladivostok		61·6	333	e 10 20	− 2	i 18 48	+ 5	—	—	—
Medan		68·0	279	11 4	+ 1	20 24	PS	—	—	33·1
Irkutsk		81·6	327	12 19	− 2	22 30	− 3	—	—	—
Ferndale		82·2	47	e 12 25	+ 1	—	—	—	—	e 33·6
Calcutta	N.	82·4	295	e 12 31	+ 6	i 22 53	+12	i 23 9	S_cS	i 39·9
Ukiah		82·5	49	e 12 23	− 3	i 22 32	−10	i 15 31	PP	i 33·4
San Francisco	N.	82·6	51	e 12 24	− 2	e 22 36	− 7	—	—	e 34·1
Branner		82·7	51	e 12 24	− 3	e 22 3	−41	—	—	e 36·1
Berkeley		82·8	51	e 12 23	− 4	i 22 45	0	i 12 37	pP	e 31·0
Santa Clara		82·8	51	e 12 27	0	i 22 51	+ 6	—	—	e 37·2
College		82·9	19	e 12 30	+ 2	i 22 43	− 3	i 28 5	SS	e 34·2
Lick	E.	83·1	51	e 12 23	− 6	e 22 45	− 2	—	—	e 36·6
Sitka		83·3	29	e 12 36	+ 6	i 22 44	− 6	i 28 42	SS	e 33·1
Santa Barbara	Z.	83·7	54	e 12 23	− 9	—	—	—	—	—
Fresno	N.	84·3	52	e 12 30	− 5	e 22 58	− 2	—	—	e 37·1
Pasadena		84·8	55	i 12 26	−11	e 22 49	−16	e 15 49	PP	e 34·8
Mount Wilson		84·9	55	i 12 26	−12	—	—	—	—	—
La Jolla	Z.	85·2	56	e 12 31	− 8	—	—	—	—	—
Riverside		85·4	55	e 12 28	−12	—	—	—	—	—
Tinemaha	Z.	85·6	52	e 12 25	−16	—	—	—	—	—
Victoria		85·7	40	12 46	+ 4	23 12	− 2	16 26	PP	e 38·1
Seattle		86·1	41	e 13 27	+43	i 23 51	+33	i 29 35	SS	e 33·6
Colombo	E.	87·0	277	13 7	+19	23 4	−23	16 34	PP	49·9
Spokane	E.	89·3	42	e 13 1	+ 2	i 23 45	− 3	e 29 43	SS	e 40·5
Kodaikanal		89·9	281	—	—	i 23 27	[− 5]	i 30 5	SS	—
Tucson		90·3	57	i 12 53	−11	i 23 34	[− 1]	i 16 32	PP	i 39·6
Hyderabad		90·4	288	13 5	+ 1	23 39	[+ 3]	16 46	PP	41·1
Salt Lake City		91·2	49	e 13 3	− 5	i 23 39	[− 1]	i 25 9	PS	i 37·6
Logan		91·6	47	e 13 11	+ 1	e 24 15	+ 6	—	—	37·9
Butte		92·0	44	e 13 25	+13	e 24 2	−10	i 18 9	PPP	e 38·4
Agra		92·6	97	13 5	−10	23 43	[− 5]	16 52	PP	i 42·7
Bozeman		93·0	45	e 13 14	− 3	i 23 48	[− 2]	i 17 10	PP	i 42·4
Dehra Dun	N.	73·1	300	e 13 36?	+19	23 57	[+ 6]	e 30 0?	SS	e 45·1
Semipalatinsk		95·1	320	e 13 26	0	—	—	—	—	—
Bombay		95·9	288	e 13 30	0	e 24 7	[+ 1]	e 41 16	Q	i 47·0
Almata		96·1	313	e 13 39	+ 8	—	—	—	—	—
Saskatoon		97·0	39	e 13 49	+14	24 19?	[+ 7]	—	—	31·1
Tacubaya	N.	98·4	73	i 17 14	PP	—	—	—	—	—
Andijan		99·2	309	e 14 8	+23	e 24 26	[+ 3]	—	—	—
Tchimkent		101·4	311	e 15 15	?	—	—	—	—	—
Tashkent		101·6	310	e 13 55	− 1	e 24·36	[+ 1]	e 17 36	PP	—
Lincoln		102·8	51	e 14 17	+16	i 24 32	[− 8]	e 18 12	PP	e 47·3
Sverdlovsk		106·9	327	e 14 16	P	25 0	[+ 1]	i 17 58	PKP	—
Florissant		107·6	53	e 14 19	P	i 24 59	[− 3]	i 18 43	PP	—
St. Louis		107·7	53	e 14 18	P	i 25 1	[− 2]	i 18 48	PP	—
Cape Girardeau		108·2	55	e 17 47	PKP	e 24 57	[− 7]	—	—	—
Chicago U.S.C.G.S.		109·6	50	i 18 57	PP	i 25 6	[− 4]	28 21	PS	e 44·8
Tananarive		112·7	245	—	—	e 25 10	[−13]	29 1	PS	46·1
Columbia		115·3	58	e 19 37	PP	e 25 26	[− 7]	i 29 36	PS	e 46·8
Toronto		115·4	47	—	—	e 25 25	[− 8]	e 36 1?	SSP	e 48·1
Huancayo		115·5	109	i 19 40	PP	e 25 41	[+ 7]	i 35 56	SSP	i 49·4
Pittsburgh		115·5	50	e 19 36	PP	i 26 42	{− 1}	i 35 40	SS	—
Baku		116·3	310	e 14 42	P	25 19	[−18]	18 45	?	—
Ottawa		117·6	44	e 18 41	[− 7]	29 41	PS	19 47	PP	50·1
Grozny		118·8	314	20 14	PP	—	—	—	—	—
La Plata		118·9	140	29 37	PS	26 7?	?	49 7?	Q	55·1
Philadelphia		119·1	51	e 19 32	[+41]	e 25 40	[− 7]	e 36 7	SS	e 47·1

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.			L.
		°	°	m. s.	s.	m. s.	s.	m. s.			m.
Moscow		119·6	329	18 56	[+ 4]	26 0	[+11]	29 27		PS	—
Vermont		119·6	45	20 7	PP	e 25 43	[− 6]	i 36 29		SS	50·1
Fordham		119·9	49	e 15 24	P	e 25 44	[− 6]	i 36 52		SS	—
Scoresby Sund		120·0	3	e 19 30	[+37]	i 28 6	?	i 20 26		PP	—
Seven Falls		120·4	41	19 7	[+13]	25 7?	[−44]	20 18		PP	50·1
La Paz		120·5	117	e 19 7	[+13]	i 25 49	[− 3]	i 20 31		PP	56·3
Harvard		120·6	46	e 18 48	[− 6]	e 36 37	SS	e 20 7		PP	e 59·1
Pulkovo		120·7	336	e 20 21	PP	e 25 49	[− 3]	30 24		PS	—
Weston		121·4	46	e 15 18	P	36 25	SS	29 52		PS	—
Ivigtut		123·8	19	19 35	[+35]	32 49?	PPS	—		—	51·1
Theodosia		125·3	318	20 56	PP	—	—	—		—	—
Upsala		125·3	341	e 19 34	[+31]	e 25 43?	[−24]	e 23 43		PPP	e 51·1
Halifax		126·0	42	20 56	PP	25 55	[−14]	38 7?		SS	54·1
Simferopol		126·2	319	20 30	PP	27 34	{−21}	—		—	—
Yalta		126·3	318	21 12	PP	—	—	—		—	—
Bergen		128·2	348	e 19 14	[+ 6]	e 38 7?	SS	21 10		PP	e 52·1
Ksara		128·5	304	e 21 2	PP	30 47	PS	—		—	—
Bermuda		128·9	57	e 20 59	PP	38 23	SS	—		—	e 53·4
Warsaw		129·5	333	e 19 14a	[+ 3]	—	—	e 24 32		PPP	e 53·1
San Juan		129·6	75	e 19 18	[+ 7]	i 27 35	{−42}	e 21 11		PP	i 48·2
Copenhagen		130·3	341	e 19 14	[+ 1]	38 55	SS	—		—	—
Bucharest		131·5	322	e 19 13	[− 2]	e 26 36	[+13]	e 21 37?		PP	44·1
Aberdeen		132·6	350	i 20 2	[+45]	e 39 28	SS	59 27		Q	65·9
Potsdam		132·7	338	e 19 11	[− 6]	i 28 46	{+10}	21 53		PP	e 52·1
Helwan	Z.	133·3	301	i 19 16k	[− 2]	—	—	i 21 46		PP	—
Budapest		133·7	329	e 19 33	[+14]	e 39 46	SSP	21 49		PP	54·6
Kecskemet	Z.	133·7	328	e 19 24	[+ 5]	—	—	e 22 0		PP	e 65·1
Ogyalla	N.	133·8	330	e 20 30	[+71]	40 7	SSP	21 58		PP	59·1
Edinburgh		133·9	351	22 15	PP	32 22	PS	22 53		PKS	—
Prague		134·0	335	e 19 30	[+10]	e 39 43?	SS	e 21 45		PP	e 53·1
Sofia		134·1	321	e 19 9?	[−11]	—	—	e 21 55		PP	—
Kalossa	E.	134·3	328	e 19 50	[+30]	—	—	—		—	—
Jena		134·4	337	e 19 18	[− 2]	i 39 37?	SS	22 0		PP	e 51·1
Belgrade		134·6	325	e 17 57	?	e 28 35	{−14}	e 24 7		PPP	e 51·5
De Bilt		135·6	343	e 19 22	[0]	i 40 2	SS	e 22 1		PP	e 60·1
Stonyhurst		135·8	350	e 22 37	PP	i 40 12	SS	i 44 40		SSS	55·7
Stuttgart		137·0	338	e 19 24	[− 1]	e 29 55	{+52}	e 22 10		PP	e 55·1
Uccle		137·0	344	e 19 20	[− 5]	i 40 20	SS	i 22 12		PP	56·1
Triest		137·5	331	e 19 23	[− 3]	e 45 7	SSS	i 22 53		PP	i 62·6
Kew		137·6	347	e 19 23	[− 3]	e 26 37?	[+ 2]	e 22 59		PP	e 60·1
Oxford		137·6	348	i 19 24	[− 2]	39 55	SS	i 24 31		PPP	62·1
Strasbourg		137·8	338	e 22 16	PP	i 40 28	SS	e 45 46		SSS	e 56·1
Chur		138·5	336	e 19 28	[0]	—	—	e 22 16		PP	—
Zurich		138·5	337	e 19 24	[− 4]	—	—	e 22 16		PP	—
Basel		138·7	337	e 19 29	[+ 1]	—	—	e 22 17		PP	—
Paris		139·3	343	e 19 20?	[− 9]	e 29 35?	{+18}	i 23 4		PP	45·1
Neuchatel		139·4	337	e 19 23	[− 7]	—	—	—		—	—
Clermont-Ferrand		141·9	340	e 19 27	[− 7]	—	—	—		—	e 67·6
Marseilles		143·1	336	e 19 53	[+17]	e 33 13?	PS	—		—	e 62·1
Toledo		149·4	344	e 19 41	[− 5]	—	—	i 23 37		PP	—
Algiers		149·5	331	e 19 51	[+ 4]	—	—	—		—	e 64·1
Coimbra		150·0	351	19 54	[+ 7]	30 6	{−12}	23 6		PP	61·4
Lisbon		151·6	353	e 19 47	[− 2]	48 55	SSS	i 20 38		PKP_2	68·0
Almeria		151·7	349	20 2	[+12]	30 41	{+14}	23 57		PP	62·8
Granada		151·8	342	i 19 59	[+ 9]	26 52	[−. 4]	23 47		PP	73·1
San Fernando		153·2	345	20 12	[+20]	43 7	SS	—		—	62·1

Additional readings :—
Apia SS = +9m.10s.
Riverview iE = +7m.9s., +8m.4s., and +8m.44s., iN = +9m.51s. and +10m.6s., iZ = +10m.23s.
Auckland i = +7m.20s., +7m.55s., +8m.17s., and +10m.2s., Q? = +11m.57s.
Wellington iZ = +7m.37s., +7m.55s., and +8m.40s., P_cPZ = +9m.46s., Q = +13m.32s.
Christchurch iZ = +8m.37s., P_cPE = +10m.7s., iE = +12m.52s.
Adelaide i = +8m.23s. and +12m.32s., iSS = +13m.52s., i = 15m.32s. and +16m.52s.
The readings for Palau have been increased by one minute.
Honolulu i = +11m.7s. and +11m.14s.
Perth PPP = +11m.52s., PS = +16m.47s., SS = +19m.49s., SSS = +21m.0s.
Yokohama PZ = +9m.1s.
Mizusawa ePN = +9m.34s., SE = +14m.52s.
Mori i = +14m.43s.

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Batavia PEN = +9m.59s.
Calcutta iPSN = +23m.35s., iSSN = +28m.5s., iSSSN = +31m.21s.
Ukiah e = +12m.33s., i = +12m.55s., e = +21m.25s., i = +23m.24s., iSS = +27m.57s., i = +30m.40s.
Berkeley iZ = +12m.33s., iE = +17m.19s. and +21m.51s., iZ = +22m.32s., iSKSEN = +22m.40s.
Santa Clara eE = +22m.25s.
College i = +12m.51s., +13m.47s., +18m.20s., and +23m.30s., e = +25m.14s.
Sitka e = +14m.17s., i = +23m.39s., e = +30m.54s.
Pasadena iPSE = +23m.58s.
Mount Wilson iZ = +12m.35s.
Victoria SS = +28m.51s.
Colombo SSE = +29m.20s.
Spokane iPE = +13m.5s., ePSE = +24m.49s., eE = +31m.14s.
Tucson i = +13m.16s., +14m.18s., +15m.0s., +17m.34s., +18m.46s., +21m.56s., and +23m.58s., iSS = +30m.8s., i = +30m.48s.
Hyderabad SKSE = +22m.57s., PS = +24m.35s., SSE = +28m.51s.
Salt Lake City i = +13m.33s., e = +15m.59s., i = +19m.38s., e = +22m.49s., i = +24m.7s. and +28m.17s., eSS = +29m.10s.
Butte i = +21m.31s., e = +28m.42s. and +33m.34s.
Agra eN = +15m.53s., PPPN = +19m.8s., SKSE = +23m.38s., SE = +24m.32s., PS = +25m.25s., SSN = +29m.43s., SSE = +30m.14s., SSSN = +33m.33s., SSE = +34m.23s.
Bozeman e = +13m.20s., i = +14m.20s., e = +22m.38s., eS = +23m.45s., i = +25m.43s., iSS = +30m.18s., i = +33m.59s. and +37m.24s.
Dehra Dun e? = +33m.58s.
Bombay ePN = +13m.33s., iPP = +17m.19s., iSKSE = +24m.3s., eN = +24m.47s., iSE = +25m.4s., iS?N = +25m.7s., iPSE = +26m.17s., eN = +31m.7s., iSSE = +31m.24s., eN = +35m.37s., SSSE = +35m.44s.
Logan e = +13m.25s., eS = +23m.49s., ePS = +25m.19s., e = +25m.29s.
Lincoln e = +22m.9s., iPS = +27m.22s., iSS = +33m.0s., i = +36m.40s.
Florissant iZ = +18m.58s., iPSE = +28m.4s., iE = +33m.30s., iSSE = +34m.4s.
St. Louis eZ = +14m.34s., iPSE = +28m.11s., iE = +33m.54s.
Cape Girardeau ePPE = +18m.48s., ePSE = +28m.7s.
Chicago U.S.C.G.S. e = +19m.7s. and +26m.22s., eSS = +33m.50s., e = +34m.17s.
Tananarive SSEN = +35m.17s.
Columbia eS = +27m.23s., iSS = +35m.51s., i = +40m.4s.
Toronto e = +28m.1s.?
Huancayo i = +20m.1s., +22m.56s., +26m.21s., and +26m.48s., iPS = +29m.21s., i = +36m.16s.
Pittsburgh iPSEN = +29m.21s., iEN = +31m.3s., eEN = +35m.27s.
Baku PS = +28m.25s.
Ottawa SS = +36m.7s., SSS = +40m.7s.?
La Plata SKKS = +27m.49s.?, SKSPZ = +30m.55s.?, N = +31m.19s.?, E = +35m.1s.?, N = +35m.7s.?, E = +40m.7s.?, N = +40m.49s.?, E = +44m.7s.?.
Philadelphia eS = +28m.6s., ePS = +29m.54s., e = +30m.50s., +36m.29s., and +38m.2s.
Moscow S = +27m.39s.
Vermont e = +25m.28s. and +29m.6s., PS = +29m.58s., eSS = +35m.49s., i = +36m.29s. and +38m.13s.
Fordham ePKP = +19m.8s., iPP = +20m.22s., iPPP = +22m.24s., iPS = +30m.0s.
Scoresby Sund e = +23m.46s., i = +31m.26s., iSS = +36m.41s., e = +42m.12s.
Seven Falls PS = +30m.6s., SS = +37m.7s.
La Paz iZ = +20m.57s., SKP = +22m.27s., iSKKS = +27m.25s., PSN = +30m.7s., PPS = +31m.17s., iSSN = +36m.57s., iSSSN = +41m.2s., QN = +51m.7s.
Harvard eZ = +18m.56s. and +19m.30s., eNZ = +30m.7s.
Pulkovo S = +28m.3s.
Weston ? = +24m.47s., iPPS = +30m.59s.
Ivigtut +20m.37s. and +37m.19s.
Upsala eN = +20m.5s., eE = +22m.25s., e = +28m.43s., eE = +31m.7s.?, eSSE = +37m.43s., eSSN = +38m.9s.?, eSSSE = +42m.7s.?, eSSSN = +42m.48s.?
Halifax PPS = +32m.25s.?
Bergen eE = +22m.13s., eSSS = +42m.7s.?
Ksara ePP? = +21m.26s.
Bermuda e = +32m.23s. and +49m.48s.
Warsaw eNZ = +22m.17s., eE = +22m.23s., e = +22m.39s., eZ = +24m.44s., eE = +29m.4s., eN = +29m.11s., eZ = +29m.37s.
San Juan i = +22m.36s., +23m.46s., and +29m.23s., iSS = +38m.37s., i = +38m.48s. and +42m.10s.
Copenhagen ? = +21m.29s. and +23m.22s.
Bucharest eN = +19m.37s., +20m.17s. and +21m.23s., ePKP?EN = +22m.44s., eE = +23m.6s., ePP?EN = +23m.49s., eE = +24m.59s., eSKSE = +29m.37s., eS?E = +32m.17s., eS?N = +32m.23s., ePPSE = +35m.6s., eSS?E = +40m.21s.; all phases wrongly identified.
Aberdeen iPKPN = +23m.26s., iSKSN = +29m.34s., iSEN = +33m.33s., iSSN = +42m.46s., iEN = +54m.42s.; phases have been wrongly identified.
Potsdam ePKPE = +19m.19s.?, ePKPN = +19m.24s., iZ = +21m.38s., iE = +21m.45s., iPKSZ = +22m.42s., iPKSEN = +22m.46s., iEN = +23m.22s., iE = iN = +23m.29s., iZ = +23m.32s. and +23m.44s., iPPPNZ = +24m.41s., iPPPE = +24m.46s., iZ = +33m.19s., iE = +35m.21s., iN = +35m.28s., iZ = +36m.44s. and +39m.26s., iSSE = +39m.32s.

Continued on next page.

Helwan iZ = +19m.52s., +20m.37s., and +22m.19s.
Budapest PN = +19m.42s., eEN = +23m.13s., eN = +24m.13s., eE = +39m.43s.
Ogyalla eE = +23m.2s., eN = +23m.58s.
Edinburgh e = +39m.47s.
Prague ePP = +23m.31s., ePS = +33m.43s., ePPS = +35m.7s.?, eSSS = +44m.19s.?
Kalossa eE = +22m.54s.
Jena ePN = +19m.31s., eE = +24m.32s., eN = +24m.43s., eE = +33m.7s.? and +44m.7s.? eN = +44m.36s.
Belgrade ePKP = +20m.32s., ePP = +23m.37s., eSKKS = +31m.7s.
De Bilt eSKP = +23m.2s., eSSS = +45m.7s.?, e = +55m.7s.?
Stonyhurst e = +30m.42s.
Stuttgart iPP = +22m.17s., i = +29m.25s., eSSNE = +40m.7s., eE = +44m.47s., eSSSN = +45m.27s., eSSSE = +45m.37s.
Uccle iZ = +20m.3s., iSKPZ = +23m.11s., iPPPZ = +25m.51s., iPPSZ = +34m.23s., iSSSE = +45m.26s.
Kew eSKS?E = +30m.37s.?, eSKKS?N = +31m.22s., ePKKP?N = +33m.7s.?, eSSEZ = +39m.58s., eSSS = +45m.32s., eQEN = +51m.7s.?
Strasbourg i = +22m.46s. and +23m.49s.
Zurich ePP = +23m.38s.
Paris e = +19m.29s., iSS? = +40m.50s.
Toledo iPKP$_3$Z = +20m.0s.
Algiers i = +24m.17s., e = +32m.27s.
Coimbra PP = +24m.44s., SKP = +25m.7s., PPP = +26m.30s. ? = +30m.27s., S = +32m.2s., ? = +34m.10s., PS = +35m.8s., SS = +40m.54s., ? = +42m.54s., SSS = +44m.6s.
Lisbon PKPZ = +20m.4s., Z = +20m.23s.? and +20m.44s., N = +24m.23s., E = +39m.31s., N = +39m.56s., E = +56m.11s. and +62m.25s.
Almeria PKP$_2$ = +20m.25s., PKS = +23m.15s., SKS = +27m.1s., PPP = +27m.20s., PPS = +36m.37s., SS = +43m.9s., SSS = +49m.1s.
Granada PKP$_2$ = +20m.14s., SKP = +23m.22s., PP(Δ >180°) = +28m.7s., SKKS = +30m.44s., SKSP = +34m.47s., PPS = +37m.29s., SS = +43m.31s., PSS = +44m.37s., Q = +65m.19s.
San Fernando iSKSN = +24m.52s., SN = +28m.22s., PPSN = +33m.34s., SSN = +39m.4s.
Long waves were also recorded at Bagneres and Pennsylvania.

May 17d. 21h. 29m. 32s. Epicentre 36°·3N. 71°·0E. (as on 16d.). Depth of focus 0·025.

Scale VIII at Srinagar; VI at Peshawar and Muzafferabad; V at Drosh; IV at Cherat, Chakadara, and Kabul. Epicentre Karakoram Range.
See Government of India Seismological Bulletin 1941, p. 45.

A = +·2630, B = +·7638, C = +·5894; δ = −5; h = 0;
D = +·946, E = −·326; G = +·192, H = +·557, K = −·808.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Andijan		4·6	14	e 1 12	+ 2	—	—	—	—	—
Samarkand		4·6	319	1 11	+ 1	—	—	—	—	—
Tashkent		5·2	347	i 1 19	+ 1	i 2 24	+ 6	—	—	—
Tchimkent		6·1	351	i 1 32	+ 3	—	—	—	—	—
Frunse		7·1	22	1 43	+ 1	—	—	—	—	—
Almata		8·3	32	1 58	0	—	—	—	—	—
Dehra Dun	N.	8·4	133	e 2 18?	+19	e 3 42	+ 9	—	—	—
Agra	E.	10·9	145	e 2 26	− 6	4 18	−13	—	—	—
Bombay		17·4	174	e 3 54	+ 2	e 7 12	+14	—	—	i 9·6
Calcutta	N.	20·4	127	—	—	e 6 55	−61	—	—	—
Grozny		20·6	299	e 4 42	+17	—	—	—	—	—
Sverdlovsk		21·7	345	i 4 36	0	8 21	+ 2	i 5 17	pP	—
Moscow		29·8	321	e 5 48	− 3	e 10 28	− 4	6 35	pP	—
Pulkovo		35·1	325	e 6 33	− 4	7 49	sP	7 21	pP	—

Additional readings:—
Sverdlovsk isP = +5m.46s.
Moscow sP = +7m.3s.

May 17d. Readings also at 0h. (La Paz), 1h. (Samarkand, Tchimkent, and near Andijan), 3h. (Tucson (4), Riverside (3), Mount Wilson (3), and Pasadena), 4h. (near Andijan and Tucson), 6h. (Harvard, Tucson, Riverside, Mount Wilson, and Pasadena), 7h. (Riverside, Mount Wilson, Pasadena, Auckland, La Paz, Tinemaha, and Tucson), 8h. (Riverside (2), Mount Wilson (2), Pasadena, Tucson (2), Tinemaha (2), near Andijan, Riverview, and Wellington), 9h. (Philadelphia, Paris, Kew, near Mizusawa, Perth, and Berkeley), 11h. (Riverside, Tucson, Tinemaha, and Mount Wilson), 14h. (near Lick), 19h. (Guadalajara, Tacubaya, Riverside, Tucson, Mount Wilson, and Pasadena), 20h. (near Manila and near Algiers), 22h. (near La Paz), 23h. (near Almeria).

May 18d. Readings at 0h. (Columbia), 1h. (Medan, near Batavia, and near Mizusawa), 4h. (Sofia), 5h. (Tucson, Mount Wilson, Pasadena, and Riverside), 7h. (La Paz), 8h. (near Andijan and Samarkand), 9h. (near Andijan), 11h. (Auckland, Wellington, Riverview, Sydney, Honolulu, Huancayo, Manila, Mount Wilson, Pasadena, Riverside, Tucson, De Bilt, Paris, Potsdam, Kew, and Granada), 12h. (Kew, Harvard, Chicago, Columbia, Philadelphia, and Tacubaya), 13h. (near Almeria, Granada, and Toledo), 15h. (La Paz and Tucson), 17h. (Sverdlovsk and near Amboina), 18h. (Salt Lake City).

May 19d. 5h. 13m. 42s. Epicentre 38°·8N. 142°·0E. (as on 1939 Dec. 20d.).

Intensity V at Mizusawa, Miyako, and Morioka ; IV at Sendai, Hatinohe, and Yamagata ; II-III at Akita, Hukusima, and Sakata.
Epicentre 38°·9N. 141°·7E. Macroseismic radius 200-300km. Shallow.

See Seismological Bulletin of the Central Met. Obs. Japan for the year 1941. Tokyo, 1950, pp. 25-26, macroseismic chart p. 25.

$A = -\cdot6157$, $B = +\cdot4811$, $C = +\cdot6240$; $\delta = -8$; $h = -1$;
$D = +\cdot616$, $E = +\cdot788$; $G = -\cdot492$, $H = +\cdot384$, $K = -\cdot781$.

	△	Az.	P.	O−C.	S.	O−C.
	°	°	m. s.	s.	m. s.	s.
Miyako	0·8	0	0 20	+ 2	0 30	− 1
Mizusawa	0·8	296	i 0 16	− 2	i 0 26	− 5
Sendai	1·0	238	0 22	+ 1	0 35	− 1
Hukusima	1·6	229	0 30	0	0 45	− 6
Akita	1·7	301	0 28	− 3	0 47	− 7
Hatinohe	1·8	348	0 28	− 4	0 46	−10
Onahama	2·1	205	0 38	+ 1	1 1	− 3
Aomori	2·2	335	0 38	0	0 58	− 8
Mito	2·7	207	0 49	+ 4	1 4	−15
Utunomiya	2·8	217	0 50	+ 3	1 13	− 9
Kakioka	3·0	209	0 50	0	1 12	−15
Tukubasan	3·0	210	0 50	0	1 24	− 3
Tyosi	3·2	196	0 55	+ 3	—	—
Macbasi	3·4	224	0 56	+ 1	1 37	0
Mori	3·5	342	1 4	P*	—	—
Tokyo Cen. Met. Ob.	3·6	210	0 56	− 2	1 43	+ 1
Nagano	3·7	236	1 1	+ 1	1 32	−13
Yokohama	3·9	210	0 57	− 5	1 38	−12
Hunatu	4·2	218	1 9	+ 2	1 50	− 7
Kohu	4·2	221	1 9	+ 2	2 2	+ 5
Sapporo	4·3	353	1 8	0	1 40	−20
Toyama	4·3	242	1 8	0	2 8	S*
Misima	4·4	214	1 9	− 1	1 52	−10
Osima	4·5	207	1 10	− 1	2 0	− 5
Shizuoka	4·8	218	1 19	+ 4	2 17	+ 5
Omaesaki	5·2	216	1 23	+ 2	—	—
Nemuro	5·3	31	1 19	− 3	2 10	−15
Nagoya	5·4	229	1 23	− 1	1 48	−40
Hikone	5·8	234	1 30	+ 1	—	—
Hatidyozima	5·9	197	1 35	+ 4	—	—
Kameyama	5·9	230	1 34	+ 3	—	—
Kyoto	6·3	234	1 36	0	—	—
Osaka	6·6	233	1 40	− 1	3 7	+ 9
Owase	6·7	226	1 45	+ 3	3 27	S*
Kobe	6·9	235	1 44	− 1	3 10	+ 5
Wakayama	7·1	232	1 43	− 5	3 39	S*
Sumoto	7·2	234	1 55	+ 6	—	—
Muroto	8·4	231	2 7	+ 1	—	—
Koti	8·6	235	2 8	− 1	3 41	− 7
Vladivostok	8·8	303	i 2 4	− 7	i 3 53	0
Hirosima	8·9	243	2 11	− 1	—	—
Kagosima	11·8	236	2 50	− 3	—	—
Tucson	82·8	55	i 12 18	− 9	—	—

Tucson also gives i = +12m,25s,

May 19d. Readings also at 2h. (Tucson, Riverside, and near La Paz), 10h. (Tucson), 11h. (near Andijan), 13h. (near Erevan), 14h. (Tucson, Riverside, Pasadena, Tuai, near Christchurch, and Wellington), 16h. (Simferopol, Theodosia, and Yalta (2)), 17h. (Batavia and Medan), 18h. (near Samarkand, Almata, Andijan, Tashkent, and Tchimkent), 20h. (Sofia, Bucharest, and near Tchimkent), 21h. (Pasadena, St. Louis, Tucson, Ukiah, Salt Lake City, Philadelphia, East Machias, Chicago U.S.C.G.S., Florissant, and Berkeley).

May 20d. Readings at 0h. (Scoresby Sund, De Bilt, Potsdam, Warsaw, Paris, and Kew), 5h. (Mount Wilson, Pasadena, Riverside, and Tucson), 6h. (Berkeley, Fresno, Branner, Almata, Samarkand, Tchimkent, near Andijan, and Tashkent), 7h. (Samarkand, Tchimkent, Andijan (4), and Tashkent), 9h. (Samarkand, Tchimkent, Tashkent, and Andijan (2)), 11h. (Huancayo), 12h. (La Paz), 15h. (near Mizusawa), 16h. (Harvard and Tacubaya), 17h. (Tacubaya), 19h., 20h. (3), and 21h. (Tucson), 22h. and 23h. (2) (Harvard).

May 21d. Readings at 1h. (Manila, Tucson, Riverside, Mount Wilson, Tinemaha, and Pasadena), 2h. (Toledo, Granada, Wellington, Tucson, Paris, and near Mizusawa), 5h. (Andijan, Tashkent, Tchimkent, and Samarkand), 6h. (near Manila), 7h. (Kew, Scoresby Sund, Reykjavik, De Bilt, Andijan (2), Tashkent, Tchimkent, Samarkand, and Paris), 9h. (near Mizusawa), 10h. (La Paz), 12h. (Manila), 14h. (Tashkent, Tucson, Mount Wilson, and Riverside), 17h. (Paris), 19h. (Stuttgart), 21h. (Harvard (4)), 23h. (La Jolla, near Tucson, Mount Wilson, Riverside, Mizusawa, Tinemaha, and Pasadena).

May 22d. 1h. 0m. 25s. Epicentre 26°·7N. 93°·1E.

Intensity V at Gaupati; IV at Shillong, Silchar, and Sylhet. Epicentre North Burma 25°N. 95°E. (Bombay).
See Government of India Seismological Bulletin for 1941, p. 45.

$A = -\cdot0484$, $B = +\cdot8932$, $C = +\cdot4469$; $\delta = -13$; $h = +3$;
$D = +\cdot999$, $E = +\cdot054$; $G = -\cdot024$, $H = +\cdot446$, $K = -\cdot895$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Calcutta	E.	6·0	228	e 1 39	+ 7	i 2 59	S*	i 3 25 S_g	—
Hyderabad	N.	16·4	239	3 54	+ 1	6 49	− 7	7 3 SS	8·0
Bombay	N.	20·2	251	e 4 38	− 1	e 8 25	+ 4	i 4 51 PP	—
Almata		21·1	326	e 4 55	+ 7	—	—	—	—
Andijan		22·1	314	e 5 1	+ 2	i 9 2	+ 4	—	—
Kodaikanal	E.	22·1	226	e 4 57k	− 2	i 8 57	− 1	—	—
Colombo	E.	23·4	214	5 9	− 2	9 22	+ 1	—	—
Medan		23·6	166	5 14	+ 1	9 26	+ 1	—	—
Tashkent		24·5	312	e 5 20	− 2	e 9 36	− 4	—	—
Tchimkent		24·7	315	i 5 25	+ 1	—	—	—	—
Samarkand		25·3	306	—	—	e 9 58	+ 4	—	—
Irkutsk		26·9	14	5 44	− 1	10 19	− 1	—	—
Manila	Z.	28·7	108	e 6 59	PP	11 18	+28	—	14·0
Vladivostok		35·4	52	e 6 57	− 3	i 12 27	− 7	—	—
Sverdlovsk		38·0	331	7 21	0	i 13 8	− 6	—	—
Baku		38·1	302	—	—	i 13 19	+ 3	—	—
Moscow		49·1	322	—	—	i 15 47	− 9	—	—
Pulkovo		53·7	325	9 23	− 3	i 16 51	− 8	—	—
Helwan		53·9	288	i 9 24	− 3	i 16 56	− 6	—	—
Warsaw		58·6	316	e 9 59	− 2	e 17 59	− 5	—	e 32·6
Potsdam		63·4	318	i 10 22	−12	i 19 12	+ 6	—	34·6
Stuttgart		66·6	314	i 10 51	− 3	—	—	—	—
De Bilt		68·4	318	—	—	e 20 0	− 7	—	e 37·6

Additional readings :—
Calcutta $iS_gE = +3$m.44s.
Bombay $iSSN = +8$m.40s., $iP_cP = +8$m.50s.
Warsaw $eZ = +18$m.7s.
Potsdam $eE = +10$m.25s., $iZ = +10$m.35s.?, $iEN = +18$m.52s.
Stuttgart $i = +11$m.9s.
Long waves were also recorded at Paris, Kew, Scoresby Sund, and Tucson.

May 22d. Readings also at 0h. (Tucson), 7h. (near Manila), 10h. (Tucson), 14h. (near Manila), 16h. (near Mizusawa), 17h. (near Brannor), 21h. (near Grozny).

May 23d. 19h. 51m. 52s. Epicentre 37°·2N. 28°·3E. (as on 1939 July 24d.).

Damage at Mougla, Scale VIII ; felt at Denisli, Smyrna, and Manisa. Epicentre 37°·2N. 28°·3E. (Strasbourg).
J. P. Rothé.
Chronique séismologique, Revue pour l'Etudes des Calamités, tome VII, No. 21, Geneva 1944, p. 49.

$A = +\cdot7031$, $B = +\cdot3786$, $C = +\cdot6020$; $\delta = +9$; $h = -1$;
$D = +\cdot474$, $E = -\cdot880$; $G = +\cdot530$, $H = +\cdot285$, $K = -\cdot799$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Istanbul		3·9	6	1 27	P_g	2 12	S_g	—	—	—
Sofia		6·6	327	e 1 45	+ 4	e 3 10	+12	i 3 31	S_g	i 4·0
Ksara		7·0	116	e 1 47	+ 1	e 3 7?	− 1	—	—	—
Bucharest		7·4	347	e 1 51	− 1	e 3 16	− 2	e 4 2	S*	—
Helwan	z.	7·7	160	i 1 53a	− 3	3 18	− 7	i 4 26	S_g	—
Yalta		8·5	29	2 8	+ 1	3 45	0	—	—	—
Simferopol		8·9	28	—	—	4 2	+ 7	—	—	—
Theodosia		9·5	32	2 20	0	4 27	+17	—	—	—
Belgrade		9·6	325	i 2 20	− 1	e 4 19	+ 7	e 5 1	S_g	e 11·4
Sotchi		10·8	50	2 42	+ 3	—	—	—	—	—
Kalossa	E.	11·6	326	e 2 54	+ 4	e 5 15	+14	—	—	e 6·8
Budapest		12·3	330	3 0	+ 1	e 5 24	+ 6	e 3 23	PPP	e 6·8
Ogyalla		13·0	328	3 8	− 1	5 52	SS	—	—	6·6
Piatigorsk		13·1	54	e 3 12	+ 2	—	—	—	—	—
Triest		13·8	312	i 3 17	− 2	e 6 19	SS	e 4 2	PPP	—
Grozny		14·6	60	3 42	PP	e 6 28	SS	—	—	—
Warsaw		15·9	343	3 48a	+ 1	6 51	+ 7	4 1	PP	e 8·1
Prague		16·3	327	i 3 50a	− 2	e 7 7?	SS	—	—	e 7·5
Chur		16·9	311	e 4 2	+ 3	e 7 18	+11	—	—	—
Baku		17·1	72	i 4 7	+ 5	i 7 29	SS	—	—	—
Ravensburg		17·3	316	e 4 8	+ 4	e 7 16	0	—	—	—
Zurich		17·7	311	e 4 10k	0	e 7 33	+ 7	—	—	—
Ebingen		17·9	314	e 4 9?	− 3	e 7 41	+11	e 6 42	?	—
Stuttgart		18·1	315	e 4 13	− 1	e 7 40	+ 5	—	—	e 9·5
Jena	N.	18·2	326	i 4 16	0	i 7 44	+ 7	—	—	e 9·3
Basle		18·4	312	e 4 17	− 1	e 7 48	+ 7	—	—	—
Marseilles		18·5	297	e 4 26	+ 7	e 7 58	+14	—	—	e 12·2
Neuchatel		18·6	310	e 4 21	0	e 7 53	+ 7	—	—	—
Potsdam		18·6	330	i 4 21k	0	i 7 50	+ 4	i 8 2	SS	10·1
Strasbourg		18·8	314	i 4 24k	+ 1	i 8 2	+12	—	—	i 10·4
Moscow		19·6	16	4 30	− 2	e 8 2	− 6	4 57	pP	—
Algiers		20·2	276	i 4 37	− 2	8 19	− 2	4 54	PP	e 13·1
Clermont-Ferrand		20·6	303	i 4 42a	− 1	—	—	—	—	e 12·4
Copenhagen		21·4	335	e 4 50k	− 1	8 47	+ 2	—	—	11·1
Uccle		21·8	316	e 4 55	− 1	i 8 57	+ 5	—	—	10·4
Paris		22·0	310	i 4 56	− 2	e 7 10	?	—	—	8·1
De Bilt		22·1	322	i 4 57k	− 2	i 9 3	+ 5	—	—	e 11·1
Pulkovo		22·6	4	e 5 2	− 1	9 10	+ 3	5 34	pP	—
Upsala		23·7	345	i 5 14	0	e 9 26	− 1	5 52	PP	e 11·6
Almeria		24·5	279	i 5 21	− 1	9 43	+ 3	6 1	PP	12·6
Kew		24·7	315	i 5 25a	+ 1	i 9 57	+13	e 6 29	PPP	e 11·1
Granada		25·3	280	i 5 30a	0	i 10 30	+36	5 37	pP	14·0
Toledo		25·4	286	i 5 28	− 3	—	—	i 6 7	PP	—
Bergen		27·4	336	—	—	e 11 38?	SS	—	—	—
San Fernando		27·5	279	e 6 20	+30	e 11 48	SS	—	—	16·1
Aberdeen		28·4	326	e 5 38	−20	i 11 12	+27	—	—	e 15·1
Coimbra		28·7	288	e 5 58	− 3	10 53	+ 3	—	—	16·8
Sverdlovsk		29·1	37	i 6 5	+ 1	i 10 57	+ 1	i 6 33	pP	—
Lisbon		29·4	284	6 2	− 5	11 6	+ 5	7 2	PP	—
Samarkand		30·2	74	e 6 27	+13	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tashkent		31·8	70	e 6 27	− 1	e 11 36	− 2	—	—	—
Tchimkent		31·9	68	i 7 1	+32	—	—	—	—	—
Andijan		34·2	71	6 51	+ 2	—	—	—	—	—
Scoresby Sund		42·4	338	i 7 58	0	e 14 24	+ 4	e 9 33	PP	e 22·7
Agra	E.	42·8	88	7 56	− 5	14 19	− 7	17 48	SSS	—
Bombay		42·9	103	e 8 3	+ 1	e 14 32	+ 5	e 9 52	PP	—
Kodaikanal	E.	51·7	108	—	—	e 14 8?	?	—	—	—
Calcutta	N.	53·3	88	e 9 59	+36	i 16 49	− 5	—	—	—
Seven Falls		69·3	314	—	—	e 17 38?	?	—	—	33·1
Harvard	Z.	72·3	310	e 11 27	− 2	—	—	—	—	—
Ottawa		73·1	314	e 11 32	− 2	e 21 8?	+ 7	—	—	35·1
Vladivostok		74·2	48	11 43	+ 3	—	—	—	—	—
Philadelphia		76·0	109	e 11 49	− 2	e 21 32	− 2	—	—	e 34·5
St. Louis		85·7	316	e 12 38	− 4	e 23 0	[− 6]	e 15 58	PP	e 38·6
Bozeman		89·7	333	—	—	e 23 51	− 2	—	—	e 42·3
Berkeley		100·5	337	e 17 50	PP	—	—	—	—	e 50·3
Tucson		101·1	326	e 13 49	− 4	—	—	e 17 26	PKP	e 55·3

Additional readings :—
Istanbul P_g = +1m.33s.
Bucharest ePEN = +1m.54s., eP*N = +2m.13s., eP_gE = +2m.30s., iS*Z = +3m.41s.
Helwan P*Z = +2m.11s., P_gZ = +2m.30s., iZ = +5m.13s.
Belgrade e = +2m.50s., ePPS = +3m.42s., i = +5m.41s. and +5m.52s.
Kalossa eS = +5m.54s.
Budapest eS = +6m.8s.
Ogyalla eSN = +5m.58s.
Warsaw SE = +6m.56s., eSSN = +7m.11s.
Ravensburg eSN = +7m.27s.
Stuttgart i = +4m.19s.k, i = +4m.34s., iSNE = +7m.49s.
Jena iSZ = +7m.50s.
Potsdam iSNW = +7m.53s.
Algiers i? = +5m.38s.
Copenhagen ? = +4m.53s.
Upsala ePPP?E = +5m.55s.
Almeria PPP = +6m.13s., P_cP = +8m.49s., SS = +10m.57s., S_cS = +16m.17s.
Kew eZ = +5m.41s., iN = +11m.1s.
Granada PP = +6m.0s., P_cP = +6m.45s., sS = +11m.9s., SS = +11m.40s., P_cS = +13m.5s., S_cS = +16m.7s.
Aberdeen iSSEN = +13m.12s.
Lisbon N = +8m.57s., SE = +11m.16s.
Scoresby Sund e = +11m.20s., eSS = +17m.44s.
Bombay eE = +8m.22s. and +11m.20s., eSN = +14m.35s.
St. Louis iPZ = +12m.44s., eN = +27m.23s.
Long waves were also recorded at Edinburgh, Pasadena, Salt Lake City, and Stonyhurst.

May 23d. 20h. 25m. 24s. Epicentre 37°·2N. 28°·3E. (as at 19h.).

A = +·7031, B = +·3786, C = +·6020 ; δ = +9 ; h = −1.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ksara		7·0	116	e 1 45	− 1	e 3 4	− 4	—	—	—
Bucharest		7·4	347	—	—	e 2 55	−23	e 3 31	S*	—
Helwan	Z.	7·7	160	1 54	− 2	3 21	− 4	—	—	—
Belgrade		9·6	325	e 3 14	+53	e 4 39	S*	e 5 4	S_g	—
Triest		13·8	312	e 3 49	PPP	—	—	—	—	e 9·0
Stuttgart		18·1	315	i 4 18	+ 4	—	—	e 4 45	PPP	—

Long waves also recorded at Upsala, Budapest, and Ogyalla.

May 23d. 22h. 34m. 9s. Epicentre 37°·2N. 28°·3E. (as at 20h.).

$A = +\cdot7031$, $B = +\cdot3786$, $C = +\cdot6020$; $\delta = +9$; $h = -1$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Istanbul		3·9	6	1 31	P_g	2 16	S_g	—	—	—
Sofia		6·6	327	e 1 45	+ 4	i 3 7	+ 9	—	—	i 3·7
Ksara		7·0	116	e 1 46?	0	e 3 37?	S*	—	—	—
Bucharest		7·4	347	e 1 49	− 3	e 3 5	−13	e 2 5	P*	—
Helwan	Z.	7·7	160	i 1 54a	− 2	3 21	− 4	i 3 59	S*	—
Yalta		8·5	29	2 7	0	—	—	—	—	—
Simferopol		8·9	28	2 13	+ 1	—	—	—	—	—
Theodosia		9·5	32	2 21	+ 1	4 26	+16	—	—	—
Belgrade		9·6	325	e 2 30	+ 9	e 4 32	SS	i 5 15	S_g	e 10·3
Sotchi		10·8	50	2 41	+ 2	—	—	—	—	—
Budapest		12·3	330	2 56	− 3	e 6 21	+63	e 3 27	PPP	e 7·1
Ogyalla	E.	13·0	328	3 15	+ 6	e 5 51	SS	—	—	e 6·9
Piatigorsk		13·1	54	3 12	+ 2	—	—	—	—	—
Triest		13·8	312	e 3 21	+ 2	i 6 15	SS	e 3 28	PP	—
Grozny		14·6	60	3 57	PPP	—	—	—	—	—
Warsaw		15·9	343	e 3 46	− 1	e 6 51	+ 7	e 7 17	SS	e 7·9
Prague		16·3	327	3 51	− 1	e 7 10	SS	—	—	e 7·9
Chur		16·9	311	e 4 2	+ 3	e 7 24	SS	—	—	—
Baku		17·1	72	4 5	+ 3	i 7 28	SS	—	—	—
Zurich		17·7	311	e 4 11	+ 1	e 7 50	SS	—	—	—
Stuttgart		18·1	315	e 4 17	+ 3	e 7 45	+10	—	—	e 10·1
Basle		18·4	312	e 4 17	− 1	e 7 53	+12	—	—	—
Neuchatel		18·6	310	e 4 20	− 1	e 8 20	SS	—	—	—
Potsdam		18·6	330	i 4 21a	0	i 7 58?	+12	—	—	9·8
Strasbourg		18·8	314	e 4 25	+ 2	e 8 3?	+13	—	—	e 10·6
Moscow		19·6	16	4 30	− 2	8 8	0	4 58	pP	—
Algiers		20·2	276	i 4 39	0	8 22	+ 1	—	—	14·9
Clermont-Ferrand		20·6	303	i 4 43	0	—	—	—	—	—
Copenhagen		21·4	335	e 4 51	0	8 52	+ 7	—	—	10·9
Uccle		21·8	316	4 55	− 1	8 59	+ 7	—	—	11·9
Paris		22·0	310	e 4 58	0	e 9 1	+ 5	9 48	SS	11·9
De Bilt		22·1	322	i 5 0a	+ 1	i 9 5	+ 7	—	—	e 11·3
Pulkovo		22·6	4	e 5 2	− 1	9 9	+ 2	5 34	pP	—
Upsala		23·7	345	5 14	0	e 9 36	+ 9	—	—	e 11·9
Almeria		24·5	279	i 5 22	0	9 46	+ 6	5 33	pP	11·9
Kew		24·7	315	i 5 24a	0	9 56	+12	e 6 56	PP	e 11·9
Granada		25·3	280	e 5 31a	+ 1	11 14	SSS	—	—	16·5
Toledo		25·4	286	i 5 29	− 2	10 5	+ 9	—	—	—
Aberdeen		28·4	326	—	—	e 13 21	?	—	—	—
Coimbra		28·7	288	e 5 34	−27	10 37	−13	e 6 32	PP	e 18·9
Sverdlovsk		29·1	37	i 6 4	0	10 57	+ 1	6 31	pP	—
Tashkent		31·8	70	e 6 28	0	e 11 38	0	—	—	—
Agra		42·8	88	e 7 57	− 4	—	—	—	—	—
Calcutta	N.	53·3	88	—	—	e 21 42	SSS	—	—	—

Additional readings :—
Istanbul $P_g = +1$m.36s.
Bucharest $eP_gNZ = +2$m.21s., $eS^*E = +3$m.33s., $eS_g?Z = +3$m.51s.
Belgrade $i = +5$m.5s.
Budapest $PN = +2$m.59s., $eN = +6$m.33s., $eSE = +6$m.46s., $eSN = +6$m.49s.
Ogyalla $ePN = +3$m.51s.
Warsaw $eZ = +3$m.56s., $eSZ = +6$m.55s.
Stuttgart $iP = +4$m.20s.
Paris $SS = +10$m.43s.
Almeria $PP = +6$m.0s., $PPP = +6$m.10s., $P_cP = +8$m.54s., $SS = +10$m.56s., $SSS = +11$m.8s., $S_cS = +12$m.10s.
Kew $iZ = +5$m.41s., $iN = +11$m.0s.
Coimbra $SS = +13$m.21s.
Long waves were also recorded at Berkeley and Scoresby Sund.

May 23d. 23h. 0m. 40s. Epicentre 37°·2N. 28°·3E. (as at 22h.).

$A = +\cdot7031$, $B = +\cdot3786$, $C = +\cdot6020$; $\delta = +9$; $h = -1$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sofia		6·6	327	e 1 2	−39	e 3 33	S_g	—	—	—
Ksara		7·0	116	e 1 47	+ 1	e 3 9.	+ 1	—	—	—
Bucharest		7·4	347	e 1 33	−19	e 3 3	−15	—	—	—
Helwan	z.	7·7	160	i 1 56a	0	3 23	− 2	—	—	—
Yalta		8·5	29	e 1 58?	− 9	—	—	—	—	—
Simferopol		8·9	28	e 2 14	+ 2	—	—	—	—	—
Theodosia		9·5	32	e 2 47?	PP	—	—	—	—	—
Belgrade		9·6	325	e 2 53	PPP	e 5 4	S_g	—	—	e 5·6
Triest		13·8	312	e 3 30	PP	—	—	—	—	i 8·9
Stuttgart		18·1	315	i 4 18	+ 4	—	—	—	—	—
Potsdam		18·6	330	i 4 24k	+ 3	e 7 59	+13	i 8 8	SS	e 10·3
Moscow		19·6	16	4 30	− 2	8 15	+ 7	4 58	pP	—
Uccle		21·8	316	e 4 57?	+ 1	e 8 57	+ 5	—	—	e 11·6
Pulkovo		22·6	4	e 5 3	0	9 12	+ 5	e 5 33	pP	—

Additional readings :—
Bucharest eEN = +1m.49s.
Long waves were also recorded at Upsala, Warsaw, and De Bilt.

May 23d. Readings also at 2h. (Manila and Tucson), 3h. (Andijan), 4h. (Manila), 7h. (Kew, Huancayo, Pasadena, Riverside, Tinemaha, Vera Cruz, Oaxaca, Manzanillo, Tacubaya, Guadalajara, San Juan, and Tucson), 8h. (Manila), 11h. (Philadelphia, Tucson, and San Juan), 14h. (Branner and Manila), 15h. (Manila), 17h. (near Apia and Guadalajara), 19h. (Tucson), 21h. (San Francisco), 23h. (Fresno, Lick, Zurich, Basle, Neuchatel, and Clermont-Ferrand).

May 24d. 5h. 12m. 31s. Epicentre 5°·7S. 134°·1E.

Felt at Dobo (Aroe Island). Epicentre 5°·8S. 133°·4E. (Batavia).
Meteorologische en Geophysische Dienst te Batavia, Serie A., No. 44, Aardbevingen in Ned-Indië waargenomen gedurende het jaar 1941, p. 18.

$A = -\cdot6925$, $B = +\cdot7146$, $C = -\cdot0987$; $\delta = -5$; $h = +7$;
$D = +\cdot718$, $E = +\cdot696$; $G = +\cdot069$, $H = -\cdot071$, $K = -\cdot995$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Amboina		6·2	288	1 35	0	2 41	− 7	—	—	—
Manila	z.	24·0	328	i 5 17k	0	i 9 47	+15	—	—	—
Batavia		27·1	268	5 45	− 1	10 27	+ 3	—	—	—
Brisbane	E.	28·2	143	e 10 27	S	(e 10 27)	−14	—	—	(i 14·5)
Perth		31·2	211	10 29	S	(10 29)	−60	(i 13 46)	SSS	14·7
Riverview		32·2	153	i 11 51	S	(i 11 51)	+ 6	i 13 35	SS	(i 16·1)
Sydney		32·2	153	—	—	e 15 26	?	—	—	i 17·2
Medan		36·5	284	7 29?	+20	—	—	—	—	—
Auckland		48·4	134	—	—	17 11?	?	e 20 59?	SSS	i 29·1
Vladivostok		48·6	358	e 8 46	− 1	i 15 50	+ 1	—	—	—
Christchurch		50·6	144	—	—	e 20 4	SS	24 29?	Q	27·5
Wellington		50·7	140	—	—	16 24	+ 6	24 29	Q	26·5
Calcutta	N.	52·8	304	e 8 57	−22	i 16 51	+ 4	—	—	—
Irkutsk		63·1	340	e 10 29	− 3	—	—	—	—	—
Almata		70·9	320	e 11 23	+ 2	—	—	—	—	—
Tashkent		75·3	315	i 11 45	− 2	i 21 26	0	—	—	—
Baku		89·2	310	e 13 4	+ 5	i 23 51	+ 4	—	—	—
Moscow		98·4	325	13 37	− 4	e 24 16	[− 3]	—	—	—
Riverside		108·5	56	e 18 56	PP	—	—	—	—	—
Tucson		114·2	57	i 18 42	[+ 1]	—	—	e 19 36	PP	—
De Bilt		117·6	327	i 20 3	PP	—	—	—	—	72·5
Paris		120·7	325	e 20 17?	PP	—	—	—	—	76·5
Huancayo		145·8	121	e 19 41	[+ 1]	—	—	—	—	e 77·9
La Paz		148·8	136	e 19 49	[+ 4]	—	—	—	—	—

For Notes see next page.

NOTES TO MAY 24d. 5h. 12m. 31s.

Additional readings :—
Manila iZ = +5m.22s.
Batavia SE = +10m.32s.
Brisbane L given as S.
Perth i = +12m.49s., SSS given as S.
Riverview iE = +14m.7s., +14m.29s., and +15m.37s., L given as S.
Auckland Q? = +23m.47s.?
Christchurch SSN = +22m.59s.?
Wellington SS? = +22m.29s.
La Paz i = +19m.55s. and +21m.19s.
Long waves were also recorded at Berkeley, Arapuni, and Pasadena.

May 24d. 19h. 50m. 1s. Epicentre 5°·5S. 100°·0E.

A = −·1729, B = +·9804, C = −·0952; δ = +14; h = +7;
D = +·985, E = +·174; G = +·017, H = −·094, K = −·996.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Batavia		6·8	95	1 42	− 2	i 3 12	+ 9	i 3·7		
Medan		9·1	352	2 21	+ 7	i 4 17	+17	i 5·2		
Colombo		23·6	300	—	—	e 9 29	+ 4	—		
Kodaikanal	E.	27·3	305	e 6 40	PP	—	—			
Manila	Z.	28·5	47	i 5 53	− 6	12 35	SS			
Bombay	E.	36·1	312	—	—	e 15 57	SSS			
Agra	E.	38·8	329	—	—	e 13 7	−19			
Andijan		52·6	334	e 9 28	+10	e 16 41	− 3			
Almata		52·8	340	e 9 21	+ 2	—	—			
Tashkent		54·4	332	e 9 31	0	i 17 3	− 6			
Vladivostok		56·4	28	9 48	+ 3	e 17 31	− 5			
Irkutsk		57·7	3	e 9 50	− 5	e 17 41	−12			
Baku		64·8	320	—	—	i 19 28	+ 5			
Yalta		77·0	318	11 43	−13	—	—			
Moscow		79·5	330	12 11	+ 1	e 22 5	− 6			
Pulkovo		84·7	332	e 12 33	− 4	e 22 58	− 6			

Additional readings :—
Batavia PN = +1m.45s.
Medan iE = +4m.11s., iN = +5m.9s.
Long waves were also recorded at De Bilt, Kew, and Scoresby Sund.

May 24d. Readings also at 1h. (Agra and Calcutta), 3h. (near Erevan), 4h. (near Lick), 6h. (Pasadena, Riverside, Tinemaha, Tucson, and near La Paz), 11h. (near La Paz), 12h. and 13h. (Manila), 14h. (near Lick), 15h. (near Medan), 16h. (Haiwee, Pasadena, Riverside, Tinemaha, and Tucson), 18h. (near Andijan), 19h. (San Francisco), 20h. (Batavia and Medan), 21h. (Calcutta), 23h. (Budapest and near Manila).

May 25d. 2h. 3m. 21s. Epicentre 15°·5N. 104°·0W.

A = −·2332, B = −·9355, C = +·2656; δ = +9; h = +6;
D = −·970, E = +·242; G = −·064, H = −·258, K = −·964.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Manzanillo		3·5	357	0 41	−16	—	—	—	—	—
Guadalajara		5·2	9	1 3	−18	—	—	—	—	—
Tacubaya		6·0	49	1 36	+ 4	—	—	—	—	—
Tucson		17·8	341	i 4 4	− 7	e 7 22	− 6	i 4 26	PP	i 8·6
Palomar		21·2	330	e 4 53	+ 4	—	—	—	—	—
Riverside	Z.	22·0	330	i 5 0	+ 2	—	—	—	—	—
Pasadena	Z.	22·5	330	e 5 5	+ 3	—	—	—	—	—
St. Louis		26·0	25	i 5 36	0	e 9 58	− 8	—	—	—
Florissant		26·1	25	i 5 31	− 6	e 9 57	−10	—	—	—

Additional readings :—
Tucson i = +4m.17s. and +4m.45s., e = +6m.9s. and +7m.7s.
St. Louis iZ = +5m.48s. and +5m.54s.
Florissant iNZ = +5m.42s., iZ = +5m.47s., eN = +12m.51s.
Long waves were also recorded at Bozeman, Butte, Chicago U.S.C.G.S., Paris, and Salt Lake City.

May 25d. Readings also at 0h. (near Branner), 1h. (Salt Lake City, Pasadena, Riverside, Palomar, Tucson, Berkeley, Wellington, Apia, Auckland, De Bilt, Tinemaha, Balboa Heights, Christchurch, Arapuni, and New Plymouth), 4h. (Medan, Batavia, and Manila), 7h. (near Florissant, and Tucson), 11h. (Manila), 12h. (Almata and Andijan), 14h. (near Jena and Stuttgart), 21h. (near Manila), 22h. (Sofia), 23h. (near Andijan).

May 26d. 13h. 12m. 10s. Epicentre 42°·6N. 18°·1E.

$A = +\cdot7018$, $B = +\cdot2294$, $C = +\cdot6744$; $\delta = -4$; $h = -3$;
$D = +\cdot311$, $E = -\cdot951$; $G = +\cdot641$, $H = +\cdot210$, $K = -\cdot738$.

Scale VI at Dubrovnik. Prof. J. Mihailovnic, "Annuaire de l'Institute Seismologique de Beograd Microseismique et Macroseismique," XXI, 1941, p. 46.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Belgrade		2·8	37	i 0 16	−31	i 0 48	−34	i 0 25	P_g	—
Sofia		3·9	87	e 0 55	− 7	—	—	—	—	i 1·8
Kalossa		4·0	8	1 14	P*	i 1 43	− 9	1 19	P_g	e 2·1
Triest		4·4	314	e 1 11	+ 1	i 2 3	+ 1	i 1 28	P_g	—
Kecskemet	N.	4·5	14	e 1 29	P_g	i 1 52	−13	—	—	—
Budapest		4·9	8	e 1 12	− 5	2 3	−12	—	—	2·5
Ogyalla		5·2	1	e 2 2	?	i 2 26	S*	—	—	2·8
Bucharest		6·1	70	e 1 23	−11	e 2 41	− 4	e 3 28	S_g	—
Chur		7·4	308	e 1 54	+ 2	e 3 17	− 1	—	—	—
Ravensburg		7·9	314	e 2 11	P*	e 3 42	+12	e 2 44	P_g	i 4·4
Istanbul		8·3	97	e 3 50?	S	(e 3 50)	+10	—	—	—
Zurich		8·3	309	e 2 5	+ 1	e 3 36	− 4	—	—	—
Stuttgart		8·8	318	i 2 11a	0	i 4 7	+14	i 2 56	P_g	i 5·0
Basle		8·9	307	e 2 16	+ 4	e 3 51	− 4	—	—	—
Neuchatel		9·0	303	e 2 16	+ 3	e 4 45	P_g	—	—	—
Strasbourg		9·4	313	e 2 33	+15	4 14	+ 7	—	—	4·8
Jena	E.	9·5	334	e 2 25	+ 5	—	—	—	—	e 4·0
Warsaw		9·8	11	e 2 35	+11	e 4 11	− 6	—	—	e 4·8
Potsdam		10·4	343	e 3 44?	?	e 5 50	L	—	—	(e 5·8)
Clermont-Ferrand		11·3	291	e 2 43	− 3	—	—	—	—	—
Simferopol		11·8	73	e 2 45	− 8	e 4 42	−24	—	—	—
Uccle		12·5	316	e 3 17?	+15	—	—	—	—	e 6·8
Kew		15·4	312	e 3 50?	+10	—	—	—	—	e 7·8
Moscow		18·2	37	e 4 11	− 5	e 7 31	− 6	—	—	—
Pulkovo		18·8	20	e 4 24	+ 1	e 7 52	+ 2	—	—	—

Additional readings :—
Belgrade iSS = +1m.5s., i = +1m.27s.; all these readings suggest wrong timing.
Sofia iEN = +1m.5s.
Kecskemet ePE = +1m.32s.
Ogyalla ePE = +2m.5s.
Bucharest eEN = +1m.58s., eS*N = +3m.9s.
Ravensburg ePE = +2m.14s., eN = +2m.22s., eNE = +3m.17s.
Stuttgart i = +2m.17s., +2m.23s., and +3m.45s.
Strasbourg e = +3m.19s., i = +3m.38s.
Jena iN = +2m.42s.
Warsaw eZ = +4m.16s.
Potsdam eEZ = +4m.56s.?, iN = +5m.25s., iE = +5m.34s. and +5m.40s., iN = +5m.44s.
Long waves were also recorded at De Bilt and Upsala.

May 26d. 14h. Pacific.

Mizusawa ePE = 38m.17s., iSE = 40m.20s.
Vladivostok eP = 39m.19s., eS = 42m.19s.
Manila ePZ = 41m.29s., S_gZ = 43m.11s.
Irkutsk eP = 42m.19s.?
Sverdlovsk eP = 45m.30s., eS = 53m.32s.
Moscow P = 46m.47s.
Pulkovo eP = 46m.55s.
Tinemaha iPZ = 47m.32s.k
Pasadena iP = 47m.39s.k
Riverside iP = 47m.42s.k
Palomar iPZ = 47m.45s.
Copenhagen P = 47m.48s.
Tucson i = 48m.10s.

May 26d. Readings also at 0h. (Tchimkent, near Andijan, Samarkand, and Tashkent), 2h. and 5h. (near Mizusawa), 7h. (Manila), 10h. (La Paz), 12h. (La Paz and Tucson), 14h. (Sofia and Triest), 15h. (Branner and Lick), 16h. (La Paz and near Manila), 18h. (Philadelpia, Huancayo, La Paz, San Juan, and near Balboa Heights), 20h. (Brisbane, Riverview, Sydney, Pasadena, Riverside, Tinemaha, Tucson, and near Tananarive), 21h. (Tucson (2), Pasadena, and Riverside).

May 27d. Readings at 0h. (Wellington, Pasadena, Tinemaha, Tucson, and near Riverview), 2h. (Andijan, Tashkent, and Tchimkent), 8h. (La Paz), 9h. (Triest), 12h. and 13h. (Manila), 19h. (Huancayo, La Paz, Riverside, and Tucson), 22h. (Sofia and Tucson), 23h. (Triest).

May 28d. Readings at 1h. (near Lick), 3h. (near La Paz), 6h. (near Berkeley, Branner, near Lick, Santa Clara, San Francisco, and near Fresno), 8h. (near Mizusawa), 12h. (Tacubaya (2)), 14h. (La Paz and Tacubaya), 15h. (Paris and near Mizusawa), 16h. (Wellington), 17h. (Bombay, Hyderabad, Tucson, and near Mizusawa), 19h. (near Apia), 21h. (Tucson), 22h. (Tucson).

May 29d. 11h. 17m.6s. Epicentre 40°·3S. 176°·4E. (as on 1938, December 30d.).

Felt south of Hawkes Bay. Maximum intensity VI+. Epicentre 40°·5S. 176°·8E. Magnitude 5.

R. C. Hayes.
Dominion Observatory Bulletin R.—27.

$A = -\cdot7633$, $B = +\cdot0484$, $C = -\cdot6443$; $\delta = +9$; $h = -2$;
$D = +\cdot063$, $E = +\cdot998$; $G = +\cdot643$, $H = -\cdot040$, $K = -\cdot765$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Riverview		21·1	281	e 4 52	+ 4	(e 8 36?)	− 3	i 5 11	PP	e 8·6
Sydney		21·1	281	e 4 51	+ 3	e 8 57	+18	—	—	e 10·9
Brisbane	N.	23·1	298	e 5 17	+ 9	i 9 52	SS	—	—	—
Adelaide		30·3	268	e 11 34	S	(e 11 34)	+19	—	—	15·8
Honolulu		65·8	27	—	—	e 19 42	+ 7	—	—	e 31·0
Manila	Z.	75·0	305	i 11 40	− 5	15 59	PPP	—	—	21·6
Huancayo		95·2	112	e 21 57	?	e 24 5	[+ 3]	i 26 11	PS	i 50·2
Pasadena		95·5	50	—	—	e 24 47	+ 5	—	—	e 39·9
Berkeley		96·0	45	e 16 4	?	e 24 54	+ 7	—	—	e 38·9
Ukiah		96·4	43	—·	—	e 24 0	[− 9]	—	—	e 40·2
Tucson		98·7	55	e 7 6	?	e 31 13	SS	e 18 39	PPP	e 45·1
Kodaikanal	E.	103·3	272	e 18 24	PP	—	—	—	—	—
Tananarive		104·3	229	—	—	e 38 55	?	—	—	51·7
Bozeman		107·4	44	—	—	e 34 5	SS	—	—	e 49·2
Agra	E.	112·4	286	e 21 44	PPP	e 29 5	PS	40 1	?	—
San Juan		122·5	93	—	—	e 25 46	[−12]	e 37 50	SSP	e 59·7
Ottawa		128·5	59	—	—	e 38 36	SS	—	—	e 56·9
Bermuda		131·0	79	e 21 27	PP	e 38 23	SS	—	—	e 64·1
Scoresby Sund		148·3	12	e 19 49	[+ 5]	—	—	(e 41 25)	SS	e 41·4
Helwan	Z.	149·7	261	e 19 57	[+11]	—	—	23 24	SKP	—
Istanbul		155·3	281	i 20 28	PKP_2	—	—	—	—	—
Bucharest		157·7	290	e 24 18?	PP	e 31 2	{+ 2}	—	—	34·9
Warsaw		159·3	313	e 19 54?	[− 6]	e 30 54	{−13}	—	—	e 41·9
Potsdam		163·4	322	e 20 0?	[− 4]	e 31 0?	{−30}	—	—	e 31·9
De Bilt		166·7	336	e 21 18	?	i 31 58	{+12}	—	—	e 87·9
Uccle		168·1	335	e 29 0	PPP	e 31 32	{−21}	e 35 34	?	—
Kew		168·6	349	e 19 54?	[−14]	e 31 54	{− 2}	e 25 5	PP	e 80·9
Paris		170·5	335	e 20 14	[+ 5]	—	—	e 21 17	PKP_2	88·9
Lisbon		175·4	108	—	—	36 21	?	—	—	92·1
Coimbra		176·2	90	e 34 59	?	e 48 0	SS	—	—	e 88·9
Almeria		176·4	196	22 20	?	32 53	{+20}	25 29	PP	96·9
Granada		176·9	180	22 44	?	32 45	{+10}	47 43	SS	—

Additional readings :—
Riverview iZ = +5m.1s.
Adelaide eSN = +14m.24s.
Huancayo i = +31m.24s., e = +39m.51s., i = +44m.41s., e = +45m.36s.
Ukiah eE = +25m.5s.
Tucson e = +29m.30s., +33m.10s., +35m.8s., and +38m.11s.
San Juan e = +25m.55s., +33m.53s., and +38m.0s.
Helwan iZ = +20m.4s., PKKP = +20m.10s.
Warsaw e = +29m.54s.?

Continued on next page.

Kew eZ = +21m.24s.? and +24m.24s., eEN = +34m.54s.?, eZ = +38m.21s., eEZ = +39m.5s., EZ = +47m.54s.?
Paris ePP = +25m.5s.
Lisbon E = +47m.42s., eN = +58m.39s.?
Coimbra e = +42m.54s.
Almeria PKP_2 = +22m.40s., PP = +26m.12s., SKS = +29m.24s., PPP = +29m.36s., PPS = +39m.2s., SS = +45m.24s., SSS = +51m.7s.
Granada PPS = +40m.42s., SS = +45m.20s.
Long waves were also recorded at Salt Lake City, Chicago, U.S.C.G.S., Philadelphia, Harvard, East Machias, Upsala, Bombay, Colombo, and Santa Clara.

May 29d. Readings also at 1h. (Huancayo, near La Paz (2), San Francisco, near Berkeley, and Lick), 4h. (Samarkand, near Andijan, Tashkent, and Tchimkent), 8h. (near Batavia), 10h. (near Mizusawa), 11h. (College), 12h. (Haiwee, La Jolla, Riverside, Pasadena, Santa Barbara, Tinemaha, Ukiah, Fresno, Lick, Tucson, Bozeman, Florissant, Philadelphia, Salt Lake City, Chicago, La Paz, Potsdam, Warsaw, Yalta, near Simferopol, and Theodosia), 13h. (Pasadena, La Paz, near Berkeley, and Lick), 14h. (Haiwee, Pasadena, Riverside, Tinemaha, Tucson, La Paz, La Plata, near Lick, and near Manila), 15h. (near Harvard), 22h. (La Paz, Fresno, Branner, and Lick), 23h. (near Sofia and Triest).

May 30d. 17h. South Pacific.

Insufficient data from stations within 90° to give a determination. Pasadena gives approximate epicentre 15°S. 178°W., but the few available P readings would be better accounted for by a position south of the Friendly Islands, on the Tropic of Capricorn.

Apia eP = 31m.52s., eS = 33m.32s., iS = 34m.5s., eS_g = 34m.28s.
Arapuni S? = 37m.30s.?, Q = 39·5m.
Wellington S? = 38m.0s., Q = 40m.8s., LZ = 42m.40s.
Christchurch S?EN = 39m.8s., QEN = 40m.?, LZ = 42m.14s.
Manila ePZ = 41m.5s., iZ = 41m.17s., iSZ = 51m.33s., LZ = 69m.5s.?
Sydney e = 41m.24s.?
La Jolla ePZ = 41m.30s.
Berkeley ePZ = 41m.40s., eE = 42m.10s., eSEN = 51m.36s., eLEN = 60m.54s.
Pasadena ePZ = 41m.40s., ePPZ = 44m.17s., eSNZ = 51m.37s., eLZ = 66m.41s.
Riverside ePZ = 41m.45s.
Tinemaha ePZ = 41m.51s.
Tucson iP = 42m.3s., i = 42m.12s. and 42m.36s., ePP = 45m.12s., eS = 52m.19s., eL = 60m.9s.
Santa Clara ePN = 42m.5s., eSEN = 51m.47s., eLE = 63m.6s.
Riverview eZ = 42m.8s., eLN = 43·8m.
College eP = 43m.6s., iS = 53m.30s., e = 54m.26s. and 62m.41s., eL = 70m.24s.
Honolulu e = 44m.24s., iS = 45m.3s., e = 48m.17s., eL = 49m.31s.
San Juan e = 47m.6s., iSKS = 55m.6s., e = 56m.58s., 58m.41s., and 59m.2s., eSS = 65m.9s., eL = 84m.40s.
La Paz eN = 47m.20s., SS?N = 54m.4s., LN = 79m.
Tashkent eP = 48m.41s., eS = 57m.21s.
Sverdlovsk P = 48m.49s., eS = 57m.45s.
Granada ePKP = 49m.20s., PP? = 55m.19s., ePPS = 72m.0s., SS = 78m.5s., L = 117m.24s.
Toledo ePKPZ = 49m.21s., $ePKP_2$ = 50m.28s., iPP = 54m.7s.
Copenhagen eP = 49m.22s.
Scoresby Sund ePKP = 49m.25s., ePP = 51m.4s., e = 70m.59s., eL = 86m.39s.
Warsaw eP = 49m.28s., eN = 50m.18s., eL = 110m.
Potsdam ePZ = 49m.30s., ePN = 49m.35s., eE = 49m.48s.?, eLE = 103m.
Kew ePKPZ = 49m.32s., eZ = 53m., 53m.30s.?, 61m., 63m.30s.?, and 66m.30s.?, eSS?EN = 72m.20s., eL = 101m.
De Bilt iPKP? = 49m.35s., ePP? = 53m.0s., eSS = 72m.25s., eL = 110m.
Uccle ePKPZ = 49m.35s., eSKKSN = 59m.58s., ePSKSN = 63m.17s., eSSE = 72m.35s.
Helwan ePKPZ = 49m.36s., iZ = 49m.48s., PKKPZ = 50m.3s., PPZ = 53m.39s.
Stuttgart e? = 49m.39s., eLNE = 115m.
Jena eN = 49m.40s.
Istanbul P = 49m.42s.
Clermont-Ferrand ePKP = 49m.48s., eL = 120m.20s.
Zurich ePKP = 49m.59s.
Chur e = 50m.2s.
Bucharest eEN = 50m.30s. and 60m.16s.
Almeria e = 50m.57s., eL = 54m.26s.
Ukiah eS = 51m.36s., e = 52m.18s., eL = 62m.42s.
Victoria e = 52m.48s., L = 68m.
Salt Lake City eS = 53m.2s., eL = 65m.22s.
Bozeman eS = 53m.13s., e = 65m.24s., eL = 74m.4s.
Huancayo iSKS = 53m.41s., i = 54m.25s., iPPS = 56m.36s., iSS = 60m.49s., eL = 72m.49s.
St. Louis eN = 55m.4s., 61m.48s., and 73m.44s.
Ottawa e = 58m., L = 88m.
Seven Falls e = 59m.42s.?, L = 91m.
East Machias e = 59m.47s., eL = 85m.47s.
Philadelphia e = 64m.37s., eL = 83m.0s.

Continued on next page.

Aberdeen eE =71m.33s. and 79m.6s., eEN =105m.36s., eLE =109m.26s.
Coimbra ePN =72m.50s., ePE =73m.50s., e =85m.30s. and 97m.0s., eL =121m.
Long waves were also recorded at Butte, Harvard, Columbia, Bombay, Kodaikanal, Upsala, and Paris.

May 30d. 21h. South Pacific. Pasadena suggests deep focus, epicentre Samoa region.

Manila iPZ =38m.57s.k, SZ =47m.37s.
Berkeley ePE =39m.39s., iPZ =39m.45s., iSEN =48m.56s.
Santa Barbara ePZ =39m.43s.
Pasadena iPNZ =39m.48s., eZ =42m.47s., iSEN =49m.3s.
La Jolla ePZ =39m.49s.
Mount Wilson ePEN =39m.50s.
Riverside iPZ =39m.50s.
Palomar iPZ =39m.51s.
Haiwee iPEN =39m.55s.
Tinemaha iP =39m.57s.
Tucson iP =40m.13s., i =40m.19s. and 40m.43s., e =41m.4s. and 42m.11s., iS =49m.52s., eSS =55m.13s.
Honolulu e =42m.6s.
Copenhagen eP =47m.16s., ? =50m.17s.
Warsaw ePZ =47m.21s.k, eZ =50m.16s., eN =56m.47s.
Uccle iPNZ =47m.23s.k, ePZ =47m.31s., eZ =49m.21s., eN =57m.9s., eN =61m.18s.
Potsdam iPKPZ =47m.26s.k, iN =47m.44s., iZ =50m.22s. and 50m.45s., eE =51m.6s.?, iN =56m.56s.
Belgrade e =47m.29s.
Bucharest eEN =47m.30s.? and 48m.1s., eS?N =57m.9s.
De Bilt iZ =47m.31s.k, eZ =49m.20s.
Kew iPKPZ =47m.32s., iPKP$_2$?Z =48m.12s., epPKPZ =49m.18s., esPKPZ =50m.4s.
Stuttgart ePKP =47m.32s.k, i =47m.37s., e =50m.23s.
Jena i =47m.33s. and 48m.19s.
Basle eP =47m.35s.
Chur eP =47m.35s.
Triest eP? =47m.35s., eS =57m.30s.
Clermont-Ferrand iPKP =47m.38s.
Zurich eP =47m.39s.k
Toledo eZ =47m.40s., e =47m.47s.
Sofia eEN =47m.41s. and 57m.23s.
Helwan iPZ =47m.43s.a, iZ =47m.52s., PKPZ =50m.24s., PPZ =53m.8s., SKSE =57m.27s.
Scoresby Sund ePP =48m.48s., e =49m.24s.
Granada e =52m.8s., i =58m.20s., L =70m.18s.

May 30d. Readings also at 0h. (Branner, Berkeley, and San Francisco), 3h. (near Bucharest, Potsdam, Triest, Warsaw, and Lick), 9h. (Medan, Tacubaya, and Tucson), 14h. (Sofia, Bucharest, Istanbul, and near Amboina), 15h. (Huancayo, Tucson, Potsdam, Triest, and Warsaw), 16h. (Huancayo), 20h. (Tchimkent and near Andijan), 23h. (near Manila).

May 31d. 4h. Undetermined shock.

Apia eP =58m.22s., S =60m.39s.
Christchurch P$_c$P?Z =60m.25s., SN =65m.48s.?, SSE =67m.30s.?, Q?N =69m.0s., L?Z =71·0m.
Wellington P$_c$P? =60m.31s., S? =64m.28s., SS? =66m.30s., Q =67m., LZ =69·1m.
Arapuni S? =64m.6s.?
Riverside eZ =67m.49s., iZ =68m.0s.
Berkeley eZ =67m.59s., eE =68m.3s., eSEN =77m.40s., eLEN =88·5m.
Tucson e =68m.8s., i =68m.19s.
Honolulu e =75m.7s. and 75m.38s.
Copenhagen eP =75m.31s.
Potsdam ePN =75m.33s., ePE =75m.36s.?, ePZ =75m.39s., eZ =92m.24s.?, eL =141m.
Warsaw ePZ =75m.35s.a, eE =92m.29s., eLZ =143·0m.
Kew eZ =75m.40s. and 79m.30s., eLEN =129·0m.
Uccle ePZ =75m.44s.
De Bilt iZ =75m.49s.k, eL =140·0m.
Helwan PZ =76m.10s., iZ =76m.22s., eZ =91m.17s. and 92m.35s.
Long waves were also recorded at Riverview, Ukiah, Huancayo, Scoresby Sund, and Pasadena.

May 31d. Readings also at 0h. (Balboa Heights), 1h. (Branner, near Berkeley, Lick, and San Francisco), 2h. (Palomar, Pasadena, Riverside, Haiwee, Tinemaha, La Jolla, Santa Barbara, Mount Wilson, near Fresno (2), Stuttgart, Tucson, Lick, and Berkeley), 3h. (Samarkand), 4h. (Tchimkent and near Andijan), 5h. (Manila and Tucson), 7h. (Sofia), 10h. (near Mizusawa), 11h. (near Lick), 15h. (Tucson (3)), 18h. (San Fernando), 21h. (Grozny, Moscow, Potsdam, Sverdlovsk, Baku, Istanbul, and near Mizusawa), 22h. (Ksara).

June 1d. 17h. Atlantic Ocean.
Coimbra eP =43m.35s. and 44m.5s., e =46m.45s., S =49m.23s., i =51m.39s., LN = 54m.35s.
La Paz P =45m.4s., LN =58m.
Toledo ePZ =45m.34s., S =52m.13s., L =56m.19s.
Granada PP =47m.33s., S =51m.54s., L =54m.54s.
Stonyhurst e =48m.22s. and 55m.40s.
Tucson eP =49m.1s., i =49m.28s., e =49m.34s.
Rio de Janeiro e =50m.0s., eL =57m.20s.
Baku eP =50m.15s., eS =60m.28s.
Sverdlovsk eP =50m.34s., SKS =61m.0s., eS =61m.15s.
Almeria e =51m.58s., eL =58m.
Warsaw eZ =52m., eE =56m., eN =57m., eLN =67m.
Kew eNZ =54m.21s., eLN =59m.
Uccle eE =54m.22s.
Paris e =54m.27s., L =60m.
Potsdam eZ =55m.6s., eEN =56m.6s., eLNZ =64m.
De Bilt e =55m.9s., eL =62m.
Pulkovo eS =58m.22s.
Long waves were also recorded at Huancayo, Scoresby Sund, Clermont-Ferrand, Upsala, and Pasadena.

June 1d. Readings also at 0h. (near Istanbul), 2h. (Manila), 3h. (Arapuni, Christchurch, Wellington, Honolulu, Huancayo, Berkeley, Tucson, Paris, Potsdam, Warsaw, and Uccle), 4h. (College, Scoresby Sund, and Kew), 6h. (Christchurch, Wellington, Tucson, Tinemaha, and Warsaw), 7h. (Berkeley, Pasadena, Huancayo, and Kew), 8h. (De Bilt, Uccle, Paris, near Tucson, and near Andijan), 9h. (Balboa Heights), 14h. (La Paz), 21h. (Bucharest and Sofia), 22h. (Fresno, Neuchatel, near Basle, Chur, Stuttgart, Triest, and Zurich), 23h. (near Andijan and near Mizusawa).

June 2d. Readings at 1h. (near Manila), 2h. (Grozny, Pasadena, Berkeley, Mizusawa, near Tucson, and near Manila), 3h. (Tucson), 4h. (Berkeley, Tucson, and near Huancayo), 5h. (near Mizusawa), 6h. (Tucson), 8h. (near Mizusawa), 9h. (Pasadena, Riverside, Tinemaha, and Tucson), 16h. (San Juan), 17h. (near Mizusawa), 18h. (Manila), 23h. (near Branner and San Juan).

June 3d. 19h. Tokyo Imp. Univ. gives 35°·85N. 140°·07E.
Tokyo Imp. Univ. P =12m.42s., S =12m.52s.
Komaba P =12m.43s., S =12m.52s.
Tukubasan P =12m.44s., S =12m.52s.
Togane P =12m.44s., S =12m.53s.
Komakura P =12m.44s., S =12m.54s.
Kiyosumi P =12m.44s., S =12m.54s.
Mitaka P =12m.44s., S =12m.54s.
Koyama P =12m.44s., S =12m.57s.
Susaki P =12m.53s., S =13m.9s.
Mizusawa eP =13m.24s., iSE =14m.4s.

June 3d. Readings also at 1h. (La Paz and Tucson), 2h. (Stonyhurst), 3h. (Apia), 4h. (La Paz, Tucson, Pasadena, Riverside, Tinemaha, and Sverdlovsk), 5h. (Huancayo), 12h. (near Piatigorsk), 13h. (College), 14h. (St. Louis), 15h. (Harvard (2), San Juan, and Tucson), 16h. (Harvard (2) and San Juan), 17h. (Apia), 18h. (Berkeley), 19h. and 23h. (Harvard).

June 4d. 16h. 31m. 2s. Epicentre 11°·7N. 143°·3E.

A = −·7853, B = +·5854, C = +·2015; δ = −1; h = +6;
D = +·598, E = +·802; G = −·162, H = +·120, K = −·979.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Manila	z.	21·9	280	e 4 58	+ 1	i 9 1	+ 7	i 9 18	SS	12·8
Koti		23·5	339	e 5 8	− 4	9 14	− 9	—	—	—
Osaka		23·9	345	5 22	+ 6	10 5	SS	6 26	PP	—
Tokyo Cen. Met. Ob.		24·1	353	e 4 34	?	9 37	+ 3	—	—	—
Nagano		25·3	350	e 5 24	− 6	—	—	—	—	—
Sendai		26·5	358	e 5 38	− 3	12 51	L	—	—	(12·9)
Riverview		45·9	171	e 11 52	?	—	—	—	—	—
Irkutsk		51·2	331	e 8 58	− 9	—	—	—	—	—
Tashkent		70·4	310	e 11 18	0	e 20 28	− 2	—	—	—
Sverdlovsk		76·3	326	11 50	− 2	e 21 28	− 9	—	—	—
Victoria		83·5	43	e 12 34	+ 3	e 22 51	− 1	—	—	38·0
Baku		85·1	310	e 13 12	+33	24 43	PPS	—	—	—
Santa Barbara	z.	89·1	56	e 12 58	0	—	—	—	—	—
Tinemaha		89·7	53	i 13 2	+ 1	—	—	—	—	—
Haiwee	z.	90·1	53	i 13 4	+ 1	—	—	—	—	—
Pasadena		90·4	56	i 13 4	0	—	—	—	—	e 41·0
Riverside		91·0	56	i 13 6	− 1	—	—	—	—	—
La Jolla		91·5	57	e 13 12	+ 2	—	—	—	—	—
Palomar	z.	91·7	56	i 13 11	+ 1	—	—	—	—	—
Tucson		96·9	55	i 13 35	+ 1	—	—	e 17 27	PP	e 44·2
De Bilt		106·9	334	i 18 44	PP	—	—	—	—	e 55·0
Kew		109·6	336	19 3	PP	—	—	—	—	e 55·0
La Paz	z.	149·2	103	19 56	[+10]	—	—	—	—	—

Additional readings :—
Manila iZ = +9m.39s.
Osaka SS = +11m.56s.
Tucson i = +13m.4s., e = +14m.21s. and +18m.35s.
Kew eEZ = +33m.58s.?, eE = +51m.28s.?
Long waves were also recorded at College, Warsaw, Potsdam, Paris, and Adelaide.

June 4d. Readings also at 0h. (Riverside and Tucson), 6h. (Tucson and near Samarkand), 7h. (Pasadena, Tinemaha, Salt Lake City, Lick, Riverside, Tucson, and Fresno), 8h. (Tucson (2), Lick (2), Fresno (3), Branner (2), San Francisco, and Berkeley), 16h. (near Medan), 17h. (Sverdlovsk, Tashkent, Irkutsk, Almata, Andijan, Semipalatinsk, Samarkand, La Paz, and near Apia), 18h. (Huancayo and La Paz), 20h. (near Florissant), 21h. (near Harvard), 23h. (Apia and La Paz).

June 5d. 2h. Undetermined shock.
Damage at Michalowitz (Nagy-Mihaly), Hohenau and Stratzke (Zemplin).

J. P. Rothé.
Chronique seismologique, Revue pour l'Etude des Calamités, tome VII, No. 21, Genève 1944, p. 47.

Budapest P = 50m.43s., eN = 51m.12s., LE = 51·3m.
Warsaw eZ = 51m.1s., eE = 51m.58s., eN = 52m.0s., eZ = 52m.18s., eL = 52·5m.
Zurich eP = 52m.0s.
Copenhagen iP = 52m.4s.
Stuttgart e = 52m.6s., 52m.21s., and 54m.6s., iS_g = 54m.31s. and 54m.37s.
Triest e = 53m.16s., i = 53m.31s.
Jena eE = 53m.21s., eN = 53m.30s., eE = 53m.35s., iE = 53m.47s.
Potsdam eNZ = 53m.28s., iEN = 53m.47s.
Basle e = 55m.19s.
De Bilt e = 57m.

June 5d. Readings also at 0h. (near Andijan and Tchimkent), 1h. (Paris and Scoresby Sund), 2h. (Tucson), 3h. (Tucson), 6h. (Tananarive), 7h. (Andijan, Tchimkent, Tashkent, and Samarkand), 8h. (near Andijan, Samarkand, Tchimkent, Tashkent, near Manila, and Medan), 9h. (Paris and De Bilt), 16h. (Batavia, Amboina, Kodaikanal, Irkutsk, Medan, and Tashkent), 17h. (Sverdlovsk and near Manila), 18h. (Lick).

June 6d. 19h. 38m. 46s. Epicentre 37°·1N. 115°·7W. (as given by Pasadena).

$A = -\cdot3467$, $B = -\cdot7204$, $C = +\cdot6006$; $\delta = -10$; $h = -1$;
$D = -\cdot901$, $E = +\cdot434$; $G = -\cdot260$, $H = -\cdot541$, $K = -\cdot800$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tinemaha		2·0	270	i 0 37	+ 2	i 1 4	+ 2	—	—	—
Haiwee		2·1	242	i 0 38	+ 1	i 1 5	+ 1	—	—	—
Fresno	N.	3·3	264	—	—	e 1 42	S*	—	—	—
Riverside	Z.	3·4	205	e 0 54	− 1	i 1 49	S_g	—	—	—
Pasadena		3·6	216	e 0 57	− 1	e 1 51	S_g	—	—	—
Lick	N.	4·7	276	e 1 57	?	e 2 28	S_g	—	—	—
Tucson		6·3	138	i 1 57	P*	e 2 39	−11	i 2 0	P_g	i 3·5

Tucson also gives i = +2m.21s.

June 6d. 21h. 2m. 22s. Epicentre 72°·5N. 0°·0.

$A = +\cdot3026$, $B = \cdot0000$, $C = +\cdot9531$; $\delta = -3$; $h = -13$;
$D = \cdot000$, $E = -1\cdot000$; $G = +\cdot953$, $H = \cdot000$, $K = -\cdot303$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Scoresby Sund		7·3	265	e 1 55	+ 5	—	—	e 2 1	PP	e 3·8
Bergen	N.	12·3	168	e 2 38?	−21	—	—	—	—	—
Upsala		14·4	142	e 2 38?	−49	e 5 38?	−31	—	—	—
Aberdeen		15·4	186	e 5 1	?	e 5 33	−59	—	—	8·1
Pulkovo		17·4	121	e 3 52	−14	e 7 2	−17	—	—	—
Copenhagen		17·7	156	e 4 6	− 4	—	—	—	—	—
De Bilt		20·6	172	i 4 42a	− 1	e 8 30	+ 1	e 8 48	SS	e 10·6
Potsdam		21·0	159	e 4 35	−12	i 8 38	+ 1	i 8 53	SS	e 10·6
Kew		21·1	180	e 4 49	+ 1	e 8 39	0	—	—	e 10·1
Uccle		21·9	176	4 55a	− 2	e 8 55	+ 1	—	—	10·6
Jena		22·2	160	i 4 59	− 1	—	—	i 5 8	PP	—
Warsaw		22·3	145	e 5 0	− 1	9 6	+ 4	—	—	11·6
Moscow		22·8	118	5 2	− 3	9 8	− 3	—	—	—
Paris		23·8	177	i 5 17	+ 2	—	—	—	—	11·6
Stuttgart		24·2	165	e 5 20k	+ 1	—	—	i 5 59	PP	—
Clermont-Ferrand		26·9	176	e 5 45	0	—	—	—	—	—
Triest		27·7	159	e 5 50	− 2	e 10 32	− 1	—	—	e 13·3
Sverdlovsk		28·6	92	e 6 0	0	e 10 46	− 2	—	—	—
Tashkent		45·0	95	e 8 18	− 1	e 14 54	− 4	—	—	—
Berkeley		62·9	312	—	—	i 19 34	+34	—	—	e 34·3
Tucson		65·5	299	i 10 52	+ 5	—	—	—	—	e 36·9

Additional readings :—
Potsdam ePZ = +4m.44s., iNZ = +4m.48s. and +4m.52s., iEN = +4m.57s., iE = +6m.56s., iN = +8m.47s.
Uccle eSN = +9m.1s.
Warsaw eN = +5m.4s., iZ = +5m.7s., eE = +9m.11s.
Stuttgart iP = +5m.29s.
Tucson i = +10m.58s.
Long waves were also recorded at Pasadena and Salt Lake City.

June 6d. Readings also at 0h. (near Apia and Grozny), 1h. (Bucharest and Triest), 2h. (Tucson), 3h. (Tananarive), 4h. (near Andijan), 5h. (Pasadena, Riverside, Tinemaha, Palomar, and Tucson), 9h. (Belgrade), 13h. (Mizusawa), 16h. (Amboina), 17h. (Bucharest, Sofia, near Basle, Zurich, Stuttgart, Ravensburg), 18h. (near Grozny, near Sofia, and Bucharest), 19h. (Sofia, Triest, and near Harvard), 22h. (Tananarive and La Paz), 23h. (Tucson, Uccle, Paris, Huancayo, La Paz, and Kew).

June 7d. Readings at 1h. (near Fresno, Lick, San Francisco, Branner, and Berkeley), 2h. (Berkeley), 3h. (Vera Cruz and Tucson), 6h. (Tucson), 15h. (near Harvard), 16h. (Tucson and Cape Girardeau), 17h. (Tucson), 18h. (near Manila (3)), 19h. (Manila), 20h. (Tucson), 21h. (Jena), 22h. (near La Paz), 23h. (La Paz and Tucson).

June 8d. Readings at 0h. (Clermont-Ferrand), 1h. (near Lick), 2h. (near Lick, Branner, Fresno, and Balboa Heights), 4h. (La Paz), 9h. (Riverview), 12h. (San Juan), 15h. (Tashkent and Andijan), 16h. (Tchimkent, Sverdlovsk, and Almata), 19h. (near La Paz), 20h. (Shawinigan Falls, Ottawa, Seven Falls, and Harvard), 22h. (Tucson, Pasadena, Riverside, and Tinemaha).

June 9d. 6h. 17m. 25s. Epicentre 42°·5N. 126°·3W.

$A = -\cdot4378$, $B = -\cdot5960$, $C = +\cdot6731$; $\delta = -5$; $h = -3$;
$D = -\cdot806$, $E = +\cdot592$; $G = -\cdot398$, $H = -\cdot542$, $K = -\cdot740$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ferndale		2·5	142	e 0 41	− 2	i 1 5	− 9	—	—	i 1·2
Ukiah		4·1	143	e 0 59	− 6	i 1 42	−13	e 1 19	P_g	i 2·0
Berkeley		5·6	145	e 1 24	− 3	e 2 20	−13	—	—	e 2·6
San Francisco		5·6	146	e 1 37	P*	e 2 21	−12	—	—	e 2·8
Seattle		5·9	27	e 1 55	P_g	e 3 10	S_g	—	—	—
Branner		6·0	146	e 1 33	+ 1	i 2 46	+ 3	e 1 45	P*	e 3·7
Santa Clara		6·1	145	e 1 34	0	i 2 58	S*	e 1 50	P*	i 4·1
Lick		6·3	143	e 1 36	0	i 2 44	− 6	1 41	P*	e 3·2
Victoria	N.	6·4	18	e 1 33	− 5	—	—	—	—	3·1
Fresno	N.	7·6	137	e 1 56	+ 1	e 3 27	+ 4	—	—	i 3·8
Spokane	E.	8·2	47	e 2 7	+ 4	—	—	—	—	e 4·1
Tinemaha	N.	8·2	128	e 2 4	+ 1	e 3 46	+ 8	—	—	—
Haiwee		9·1	132	i 2 20	+ 6	—	—	—	—	—
Butte		10·5	66	e 2 33	− 2	(e 4 48)	+13	3 14	PPP	e 4·8
Pasadena		10·5	140	i 2 32	− 3	—	—	—	—	e 4·4
Riverside		11·0	137	i 2 37	− 5	—	—	—	—	—
Sale Lake City		11·0	95	e 2 40	− 2	i 4 43	− 4	i 3 26	PPP	i 6·3
Bozeman		11·4	69	i 2 46	− 1	i 4 59	+ 3	i 2 49	PP	i 5·9
Tucson		16·0	125	i 3 46	− 2	i 6 29	−17	i 4 12	PPP	i 8·0
Sitka		16·2	340	e 3 44	− 6	i 7 2	SS	i 4 12	PPP	e 7·8
Lincoln		22·2	84	e 4 59	− 1	e 8 43	−17	e 9 16	SS	e 12·9
College		25·5	339	e 5 30	− 2	e 10 4	+ 7	—	—	i 11·3
Florissant	E.	27·4	86	e 5 48	− 1	e 10 26	− 2	i 6 7	PP	—
St. Louis		27·5	86	e 5 49	− 1	e 10 31	+ 1	i 6 25	PP	e 14·3
Cape Girardeau	E.	28·5	89	e 5 55	− 4	e 10 45	− 1	i 6 25	PP	e 14·4
Chicago U.S.C.G.S.		28·5	78	e 5 57	− 2	e 10 48	+ 2	e 11 10	SS	e 14·3
Toronto		33·9	72	e 9 59	?	e 14 29	SS	—	—	16·6
Pittsburgh		34·5	77	e 6 48	− 4	12 22	+ 2	—	—	—
Ottawa		36·1	68	7 5	0	12 43	− 2	14 35	SS	18·6
Columbia		36·2	88	e 7 6	0	e 12 37	−10	e 8 41	PPP	e 15·8
Shawinigan Falls		37·8	64	e 7 30	+10	—	—	—	—	19·6
Vermont		38·0	68	e 8 36	PP	e 13 26	+12	—	—	e 17·8
Philadelphia		38·1	77	e 7 13	− 9	e 13 12	− 4	e 16 8	SS	e 16·7
Fordham		38·7	74	e 7 24	− 3	e 13 30	+ 5	e 8 48	PP	e 19·4
Seven Falls		38·9	63	7 31	+ 2	13 35	+ 7	—	—	19·6
East Machias		41·9	67	e 8 15	+21	14 18	+ 5	e 9 31	PP	i 21·0
Ivigtut		48·5	40	8 48	+ 2	15 50	+ 2	19 29	SS	23·6
Bermuda		48·9	81	e 10 33	PP	—	—	—	—	e 22·6
Scoresby Sund		55·1	24	e 9 44	+ 8	e 17 17	− 1	e 21 13	SS	e 29·5
San Juan		55·9	96	—	—	e 17 34	+ 5	—	—	e 30·5
Aberdeen		70·2	28	—	—	i 28 21	SSS	—	—	e 33·4
Huancayo		71·6	127	—	—	20 45	+ 1	—	—	i 29·5
Kew		75·6	32	—	—	e 26 5?	SS	e 29 35	SSS	e 32·6
De Bilt		76·8	28	i 12 9	+14	i 21 49	+ 7	e 30 35	SSS	—
Paris		78·5	32	e 12 16	+12	—	—	—	—	e 33·6
Potsdam		79·2	24	e 12 16	+ 8	e 21 35	−33	e 31 35	?	e 38·6
La Paz	Z.	79·4	124	11 57	−12	—	—	—	—	47·6
Coimbra		80·3	43	e 12 2	−12	22 17	− 3	15 12	PP	36·1
Warsaw		81·5	20	12 18	− 3	e 22 35	+ 3	—	—	e 42·6
Granada		85·1	43	(i 12 40k)	+ 1	—	—	(15 45)	PP	(39·5)
Istanbul		93·9	18	e 23 58	SKS	(e 23 58)	[+ 3]	—	—	—

For Notes see next page.

Notes to June 9d. 6h. 17m. 25s.

Additional readings :—
Lick eSEN = +2m.38s.
Butte eS = +3m.58s., S given as L.
Bozeman i = +4m.5s., +5m.8s., and +5m.37s.
Tucson iZ = +5m.19s. and +5m.29s., eS = +7m.2s.
Florissant iE = +5m.53s. and +10m.54s.
St. Louis iNZ = +5m.56s., eE = +7m.30s., iE = +11m.1s.
Cape Girardeau eE = +5m.58s., +8m.15s., and +11m.35s.
Pittsburgh iSNE = +12m.25s.
Columbia e = +12m.50s.
Fordham eSS = +16m.19s.
East Machias iSS = +17m.23s., e = +20m.10s.
Ivigtut +16m.22s.
Scoresby Sund e = +9m.50s. and +17m.27s.
Aberdeen iN = +28m.35s.
Coimbra PS = +23m.2s., SS = +27m.52s. and +29m.22s.
Warsaw eZ = +12m.32s.
Granada ; all readings increased by 1m.
Long waves were also recorded at Honolulu, Harvard, Christchurch, Wellington, and other European stations.

June 9d. 8h. 43m. 41s. Epicentre 42°·5N. 126°·3W. (as at 6h.).

$A = -\cdot4378$, $B = -\cdot5960$, $C = +\cdot6731$; $\delta = -5$; $h = -3$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ferndale		2·5	142	e 0 59	P_g	i 1 7	− 7	i 1 21	S*	—
Ukiah		4·1	143	e 0 59	− 6	i 1 45	−10	e 1 24	P*	i 1·9
Berkeley		5·6	145	e 1 14	−13	i 2 29	− 4	i 1 42	P*	i 2·9
San Francisco		5·6	146	—	—	e 2 28	− 5	—	—	e 2·8
Seattle		5·9	27	—	—	e 2 26	−14	e 3 14	S_g	e 4·1
Branner		6·0	146	e 1 32	0	i 2 39	− 4	—	—	e 3·6
Santa Clara		6·1	145	e 1 31	− 3	e 3 0	S*	e 3 12	S_g	—
Lick		6·3	143	e 1 36	0	e 2 45	− 5	—	—	e 3·4
Victoria		6·4	18	e 1 37	− 1	—	—	—	—	3·3
Fresno	N.	7·6	137	e 2 7	+12	e 3 31	+ 8	—	—	—
Spokane		8·2	47	—	—	e 4 21	S*	—	—	e 5·0
Tinemaha		8·2	128	e 2 7	+ 4	e 3 54	+16	—	—	—
Butte		10·5	66	e 2 53	PP	e 4 37	+ 2	—	—	e 5·5
Pasadena		10·5	140	e 2 33	− 2	—	—	—	—	e 4·4
Riverside		11·0	137	i 2 42	0	—	—	—	—	—
Salt Lake City		11·0	95	e 2 42	0	—	—	e 2 58	PP	e 5·6
Bozeman		11·4	69	i 2 48	+ 1	e 4 59	+ 3	i 3 11	PP	i 6·1
Tucson		16·0	125	i 3 49	+ 1	i 7 7	SS	i 4 23	PP	i 9·5
Lincoln		22·2	84	i 5 2	+ 2	e 9 17	SS	—	—	e 14·0
College		25·5	339	—	—	(e 10 5)	+ 8	—	—	e 10·1
Florissant		27·4	86	i 5 53	+ 4	e 10 34	+ 6	—	—	—
St. Louis		27·5	86	e 5 53	+ 3	e 10 38	+ 8	i 11 2	SS	e 14·2
Cape Girardeau	E.	28·5	89	e 6 3	+ 4	—	—	—	—	e 18·2
Chicago U.S.C.G.S.		28·5	78	e 6 3	+ 4	e 10 51	+ 5	—	—	e 15·0
Toronto		33·9	72	—	—	e 14 43	SSS	—	—	17·3
Pittsburgh		34·5	77	i 6 53	+ 1	e 12 26	+ 6	—	—	—
Ottawa		36·1	68	7 12	+ 7	12 49	+ 4	8 30	PP	e 19·3
Shawinigan Falls		37·8	64	e 7 35	+15	—	—	—	—	e 19·3
Vermont		38·0	68	e 8 47	PP	e 13 22	+ 8	—	—	e 18·8
Philadelphia		38·1	77	e 8 46	PP	e 13 19	+ 3	e 16 28	SSS	e 19·2
Seven Falls		38·9	63	e 9 1	PP	—	—	—	—	21·3
East Machias		41·9	67	—	—	e 17 30	SSS	—	—	e 20·3
Scoresby Sund		55·1	24	e 12 24	PPP	—	—	—	—	e 23·9

Additional readings :—
Ferndale eE = +1m.1s., iE = +1m.47s.
Ukiah e = +1m.13s.
Berkeley iE = +1m.22s., eNZ = +1m.29s., iN = +2m.45s., iZ = +2m.49s.
Branner eSE = +2m.34s., eN = +2m.46s.
Bozeman e = +5m.48s.
Tucson i = +4m.39s., e = +5m.5s., i = +5m.20s., e = +7m.17s. and +8m.23s.
St. Louis iE = +11m.2s.
Long waves were also recorded at Harvard, Honolulu, Potsdam, Warsaw, De Bilt, San Juan, Ivigtut, Columbia, and Sitka.

June 9d. Readings also at 1h. (Tacubaya), 3h. (Prague), 4h. (Berkeley), 5h. (near Medan), 6h. (Weston, Tucson, Riverside, Tinemaha, Pasadena, and Prague), 7h. (Wellington, Tucson (2), Riverside, and Pasadena), 8h. (Paris and Scoresby Sund), 17h. (Batavia and near Branner), 19h. (Huancayo and Lick), 20h. (La Paz), 21h. (Lick and San Juan), 22h. (Palomar, Mount Wilson, Tucson, Riverside, Tinemaha, and near Platigorsk).

June 10d. 10h. 40m. 27s. Epicentre 17°·0N. 104°·5W. (as on 1937 Jan. 2d.).

$A = -\cdot2396$, $B = -\cdot9264$, $C = +\cdot2906$; $\delta = +7$; $h = +5$;
$D = -\cdot968$, $E = +\cdot250$; $G = -\cdot073$, $H = -\cdot281$, $K = -\cdot957$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Guadalajara	N.	3·8	14	0 56	− 5	—	—	—	—	—
Tacubaya	N.	5·6	63	e 1 37	P*	—	—	—	—	—
Tucson		16·2	340	i 3 46	− 4	i 5 52	−59	i 4 2	PP	i 8·3
Palomar	Z.	19·7	329	i 4 34	0	—	—	—	—	—
Riverside		20·5	327	i 4 41	− 1	—	—	—	—	—
Mount Wilson		21·0	326	i 4 47	0	—	—	—	—	—
Pasadena		21·0	326	i 4 45	− 2	e 8 33	− 4	—	—	e 11·4
Santa Barbara	Z.	22·1	325	e 5 5	+ 6	—	—	—	—	—
Haiwee		22·5	330	i 5 3	+ 1	—	—	—	—	—
Tinemaha	Z.	23·4	331	i 5 13	+ 2	—	—	—	—	—
Fresno	N.	23·9	330	e 5 33	+17	—	—	—	—	—
St. Louis		24·9	26	i 5 29	+ 3	e 9 57	+10	—	—	e 12·8
Florissant		25·0	26	i 5 23	− 4	i 9 43	− 6	—	—	—
Lick		25·3	327	e 5 35	+ 5	—	—	—	—	—
Berkeley		26·0	327	e 5 39	+ 3	—	—	—	—	e 15·2
Chicago		28·7	27	—	—	e 12 50	SS	—	—	e 15·0

Additional readings :—
Tucson i = +3m.52s., +4m.47s., and +5m.8s., e = +6m.39s., i = +7m.20s. and +7m.39s.
St. Louis iZ = +5m.35s.
Florissant eEN = +5m.33s.
Long waves were also recorded at Huancayo, Salt Lake City, Bozeman, Butte, and Philadelphia.

June 10d. 20h. 38m. 44s. Epicentre 33°·2N. 46°·4E. (as on 1940 July 6d.).

$A = +\cdot5782$, $B = +\cdot6072$, $C = +\cdot5450$; $\delta = +3$; $h = +1$;
$D = +\cdot724$, $E = -\cdot690$; $G = +\cdot376$, $H = +\cdot395$, $K = -\cdot829$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
*Ksara	8·8	277	e 2 30	+19	e 5 20	?	—	—	—
Helwan	13·3	260	3 16	+ 3	7 7	L	3 37	PP	(7·1)
Theodosia	14·5	328	3 27	− 1	—	—	—	—	—
Yalta	14·7	324	3 34	+ 3	6 26	+10	—	—	—
Istanbul	15·9	305	5 55	?	9 40	L	—	—	(9·7)
Samarkand	17·8	63	4 16	+ 5	—	—	—	—	—
Bucharest	19·3	312	e 4 30	+ 1	8 16	+14	—	—	—
Tashkent	19·9	59	e 4 24	−12	e 8 0	−15	4 58	pP	—
Tchimkent	20·1	56	4 30	− 8	—	—	—	—	—
Sofia	20·5	305	e 4 48	+ 6	e 8 37	+10	e 8 52	SS	—
Andijan	22·0	64	e 4 53	− 5	—	—	—	—	—
Belgrade	23·2	308	e 4 46	−23	e 9 10	− 8	e 5 24	PP	e 12·2
Moscow	23·4	348	5 5	− 6	9 19	− 2	—	—	—
Frunse	24·1	59	5 16	− 2	—	—	—	—	—
Almata	25·9	58	5 36	+ 1	—	—	—	—	—
Warsaw	26·4	325	e 5 41a	+ 1	e 10 18	+ 6	6 15	PP	e 12·8
Triest	27·8	307	e 5 58	+ 5	i 10 49	+14	—	—	—
Pulkovo	28·7	344	e 6 0	− 1	e 10 44	− 6	—	—	—
Prague	28·9	317	—	—	e 11 2	+ 9	—	—	e 17·5
Potsdam	30·7	319	e 6 16	− 3	i 11 25	+ 4	e 13 16	SSS	e 18·3

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Chur		31·0	308	e 6 24	+ 3	—	—	—	—	—
Jena		31·0	316	e 6 25	+ 4	—	—	—	—	—
Stuttgart		31·7	311	e 6 28k	+ 1	e 11 34	− 3	e 7 35	PP	—
Zurich		31·8	308	e 6 24k	− 4	e 11 32	− 6	—	—	—
Basle		32·5	308	e 6 31	− 3	e 11 32	−17	—	—	—
Copenhagen		32·5	325	e 6 36	+ 2	—	—	—	—	—
Upsala		32·7	335	e 8 4	PPP	e 14 0	SSS	—	—	—
De Bilt		35·1	317	i 7 2k	+ 5	—	—	—	—	e 22·3
Uccle		35·3	313	i 7 2k	+ 3	e 12 34	+ 1	—	—	20·3
Clermont-Ferrand		35·4	305	e 7 0	0	—	—	—	—	—
Paris		36·1	310	i 7 9	+ 4	—	—	—	—	23·3
Calcutta	N.	38·3	95	—	—	e 15 26	SS	—	—	e 20·8
Kew		38·3	314	i 7 26	+ 2	13 20	+ 1	8 54	pP	e 21·3
Almeria		39·8	291	e 7 45	+ 9	—	—	—	—	10·3
Toledo		40·6	295	e 7 46	+ 3	e 10 52	?	—	—	12·0
Granada		40·7	291	7 45k	+ 1	10 47	?	—	—	—
Coimbra		43·9	297	(8 16)	+ 6	8 16	P	—	—	17·4
Irkutsk		45·3	47	e 8 19	− 2	14 44	−18	—	—	—
Scoresby Sund		51·9	337	e 9 13	+ 1	e 16 36	+ 1	—	—	e 30·0
Vladivostok		65·2	54	e 10 37	− 8	—	—	—	—	—
Tucson		111·5	339	e 18 22	[−14]	—	—	e 19 14	PP	—

Additional readings :—
Helwan PPPZ = +3m.49s., i = +6m.7s., P_cP = +7m.30s.
Bucharest iZ = +4m.34s.
Tashkent sS = +8m.55s.
Belgrade e = +7m.16s. and +10m.6s.
Warsaw eE = +5m.44s., eN = +5m.47s., eZ = +6m.30s., eS?N = +10m.23s., eS?E = +10m.28s., eN = +11m.40s., eSS?Z = +11m.48s., eE = +11m.56s.
Triest i = +11m.35s., e = +12m.8s.
Potsdam iPZ = +6m.21s., iN = +11m.44s. and +11m.57s.
Stuttgart eNW = +6m.56s.
Zurich i = +6m.31s.
Upsala eE = +14m.16s.?, e = +17m.16s.?
Kew iZ = +7m.30s., esPNZ = +9m.41s., iP_cSZ = +12m.45s., eS_cSZ = +16m.27s., eQEN = +19m.16s.
Coimbra e = +1m.16s. and +5m.24s.
Tucson e = +18m.38s.
Long waves were also recorded at La Paz and Huancayo.

June 10d. Readings also at 1h. (Lick and Berkeley), 7h. (near Mizusawa), 11h. (Riverview, Adelaide, Tinemaha, Pasadena, Mount Wilson, Riverside, Palomar, and Bucharest), 14h. (Tinemaha, Pasadena, Mount Wilson, Riverside, Palomar, and Tucson), 15h. (Riverside, Palomar, and Tucson), 16h. (Hauncayo, Ukiah, Ferndale, and La Paz), 18h. (near Tananarive and near Andijan), 20h. (Ksara), 21h. (La Paz and Taihoku), 23h. (La Paz and near Ksara).

June 11d. 6h. Undetermined shock.

Ferndale eE = 32m.34s., eEN = 33m.8s., eN = 33m.46s.
Ukiah eP = 33m.7s., e = 33m.25s., eL = 34·2m.
Branner eE = 33m.37s. and 34m.35s.
Lick eEN = 33m.38s. and 34m.43s., eLEN = 36·0m.
Berkeley eN = 33m.40s. and 34m.21s., eNZ = 34m.47s., eE = 34m.52s.
San Francisco eN = 33m.51s. and 34m.30s.
Fresno eN = 33m.58s. and 35m.31s.
Bozeman eP = 35m.14s., eS = 37m.47s., e = 38m.8s. and 38m.23s., eL = 39·3m.
Tinemaha ePZ = 34m.12s.
Pasadena iPZ = 34m.28s., eLZ = 37·2m.
Mount Wilson iPZ = 34m.36s.
Riverside iPZ = 34m.54s.
Santa Clara eEZ = 35m.32s.
Tucson iPZ = 35m.55s., iZ = 36m.1s., 36m.5s., and 36m.18s., e = 38m.34s., eL? = 40·6m.
St. Louis eSE = 42m.53s., eE = 44m.59s.
Long waves were also recorded at Salt Lake City, Chicago, Butte, and Seattle.

June 11d. 15h. 38m. 21s. Epicentre 35°·4N. 140°·7E.
(as on 1940 June 13d. and as given by Tokyo Imperial University).

A = −·6322, B = +·5174, C = +·5767; δ = −4; h = 0;
D = +·633, E = +·774; G = −·446, H = +·365, K = −·817.

		Δ	Az.	P.	O−C.	S.	O−C.
		°	°	m. s.	s.	m. s.	s.
Togane		0·3	302	0 23	+12	0 32	+14
Kiyosumi		0·5	239	0 23	+ 9	0 32	+ 9
Tokyo Imp. Univ.		0·8	293	0 20	+ 2	0 34	+ 3
Komaba		0·9	287	0 21	+ 1	0 33	− 1
Mitaka		1·0	286	0 23	+ 2	0 39	+ 3
Tukubasan		1·0	329	0 23	+ 2	0 37	+ 1
Koyama		1·4	268	0 23	− 4	0 55	+ 9
Titibu		1·4	294	0 23	− 4	0 41	− 5
Susaki		1·6	242	0 29	− 1	0 48	− 3
Miznsawa		3·7	5	e 1 2	+ 2	2 7	S_g
Mount Wilson	z.	79·0	57	e 12 5	− 2	—	—
Riverside	z.	79·6	57	e 12 8	− 2	—	—
Palomar	z.	80·3	57	e 12 15	+ 1	—	—
Tucson		85·0	54	i 12 37	− 1	—	—

Tucson also gives i = +12m.49s.

June 11d. 23h. 13m. 26s. Epicentre 30°·4N. 103°·5E.

A = −·2017, B = +·8401, C = +·5035; δ = −4; h = +2;
D = +·972, E = +·233; G = −·118, H = +·490, K = −·864.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Calcutta	N.	15·7	244	e 3 20	−24	i 6 35	− 4	i 6 51	SS	i 8·3
Taihoku		16·8	104	—	—	e 7 35	SS	—	—	(9·4)
Karenko		17·3	107	2 18	?	5 33	?	—	—	—
Irkutsk		21·9	2	5 4	+ 7	9 10	SS	—	—	—
Manila	z.	22·5	132	i 5 11a	+ 9	i 9 37	SS	—	—	—
Miyazaki		23·9	81	4 59	−17	—	—	—	—	—
Hamada		24·4	74	3 59	?	—	—	—	—	—
Almata		24·7	311	e 5 30	+ 6	—	—	—	—	—
Koti		25·6	77	5 27	− 5	9 58	− 1	—	—	—
Vladivostok		25·9	54	e 5 45	+10	i 10 28	+24	—	—	—
Kobe		27·0	73	10 16	S	(10 16)	− 6	—	—	—
Andijan		27·2	302	6 1	+14	10 36	+11	—	—	—
Medan		27·9	193	5 45	− 9	15 34?	L	—	—	(15·6)
Tashkent		29·6	302	e 6 5	− 4	11 1	− 3	—	—	—
Tchimkent		29·6	305	e 6 5	− 4	e 10 42	−22	—	—	—
Bombay		30·1	256	—	—	e 11 1	−11	e 12 33	SS	e 15·0
Sverdlovsk		39·8	326	i 7 37	+ 1	i 13 39	− 3	—	—	—
Baku		44·2	300	e 8 16	+ 4	e 14 50	+ 4	—	—	—
Moscow		52·1	320	9 12	− 2	16 34	− 4	—	—	—
Pulkovo		55·9	325	e 9 41	− 1	e 17 27	− 2	—	—	—
Bucharest		60·9	308	e 10 16	− 1	18 34	0	—	—	36·6
Helwan		61·4	290	i 10 16	− 4	—	—	—	—	—
Warsaw		62·2	318	e 10 25k	− 1	e 18 51	0	—	—	e 33·6
Potsdam		66·8	320	e 10 53	− 3	i 19 47	− 1	e 26 34	SSS	e 28·6
Triest		68·8	312	—	—	i 20 8	− 3	—	—	—
Stuttgart		70·5	316	i 11 16a	− 2	—	—	—	—	e 37·6
De Bilt		71·4	321	i 11 31a	+ 7	i 20 43	+ 1	—	—	e 36·6
Scoresby Sund		72·2	344	e 11 31	+ 2	e 20 55	+ 4	—	—	e 40·7
Uccle		72·4	320	e 11 29	− 1	e 20 51	− 2	—	—	e 36·6
Aberdeen		72·8	328	—	—	e 34 20	?	—	—	e 40·1
Paris		74·4	318	e 11 49	+ 7	e 21 34?	+18	—	—	40·6
Kew		74·7	322	e 11 49	+ 6	21 18	− 1	e 16 17	PPP	e 36·6
Toledo		83·0	313	i 12 28	0	—	—	15 43	PP	40·6
Granada		84·2	311	i 14 15	?	—	—	—	—	51·2
Coimbra		85·6	314	e 12 34	− 7	23 7	[+ 2]	18 7	PPP	e 45·7

For Notes see next page.

NOTES TO JUNE 11d. 23h. 13m. 26s.

Additional readings :—
Calcutta $iP_cPN = +8m.1s.$, $iS_cSN = +15m.19s.$
Taihoku L given as S.
Bombay iN = +11m.21s., iE = +11m.24s., eN = +12m.15s., iE = +12m.18s., eN = +13m.38s.
Helwan eZ = +11m.13s.
Warsaw eZ = +18m.59s.
Potsdam iPZ = +11m.0s., eN = +18m.34s.
Kew eSSSE = +29m.34s.
Coimbra eP = +13m.34s., ? = +25m.34s.
Long waves were also recorded at Prague, East Machias, Bergen, Upsala, and Philadelphia.

June 11d. Readings also at 0h. (Istanbul), 1h. (Ksara, Andijan, Moscow, Tashkent, Bucharest, Warsaw (2), Potsdam (2), Stuttgart, and Sofia), 2h. (La Plata), 3h. (Tacubaya and Tucson), 6h. (near Manila), 8h. (Tucson), 10h. (Tucson, Riverview, Sydney, Brisbane, Manila, and near Amboina), 12h. (near Tashkent, Andijan, Samarkand, and Tchimkent), 13h. (Vera Cruz, Istanbul, and Tacubaya), 14h. (Helwan, Sverdlovsk, Andijan, Tashkent, Moscow, and Ksara), 16h. (near Andijan and Tchimkent), 17h. (near Amboina), 19h. (Palomar, Tucson, Riverside, Mount Wilson, Pasadena, and near Mizusawa), 20h. (near Amboina), 21h. (Huancayo), 22h. (College, near Tchimkent, Andijan, Tashkent, and Samarkand).

June 12d. 13h. 55m. 37s. Epicentre 36°·5N. 2°·5W.

Intensity IV at Almeria, Rioja, Motril, etc., III-IV at Granada. Epicentre in the sea between Almeria and the Isle of Alboran, 36°·5N. 2°·5W. approx.

See Bulletins séismologiques des stations de Cartuja, Almeria, Alicante.

A = +·8051, B = −·0351, C = +·5922 ; δ = +12 ; h = 0;
D = −·044, E = −·999 ; G = +·592, H = −·026, K = −·806.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Almeria		0·4	4	i 0 13	0	—	—	—	—	—
Granada		1·9	308	i 0 21k	−13	i 0 32	?	—	—	—
San Fernando		3·0	269	1 1	P_g	i 1 41	S_g	—	—	—
Toledo		3·6	342	i 1 2	P*	1 57	S_g	—	—	—
Algiers		4·5	84	1 33	P_g	i 2 10	+ 5	i 2 16	S_g	—
Lisbon		5·7	315	1 28	0	2 36	+ 1	1 35	P*	—
Coimbra		5·9	311	1 13	−18	2 39	− 1	2 53	S*	—
Bagneres		6·9	17	e 2 27	P_g	e 3 13	+ 8	e 3 55	S_g	—
Clermont-Ferrand		10·1	22	e 2 27	− 1	—	—	—	—	—
Kew		15·0	4	e 0 29	?	—	—	—	—	e 6·4
Triest		15·3	48	—	—	e 6 10	−20	—	—	—
Warsaw		22·9	38	—	—	e 9 23_a	+10	—	—	e 13·4
Tucson		84·3	306	i 12 39	+ 4	—	—	—	—	—
Tinemaha	z.	85·7	313	e 12 48	+ 6	—	—	—	—	—

Additional readings :—
Granada P_g = +26s.
San Fernando $eP^*EN = +1m.8s.$, $eP_gEN = +1m.14s.$, eSEN = +2m.11s.
Lisbon E = +2m.15s., S* = +3m.2s., $S_gN = +3m.12s.$, $S_gZ = +3m.18s.$
Coimbra $P_g = +1m.23s.$, iPS = +2m.15s., i = +3m.7s., iSS = +3m.13s.
Tucson i = +12m.43s.
Long waves were also recorded at other European stations.

June 12d. Readings also at 2h. (Santa Barbara, Tinemaha, Tucson, Pasadena, Riverside, Mount Wilson, and Haiwee), 4h. (Mount Wilson, Riverside, Pasadena, Tinemaha, Lick, Fresno, Tucson, Palomar, and Triest), 7h. (Palomar, Tucson, Tinemaha, Riverside, and Mount Wilson), 9h. (Shawinigan Falls, St. Louis, Bozeman, Tucson, Palomar, Tinemaha, Sitka, San Juan, College, East Machias, Mount Wilson, Pasadena, Riverside, and Haiwee), 10h. (Philadelphia and East Machias), 12h. (Paris), 14h. (near Almeria (2)), 19h. (near Manila), 20h. (Harvard (2)), 21h. (Tucson (2) and Harvard), 22h. (Riverside, Pasadena, Mount Wilson, and Tinemaha), 23h. (near Branner, San Francisco, Berkeley, Fresno, and Lick),

June 13d. 15h. 1m. 21s. Epicentre 19°·0N. 102°·5W. (as on 1937 May 1d.).

Pasadena suggests deep and quotes Tacubaya epicentre 18°18′N. 103°33′W.

A = −·2048, B = −·9238, C = +·3236; δ = +7; h = +5;
D = −·976, E = +·216; G = −·070, H = −·316, K = −·946.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Manzanillo	E.	1·7	272	0 9	−22	—	—	—	—	—
Guadalajara	E.	1·9	331	0 32	− 2	—	—	—	—	—
Oaxaca	Z.	5·8	109	e −0 45	?	—	—	—	—	—
Vera Cruz	N.	6·0	88	e 1 39	+ 7	—	—	—	—	—
Tucson		15·2	332	i 3 41	+ 3	i 6 22	− 6	i 3 52	PP	i 8·1
Palomar	Z.	19·2	322	i 4 31	+ 3	—	—	i 5 0	PPP	—
Riverside	Z.	20·0	322	i 4 36	− 1	—	—	i 5 7	PPP	—
Mount Wilson	Z.	20·5	322	i 4 41	− 1	—	—	—	—	—
Pasadena	Z.	20·6	322	e 4 41	− 2	—	—	i 4 53	PP	e 11·7
Cape Girardeau	N.	21·5	30	e 4 51	− 1	i 8 56	+ 9	i 5 9	pP	—
St. Louis		22·3	27	i 5 1	0	e 9 7	+ 5	i 5 19	pP	e 13·0
Tinemaha		22·7	327	i 5 5	+ 1	—	—	i 5 36	PP	—

Additional readings :—
Tucson i = +3m.59s., e = +5m.6s., i = +6m.48s., e = +7m.3s. and +7m.24s.
Riverside iZ = +4m.48s.
Cape Girardeau iN = +6m.58s.
St. Louis iSN = +9m.11s., eE = +13m.2s.
Tinemaha iZ = +5m.26s.
Long waves were also recorded at Paris, Bozeman, Butte, and Salt Lake City.

June 13d. 22h. 13m. 54s. Epicentre 18°·3N. 145°·2E. (as on 1940 Aug. 15d.). Depth 0·025.

A = −·7802, B = +·5422, C = +·3121; δ = +10; h = +5;
D = +·571, E = +·821; G = −·256, H = +·178, K = −·950.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Titizima		9·1	346	2 9	+ 1	3 40	− 9	—	—	—
Tokyo Cen. Met. Ob.		18·0	346	3 46	−13	7 8	− 2	—	—	—
Nagoya		18·3	341	4 8	+ 6	—	—	—	—	—
Nagano		19·3	344	4 15	+ 3	7 33	− 2	—	—	—
Sendai		20·2	352	4 21	0	7 53	+ 1	—	—	—
Mizusawa		21·1	352	e 4 37	+ 7	8 24	+15	—	—	—
Manila	Z.	23·5	266	1 5 47k	− 7	i 10 21	SSS	—	—	—
Vladivostok		27·2	338	e 6 9	PP	e 11 12	SS	—	—	—
Tchimkent		67·4	310	e 11 28	pP	—	—	—	—	—
Sverdlovsk		71·9	326	e 11 5	+ 1	e 20 2	− 6	—	—	—
Tinemaha		84·2	53	i 12 15	+ 4	—	—	—	—	—
Haiwee		84·7	54	i 12 16	+ 2	—	—	—	—	—
Pasadena		85·2	56	i 12 17	+ 1	—	—	e 13 9	pP	—
Mount Wilson	Z.	85·3	56	i 12 17	+ 1	—	—	—	—	—
Riverside	Z.	85·9	56	i 12 21	+ 2	—	—	—	—	—
Palomar	Z.	86·5	56	i 12 24	+ 2	—	—	—	—	—
Tucson		91·6	55	i 12 49	+ 3	—	—	i 13 7	pP	—
La Paz	Z.	148·2	93	e 19 30	[+11]	—	—	—	—	—

Tucson also gives e = +12m.58s. and +13m.40s., i = +15m.1s.

June 13d. Readings also at 1h. (Balboa Heights), 2h. (Samarkand and near Tchimkent), 3h. (Tucson, Huancayo, Mount Wilson, Pasadena, and near Andijan), 5h. and 11h. (La Paz), 12h. (near Tashkent, Tchimkent, Almata, and Andijan), 15h. (near Branner), 16h. (La Paz), 18h.(near Neuchatel), 19h. (near Andijan), 21h. (near Mizusawa, Pasadena, Mount Wilson, Riverside, Tinemaha, Palomar, and Toledo), 23h. (Branner).

June 14d. Readings at 0h. (near Lick, Fresno, San Francisco, Berkeley, and Branner), 8h. (Tinemaha, Riverside, Mount Wilson, Pasadena, Tucson, and Palomar), 11h. (La Paz and Huancayo), 12h. (Huancayo), 17h. (Almata, near Berkeley, and Branner), 19h. (Almata), 21h. (near Amboina).

June 15d. 12h. 38m. 56s. Epicentre 27°·3N. 53°·2E. (as on 1941 Feb. 4d.).

$A = +·5330$, $B = +·7125$, $C = +·4562$; $\delta = -14$; $h = +3$;
$D = +·801$, $E = -·599$; $G = +·273$, $H = +·365$, $K = -·890$.

The American readings have been included, but it is doubtful whether they belong to the present shock.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Baku		13·4	349	e 3 18	+ 4	e 5 26	−19	—	—	—
Ksara		16·3	298	e 3 51	− 1	e 8 55	L	—	—	(e 8·9)
Tashkent		19·3	39	e 4 25	− 4	e 7 52	−10	—	—	—
Helwan		19·4	284	4 28	− 2	8 4	0	5 6	PP	—
Andijan		20·7	45	4 49	+ 5	—	—	—	—	—
East Machias		90·1	322	e 18 37	PPP	—	—	—	—	—
Bermuda		96·4	311	e 12 58	−34	—	—	(e 16 18)	PP	e 16·3
Philadelphia		97·6	322	(e 19 29)	PPP	—	—	—	—	e 19·5
San Juan		105·7	301	e 13 4	?	(i 18 51)	PP	e 16 52	?	i 18·8
Tinemaha	z.	115·4	353	e 19 16	[+32]	—	—	—	—	—
Mount Wilson	z.	118·2	352	e 19 12	[+23]	—	—	—	—	—
Pasadena	z.	118·3	352	i 19 14	[+25]	—	—	—	—	—
Riverside	z.	118·4	352	e 19 3	[+13]	—	—	—	—	—
Tucson		118·9	346	i 18 29	[−22]	—	—	—	—	—

Additional readings :—
Helwan iN = +10m.46s. and +11m.10s., S_cSZ = +16m.25s.
Tucson i = +18m.38s. and +18m.49s., e = +19m.10s.
Long waves were also recorded at De Bilt, Kew, Warsaw, Paris, Potsdam, and Chicago.

June 15d. Readings also at 0h. (near Andijan), 1h. (Sverdlovsk and Warsaw), 3h. (Mount Wilson, Pasadena, Riverside, Tinemaha, Tucson, and near Mizusawa), 4h. (Huancayo), 7h. (Huancayo, La Paz, and Tucson), 8h. (Scoresby Sund), 9h. (Huancayo), 14h. (Mount Wilson, Pasadena, Riverside, Tinemaha, Palomar, and Tucson), 16h. (Istanbul), 17h. (Huancayo), 20h. (near Manila), 22h. (Sofia and near Bucharest).

June 16d. 10h. 31m. 56s. Epicentre 36°·4N. 140°·6E. (as on 1939 June 28d.). Depth 0·010.

Intensity V at Mito and Kakioka; IV at Utunomiya, Onahama, Tokyo, and Hukusima; II-III at Yokohama, Sendai, Miyako, Katuura, and Kohu. Epicentre 36°·4N. 140°·3E. Macroseismic radius 200-300km. Shallow.

See Seismological Bulletin of the Central Met. Obs. Japan for the year 1941, Tokyo 1950, pp. 27-28, macroseismic chart p. 27.

$A = -·6235$, $B = +·5121$, $C = +·5908$; $\delta = +4$; $h = 0$;
$D = +·635$, $E = +·773$; $G = -·457$, $H = +·375$, $K = -·807$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mito	0·1	261	0 9	− 5	0 16	− 8	—	—	—
Kakioka	0·4	244	0 13k	− 2	0 20	− 7	—	—	—
Tukubasan	0·5	246	0 13k	− 3	0 21	− 7	—	—	—
Onahama	0·6	24	0 14a	− 3	0 24	− 5	—	—	—
Utunomiya	0·6	284	0 13k	− 4	0 22	− 7	—	—	—
Tyosi	0·7	162	0 16	− 2	0 26	− 5	—	—	—
Togane	0·8	193	0 22	+ 4	0 35	+ 3	—	—	—
Tokyo Cen. Met. Ob.	1·0	224	0 21k	+ 1	0 31	− 5	—	—	—
Tokyo Imp. Univ.	1·0	224	0 20	0	0 34	− 2	—	—	—
Komaba	1·1	225	0 21	− 1	0 35	− 3	—	—	—
Mitaka	1·1	229	0 22	0	0 36	− 2	—	—	—
Kamakura	1·3	218	0 22	− 2	0 36	− 6	—	—	—
Kiyosumi	1·3	195	0 22	− 2	0 40	− 2	—	—	—
Maebasi	1·3	270	0 22k	− 2	0 35	− 7	—	—	—
Titibu	1·3	251	0 22	− 2	0 35	− 7	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Yokohama		1·3	219	0 25k	+ 1	0 42	0	—	—	—
Hukusima		1·4	356	0 23k	− 2	0 38	− 6	—	—	—
Mera		1·6	203	0 30	+ 2	0 50	+ 1	—	—	—
Hunatu		1·8	239	0 31	+ 1	0 50	− 3	—	—	—
Kohu		1·8	245	0 32k	+ 2	0 54	+ 1	—	—	—
Misima		1·8	226	0 32k	+ 2	0 59	+ 6	—	—	—
Osima		1·9	211	0 33k	+ 1	0 57	+ 2	—	—	—
Sendai		1·9	7	0 30	− 2	0 52	− 3	—	—	—
Nagano		2·0	278	0 34k	+ 1	0 56	− 1	—	—	—
Susaki		2·1	217	0 37	+ 3	0 56	− 4	—	—	—
Shizuoka		2·3	231	0 39k	+ 2	1 10	+ 5	—	—	—
Aikawa		2·5	311	0 38	− 2	0 53	−17	—	—	—
Mizusawa		2·8	9	e 0 44	0	i 1 16	− 1	—	—	—
Toyama		2·8	276	0 45	+ 1	1 11	− 6	—	—	—
Hamamatu		2·9	234	0 47a	+ 2	—	—	—	—	—
Wazima		3·1	288	0 49k	+ 1	—	—	—	—	—
Nagoya		3·2	247	0 53	+ 3	1 35	+ 8	—	—	—
Hatidyozima		3·3	192	0 55	+ 4	1 37	+ 8	—	—	—
Akita		3·4	355	0 55k	+ 3	1 20	−12	—	—	—
Miyako		3·4	18	0 49	− 3	1 24	− 8	—	—	—
Hikone		3·7	253	0 58k	+ 2	1 40	+ 1	—	—	—
Kameyama		3·7	247	1 1	+ 5	1 52	+13	—	—	—
Hatinohe		4·2	10	1 2	− 1	1 49	− 2	—	—	—
Kyoto		4·2	252	1 6	+ 3	1 28	−23	—	—	—
Owase		4·3	238	0 49	−16	1 51	− 3	—	—	—
Aomori		4·4	1	1 11	+ 5	2 5	+ 9	—	—	—
Kobe		4·7	250	1 23	pP	2 31	sS	—	—	—
Toyooka		4·8	261	1 14	+ 3	2 18	+12	—	—	—
Siomisaki		4·9	235	1 35	pP	—	—	—	—	—
Wakayama		5·0	244	1 14	0	2 20	+ 9	—	—	—
Sumoto		5·1	247	1 18	+ 2	2 39	sS	—	—	—
Muroto		6·1	241	1 46	pP	3 5	sS	—	—	—
Sapporo		6·7	8	1 45	+ 8	2 59	+ 6	—	—	—
Matuyama		6·9	251	1 42	+ 2	3 7	+ 9	—	—	—
Hirosima		7·0	255	2 18	pP	—	—	—	—	—
Hamada		7·1	259	2 22	pP	3 39	sS	—	—	—
Nemuro		7·9	27	2 50	+56	4 11	+49	—	—	—
Izuka		8·5	255	2 6	+ 4	—	—	—	—	—
Hukuoka		8·8	254	2 14	+ 8	3 31	−13	—	—	—
Yakusima		10·3	238	2 32	+ 6	—	—	—	—	—
Tinemaha	z.	76·7	55	e 11 47	+ 5	—	—	—	—	—
Copenhagen		78·2	334	i 11 55	+ 5	—	—	—	—	—
Mount Wilson	z.	78·5	57	e 11 49	− 3	—	—	i 12 14	pP	—
Pasadena	z.	78·5	57	e 11 49	− 3	—	—	i 12 18	pP	—
Riverside	z.	79·1	57	e 11 47	− 8	—	—	e 12 15	pP	—
Palomar	z.	79·8	57	e 11 50	− 9	—	—	e 12 19	pP	—
Tucson	·	84·5	54	i 12 29	+ 6	—	—	e 13 52	pP	—

Additional readings :—
Tinemaha eZ = +12m.3s.
Mount Wilson eZ = +11m.58s.
Riverside eZ = +11m.59s. and +12m.44s.
Palomar eZ = +12m.1s.
Tucson i = +12m.47s.

June 16d. 11h. 26m. 59s. Epicentre 7°·2N. 126°·3E. (as on 1939, February 4d.).

$A = -\cdot5874$, $B = +\cdot7997$, $C = +\cdot1245$; $\delta = +6$; $h = +7$;
$D = +\cdot806$, $E = +\cdot592$; $G = -\cdot074$, $H = +\cdot100$, $K = -\cdot992$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Manila	Z.	9·0	325	i 2 35a	PP	i 4 37	S•	—	—	—
Amboina		11·0	170	2 23	−19	i 4 13	−34	—	—	—
Batavia		23·6	236	5 7	− 6	i 9 13	−12	—	—	—
Medan		27·6	264	5 53	+ 2	10 25	− 7	—	—	—
Mizusawa		34·5	21	e 7 9	+17	e 8 10	PP	—	—	—
Calcutta	N.	39·6	297	—	—	e 12 17	?	—	—	—
Riverview	Z.	47·1	151	e 8 4	−31	—	—	—	—	—
Hyderabad	E.	47·7	287	8 39	− 1	—	—	—	—	—
Kodaikanal	E.	48·3	278	i 8 42a	− 3	i 15 38	− 7	10 38	PP	—
Irkutsk		48·4	342	8 50	+ 4	15 53	+ 7	9 15	pP	—
Bombay		53·2	288	i 9 21	− 1	e 16 53	+ 1	—	—	—
Almata		56·2	318	e 9 46	+ 2	—	—	—	—	—
Andijan		58·4	314	i 10 2	+ 2	—	—	—	—	—
Tashkent		60·7	313	i 10 18	+ 3	e 18 40	+ 8	10 44	pP	—
Sverdlovsk		70·8	328	i 11 20	0	i 20 33	− 2	i 21 16	sS	—
Baku		75·0	310	11 46	+ 1	21 27	+ 4	e 12 10	pP	—
Grozny		78·2	313	12 7	+ 4	21 58	+ 1	—	—	—
Moscow		83·4	326	i 12 31	+ 1	i 22 48	− 3	12 56	pP	—
Theodosia		85·6	315	12 42	+ 1	—	—	—	—	—
Ksara		86·4	303	e 12 46	+ 1	e 23 21	0	—	—	—
Yalta		86·5	314	12 45	− 1	—	—	—	—	—
Pulkovo		86·8	330	e 12 46	− 1	i 23 24	− 1	—	—	—
Helwan		90·7	300	e 13 4k	− 2	23 26	[−11]	16 40	PP	—
Warsaw		93·6	324	e 13 18	− 1	e 24 22	− 4	e 17 10	PP	—
Sofia		94·6	314	e 13 24	0	e 23 43	[−16]	—	—	—
Potsdam		98·1	325	i 13 38	− 2	i 24 53	−11	i 17 46	PP	e 50·0
Prague		98·8	323	e 15 1?	?	—	—	—	—	—
Triest		100·3	318	e 17 1	PP	e 24 1?	[−27]	—	—	—
De Bilt		102·6	327	e 17 49	PP	—	—	—	—	e 50·0
Zurich		102·9	321	e 14 37	+36	—	—	e 18 22	PP	—
Basle		103·4	322	e 18 19	PP	—	—	—	—	—
Tinemaha		105·4	49	—	—	—	—	e 29 59	PKKP	—
Paris		105·7	325	18 43	PP	25 33	{− 2}	29 1?	PPS	57·0
Kew		105·8	328	e 12 33	?	e 25 30	{− 6}	e 18 41	PP	e 43·5
Mount Wilson	Z.	106·6	52	e 18 18	PKP	—	—	e 29 56	PKKP	—
Pasadena	Z.	106·6	52	e 18 20	PKP	—	—	i 18 47	PP	e 49·0
Riverside	Z.	107·2	52	e 18 12	PKP	—	—	e 29 51	PKKP	—
Palomar		107·9	52	e 18 46	PKP	—	—	i 29 49	PKKP	—
Tucson		113·0	51	e 18 40	[+ 1]	i 29 27	PS	i 19 16	PP	e 52·3
Huancayo		158·1	104	e 20 1	[+ 2]	—	—	—	—	—
La Paz	Z.	163·1	125	20 1	[− 3]	—	—	—	—	—

Additional readings :—
Riverview iZ = +8m.50s.
Bombay eE = +17m.21s., eN = +17m.30s., e = +19m.1s. and +19m.53s.
Helwan SE = +24m.6s.
Warsaw eE = +24m.34s.
Potsdam eZ = +17m.1s., eE = +17m.11s.
Paris PP = +19m.33s.
Kew eZ = +14m.14s., +19m.18s., and +24m.1s.?, eEZ = +28m.31s.
Pasadena eZ = +19m.11s., +20m.24s., and +21m.12s., iPKKPZ = +29m.54s.
Tucson e = +20m.5s. and +29m.48s.
Long waves were also recorded at Jena and Wellington.

June 16d. 18h. 30m. 40s. Epicentre 55°·3N. 35°·0W. (as on 1939, September 21d.).

$A = +\cdot4685$, $B = -\cdot3280$, $C = +\cdot8204$; $\delta = +13$; $h = -7$;
$D = -\cdot574$, $E = -\cdot819$; $G = +\cdot672$, $H = -\cdot471$, $K = -\cdot572$.

	Δ	Az.	P.	O−C.	S.	O−C.	L.
	°	°	m. s.	s.	m. s.	s.	m.
Kew	20·9	85	4 46	0	8 44	+ 9	e 9·8
Paris	23·7	90	i 5 15	+ 1	e 9 35	+ 8	e 12·3
De Bilt	23·8	80	i 5 15a	0	e 9 40	+12	e 11·3
Uccle	23·9	84	e 5 14a	− 2	e 9 33	+ 3	e 11·6
Clermont-Ferrand	25·7	96	e 5 35	+ 2	—	—	—
Ottawa	27·4	267	e 5 56	+ 7	—	—	14·3
Florissant	40·0	270	e 9 23	PP	e 13 59	+ 5	—

Long waves were also recorded at Ivigtut, Potsdam, Warsaw, and other North American Stations.

June 16d. 21h. 11m. 53s. Epicentre 55°·3N. 35°·0W. (as at 18h.).

$A = +\cdot4685$, $B = -\cdot3280$, $C = +\cdot8204$; $\delta = +13$; $h = -7$;
$D = -\cdot574$, $E = -\cdot819$; $G = +\cdot672$, $H = -\cdot471$, $K = -\cdot572$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Scoresby Sund	16·3	16	e 3 42	−10	(e 6 43)	−10	i 2 44	?	e 6·7
Aberdeen	18·3	70	i 4 13	− 4	e 7 43	+ 4	—	—	8·9
Stonyhurst	18·8	80	i 4 20	− 3	(e 8 48)	SSS	—	—	e 8·8
Kew	20·9	85	4 45	− 1	e 8 43	+ 8	e 5 12	PP	e 9·1
East Machias	23·1	257	e 5 14	+ 6	e 9 32	+16	—	—	e 13·0
Coimbra	23·2	119	5 15	+ 6	9 21	+ 3	—	—	10·8
Paris	23·7	90	i 5 15	+ 1	e 9 34	+ 7	—	—	12·1
Seven Falls	23·7	266	e 5 19	+ 5	—	—	—	—	12·1
De Bilt	23·8	80	i 5 13a	− 2	e 9 37	+ 9	—	—	11·1
Uccle	23·9	84	i 5 13a	− 3	e 9 33	+ 3	—	—	e 11·4
Clermont-Ferrand	25·7	96	e 5 35	+ 2	—	—	—	—	e 12·7
Toledo	25·7	114	i 5 37	+ 4	e 8 53	−68	—	—	—
Ottawa	27·4	267	e 5 53	+ 4	e 10 43	+15	—	—	14·1
Potsdam	28·1	76	e 5 55	0	—	—	e 6 31	PP	e 12·1
Philadelphia	30·6	256	—	—	e 11 30	+10	—	—	e 16·1
Triest	31·9	87	i 6 26	− 3	e 10 32	?	—	—	—
Warsaw	32·5	72	e 3 7?	?	e 11 7?	−42	—	—	e 14·1
Bucharest	39·6	80	e 9 7?	PP	—	—	—	—	22·1
Florissant	40·0	270	e 9 12	PP	e 13 54	+10	—	—	—
St. Louis N.	40·1	270	e 9 3	PP	e 13 55	+ 9	—	—	e 20·6
Tucson	56·3	279	i 9 47	+ 2	—	—	11 18	PP	e 31·6

Additional readings:—
Coimbra SN = +9m.25s.
Florissant eSEN = +13m.58s.
Tucson e = +9m.53s.
Long waves were also recorded at Ivigtut and other North American stations.

June 16d. Readings at 0h. (Huancayo and near Piatigorsk), 4h. (Helwan, Bucharest, Potsdam, Sofia, De Bilt, and Triest), 5h. (Tucson, Tinemaha, Riverside, Mount Wilson, near Apia, and Port au Prince), 11h. (near Istanbul, Uccle, Ksara, Warsaw, Triest, De Bilt, Sofia, Potsdam, Bucharest, and Helwan), 12h. (near Tashkent, Andijan, Almata, and Tchimkent), 14h. (Warsaw), 18h. (Ivigtut and Scoresby Sund), 20h. (near Triest, Pasadena, Mount Wilson, Riverside, Lick, and Fresno), 22h. (Huancayo).

June 17d. 10h. 52m. 1s. Epicentre 36°·3N. 71°·0E. (as on 1941, May 17d.).

$A = +·2630$, $B = +·7638$, $C = +·5894$; $\delta = -5$; $h = 0$;
$D = +·946$, $E = -·326$; $G = +192$, $H = +·557$, $K = -·808$.

Scale V at Drosh; IV Peshawar. Gov. of India Seismo. Bulletin, 1941, p.45.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Andijan		4·6	14	e 1 17	+ 5	2 32	S_g	—	—	—
Tashkent		5·2	347	i 1 24	+ 3	i 2 22	0	—	—	—
Almata		8·3	32	e 2 7	+ 3	—	—	—	—	—
Agra	E.	10·9	145	e 2 33	− 7	4 20	−24	—	—	i 5·6
Semipalatinsk		15·6	22	3 44	+ 1	e 6 42	+ 5	—	—	—
Bombay		17·4	174	i 7 17	S	(i 7 17)	− 2	—	—	e 9·4
Hyderabad	N.	19·9	159	—	—	8 17	+ 2	—	—	—
Calcutta	N.	20·4	127	—	—	e 7 52	−33	—	—	—
Grozny		20·6	299	4 45	+ 2	8 35	+ 6	—	—	—
Kodaikanal	E.	26·6	166	—	—	i 9 59?	?	—	—	i 14·2
Moscow		29·8	321	e 6 7	− 4	—	—	—	—	—
Warsaw		38·3	311	e 7 23	− 1	e 12 59?	−20	e 8 49	PP	e 21·0
Potsdam		43·2	311	e 8 32	+28	e 17 41	SS	e 9 44	PP	—
Jena	E.	44·2	308	e 8 5	− 7	—	—	—	—	—

Additional readings:—
Bombay iE = +7m.32s.
Warsaw eZ = +16m.16s., eE = +16m.20s.
Potsdam eE = +9m.59s.
Jena eN = +8m.9s.

June 17d. Readings also at 2h. (Apia, Wellington, Copenhagen, Warsaw, Stuttgart, Haiwee, Mount Wilson, Pasadena, Tucson, Riverside, Tinemaha, and San Juan), 9h. (Ksara), 11h. (Arapuni and Stuttgart), 16h. (Clermont-Ferrand and La Paz).

June 18d. 10h. 15m. 3s. Epicentre 0°·2N. 125°·2E. (as on 1939, October 30d.).

$A = -·5764$, $B = +·8171$, $C = +·0035$; $\delta = -10$; $h = +7$;
$D = +·817$, $E = +·576$; $G = -·002$, $H = +·003$, $K = -1·000$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Amboina		4·9	142	1 11	− 6	i 2 3	−12	—	—	—
Manila	Z.	14·9	344	3 41$_s$	+ 7	i 6 40	+20	i 3 57	PP	—
Batavia		19·4	251	4 25	− 5	i 8 29	+25	—	—	—
Naha		26·0	4	5 42	+ 6	—	—	—	—	—
Medan		26·7	278	5 42	− 1	10 11	− 6	—	—	—
Hiroshima		34·7	11	6 56	+ 2	12 23	− 1	—	—	—
Nagoya		36·5	16	e 7 13	+ 4	—	—	—	—	—
Adelaide		37·1	163	i 12 47	S	(i 12 47)	−14	15 18	SS	—
Nagano		38·2	17	7 32	+ 9	13 29	+12	—	—	—
Brisbane	N.	38·4	138	e 7 15	−10	i 13 5	−15	—	—	—
Sendai		40·5	19	7 45	+ 3	13 53	+ 1	—	—	—
Riverview		41·7	147	e 7 49	− 3	e 14 5	− 5	i 17 15	SS	e 21·2
Calcutta	N.	42·2	305	e 8 3	+ 7	e 14 15	− 2	e 10 5	P$_e$P	e 20·3
Vladivostok		43·2	7	i 8 5	+ 1	—	—	—	—	—
Kodaikanal	E.	48·5	284	e 7 57?	−49	i 15 33	−15	—	—	—
Hyderabad		49·1	293	8 44	− 7	16 8	+12	10 45	PP	25·4
Agra	E.	52·6	305	e 9 13	− 5	16 36	− 8	—	—	—
Bombay		54·6	293	e 11 49	PP	e 17 10	− 1	e 19 16	SS	21·0
Irkutsk		54·8	345	9 33	− 1	e 17 2	−12	—	—	—
Wellington		60·9	140	—	—	18 57	PPS	20 4	?	34·0
Andijan		62·5	317	e 10 25	− 3	—	—	—	—	—
Tashkent		64·9	317	e 10 41	− 2	e 19 21	− 3	—	—	—
Tchimkent		65·1	318	i 10 43	− 2	i 19 20	− 7	—	—	—
Sverdlovsk		76·3	330	i 11 50	− 2	i 21 26	−11	—	—	—
Moscow		88·5	326	i 12 53	− 3	i 23 33	− 8	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Helwan	z.	93·3	300	i 13 15k	− 3	—	—	17 0	PP	—
Bucharest		96·4	315	—	—	e 24 7	[− 2]	—	—	—
Potsdam		103·2	324	e 13 57	− 6	i 25 49	+ 2	e 27 15	PS	55·0
De Bilt		107·8	326	e 18 57	PP	e 28 22	PS	—	—	e 55·0
Paris		110·8	324	e 14 36	P	(28 57?)	PS	e 19 14	PP	29·0
Pasadena	z.	111·7	53	i 18 39	[+ 2]	e 28 49	PS	—	—	e 51·4
Tucson		118·1	52	e 18 50	[+ 1]	e 29 37	PS	—	—	—
Florissant		129·3	36	e 19 10	[− 1]	e 32 2	PS	i 21 19	PP	—
St. Louis		129·5	36	e 22 28	PP	e 28 16	{ 0}	—	—	—
Harvard	z.	134·9	17	e 19 23	[+ 2]	e 22 49	PP	—	—	—
Weston		135·1	17	e 19 23	[+ 1]	—	—	i 52 51	?	—
Fordham		135·6	21	i 22 53	PP	—	—	—	—	—
San Juan		158·4	29	e 20 20	[+21]	e 25 11	PP	—	—	—
La Paz	z.	159·1	139	e 20 25	[+25]	—	—	—	—	—

Additional readings :—
Adelaide iSN = +22m.13s., PS = +22m.36s., SS = +32m.27s. ; phases have been wrongly identified, true S being given as P and SS as PP.
Riverview eE = +7m.57s., eEN = +8m.8s., iSE = +14m.9s.
Calcutta iS_eSN = +18m.9s.
Hyderabad S_eSE = +18m.39s., SSE = +19m.43s.
Bombay eE = +13m.20s., eN = +17m.6s., eE = +17m.29s., eN = +17m.41s.
Wellington Q = +29·0m.
Helwan iZ = +13m.29s. and +17m.45s., PPPZ = +19m.9s.
Bucharest e = +24m.47s.
Potsdam eZ = +17m.57s., eE = +18m.15s.
Paris e = +20m.41s.
Tucson i = +18m.53s. and +20m.7s.
Florissant iN = +22m.36s., eZ = +32m.39s. and +33m.8s.
San Juan e = +25m.40s.
Long waves also recorded at Tananarive, Honolulu, and College.

June 18d. 11h. 9m. 9s. Epicentre 52°·0N. 34°·0W. (as on 1938, May 13d.).

A = +·5125, B = −·3457, C = +·7860 ; δ = −4 ; λ = −6 ;
D = −·559, E = −·829 ; G = +·652, H = −·440, K = −·618.

	△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ivigtut	12·1	325	i 2 47k	−10	5 8	− 6	—	—	—
Edinburgh	18·5	66	4 14	− 5	e 7 49	+ 5	4 22	PP	e 10·0
Stonyhurst	19·0	72	i 4 29	+ 3	i 8 1	+ 6	4 47	PP	i 9·5
Scoresby Sund	19·4	12	i 4 26	− 4	i 8 0	− 4	8 46	SSS	i 10·7
Kew	20·8	77	i 4 44a	− 1	i 8 31	− 2	i 4 56	PP	e 9·4
Halifax	20·9	261	4 42	− 4	8 43	+ 8	—	—	10·9
Coimbra	21·2	113	4 53	+ 4	8 50	+ 9	5 18	PP	10·9
Lisbon	21·8	119	4 59	+ 3	i 9 2	+10	5 34	PP	—
Bergen	23·1	52	i 5 6	− 2	i 9 14	− 2	—	—	e 11·8
East Machias	23·1	265	i 5 8	0	i 9 18	+ 2	—	—	i 11·7
Paris	23·3	84	i 5 10	0	i 9 20	0	10 11	SS	11·9
Uccle	23·8	77	i 5 15a	0	9 28	0	i 10 24	SS	10·9
De Bilt	23·9	72	i 5 16a	0	i 9 33	+ 3	—	—	e 10·9
Toledo	23·9	109	i 5 21	+ 5	i 9 42	+12	—	—	—
Seven Falls	24·2	274	5 19	0	9 48	+13	—	—	e 10·9
Clermont-Ferrand	25·0	90	5 29a	+ 2	9 49	0	—	—	e 12·2
San Fernando	25·1	118	i 5 34	+ 6	i 10 10	+19	e 6 18	PPP	—
Shawinigan Falls	25·6	274	5 31	− 1	e 10 21	+22	—	—	e 12·9
Granada	26·0	113	i 5 39k	+ 3	i 10 17	+11	6 12	PP	i 13·0
Besançon	26·1	84	i 5 27	−10	i 10 23	+16	—	—	12·9
Strasbourg	26·6	79	i 5 44a	+ 2	i 10 25	+ 9	—	—	13·2
Neuchatel	26·8	83	i 5 44	0	e 10 27	+ 8	—	—	—
Almeria	26·9	112	5 48	+ 3	i 10 18	− 2	5 55	pP	12·1
Harvard	26·9	265	i 5 45a	0	i 10 21	+ 1	e 10 51	Q	e 13·8
Vermont	26·9	270	e 5 49	+ 4	e 10 13	− 7	—	—	e 12·1

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Basel		27·0	82	e 5 45	0	e 11 26	SS	—	—	—
Copenhagen		27·2	63	i 5 46a	− 1	10 17	− 8	i 6 8	PP	12·3
Stuttgart		27·4	79	i 5 49	0	e 10 25	− 3	i 6 31	PP	e 12·2
Zurich		27·6	82	e 5 50a	− 1	e 10 33	+ 1	e 6 33	PP	—
Marseilles		27·7	92	e 6 10	+18	e 11 0	+27	e 6 18	PP	13·9
Ottawa		28·0	274	5 54	− 1	10 37	− 1	11 24	SS	12·9
Jena		28·1	73	i 5 52	− 3	i 10 40	0	i 6 27	PP	e 12·9
Chur		28·4	82	e 6 0	+ 2	e 10 47	+ 2	—	—	e 14·5
Potsdam		28·5	70	i 5 56a	− 3	i 10 49	+ 3	i 6 48	PP	13·9
Fordham		29·3	264	e 6 4	− 2	10 58	− 1	—	—	13·9
Upsala		29·3	54	6 2	− 4	10 53	− 6	12 35	SS	e 13·6
Bermuda		29·7	241	i 6 12	+ 2	e 11 22	+16	e 6 51	PP	e 12·3
Algiers		30·0	106	i 6 19	+ 7	11 17	+ 7	i 6 22	pP	13·3
Prague		30·1	74	i 6 10	− 3	11 13	+ 1	e 7 5	PP	e 12·9
Philadelphia		30·6	263	i 6 18	0	i 11 20	0	i 6 59	PP	i 12·6
Buffalo		31·2	272	i 6 24	+ 1	—	—	e 7 19	PP	—
Triest		31·6	82	i 6 28	+ 2	i 11 34	− 1	i 7 50	PPP	e 13·9
Pennsylvania		31·8	267	i 6 33	+ 5	—	—	—	—	—
Georgetown		32·4	264	i 6 34	0	11 44	− 4	—	—	—
Warsaw		33·1	67	e 6 38a	− 2	12 2	+ 3	7 43	PP	e 15·9
Ogyalla	E.	33·3	76	e 6 42	+ 1	e 12 8	+ 6	i 8 26	PPP	e 17·9
Pittsburgh		33·3	269	i 6 41	0	i 12 3	+ 1	—	—	—
Budapest		33·9	76	6 46	− 1	i 12 14	+ 3	8 6	PP	e 15·3
Kalossa		34·4	77	e 5 51	−60	—	—	i 8 7	PP	e 16·9
Kecskemet	Z.	34·6	76	5 53	−60	—	—	—	—	e 21·9?
Pulkovo		35·6	52	i 6 59	− 2	i 12 35	− 3	—	—	—
Belgrade		36·1	79	i 7 1k	− 4	e 12 27	−18	e 8 13	PP	e 15·4
Chicago, U.S.C.G.S.		37·2	277	e 7 14	− 1	i 13 1	− 1	i 15 0	SS	e 17·1
Columbia		38·0	261	e 7 22	+ 1	e 13 14	0	i 8 53	PP	e 15·8
Sofia		39·0	80	e 7 29	− 1	i 13 29	0	i 9 1	PP	e 16·2
Bucharest		39·7	76	e 7 36a	0	i 13 41	+ 1	i 9 11	PP	20·9
Moscow		40·6	55	7 40	− 3	13 48	− 6	—	—	—
St. Louis		40·7	274	i 7 45	+ 1	i 13 56	+ 1	i 9 29	PP	—
Cape Girardeau	N.	41·1	272	e 7 48	+ 1	e 14 1	0	e 16 8	SS	—
Florissant		41·6	274	i 7 46	− 5	i 14 3	− 5	e 9 30	PP	—
San Juan		42·0	229	i 7 55	+ 1	—	—	i 9 44	PP	i 18·0
Saskatoon		42·9	301	e 8 7	+ 5	e 17 34	SS	—	—	22·9
Istanbul		43·4	79	8 .1	− 5	14 31	− 4	17 50	SS	—
Yalta		44·5	72	8 14	− 1	—	—	—	—	—
Theodosia		44·9	70	8 18	0	—	—	—	—	—
Bozeman		48·9	295	e 8 53	+ 3	i 15 59	+ 6	e 10 37	PP	i 19·8
Butte		49·5	296	i 8 54	0	e 15 59	− 3	e 10 44	PP	e 21·2
Piatigorsk		49·9	67	8 24	−33	—	—	—	—	—
Sverdlovsk		51·0	45	i 9 3	− 3	16 16	− 6	—	—	—
Logan		51·8	293	9 12	0	e 16 25	− 8	e 20 7	SS	e 21·0
Grozny		51·9	66	9 15	+ 3	16 39	+ 4	—	—	—
Helwan		52·2	89	i 9 15k	0	16 41	+ 2	i 10 54	PP	—
Ksara		52·2	81	e 9 17	+ 2	e 16 44	+ 5	10 38	PcP	—
Salt Lake City		52·4	291	e 9 18	+ 2	e 16 38	− 4	e 11 35	PP	e 30·1
Merida	N.	52·7	256	i 9 30	+12	—	—	—	—	—
College		52·8	331	i 9 14	− 5	e 16 40	− 7	e 12 4	PPP	e 20·2
Sitka		53·4	318	e 9 30	+ 6	e 17 0	+ 5	—	—	e 22·7
Victoria		53·8	304	9 27	+ 1	16 57	− 4	21 23	SS	e 22·9
Baku		56·1	66	e 9 43	0	—	—	—	—	—
Tucson		57·5	282	i 9 53	0	17 53	+ 3	—	—	—
Vera Cruz	E.	58·0	260	e 10 3	+ 6	—	—	—	—	—
Tinemaha		58·6	292	e 10 1	0	—	—	e 39 53	P'P'	—
Haiwee		59·1	290	i 10 10	+ 6	—	—	—	—	—
Fresno	N.	59·7	293	e 10 9	0	e 18 4	−15	—	—	—
Tacubaya	N.	59·7	262	e 10 12	+ 3	—	—	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ukiah		60·0	297	e 10 34	+23	e 18 13	−10	22 7	SS	e 24·2
Riverside		60·2	288	i 10 13	+ 1	—	—	i 12 37	PP	—
Berkeley		60·2	294	10 11	− 1	i 18 28	+ 3	i 24 59	SSS	e 27·0
Lick		60·3	294	e 10 17	+ 4	e 18 27	+ 1	—	—	e 25·0
Mount Wilson	E.	60·5	289	e 10 13	− 1	—	—	—	—	—
San Francisco	N.	60·5	294	e 10 18	+ 4	24 32	SSS	—	—	e 35·9
Santa Clara	E.	60·5	294	e 10 16	+ 2	e 18 41	+12	e 25 16	SSS	—
Branner		60·6	294	e 10 18	+ 3	—	—	—	—	e 35·9
Pasadena		60·6	289	e 10 13	− 2	e 18 24	− 6	e 12 37	PP	e 23·9
Santa Barbara		61·3	290	e 10 18	− 2	—	—	—	—	—
Semipalatinsk		63·8	41	e 10 34	− 2	—	—	—	—	—
Tchimkent		65·2	53	10 44	− 1	—	—	—	—	—
Tashkent		65·8	54	i 10 48	− 1	19 26	− 9	—	—	—
Andijan		67·7	52	e 11 1	0	—	—	—	—	—
Irkutsk		70·3	26	e 11 14	− 3	20 22	− 7	—	—	—
Huancayo		73·1	222	e 11 38	+ 4	i 21 4	+ 3	14 39	PP	e 30·8
La Paz		74·4	213	i 11 44k	+ 2	i 21 29	+13	i 26 9	SS	38·8
Rio de Janeiro		75·0	188	i 21 23	S	(i 21 23)	0	(e 29 51)	SSS	e 29·9
Agra	E.	81·4	56	e 12 29	+ 9	—	—	e 18 32	?	—
Vladivostok		84·5	10	i 12 38	+ 2	—	—	—	—	—
Bombay		85·2	66	e 12 41	+ 2	e 23 3	− 6	i 15 58	PP	e 35·0
Hyderabad	E.	89·5	62	—	—	29 46	SS	—	—	—
Calcutta	N.	90·4	51	e 13 4	0	23 41	[+ 6]	i 25 12	PS	e 44·2
Kodaikanal		94·8	67	e 14 51	?	31 7	SS	25 47	PS	—
Manila		110·2	25	i 19 6	PP	—	—	—	—	—

Additional readings :—
Edinburgh PPP = +4m.50s., S = +5m.34s., SS = +6m.24s., e = +8m.51s., $ePcP$ = +10m.59s.
Stonyhurst PPP = +4m.57s.
Scoresby Sund i = +6m.2s. and +6m.37s.
Kew iEZ = +5m.3s., iZ = +8m.36s., 1 = +8m.39s.
Coimbra i = +5m.5s., PPP = +5m.26s., ? = +6m.43s., i = +8m.58s. and +9m.1s.
Lisbon iPZ = +5m.3s., iSZ = +9m.5s., iSN = +9m.8s. and +9m.28s.
East Machias i = +7m.59s.
Uccle iE = +5m.38s., iN = +10m.52s., eE = +9m.15s., iE = +9m.34s.
San Fernando PPP = +6m.26s.
Granada PPP = +6m.33s., PcP = +8m.59s., SS = +11m.15s.
Strasbourg i = +5m.54s., $iPcP$ = +8m.53s., $iScS$ = +12m.46s.
Almeria sP = +6m.2s., PP = +6m.21s., PPP = +6m.39s., PcP = +8m.59s., SS = +11m.20s., SSS = +11m.33s., ScS = +16m.49s.
Vermont i = +5m.54s., e = +7m.31s.
Copenhagen i = +10m.55s.
Stuttgart iPPPZ = +6m.41s., $ePcPZ$ = +9m.23s.
Marseilles e = +12m.9s.
Jena i = +7m.28s., iS = +10m.44s., iN = +10m.48s., iN = +11m.3s., iE = +11m.12s., i = +12m.40s.
Potsdam iNZ = +6m.31s., iPPPEN = +6m.59s., iNZ = +7m.34s., $iPcPN$ = +9m.19s., iSEN = +10m.42s., iEZ = +11m.25s., iSSSN = +11m.51s., iSSSE = +12m.1s., $iPcSN$ = +12m.38s.
Fordham iP = +6m.9s.
Upsala eSN = +10m.45s.
Algiers i = +6m.28s. and +6m.45s., PP = +7m.5s., SS = +12m.30s.
Prague eSS = +12m.7s.
Buffalo i = +6m.51s., e = +7m.3s. and +7m.39s., i = +9m.12s.
Triest iPP = +7m.3s.
Pennsylvania e = +7m.8s. and +9m.56s.
Warsaw PPPN = +7m.53s., iSN = +11m.55s., SE = +12m.8s., SSN = +13m.33s., SSZ = +13m.57s.
Ogyalla PcP = +9m.14s.
Budapest $PcPN$ = +9m.27s., eSSE = +14m.30s., eSSN = +14m.40s.
Kalossa iN = +7m.18s.
Belgrade e = +7m.22s., PPP = +9m.41s., $ePcP$ = +10m.45s., e = +13m.21s.
Chicago eS = +12m.56s., e = +14m.49s.
Bucharest iZ = +7m.45s. and +7m.54s., iN = +8m.51s., iPPZ = +9m.15s., iZ = +9m.25s., $iPcPNZ$ = +9m.37s., eZ = +9m.51s., iSSEN = +16m.36s.
St. Louis iN = +7m.53s., $ePcPE$ = +9m.17s., iSSN = +16m.6s., iN = +16m.36s.
Cape Girardeau iPN = +7m.56s., $iPcPN$ = +9m.14s.
Florissant iZ = +7m.50s., iE = +7m.54s., $iScPN$ = +13m.55s., iE = +13m.58s., iSSN = +16m.36s., iE = +16m.42s.
San Juan iPPP = +9m.47s., i = +11m.44s.
Bozeman i = +9m.24s., +10m.49s., and +12m.4s., e = +13m.5s., +17m.34s., and +19m.23s.

Continued on next page.

Butte i = +12m.43s., +16m.9s., and +19m.39s.
Helwan iZ = +9m.45s. and +10m.15s., PSE = +17m.15s.
Salt Lake City i = +9m.26s., +16m.47s., and +20m.27s.
College i = +16m.48s.
Tucson i = +9m.58s., +10m.27s., +11m.3s., +12m.13s., and +13m.15s., e = +14m.22s. and +22m.26s.
Ukiah e = +20m.9s.
Riverside ePKP,PKPZ = +39m.54s.
Berkeley eE = +10m.15s., eN = +10m.18s., iSE = +18m.34s., iSSSE = +23m.59s., iN = +24m.39s., iZ = +25m.2s.
Lick ePKP,PKPE = +38m.11s.
San Francisco eE = +10m.22s.
Pasadena iPKP,PKP = +39m.45s.
Huancayo i = +12m.31s. and +13m.7s., e = +17m.30s., +18m.14s., +25m.26s., iSS = +25m.47s.
La Paz iSSSN = +29m.39s.
Bombay eE = +16m.11s., +19m.21s., +23m.8s., and +23m.18s., eN = +24m.40s., iE = +28m.44s., iN = +28m.50s., iE = +29m.13s.
Calcutta iSN = +24m.9s., iS_cSN = +24m.14s., iSSN = +30m.7s.
Kodaikanal iPPE = +18m.20s., eE = +26m.33s.
Long waves were also recorded at Tananarive, Honolulu, Seattle, and Colombo.

June 18d. 11h. 27m. 27s. Epicentre 16°·3N. 98°·6W. Depth of focus 0·005.
(as on 1941, April 10d.).

A = −·1436, B = −·9496, C = +·2789; δ = +15; h = +5;
D = −·989, E = +·150; G = −·042, H = −·276, K = −·960.

		△ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	Supp. m. s.		L. m.
Oaxaca		1·9	68	i 0 32	+ 1	—	—	—	—	—
Puebla	N.	2·8	8	e 0 42	− 2	—	—	—	—	—
Tacubaya	N.	3·1	350	0 45	− 3	—	—	—	—	—
Vera Cruz	N.	3·7	39	e 0 54	− 2	—	—	—	—	—
Guadalajara	N.	6·3	315	e 1 46	pP	—	—	—	—	—
Merida	Z.	9·7	61	e 2 20	+ 1	—	—	—	—	—
Tucson		19·4	328	i 4 22	− 1	i 7 55	+ 2	i 4 30	PP	i 10·3
Balboa Heights		19·9	108	e 3 33!	−56	—	—	—	—	—
Cape Girardeau	N.	22·4	18	i 3 52	−62	—	—	—	—	—
St. Louis		23·4	16	i 5 1	− 3	e 9 27	sS	—	—	—
Florissant		23·6	16	i 5 4	− 2	—	—	—	—	—
Riverside		24·4	321	i 5 13	0	—	—	—	—	—
Mount Wilson		25·0	321	e 5 19	0	—	—	—	—	—
Pasadena		25·0	321	i 5 19	0	—	—	—	—	—
Haiwee		26·2	324	e 5 32	+ 2	—	—	—	—	—
Tinemaha		27·1	324	i 5 37	− 2	—	—	—	—	—
Fresno	N.	27·7	322	e 6 3	pP	—	—	—	—	—
Lick	N.	29·2	321	e 5 57	− 1	—	—	—	—	—
Granada		84·2	53	i 12 29k	+ 3	—	—	—	—	—
Clermont-Ferrand		86·4	43	e 12 33	− 3	—	—	—	—	—

Tucson also gives i = +4m.47s., +5m.7s., +5m.37s., +5m.57s., +7m.39s., +8m.28s., and +9m.57s.

June 18d. 13h. 56m. 16s. Epicentre 52°·0N. 34°·0W. (as at 11h.).

A = +·5125, B = −·3457, C = +·7860; δ = −4; h = −6.

	△ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	Supp. m. s.		L. m.
Kew	20·8	77	4 49	+ 4	e 8 40	+ 7	e 5 5	PP	e 9·2
Paris	23·3	84	e 5 11	+ 1	e 9 19	− 1	—	—	10·7
Uccle	23·8	77	i 5 17	+ 2	e 9 23	− 5	—	—	e 11·7
De Bilt	23·9	72	—	—	e 9 44?	SS	—	—	e 11·7
Clermont-Ferrand	25·0	90	e 5 16	−11	—	—	—	—	—
Granada	26·0	113	i 4 56a	−40	9 22	−44	—	—	12·4

Kew also gives eE = +5m.19s.
Long waves were also recorded at Potsdam.

June 18d. 19h. 58m. 55s. Epicentre 0°·2N. 125°·2E. (as at 10h.).

Intensity V in North and Central Celebes, also in the Isle of Soela.
Meteorologische en Geophysische Dienst te Batavia Serie A. No. 44. Aardbevingen in Ned-Indie Waargenomen gedurende het jaar 1941, p.19. Epicentre suggested 0°·2S. 125°·0E.

$A = -\cdot5764$, $B = +\cdot8171$, $C = +\cdot0035$; $\delta = -10$; $h = +7$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Amboina		4·9	142	1 16	− 1	2 17	+ 2	—	—	—
Manila	Z.	14·9	344	i 3 43a	+ 9	6 31	+11	—	—	—
Batavia		19·4	251	4 25	− 5	i 8 32	+28	—	—	—
Medan		26·7	278	5 41	− 2	—	—	—	—	i 11·4
Hiroshima		34·7	11	6 52	− 2	12 26	+ 2	—	—	—
Nagoya		36·5	16	7 14	+ 5	12 55	+ 4	—	—	—
Adelaide		37·1	163	i 12 47	S	(i 12 47)	−14	(15 15)	SS	—
Nagano		38·2	17	7 29	+ 6	13 30	+13	—	—	—
Brisbane	N.	38·4	138	e 7 13	−12	e 12 45	−35	—	—	—
Sendai		40·5	19	7 44	+ 2	13 50	− 2	—	—	—
Mizusawa		41·4	19	e 7 54	+ 4	e 8 25	PP	—	—	—
Riverview		41·7	147	e 7 52	0	i 14 4	− 6	i 17 9	SS	e 21·2
Calcutta	N.	42·2	305	e 8 55	?	—	—	—	—	—
Vladivostok		43·2	7	i 8 7	+ 3	i 14 33	+ 1	—	—	—
Colombo	E.	45·7	279	8 24	0	—	—	—	—	—
Kodaikanal	E.	48·5	284	e 8 42	− 4	i 16 1	+13	i 10 44	PP	24·4
Hyderabad	E.	49·1	293	8 49	− 2	16 13	+17	10 45	PP	25·6
Agra	E.	52·6	305	i 9 13a	− 5	i 14 20	?	—	—	—
Bombay		54·6	293	e 9 31	− 1	e 17 9	− 2	e 17 29	PS	26·1
Irkutsk		54·8	345	i 9 35	+ 1	e 17 13	− 1	—	—	—
Almata		60·7	322	e 10 19	+ 4	—	—	—	—	—
Wellington		60·9	140	—	—	19 58	?	21 3	PPS	36·1
Andijan		62·5	317	e 10 30	+ 2	18 58	+ 4	—	—	—
Tashkent		64·9	317	e 10 42	− 1	e 19 20	− 4	—	—	—
Tchimkent		65·1	318	10 45	0	19 24	− 3	—	—	—
Sverdlovsk		76·3	330	i 11 52	0	21 28	− 9	—	—	—
Baku		78·7	312	e 12 7	+ 1	—	—	—	—	—
Moscow		88·5	326	i 12 56	0	23 34	− 7	—	—	—
Ksara		89·3	304	e 13 2	+ 3	e 23 50	+ 2	—	—	—
Helwan		93·3	300	i 13 17k	− 1	—	—	e 14 20	?	—
Bucharest	E.	96·4	315	—	—	24 9	[0]	—	—	34·1
Warsaw		98·5	323	e 13 42	0	e 24 5?	[−15]	e 17 48	PP	e 54·1
Potsdam		103·2	324	e 14 5	+ 2	i 25 48	+ 1	e 18 17	PP	e 51·1
Triest		104·7	318	e 18 26	PP	e 24 49	[0]	e 27 37	SS	—
Scoresby Sund		106·2	350	e 18 27	PP	—	—	—	—	e 49·8
Stuttgart		106·7	322	e 14 18	0	e 24 55	[− 3]	e 18 48	PP	—
De Bilt		107·8	326	i 18 56	PPP	i 28 23	PS	e 34 5	SS	e 56·1
Uccle		108·8	325	e 18 21	PP	e 25 5	[− 2]	e 34 34	SS	e 47·1
Paris		110·8	324	e 19 16	PP	e 29 14	PPS	35 26	SS	e 44·1
Kew		111·1	327	—	—	e 29 35?	PPS	—	—	e 53·1
Pasadena	Z.	111·7	53	e 18 38	[+ 2]	—	—	—	—	e 51·5
Riverside	Z.	112·4	53	i 18 41	[+ 3]	—	—	—	—	—
Tucson		118·1	52	i 18 52	[+ 3]	e 29 58	PS	e 22 21	PKS	e 62·9
Florissant		129·3	36	e 19 13	[+ 2]	e 33 10	PPS	e 22 51	PKS	—
St. Louis		129·5	36	e 18 52	[−19]	e 33 6	PPS	i 22 30	PKS	—
Seven Falls		130·8	15	—	—	e 22 29	PKS	—	—	63·1
Huancayo		156·4	121	e 20 0	[+ 4]	(e 45 6)	SSP	—	—	e 45·1
La Paz	Z.	159·1	139	e 20 10	[+10]	—	—	—	—	—

Additional readings :—
Adelaide iSN = +22m.13s., SS = +26m.29s.; phases are wrongly identified, true S is given as P and SS as PP.
Brisbane iE = +7m.22s.
Riverview i = +8m.11s., eZ = +17m.11s., iN = +17m.18s.
Hyderabad SSE = +20m.19s.
Bombay eE = +13m.17s. and +13m.43s., eN = +19m.18s., e?E = +22m.2s.
Warsaw eE = +13m.44s.
Potsdam eZ = +17m.28s., eN = +21m.5s., ePSE = +27m.51s., ePPSE = +28m.22s.
De Bilt eSSS = +38m.5s.

Continued on next page.

Uccle eZ = +19m.1s., ePPSE = +28m.35s.
Kew eEZ = +44m.5s.?, eZ = +46m.35s.?
Tucson e = +19m.39s., i = +20m.12s. and +20m.33s., e = +29m.9s., i = +29m.12s. and +29m.31s., e = +31m.48s., +32m.59s., +33m.16s., and +39m.57s.
Florissant eZ = +21m.21s., and +21m.38s., and +21m.53s., eZ = +27m.24s., eN = +28m.13s., eE = +28m.16s.
St. Louis eN = +38m.40s.

June 18d. Readings also at 0h. (Tucson, Huancayo, and Medan), 1h. (Tucson, Merida, Harvard, Pasadena, Mount Wilson, and Riverside), 4h. (Tinemaha, near La Paz, Tucson, Huancayo, Harvard, Pasadena, Mount Wilson, and Riverside), 10h. (Piatigorsk), 11h. (Balboa Heights, Tucson, Tacubaya (2), Vera Cruz, Salt Lake City, Oaxaca (2), and Puebla (2)), 12h. (Wellington and Mizusawa), 14h. (near Ottawa), 17h. (Uccle and Paris), 21h. (Coimbra), 23h. (near Fresno, Lick, San Francisco, Berkeley, and Branner).

June 19d. Readings at 0h. (near Branner, Huancayo, and La Paz), 2h. (Tucson), 5h. (Tacubaya), 9h. (near Mizusawa), 10h. (Chicago, Lick, Mount Wilson, Pasadena, Riverside, Tinemaha, Tucson, Huancayo, San Juan, and near Balboa Heights), 14h. (near Helwan), 19h. (2) and 20h. (La Paz), 21h. (Oaxaca and Tacubaya), 23h. (Tashkent, Tchimkent, and near Andijan).

June 20d. 8h. 40m. 15s. Epicentre 22°·0S. 170°·5E. (as on 1939 Jan. 5d.).

A = −·9154, B = +·1532, C = −·3724; δ = +11; h = +4;
D = +·165, E = +·986; G = +·367, H = −·061, K = −·928.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Auckland		15·3	167	3 13	−26	6 4	−26	3 33	PP	7·2
Arapuni		16·6	166	—	—	5 27	?	—	—	—
Wellington		19·6	172	4 24	− 8	7 53	−15	4 38	pP	9·8
Riverview		20·7	232	i 4 44	0	e 8 27	− 4	—	—	—
Sydney		20·7	232	e 4 15	−29	—	—	—	—	—
Christchurch		21·5	176	5 1	+ 9	8 38	− 9	—	—	10·1
Mount Wilson	z.	87·9	52	e 13 0	+ 7	—	—	—	—	—
Pasadena	z.	87·9	52	e 13 0	+ 7	—	—	—	—	e 45·8
Riverside	z.	88·3	52	e 13 2	+ 7	—	—	—	—	—
Tinemaha	z.	89·1	49	e 13 7	+ 9	—	—	—	—	—
Tucson		92·5	56	e 13 28	+14	—	—	—	—	e 43·4
Ottawa		121·9	49	e 19 1	[+ 5]	—	—	—	—	60·8
Potsdam		145·0	336	i 19 50	[+11]	e 28 4	?	—	—	—
De Bilt		147·9	343	i 19 55	[+11]	—	—	e 23 55	PP	e 76·8
Stuttgart		149·4	336	i 19 58k	[+12]	—	—	—	—	—
Paris		151·6	343	e 20 3	[+13]	—	—	—	—	e 81·8

Additional readings:—
Auckland i = +4m.30s.
Wellington P_cPZ = +9m.5s.
Riverview iZ = +5m.0s., iE = +8m.42s.
Tucson i = +13m.50s.
Stuttgart i = +20m.7s., e = +31m.36s.
Long waves were also recorded at Adelaide and Kew.

June 20d. Readings also at 6h. (near Andijan), 7h. (near Mizusawa), 9h. (Butte, Berkeley, East Machias, Bozeman, Philadelphia (2), College, Tinemaha, Ottawa, Riverside, Pasadena, Mount Wilson, and Tucson), 13h. (Stuttgart, Triest, near Belgrade, Bucharest, La Paz, and Sofia), 15h. (Logan and Tucson), 18h. (Cape Girardeau), 19h. (La Paz), 20h. (Adelaide), 21h. (Tucson), 22h. (Vera Cruz, near Lick, Oaxaca, Tucson, Mount Wilson, Pasadena, and Riverside), 23h. (Tacubaya, near Bucharest, and Sofia).

June 21d. 0h. Marianne or Caroline Islands.

Manila eP?Z =41m.22s., SZ =45m.42s.
Irkutsk eP =45m.0s., eS =52m.24s.
Sverdlovsk P =47m.19s., S =56m.48s.
Berkeley iPZ =48m.6s.
Branner ePN =48m.8s.
Lick ePEN =48m.10s.
Santa Barbara iP =48m.22s.
Tinemaha iP =48m.23s.
Haiwee iP =48m.25s.
Pasadena iP =48m.25s.a, iSN =58m.58s.
Mount Wilson iP =48m.26s., eSN =59m.1s.
Riverside iPZ =48m.28s.
Tucson iP =48m.56s., e =49m.16s., 49m.39s., and 52m.40s.
La Paz PZ =55m.27s.

June 21d. 4h. The Russian stations suggest 38°·5N. 79°·0E., but the readings do not give a conclusive determination.

Andijan P =37m.46s.
Almata P =38m.4s.
Agra ePE =38m.45s., eE =40m.26s.
Tashkent eP =38m.51s., eS =40m.27s.
Irkutsk eP =41m.0s.
Sverdlovsk P =41m.26s., S =45m.24s.
Semipalatinsk eP =42m.22s.
Bombay eE =46m.15s., eN =46m.24s., eE =46m.43s., eEN =47m.39s.
Potsdam eZ =59m., eN =60m., eE =65m.
Warsaw eN =59m., eZ =62m., eE =63m.
Long waves were also recorded at De Bilt and Kew.

June 21d. 17h. 41m. 30s. Epicentre 20°·5S. 179°·0W. (as on 1939 Nov. 17d.). Depth 0·070.

$A = -\cdot 9373$, $B = -\cdot 0164$, $C = -\cdot 3481$; $\delta = -3$; $h = +5$;
$D = -\cdot 017$, $E = +1\cdot 000$; $G = +\cdot 348$, $H = +\cdot 006$, $K = -\cdot 937$.

		△	Az.	P.	O−C.	S.	O−C.		Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m.	s.	m.
Apia		9·6	47	e 2 21	+ 7	i 3 55	− 6	—	—	—
Auckland		17·2	197	3 27	− 6	5 50	−36	13	56 SeS	—
Arapuni		18·1	195	—	—	6 30	−11	—	—	—
Tuai		18·6	190	—	—	6 41	− 9	—	—	—
New Plymouth		19·5	195	4 2	+ 6	6 33	−33	—	—	—
Wellington		21·4	193	4 14	+ 1	7 32	− 5	14	22 SeS	—
Brisbane	E.	26·4	250	i 5 6	+ 7	—	—	—	—	i 14·9
Riverview		29·6	237	i 5 32a	+ 5	i 9 55	+ 7	i 12	59 SSS	i 15·0
Honolulu		46·4	28	—	—	i 13 50	− 6	i 16	43 SS	e 20·6
Manila	Z.	68·5	296	i 10 17k	+ 2	—	—	—	—	—
Nake		69·5	313	10 24	+ 3	—	—	—	—	—
Sendai		69·5	328	10 22	+ 1	—	—	—	—	—
Nagano		69·8	324	10 25	+ 2	—	—	—	—	—
Kôbe		70·1	321	10 26	+ 1	14 17	PP	—	—	—
Mizusawa	E.	70·1	329	e 10 27	+ 2	—	—	—	—	—
Kumamoto		71·2	318	10 36	+ 5	—	—	—	—	—
Taihoku		73·4	305	10 47	+ 3	—	—	—	—	—
Vladivostok		77·7	326	i 11 8	0	i 20 20	0	—	—	—
Santa Barbara		78·5	47	e 11 8	− 4	e 20 25	− 3	e 13	11 pP	—
San Francisco		78·6	43	—	—	e 20 21	− 8	—	—	—
Santa Clara		78·7	43	—	—	e 20 29	− 1	—	—	—
Berkeley		78·8	43	e 11 4	−10	i 20 24	− 7	—	—	—
Lick		78·9	43	e 11 13	− 1	e 20 27	− 5	e 13	17 pP	—
La Jolla		79·3	49	e 11 14	− 2	e 20 29	− 7	—	—	—
Pasadena		79·4	47	i 11 14	− 3	i 20 31	− 7	e 13	16 pP	—
Mount Wilson		79·5	47	i 11 15	− 2	e 20 32	− 7	e 13	17 pP	—
Fresno	N.	79·7	45	e 13 18	PP	e 20 33	− 8	—	—	—
Riverside		79·8	47	i 11 16	− 3	e 20 36	− 6	e 13	18 pP	—
Haiwee		80·6	46	i 11 22	− 1	e 20 45	− 5	—	—	—
Tinemaha		80·9	45	i 11 23	− 1	e 20 48	− 5	i 13	26 pP	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tucson		83·6	52	i 11 37	− 1	i 21 6	−14	i 13 44	pP	—
Medan	E.	84·1	276	e 11 34	− 7	21 4	−20	—	—	—
Salt Lake City		87·1	45	—	—	e 21 27	−26	e 25 8	sS	—
College		88·4	13	—	—	e 21 52	−12	e 25 40	sS	—
Butte		89·3	40	—	—	i 22 6	− 7	—	—	—
Bozeman		90·1	41	e 14 10	pP	22 14	− 6	—	—	—
Florissant		101·5	53	e 15 6	pP	e 22 40	[−13]	e 27 42	sS	—
St. Louis		101·6	53	—	—	e 22 40	[−14]	e 27 44	sS	—
La Paz	Z.	102·8	113	e 17 24	PP	—	—	—	—	—
Chicago U.S.C.G.S.		104·4	50	—	—	e 22 50	[−17]	e 25 59	sS	—
Scoresby Sund		128·2	10	i 20 20	PP	i 36 51	SS	i 21 34	?	—
Andijan		117·0	305	e 17 45	[− 5]	—	—	—	—	—
San Juan		117·1	79	—	—	i 23 45	[−12]	e 27 54	PS	—
Tchimkent		119·2	309	e 19 18	PP	24 8	[+ 3]	—	—	—
Sverdlovsk		123·5	326	i 17 59	[− 4]	—	—	—	—	—
Pulkovo		135·5	339	e 21 2	PP	—	—	—	—	—
Moscow		135·5	331	i 18 23	[− 2]	—	—	—	—	—
Grozny		136·4	313	18 10	[−17]	—	—	—	—	—
Warsaw		144·7	340	i 18 42a	[0]	—	—	e 20 59	?	—
Ksara		146·4	301	e 18 49	[+ 4]	—	—	e 21 21	?	—
Potsdam	Z.	146·8	347	e 18 30	[−16]	—	—	i 21 56	?	—
De Bilt		148·3	355	i 18 45k	[− 3]	e 40 50	SS	i 21 13	pPKP	—
Jena		148·5	347	e 18 44	[− 4]	—	—	—	—	—
Kew	Z.	149·1	1	i 18 45	[− 4]	e 25 30	[+21]	i 21 13	pPKP	—
Uccle		149·6	358	i 18 53k	[+ 4]	—	—	i 21 11	pPKP	—
Sofia		151·0	324	e 18 18	[−33]	—	—	—	—	—
Stuttgart		151·0	350	e 18 49	[− 2]	—	—	e 21 10	pPKP	—
Helwan		151·1	295	i 18 51a	[0]	28 36	SKKS	21 15	pPKP	—
Paris		151·7	358	e 18 50	[− 2]	—	—	e 21 17	pPKP	—
Basle		152·5	350	e 18 51	[− 2]	—	—	—	—	—
Zurich		152·5	351	e 18 50k	[− 3]	—	—	—	—	—
Chur		152·8	350	e 18 52	[− 2]	—	—	—	—	—
Neuchatel		153·1	352	e 18 53	[− 1]	—	—	—	—	—
Clermont-Ferrand		154·7	357	e 18 55	[− 1]	—	—	—	—	—
Toledo		160·2	11	e 19 2	[− 1]	—	—	i 23 32	PP	—

Additional readings :—
Wellington sS_cS = +16m.30s.
Brisbane eE = +7m.24s.
Riverview iE = +13m.3s.
Berkeley eN = +11m.10s., eZ = +13m.17s., eN = +13m.20s., iZ = +20m.27s., eN = +20m.44s.
Pasadena esPZ = +14m.15s.
Riverside ePKP,PKPZ = +38m.9s.
Tinemaha esPZ = +14m.1s.
Tucson i = +11m.54s., e = +12m.51s., i = +13m.38s., ePP = +15m.18s., i = +21m.16s., iPS = +22m.10s.
Medan ePN = +11m.51s.
Salt Lake City iS = +21m.47s.
Bozeman eSKS = +21m.44s.
Florissant eSKKSE = +23m.21s., eSN = +23m.52s., esSKSN = +26m.20s., esSKKSN = +26m.54s., eN = +30m.36s.
St. Louis eN = +23m.20s., iN = +23m.51s.
Chicago U.S.C.G.S. eS = +24m.17s., eSSS = +35m.44s.
San Juan e = +24m.53s.
Warsaw eZ = +21m.18s. and +21m.54s., eE = +23m.15s., eN = +23m.19s.
Potsdam iZ = +18m.43s., iN = +18m.46s., iZ = +18m.49s.
De Bilt iPP = +22m.4s., ePPP = +25m.28s.
Jena iPZ = +18m.48s., iPE = +18m.53s., iZ = +18m.56s., iE = +19m.0s.
Kew iZ = +18m.50s., +18m.57s., and +22m.4s.
Uccle iZ = +19m.1s. and +22m.7s.
Sofia eEN = +18m.58s.
Stuttgart ePKP = +18m.56s., i = +19m.8s., e = +19m.24s., ePP = +22m.10s.
Helwan PPZ = +22m.48s.
Zurich i = +18m.59s.
Toledo i = +19m.45s.
Long waves were also recorded at La Plata.

June 21d. Readings also at 0h. (Triest, Potsdam, and Warsaw), 3h. (Mizusawa), 5h. (Oaxaca, Tacubaya, Vera Cruz, Mount Wilson, Pasadena, Riverside, and Tucson), 6h. (Tinemaha, Huancayo, and La Paz), 7h. (Auckland, Christchurch, Mount Wilson, Pasadena, Riverside, Santa Barbara, Tinemaha, and Tucson), 8h. (Auckland, Christchurch, Wellington, Riverview, Mount Wilson, Pasadena, Riverside, Tinemaha, Tucson, Manila, Sverdlovsk, and Tashkent), 9h. (Berkeley, Ferndale, Chicago, De Bilt, Paris, Potsdam, and near Balboa Heights), 10h. (Auckland, Mount Wilson, Pasadena, Riverside, Tucson, and Paris), 14h. (near Andijan), 18h. (Apia and Tucson), 19h. (Harvard), 23h. (Balboa Heights, near Granada, Andijan, and Tchimkent).

June 22d. Readings at 11h. (near Mizusawa), 16h. (near Granada and near Triest), 18h. (Algiers and near Granada), 20h. (Ksara, Istanbul, Warsaw, Potsdam, Sverdlovsk, Erevan, and Grozny), 22h. (Stuttgart, Mount Wilson, Pasadena, and Riverside), 23h. (Stuttgart and Ksara).

June 23d. 8h. 0m. 26s. Epicentre 37°·2N. 28°·3E. (as on 1941 May 23d.).

$A = +\cdot7031$, $B = +\cdot3786$, $C = +\cdot6020$; $\delta = +9$; $h = -1$;
$D = +\cdot474$, $E = -\cdot880$; $G = +\cdot530$, $H = +\cdot285$, $K = -\cdot799$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Istanbul		3·9	6	1 3	+ 1	1 56	+ 6	—	—	—
Sofia		6·6	327	e 1 37	− 4	i 3 1	+ 3	—	—	—
Ksara		7·0	116	e 2 11	P_g	—	—	—	—	e 4·4
Bucharest		7·4	347	e 1 52	0	i 3 5	−13	2 16	P*	—
Helwan		7·7	160	e 2 23	P*	e 3 55	S*	—	—	—
Belgrade		9·6	325	e 3 20	+59	e 3 55	−17	e 4 54	S*	e 10·3
Kecskemet	z.	11·6	330	e 5 34	SSS	—	—	—	—	—
Budapest		12·3	330	e 5 48	SSS	—	—	—	—	7·0
Triest		13·8	312	e 3 16	− 3	e 5 58	+ 4	e 6 23	SSS	i 7·1
Warsaw		15·9	343	e 3 41	− 6	e 6 45	+ 1	—	—	e 8·5
Prague		16·3	327	e 2 10	?	e 6 46	− 7	—	—	—
Stuttgart		18·1	315	e 4 15	+ 1	e 7 4	−31	e 7 52	SS	—
Jena		18·2	326	e 4 16	0	(e 7 34)	− 3	e 5 14	?	e 7·6
Potsdam		18·6	330	e 4 16	− 5	i 7 39	− 7	i 7 50	SS	e 8·6
Moscow		19·6	16	i 4 33	+ 1	e 8 10	+ 2	—	—	—
Clermont-Ferrand		20·6	303	e 4 42	− 1	—	—	—	—	—
Uccle		21·8	316	e 4 56	0	e 8 42	−10	—	—	e 11·1
De Bilt		22·1	322	e 5 0	+ 1	e 8 57	− 1	—	—	e 11·1
Pulkovo		22·6	4	e 5 5	+ 2	e 9 10	+ 3	—	—	—
Upsala		23·7	345	—	—	e 9 7	−20	—	—	e 12·7
Kew		24·7	315	i 5 27	+ 3	e 9 38	− 6	i 5 56	PP	e 11·6
Granada		25·3	280	e 7 36	?	—	—	—	—	—
Toledo		25·4	286	e 5 33	+ 2	e 9 52	− 4	—	—	12·6
Sverdlovsk		29·1	37	6 12	+ 8	e 11 6	+10	—	—	—

Additional readings :—
Sofia eE = +2m.49s.
Bucharest iN = +2m.36s., eE = +2m.43s., iSEN = +3m.47s.
Budapest eE = +6m.12s. and +6m.31s., eN = +6m.51s.
Warsaw eE = +6m.40s.
Stuttgart i = +4m.26s.
Potsdam ePEN = +4m.20s.
Uccle eE = +8m.50s.
Upsala eN = +9m.34s.?
Long waves were also recorded at Kalossa, Paris, Strasbourg, Scoresby Sund, and Bergen.

June 23d. 9h. 28m. 46s. Epicentre 1°·8S. 119°·6E. Focus at the base of the superficial layers.

Intensity V in the Celebes. Cracks in the earth near Karossa. Epicentre 1°·8S. 119°·6E. Depth = 50km. (Batavia).
See Meteorologische en Geophysische Dienst te Batavia, Serie A, No. 44. Aardbevingen in Ned-Indie, waargenomen gedurende het jaar 1941, p. 8.

$A = -\cdot4937$, $B = +\cdot8691$, $C = -\cdot0312$; $\delta = +5$; $h = +7$;
$D = +\cdot869$, $E = +\cdot494$; $G = +\cdot015$, $H = -\cdot027$, $K = -1\cdot000$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Amboina		8·7	103	2 14	+ 8	i 4 46	+61	—	—	—
Batavia		13·4	251	3 5	− 5	—	—	—	—	6·3
Manila	z.	16·3	5	i 3 44a	− 4	i 7 9	+22	—	—	i 8·1
Palau		17·4	58	4 5	+ 3	7 32	+20	—	—	—
Medan		21·6	286	4 52	+ 3	8 53	+12	—	—	—
Taihoku		26·7	5	e 5 39	+ 1	10 0	− 9	—	—	—
Perth		30·2	186	—	—	i 12 6	SS	i 12 49	SSS	20·3
Adelaide		37·4	155	e 7 24	+12	i 13 2	+ 5	17 34	?	—
Koti		37·6	20	e 7 10	− 3	12 52	− 8	—	—	—
Calcutta	N.	38·9	311	e 6 40	−44	i 13 35	+15	i 16 47	SS	e 22·1
Kobe		39·1	22	8 46	PP	13 17	− 6	13 30	sS	—
Colombo	E.	40·7	283	13 45	S	(13 45)	− 2	—	—	26·4
Brisbane		40·9	132	e 9 18	PP	e 16 50	SSS	—	—	—
Sydney		43·5	141	e 7 14	−48	e 14 26	− 2	—	—	—
Kodaikanal	E.	43·6	288	e 8 6	+ 3	i 14 29	− 1	8 32	PP	22·8
Sendai		44·6	26	8 10	− 1	14 43	− 1	—	—	—
Hyderabad		44·8	297	8 18	+ 6	14 43	− 4	10 3	PPP	22·4
Vladivostok		46·1	14	i 8 20	− 3	e 14 49	−16	—	—	—
Agra	E.	49·3	309	e 8 47	− 1	i 15 48	− 3	10 50	PP	—
Bombay		50·4	297	e 8 54	− 2	i 16 3	− 3	e 19 54	SS	25·8
Andijan		60·3	320	e 10 8	0	18 24	+ 6	—	—	—
Semipalatinsk		61·9	334	e 10 15	− 3	—	—	—	—	—
Arapuni		62·6	133	—	—	19 14?	sS	23 14?	SS	29·2
Tashkent		62·6	320	e 10 21	− 2	e 18 49	+ 2	—	—	—
Tchimkent		62·9	321	10 23	− 2	18 56	+ 5	—	—	—
Wellington		63·2	136	—	—	20 14	?	23 59	SS	34·2
Sverdlovsk		75·1	331	i 11 38	− 2	21 15	0	—	—	—
Honolulu		83·7	68	—	—	e 23 56	PS	—	—	e 42·2
Ksara		85·8	304	e 12 43	+ 6	e 23 13	+ 7	—	—	52·2
Moscow		87·0	326	i 12 38	− 5	e 23 16	− 2	16 11	PP	—
Helwan		89·4	300	e 12 59	+ 4	23 43	+ 3	13 31	pP	—
Pulkovo		91·2	330	e 12 56	− 7	23 28	[− 3]	16 46	PP	—
Istanbul		91·6	311	12 59	− 6	25 11	PS	16 42	PP	—
College		92·7	25	—	—	e 23 27	[−12]	—	—	—
Bucharest		93·8	314	e 18 14?	PP	e 24 24	+ 5	e 23 44	SKS	—
Warsaw		96·7	322	e 13 31	+ 3	e 23 39	[−22]	e 17 32	PP	e 49·2
Upsala		97·6	330	—	—	e 24 14?	[+ 8]	e 32 14?	SSP	e 50·2
Prague		101·1	321	—	—	e 26 55	PS	e 32 32	SS	—
Potsdam		101·3	324	e 18 14	PP	—	—	—	—	e 47·2
Stuttgart		104·7	320	e 17 49	PKP	e 27 29	PS	—	—	e 49·2
De Bilt		106·2	325	i 18 41k	PP	e 26 14	+11	e 27 49	PS	e 54·2
Scoresby Sund		107·0	348	e 18 43	PP	e 28 6	PS	—	—	e 60·6
Uccle		107·1	323	e 18 45	PP	e 24 51	[0]	e 27 48	PS	e 49·2
Paris		108·9	321	e 18 56	PP	e 28 13	PS	e 21 15	PPP	46·2
Victoria		109·0	40	—	—	e 28 20	PS	—	—	51·2
Clermont-Ferrand		109·5	318	e 18 54	PP	—	—	—	—	—
Kew		109·6	325	19 7	PP	28 20	PS	e 29 14	PPS	e 51·2
Berkeley		113·1	49	—	—	e 28 56	PS	—	—	e 52·9
Toledo		116·5	314	e 19 26	PP	32 4	?	—	—	—
Granada		117·1	312	i 19 1a	[+19]	29 32	PS	24 15	?	62·3
Mount Wilson	z.	117·4	53	i 18 33	[−10]	—	—	—	—	—
Pasadena		117·4	53	i 18 42a	[− 1]	e 29 40	PS	—	—	e 54·2
Riverside	z.	118·0	53	i 18 43	[− 1]	—	—	—	—	—
Coimbra		119·5	316	—	—	e 26 27	?	e 30 27	PS	60·5
Tucson		123·8	52	i 18 55	[0]	—	—	i 20 35	PP	e 57·5

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Chicago U.S.C.G.S.		133·3	28	e 22 38	PP	e 32 19	PS	e 33 41	PPS	68·5
Seven Falls		134·0	10	—	—	e 31 56	PS	e 39 32	SS	58·2
Florissant		134·1	33	i 19 20	[+ 5]	e 26 38	[+18]	e 21 43	PP	—
Ottawa		134·5	15	e 19 5	[−10]	—	—	e 21 50	PP	39·2
East Machias		136·8	7	e 22 0	PP	e 40 4	SS	e 45 30	SSS	e 56·2
Philadelphia		139·7	17	e 22 20	PP	e 40 42	SS	—	—	e 61·3
Columbia		142·6	28	e 22 48	PP	—	—	—	—	—
Huancayo		159·8	134	e 23 33	PP	i 46 15	?	—	—	e 50·9
La Paz	Z.	160·3	159	i 20 1k	[+ 5]	—	—	i 24 32	PP	79·2
San Juan		162·6	18	e 24 34	PP	e 51 54	SSS	—	—	—

Additional readings :—
Manila iZ = +4m.52s.
Taihoku S = +9m.27s.
Perth S = +15m.34s., SS = +17m.50s.
Kodaikanal iSSE = +18m.4s.
Hyderabad S_cSE = +18m.12s.
Agra PS = +15m.53s., SS = +19m.1s.
Bombay iPE = +9m.0s., iE = +16m.26s., iN = +16m.44s., iE = +18m.21s.
Wellington SSS = +27m.14s., Q = +29m.25s.
Helwan PPZ = +16m.52s., sSEZ = +24m.47s., eE = +25m.24s.
Pulkovo eS = +23m.56s.
College eS = +24m.7s.
Warsaw eE = +13m.46s., eN = +14m.14s.?, eZ = +17m.57s., eE = +24m.43s. and +26m.15s.
Prague e = +36m.44s.
Stuttgart e = +18m.21s.
De Bilt eSS = +33m.14s.?
Scoresby Sund e = +36m.38s. and +42m.46s.
Uccle eE = +18m.51s., eSSN = +33m.47s.
Kew eZ = +19m.28s., eN = +26m.14s.?, eSS = +34m.14s.?, eSSSEN = +38m.14s.?, eQ = +43m.14s.
Berkeley eN = +46m.32s.
Granada SS = +40m.14s.
Coimbra e = +31m.24s.
Tucson i = +19m.9s., e = +20m.30s. and +21m.31s.
Florissant eSKPEN = +22m.44s., ePP = +24m.56s., eE = +32m.4s.
East Machias e = +22m.56s. and +44m.38s.
Huancayo i = +24m.45s., e = +49m.49s.
San Juan e = +34m.50s., +42m.28s., and +54m.23s.
Long waves were also recorded at Strasbourg, Bergen, and Riverview.

June 23d. Readings also at 1h. (Almata and near Zurich), 2h. (Theodosia), 4h. (Andijan and Tucson), 5h. (Riverside, Tucson, Wellington, Arapuni, and Sydney)), 6h. (Pasadena), 12h. (Mizusawa), 14h. (La Paz), 21h. (Balboa Heights and Huancayo), 23h. (Mount Wilson, Pasadena, Tucson, and near Andijan).

June 24d. 15h. 15m. 47s. Epicentre 39°·5N. 22°·5E. (as on 1941 March 1d.).

A = +·7148, B = +·2961, C = +·6335 ; δ = −6 ; h = −2 ;
D = +·383, E = −·924 ; G = +·585, H = +·242, K = −·774.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sofia		3·2	11	e 1 8	P_g	i 1 38	S*	—	—	i 1·8
Istanbul		5·2	71	(1 11)	−10	(2 11)	− 1	—	—	—
Belgrade		5·5	347	i 1 24	− 1	i 2 35	+ 5	—	—	—
Bucharest		5·6	27	e 1 21	− 6	i 3 11	S_g	—	—	3·7
Kalocsa		7·5	343	e 1 51	− 2	e 3 25	+ 5	—	—	3·6
Budapest	E.	8·4	346	e 2 5	− 1	i 4 7	S*	—	—	i 4·4
	N.	8·4	346	e 2 18	P*	i 4 10	S*	—	—	5·0
Triest		8·9	317	e 2 13	+ 1	—	—	—	—	—
Ogyalla	E.	8·9	341	3 37	S	(3 37)	−18	—	—	e 5·0
Theodosia		11·0	56	5 9	S	(5 9)	+22	5 59	S_g	—
Chur		11·9	312	e 2 51	− 3	—	—	—	—	—
Prague		12·0	335	e 3 57	+62	e 6 3	+52	—	—	e 6·2
Zurich		12·8	312	e 3 5	− 1	—	—	—	—	—
Warsaw		12·8	358	e 3 10	+ 4	e 5 27	− 3	—	—	e 7·2
Stuttgart		13·3	319	e 3 7k	− 6	e 6 34	+52	1 3 39	PP	—
Basle		13·5	312	e 3 8	− 7	—	—	—	—	e 6·2

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Neuchatel		13·6	309	e 3 9	− 8	—	—	—	—	—
Jena		13·7	330	e 3 12	− 6	e 6 58	+66	—	—	e 7·4
Strasbourg		13·9	315	e 4 13	?	—	—	—	—	—
Potsdam		14·4	337	e 3 29	+ 2	i 7 23	+74	i 8 9	?	8·2
Clermont-Ferrand		15·6	300	e 3 45	+ 2	—	—	—	—	—
Uccle		17·0	318	e 4 6	+ 5	—	—	—	—	e 8·5
Grozny		17·8	70	4 21	+10	—	—	—	—	—
Kew		19·9	316	i 4 38	+ 2	e 8 13?	− 2	—	—	e 10·2
Toledo		20·4	280	i 4 47	+ 6	e 9 51	?	—	—	—
Upsala		20·6	353	e 4 47	+ 4	e 9 27	+58	—	—	(e 10·9)
Pulkovo		20·9	12	e 4 53	+ 7	e 8 39	+ 4	—	—	—
Coimbra		22·8	283	e 5 23	+18	(9 13?)	+ 2	—	—	9·2
Bergen		23·6	340	—	—	e 9 13?	−12	—	—	—
Sverdlovsk		30·3	44	e 6 34	+19	e 11 30	+15	—	—	—

Additional readings and notes :—
Istanbul readings have been diminished by 2m.
Belgrade eP = +1m.55s., e = +2m.24s., +2m.40s., +3m.2s., and +4m.7s.
Bucharest ePNZ = +1m.46s., eN = +2m.16s. and +2m.38s., iE = +2m.50s. and +3m.28s.
Kalossa eN = +2m.18s.
Warsaw eN = +6m.46s., e = Z +6m.49s., eE = +7m.1s.
Stuttgart i = +3m.11s. and +3m.44s., iEN = +6m.48s., iNE = +6m.51s.
Jena eN = +4m.45s. and +7m.1s.
Potsdam iSNZ = +7m.26s.
Kew iZ = +4m.42s., eSZ = +9m.52s.
Upsala eSS has been entered as eL.
Long waves were also recorded at De Bilt, Paris, Tashkent, and Tucson.

June 24d. Readings also at 0h. (Amboina and Philadelphia), 1h. (near Stuttgart and near Triest), 2h. (near Berkeley, Branner, Lick, and San Francisco), 3h. (Arapuni, Auckland, Wellington, Riverview, Sydney, Mount Wilson, Riverside, and Tucson), 4h. (Paris, Chicago, Huancayo, and Pasadena), 5h. (Philadelphia), 7h. (Huancayo, La Paz, near Andijan, Tashkent, and Tchimkent), 15h. (Ksara), 17h. (near Mizusawa), 18h. (De Bilt, Kew, Potsdam, and Tananarive), 19h. (near Triest), 20h. (near Lick), 22h. (Sitka).

June 25d. Readings at 1h. (Tacubaya), 4h. (Triest), 6h. (near Mizusawa and near Piatigorsk), 8h. (Sitka), 17h. (Tucson), 18h. (near Branner), 22h. (Tucson, Pasadena, Mount Wilson, Tinemaha, and Riverside), 23h. (near Chur and Zurich, and near Algiers).

June 26d. 11h. 52m. 0s. Epicentre 12°·4N. 92°·5E.

Intensity VIII at Port Blair; VI at Chand Bali; V at Silchar, Chittagong, P.B. Observatory, Chittagong Surface Observatory; IV at Faridpur; II at Bombay. Epicentre 12°·0N. 92°·5E. Bombay.

Epicentre, Bay of Bengal, west of the Andaman Islands. Damage to houses in the Andaman Islands; sinking of the coast and flooding at Port Blair. The most affected region, centre of the west coast of the Andamans. Slight shock at Nicobar and Northern Andaman; shock felt at Colombo, Madras, Calcutta, Cuttack, and several towns in Eastern Bengal. Several after-shocks.
See Government of India Seismological Bulletin for 1941, p. 45.

$$A = -\cdot0426,\ B = +\cdot9761,\ C = +\cdot2134;\quad \delta = +13;\quad h = +6;$$
$$D = +\cdot999,\ E = +\cdot044;\quad G = -\cdot009,\ H = +\cdot213,\ K = -\cdot977.$$

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Medan		10·7	144	i 2 36	− 2	—	—	—	—	—
Calcutta		10·8	339	i 2 43k	+ 4	i 4 43	+ 1	—	—	—
Colombo	E.	13·6	248	3 16?	− 1	6 0?	+10	—	—	—
Hyderabad		14·4	292	3 32	+ 5	6 7	− 2	—	—	—
Kodaikanal	E.	14·9	264	i 3 30	− 4	—	—	—	—	—
Agra	N.	20·0	320	e 4 31	− 6	i 8 29	+12	5 9	PP	—
Bombay	N.	20·0	292	i 4 36	− 1	i 8 10	− 7	—	—	—
Dehra Dun	N.	22·3	326	i 3 54k	−67	i 6 27	?	—	—	i 7·9
Batavia		23·3	142	5 2	− 8	9 7	−13	i 5 44	PP	e 11·0
Manila	Z.	27·8	83	i 5 52a	− 1	i 11 0	+25	—	—	—

Continued on next page.

•		Δ °	Az. °	P. m.	P. s.	O−C. s.	S. m.	S. s.	O−C. s.	Supp. m.	Supp. s.		L. m.
Taihoku		30·1	61	6	17	+ 4	11	11	− 1	—		—	13·8
Almata		33·6	340	i 6	46	+ 2	12	16	+10	—		—	—
Frunse		34·1	336	6	53	+ 5	12	25	+11	7	57	PP	—
Tashkent		35·2	329	i 7	0	+ 2	—		—	—		—	—
Naha		35·8	62	7	0	− 3	12	37	− 4	—		—	—
Tchimkent		35·8	330	7	5	+ 2	12	42	+ 1	—		—	—
Dairen		36·9	39	7	15	+ 3	13	3	+ 5	—		—	—
Amboina		38·9	112	i 7	29	0	i 13	35	+ 7	—		—	16·0
Semipalatinsk		39·2	348	i 7	32	+ 1	13	13	−19	—		—	—
Zinsen		39·4	45	7	34	+ 1	13	31	− 4	—		—	—
Hukuoka		40·4	53	i 7	44	+ 3	13	45	− 5	—		—	i 18·4
Miyazaki		40·7	56	7	43	− 1	13	30	−25	—		—	17·1
Irkutsk		40·9	11	7	46	0	—		—	—		—	—
Palau		41·6	93	7	34	−17	13	17	−51	—		—	—
Hamada		42·2	52	e 8	0	+ 4	14	14	− 3	—		—	—
Koti		42·9	54	7	59	− 3	14	24	− 3	—		—	—
Kôbe		44·6	53	8	16	0	14	47	− 5	—		—	—
Vladivostok		45·7	41	i 8	21	− 3	i 15	9	+ 1	—		—	—
Nagoya		46·1	53	8	32	+ 4	15	10	− 4	—		—	—
Baku		46·6	314	i 8	36	+ 4	—		—	—		—	—
Nagano		47·5	51	8	38	0	15	50	+16	—		—	—
Yokohama		48·3	53	8	41	− 4	e 15	43	− 2	—		—	e 22·2
Tokyo, Cen. Met. Ob.		48·4	53	e 7	49	−57	16	26	+40	10	50	PP	23·6
Perth		49·4	154	i 8	57	+ 4	i 15	48	−12	11	7	PP	22·5
Sendai		50·0	50	8	55	− 3	16	6	− 3	—		—	—
Erevan		50·4	312	9	4	+ 3	16	18	+ 4	—		—	—
Mizusawa		50·5	49	i 9	0	− 2	i 16	13	− 3	—		—	—
Grozny		50·6	316	9	6	+ 4	16	26	+ 9	—		—	—
Sverdlovsk		50·6	338	i 9	1	− 1	i 16	5	−12	—		—	—
Mori		51·1	45	9	3	− 3	16	23	− 1	i 22	24	SSS	26·9
Sapporo		51·9	44	9	11	− 1	16	27	− 8	10	49	PP	e 22·9
Piatigorsk		52·7	317	9	18	0	16	42	− 4	—		—	—
Tananarive		54·1	236	e 9	29a	0	17	6	+ 1	11	50	PP	25·5
Nemuro		55·0	45	i 9	35	0	17	13	− 4	—		—	—
Ksara		55·5	302	e 9	41	+ 2	17	34	+10	i 10	2	pP	—
Theodosia		58·2	316	9	58	0	18	3	+ 4	—		—	—
Helwan		59·0	297	i 10	0a	− 4	i 18	30	+20	12	3	PP	29·0
Moscow		60·5	328	i 10	12	− 2	18	18	−11	—		—	—
Istanbul		62·0	310	10	29	+ 5	18	53	+ 5	12	53	PP	e 36·0
Adelaide		64·2	140	e 10	37	− 2	i 19	5	−11	i 12	49	PP	27·4
Bucharest		64·6	314	i 10	42k	+ 1	i 19	22	+ 1	i 11	14	PcP	27·0
Pulkovo		65·5	331	i 10	46	− 1	19	27	− 5	—		—	—
Sofia		66·4	311	e 10	52	− 1	i 19	45	+ 2	11	13	PcP	e 27·1
Belgrade		68·6	313	i 11	2	− 5	i 19	33	−36	i 13	53	PP	e 36·7
Warsaw	E.	68·9	322	e 11	7k	− 2	i 20	36	+23	14	31	PP	e 38·0
	N.	68·9	322	e 11	10k	+ 1	i 20	32	+19	14	20	PP	e 34·0
	Z.	68·9	322	e 11	7k	− 2	i 20	19	+ 6	14	10	PP	e 40·0
Budapest		69·8	316	11	13	− 1	20	23	0	11	29	PcP	e 32·0
Kalocsa		69·8	315	11	14	0	20	25	+ 2	11	26	PcP	e 28·0
Brisbane		70·8	125	i 11	16	− 4	i 20	24	−11	i 15	43	PPP	—
Upsala		71·8	329	11	22	− 4	i 20	43	− 3	i 14	14	PP	e 35·7
Riverview		72·3	132	i 11	26k	− 3	i 20	44	− 8	i 21	1	PS	e 29·6
Sydney		72·3	132	i 11	24	− 5	i 20	48	− 4	i 16	6	PPP	30·0
Prague		72·9	319	i 11	35k	+ 2	i 20	56	− 3	e 15	25	PPP	e 28·0
Johannesburg		73·4	237	i 11	42	+ 6	i 21	6	+ 1	e 14	0	PP	e 38·0
Triest		73·4	314	i 11	33	− 3	i 21	3	− 2	e 14	18	PP	e 36·0
Potsdam		73·8	322	i 11	37k	− 1	i 21	12	+ 3	i 12	4	pP	—
Copenhagen		74·2	325	i 11	40k	0	21	1	−13	14	46	PP	—
Jena		74·8	320	i 11	41	− 3	i 21	14	− 6	i 14	51	PP	e 35·0
Chur		76·3	316	e 11	51	− 1	i 21	37	0	—		—	—
Stuttgart		76·4	318	i 11	52k	− 1	i 21	39	+ 1	i 12	12	pP	e 31·3
Zurich		76·9	316	e 11	54k	− 2	i 21	45	+ 2	e 12	15	pP	—
Strasbourg		77·3	317	11	59k	+ 1	i 21	50	+ 2	i 14	50	PP	36·0
Basle		77·5	316	e 11	58	− 1	i 21	51	+ 1	—		—	—
Bergen		77·9	330	e 11	58	− 3	i 21	58	+ 4	i 15	21	PP	e 39·0
Neuchatel		78·0	316	e 11	56	− 6	e 22	11	+16	—		—	—
Besancon		78·7	316	i 12	5	− 1	i 22	0	− 3	—		—	31·6

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
De Bilt		78·7	321	i 12 4k	− 2	i 22 5	+ 2	—	—	—
Uccle		79·3	320	i 12 8	− 1	i 22 12	+ 3	i 15 36	PP	36·0
Marseilles		79·5	312	e 12 24	+14	i 22 31	+20	i 15 59	PP	e 40·0
Lille		80·2	320	12 40	+26	23 0	PS	—	—	43·0
Clermont-Ferrand		80·8	315	i 12 16k	− 1	e 22 36	+11	i 15 46	PP	e 43·2
Paris		80·8	318	i 12 16	− 1	i 22 22	− 3	12 36	PcP	34·0
Aberdeen		82·2	327	i 12 30	+ 6	i 22 39	0	i 12 48	PcP	41·6
Kew		82·2	321	i 12 24k	0	i 22 40	+ 1	i 15 40	PP	e 34·6
Algiers		82·3	306	i 12 27	+ 2	e 22 12	−28	i 12 46	pP	i 34·3
Edinburgh		82·7	325	12 33	+ 6	22 38	− 6	15 40	PP	—
Oxford		82·7	321	i 12 28	+ 1	—	—	—	—	—
Scoresby Sund		86·2	342	i 12 42	− 2	i 23 25	+ 6	i 16 15	PP	i 44·7
Almeria		86·6	307	i 12 45	− 1	i 23 9	[− 2]	13 5	PcP	41·0
Toledo		87·1	310	i 12 50	+ 1	i 23 16	[+ 1]	—	—	—
Granada		87·4	307	i 12 50k	0	i 23 27	− 3	13 14	pP	41·8
San Fernando		89·6	306	i 13 5	+ 4	i 22 28	[−62]	i 16 29	PP	—
Coimbra		90·3	311	12 58	− 6	23 46	−11	16 0	PP	42·5
College		90·8	23	i 13 8	+ 2	i 23 35	[− 2]	e 17 1	PP	i 37·1
Lisbon		91·2	310	13 8	0	24 39	+34	17 8	PP	37·0
Auckland		91·3	127	12 52	−17	23 12	[−28]	23 39	ScS	38·5
New Plymouth		91·3	130	13 43	+34	23 34	[− 6]	—	—	—
Christchurch		91·4	135	13 8a	− 1	23 37	[− 4]	16 46	PP	44·5
Arapuni		92·2	129	13 0	−13	23 24	[−21]	16 48	PP	39·0
Wellington		92·4	132	13 10a	− 4	23 37	[−10]	16 50	PP	41·0
Tuai		93·6	129	13 30	+11	23 45	[− 8]	17 15	PP	39·0
Apia		98·4	102	e 13 42	+ 1	23 54	[−25]	17 4	PP	e 40·5
Sitka		100·0	25	e 14 11	+23	i 24 26	[− 1]	i 18 8	PP	e 42·8
Ivigtut		100·3	341	13 57	+ 7	24 26	[− 2]	17 49	PP	42·0
Honolulu		103·3	65	i 14 20	+17	i 24 43	[0]	i 18 21	PP	i 43·1
Victoria		111·5	25	14 45	P	25 18	[0]	19 36	PP	e 48·0
Seattle		112·7	25	e 18 26	[−12]	e 25 25	[+ 2]	e 19 40	PP	i 51·5
Saskatoon		113·6	12	e 18 24	[−16]	27 13	{+43}	19 22	PP	e 61·0
Spokane		114·5	22	e 18 49	[+ 7]	i 25 29	[− 1]	e 29 21	PS	—
Ferndale		117·3	31	e 19 34	PP	e 25 57	[+17]	e 36 11	SS	e 55·7
Butte		117·6	19	e 18 56	[+ 8]	i 26 14	[+32]	i 20 4	PP	i 55·7
Bozeman		118·4	19	e 18 57	[+ 7]	i 25 47	[+ 2]	20 17	PP	i 48·2
Seven Falls		118·9	347	18 58	[+ 7]	25 54	[+ 8]	20 24	PP	52·0
Ukiah		118·9	31	i 19 3	[+12]	i 26 0	[+14]	e 20 12	PP	e 50·3
Halifax		119·2	340	20 24	PP	25 45	[− 2]	31 6	PPS	50·0
Shawinigan Falls		119·8	348	e 18 58	[+ 6]	e 28 30	?	20 28	PP	52·0
East Machias		120·2	343	i 19 13	[+20]	i 36 33	SS	i 20 23	PP	i 49·5
Berkeley		120·3	31	e 15 6	P	e 26 8	[+17]	e 20 23	PP	e 64·1
San Francisco		120·3	31	e 19 4	[+11]	e 26 6	[+15]	e 20 31	PP	e 63·6
Branner		120·7	31	e 19 0	[+ 6]	e 25 52	[0]	e 36 45	SS	e 63·5
Santa Clara		120·9	31	e 18 59	[+ 5]	i 30 32	PS	i 20 39	PP	—
Lick		121·0	31	e 19 0	[+ 5]	e 26 5	[+12]	e 20 24	PP	e 52·2
Ottawa		121·5	349	15 36	P	27 30	{+ 7}	20 36	PP	e 55·0
Logan		121·6	20	18 59	[+ 3]	36 59	SS	20 38	PP	51·9
Vermont		121·9	348	e 15 55	P	e 26 0	[+ 4]	i 20 38	PP	e 49·2
Fresno	N.	122·4	30	e 18 56	[− 1]	i 26 16	[+18]	e 20 56	PP	e 51·6
Salt Lake City		122·5	22	e 19 10	[+12]	i 26 11	[+13]	i 20 41	PP	i 51·3
Tinemaha		122·9	29	e 19 5	[+ 7]	—	—	e 28 57	PKKP	—
Harvard		123·4	345	e 19 0	[+ 1]	e 23 4	SKP	e 20 47	PP	e 36·0
Weston		123·5	345	19 6	[+ 6]	27 39	{+ 2}	20 45	PP	—
Toronto		123·7	352	e 16 0	P	25 38	[−24]	20 36	PP	e 53·0
Haiwee		123·8	29	i 19 4	[+ 4]	e 26 14	[+12]	i 28 53	PKKP	—
Santa Barbara		124·3	32	e 19 2	[+ 1]	—	—	—	—	—
Mount Wilson	z.	125·3	31	e 19 2	[− 1]	—	—	e 15 46	P	—
Pasadena		125·3	31	e 18 59	[− 4]	i 26 26	[+19]	i 21 1	PP	e 51·0
Fordham		125·5	347	19 10	[+ 7]	—	—	21 3	PP	—
Denver		125·6	16	e 19 25	[+22]	i 28 0	{+ 9}	e 31 30	PS	e 61·5
Riverside	z.	125·8	31	i 19 4	[0]	—	—	i 16 10	P	—
Chicago, J.S.A.		126·0	0	e 19 8	[+ 4]	i 27 33	{−21}	—	—	—
Chicago, U.S.C.G.S.		126·1	0	e 19 14	[+10]	i 26 9	[0]	i 21 14	PP	52·4
Lincoln		126·4	7	e 19 9	[+ 4]	e 26 12	[+ 2]	e 21 33	PP	e 53·1

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.			L.
		°	°	m. s.	s.	m. s.	s.	m. s.			m.
Philadelphia		126·7	348	e 19 6	[0]	29 3	{+65}	21 8	PP		51·6
Pittsburgh		127·0	352	i 19 6	[0]	i 29 2	{+62}	i 21 12	PP		—
Cincinnati		128·7	356	e 16 14	P	28 10	{− 1}	i 21 28	PP		e 54·0
Florissant		129·0	3	e 16 8	P	i 26 21	[+ 4]	i 21 22	PP		—
St. Louis		129·2	3	e 19 8	[− 2]	i 28 12	{− 2}	i 21 33	PP		—
Bermuda		130·4	334	e 19 6	[− 7]	38 9	SS	21 32	PP		64·9
Cape Girardeau		130·5	1	e 19 25	[+12]	e 28 25	{+ 2}	i 21 43	PP		—
Tucson		130·7	26	e 19 20	[+ 7]	i 26 23	[+ 2]	i 22 36	PKS		—
	z.	130·7	26	i 19 15	[+ 2]	26 28	[+ 7]	i 21 49	PP		e 68·2
Columbia		133·4	352	e 19 24	[+ 6]	i 39 29	SS	i 22 5	PP		i 55·1
Rio de Janeiro		136·7	250	—	—	e 22 14	PP	(e 39 12)	SS		e 39·2
San Juan		142·8	325	i 19 31	[− 4]	i 30 44	?	i 22 39	PP		—
Guadalajara	N.	143·6	25	e 19 44	[+ 7]	—	—	—	—		—
Port au Prince		144·6	333	i 19 52	[+14]	—	—	—	—		—
La Plata		145·1	225	19 42	[+ 3]	29 42	{− 9}	23 24	PKS		66·5
Tacubaya	E.	146·4	19	e 19 47	[+ 5]	—	—	—	—		—
Merida	N.	146·8	3	i 19 48	[+ 6]	—	—	e—	—		—
Vera Cruz	N.	147·5	15	i 19 49	[+ 6]	—	—	—	—		—
Oaxaca	N.	149·4	16	e 19 22	[−24]	—	—	—	—		—
La Paz		160·8	256	e 20 4	[+ 3]	i 31 17	{ 0}	i 24 30	PP		76·5
Huancayo		168·1	270	e 20 10	[+ 2]	i 31 34	{−19}	i 24 46	PP		—

Additional readings :—
Calcutta iPE = +2m.48s., iS*E = +5m.25s.
Agra iP = +4m.41s., PPPN = +5m.18s., SSN = +9m.45s.
Bombay iPN = +4m.41s., iN = +8m.8s., iSN = +8m.24s.
Batavia iEN = +5m.54s.
Miyazaki i = +13m.45s.
Tokyo, Cen. Met. Obs. iPZ = +7m.54s.
Perth SS = +18m.50s., SSS = +19m.38s.
Mori iE = +24m.50s.
Sapporo PPP? = +11m.46s., PS = +16m.52s., PPS? = +19m.12s.
Tananarive i = +9m.35s., PPP = +12m.57s., iPS = +17m.41s., SS = +22m.35s.
Ksara SS = +21m.37s.
Helwan iE = +10m.26s. and +14m.0s., SSE = +22m.45s.
Istanbul e = +10m.43s., PPP = +14m.25s., PS = +19m.35s., SS = +23m.23s., SSS = +25m.28s.
Adelaide i = +11m.4s., +11m.17s., +14m.53s., +15m.20s., +17m.15s., and +21m.5s., iSS = +23m.4s.
Bucharest iE = +10m.45s. and +11m.4s., iPPZ = +13m.8s., iPPN = +13m.13s., iSN = +19m.30s., iPSZ = +19m.56s., iS_cS = +20m.28s., iS_cSZ = +20m.33s., iSSE = +23m.2s.
Sofia iE = +15m.35s.
Belgrade iPPP = +15m.35s., iPS = +20m.17s., iSS = +25m.13s. and +27m.53s.
Warsaw iPPPZ = +15m.34s., PPPE = +15m.48s., PPPN = +15m.57s., iPSN = +21m.4s., iSSE = +24m.20s., iSSN = +24m.50s., iSSZ = +25m.12s., iSSSN = +27m.57s., iSSSZ = +28m.12s.
Budapest P_cPE = +11m.34s., ePPN = +13m.32s., PPE = +13m.36s., eP_cSE = +15m.44s., SN = +20m.31s., PSE = +20m.43s., S_cSE = +21m.16s., SSN = +24m.46s., eE = +25m.46s., eN = +28m.39s.
Kalossa i = +11m.40s., iE = +11m.52s., PSE = +20m.40s., SN = +20m.50s., iN = +21m.28s.
Brisbane iSE = +20m.27s.
Riverview iZ = +11m.31s., i = +11m.45s., iEZ = +16m.1s., iE = +20m.49s., iE = +21m.30s., iEN = +28m.57s.
Sydney iSS = +28m.36s.
Upsala PN = +11m.29s., iE = +11m.44s. and +11m.49s., iPPPE = +16m.13s., iPSN = +21m.17s., iSSE = +25m.24s., iSSN = +25m.50s., iSSSE = +28m.44s., iSSSN = +28m.57s.
Prague e = +11m.55s., ePPP = +16m.15s., ePS = +22m.0s., eSS = +25m.54s.
Johannesburg e?E = +13m.24s., eQ = +30m.
Triest ePPP = +15m.52s., iPS = +21m.48s., eSS = +26m.17s., eSSS = +29m.16s.
Potsdam iPN = +11m.43s., i = +11m.47s., iN = +11m.51s., iE = +11m.56s., iPPPE = +16m.31s., ipPPPNW = +16m.41s., iSKSNW = +21m.41s., i = +24m.59s., iSSNW = +26m.14s., iSSSE = +29m.25s., iN = +29m.39s., iE = +30m.8s., iN = +30m.20s., iE = +32m.20s.
Copenhagen +12m.2s., +16m.35s., +21m.14s., +21m.50s., and +26m.30s.
Jena iPN = +11m.44s., iPZ = +11m.48s., iP = +12m.0s., eN = +13m.56s., iPPN = +14m.59s., iPPPN = +16m.20s., iPPPE = +16m.30s., iSE = +21m.19s., iE = +21m.43s., iNZ = +21m.48s., iPPSZ = +22m.12s., iPPSE = +22m.16s., iE = +23m.16s., eSSN = +26m.20s., and +26m.25s., eSSE = +26m.28s., eSSZ = +27m.24s., iN = +30m.0s., iZ = +31m.0s.
Stuttgart i = +11m.56s., isP = +12m.20s., ePPE = +14m.40s., ipPPE = +15m.9s., isSE = +22m.19s., iSSEN = +26m.44s., iSSSEN = +30m.58s., ePKP,PKP? = +39m.16s.

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Zurich ePP = +15m.12s.
Strasbourg i = +12m.20s. and +14m.4s., iPP = +15m.16s., i = +16m.4s., ePPP = +17m.0s., i = +19m.12s., SS = +27m.0s., iSSS = +30m.38s.
Bergen PPP = +17m.16s., iZ = +18m.28s., iSS = +27m.3s.
Uccle iEZ = +12m.16s., +12m.28s., and +12m.32s., iPPPE = +16m.58s., iEZ = +18m.21s., iSN = +22m.16s., iPSE = +22m.54s., iEZ = +24m.4s., iE = +24m.21s., +27m.10s., iSSEZ = +27m.28s., iE = +28m.4s.
Marseilles e = +12m.30s., i = +12m.51s., +13m.0s., +13m.41s., +17m.59s., +19m.25s., and +22m.41s., iSS = +28m.12s., e = +30m.12s. and +33m.13s.
Clermont-Ferrand e = +22m.20s., +39m.8s., and +42m.40s.
Paris PP = +25m.1s., PPP = +27m.36s., SS = +27m.8s.
Aberdeen iPPE = +15m.38s., iN = +15m.45s. and +19m.46s., iSKKSEN = +22m.59s., iPSN = +23m.10s., iPPSE = +23m.24s., eSSEN = +28m.26s., iSSSEN = +31m.50s., QEN = +39m.50s.
Kew iPNZ = +12m.32s., iPPPEZ = +17m.50s., eSSE = +27m.48s., eSSSE = +31m.42s.
Algiers i = +13m.16s. and +13m.26s., ipPP = +15m.56s., i = +16m.26s., iPPP = +17m.47s., i = +20m.35s., eS = +22m.39s., S = +23m.5s., eSS = +28m.20s., i = +30m.45s.
Edinburgh P_cP = +12m.40s., e = +22m.12s., S_cS = +22m.55s., SS = +27m.56s.
Scoresby Sund i = +12m.52s., +15m.32s., +16m.29s., +19m.8s., +22m.47s., +24m.19s., and +28m.23s.
Almeria pP = +12m.54s., PP = +16m.10s., S_cS = +23m.29s., PS = +23m.45s., SS = +28m.50s.
Granada P_cP = +13m.55s., PP = +16m.24s., pPP = +16m.49s., PPP = +18m.15s., SKS = +22m.55s., sS = +23m.46s., PS = +24m.35s., PPS = +25m.1s., SS = +29m.24s., Q = +35m.42s., PKP,PKP = +38m.55s.
Coimbra i = +13m.41s. and +17m.36s., PPP = +17m.54s., i = +19m.54s., SKS = +23m.18s., i = +24m.36s., +26m.44s., +28m.19s., +28m.35s., SS = +30m.11s., SSS = +33m.28s.
College i = +13m.25s., +13m.49s., +14m.11s., +14m.49s., +17m.9s., and +19m.11s., ePPP = +20m.50s., iS = +23m.53s., iSS = +30m.5s., i = +30m.29s.
Lisbon iPZ = +13m.15s., +13m.29s., +13m.34s., +16m.37s., +21m.6s., +23m.19s., +23m.40s., +24m.8s., and +24m.32s., E = +25m.47s., N = +26m.20s., +29m.3s., and +29m.23s., SSN = +30m.26s., SSE = +30m.29s., N = +31m.6s.
Auckland i = +12m.57s. and +18m.26s., S = +23m.26s., PS? = +23m.54s., SS = +29m.40s., i = +31m.15s.
Christchurch SZ = +24m.18s., Q = +38m.36s.
Arapuni S_cS = +24m.0s., PPS = +25m.24s., i = +31m.48s.
Wellington iZ = +20m.30s. and +22m.14s., S_cS = +24m.10s., i = +24m.47s., PPS = +25m.38s., PPPS? = +25m.57s., SS = +30m.3s., i = +37m.40s., Q = +39m.20s.
Apia iEN = +17m.41s., i = +24m.16s., SS = +30m.7s., iEN = +32m.5s.
Sitka i = +17m.29s., ePPP = +20m.23s., iS = +25m.42s., i = +27m.7s., iSS = +32m.37s., iSSS = +36m.28s.
Ivigtut +14m.13s. and +18m.17s., PPP = +20m.19s., +22m.16s., +25m.53s., and +26m.58s., SS = +32m.16s.
Honolulu e = +18m.37s., i = +19m.28s., iPPP = +20m.32s., i = +24m.59s., +27m.40s., +29m.8s., +32m.13s., iSS = +33m.0s., i = +36m.1s.
Victoria S = +26m.55s., PS = +29m.0s., SS = +34m.54s., SSS = +38m.48s.
Seattle e = +20m.14s., iS = +27m.6s., i = +29m.13s., iSS = +34m.56s., i = +38m.54s.
Saskatoon PPS = +29m.24s., SS = +35m.0s., SSS = +39m.6s.
Spokane iSKKSE = +27m.21s., iEN = +35m.27s., eE = +38m.49s.
Ferndale eE = +20m.16s., eN = +20m.32s., eSSN = +36m.18s., eN = +50m.0s., eE = +50m.48s.
Butte e = +19m.18s., ePPP = +22m.7s., i = +22m.57s., and +24m.41s., iPS = +29m.57s., i = +35m.2s., +36m.38s., and +42m.10s.
Bozeman i = +19m.29s., e = +20m.1s., iPPP = +22m.47s., i = +24m.43s., +26m.1s., +27m.55s., iS = +28m.0s., iS_cS = +29m.59s., iPPS = +31m.19s., iSS = +36m.29s., i = +40m.25s.
Seven Falls PPP = +23m.22s., PS = +29m.54s., SS = +36m.0s. ?
Ukiah i = +19m.34s., +20m.18s., and +27m.25s., iS = +28m.2s., iPS = +29m.56s., e = +31m.38s., iSS = +36m.36s.
Halifax SS = +36m.34s., SSS = +39m.48s., e = +44m.41s.
Shawinigan Falls PS = +29m.51s., e = +39m.32s., SSS = +41m.54s.
East Machias i = +19m.33s., +20m.36s., +25m.39s., +29m.31s., +36m.44s., and +44m.31s.
Berkeley iPKP = +18m.59s., eE = +19m.4s., iPPEZ = +20m.26s., iN = +20m.31s., eZ = +29m.6s., eN = +29m.19s., eSSN = +36m.50s., eSSE = +36m.58s., eQN = +50m.36s.
San Francisco eEN = +29m.30s., eN = +30m.59s., eSSN = +36m.41s., eSSE = +36m.51s.
Branner iN = +19m.10s., iPPN = +19m.55s., eEN = +29m.6s., eN = +59m.12s.
Santa Clara iSKKSE = +36m.59s.
Lick eN = +29m.8s., eE = +29m.16s., eN = +32m.12s., eSSE = +36m.58s.
Ottawa PKP = +19m.1s., PS = +30m.21s., SS = +37m.12s., SSS = +42m.0s. ?
Logan e = +20m.51s., iSSS = +41m.15s.
Vermont e = +25m.25s., i = +27m.25s., iPS = +30m.24s., eSS = +36m.25s., iS = +36m.46s., i = +41m.55s. and +46m.22s.
Fresno eSSN = +37m.9s.

Continued on next page.

Salt Lake City e = +19m.52s., i = +20m.53s. and +21m.53s., iPPP = +22m.33s., i = +23m.38s., iS = +28m.30s., iPS = +30m.21s., i = +32m.51s., and +35m.34s., iSS = +37m.21s., i = +38m.0s. and +43m.6s.
Tinemaha ePZ = +15m.46s.
Harvard iPKPZ = +19m.6s., i = +21m.1s., eE = +28m.40s., ePKKSZ = +32m.16s.
Weston SP = +31m.0s., SS = +37m.32s.
Toronto PKP = +18m.54s., PS = +30m.24s., SS = +37m.24s., SSS = +42m.12s.
Pasadena ePZ = +15m.46s., iPKP = +19m.7s., iPPPZ = +23m.36s., iE = +25m.18s., ePKKPZ = +28m.46s., iPSN = +30m.30s., ePPSE = +32m.14s., iSSN = +37m.45s.
Fordham +21m.19s.
Denver eN = +21m.10s. and +32m.25s., iSSE = +37m.48s., eN = +38m.0s.
Chicago, U.S.C.G.S. i = +19m.30s., iPPP = +22m.22s., i = +23m.57s., +27m.55s., and +28m.39s., iS = +28m.57s., iPS = +30m.57s., i = +32m.17s., +33m.36s., and +36m.7s., iSS = +37m.35s., i = +42m.56s., and +48m.24s.
Lincoln ePKS = +22m.29s., i = +27m.54s., iS = +29m.4s., i = +34m.37s., iSSS = +37m.53s.
Philadelphia e = +20m.45s., i = +21m.28s., PS = +31m.3s., SS = +38m.9s.
Pittsburgh iPKPZ = +19m.13s.
Cincinnati iPKP = +19m.13s., PPP = +27m.2s., SS = +38m.34s., SSS = +43m.26s.
Florissant eZ = +19m.13s., iPKPZ = +19m.18s., iE = +19m.29s., eN = +21m.34s., +21m.39s., +21m.42s., +21m.48s., and +22m.1s., iSKPZ = +22m.32s., iN = +23m.38s., iN = +26m.5s., iE = +29m.22s., eE = +29m.28s.
St. Louis iZ = +19m.13s., +19m.27s., +19m.49s., and +20m.19s., iSKP = +22m.30s., iSKPE = +22m.36s., iSKKSE = +28m.25s., eSE = +29m.21s.
Bermuda eP = +16m.12s., i = +21m.50s., SKSP = +31m.38s., PSPS = +38m.55s.
Cape Girardeau iN = +22m.23s., iSKPEN = +22m.42s., iEN = +23m.24s., eN = +31m.20s., ePSKSE = +32m.0s., eN = +33m.20s.
Tucson i = +19m.36s., iZ = +21m.22s. +21m.30s., +22m.30s., +22m.50s., +26m.7s., +28m.12s., +28m.33s., +28m.53s., +31m.18s., and +33m.30s., iSS = +38m.38s.
Columbia ePKS = +22m.49s., e = +28m.26s., i = +30m.8s., eSKSP = +32m.16s., i = +35m.38s. and +48m.27s.
Rio de Janeiro eSE = +22m.18s.
San Juan i = +19m.47s., +21m.2s., +21m.19s., and +23m.9s.
Port au Prince i = +20m.9s.
La Plata PKPE = +19m.48s., N = +20m.54s., PKSE = +23m.30s., N = +30m.30s., E = +30m.48s., N = +31m.36s., PPPE = +33m.6s., SKSP?E = +34m.0s., SKKS?N = +34m.54s., PS?E = +35m.30s., PPS?N = +35m.36s., PPSE = +36m.36s., SS?N = +41m.54s., SSE = +42m.6s., SSSN = +46m.54s., SSSE = +47m.0s., N = +50m.18s. and +53m.18s., E = +54m.24s., QN = +58m.0s., QE = +59m.42s.
La Paz PKP,E = +20m.57s., PPE = +24m.33s., PKSE = +35m.18s., PPS?E = +38m.13s., iSSN = +44m.55s., iSSE = +45m.0s., iSSSN = +50m.28s., SSSSN = +55m.28s., QN = +67m.
Huancayo i = +20m.18s. and +20m.52s., iPKS = +25m.28s., i = +28m.54s.

June 26d. Readings also at 3h. (Bucharest), 4h. (near Ottawa, Shawinigan Falls, Seven Falls, and Sofia), 5h. (Bucharest and Almata), 7h. (Tucson), 10h. (La Paz, near Toledo, Granada, and Almeria), 12h. (Balboa Heights), 14h. (Sofia), 17h. (Sofia and Bucharest), 18h. (near Berkeley), 21h. (near Branner and near Mizusawa), 22h. (near Algiers), 23h. (Manzanillo (2)).

June 27d. 7h. 32m. 47s. Epicentre 12°·4N. 92°·5E. (as on 26d.).

$A = -\cdot0426$, $B = +\cdot9761$, $C = +\cdot2134$; $\delta = +13$; $h = +6$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Medan		10·7	144	2 33	− 5	3 56	−43	—	—	—
Calcutta	N.	10·8	339	e 2 43	+ 4	i 4 47	+ 5	—	—	(e 5·5)
Colombo	E.	13·6	248	3 7	−10	5 58	+ 8	—	—	9·5
Kodaikanal	E.	14·9	264	i 3 33	− 1	—	—	—	—	—
Agra	E.	20·0	320	4 32	− 5	i 8 2	−15	4 52	PP	—
Bombay		20·0	292	i 4 37	0	e 8 20	+ 3	i 8 49	SS	—
Dehra Dun	N.	22·3	326	4 15?	−46	e 7 53	−69	—	—	e 11·3
Andijan		33·3	332	e 6 44	+ 3	—	—	—	—	—
Almata		33·6	340	e 6 49	+ 5	—	—	—	—	—
Tashkent		35·2	329	e 6 57	− 1	e 12 47	+16	—	—	—
Sverdlovsk		50·6	338	e 8 58	− 4	16 24	+ 7	—	—	—
Moscow		60·5	328	10 15	+ 1	e 18 32	+ 3	—	—	—
Bucharest		64·6	314	—	—	e 19 23	+ 2	—	—	—
Pulkovo		65·5	331	e 10 50	+ 3	e 19 38	+ 6	—	—	—
Zurich		76·9	316	e 12 13?	+17	—	—	—	—	—

Additional readings :—
Medan S?N = +4m.2s.
Agra SSE = +8m.25s.
Bombay ePN = +4m.46s., iE = +5m.27s., +7m.58s., and +9m.10s.

June 27d. 7h. 55m. 48s. Epicentre 26°·2S. 137°·5E.

Felt at Finke, Central Australia.
" The largest earthquake yet recorded from Australia, and one, moreover, from a supposed stable region," Seismological Bulletin, Brisbane.
Suggested epicentres : 25°·5S. 138°·5E. (Strasbourg).
26°·5S. 137°·5E. (Pasadena).

A = −·6624, B = +·6070, C = −·4391 ; δ = +3 ; h = +3 ;
D = +·676, E = +·737 ; G = +·324, H = −·297, K = −·898.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Adelaide	N.	8·8	174	i 2 12	+ 1	i 3 59	+ 6	—	—	i 4·4
Brisbane	E.	13·9	99	i 3 16	− 5	i 5 58	+ 1	—	—	—
Riverview		14·1	126	e 3 22	− 1	i 6 11	+ 9	i 6 23	SS	i 7·8
Sydney		14·1	126	i 3 24	+ 1	e 6 18	+16	i 7 27	SS	8·6
Perth		19·8	249	4 27	− 8	i 8 2	−11	8 35	SS	9·4
Amboina		24·1	338	5 18	0	i 9 33	− 1	—	—	14·2
Auckland		33·3	116	i 9 8	?	11 8	−54	13 52	Q	15·5
Christchurch		33·3	131	6 44	+ 3	12 10	+ 8	13 39	Q	16·5
Wellington		34·2	126	6 51	+ 2	12 18	+ 2	8 6	PP	16·7
Batavia		35·4	300	i 7 0	0	i 12 35	+ 1	—	—	—
Tuai		35·5	121	7 9	+ 9	—	—	—	—	—
Manila		43·6	337	i 8 7	− 1	14 49	+11	—	—	—
Medan		47·8	303	i 8 45	+ 4	i 15 45	+ 7	—	—	—
Kobe		60·6	359	10 12	− 3	18 26	− 4	—	—	—
Yokohama		61·3	2	e 10 24	+ 4	—	—	—	—	—
Nagano		62·5	0	10 27	− 1	—	—	—	—	—
Sendai		64·2	4	10 37	− 2	—	—	—	—	—
Calcutta	N.	67·9	311	—	—	i 20 3	+ 2	—	—	—
Kodaikanal	E.	68·6	294	e 19 58	S	(e 19 58)	−11	i 24 51	SS	—
Sapporo		69·0	4	11 10	+ 1	—	—	—	—	—
Vladivostok		69·2	356	i 11 9	− 1	i 20 15	− 1	—	—	—
Hyderabad		71·9	300	e 11 26	− 1	20 45	− 3	21 14	PS	34·8
Bombay		77·2	298	—	—	i 21 46	− 1	—	—	—
Irkutsk		83·4	340	12 31	+ 1	22 41	−10	—	—	—
Almata		88·7	321	e 13 4	+ 7	—	—	—	—	—
Andijan		89·9	316	e 13 6	+ 4	e 23 55	+ 1	—	—	—
Tashkent		92·2	316	i 13 13	0	i 24 15	+ 1	23 44	SKS	—
Baku		104·8	307	27 49	PS	25 0	[+10]	32 48	SS	—
Ksara		113·2	296	e 18 35	[− 5]	e 19 35	PP	—	—	—
Victoria		115·0	47	e 19 48	PP	—	—	—	—	48·2
Pasadena	Z.	115·4	63	e 18 47	[+ 3]	e 27 45	?	e 29 29	PS	e 53·2
Mount Wilson	Z.	115·6	63	i 18 48	[+ 4]	i 27 45	?	i 29 26	PS	—
Helwan		115·8	291	e 18 50	[+ 5]	i 26 50	{+ 4}	e 19 45	PP	—
Riverside	Z.	116·1	63	e 18 47	[+ 2]	i 29 24	PS	—	—	—
Moscow		116·8	321	19 50	PP	—	—	—	—	—
Pulkovo		120·9	326	20 21	PP	—	—	—	—	—
Tucson		121·0	67	i 18 58	[+ 3]	e 29 7	?	e 20 26	PP	e 54·6
Bucharest		122·8	307	e 20 44	PP	e 26 2	[+ 3]	—	—	65·2
Sofia		124·6	305	e 19 18	[+16]	e 36 47	SS	e 20 55	PP	—
Warsaw	Z.	126·3	317	e 19 6a	[+ 1]	e 31 0	PS	—	—	e 67·2
Upsala		127·2	327	e 19 12?	[+ 5]	—	—	—	—	e 72·2
Huancayo		130·3	136	—	—	i 22 48	PP	e 39 29	SS	e 61·7
La Paz		130·8	147	19 22	[+ 9]	—	—	22 46	PP	62·2
Potsdam		131·2	318	i 19 16k	[+ 2]	e 21 32	PP	i 22 40	PKS	e 67·2
Triest		131·5	309	e 18 46	[−29]	i 22 41	PKS	—	—	—
Chur		134·3	312	e 18 21	[−59]	—	—	—	—	—
Zurich		134·9	312	e 18 25k	[−56]	e 22 53	PKS	—	—	—
De Bilt		136·0	320	i 19 26k	[+ 3]	e 22 56	PKS	e 22 2	PP	e 69·2
Uccle		136·8	318	e 19 28	[+ 3]	e 22 12	PP	e 23 0	PKS	e 64·2
Florissant		138·1	60	e 19 21	[− 6]	e 23 5	PKS	e 22 19	PP	—
St. Louis	E.	138·3	60	e 23 6	PP	e 24 0	?	e 34 6	PPS	—
Paris		138·5	315	i 19 32	[+ 4]	e 22 19	PP	—	—	77·2
Kew	Z.	139·4	320	i 19 32	[+ 3]	i 22 28	PP	32 49	PS	e 73·2
Almeria		144·5	297	i 19 40	[+ 2]	i 23 0	PP	—	—	85·2
Toledo		145·3	303	i 19 41	[+ 1]	e 23 22	PP	—	—	24·7

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Granada	145·4	298	i 19 43a	[+ 3]	e 24 15	?	i 20 8	?	—
Pittsburgh	145·9	55	i 19 45	[+ 4]	i 20 1	?	—	—	—
Coimbra	148·5	305	—	—	e 42 9	SS	—	—	84·2
Harvard	151·2	48	i 19 57	[+ 8]	—	—	—	—	—
San Juan	156·8	105	e 20 9	[+12]	e 26 55	[− 6]	e 24 17	PP	—

Additional readings :—
Riverview iPE = +3m.25s., iEN = +3m.31s.
Auckland i = +11m.24s.
Wellington SS? = +14m.6s., Q = +15m.14s.
Batavia iPEN = +7m.4s.
Medan iN = +15m.33s.
Kodaikanal i = +21m.5s., PP = +21m.38s.
Hyderabad SSE = +25m.10s.
Bucharest eN = +20m.50s., eEN = +55m.50s.
Sofia eN = +23m.55s.
Warsaw eZ = +32m.4s., +32m.26s., and +47m.38s., eN = +56m.40s.
Upsala eE = +21m.12s.?, eN = +57m.11s.
Potsdam iE = +33m.25s.
De Bilt iZ = +48m.35s.
Florissant ePKPZ = +19m.31s., eSKPZ = +23m.9s., eE = +32m.27s.
St. Louis eE = +33m.28s. and +59m.0s.
Kew eZ = +23m.3s., Z = +23m.11s., +23m.40s., +24m.19s., +24m.46s., +26m.21s., +27m.43s., +29m.39s., +34m.51s., +39m.12s. ?, and +48m.53s., eZ = +60m.11s.
Almeria PP = +20m.3s., PPP = +20m.13s., SS = +23m.25s., SSS = +23m.40s., P_cP = +24m.13s., P_cS = +27m.47s., S_cS = +32m.22s., the record being wrongly interpreted.
Coimbra e = +56m.9s.
San Juan i = +20m.36s., e = +34m.28s., +45m.31s., and +56m.16s.
Long waves were also recorded at Colombo, Honolulu, College, Ukiah, Chicago, Ottawa, and Philadelphia.

June 27d. 8h. 32m. 19s. Epicentre 12°·4N. 92°·5E. (as at 7h.).

A = −·0426, B = +·9761, C = +·2134 ; δ = +13 ; h = +6 ;
D = +·999, E = +·044 ; G = −·009, H = +·213, K = −·977.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Medan		10·7	144	i 2 34	− 4	4 36	− 3	—	—	—
Calcutta	N.	10·8	339	e 2 34	− 5	e 4 38	− 4	—	—	—
Colombo	E.	13·6	248	3 0	−17	5 30	−20	—	—	7·3
Kodaikanal	E.	14·9	264	i 3 21	−13	e 6 31	+11	—	—	—
Agra	E.	20·0	320	i 4 40a	+ 3	e 8 13	− 4	8 33	SS	10·4
Bombay		20·0	292	i 4 42	+ 5	i 8 32	+15	i 4 54	PP	9·7
Dehra Dun	N.	22·3	326	e 3 33	?	e 7 50	?	—	—	e 11·8
Andijan		33·3	332	—	—	12 32	+30	—	—	—
Almata		33·6	340	e 6 47	+ 3	—	—	—	—	—
Tashkent		35·2	329	7 1	+ 3	12 48	+17	—	—	—
Grozny		50·6	316	9 8	+ 6	—	—	—	—	—
Sverdlovsk		50·6	338	i 9 2	0	16 18	+ 1	—	—	—
Tananarive		54·1	236	e 3 55	?	—	—	—	—	25·5
Theodosia		58·2	316	9 59	+ 1	18 2	+ 3	—	—	—
Helwan		59·0	297	i 10 1a	− 3	—	—	e 13 59	PPP	—
Moscow		60·5	328	10 11	− 3	18 25	− 4	—	—	—
Pulkovo		65·5	331	10 44	− 3	19 28	− 4	—	—	—
Sofia		66·4	311	e 10 52	− 1	e 19 41	− 2	—	—	—
Riverview		72·3	132	e 11 47	+18	—	—	—	—	—
Potsdam		73·8	322	i 11 37	− 1	i 21 8	− 1	i 21 24	PS	e 30·7
Aberdeen	E.	82·2	327	12 32	+ 8	—	—	—	—	44·6
Toledo		87·1	310	i 12 47	− 2	23 28	0	—	—	37·5
Granada		87·4	307	i 12 45	− 5	e 23 31	+ 1	16 29	PP	e 40·5
Berkeley		120·3	31	e 11 47	?	—	—	22 41?	PPP	—
Mount Wilson	Z.	125·3	31	i 19 1	[− 2]	—	—	—	—	—
Pasadena	Z.	125·3	31	i 19 1	[− 2]	—	—	—	—	—
Riverside	Z.	125·8	31	i 19 2	[− 2]	—	—	—	—	—
Tucson		130·7	26	i 19 12	[− 1]	—	—	—	—	—
La Paz		160·8	256	20 5	[+ 3]	—	—	—	—	80·7

For Notes see next page.

NOTES TO JUNE 27d. 8h. 32m. 19s.

Additional readings :—
Calcutta iS = +5m.7s., iSN = +5m.36s.
Agra SSN = +8m.21s.
Bombay eN = +7m.14s., e = +9m.4s.
Helwan eE = +15m.11s.
Sofia eN = +17m.41s.
Riverview iZ = +13m.13s.
Potsdam eE = +11m.41s.
Berkeley eE = +17m.17s.
Mount Wilson iZ = +19m.31s.
Tucson i = +19m.27s., +19m.38s., +19m.57s., +22m.30s., and +22m.46s.
Long waves were also recorded at Bergen and East Machias.

June 27d. 17h. 11m. 37s. Epicentre 17°·1N. 93°·4W. Depth of focus 0·020.
(as on 1937, May 28d.).

A = −·0567, B = −·9547, C = +·2922 ; δ = +5 ; h = +5 ;
D = −·998, E = +·059 ; G = −·017, H = −·292, K = −·956.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Oaxaca	E.	3·2	269	0 52	+ 1	—	—	—	—	—
Vera Cruz	N.	3·3	309	1 0	+ 8	—	—	—	—	—
Puebla	N.	4·9	293	1 19	+ 6	—	—	—	—	—
Merida	N.	5·2	43	1 32	+15	—	—	—	—	—
Tacubaya	N.	5·9	293	1 35	+ 9	—	—	—	—	—
Guadalajara	N.	10·0	292	—	—	e 4 11	0	—	—	—
Balboa Heights		15·7	119	e 3 23?	−11	—	—	—	—	—
Columbia		20·1	29	i 4 24	+ 1	i 7 59	+ 4	e 5 16	pP	e 9·4
Port au Prince		20·1	84	e 4 38	+15	—	—	—	—	—
St. Louis		21·6	5	i 4 40	+ 2	i 8 26	+ 4	i 5 16	pP	—
Florissant		21·8	5	i 4 41	+ 1	i 8 28	+ 2	i 5 15	pP	—
Tucson		21·8	318	4 44	+ 4	i 8 42	+16	i 5 15	pP	i 12·3
Cincinnati		23·3	19	i 4 55	+ 1	i 8 50	− 1	i 5 24	pP	—
Lincoln		23·8	355	—	—	e 9 2	+ 2	—	—	i 10·4
Chicago, U.S.C.G.S.		25·2	8	i 5 12	0	i 9 20	− 3	e 5 55	PP	e 12·1
Pittsburgh		26·0	24	i 5 53	PP	i 10 59	?	i 6 9	pP	—
San Juan		26·0	82	i 5 17	− 3	i 9 26	−10	i 5 55	PP	e 11·1
Riverside		27·3	313	i 5 34	+ 2	16 0	S_cS	i 6 8	pP	—
Philadelphia		27·7	30	i 6 22	PP	9 59	− 5	—	—	11·7
Mount Wilson		27·9	313	i 5 41	+ 4	e 16 3	S_cS	i 6 21	pP	—
Pasadena		27·9	313	i 5 40	+ 3	i 10 15	+ 8	i 6 20	pP	—
Salt Lake City		28·4	330	e 6 27	PP	i 10 21	+ 6	e 11 35	sS	e 11·6
Fordham		29·0	32	i 5 46	− 1	i 10 24	− 1	i 6 38	PP	—
Toronto		29·0	21	6 23	PP	11 29	SS	—	—	—
Santa Barbara		29·2	312	e 6 34	PP	—	—	—	—	—
Tinemaha		29·7	318	i 5 55	+ 2	i 16 13	S_cS	i 6 35	pP	—
Bermuda		30·1	55	5 54	− 3	—	—	e 6 38	pP	e 12·1
Harvard		31·4	32	e 6 6	− 2	—	—	e 8 21	?	e 12·4
Weston		31·5	32	e 6 8	− 1	e 17 23	S_cS	—	—	—
Ottawa		31·9	23	6 11	− 1	11 5	− 5	6 55	PPP	13·4
Berkeley		32·7	315	—	—	i 11 30	+ 7	i 12 43	SKP	e 17·5
Butte		33·0	337	e 7 44	PPP	e 12 33	sS	—	—	e 18·2
Huancayo		34·0	148	i 6 34	+ 4	i 11 44	+ 1	i 12 57	SS	i 14·3
Shawinigan Falls		34·0	26	e 6 28	− 2	—	—	—	—	13·4
Ukiah		34·0	317	e 10 25	?	—	—	—	—	e 14·6
East Machias		35·2	33	e 6 34	− 6	e 11 55	− 6	i 8 11	PPP	i 14·8
Seven Falls		35·3	26	e 6 41	0	e 12 2	− 1	8 9	PPP	14·4
Seattle		38·6	329	—	—	e 15 13	SS	—	—	e 21·9
Victoria		39·6	329	e 6 23?	−54	e 13 11	+ 3	—	—	21·4
La Paz	N.	41·6	141	7 37	+ 3	i 13 29	− 8	—	—	16·4
College		59·9	337	—	—	e 17 47	− 2	—	—	—
La Plata		61·7	148	—	—	17 59	−12	—	—	—
Scoresby Sund		67·8	21	i 10 40	− 3	e 19 23	− 3	e 11 56	pP	e 39·3
Coimbra		75·4	53	e 9 56	?	—	—	e 15 38	PPP	23·4
Kew		78·7	39	i 11 44	− 2	21 22	− 6	12 38	pP	e 33·4

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Toledo		78·8	52	e 11 45	− 1	—	—	—	—	18·9
Bergen		79·5	31	—	—	18 23	?	—	—	—
Granada		79·7	54	i 11 48k	− 3	e 21 35	− 4	12 47	pP	—
Paris		81·1	42	i 11 58	− 1	i 22 1	+ 8	i 12 51	pP	35·4
Uccle		81·7	40	i 12 0	− 2	i 21 55	− 4	i 23 29	PS	—
De Bilt		81·8	38	i 12 3a	+ 1	i 22 1	+ 1	i 23 35	PS	e 33·4
Clermont-Ferrand		82·4	45	e 12 3	− 2	—	—	—	—	—
Copenhagen		84·7	33	i 12 17	0	22 20	[− 2]	23 55	PS	—
Stuttgart		85·3	41	i 12 20k	0	e 22 23	[− 3]	e 13 15	pP	—
Zurich		85·4	43	e 12 20	0	—	—	—	—	—
Upsala		85·5	29	e 12 18	− 3	e 22 23	[− 4]	—	—	—
Potsdam		86·3	37	i 12 24k	− 1	i 22 44	− 1	i 24 17	PS	e 35·4
Triest		89·4	43	—	—	i 22 51	[− 1]	i 24 20	PS	—
Warsaw		90·7	35	e 12 44a	− 2	e 22 57	[− 2]	e 24 29	PS	37·4
Bucharest		97·7	40	—	—	i 23 34	[− 4]	i 25 8	PS	44·4
Helwan		109·2	49	e 18 39	PP	i 24 29	[− 3]	e 19 38	PP	—
Agra	E.	135·2	11	—	—	39 57	SS	—	—	—

Additional readings :—
St. Louis iN = +4m.47s., iE = +8m.40s., isSN = +9m.33s.
Florissant iEN = +4m.44s., iZ = +4m.48s., eZ = +4m.59s., iN = +8m.32s., iE = +9m.4s., isSN = +9m.34s.
Tucson iZ = +5m.9s., +5m.34s., +6m.52s., +8m.3s., and +9m.1s., iEN = +9m.31s., +9m.47s., and +10m.43s., iS_cPZ = +11m.44s. and eP_cSEN = +12m.13s.
Cincinnati i = +5m.35s.
Chicago e = +5m.43s., isS = +10m.33s.
Pittsburgh isSNW = +11m.22s.
San Juan e = +5m.47s., i = +7m.1s. and +7m.38s.
Philadelphia e = +9m.6s. and +11m.4s.
Riverside iZ = +7m.7s. and +8m.46s., ipP_cPZ = +9m.39s., eS_cPZ = +12m.7s.
Mount Wilson iZ = +6m.14s. and +6m.49s., iP_cPZ = +8m.24s., epP_cPZ = +9m.41s.
Pasadena iZ = +6m.40s., ipP_cPZ = +9m.40s., iS_cSEN = +16m.2s.
Salt Lake City eSP = +6m.48s.
Fordham iSS = +12m.12s.
Ottawa e = +7m.33s., SS = +12m.29s.
Berkeley iN = +16m.30s.
East Machias i = +12m.5s.
Scoresby Sund eZ = +20m.21s. and +27m.31s.
Coimbra e = +12m.19s.
Kew sPZ = +16m.46s., PPPZ = +17m.25s., S_cSE = +21m.38s., epS = +22m.36s., eSSEZ = +26m.53s. ?, eSSSN = +30m.23s. ?
Granada P_cP = +11m.54s.
Stuttgart esSNE = +23m.48s.
Upsala eE = +23m.55s.
Potsdam iPN = +12m.29s., eSKSZ = +22m.23s., iSKS = +22m.30s., iPSN = +24m.31s.
Triest i = +23m.11s. and +24m.46s.
Warsaw eE = +23m.26s., eN = +23m.29s. and +29m.22s.
Helwan eE = +25m.26s., eZ = +28m.30s.
Long waves were also recorded at Santa Clara.

June 27d. 19h. 4m. 6s. Epicentre 12°·4N. 92°·5E. (as at 8h.).

A = −·0426, B = +·9761, C = +·2134; δ = +13; h = +6.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Medan		10·7	144	2 25	−13	4 21	−18	—	—	—
Calcutta	N.	10·8	339	e 2 20	−19	e 4 16	−26	e 5 28	S_g	—
Colombo	E.	13·6	248	4 57	?	—	—	—	—	—
Kodaikanal	E.	14·9	264	e 3 31	− 3	e 6 32	+12	—	—	7·8
Agra	E.	20·0	320	4 39	+ 2	8 14	− 3	i 4 49?	PP	—
Bombay		20·0	292	e 4 43	+ 6	8 33	+16	e 5 3	PP	10·9
Dehra Dun	N.	22·3	326	e 3 24?	?	e 8 4?	?	—	—	e 12·1
Andijan		33·3	332	e 6 40	− 1	e 12 9	+ 7	—	—	—
Almata		33·6	340	e 6 49	+ 5	—	—	—	—	—
Tashkent		35·2	329	e 6 57	− 1	e 12 36	+ 5	—	—	—
Irkutsk		40·9	11	7 53	+ 7	13 55	− 3	—	—	—
Helwan	Z.	59·0	297	i 10 15	+11	i 14 27	?	—	—	—
Moscow		60·5	328	i 10 12	− 2	e 18 26	− 3	—	—	—
Pulkovo		65·5	331	e 10 48	+ 1	e 19 30	− 2	—	—	—
Potsdam		73·8	322	i 21 10	S	(i 21 10)	+ 1	—	—	e 47·9

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Zurich		76·9	316	e 21 57	S	(e 21 57)	+14	—	—	—
Mount Wilson	z.	125·3	31	e 19 3	[0]	—	—	—	—	—
Pasadena	z.	125·3	31	i 19 3	[0]	—	—	—	—	—
Riverside	z.	125·8	31	i 19 4	[0]	—	—	i 23 11	PPP	—
Tucson		130·7	26	i 22 32	?	i 26 39	[+18]	i 22 48	PKS	—

Additional readings :—
Calcutta iS*N = +4m.56s.
Bombay eE = +5m.31s., eSE = +8m.37s., i = +8m.57s. and +9m.40s.
Long waves were also recorded at Kew, Paris, De Bilt, and Scoresby Sund.

June 27d. Readings also at 0h. (near Mizusawa), 2h. (near Lick, San Francisco, Branner, near Bucharest and Warsaw), 5h. (Warsaw, Adelaide, and La Paz), 6h. (Potsdam, Paris, and De Bilt), 7h. (Colombo, Tucson, Santa Clara, Tinemaha, Pasadena, Mount Wilson, and Riverside), 8h. (Triest, Colombo, Toledo, and Tucson), 11h. (near Lick), 12h. (Adelaide, Brisbane, and Riverview), 13h. (Riverview, Toledo, La Paz, Huancayo, and Wellington), 14h. (Adelaide (2), Brisbane, Riverview, Sydney, Medan, Calcutta, Agra, De Bilt, Paris, Kew, Granada, Scoresby Sund, Berkeley, and Pasadena), 15h. (Warsaw and Potsdam), 18h. (Istanbul and Pennsylvania), 19h. (Colombo), 21h. (La Paz), 22h. (near Almata and Salt Lake City (2)), 23h. (Ponta Delgada).

June 28d. 3h. Undetermined shock.

Helwan PEZ = 22m.29s., eZ = 22m.45s., eE = 23m.42s., eZ = 23m.57s.
Istanbul P = 23m.36s., S_g = 24m.52s.
Zurich eP = 24m.53s.
Bucharest eEN = 25m.0s., LE = 25·9m.
Clermont-Ferrand eP = 25m.16s.
Potsdam eZ = 25m.24s., iN = 28m.58s., eE = 31m.48s., eN = 33m.0s.
Uccle ePEZ = 25m.42s., eSE = 29m.42s., eL = 33·0m.
Triest e = 26m.50s.
Warsaw eEN = 28m., eZ = 28m.19s., eLEN = 31·0m.
Kew eEZ = 30m.25s., eN = 35m.0s., eZ = +38m.9s.
De Bilt e = 31m.

June 28d. 17h. 55m. 23s. Epicentre 12°·4N. 92°·5E. (as on 1941, June 27d.).

A = −·0426, B = +·9761, C = +·2134 ; δ = +13 ; h = +6 ;

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Medan		10·7	144	i 2 27	−11	5 36	L	—	—	(5·6)
Kodaikanal	E.	14·9	264	i 3 47	+13	i 6 45	SS	—	—	—
Agra	E.	20·0	320	4 40	+ 3	i 8 26	+ 9	—	—	—
Bombay		20·0	292	i 4 45	+ 8	i 8 41	SS	i 4 58	PP	i 10·1
Andijan		33·3	332	e 6 45	+ 4	e 12 7	+ 5	—	—	—
Almata		33·6	340	e 6 56	+12	—	—	—	—	—
Tashkent		35·2	329	e 7 0	+ 2	e 12 35	+ 4	—	—	—
Irkutsk		40·9	11	e 7 45	− 1	13 59	+ 1	—	—	—
Baku		46·6	314	—	—	e 15 22	+ 1	—	—	—
Helwan		59·0	297	e 10 3	− 1	e 18 7	− 3	e 13 55	PPP	—
Moscow		60·5	328	e 10 14	0	18 28	− 1	—	—	—
Bucharest		64·6	314	e 10 31	−10	19 22	+ 1	—	—	42·6
Pulkovo		65·5	331	e 10 49	+ 2	i 19 31	− 1	—	—	—
Warsaw		68·9	322	e 11 9	0	e 20 13	0	—	—	e 37·6
Potsdam		73·8	322	e 11 37	− 1	i 21 10	+ 1	—	—	e 40·6
Kew		82·2	321	—	—	e 21 38	−61	—	—	e 45·6
Mount Wilson	z.	125·3	31	e 19 2	[0]	—	—	—	—	—
Pasadena	z.	125·3	31	i 19 1	[− 1]	—	—	—	—	—
Riverside	z.	125·8	31	i 19 3	[− 1]	—	—	—	—	—
Tucson		130·7	26	i 19 13	[0]	—	—	—	—	—

Additional readings :—
Bombay iE = +8m.57s., iN = +10m.8s.
Warsaw eE = +20m.16s.
Potsdam eN = +21m.2s., iEN = +21m.22s.
Tucson i = +19m.26s. and +19m.34s.
Long waves were also recorded at Scoresby Sund, Paris, Huancayo, and De Bilt.

June 28d. 23h. 7m. 23s. Epicentre 12°·4N. 92°·5E. (as at 17h.).

$A = -·0426$, $B = +·9761$, $C = +·2134$; $\delta = +13$; $h = +6$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Medan		10·7	144	2 26	−12	—	—	—	—	—
Kodaikanal	E.	14·9	264	i 2 51	−43	e 6 6	−14	—	—	7·4
Agra	E.	20·0	320	e 4 42	+ 5	e 8 17	0	—	—	—
Andijan		33·3	332	6 45	+ 4	—	—	—	—	—
Tashkent		35·2	329	e 7 1	+ 3	e 12 36	+ 5	—	—	—
Moscow		60·5	328	e 10 14	0	e 18 29	0	—	—	—
Pulkovo		65·5	331	e 10 47	0	e 19 30	− 2	—	—	—
Clermont-Ferrand		80·8	315	e 12 17	0	—	—	—	—	—
Tucson		130·7	26	i 19 13	[0]	—	—	e 22 31	PKS	—

Tucson also gives e = +19m.24s.
Long waves were also recorded at Scoresby Sund, Kew, and Bucharest.

June 28d. Readings also at 2h. (Balboa Heights, Columbia, and Huancayo), 4h. (near Andijan), 5h. (Mount Wilson, Pasadena, Riverside, Tinemaha, and Tucson), 13h. (Agra), 15h. (Tucson), 17h. (Algiers), 22h. (Agra).

June 29d. 22h. 6m. 35s. Epicentre 21°·0S. 169°·5E. (as on 1941, April 18d.).

$A = -·9188$, $B = +·1703$, $C = -·3563$; $\delta = +15$; $h = +4$;
$D = +·182$, $E = +·983$; $G = +·350$, $H = -·065$, $K = -·934$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane	N.	16·3	244	i 3 51	− 1	i 6 53	0	—	—	—
Auckland		16·4	165	4 12	+19	7 28	+32	4 21	pP	9·6
New Plymouth		18·4	169	4 25	+ 7	8 2	SS	—	—	—
Tuai		18·9	163	4 28	+ 4	8 7	+14	—	—	—
Riverview		20·6	228	i 4 45	+ 2	i 8 38	+ 9	5 0	pP	e 10·1
Sydney		20·6	228	e 4 40	− 3	i 8 37	+ 8	—	—	—
Wellington		20·7	169	4 45k	+ 1	8 45	+14	4 53	pP	10·6
Christchurch		22·6	174	5 6k	+ 3	9 16	+ 9	i 9 40	SS	11·8
Adelaide		30·5	237	e 7 15	PP	i 11 16	− 2	e 7 27	PPP	15·5
Perth		48·8	246	—	—	i 23 25	?	—	—	i 26·5
Honolulu		52·8	39	—	—	e 21 41	SSS	—	—	24·1
Vladivostok		72·6	333	i 11 28	− 3	i 20 55	− 1	—	—	—
Ukiah		86·8	47	—	—	i 24 40	PPS	—	—	e 36·0
Berkeley		86·8	48	i 11 44	−63	i 23 24	− 1	—	—	e 39·3
Pasadena		87·9	53	e 12 51a	− 2	—	—	—	—	e 40·4
Mount Wilson		88·1	53	i 12 54a	0	—	—	—	—	—
Riverside	Z.	88·4	53	i 12 56	+ 1	—	—	—	—	—
Tinemaha	Z.	89·2	50	e 12 59	0	—	—	—	—	—
Victoria		91·4	39	—	—	e 24 7	0	e 34 35	SSS	35·4
Seattle		91·6	40	—	—	e 35 7	?	—	—	e 37·5
College		91·7	17	—	—	e 25 28	PS	e 37 31	?	e 41·0
Irkutsk		92·3	326	e 13 11	− 2	23 41	[− 5]	e 16 45	PP	—
Tucson		92·7	57	i 13 15	0	—	—	—	—	e 42·8
Salt Lake City		95·3	48	—	—	e 24 12	[+10]	e 24 57	sS	e 40·4
Tashkent		111·0	308	18 52	[+17]	28 38	PS	—	—	—
Sverdlovsk		117·6	324	18 47	[− 1]	25 38	[− 3]	29 44	PPS	—
Ottawa		121·9	49	e 18 54	[− 2]	—	—	—	—	60·4
Philadelphia		122·4	56	—	—	e 37 26	SS	—	—	52·4
Seven Falls		125·2	47	—	—	e 30 55	PS	e 46 49	?	e 62·4
East Machias		127·9	50	—	—	e 46 44	?	—	—	e 54·3
Warsaw		140·4	330	e 21 25	?	i 34 47	PPS	e 22 25?	PP	e 73·4
Helwan		141·4	293	e 16 46	P	e 29 25	{− 4}	e 22 34	PP	—
Bucharest		141·8	317	e 20 25?	[+51]	—	—	—	—	77·4
Potsdam		143·8	335	e 19 33	[− 4]	e 33 1	PS	e 23 2	PKS	e 71·4
Jena		145·5	334	i 19 39	[− 1]	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
De Bilt		146·7	343	i 19 44a	[+ 2]	—	—	—	—	e 73·4
Stuttgart		148·1	336	i 19 47a	[+ 3]	—	—	—	—	—
Uccle		148·1	343	i 19 47	[+ 3]	e 48 31	SSS	23 15	SKP	—
Triest		148·4	328	e 19 35	[−10]	—	—	—	—	—
Kew		148·6	348	i 19 51	[+ 6]	—	—	i 23 30	PP	e 72·4
Chur		149·5	335	e 19 50	[+ 3]	—	—	—	—	—
Zurich		149·5	336	e 19 50a	[+ 3]	—	—	—	—	—
Basle		149·8	336	e 19 50	[+ 3]	—	—	—	—	—
Neuchatel		150·4	336	e 19 52	[+ 4]	—	—	—	—	—
Paris		150·4	342	19 52	[+ 4]	—	—	i 23 29	PP	76·4
Clermont-Ferrand		152·9	338	e 19 52	[0]	—	—	—	—	—
Toledo	z.	160·4	345	20 41	[+40]	—	—	—	—	—
Granada		162·8	342	21 56	?	—	—	e 25 38	PP	—

Additional readings :—
Auckland i = +5m.17s. and +5m.59s.
Riverview i = +8m.44s., sS?NZ = +9m.2s.
Wellington sP?Z = +5m.1s., PPZ = +5m.12s., iZ = +5m.25s. and +5m.48s.
Adelaide eSS = +11m.50s., iQ = +15m.37s.
Berkeley eN = +36m.11s.
Irkutsk SS = +29m.25s.
Tucson i = +13m.21s., e = +13m.46s. and +14m.5s.
Salt Lake City epS = +24m.42s., e = +37m.11s.
Ottawa e = +52m.7s.
Philadelphia e = +46m.48s.
Seven Falls e = +54m.7s.
Warsaw eZ = +23m.5s.
Helwan eZ = +19m.25s., iEZ = +22m.52s. and 23m.10s., eE = +23m.40s.
Potsdam ePKPN = +19m.37s., eE = +21m.25s.
Stuttgart iPKP = +19m.58s.
Clermont-Ferrand e = +20m.11s.
Long waves were also recorded at Upsala, San Juan, Sitka, Scoresby Sund, Butte, Chicago, Columbia, Ferndale, and Harvard.

June 29d. Readings also at 0h. (Medan and near Andijan), 1h. (Balboa Heights), 4h. (St. Louis), 5h. (Christchurch, Apia, Wellington, Sydney, Riverview, Pasadena, Mount Wilson, Riverside, Tinemaha, and Tucson), 6h. (Ukiah, Philadelphia, Chicago, La Paz, Berkeley, and Huancayo), 7h. (De Bilt, Paris, Potsdam, Tashkent, and Kew), 9h. (Lincoln), 17h. (East Machias, Pasadena, Mount Wilson, Riverside, Tinemaha, and Tucson), 18h. (near Lick and Berkeley, Huancayo), 21h. (Seattle, Mizusawa, Philadelphia, and Butte), 22h. (Haiwee, Santa Barbara, Bozeman, Pasadena, Mount Wilson, Riverside, Tinemaha, Tucson, and Toledo (2)), 23h. (Coimbra, Sitka, and Butte).

June 30d. 3h. 13m. 41s. Epicentre 12°·4N. 92°·5E. (as on 28d. 23h.).

A = −·0426, B = +·9761, C = +·2134 ; δ = +13 ; h = +6.

		Δ	Az.	P.	O−C.	S.	O−C.
		°	°	m. s.	s.	m. s.	s.
Medan		10·7	144	2 40	+ 2	5 40	+61
Calcutta	N.	10·8	339	—	—	i 4 31	−11
Agra	E.	20·0	320	i 3 33a	−64	i 7 3	−74
Bombay	E.	20·0	292	e 4 41	+ 4	—	—
Andijan		33·3	332	6 50	+ 9	—	—
Tashkent		35·2	329	e 6 58	0	12 29	− 2
Sverdlovsk		50·6	338	e 9 0	− 2	16 10	− 7
Mount Wilson	z.	125·3	31	e 19 15	[+12]	—	—
Riverside	z.	125·8	31	e 19 17	[+13]	—	—
Tucson		130·7	26	e 19 26	[+13]	—	—

Bombay gives also eE = +1m.49s.

June 30d. 16h. 33m. 53s. Epicentre 15°·5S. 64°·0E. (as on 1939, July 16d.).

$A = +·4226$, $B = +·8665$, $C = -·2656$; $\delta = -4$; $h = +6$;
$D = +·899$, $E = -·438$; $G = -·116$, $H = -·239$, $K = -·964$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tananarive		16·1	255	3 57	+ 8	7 6	+17	4 9	PP	e 8·1
Colombo	E.	27·2	37	6 1	+14	8 34	?	—	—	12·7
Kodaikanal	E.	28·2	28	e 6 43	+47	e 11 12	+31	—	—	14·0
Bombay		35·3	15	e 7 19	+20	i 13 19	+46	—	—	—
Hyderabad	N.	35·7	24	8 18	+76	12 27	−12	11 59	P_cP	15·1
Medan		39·2	63	7 29	− 2	16 55	SS	—	—	—
Batavia	Z.	43·0	82	7 48	−15	—	—	—	—	—
Agra	E.	44·5	18	—	—	i 15 3	+12	—	—	20·9
Calcutta	N.	44·7	33	e 12 59	?	—	—	—	—	—
Helwan		55·7	325	i 9 42k	+ 2	17 52	+26	10 49	pP	—
Ksara		55·9	332	e 9 52	+10	e 18 26	+57	—	—	—
Tashkent		56·7	6	e 9 41	− 7	e 17 12	−28	—	—	—
Baku		57·1	348	e 11 0	?	—	—	—	—	—
Theodosia		65·6	338	e 11 7	+19	19 56	+23	—	—	—
Bucharest		68·9	333	e 11 17	+ 8	—	—	—	—	—
Sofia		68·9	330	e 11 25	+16	e 20 31	+18	—	—	—
Moscow		74·4	346	e 11 41	− 1	—	—	—	—	—
Triest		75·9	326	e 11 58	+ 8	—	—	—	—	—
Warsaw		77·0	335	e 11 55	− 1	e 22 40	PPS	e 15 19	PP	e 34·1
Zurich		78·9	326	e 12 30	+23	—	—	—	—	—
Chur		79·0	326	e 12 5	− 2	—	—	—	—	—
Riverview	E.	79·2	122	—	—	i 22 10	+ 2	i 27 0	SS	—
Pulkovo		79·8	344	—	—	e 22 28	+14	—	—	—
Stuttgart		80·3	327	e 12 18	+ 4	e 22 49	+29	—	—	e 34·1
Jena	N.	80·4	330	e 11 52	−23	—	—	—	—	—
Basle		80·5	325	e 12 29	+14	—	—	—	—	—
Neuchatel		80·5	325	e 12 20	+ 5	—	—	—	—	—
Potsdam		80·6	331	e 12 31	+15	i 22 36	+13	i 22 57	PS	e 50·1
Strasbourg		81·0	327	e 12 47	+29	e 24 7?	?	—	—	—
Clermont-Farrand		82·0	322	e 12 53	+30	—	—	—	—	—
Granada		82·3	312	12 24k	− 1	23 15	+35	—	—	41·2
Copenhagen		83·1	334	e 12 55	+26	23 13	+25	—	—	—
Toledo		83·8	314	e 12 31	− 1	22 45	−10	—	—	36·6
Upsala		83·9	339	e 15 13	PP	e 23 1	+ 5	—	—	e 33·1
Paris		84·0	324	e 12 45	+12	e 23 18	+21	13 7	P_eP	43·1
Uccle		84·0	327	e 12 58	+25	i 23 35	+38	28 55	SS	36·1
De Bilt		84·3	329	i 13 34	+59	e 23 27	+27	e 36 7	?	56·1
Vladivostok		85·1	43	i 12 24	−15	i 23 4	− 4	—	—	—
Kew	Z.	86·9	326	e 13 17	+29	—	—	—	—	e 43·6
Coimbra		87·0	313	e 10 40	?	23 50	+23	—	—	37·1
Lisbon		87·0	311	—	—	24 7	+40	—	—	36·3
Oxford		87·6	326	—	—	i 24 20	+48	—	—	—
Aberdeen		90·6	330	—	—	e 38 0	?	—	—	e 49·0
La Paz	N.	123·1	239	—	—	e 33 37	?	—	—	53·6
East Machias		129·8	316	e 23 7	PKS	e 31 3	PS	e 24 14	PPP	e 57·4
Bermuda		130·6	300	e 23 18	PKS	—	—	—	—	—
Seven Falls		131·2	320	e 23 13	PKS	—	—	—	—	—
Huancayo		131·3	238	e 22 55	PKS	e 39 18	SS	i 54 11	?	—
San Juan		132·3	281	e 22 23	PKS	e 31 2	PS	—	—	e 60·2
Ottawa		135·0	320	e 19 27	[+ 6]	e 23 37	PKS	—	—	—
Philadelphia		136·9	313	e 20 20	PP	e 23 11	PKS	—	—	—
Chicago		144·1	324	e 16 40	?	—	—	—	—	e 63·4
Victoria		146·6	8	e 20 0	[+18]	—	—	—	—	—
Florissant		147·7	321	e 20 3	[+19]	e 41 59	SS	e 35 43	PPS	—
St. Louis	Z.	147·7	321	e 19 41	[− 3]	—	—	—	—	—
Butte		149·4	354	e 21 16	?	e 27 35	PPP	—	—	e 82·5

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Bozeman		149·6	353	e 20 25	PP	—	—	—	—	i 64·3
Salt Lake City		154·6	353	e 21 13	?	e 31 0	(+16)	—	—	e 68·4
Berkeley		157·0	12	e 20 49	[+52]	e 29 43	?	(e 35 37)	PS	e 35·6
Mount Wilson	z.	161·3	5	e 20 6	[+ 4]	—	—	—	—	—
Pasadena	z.	161·3	5	e 20 6	[+ 4]	—	—	—	—	—
Riverside	z.	161·5	5	e 20 1	[− 1]	—	—	—	—	—
Tucson		162·7	345	e 20 1	[− 2]	—	—	e 21 51	PP	e 54·3

Additional readings :—
Tananarive PPP = +4m.15s., SS = +7m.35s.
Bombay eE = +7m.22s., iN = +13m.49s.
Hyderabad SSN = +13m.30s.
Helwan P_cPZ = +10m.14s., sPZ = +11m.23s., PPZ = +12m.13s., PPPE = +13m.49s., sSE = +19m.54s., SSZ = +22m.17s., iE = +24m.34s.
Bucharest eZ = +11m.35s., eE = +11m.41s., eZ = +11m.45s., eE = +12m.59s., eN = +13m.7s.
Sofia eN = +11m.29s., eEN = +15m.25s., eE = +22m.43s.
Warsaw eZ = +12m.17s., eN = +13m.18s., eZ = +14m.2s., eE = +22m.47s. and +23m.57s., eN = +24m.18s., eE = +25m.1s., eN = +26m.46s. and +28m.48s.
Stuttgart e = +12m.47s., iP = +12m.51s.
Potsdam eN = +12m.42s., eE = +13m.7s., iE = +21m.46s., iPPSE = +23m.1s., iN = +23m.9s., iE = +23m.58s. and +25m.29s.
Toledo S = +23m.11s.
Upsala eN = +23m.17s.
Kew eZ = +13m.22s., iPZ = +13m.43s., Z = +14m.7s., +14m.14s., and +14m.41s., iZ = +17m.9s. and +17m.39s., eZ = +18m.9s., Z = +18m.29s., +19m.7s., +20m.9s., +37m.28s., and +38m.25s.
Coimbra S = +21m.20s., ? = +31m.50s.
Philadelphia e = +23m.32s. and +24m.9s.
Chicago ePP = +20m.19s., e = +20m.27s.
Florissant eN = +30m.40s., eE = +30m.46s.
St. Louis eZ = +20m.10s., iZ = +20m.36s.
Bozeman e = +20m.49s.
Tucson i = +20m.11s., +20m.39s., +21m.7s., and +21m.39s.
Long waves were also recorded at Prague, La Plata, San Fernando, Columbia, Ukiah, and Lincoln.

June 30d. 17h. 4m. 16s. Epicentre 26°·0N. 113°·0W. Approximate.

A = −·3517, B = −·8284, C = +·4360 ; δ = +4 ; h = +3 ;
D = −·921, E = +·391 ; G = −·170, H = −·401, K = −·900.

	△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tucson	6·5	16	i 1 36	− 3	i 2 25	−30	—	—	i 3·0
Riverside	8·8	337	i 2 10	− 1	i 3 48	− 5	—	—	—
Mount Wilson	9·3	334	e 2 15	− 2	e 4 2	− 3	—	—	—
Pasadena	9·3	334	e 2 17	0	i 4 6	+ 1	—	—	—
Santa Clara	13·6	321	i 2 29	−48	—	—	—	—	e 6·6
Bozeman	19·7	5	i 4 36	+ 2	e 8 7	− 3	—	—	e 9·6
Butte	20·0	4	e 4 39	+ 2	8 12	− 5	—	—	e 11·3
Cape Girardeau	22·9	56	—	—	e 9 31	+18	—	—	e 12·0
Florissant	22·9	51	e 5 37	PP	e 9 35	SS	—	—	12·5
St. Louis	22·9	51	e 5 31	PP	e 9 31	SS	—	—	—
Chicago	26·2	46	—	—	e 10 28	+19	—	—	e 13·7
Ottawa	35·5	48	e 7 16	+16	—	—	e 9 32	i	28·7
Seven Falls	39·3	47	—	—	e 14 32	+58	—	—	e 20·8
Bermuda	42·4	70	e 9 30	PP	—	—	—	—	e 24·4
San Juan	43·9	90	e 9 54	PP	—	—	—	—	e 24·2

Additional readings :—
Tucson iZ = +1m.54s. and +2m.12s., i = +2m.35s. and +2m.41s.
Bozeman e = +4m.48s., +5m.34s., and +6m.49s.
Florissant ePZ = +5m.41s., iEN = +12m.1s.
San Juan e = +12m.48s. and +15m.55s.
Long waves were also recorded at other American stations.

June 30d. 18h. 23m. 33s. Epicentre 12°·4N. 92°·5E. (as at 3h.).

$A = -\cdot0426$, $B = +\cdot9761$, $C = +\cdot2134$; $\delta = +13$; $h = +6$;

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Medan		10·7	144	2 32	− 6	—	—	—	—	—
Calcutta	N.	10·8	339	i 2 47k	+ 8	i 4 44	+ 2	—	—	—
Colombo	E.	13·6	248	3 16	− 1	5 36	−14	—	—	—
Hyderabad	N.	14·4	292	—	—	6 19	+10	—	—	—
Kodaikanal	E.	14·9	264	e 3 35	+ 1	e 6 34	+14	—	—	8·1
Agra	E.	20·0	320	i 4 38k	+ 1	i 8 3	−14	4 46	pP	—
Bombay		20·0	292	e 4 37	0	i 8 20	+ 3	14 52	PP	e 10·0
Dehra Dun	N.	22·3	326	e 5 12	+11	e 7 26	?	—	—	e 9·4
Batavia	Z.	23·3	142	5 8	− 2	—	—	—	—	—
Andijan		33·3	332	e 6 43	+ 2	e 12 18	+16	—	—	—
Almata		33·6	340	6 47	+ 3	—	—	—	—	—
Tashkent		35·2	329	i 7 0	+ 2	e 12 38	+ 7	—	—	—
Irkutsk		40·9	11	e 7 45	− 1	e 13 55	− 3	—	—	—
Baku		46·6	314	e 8 38	+ 6	e 15 45	+24	—	—	—
Grozny		50·6	316	9 7	+ 5	—	—	—	—	—
Sverdlovsk		50·6	338	i 9 3	+ 1	i 16 15	− 2	—	—	—
Theodosia		58·2	316	9 59	+ 1	18 3	+ 4	—	—	—
Moscow		60·5	328	i 10 12	− 2	18 26	− 3	—	—	—
Bucharest		64·6	314	e 10 43	+ 2	e 19 23	+ 2	—	—	43·4
Pulkovo		65·5	331	10 45	− 2	19 29	− 3	—	—	—
Warsaw		68·9	322	e 11 8k	− 1	e 20 12	− 1	—	—	e 39·4
Riverview	E.	72·3	132	—	—	e 20 45	− 7	—	—	e 40·6
Potsdam		73·8	322	e 11 37	− 1	i 21 7	− 2	—	—	e 37·4
Copenhagen		74·2	325	i 11 40	0	21 14	0	—	—	—
Chur		76·3	316	e 11 51	− 1	—	—	—	—	—
Stuttgart		76·4	318	e 11 52k	− 1	—	—	e 14 27	PP	—
Zurich		76·9	316	e 11 55k	− 1	—	—	—	—	—
Basel		77·5	316	e 11 56	− 3	—	—	—	—	—
Neuchatel		78·0	316	e 12 1	− 1	—	—	—	—	—
Uccle		79·3	320	e 12 9	0	e 22 3	− 6	e 15 5	PP	—
Clermont-Ferrand		80·8	315	e 12 16	− 1	—	—	—	—	—
Paris		80·8	318	e 12 16	− 1	—	—	—	—	49·4
Kew	Z.	82·2	321	i 12 23	− 1	e 22 27?	−12	i 15 42	PP	e 38·4
Ottawa		121·5	349	e 18 54	[− 2]	—	—	—	—	59·4
Tinemaha	Z.	122·9	29	e 18 54	[− 4]	—	—	—	—	—
Mount Wilson	Z.	125·3	31	e 19 1	[− 2]	—	—	—	—	—
Pasadena	Z.	125·3	31	e 19 2	[− 1]	—	—	—	—	—
Riverside	Z.	125·8	31	i 19 3	[− 1]	—	—	—	—	—
Tucson		130·7	26	i 19 12	[− 1]	—	—	i 22 31	PP	—

Additional readings :—
Calcutta eS*N = +5m.26s., iS_e = +5m.56s., eP_cPN = +8m.59s.
Agra sSE = +8m.11s., sSN = +8m.15s.
Bombay iPE = +4m.43s., iN = +5m.30s., eN = +6m.46s. and +8m.25s., iP_cP = +8m.30s., iN = +8m.41s.
Bucharest eZ = +10m.59s.
Warsaw eZ = +11m.20s., eE = +20m.21s.
Potsdam eE = +21m.27s.
Copenhagen i = +11m.52s.
Kew iP_cPZ = +12m.35s.
Long waves were also recorded at Aberdeen, De Bilt, Upsala, Philadelphia, and Huancayo.

June 30d. Readings also at 0h. (Philadelphia, East Machias, and Chicago U.S.C.G.S.), 8h. (Potsdam), 9h. (Mount Wilson, Riverside, Pasadena, Tinemaha, and Tucson), 15h. (Tucson), 16h. (Pittsburgh and Tucson), 17h. (Pasadena), 18h. (Santa Clara), 19h. and 22h. (Tucson), 23h. (Bucharest).

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A digital hypocenter file of the ISS (Villaseñor and Engdahl, 2005) can be obtained from the USGS web site: http://earthquake.usgs.gov/scitech/iss/

Villaseñor, A., and E.R. Engdahl, *A digital hypocenter catalog for the International Seismological Summary,* Seism. Res. Lett., vol. 76, no. 5, pp. 554-559, 2005.

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