The International Seismological Summary.
1942 July, August, September.

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 third quarter of 1942 contains 108 epicentres, 76 of which are repetitions from previous determinations.

Cases of abnormal focal depth are noted below :—

July	4d.	1h.	0·8N.	80·5W.	Suggested Deep.
	4d.	18h.	51·5N.	173·5W.	,,
	7d.	2h.	21·0S.	178·0W.	0·040
	7d.	12h.	0·8N.	80·5W.	Suggested Deep.
	8d.	6h.	24·7S.	70·2W.	,,
	12d.	5h.	0·0	80·0W.	,,
	17d.	10h.	48·2N.	9·2E.	,,
	17d.	10h.	48·2N.	9·2E.	,,
	21d.	7h.	20·5S.	64·0W.	0·080
	21d.	8h.	14·0S.	77·0W.	Suggested Deep.
	25d.	6h.	11·8N.	125·1E.	0·010
	27d.	11h.	43·0N.	147·2E.	0·020
Aug.	3d.	20h.	26·0S.	173·0W.	0·005
	8d.	0h.	41·9N.	143·6E.	0·020
	13d.	19h.	10·4S.	77·2W.	0·010
	22d.	19h.	13·9N.	90·8W.	Suggested Deep.
	23d.	6h.	53·7N.	163·4E.	,,
	24d.	22h.	15·1S.	75·0W.	,,
	25d.	13h.	Undetermined shock suggested Deep.		
	29d.	0h.	53·6N.	159·5E.	0·005
	29d.	21h.	13·9N.	90·8W.	Suggested Deep.

Sept.	6d.	15h.	28·0S.	70·0W.	Base of Superficial Layers.
	8d.	16h.	36·5N.	141·6E.	Suggested Deep.
	9d.	1h.	53·5N.	165·9W.	,,
	14d.	11h.	22·0S.	171·7E.	,,
	17d.	11h.	49·5N.	151·0E.	0·030
	20d.	23h.	13·7S.	167·2E.	Suggested Deep.

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 administration.

December, 1952.

KEW OBSERVATORY,
RICHMOND, SURREY.

1942 JULY, AUGUST, SEPTEMBER.

July 1d. 21h. 33m. 39s. Epicentre 0°·4N. 80°·4W. (as on 1942 June 7d.).

$A = +·1668$, $B = -·9860$, $C = +·0070$; $\delta = +7$; $h = +7$;
$D = -·986$, $E = -·167$; $G = +·001$, $H = -·007$, $K = -1·000$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		13·3	158	e 3 19	+ 6	e 6 12	SSS	—	—	e 7·1
La Paz	N.	20·7	146	i 4 52k	+ 8	i 8 52	+21	—	—	12·1
San Juan		22·7	37	e 5 3	− 1	e 9 11	+ 2	—	—	10·1
St. Louis	N.	39·1	348	e 7 23	− 8	e 13 21	−10	e 8 53	PP	—
Florissant	N.	39·3	348	i 7 31	− 1	e 13 34	0	i 9 4	PP	—
Philadelphia		39·7	8	e 7 35	− 1	13 36	− 4	—	—	e 15·9
Tucson		42·7	322	e 8 1	+ 1	e 14 17	− 7	e 9 44	PP	e 21·8
Rio de Janeiro	N.	42·9	126	e 11 51	?	—	—	—	—	—
Riverside	Z.	48·1	318	e 8 43	0	—	—	—	—	—
Mount Wilson	Z.	48·7	318	i 8 48	0	—	—	—	—	—
Pasadena	Z.	48·7	318	e 8 47	− 1	—	—	—	—	e 24·4
Tinemaha	Z.	50·5	321	e 9 2	0	—	—	—	—	—

Tucson also gives e = 9m.16s.
Long waves were also recorded at La Plata and Kew.

July 1d. 23h. 42m. 46s. Epicentre 46°·3N. 7°·4E. (as on 1939 Dec. 25d.).

Intensity V in the province of Enhaut, III-IV at Unterwallis, Simmental, and Fribourg; II-III at Lucerne. Epicentre 46°·4N. 70°·3E. Radius of macroseismic area 60km.

E. Wanner.
Jahresbericht des Erdbebendienstes der Schweiz im Jahre 1942, p.2, macroseismic chart, fig. 1.

$A = +·6875$, $B = +·0893$, $C = +·7206$; $\delta = -10$; $h = -4$;
$D = +·129$, $E = -·992$; $G = +·715$, $H = +·093$, $K = -·693$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Neuchatel		0·7	336	e 0 11	P_g	e 0 18	S_g	—	—	—
Basle		1·3	6	e 0 23	− 2	e 0 38	− 6	—	—	—
Zurich		1·3	37	e 0 27	+ 2	e 0 44	0	—	—	—
Chur		1·6	69	e 0 33	+ 3	i 0 58	S*	—	—	—
Ravensburg		2·1	45	e 0 46	P_g	i 1 3	− 1	i 1 10	S_g	i 1·4
Ebingen		2·2	29	—	—	e 1 6	0	e 1 12	S_g	—
Strasbourg		2·3	6	e 0 44	P*	i 1 11	+ 2	e 1 23	S_g	—
Stuttgart		2·7	26	e 0 43	− 2	i 1 28	S_g	e 0 52	P_g	i 1·5
Clermont-Ferrand		3·0	260	e 0 56	+ 6	i 1 37	S_g	—	—	—
Uccle		4·9	337	e 1 32	P*	i 2 34	S*	—	—	e 3·1
Jena	E.	5·4	30	e 1 40	P*	e 2 35	+ 7	e 1 50	P_g	i 2·8
	N.	5·4	30	e 1 45	P_g	e 2 38	S*	—	—	i 2·8
Potsdam		7·1	29	—	—	e 3 55	S_g	—	—	e 4·0

Stuttgart also gives i = 0m.46s., 0m.56s., 1m.8s., and 1m. 14s.
Long waves also recorded at De Bilt.

July 1d. Readings also at 4h. (Pasadena, Riverside, Tucson, and near Balboa Heights), 11h. (Pasadena, Mount Wilson, Riverside, Tinemaha, Tucson, and Granada), 12h. (Stuttgart), 15h. (Agra), 17h. (near Tokyo Imp. Univ. and Mitaka), 19h. and 21h. (Tacubaya), 22h. (Agra), 23h. (Pasadena, Mount Wilson, Riverside, Tinemaha, Haiwee, Santa Barbara, Tucson, near Stuttgart, near Algiers, and near Berkeley(3)).

July 2d. 7h. 52m. 1s. Epicentre 0°·4N. 80°·4W. (as on 1d.).

$A = +\cdot1668$, $B = -\cdot9860$, $C = +\cdot0070$; $\delta = +7$; $h = +7$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		13·3	158	e 3 19	+ 6	e 6 16	SSS	e 4 16	PPP	i 7·5
La Paz		20·7	146	i 4 49a	+ 5	i 8 51	SS	—	—	12·2
San Juan		22·7	37	e 5 5	+ 1	e 9 12	+ 3	—	—	e 20·2
St. Louis	N.	39·1	348	e 9 7	PP	e 13 30	− 1	—	—	—
Florissant	N.	39·3	348	e 7 26	− 6	i 13 57	+23	i 9 2	PP	—
Philadelphia		39·7	8	e 8 18	+42	e 13 32	− 8	—	—	e 16·4
Tucson		42·7	322	i 7 59	− 1	e 14 26	+ 2	e 9 28	PP	22·9
Rio de Janeiro	N.	42·9	126	e 14 39	S	(e 14 39)	+12	—	—	—
La Jolla	Z.	47·4	317	e 8 36	+ 2	—	—	—	—	—
Riverside	Z.	48·1	318	i 8 42	− 1	—	—	—	—	—
Mount Wilson	Z.	48·7	318	i 8 48	0	—	—	—	—	—
Pasadena		48·7	318	i 8 47	− 1	—	—	—	—	e 24·5
Santa Barbara	Z.	50·0	317	e 8 58	0	—	—	—	—	—
Tinemaha	Z.	50·5	321	i 9 1	− 1	—	—	—	—	—

Florissant also gives eN =13m.4s.

July 2d. Readings also at 0h. (near Berkeley), 5h. (Mount Wilson, Riverside, Tucson, and Tinemaha), 6h. (Copenhagen), 8h. (Pasadena, Mount Wilson, Riverside, Tucson, Santa Barbara, Tinemaha, San Juan, La Paz, Huancayo, and Berkeley), 13h. (Tacubaya, Ksara, Huancayo, La Paz, and near Berkeley), 14h. (Pasadena, Mount Wilson, Riverside, Tinemaha, Tucson, San Juan, Rio de Janeiro, and Kew), 16h. (La Paz), 17h. (near Mizusawa (2)), 19h. (near Lick), 21h. (near Florissant), 23h. (Stuttgart, Tucson, Pasadena, and Riverside).

July 3d. 2h. 50m. 23s. Epicentre 27°·0N. 66°·5E. (as on 1938 Mar. 13d.).

$A = +\cdot3558$, $B = +\cdot8182$, $C = +\cdot4516$; $\delta = -1$; $h = +3$;
$D = +\cdot917$, $E = -\cdot399$; $G = +\cdot180$, $H = +\cdot414$, $K = -\cdot892$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Bombay	N.	10·0	142	e 2 5	−22	e 4 27	+ 5	i 2 38	PP	—
Agra		10·3	86	i 2 22a	−10	4 16	−14	4 59	SSS	—
Dehra Dun	N.	10·7	69	e 2 30	− 8	(i 4 7)	−32	—	—	i 4·1
Stalinabad		11·7	9	e 3 1	+10	—	—	—	—	—
Andijan		14·5	18	e 3 35	+ 7	6 29	+18	—	—	—
Tashkent		14·5	9	3 31	+ 3	—	—	—	—	—
Hyderabad		14·6	129	3 2	−28	5 49	−24	—	—	6·9
Kodaikanal	E.	19·6	147	e 4 19	−13	i 7 54	−14	—	—	—
Calcutta	E.	20·3	98	e 4 52	+12	e 8 42	+19	—	—	—
Colombo	E.	23·7	146	—	—	9 5	−22	—	—	—
Ksara		27·2	292	e 5 50	+ 3	e 11 4	SS	12 40	SSS	—
Sverdlovsk		30·1	355	6 14	+ 1	11 14	+ 2	—	—	—
Helwan		31·0	285	i 6 19a	− 2	11 49	+23	7 22	PP	16·0
Bucharest		36·7	310	e 7 13	+ 3	13 0	+ 6	e 8 32	PP	18·6
Sofia		38·3	306	e 7 24	0	e 14 1?	+42	—	—	—
Triest		45·5	310	i 8 21	− 2	i 15 6	+ 1	e 10 1	PP	—
Prague		45·7	316	e 9 7	+43	e 19 1?	SSS	—	—	24·6
Upsala		46·7	329	e 10 23?	PP	e 15 19?	− 3	e 18 37?	SS	e 24·6
Potsdam		46·9	319	e 8 34	0	i 15 29	+ 4	e 19 13	SS	e 24·6
Cheb		47·0	315	e 8 37	+ 2	e 15 34	+ 8	19 42	SSS	e 32·6
Jena	E.	47·6	316	e 8 37	− 2	e 15 37?	+ 2	—	—	e 18·6
Copenhagen		48·0	323	e 8 42	− 1	15 46	+ 5	10 39	PP	23·6
Chur		48·5	310	8 45	− 1	—	—	—	—	e 31·1
Stuttgart		48·9	313	8 46	− 4	e 15 49?	− 4	i 10 46	PP	e 30·1
Zurich		49·2	311	e 8 49k	− 3	—	—	—	—	—
Basle		49·9	311	e 8 54	− 3	—	—	—	—	—
Neuchatel		50·3	310	e 8 59	− 1	e 16 12	− 1	—	—	—
De Bilt		51·7	318	i 9 14k	+ 3	i 16 42	+10	—	—	e 28·6
Uccle		52·2	316	e 9 13	− 2	16 43	+ 4	—	—	e 24·6
Clermont-Ferrand		53·0	309	e 9 20	− 1	e 17 9	+19	—	—	e 28·6

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Paris		53·3	313	e 12 56	PPP	—	—	—	—	e 31·7
Algiers		53·9	297	i 9 33	+ 6	e 17 18	+16	e 14 12	?	—
Kew		55·1	316	i 9 39k	+ 3	17 42	+24	e 11 37	PP	28·6
Aberdeen		56·2	323	e 18 37	PPS	—	—	—	—	i 33·6
Stonyhurst		56·4	319	i 16 12	?	i 17 52	+16	18 19	PPS	33·5
Granada		59·0	299	i 10 1	− 3	18 12	+ 2	11 5	pP	35·1
San Fernando		61·2	299	e 10 11	− 8	18 39	+ 1	—	—	—
College		84·6	14	—	—	e 22 50	−13	e 28 39	SS	e 36·6
Seven Falls		96·8	332	—	—	e 24 37	−17	—	—	41·6
Ottawa		100·2	334	—	—	e 24 7?	[−21]	—	—	e 47·6
Riverview	N.	100·4	122	—	—	e 35 37?	SSS	—	—	e 46·9
Victoria		104·3	6	—	—	e 29 37?	?	—	—	53·6
Philadelphia		104·4	330	—	—	e 24 48	[0]	e 38 24	SSS	e 43·5
Bozeman		107·6	358	—	—	e 24 56	[− 6]	—	—	44·9
Florissant	E.	111·0	341	e 18 39	[+ 4]	—	—	—	—	i 58·6
Salt Lake City		112·6	358	e 20 31	?	e 37 32	?	e 30 10	PPS	e 59·2
Mount Wilson	z.	119·0	4	e 20 4	PP	—	—	—	—	—
Tucson		121·0	357	e 18 54	[− 1]	e 29 56	PS	e 20 27	PP	e 49·7
La Paz		136·8	274	i 22 17	PP	—	—	—	—	75·1

Additional readings :—
Bombay ePE = 2m.8s., iP*?N = 2m.23s., iP$_g$?NE = 2m.57s., iSN = 3m.35s., iE = 3m.43s., iN = 3m.48s., iS*?N = 4m.3s., iE = 4m.17s.
Agra iP*? = 2m.53s.
Helwan eZ = 8m.10s., and 9m. 27s., eN = 12m.52s., SSN = 13m.41s.
Bucharest ePPE = 8m.35s., eP$_c$P?N = 9m.24s., eP$_c$PE = 9m.29s., iSS?N = 15m.13s., eSSE = 15m.21s., eS$_c$S?N = 17m.13s.
Triest iSSS = 19m.4s.
Upsala eE = 15m.25s.?.
Potsdam iPE = 8m.37s., ePN = 8m.41s., eSE = 15m.37s., ePPSZ = 15m.55s., iEN = 16m.11s., eE = 19m.37s., eSSSZ = 20m.13s.
Jena ePN = 8m.40s., iPN = 8m.43s.?, eS?N = 15m.57s.
Copenhagen 19m.40s.
Stuttgart i = 8m.50s. and 9m.6s., e = 9m.28s., iP$_c$P = 10m.11s., c = 16m.11s., and 18m.55s.
Kew eZ = 9m.50s., ePPPZ = 12m.57s.?, eP$_c$S?Z = 14m.27s.?, eSSNZ = 24m.37s.
Granada P$_c$P = 10m.25s., iS$_c$P = 14m.5s., P$_c$S = 14m.20s., sS = 19m.0s., S$_c$S = 19m.56s.
College e = 30m.39s.
Riverview eN = 44m.1s.?.
Florissant eE = 23m.18s. and 49m.44s.
Tucson e = 28m.59s.
Long waves were also recorded at Ivigtut, Huancayo, San Juan, Auckland, and other American stations.

July 3d. 23h. 46m. 23s. Epicentre 0°·4N. 80°·4W. (as on 2d.).

$A = +\cdot1668$, $B = -\cdot9860$, $C = +\cdot0070$; $\delta = +7$; $h = +7$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		13·3	158	3 16	+ 3	e 5 41	− 1	4 5	PPP	e 6·9
La Paz	z.	20·7	146	i 4 48	+ 4	i 8 48	+17	—	—	11·8
San Juan		22·7	37	e 5 9	+ 5	i 9 13	+ 4	—	—	e 10·2
Columbia		33·4	358	—	—	e 11 52	−11	—	—	e 15·9
St. Louis	N.	39·1	348	e 8 40	PP	e 13 24	− 7	9 44	PPP	e 16·9
Philadelphia		39·7	8	e 10 37	?	e 13 37	− 3	—	—	e 16·3
Tucson		42·7	322	e 7 58	− 2	e 14 26	+ 2	—	—	e 22·9
Rio de Janeiro	N.	42·9	126	—	—	e 18 5	SS	—	—	22·6
Ottawa		45·0	5	e 7 13	?	—	—	(14 37)	PS	14·6
La Jolla	z.	47·4	317	i 8 37	− 1	—	—	—	—	—
Riverside	z.	48·1	318	e 8 37	− 6	—	—	—	—	—
Pasadena		48·7	318	i 8 46	− 2	—	—	—	—	e 24·1
Tinemaha	z.	50·5	321	e 9 0	− 2	—	—	—	—	—

Huancayo also gives eS = 6m.17s.
Long waves were also recorded at La Plata, Granada, and other American stations.

July 3d. Readings also at 2h. (De Bilt, Stuttgart, and Uccle), 3h. (Agra, Tananarive, Bombay, Strasbourg, Potsdam, Stuttgart (2), and Rio de Janeiro), 4h. (Lick, Bombay, Agra, Bucharest, Potsdam, Jena, Stuttgart, Neuchatel, Zurich, Chur, Basle, Triest, Belgrade, and Sofia), 5h. (Lick (2), and near Berkeley), 10h. (near Mizusawa), 13h. (Agra, Bombay, Tucson, Pasadena, Riverside, Tinemaha, and Granada), 14h. (Potsdam, Bucharest, and near Berkeley), 16h. (Bombay), 18h. (Pasadena, Riverside, La Paz, Tucson, Tinemaha, Huancayo, and near Ferndale), 21h. Pasadena, Riverside, Tucson, La Paz, Huancayo, San Juan, and near Berkeley), 22h. (near Tucson).

July 4d. 0h. 15m. 14s. I. } Epicentre 0°·8N. 80°·5W.
0h. 40m. 34s. II } (as on 1942 June 16d.).

$A = +·1650$, $B = -·9862$, $C = +·0138$; $\delta = +1$; $h = +7$;
$D = -·986$, $E = -·165$; $G = +·002$, $H = -·014$, $K = -1·000$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
I	Huancayo		13·7	158	e 3 25	+ 7	—	—	—	e 7·2
II			13·7	158	e 2 1	?	e 5 35	−17	—	—	e 6·5
I	La Paz		21·1	146	e 4 51	+ 3	i 8 46	+ 7	—	—	11·5
II		N.	21·1	146	i 4 53	+ 5	i 8 52	+13	—	—	13·0
I	San Juan		22·5	39	e 5 12	+10	e 9 14	+ 9	—	—	e 10·0
II			22·5	39	e 4 59	− 3	e 9 8	+ 3	—	—	e 10·0
I	St. Louis	N.	38·7	348	e 8 57	PP	e 13 23	− 2	—	—	—
II		N.	38·7	348	e 8 59	PP	e 13 29	+ 4	—	—	—
I	Tucson		42·4	322	e 7 52	− 6	—	—	—	—	e 22·9
II			42·4	322	e 7 59	+ 1	—	—	—	—	e 23·7
I	Riverside	Z.	47·8	318	e 8 37	− 4	—	—	—	—	—
II		Z.	47·8	318	i 8 41	0	—	—	—	—	—
I	Pasadena	Z.	48·4	318	i 8 43	− 3	—	—	—	—	—
II			48·4	318	i 8 46	0	—	—	—	—	—
II	Salt Lake City		48·9	330	e 8 49	− 1	—	—	—	—	e 28·8
II	Tinemaha	Z.	50·2	321	e 9 0	0	—	—	—	—	—

Additional readings :—
Huancayo I e = 3m.46s., 4m.26s., and 6m.9s., II e = 4m.46s.
Long waves to shock II recorded at Rio de Janeiro.

July 4d. 1h. 53m. 7s. Epicentre 0°·8N. 80°·5W. (as at 0h.).

Strong. Epicentre 0°·3N. 80°·2W. Depth 500km.?.
Mapa sismico y tectonico de Columbia. Banco de la Republica. Bol. grafico 7, Feb. 1947.

$A = +·1650$, $B = -·9862$, $C = +·0138$; $\delta = +1$; $h = +7$;
$D = -·986$, $E = -·165$; $G = +·002$, $H = -·014$, $K = -1·000$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Balboa Heights		8·2	6	e 2 3	0	e 3 30	− 8	—	—	—
Huancayo		13·7	158	i 3 19	+ 1	i 6 10	+18	e 3 50	PP	e 6·8
La Paz		21·1	146	i 4 50a	+ 2	i 8 44	+ 5	—	—	11·6
Merida	N.	21·9	338	e 4 46	−11	—	—	—	—	—
San Juan		22·5	39	i 5 4	+ 2	i 9 12	+ 7	—	—	e 9·5
Fort de France		23·6	56	i 5 14	+ 1	i 9 36	+11	5 44	PP	—
Tacubaya	N.	26·0	317	e 5 43	+ 7	—	—	—	—	—
Columbia		33·0	359	e 6 39	0	e 11 59	+ 2	—	—	e 15·6
St. Louis		38·7	348	i 7 27	0	i 13 21	− 4	i 8 59	PP	—
Florissant		38·9	348	i 7 28	− 1	i 13 26	− 2	i 9 0	PP	—
Philadelphia		39·3	9	e 7 31	− 1	13 34	0	e 9 10	PP	e 18·1
Pittsburgh		39·5	2	e 7 14	−20	e 13 17	−20	—	—	—
Fordham		40·3	10	e 7 40	0	i 13 52	+ 3	i 18 20	SS	—
La Plata		41·3	152	7 46	− 3	13 53?	−11	9 41?	PP	20·6
Chicago		41·3	352	e 7 45	− 4	e 13 52	−12	e 9 35	PP	e 16·8

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Harvard		42·3	12	i 7 59	+ 2	e 14 21	+ 2	e 17 53	ScS	—
Tucson		42·4	322	i 7 58	0	e 14 23	+ 3	e 9 40	PP	e 17·7
Lincoln		42·5	344	e 8 5	+ 6	e 14 8	−14	—	—	e 17·8
Rio de Janeiro	N.	43·3	126	e 9 48	PP	e 14 21	−12	—	—	e 16·9
Vermont		44·0	9	e 8 24	+13	14 47	+ 4	e 17 18	?	e 18·2
Ottawa		44·6	6	8 14	− 2	14 55	+ 3	10 1	PP	21·9
Seven Falls		46·9	10	8 35?	+ 1	15 33	+ 8	—	—	18·9
La Jolla	Z.	47·0	317	e 8 35	0	—	—	—	—	—
Riverside	Z.	47·8	318	i 8 41	0	i 12 46	?	—	—	—
Pasadena		48·4	318	i 8 45	− 1	i 15 48	+ 2	i 10 44	PP	e 23·5
Salt Lake City		48·9	330	e 8 51	+ 1	e 15 56	+ 3	e 11 12	PP	e 20·0
Haiwee		49·4	321	e 8 57	+ 4	—	—	—	—	—
Santa Barbara		49·6	317	e 8 59	+ 4	—	—	—	—	—
Logan		49·6	331	e 8 58	+ 3	e 16 7	+ 4	e 19 43	SS	e 26·1
Tinemaha	Z.	50·2	321	e 9 0	0	—	—	—	—	—
Bozeman		52·2	335	e 9 14	− 1	e 16 32	− 7	e 12 19	PP	e 25·0
Lick	N.	52·5	319	e 9 19	+ 2	—	—	—	—	—
Santa Clara		52·7	319	e 9 21	+ 3	e 16 56	+10	e 20 53	SS	e 26·3
Butte		53·1	334	e 9 22	+ 1	e 17 4	+13	e 11 26	PP	e 30·2
Berkeley		53·2	319	i 9 23	+ 1	e 16 57	+ 5	i 11 27	PP	e 26·4
Ukiah		54·5	321	e 9 29	− 3	e 17 13	+ 3	e 10 58	PP	e 26·2
Victoria		60·2	329	10 17	+ 5	18 29	+ 4	—	—	31·9
San Fernando		76·9	53	e 11 56	0	e 21 48	+ 5	e 14 48	PP	—
Granada		79·1	53	i 12 10	+ 2	i 22 9	+ 2	15 6	PP	36·8
Scoresby Sund		79·1	18	e 12 6	− 2	e 22 9	+ 2	e 28 21	SS	e 34·1
Stonyhurst		82·3	37	e 12 33	+ 8	i 22 46	+ 6	—	—	42·4
Kew	Z.	83·3	40	e 12 31	+ 1	e 22 53?	+ 3	e 23 43?	PS	—
Clermont-Ferrand		85·0	45	e 12 43	+ 5	e 23 14	+ 7	—	—	—
Uccle		86·1	40	e 12 45	+ 1	e 23 9	[+ 1]	—	—	e 40·9
De Bilt		86·7	38	i 12 50	+ 3	e 23 13	[+ 1]	—	—	e 41·9
Stuttgart		89·2	42	e 13 1	+ 2	—	—	16 17?	PP	—
Copenhagen		91·0	35	e 13 23	+16	24 10	+ 7	23 40	SKS	—
Cheb		91·3	40	—	—	e 23 48	[+ 7]	—	—	e 45·9
Potsdam		91·6	38	e 13 10	0	e 23 43	[+ 1]	e 16 53	PP	e 43·9
Triest		92·4	45	e 13 9	− 5	i 23 48	[+ 1]	e 16 11	PP	—
Bucharest		101·3	45	e 16 59?	PP	e 24 35	[+ 2]	—	—	34·9

Additional readings :—
La Paz iZ = 9m.0s. and 9m.38s.
Fort de France PPP = 5m.58s., SS = 10m.15s., SSS = 10m.24s.
St. Louis iN = 7m.43s., esSE = 16m.3s.
Florissant esSE = 15m.54s.
Philadelphia e = 14m.48s.
La Plata PE = 7m.49s., PPPN = 10m.36s., SE = 14m.35s.?
Tucson e = 9m.11s. and 10m.26s.
Rio de Janeiro eSE = 14m.25s.
Ottawa SS = 18m.29s.?
Pasadena eSSE = 19m.29s.
Logan i = 9m.9s.
Bozeman e = 11m.3s. and 20m.31s.
Lick eN = 9m.33s.
Butte ePPP = 12m.33s., e = 20m.56s.
Berkeley iSSN = 20m.59s.
Ukiah e = 21m.10s.
Granada SSS = 30m.33s.
Scoresby Sund e = 23m.32s.
Stuttgart e = 13m.15s.
Copenhagen = 25m.18s.
Potsdam eE = iZ = 13m.25s., ePPE = 17m.4s., iSEN = 24m.15s.
Long waves were also recorded at Tananarive.

July 4d. 4h. 59m. 32s. Epicentre 0°·8N .80°·5W. (as at 1h.).

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		13·7	158	e 3 17	− 1	e 6 11	+19	—	—	i 6·6
La Paz		21·1	146	i 4 50a	+ 2	i 8 44	+ 5	—	—	12·0
Merida	N.	21·9	338	e 4 41	−16	—	—	—	—	—
San Juan		22·5	39	e 4 58	− 4	i 9 9	+ 4	—	—	e 9·8
Fort de France		23·6	56	e 5 12	− 1	i 9 34	+ 9	—	—	—
Columbia		33·0	359	—	—	(e 11 53)	− 4	—	—	e 11·9
St. Louis		38·7	348	e 7 33	+ 6	—	—	—	—	—
Tucson		42·4	322	e 7 56	− 2	—	—	e 9 38	PP	e 20·4
Ottawa		44·6	6	e 8 14	− 2	(15 28?)	+36	—	—	15·5
La Jolla		47·0	317	e 8 35	0	—	—	—	—	—
Riverside		47·8	318	i 8 41	0	—	—	—	—	—
Pasadena		48·4	318	i 8 45	− 1	—	—	—	—	e 24·1
Salt Lake City		48·9	330	e 8 49	− 1	e 15 56	+ 3	e 10 57	PP	e 19·9
Tinemaha	Z.	50·2	321	e 9 0	0	—	—	—	—	—
Bozeman		52·2	335	e 9 53	+38	e 16 41	+ 2	e 11 43	PP	e 23·2

Additional reading :—
St. Louis eNZ =8m.6s.
Long waves were also recorded at Butte.

July 4d. 6h. 8m. 36s. Epicentre 0°·8N. 80°·5W. (as at 4h.).

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Balboa Heights		8·2	6	e 2 2	− 1	e 3 38	0	—	—	—
Huancayo		13·7	158	e 3 16	− 2	e 6 10	+18	e 3 51	PP	e 6·8
La Paz		21·1	146	i 4 48a	0	i 8 49	+10	—	—	11·8
Merida	N.	21·9	338	e 4 44	−13	—	—	—	—	—
San Juan		22·5	39	i 5 1	− 1	i 9 10	+ 5	—	—	i 10·3
Fort de France		23·6	56	i 5 11	− 2	e 9 35	+10	7 45	PP	—
Tacubaya	N.	26·0	317	e 5 42	+ 6	—	—	—	—	—
Columbia		33·0	359	e 6 50	+11	e 11 56	− 1	—	—	e 16·3
St. Louis		38·7	348	i 7 25	− 2	i 13 21	− 4	i 8 57	PP	—
Florissant		38·9	348	i 7 26	− 3	i 13 26	− 2	e 9 0	PP	—
Philadelphia		39·3	9	i 7 33	+ 1	13 32	− 2	e 9 8	PP	e 16·3
Pittsburgh		39·5	2	e 7 32	− 2	e 13 45	+ 8	—	—	—
Fordham		40 3	10	e 7 38	− 2	e 13 51	+ 2	i 17 56	SS	—
La Plata		41·3	152	7 58	+ 9	14 5	+ 1	9 42	PP	19·9
Chicago		41·3	352	e 7 45	− 4	e 13 57	− 7	e 9 26	PP	e 17·2
Harvard		42·3	12	e 8 6	+ 9	e 14 32	+13	e 17 52	ScS	e 25·4
Tucson		42·4	322	i 7 57	− 1	e 14 31	+11	e 9 34	PP	e 17·8
Vermont		44·0	9	e 8 28	+17	e 14 40	− 3	—	—	18·4
Ottawa		44·6	6	8 14	− 2	14 58	+ 6	18 36?	SS	22·4
Seven Falls		46·9	10	8 46	+12	15 42	+17	—	—	19·4
La Jolla		47·0	317	e 8 35	0	—	—	—	—	—
Riverside		47·8	318	i 8 40	− 1	—	—	—	—	—
Mount Wilson	N.	48·4	318	e 8 46	0	—	—	—	—	—
Pasadena		48·4	318	i 8 46	0	e 15 34	−12	i 10 57	PP	i 24·2
Salt Lake City		48·9	330	e 8 48	− 2	e 15 52	− 1	e 10 56	PP	e 19·8
Haiwee		49·4	321	e 9 10	+17	—	—	—	—	—
Logan		49·6	331	e 8 55	0	—	—	e 10 56	PP	e 27·6
Santa Barbara	Z.	49·6	317	e 9 3	+ 8	—	—	—	—	—
Tinemaha		50·2	321	e 8 59	− 1	—	—	—	—	—
Bozeman		52·2	335	e 9 12	− 3	e 16 14	−25	e 11 38	PP	e 21·8
Lick	N.	52·5	319	e 9 29	+12	—	—	—	—	—
Santa Clara		52·7	319	e 9 31	+13	e 16 54	+ 8	—	—	e 26·6
Branner		52·9	319	e 9 34	+14	—	—	—	—	—
Butte		53·1	334	e 9 29	+ 8	e 17 5	+14	e 12 38	PP	e 30·6
Berkeley		53·2	319	e 9 16	− 6	e 16 36	−16	i 9 34	pP	e 26·9

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ukiah		54·5	321	e 9 41	+ 9	e 17 2	− 8	e 21 31	SS	e 27·1
Victoria		60·2	329	10 14	+ 2	18 37	+12	—	—	31·4
San Fernando	z.	76·9	53	e 11 7	−49	—	—	—	—	—
Honolulu		77·9	292	—	—	e 22 11	+17	—	—	e 35·0
Granada		79·1	53	i 12 22	+14	i 22 19	+12	15 19	PP	39·4
Scoresby Sund		79·1	18	e 12 12	+ 4	e 21 55	−12	—	—	e 34·3
College		79·8	337	e 12 23	+11	e 22 16	+ 2	e 27 24	SS	e 33·6
Kew	z.	83·3	40	e 12 40	+10	—	—	e 12 56	PcP	e 42·4
Clermont Ferrand		85·0	45	e 12 38	0	e 23 11	+ 4	—	—	—
De Bilt	z.	86·7	38	i 12 59	+12	—	—	—	—	—
Stuttgart		89·2	42	12 57	− 2	—	—	—	—	—
Copenhagen		91·0	35	13 33	+26	23 44	[+ 5]	24 16	S	—
Potsdam		91·6	38	i 13 20a	+10	i 24 21	+12	—	—	e 47·4
Triest		92·4	45	e 13 27	+13	e 23 54	[+ 7]	—	—	—

Additional readings :—
Fort de France PPP =5m.57s., eSS =10m.21s., SSS =10m.28s.
St. Louis isS? =16m.13s.
Florissant isS?E =16m.7s.
Philadelphia e =14m.54s.
Pittsburgh i =8m.17s. and 15m.7s.
La Plata PZ =8m.2s., PPPE =11m.0s.?, SN =14m.24s.?, SSN =17m.12s.?, SSE = 19m.0s.?
Harvard e =18m.52s.
Tucson e =9m.17s.
Pasadena eSEN =15m.44s., eSSEN =19m.28s.
Logan e =9m.29s. and 18m.39s.
Bozeman ePPP =12m.20s.
Lick eN =9m.43s.
Berkeley ePZ =9m.22s., iPPZ =11m.4s., iN =17m.2s., eZ =20m.18s., iE =20m.48s.?.
Ukiah e =11m.51s.
Granada SSS =30m.28s.
Scoresby Sund e =23m.43s.
Stuttgart e =13m.17s.
Potsdam ePE =13m.24s., eSE =24m.24s.
Long waves were also recorded at Tananarive.

July 4d. 7h. 31m. 15s. Epicentre 0°·8N. 80°·5W. (as at 6h.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		13·7	158	e 3 28	+10	e 6 12	+20	e 4 15	PP	e 7·5
La Paz	N.	21·1	146	i 5 0a	+12	i 9 4	+25	—	—	12·0
Tucson		42·4	322	i 7 58	0	—	—	—	—	—
La Jolla	z.	47·0	317	e 8 36	+ 1	—	—	—	—	—
Riverside	z.	47·8	318	i 8 41	0	—	—	—	—	—
Pasadena		48·4	318	i 8 46	0	—	—	—	—	—
Salt Lake City		48·9	330	e 8 47	− 3	e 15 59	+ 6	—	—	e 30·3
Tinemaha	z.	50·2	321	e 8 59	− 1	—	—	—	—	—

July 4d. 18h. 45m. 55s. I } Epicentre 51°·5N. 173°·5W.
18h. 50m. 11s. II }

Pasadena suggests deep.

A = −·6211, B = −·0708, C = +·7806; δ = +11; h = −6;
D = −·113, E = +·994; G = −·776, H = −·088, K = −·625.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
I	College	18·8	35	e 4 22	− 1	e 8 1	+11	—	—	e 9·8
II	Sitka	22·7	62	e 5 2	− 2	(e 9 16)	+ 7	—	—	e 9·3
I	Ukiah	36·7	90	—	—	e 12 50	− 4	—	—	e 15·7
I	Berkeley	38·1	91	—	—	i 13 15	− 1	—	—	i 17·1
II		38·1	91	e 7 29	+ 7	i 14 15	+59	—	—	i 16·4
I	Santa Clara E.	38·6	91	e 13 14	S	(e 13 14)	− 9	—	—	—
II	E.	38·6	91	—	—	e 14 10	+47	—	—	e 17·6
I	Butte	39·5	73	—	—	e 13 29	− 8	—	—	e 17·8
I	Bozeman	40·6	73	—	—	e 13 45	− 9	—	—	e 21·2
II	Tinemaha Z.	41·1	89	i 7 48	+ 1	—	—	—	—	—
I	Haiwee	41·9	89	e 8 8	+14	—	—	—	—	—
II		41·9	89	e 7 54	0	—	—	—	—	—
I	Santa Barbara	41·9	93	e 8 2	+ 8	—	—	—	—	—
II		41·9	93	e 7 53	− 1	—	—	—	—	—
I	Salt Lake City	42·8	80	e 8 11	+10	e 14 8	−18	—	—	e 17·8
I	Mount Wilson	43·0	92	e 8 2	− 1	—	—	—	—	—
II		43·0	92	e 8 2	− 1	—	—	—	—	—
I	Pasadena	43·0	92	e 8 2	− 1	e 14 26	− 3	—	—	—
II		43·0	92	i 8 2	− 1	i 14 26	− 3	—	—	—
I	Riverside	43·6	92	i 8 8	0	—	—	—	—	—
II		43·6	92	i 8 6	− 2	—	—	—	—	—
II	La Jolla Z.	44·4	93	i 8 15	+ 1	—	—	—	—	—
I	Tucson	48·9	88	e 8 48	− 2	e 15 23	−30	—	—	e 20·8
II		48·9	88	i 8 48	− 2	—	—	e 10 26	PP	e 21·6
I	Chicago	56·5	64	—	—	e 17 11	−26	(e 21 40)	SS	e 21·7
II	Scoresby Sund	56·6	12	10 26	?	e 17 27	−11	—	—	e 29·8
I	Florissant E.	56·9	68	—	—	i 17 36	− 6	—	—	e 31·3
II		56·9	68	e 9 46	− 3	i 17 35	− 7	—	—	—
I	St. Louis	57·1	68	i 9 48	− 2	e 17 37	− 8	i 10 0	pP	—
II		57·1	68	i 9 48	− 2	e 16 37	−68	i 10 0	pP	—
I	Ottawa	60·4	54	—	—	18 17?	−11	—	—	31·1
II		60·4	54	10 10	− 3	18 21	− 7	—	—	—
I	Seven Falls	61·5	49	—	—	e 18 35?	− 7	—	—	33·1
I	Harvard	64·5	53	i 10 54	+13	—	—	—	—	—
II		64·5	53	i 10 41	0	e 19 14	− 5	—	—	e 30·8
I	Philadelphia	64·5	58	e 19 16	S	(e 19 16)	− 3	—	—	e 31·4
II		64·5	58	—	—	e 19 13	− 6	—	—	—
I	Fordham	64·6	55	e 10 40	− 1	e 19 17	− 4	—	—	—
II		64·6	55	i 10 40	− 1	i 19 19	− 2	—	—	—
II	De Bilt	76·8	1	—	—	e 26 49	SS	e 31 19	?	e 46·8
I	Stuttgart	80·1	358	e 12 10	− 3	—	—	—	—	—
II		80·1	358	i 12 12	− 1	—	—	—	—	—
I	San Juan	86·1	65	—	—	e 23 17	− 1	—	—	—
II		86·1	65	e 13 10	+26	e 23 20	+ 2	—	—	e 43·2

Additional readings :—
Tinemaha II iZ = 8m.2s.
Pasadena I iZ = 8m.22s., II iZ = 8m.21s.
Riverside I iNZ = 8m.20s., II iZ = 8m.20s. and 8m.28s.
La Jolla II iZ = 8m.26s. and 8m.31s.
Tucson I e = 9m.40s.
Chicago I e = 18m.59s. and 19m.8s.
Philadelphia II e = 20m.29s.
Fordham I i = 10m.44s., e = 12m.11s., II e = 19m.35s.
Stuttgart I e = 12m.26s. and 12m.41s., II i = 12m.26s.
Long waves were also recorded for one of the above shocks at Honolulu, Kew, and Potsdam.

July 4d. Readings also at 0h. (Stuttgart), 2h. (Pasadena, Tucson, and Riverside), 3h. (Auckland), 4h. (Stuttgart), 5h. (Riverside, Tucson, Tinemaha, Stuttgart (2), and Pasadena), 6h. (Riverside, Tucson, and Tinemaha), 7h. (Pasadena, Riverside, Tinemaha, La Paz, and Tucson), 8h. (Agra, Calcutta, Dehra Dun, Kodaikanal, Helwan, Tashkent, Tucson, near Bombay, near Fresno, and Lick), 9h. (Potsdam), 11h. (Clermont-Ferrand, Strasbourg, Basle, Neuchatel, Zurich, Jena, Uccle, Huancayo, La Paz, La Jolla, Tucson, Pasadena, Riverside, Tinemaha, near Stuttgart, and near Lick), 13h. (Granada), 16h. (near Berkeley), 18h. (Granada), 23h. (Berkeley).

July 5d. 10h. 29m. 51s. Epicentre 0°·8N. 80°·5W. (as on 4d.).

$A = +\cdot1650$, $B = -\cdot9862$, $C = +\cdot0138$; $\delta = +1$; $h = +7$;
$D = -\cdot986$, $E = -\cdot165$; $G = +\cdot002$, $H = -\cdot014$, $K = -1\cdot000$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Balboa Heights		8·2	6	e 2 0	− 3	—	—	—	—	—
Huancayo		13·7	158	e 3 21	+ 3	e 5 23	−29	4 0	PPP	6·3
La Paz		21·1	146	i 4 48k	0	i 8 43	+ 4	i 8 49	SS	11·5
San Juan		22·5	39	e 5 2	0	i 9 9	+ 4	—	—	9·6
Fort de France		23·6	56	i 5 14	+ 1	i 9 36	+11	—	—	—
Columbia		33·0	359	e 6 39	0	e 11 58	+ 1	—	—	14·9
Georgetown		38·1	6	i 7 20	− 2	i 13 16	0	8 59	pP	—
St. Louis	N.	38·7	348	e 7 26	− 1	e 13 1	−24	e 8 58	pP	e 15·3
Florissant	Z.	38·9	348	i 7 28	− 1	—	—	i 9 0	pP	—
Philadelphia		39·3	9	i 7 33	+ 1	e 13 36	+ 2	e 9 9	PP	e 16·4
Pittsburgh		39·5	2	e 7 5	−29	e 14 39	PPS	—	—	—
Fordham		40·3	10	e 7 40	0	15 53	SS	—	—	—
Chicago		41·3	352	e 7 39	−10	e 13 38	−26	9 25	PP	18·7
La Plata	E.	41·3	152	9 45	PP	—	—	—	—	26·7
	N.	41·3	152	9 39?	PP	—	—	20 39	L	(20·7)
Harvard		42·3	12	i 7 55	− 2	e 14 21	+ 2	i 9 57	PP	—
Tucson		42·4	322	i 7 58	0	e 14 37	+17	e 9 39	PP	23·4
Ottawa		44·6	6	8 14	− 2	14 49	− 3	10 13	PP	20·2
Palomar		47·0	318	i 8 35	0	—	—	—	—	—
La Jolla		47·0	317	i 8 37	+ 2	—	—	—	—	—
Riverside		47·8	318	i 8 41	0	—	—	—	—	—
Mount Wilson	N.	48·4	318	e 8 47	+ 1	—	—	—	—	—
Pasadena		48·4	318	i 8 46	0	—	—	—	—	e 23·9
Salt Lake City		48·9	330	e 8 49	− 1	e 15 50	− 3	—	—	e 20·8
Santa Barbara		49·6	317	e 8 55	0	—	—	—	—	—
Tinemaha		50·2	321	e 9 0	0	—	—	—	—	—
Bozeman		52·2	335	e 9 1	−14	e 16 21	−18	e 11 6	PP	e 27·8
Berkeley		53·2	319	i 9 25	+ 3	e 16 31	−21	e 17 21	PPS	i 29·7
Victoria		60·2	329	e 10 15	+ 3	e 20 21?	?	—	—	35·2
Granada		79·1	53	e 12 16k	+ 8	e 22 15	+ 8	—	—	e 44·5
Scoresby Sund		79·1	18	e 12 12	+ 4	24 12	PPS	e 14 11	PP	36·0
Kew	Z.	83·3	40	(e 12 9)	−21	—	—	—	—	—
Clermont-Ferrand		85·0	45	e 12 38	0	—	—	—	—	—
De Bilt		86·7	38	e 12 49	+ 2	e 23 29	+ 5	—	—	—
Copenhagen		91·0	35	—	—	22 55	[−44]	24 12	PS	—
Potsdam		91·6	38	e 13 17	+ 7	e 24 9	0	—	—	e 52·2

Additional readings :—
St. Louis epPP?N = 10m.58s., eN = 14m.59s.
Philadelphia e = 10m.2s. and 15m.30s.
Chicago e = 10m.44s.
Harvard i = 10m.46s., eS = 16m.21s.
Ottawa SS = 16m.49s.
Bozeman e = 12m.17s.
Kew P given as eL.

July 5d. 10h. 31m. 51s. Epicentre 0°·8N. 80°·5W. (as at 10h. 29m.).

		△	Az.	P.	O−C.	S.	O−C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
San Juan		22·5	39	i 5 17	+15	e 9 7	+ 2	—	—
Fort de France		23·6	56	e 5 11	− 2	e 9 33	+ 8	—	—
Columbia		33·0	359	e 6 44	+ 5	e 11 56	− 1	—	—
Chicago		41·3	352	e 7 26	−23	13 49	−15	—	—
Tucson		42·4	322	e 7 57	− 1	e 14 5	−15	e 9 26	PP
La Jolla		47·0	317	i 8 41	+ 6	—	—	—	—
Riverside		47·8	318	i 8 40	− 1	—	—	—	—
Mount Wilson	N.	48·4	318	e 8 46	0	—	—	—	—
Pasadena		48·4	318	i 8 44	− 2	—	—	—	—
Salt Lake City		48·9	330	e 8 47	− 3	e 15 52	− 1	—	—
Tinemaha		50·2	321	e 9 0	0	—	—	—	—

Tucson also gives iP = 8m.0s.

July 5d. 14h. 11m. 12s. Epicentre 0°·8N. 80°·5W. (as at 10h.).

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		13·7	158	e 3 26	+ 8	e 6 4	+12	4 2	PP	e 6·7
La Paz	Z.	21·1	146	i 4 48a	0	i 8 48	+ 9	—	—	11·1
San Juan		22·5	39	e 4 59	− 3	e 8 58	− 7	—	—	e 10·6
Fort de France		23·6	56	e 5 10	− 3	e 9 32	+ 7	—	—	—
St. Louis	N.	38·7	348	e 7 23	− 4	e 13 23	− 2	e 8 55	PP	—
Florissant		38·9	348	e 7 29	0	i 13 25	− 3	e 9 1	PP	—
Philadelphia		39·3	9	e 7 33	+ 1	e 13 23	−11	e 9 8	PP	16·4
Tucson		42·4	322	e 7 58	0	—	—	e 9 39	PP	e 22·7
Ottawa		44·6	6	e 8 14	− 2	—	—	—	—	14·8
La Jolla	Z.	47·0	317	e 8 35	0	—	—	—	—	—
Riverside	Z.	47·8	318	e 8 41	0	—	—	—	—	—
Pasadena	Z.	48·4	318	e 8 46	0	—	—	—	—	e 24·1
Tinemaha		50·2	321	e 9 1	+ 1	—	—	—	—	—
Stuttgart		89·2	42	e 12 58	− 1	—	—	—	—	—

Additional readings :—
St. Louis eN = 13m.3s.
Stuttgart e = 13m.13s.

July 5d. 23h. 16m. 3s. Epicentre 19°·0N. 70°·0W. (as given by U.S.C.G.S.).

A = +·3236, B = −·8891, C = +·3236 ; δ = −7 ; h = +5 ;
D = −·940, E = −·342 ; G = +·111, H = −·304, K = −·946,

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Port-au-Prince		2·3	258	i 0 36	− 4	i 2 21	L	—	—	(i 2·4)
San Juan		3·7	92	e 1 3	+ 3	i 1 38	− 7	—	—	i 1·8
Fort de France		9·5	115	e 2 22	+ 2	—	—	—	—	—
Philadelphia		21·3	352	e 4 52	+ 2	—	—	—	—	e 10·6
Harvard		23·5	359	i 5 10	− 2	i 9 18	− 5	i 5 52	PP	e 13·0
Ottawa		26·8	352	e 5 42	− 2	e 10 21	+ 2	—	—	14·0
Tucson		38·9	300	e 7 28	− 1	—	—	e 9 0	PP	e 26·1
Salt Lake City		41·7	312	—	—	e 15 5	+55	—	—	e 26·5
Riverside	Z.	44·6	301	e 8 16	0	—	—	—	—	—
Pasadena	Z.	45·2	301	e 8 21	+ 1	—	—	—	—	30·7
Tinemaha		45·7	304	i 8 26a	+ 2	—	—	—	—	—
Santa Barbara	Z.	46·5	300	e 8 32	+ 1	—	—	—	—	—
Stuttgart		68·9	45	e 11 12	+ 3	—	—	—	—	—

Harvard also gives i = 5m.18s.
Long waves were also recorded at Bozeman, Columbia, and European stations.

July 5d. Readings also at 5h. (La Paz), 6h. (near Fresno), 10h. (La Jolla, Riverside, Pasadena, Salt Lake City, Scoresby Sund, Santa Barbara, Tucson, Auckland, and Tinemaha), 11h. (Pasadena, Riverside, and Tucson), 12h. (La Paz), 15h. and 16h. (near Andijan), 18h. (Tashkent and near Branner), 19h. (near Berkeley), 22h. (Triest), 23h. (near Fort de France (2)).

July 6d. Readings at 7h. (near Andijan), 10h. (Stuttgart), 13h. (Berkeley), 16h. (San Juan, Huancayo, La Paz, Tucson, Pasadena, Riverside, and Tinemaha), 18h. (near Berkeley), 20h. (Tucson, Pasadena, and Riverside), 21h. (near Santa Clara), 22h. (near Fresno, Lick, Branner, and Berkeley), 23h. (near Berkeley).

July 7d. 2h. 53m. 42s. Epicentre 21°·0S. 178°·0W. Depth of focus 0·040.

A = −·9338, B = −·0326, C = −·3563 ; δ = −1 ; h = +4 ;
D = −·035, E = +·999 ; G = +·356, H = +·012 ; K = −·934.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Apia		9·3	41	e 2 14	+ 4	e 3 36	−17	i 3 59	sS	—
Auckland		17·0	200	i 5 25	sP	6 54	+14	10 36	sP_cP	—
Arapuni		17·9	197	e 0 48?	?	7 18?	+21	—	—	—
New Plymouth		19·3	199	4 8	+ 3	7 23	0	—	—	—
Wellington		21·1	196	4 22	− 1	7 43	−12	i 5 42?	PPP	11·7
Christchurch		23·8	197	4 50	+ 1	6 44	+ 3	—	—	7·8
Brisbane		27·2	251	i 5 18	− 2	i 9 23	−13	i 7 30	sP	11·5
Riverview		30·1	239	i 5 45k	0	i 10 11	−11	i 7 7	pP	—
Sydney		30·1	239	e 5 51	+ 6	e 10 15	− 7	—	—	—
Honolulu		46·4	27	e 9 33	pP	i 14 22	− 3	e 16 58	sS	e 19·9
Tokyo		69·1	324	e 10 41	+ 4	—	—	—	—	—
Sendai		70·5	327	10 42	− 3	—	—	—	—	—
Naha		70·6	309	e 10 44	− 2	—	—	—	—	—
Kobe		71·0	321	10 50	+ 2	—	—	—	—	—
Mizusawa		71·0	328	e 10 49	+ 1	e 14 19	?	14 13	?	—
Matuyama		71·9	319	e 10 54	0	—	—	—	—	—
Kumamoto		72·6	317	i 10 58	0	—	—	—	—	—
Sapporo		73·9	331	11 6	+ 1	—	—	—	—	—
Taihoku		74·5	305	e 11 0	− 9	—	—	—	—	—
Santa Barbara	Z.	78·1	47	i 11 30k	+ 1	—	—	i 13 6	pP	—
Santa Clara		78·1	43	e 11 42	+13	e 20 59	+ 1	e 13 7	pP	—
Branner		78·3	43	i 11 30	0	—	—	i 12 10	P_cP	—
Berkeley		78·7	43	e 11 26	− 6	i 20 55	− 9	i 13 4	pP	—
Ukiah		78·7	41	e 11 26	− 6	e 20 54	−10	e 13 5	pP	e 32·3
La Jolla		78·9	49	e 11 34	+ 1	e 21 3	− 3	e 13 11	pP	—
Pasadena		79·0	48	i 11 32k	− 2	e 20 58	− 9	i 13 8	pP	—
Fresno	N.	79·5	45	e 11 35	− 1	e 21 6	− 6	e 13 15	pP	—
Palomar	Z.	79·5	49	i 11 36	0	—	—	e 13 10	pP	—
Riverside		79·5	48	i 11 35k	− 1	e 21 7	− 5	i 13 12	pP	—
Haiwee		80·3	46	e 11 42	+ 2	e 21 15	− 6	e 13 19	pP	—
Tinemaha		80·6	46	i 11 42k	0	i 21 18	− 6	e 13 20	pP	—
Tucson		83·2	52	i 11 55	0	e 21 37	−13	i 13 28	pP	e 42·4
Victoria		84·9	34	e 12 3	− 1	e 21 49	[− 8]	e 13 39	pP	46·3
Sitka		86·0	23	e 12 15	+ 6	e 22 1	−16	e 24 57	sS	e 42·5
Salt Lake City		86·8	44	e 12 11	− 2	i 22 24	0	e 13 51	pP	e 35·1
Tacubaya	E.	86·9	69	e 12 15	+ 1	—	—	—	—	—
Logan		87·4	43	i 12 16	0	i 22 24	− 6	i 13 53	pP	—
College		88·7	13	—	—	e 22 9	[−13]	e 23 27	SP	35·5
Butte		89·1	39	e 12 27	+ 3	22 39	− 7	i 14 0	pP	—
Bozeman		89·9	40	e 14 3	pP	i 22 45	− 8	e 22 18	SKS	e 36·1
Huancayo		97·3	105	e 14 36	pP	e 23 53	− 4	e 30 49	SS	e 40·6
Irkutsk		99·1	322	e 13 6	− 4	23 4	[−14]	—	—	—
Calcutta	N.	101·0	289	—	—	e 22 5	?	—	—	—
Florissant		101·1	52	i 14 57	pP	i 24 26	− 2	e 16 42	?	—

Continued on next page,

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
St. Louis		101·1	52	e 15 5	pP	e 24 39	+11	e 16 54	?	—
La Paz		101·8	112	i 14 57a	pP	24 37	+ 3	16 25	?	35·8
Colombo	E.	103·7	271	e 9 18	?	—	—	—	—	—
Chicago		104·0	49	e 15 0	pP	e 24 47	− 5	e 15 42	?	e 46·6
Agra	E.	111·3	291	e 18 27	[+27]	—	—	i 30 30	PPS	—
Philadelphia		112·8	54	e 20 21	pPP	e 23 52	[−27]	e 28 6	PS	e 34·1
Ottawa		113·1	47	e 17 48?	[−15]	e 28 18?	PS	—	—	33·3
Bombay		113·9	281	e 18 56	pPKP	e 26 28	sSKS	—	—	—
Harvard		115·8	51	e 16 0	P	—	—	e 20 10	pPP	—
San Juan		116·3	78	e 20 42	sPKP	24 15	[−17]	—	—	50·2
Seven Falls		116·7	46	e 20 0?	pPP	e 24 18?	[−15]	e 28 30	?	37·3
Bermuda		120·0	64	e 21 14	pPP	e 24 25	[−20]	—	—	—
Sverdlovsk		124·4	325	i 19 55	PP	i 25 9	[+10]	29 30	SS	—
Scoresby Sund		128·5	10	e 18 29	[− 4]	—	—	e 20 21	pPKP	48·7
Upsala		139·6	347	e 21 48?	PP	—	—	e 33 18	PPS	—
Copenhagen		144·5	350	i 18 59k	[− 3]	—	—	i 20 44	pPKP	—
Stonyhurst		147·0	4	i 19 18	[+11]	i 40 48	SS	i 25 18	PPP	—
Ksara		147·5	300	e 19 10?	[+ 2]	—	—	20 58	pPKP	—
Potsdam		147·5	347	i 19 6k	[− 2]	—	—	20 54	pPKP	—
De Bilt		148·9	355	i 19 6k	[− 4]	e 41 18	SS	20 58	pPKP	—
Jena		149·1	347	e 19 7	[− 3]	23 18?	PP	20 57	pPKP	—
Bucharest		149·3	324	19 6	[− 4]	—	—	e 20 49	pPKP	28·3
Kew		149·5	2	i 19 9k	[− 1]	e 25 23?	[−25]	e 20 55	pPKP	e 51·3
Cheb		149·8	347	e 21 1	pPKP	—	—	—	—	—
Uccle	z.	150·2	358	i 19 8k	[− 3]	e 28 11	SKKS	i 21 0	pPKP	—
Stuttgart		151·7	349	i 19 10	[− 4]	43 18?	SS	i 20 56	pPKP	—
Sofia		151·9	324	e 19 17	[+ 3]	—	—	—	—	—
Helwan	z.	152·1	293	i 19 10a	[− 4]	25 33	[−18]	21 3	pPKP	—
Strasbourg		152·1	352	e 19 12	[− 2]	—	—	e 21 8	pPKP	—
Paris		152·2	359	e 19 14	[0]	—	—	e 24 18?	?	—
Basle		153·1	351	e 19 12	[− 4]	—	—	e 20 59	pPKP	—
Zurich		153·2	350	e 19 12k	[− 4]	—	—	e 20 10	?	—
Chur		153·5	349	e 19 12	[− 5]	—	—	—	—	—
Triest		153·6	341	e 19 12	[− 5]	—	—	—	—	—
Neuchatel		153·8	351	e 19 12	[− 5]	—	—	e 21 6	pPKP	—
Clermont-Ferrand		155·3	358	e 19 16	[− 3]	—	—	—	—	—
San Fernando		163·0	23	i 19 27	[− 1]	25 44	[−18]	i 21 14	pPKP	—
Granada		163·2	15	i 19 25	[− 3]	43 20	SS	i 20 19	pPKP	70·8
Algiers		164·2	355	19 19	[−10]	—	—	e 20 19	pPKP	—

Additional readings :—
Auckland sP? =5m.31s., S_cP? =11m.21s.
Wellington i =9m.30s. and 10m.59s.
Brisbane iPE =5m.23s., iN =5m.46s., iE =10m.28s.
Riverview iE =11m.22s., isSZ =12m.40s., iSS?EN =12m.47s., iZ =12m.59s.
Santa Clara esSE =24m.0s.
Berkeley iZ =11m.31s., eN =11m.34s., iZ =24m.17s., iN =24m.26s.
Ukiah e =15m.31s. and 22m.8s., esS? =23m.46s., e =24m.24s.
Pasadena iZ =13m.15s., iPKP, PKPZ =38m.31s.
Riverside ePKP, PKPZ =38m.31s.
Tinemaha ePKP, PKPZ =38m.29s.
Tucson ePP =15m.8s., ePPP =17m.24s., iS =21m.43s., esS =22m.39s., e =38m.13s.
Salt Lake City e =12m.34s., eSKS =22m.0s., eSP =23m.27s., e =24m.25s., 27m.27s., and 30m.15s.
Logan i =13m.55s., eSKS =22m.4s., e =22m.31s., ePS =23m.31s., e =26m.12s.
College eS =22m.27s., e =24m.24s., 25m.22s., and 26m.22s.
Butte e =13m.0s., ePP =14m.36s., esS =25m.34s., e =29m.55s.
Bozeman e =14m.54s., 17m.1s., 23m.27s., 27m.48s., and 30m.51s.
Huancayo e =17m.34s., epPP =18m.35s., iSKS =22m.56s., eSP =25m.26s., esS = 26m.49s., eSSS =34m.43s.
Florissant eE =26m.0s. and 29m.22s.
St. Louis eZ =19m.16s., eSKSN =22m.53s., eSEN =23m.23s., and 24m.10s., eN = 26m.11s., esSN =27m.36s., eEN =28m.46s., and 29m.24s., eSSEN =31m.39s., eEN =33m.28s.
La Paz iS?N =23m.18s., iZ =26m.4s., iSSN =27m.9s.
Chicago eSKS =23m.22s., e =24m.9s., eSP =26m.28s., e =27m.46s., eSS =31m.51s., e =35m.39s., eSSS =36m.27s.
Agra iE =27m.11s.
Philadelphia e =25m.12s., eS =26m.3s., e =28m.42s. and 31m.35s.

Continued on next page.

Bombay iE =21m.26s., eE =23m.55s., iE =27m.13s. and 29m.56s.
Harvard e =24m.12s. and 28m.14s.
San Juan e =25m.31s., eS =26m.29s., eSP =28m.22s., e =30m.46s., eSS =34m.51s., e =42m.19s.
Bermuda eS =26m.4s., e =30m.17s. and 35m.55s.
Scoresby Sund e =20m.39s., ipPP =21m.54s., ePPP =23m.37s., e =29m.17s., 31m.27s., and 34m.23s.
Upsala eN =22m.24s.? and 24m.9s., eE =24m.13s.
Copenhagen 21m.4s., 22m.25s., 41m.54s.?, 43m.18s.?.
Ksara ePP =22m.47s.
Potsdam iPKPN =19m.9s., esPKPE =21m.32s., iSPKPNZ =21m.37s., iPPNZ = 22m.38s., eZ =28m.6s.
De Bilt iPP? =22m.45s., esSS =44m.18s.
Jena ePN =19m.11s., eZ =20m.53s.
Kew iPKP$_2$Z =19m.32s., ipPKP$_2$Z =21m.6s., ePPZ =22m.49s., epPP?N =23m.58s.?.
Uccle ePS?N =33m.6s.
Stuttgart i =19m.31s., ipPKP? =21m.0s.
Sofia eE =32m.18s.? and 47m.48s.?.
Helwan iZ =19m.31s., PKPZ =22m.3s., eZ =23m.0s., pPKPZ =24m.5s., sPKPZ = 24m.53s.
Strasbourg e =22m.36s.
Granada iPP =24m.3s., pPP =25m.45s., PSP =38m.24s., SSS =49m.26s.
Algiers e =24m.19s. and 27m.19s.
Long waves were recorded at Tananarive.

July 7d. 12h. 37m. 46s. Epicentre 0°·8N. 80°·5W. (as on 5d.).

Strong. Epicentre 0°·9N. 80°·4W. Depth 500km.?.
Mapa Sismico y tectonico de Columbia. Banco de la Republica, Bol. grafico 7, Feb. 1947.

$A = +\cdot1650$, $B = -\cdot9862$, $C = +\cdot0138$; $\delta = +1$; $h = +7$;
$D = -\cdot986$, $E = -\cdot165$; $G = +\cdot002$, $H = -\cdot014$, $K = -1\cdot000$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Balboa Heights		8·2	6	e 1 59	− 4	e 3 28	−10	—	—	—
Huancayo		13·7	158	e 3 16	− 2	e 5 50	− 2	e 4 3	PPP	e 6·5
La Paz		21·1	146	i 4 49a	+ 1	i 8 49	+10	—	—	11·5
San Juan		22·5	39	i 5 2	0	i 8 17	−48	—	—	i 9·3
Fort de France		23·6	56	i 5 12	− 1	e 9 36	+11	5 44	PP	—
Tacubaya	E.	26·0	317	5 42	+ 6	—	—	—	—	—
Columbia		33·0	359	e 6 36	− 3	e 11 53	− 4	—	—	e 16·4
Bermuda		34·8	24	e 7 39	+45	e 13 58	SS	—	—	—
St. Louis		38·7	348	i 7 26	− 1	13 24	− 1	i 8 59	PP	—
Florissant		38·9	348	i 7 29	0	e 13 9	−19	e 9 2	PP	—
Philadelphia		39·3	9	i 7 32	0	13 22	−12	e 9 8	PP	16·6
Pittsburgh		39·5	2	e 7 34	0	—	—	i 9 9	PP	—
Fordham		40·3	10	e 7 39	− 1	e 13 52	+ 3	—	—	23·2
Chicago		41·3	352	e 7 47	− 2	e 13 51	−13	e 9 32	PP	17·2
La Plata	E.	41·3	152	7 49	0	13 56?	− 8	—	—	—
	N.	41·3	152	7 46	− 3	14 2?	− 2	9 38?	PP	28·3
Harvard		42·3	12	e 7 55	− 2	e 14 19	0	9 55	PPP	e 24·2
Tucson		42·4	322	e 7 57	− 1	e 14 22	+ 2	e 9 41	PP	17·9
Rio de Janeiro		43·3	126	e 14 14	PS	e 17 52	SS	e 17 56	SSS	e 20·7
Seven Falls		46·9	10	8 32?	− 2	15 25	0	—	—	19·2
La Jolla		47·0	317	e 8 37	+ 2	—	—	—	—	—
Palomar	Z.	47·0	318	e 8 37	+ 2	—	—	—	—	—
Riverside	Z.	47·8	318	e 8 41	0	—	—	—	—	—
Pasadena		48·4	318	i 8 46	0	e 15 51	+ 5	e 10 50	PP	i 24·1
Salt Lake City		48·9	330	e 8 50	0	e 16 2	+ 9	—	—	e 19·7
Haiwee		49·4	321	e 8 59	+ 6	—	—	—	—	—
Logan		49·6	331	e 8 47	− 8	e 16 32	+29	10 57	PP	e 27·3
Santa Barbara	Z.	49·6	317	i 9 0	+ 5	—	—	—	—	—
Tinemaha		50·2	321	e 9 1	+ 1	—	—	—	—	—
Bozeman		52·2	335	e 9 16	+ 1	16 28	−11	11 16	PP	25·4
Butte		53·1	334	e 9 24	+ 3	e 17 7	+16	e 11 23	PP	31·9
Berkeley		53·2	319	e 9 22	0	i 16 52	0	—	—	i 26·6
Ukiah		54·5	321	e 9 31	− 1	e 17 9	− 1	e 21 13	SS	21·3
Victoria		60·2	329	10 17	+ 5	18 31	+ 6	—	—	30·2
San Fernando	Z.	76·9	53	e 11 54	− 2	—	—	—	—	—
Granada		79·1	53	i 12 3	− 5	22 11	+ 4	i 15 4	PP	40·2

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Scoresby Sund		79·1	18	e 15 19	PP	e 22 3	− 4	e 23 7	PPS	37·4
College		79·8	337	e 14 31	PP	e 21 23	−51	—	—	43·4
Kew		83·3	40	i 12 29a	− 1	e 23 14?	+24	—	—	—
Clermont-Ferrand		85·0	45	e 13 37	+59	e 23 5	− 2	—	—	—
Uccle		86·1	40	e 12 42	− 2	e 23 17	− 1	—	—	—
De Bilt		86·7	38	i 12 46	− 1	e 23 14	[+ 2]	—	—	e 46·2
Stuttgart		89·2	42	i 12 58	− 1	e 23 14?	[−14]	16 44?	PP	—
Copenhagen		91·0	35	e 13 24	+17	24 7	+ 4	—	—	—
Cheb		91·3	40	—	—	e 22 14?	?	—	—	—
Potsdam		91·6	38	i 13 2	− 8	i 24 12	+ 3	e 17 2	PP	46·2
Triest		92·4	45	e 13 8	− 6	e 24 5	−11	—	—	—
Helwan	z.	108·4	59	e 19 1	PP	e 28 29	PS	—	—	—

Additional readings :—
Fort de France PPP =5m.55s., SS =10m.22s., SSS =10m.27s.
St. Louis iS$_c$PEN =12m.56s., isSEN =16m.11s.
Florissant esSN =15m.15s.
Philadelphia e =8m.2s.
Harvard e =18m.47s.
Pasadena eSSZ =19m.37s.
Bozeman ePPP =12m.25s.
Berkeley iPEZ =9m.25s., iPN =9m.30s.
Granada SS =27m.41s., PKP, PKP =38m.42s.
Potsdam eSKKSE =23m.45s., iE =24m.57s.
Long waves were also recorded at Tananarive.

July 7d. Readings also at 3h. (Berkeley), 6h. (De Bilt, Stuttgart, and near Triest), 9h. (near Marseilles), 11h. (Agra, Bombay, and near Marseilles), 12h. (Santa Clara), 13h. (San Juan, La Paz, Huancayo, Tucson, Riverside, Tinemaha, near Berkeley (3), and near Irkutsk), 14h. (Bombay), 18h. (Stuttgart and Copenhagen), 19h. (Granada and near Berkeley), 20h. (near La Paz), 21h. (Berkeley).

July 8d. 6h. 55m. 36s. Epicentre 24°·7S. 70°·2W. (as on 1939, Aug. 12d.).

Pasadena suggests depth =150km.

A = +·3081, B = −·8558, C = −·4155 ; δ = −4 ; h = +3 ;
D = −·941, E = −·339 ; G = −·141, H = +·391, K = −·910.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
La Paz		8·4	14	i 2 9a	+ 3	i 4 5	S*	—	—	4·9
Huancayo		13·5	338	e 3 18	+ 3	i 5 36	−11	i 4 0	PP	i 6·2
La Plata		14·7	137	e 3 28	− 3	6 18	+ 2	—	—	7·4
Rio de Janeiro	N.	24·7	92	i 5 23	− 1	i 9 52	+ 8	—	—	i 13·1
Balboa Heights		34·7	346	e 6 49	− 5	e 8 23	PP	—	—	—
Fort de France		40·2	15	i 7 33	− 7	e 13 34	−14	9 15	PP	—
San Juan		43·0	6	i 7 58	− 5	i 14 18	−11	i 9 47	PP	i 17·8
Tacubaya	N.	52·1	325	9 15	+ 1	—	—	—	—	—
Bermuda		57·0	6	i 9 49	− 1	e 17 32	−11	i 10 37	P$_c$P	i 23·4
Columbia		59·3	350	e 10 2	− 4	e 18 7	− 7	e 12 24	PP	e 25·8
Georgetown		63·6	355	11 33	+58	i 19 5	− 3	i 12 48	PP	—
Philadelphia		64·5	357	i 10 39	− 2	i 19 11	− 8	e 12 48	PP	i 26·8
Fordham		65·3	358	10 45	− 1	i 19 28	− 1	i 13 7	PP	—
Pittsburgh		65·4	352	i 10 45	− 2	i 19 29	− 1	i 11 21	pP	—
New Kensington		65·5	352	i 10 48	+ 1	i 19 24	− 8	—	—	—
St. Louis		65·7	343	i 10 44	− 4	i 19 28	− 6	i 11 22	pP	—
Florissant	E.	65·9	343	e 10 46	− 4	i 19 30	− 7	i 13 6	PP	—
Harvard		66·9	359	i 10 55	− 1	i 19 48	− 1	—	—	e 26·4
Chicago		68·2	346	i 11 0	− 4	i 19 53	−11	e 13 27	PP	e 28·5
Tucson		68·6	324	i 11 6	− 1	e 19 55	−14	e 13 37	PP	e 39·5
Vermont		68·9	358	i 11 11	+ 2	e 19 54	−19	—	—	28·0
Ottawa		69·9	357	i 11 13	− 2	i 20 22	− 2	25 48?	SS	31·4
Shawinigan Falls		71·0	359	11 20	− 2	20 42	+ 5	—	—	31·4
Seven Falls		71·5	0	11 26	+ 2	20 41	− 2	28 36?	SS	31·4
La Jolla		72·7	320	e 11 33	+ 1	e 21 1	+ 4	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Palomar	Z.	72·8	321	e 11 32	0	—	—	—	—	—
Riverside		73·6	321	i 11 36	− 1	e 20 50	−17	—	—	—
Mount Wilson	N.	74·2	321	e 11 40	0	—	—	—	—	—
Pasadena		74·2	321	i 11 38a	− 2	i 21 11	− 3	—	—	e 31·2
Angra do Heroismo		74·8	35	(11 50)	+ 6	11 50	P	—	—	—
Santa Barbara	Z.	75·3	320	i 11 50	+ 3	—	—	—	—	—
Haiwee		75·5	322	e 11 50	+ 2	e 21 30	+ 2	—	—	—
Salt Lake City		75·8	329	e 11 48	− 2	i 21 31	0	e 14 35	PP	e 32·7
Tinemaha		76·3	322	i 11 52	0	e 21 36	− 1	—	—	—
Logan		76·5	331	e 11 54	0	i 21 38	− 1	—	—	e 30·9
Fresno	N.	76·9	321	e 11 58	+ 2	—	—	e 15 47	PP	—
Lick	N.	78·4	321	e 12 5	+ 1	e 22 0	0	—	—	—
Santa Clara		78·6	321	i 12 10	+ 5	e 22 2	0	—	—	e 37·6
Berkeley		79·1	321	e 12 8	0	i 22 7	0	i 27 16	SS	i 37·9
Bozeman		79·3	333	e 12 6	− 3	i 22 7	− 2	e 15 14	PP	e 33·4
Butte		80·2	332	e 12 18	+ 4	e 22 15	− 4	e 15 17	PP	e 34·8
Ukiah		80·5	321	e 12 12	− 3	e 22 24	+ 2	e 15 40	PP	e 33·9
Ferndale		82·1	323	e 12 40	+16	e 22 40	+ 2	—	—	—
Lisbon		85·1	44	12 48	+ 9	e 23 13	+ 5	15 42	PP	41·9
San Fernando		85·7	47	i 12 45	+ 3	i 23 20	+ 6	15 55	PP	41·4
Seattle		85·9	328	—	—	e 24 2	PS	e 29 33	SS	e 42·4
Victoria		86·9	328	12 51	+ 3	23 17	[+ 4]	28 24?	SS	e 39·4
Ivigtut		87·4	11	e 13 36	+46	e 24 3	PS	e 17 0	PP	e 36·6
Granada		87·8	47	i 12 51	− 1	i 23 33	− 1	16 22	PP	45·1
Christchurch		91·0	221	13 8	+ 1	23 38	[− 1]	30 16	SS	42·1
Wellington		91·0	223	13 21	+14	23 30	[− 9]	30 14	SS	42·4
Algiers		92·1	51	i 13 18	+ 6	e 23 48	[+ 3]	i 16 58	PP	e 35·4
Arapuni		92·2	226	—	—	23 54?	[+ 9]	c 30 42?	SS	42·4
Auckland		93·4	227	—	—	i 24 27	+ 3	23 51	SKS	42·4
Clermont-Ferrand		96·5	43	e 13 33	+ 1	i 24 14	[+ 5]	i 17 26	PP	e 46·0
Honolulu		96·6	291	—	—	e 24 5	[− 5]	31 35	SS	e 43·9
Kew		97·4	36	i 13 35a	− 2	e 24 14?	[0]	e 17 22	PP	e 43·9
Stonyhurst		97·5	33	(i 13 37)	0	(i 24 32)	{− 5}	(i 17 34)	PP	(e 41·4)
Paris		97·6	39	e 13 40	+ 2	e 24 17	[+ 3]	e 17 36	PP	—
Sitka		98·0	330	e 13 39	0	e 24 9	[− 8]	e 17 41	PP	e 41·7
Aberdeen		99·4	31	i 17 45	PP	i 27 50	PPS	i 32 15	SS	51·0
Neuchatel		99·5	43	e 13 45	− 1	—	—	e 17 50	PP	—
Uccle		99·6	38	i 13 47a	+ 1	i 24 26	[+ 1]	e 17 48	PP	e 43·4
Basle		99·8	42	e 13 51	+ 4	e 24 29	[+ 3]	e 17 52	PP	—
Strasbourg		100·6	41	e 13 50	− 1	e 27 1	PS	i 17 58	PP	e 53·4
De Bilt		100·7	37	e 13 52a	0	e 24 32	[+ 1]	i 17 56	PP	e 43·4
Scoresby Sund		100·8	15	e 13 52	0	e 24 31	[0]	i 17 59	PP	e 42·2
Chur		101·0	43	e 13 55a	+ 2	—	—	e 17 52	PP	—
Stuttgart		101·6	41	e 13 54	− 2	e 24 34	[− 1]	e 17 50	PP	54·4
Triest		103·2	46	e 14 3	0	i 24 43	[+ 1]	i 18 15	PP	e 42·4
Jena		103·9	41	e 14 4	− 2	e 24 44	[− 2]	e 18 24?	PP	e 41·4
Cheb		104·0	41	e 14 24?	+18	e 24 50	[+ 4]	—	—	e 52·4
Potsdam		105·2	39	e 14 10	− 1	i 24 56	[+ 5]	i 18 32	PP	e 43·4
Prague		105·2	41	e 17 36	?	e 24 49	[− 2]	e 27 42?	PS	e 49·4
Tananarive		105·5	120	e 18 36	PP	25 35	−31	28 4	PS	52·3
Copenhagen		106·1	35	e 14 18	P	24 58	[+ 3]	i 18 38	PP	—
College		107·0	334	e 18 36	PP	e 25 46	−33	e 27 54	PS	e 45·0
Sofia		108·8	51	e 17 54?	?	i 25 11	[+ 4]	i 28 28	PS	42·4
Riverview		109·8	216	e 14 25	P	i 25 14	[+ 3]	e 19 14	PP	e 46·4
Sydney		109·8	216	—	—	e 25 21	[+10]	e 28 39	PS	—
Upsala		110·0	32	e 19 7	[+34]	e 26 10	{+ 5}	e 34 47	SS	e 50·4
Bucharest		111·2	49	e 18 18?	[−18]	e 28 51	PS	e 21 40	PKS	42·4
Helwan		111·3	66	i 14 42k	P	25 12	[− 5]	19 15	PP	—
Brisbane	N.	113·5	222	—	—	i 25 24	[− 2]	e 28 52	PS	—
Ksara		116·1	64	e 19 55	PP	e 29 41	PS	—	—	—

Continued on next page,

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sverdlovsk		132·4	34	e 19 16	[0]	i 31 54	PS	i 21 39	PP	—
Tashkent		142·6	53	i 19 30	[− 5]	32 56	PS	22 42	PP	—
Tchimkent		142·6	52	e 19 58	[+23]	—	—	i 23 25	PP	—
Stalinabad		142·7	57	i 19 36	[+ 1]	—	—	i 22 51	PP	—
Bombay		145·3	92	i 19 44	[+ 4]	i 30 11	{+19}	i 23 16	PP	71·4
Kodaikanal	E.	146·1	108	i 19 34a	[− 7]	e 29 49	{− 8}	22 54	PP	69·5
Colombo	E.	146·3	117	19 42	[+ 1]	—	—	—	—	—
Sapporo		148·3	313	e 19 54	[+ 9]	—	—	—	—	—
Hyderabad		149·9	98	19 55	[+ 8]	30 39	{+21}	23 26	PP	—
Mizusawa		149·9	306	20 7	[+20]	23 31	PP	—	—	—
Sendai		150·4	305	19 50	[+ 2]	—	—	—	—	—
Agra	E.	151·3	78	19 58	[+ 9]	i 43 27	SS	i 23 37	PP	—
Dehra Dun	N.	151·3	71	e 20 2?	[+13]	—	—	—	—	—
Tokyo		152·0	300	e 20 5	[+15]	—	—	—	—	—
Irkutsk		152·2	7	19 57	[+ 6]	27 1	[+ 4]	23 37	PKS	—
Nagano		152·9	303	e 19 54	[+ 2]	—	—	—	—	—
Vladivostok		154·2	320	19 45	[− 8]	26 49	[−10]	35 7	PS	—
Nagoya		154·3	300	e 20 0	[+ 6]	—	—	—	—	—
Osaka		155·6	300	e 20 23	[+28]	—	—	—	—	—
Koti		157·5	298	e 20 14	[+16]	—	—	—	—	—

Additional readings :—
La Paz iSE = 4m.9s.
Huancayo iP = 3m.22s.
La Plata SE = 6m.30s.
San Juan i = 13m.26s.
Bermuda e = 10m.44s., ePPP = 13m.22s., iS = 17m.39s., e = 19m.28s., eSS = 21m.52s.
Columbia ePPP = 13m.43s., eS_cS = 19m.54s., e = 22m.57s.
Philadelphia e = 10m.48s., 12m.20s., 15m.3s., 16m.12s., and 20m.18s., iS_cS = 20m.35s., eSS = 23m.16s.
Fordham isS = 20m.40s.
Pittsburgh isS = 20m.38s.
St. Louis iPPNZ = 13m.4s., iSPEN = 19m.58s., iEN = 20m.18s., isSEN = 20m.38s., isSPEN = 21m.13s., iSSEN = 23m.56s.
Florissant iPE = 10m.49s., iSPE = 20m.0s., ipSE = 20m.25s., isSE = 20m.40s., isSPE = 21m.6s.
Harvard i = 20m.48s.
Chicago ePPP = 15m.14s., iS_cS = 20m.59s., e = 23m.47s., eSS = 24m.13s., e = 25m.59s.
Tucson i = 11m.48s. and 13m.25s., ePPP = 15m.34s., e = 20m.10s., iS_cS = 21m.9s., e = 24m.34s., 28m.10s., and 39m.15s.
Vermont iS = 20m.12s., i = 21m.7s., e = 25m.42s.
Ottawa i = 11m.17s. and 21m.14s., SSS = 28m.24s. ?
Shawinigan Falls i = 11m.24s.
Pasadena iZ = 12m.3s., iEZ = 21m.48s.
Salt Lake City e = 23m.36s., eSS = 26m.29s.
Logan iP = 11m.57s., i = 12m.14s. and 13m.10s., e = 23m.6s. and 26m.19s.
Berkeley iN = 27m.25s.
Bozeman ePPP = 17m.30s., e = 24m.8s., eSS = 27m.19s., eSSS = 30m.52s.
Butte eSS = 27m.34s., eSSS = 30m.52s.
Ukiah ePPS = 23m.39s., eSS = 27m.36s., eSSS = 31m.33s.
Ferndale eSN = 22m.44s.
Lisbon P = 12m.51s., pPN = 13m.48s., eSN = 23m.17s., SZ = 23m.36s. ?, iSN = 23m.41s., Q = 37·3m.
Victoria e = 35m.42s. ?
Ivigtut iS = 24m.17s., e = 24m.35s., 25m.20s., and 25m.34s., eSS = 30m.4s., e = 34m.5s.
Granada P_cP = 13m.36s., SKS = 22m.53s., PS = 24m.49s., PPS = 25m.30s., SS = 29m.45s., SSS = 34m.6s.
Christchurch iZ = 22m.31s., SNZ = 24m.6s., PSEZ = 25m.12s., SSS = 33m.24s., Q = 37m.15s.
Wellington i = 23m.38s., S = 24m.6s. ?, Q = 38·4m.
Algiers iS = 24m.40s.
Kew e = 16m.48s., ePPPNZ = 20m.4s. ?, eSKKSEZ = 24m.28s., iPS = 26m.25s., ePPSNZ = 27m.14s. ?, QNZ = 40·4m.
Stonyhurst i = (17m.47s.), e = (18m.39s.), i = (24m.14s.), and (27m.21s.). All readings decreased by 1 minute.
Sitka e = 24m.53s., ePS = 26m.37s., e = 30m.55s.
Aberdeen i = 32m.25s., QN = 45m.20s.
Uccle iSKKSE = 25m.46s., iE = 26m.48s.
Strasbourg eSS = 32m.34s.
De Bilt iZ = 17m.14s., ePPP = 20m.24s., iPS? = 26m.54s.
Scoresby Sund e = 16m.51s., 20m.24s., and 23m.47s., eS = 25m.27s., iPS = 27m.2s., eSS? = 31m.52s., e = 32m.48s.
Stuttgart iP = 13m.58s., e = 14m.16s., ePP = 17m.28s., eSS = 27m.4s., e = 32m.42s.?, eQ? = 45·4m.

Continued on next page.

•Triest i =27m.26s.
Jena eS?N =24m.48s. ?, eN =33m.4s.
Potsdam iPZ =14m.13s. a, eEZ =17m.18s., eN =17m.30s., iN =23m.6s., iE =24m.35s., iPS?EN =27m.52s., ePSZ =28m.0s., iSSPN =33m.34s.
Prague e =18m.31s., 26m.9s., and 33m.30s. ?
Tananarive SS =34m.6s.
Copenhagen 17m.45s., 21m.26s., 26m.20s., 27m.58s., and 33m.54s.?
College eSS =33m.17s., eSSS =37m.58s.
Sofia iN =18m.59s. and 20m.43s., eE =21m.24s. ? and 34m.24s. ?
Riverview eZ =14m.42s., iSKKSN =26m.9s., ePS?Z =28m.14s., iZ =28m.26s., eEN = 28m.35s., eSSEN =34m.24s. ?
Upsala eN =26m.47s., eSN =28m.37s., eN =45m.24s. ?
Bucharest ePPP?EN =23m.27s., ePS?E =29m.33s., eSS?EN =34m.34s.
Helwan eZ =18m.57s., iZ =19m.57s., PPPZ =21m.39s., PSZ =28m.45s., PPSEZ = 29m.45s., SSZ =34m.57s.
Brisbane iN =26m.27s.
Sverdlovsk eP =16m.15s., SS =38m.55s.
Bombay eN =20m.39s., iNE =23m.2s., iSKSPE =33m.15s., iPPSE =35m.53s., SSNE = 42m.24s., SSSE =46m.57s., iE =63m.24s.
Kodaikanal SKSPE =33m.24s., SSE =42m.4s.
Hyderabad SKSPE =33m.45s., SSE =42m.33s.
Irkutsk PS =34m.52s., SS =42m.43s.

July 8d. 21h. 22m. 27s. Epicentre 43°·0N. 122°·0E. (as on 1940 Jan. 19d.).

$A = -\cdot3888$, $B = +\cdot6221$, $C = +\cdot6795$; $\delta = -11$; $h = -2$;
$D = +\cdot848$, $E = +\cdot530$; $G = -\cdot360$, $H = +\cdot576$, $K = -\cdot734$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mizusawa	E.	14·9	98	3 40	+ 6	6 38	+18	—	—	—
Irkutsk		15·1	314	e 3 34	− 2	6 40	+15	—	—	—
Tashkent		38·6	286	7 29	+ 3	13 27	+ 4	—	—	—
Agra	E.	38·9	260	—	—	e 15 47	SS	—	—	e 18·8
Sverdlovsk		40·5	313	7 39	− 3	13 45	− 7	—	—	—
Bombay		47·7	256	—	—	e 15 30	− 6	e 19 45	SSS	e 26·5
Kodaikanal	E.	50·6	245	—	—	e 16 18	+ 1	—	—	—
College		52·2	34	—	—	e 17 40	?	e 20 44	SS	e 28·8
Scoresby Sund		63·9	348	—	—	e 19 9	− 3	e 23 36	SS	e 40·2
Copenhagen		65·1	324	—	—	19 26	− 1	26 58	SSS	—
Bucharest		65·2	309	e 12 15?	?	e 19 31	+ 3	—	—	35·6
Potsdam		67·0	322	e 10 55	− 2	i 19 53	+ 3	e 27 15	SSS	e 34·6
Jena	N.	68·6	321	e 11 9?	+ 2	—	—	—	—	e 32·6
Triest		71·2	316	—	—	e 20 42	+ 2	—	—	e 37·4
Stuttgart		71·3	321	11 24	+ 1	—	—	—	—	—
Uccle		72·0	325	e 11 16	−12	e 20 45	− 4	—	—	e 36·6
Stonyhurst		72·5	330	—	—	e 23 33?	?	—	—	e 36·6
Basle		72·9	320	e 11 31	− 2	—	—	—	—	—
Clermont-Ferrand		76·3	322	e 11 53	+ 1	—	—	—	—	e 40·9
Tinemaha		83·3	45	i 12 33	+ 3	—	—	—	—	—
Haiwee		84·2	45	e 12 36	+ 2	—	—	—	—	—
Santa Barbara		84·5	48	e 12 41	+ 5	—	—	—	—	—
Pasadena		85·6	46	i 12 42	+ 1	—	—	—	—	—
Riverside	Z.	86·1	46	e 12 44	0	—	—	e 16 14	PP	—
San Fernando		87·9	321	e 23 37	S	(e 23 37)	+ 2	—	—	48·6
Ottawa		90·6	14	e 13 4	− 1	—	—	—	—	41·6
Tucson		90·8	43	e 13 8	+ 2	—	—	e 16 46	PP	—

Additional readings :—
Scoresby Sund e =23m.7s., eSS =30m.18s., eSSS =33m.42s.
Uccle eE =21m.30s.
Long waves were also recorded at Hyderabad and other American and European stations.

July 8d. 22h. 30m. 56s. Epicentre 0°·8N. 80°·5W. (as on 7d.).

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Balboa Heights		8·2	6	e 2 4	+ 1	(3 47)	+ 9	—	—	3·8
Huancayo		13·7	158	i 3 18	0	i 5 49	− 3	i 3 44	?	e 6·6
La Paz		21·1	146	i 5 46k	+58	i 8 49	+10	—	—	i 12·3
Merida	N.	21·9	338	e 5 2	+ 5	—	—	—	—	—
San Juan		22·5	39	e 5 2	0	e 8 58	− 7	—	—	e 10·4
Fort de France		23·6	56	i 5 13	0	i 9 37	+12	5 34	PP	e 12·1
Tacubaya	E.	26·0	317	5 43	+ 7	—	—	—	—	—
Columbia		33·0	359	e 6 37	− 2	e 11 58	+ 1	—	—	e 15·9
Bermuda		34·8	24	i 7 8	+14	i 12 31	+ 6	e 8 35	PPP	15·8
St. Louis		38·7	348	i 7 35	+ 8	i 13 19	− 6	i 8 57	PP	—
Florissant		38·9	348	i 7 30	+ 1	i 13 26	− 2	e 8 57	PP	—
Philadelphia		39·3	9	i 7 35	+ 3	i 13 37	+ 3	e 9 13	PP	e 16·4
Fordham		40·3	10	e 7 42	+ 2	i 13 53	+ 4	e 9 18	PP	—
La Plata		41·3	152	7 46?	− 3	13 58	− 6	8 28?	PP	21·6
Chicago		41·3	352	e 7 49	0	e 13 52	−12	e 9 33	PP	e 17·3
Harvard		42·3	12	i 7 59	+ 2	e 14 17	− 2	e 17 45	SS	e 22·1
Tucson		42·4	322	e 7 56	− 2	e 14 24	+ 4	e 9 41	PP	e 21·0
Rio de Janeiro		43·3	126	i 14 31	S	(i 14 31)	− 2	—	—	i 20·1
Vermont		44·0	9	e 8 14	+ 3	14 43	0	e 10 22	PP	e 18·2
Ottawa		44·6	6	8 16	0	14 56	+ 4	10 8	PP	21·6
Seven Falls		46·9	10	8 37	+ 3	15 30	+ 5	19 16?	SS	24·1
La Jolla		47·0	317	e 8 35	0	—	—	—	—	—
Palomar	Z.	47·0	318	e 8 36	+ 1	—	—	—	—	—
Riverside	Z.	47·8	318	e 8 38	− 3	—	—	—	—	—
Mount Wilson	N.	48·4	318	e 8 48	+ 2	—	—	—	—	—
Pasadena		48·4	318	i 8 47a	+ 1	e 15 47	+ 1	i 10 45	PP	e 23·9
Salt Lake City		48·9	330	e 8 50	0	e 15 54	+ 1	e 11 47	PPP	e 19·7
Haiwee		49·4	321	e 8 59	+ 6	—	—	—	—	—
Santa Barbara		49·6	317	e 8 59	+ 4	—	—	—	—	—
Logan		49·6	331	i 8 58	+ 3	e 16 2	− 1	—	—	e 20·3
Tinemaha	Z.	50·2	321	e 9 1	+ 1	—	—	—	—	—
Fresno	N.	51·0	319	e 9 8	+ 2	—	—	—	—	—
Bozeman		52·2	335	e 9 13	− 2	e 16 43	+ 4	e 20 15	SS	e 25·2
Lick	N.	52·5	319	e 9 17	0	—	—	—	—	—
Santa Clara		52·7	319	i 9 22	+ 4	e 16 54	+ 8	e 20 54	SS	e 26·3
Branner		52·9	319	e 9 30	+10	—	—	—	—	—
Butte		53·1	334	e 9 21	0	e 16 4	−47	e 12 40	PP	e 30·3
Berkeley		53·2	319	i 9 24	+ 2	i 16 58	+ 6	i 11 29	PP	e 26·5
Ukiah		54·5	321	e 9 32	0	e 17 16	+ 6	e 11 54	PP	e 26·4
Victoria		60·2	329	10 15	+ 3	18 32	+ 7	—	—	33·1
Sitka		71·2	332	e 11 24	+ 1	e 20 39	− 1	e 13 29	PP	e 37·3
San Fernando		76·9	53	12 0	+ 4	e 18 50	?	—	—	—
Granada		79·1	53	i 12 5k	− 3	i 22 12	+ 5	15 10	PP	43·2
Scoresby Sund		79·1	18	e 12 9	+ 1	e 22 10	+ 3	e 28 29	SS	e 34·1
College		79·8	337	e 12 10	− 2	e 22 13	− 1	e 27 20	SS	e 38·2
Stonyhurst		82·3	37	e 12 24	− 1	i 22 38	− 2	e 27 28	SS	42·3
Kew		83·3	40	i 12 31	+ 1	e 22 51	+ 1	e 16 3	PP	e 38·1
Clermont-Ferrand		85·0	45	e 12 36	− 2	e 22 59	+ 8	—	—	e 44·1
Uccle		86·1	40	e 12 43	− 1	23 10	− 8	—	—	e 41·1
De Bilt		86·7	38	e 12 44	− 3	e 23 19	− 5	—	—	e 42·1
Basle		88·1	43	e 12 53	− 1	—	—	—	—	—
Strasbourg		88·3	42	—	—	e 23 46?	+ 7	—	—	—
Stuttgart		89·2	42	e 12 56	− 3	—	—	e 16 25	PP	—
Chur		89·5	43	e 12 54	− 6	—	—	—	—	—
Copenhagen		91·0	35	e 13 24	+17	24 8	+ 5	—	—	—
Cheb		91·3	40	e 13 21	+12	e 23 48	[+ 8]	e 24 22?	S	e 46·1
Potsdam		91·6	38	e 13 9	− 1	i 23 47	[+ 5]	e 17 4	PP	e 42·1
Triest		92·4	45	e 13 38	+24	i 23 52	[+ 5]	—	—	—
Bucharest		101·3	45	—	—	e 24 36	[+ 3]	—	—	40·1
Helwan	Z.	108·4	59	e 18 49	PP	e 21 10	PPP	—	—	—
Bombay		147·3	52	i 20 9	PKP_2	e 36 24	PPS	e 42 19	SS	—

For Notes see next page.

NOTES TO JULY 8d. 22h. 30m. 56s.

Additional readings :—
San Juan iP = 5m.16s.
Fort de France PPP = 5m.57s., SS = 10m.23s., SSS = 10m.29s.
Bermuda e = 11m.0s.
St. Louis isSN = 15m.59s.
Florissant isSE = 15m.58s.
Philadelphia e = 12m.53s. and 14m.50s.
Fordham i = 7m.59s., e = 16m.59s. and 18m.55s.
La Plata PE = 7m.49s., SN = 14m.4s.?, SSE = 17m.22s.
Chicago e = 10m.23s.
Tucson i = 8m.10s., e = 10m.54s. and 17m.50s.
Rio de Janeiro iPN = 14m.35s., iSN = 17m.53s., readings have been wrongly identified.
Vermont e = 17m.14s.
Ottawa SSN = 17m.34s.?, SSS = 18m.34s.
Pasadena eSSN = 19m.34s.
Logan i = 9m.5s., e = 18m.26s.
Bozeman e = 12m.28s.
Lick eN = 9m.21s.
Berkeley iEZ = 10m.23s., iSSE = 20m.49s., iN = 20m.56s.
Ukiah e = 21m.12s.
Granada P_eP = 12m.55s., SS = 27m.49s., SSS = 31m.33s.
Stonyhurst i = 12m.34s., e = 23m.40s.
Kew iP_ePN = 12m.35s., epPP?Z = 17m.53s.?, eSPZ = 23m.44s.?, ePPSZ = 26m.44s.?.
Stuttgart i = 13m.7s.
Copenhagen 23m.44s. and 25m.20s.
Potsdam ePE = 13m.16s., iZ = 13m.24s., iSE = 24m.13s., eSZ = 24m.17s.
Long waves were also recorded at Honolulu, Tananarive, and Riverview.

July 8d. Readings also at 1h. (Sofia), 5h. (Tacubaya), 10h. (near Berkeley, Branner, Fresno and Lick (2)), 12h. (La Paz), 13h. (Huancayo, La Paz, La Plata, Tucson, Pasadena, Riverside and Tinemaha), 15h. (near Harvard), 16h. (near Berkeley), 19h. (Sverdlovsk, Vladivostok, Mizusawa, Huancayo, La Paz, La Plata, Harvard, San Juan, Tucson, Pasadena, Riverside, and Tinemaha), 20h. (De Bilt, Kew, and Potsdam), 23h. (Huancayo and La Paz).

July 9d. Readings at 0h. (Colombo (2), Pasadena, Riverside, and Tinemaha), 2h. (Lick), 4h. (Harvard), 8h. (Andijan and near Stalinabad), 12h. (near Berkeley, Branner, Lick, and Fresno), 13h. (Pasadena, Riverside, Tucson, Tinemaha, and near Honolulu), 15h. (Berkeley and near La Paz), 16h. (near Berkeley), 18h. (Philadelphia), 19h. (Harvard, Riverview, and Potsdam), 20h. (near Harvard (2)), 22h. (Prague, New Kensington, near Branner, and Lick), 23h. (Berkeley).

July 10d. 4h. 49m. 57s. Epicentre 0°·8N. 80°·5W. (as on 8d.).

$A = +\cdot1650$, $B = -\cdot9862$, $C = +\cdot0138$; $\delta = +1$; $h = +7$;

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		13·7	158	e 3 17	− 1	e 6 8	+16	e 4 4	PPP	e 6·5
La Paz		21·1	146	4 48	0	i 8 46	+ 7	i 4 52	PP	11·8
San Juan		22·5	39	e 5 0	− 2	e 9 7	+ 2	—	—	e 10·2
Fort de France		23·6	56	e 7 11	?	—	—	—	—	e 15·6
Columbia		33·0	359	—	—	e 12 2	+ 5	—	—	e 15·2
St. Louis	N.	38·7	348	e 7 24	− 3	13 27	+ 2	e 8 59	PP	—
Philadelphia		39·3	9	e 7 34	+ 2	e 13 34	0	e 9 1	PP	e 13·7
Tucson		42·4	322	e 7 57	− 1	e 14 21	+ 1	e 9 43	PP	e 21·2
Ottawa		44·6	6	e 8 13	− 3	—	—	—	—	14·1
La Jolla	Z.	47·0	317	e 8 39	+ 4	—	—	e 8 48	?	—
Riverside	z.	47·8	318	e 8 40	− 1	—	—	i 8 50	?	—
Pasadena		48·4	318	i 8 45	− 1	—	—	—	—	—
Salt Lake City		48·9	330	e 8 46	− 4	e 15 54	+ 1	—	—	e 19·9
Tinemaha	z.	50·2	321	e 8 59	− 1	—	—	—	—	—
Bozeman		52·2	335	—	—	e 16 47	+ 8	—	—	e 30·9
Butte		53·1	334	e 9 19	− 2	e 17 26	+35	—	—	e 32·4
Victoria		60·2	329	e 10 20	+ 8	—	—	—	—	35·1
Granada		79·1	53	12 13k	+ 5	22 6	− 1	—	—	40·7
De Bilt	z.	86·7	38	e 12 48	+ 1	—	—	—	—	—
Stuttgart		89·2	42	e 12 53	− 6	—	—	—	—	—

Long waves were also recorded at La Plata.

July 10d. Readings also at 0h. and 1h. (Philadelphia), 3h. (Calcutta, Bombay, Dehra Dun, Agra, Kodaikanal, Helwan, Potsdam, De Bilt, and Granada), 4h. (Tucson, Palomar, Riverside, and Tinemaha), 5h. (near Mizusawa), 7h. (Rio de Janeiro), 8h. (Sverdlovsk, Almata, and near Tashkent), 11h. (Paris), 13h. (Berkeley), 15h. (Stuttgart), 18h. (La Paz), 21h. (Pasadena, Riverside, Tinemaha, Tucson, and near Tashkent).

July 11d. 5h. 57m. 58s. Epicentre 36°·3N. 141°·5E. (as on 1940 Nov. 14d.).

Intensity IV at Tyosi, II-III at Onahama, Kakioka and Hukusima. Epicentre 36°·1N. 141°·7E. Radius of macroseismic area 200-300km.

Seismological Bulletin of the Central Meteorological Observatory, Japan, for the year 1942, Tokyo 1950. pp. 25-26, macroseismic chart p.25.

$A = -\cdot6322$, $B = +\cdot5029$, $C = +\cdot5894$; $\delta = -2$; $h = 0$;
$D = +\cdot623$, $E = +\cdot783$; $G = -\cdot461$, $H = +\cdot367$, $K = -\cdot808$.

	Δ	Az.	P.	O−C.	S.	O−C.	L.
	°	°	m. s.	s.	m. s.	s.	m.
Onahama	0·8	323	0 17	− 1	0 32	+ 1	—
Tyosi	0·8	222	0 16	− 2	0 31	0	—
Mito	0·9	276	0 18	− 2	0 31	− 3	—
Kakioka	1·1	266	0 20a	− 2	0 34	− 5	—
Tukubasan	1·1	266	0 21a	− 1	0 53	L	(0·9)
Utunomiya	1·4	281	0 23	− 4	—	—	—
Tokyo Cen. Met. Ob.	1·5	247	0 26	− 2	—	—	—
Hukusima	1·7	330	0 28a	− 3	0 52	− 2	—
Kumagaya	1·7	265	0 32	+ 1	1 4	S_g	—
Yokohama	1·7	240	0 32	+ 1	0 56	+ 2	1·2
Mera	1·9	224	0 32	− 2	0 57	− 2	—
Maebasi	2·0	273	0 33a	− 2	1 15	S_g	—
Sendai	2·0	346	0 31a	− 4	1 0	− 2	—
Osima	2·3	228	0 36k	− 4	1 6	− 3	—
Misima	2·4	240	0 38k	− 3	1 11	− 1	—
Kohu	2·5	354	0 42	− 1	1 10	− 4	—
Nagano	2·7	278	0 44	− 1	1 31	+12	—
Mizusawa	2·8	354	0 46	− 1	1 31	S_g	—
Shizuoka	2·8	242	0 41	− 6	1 19	− 3	—
Aikawa	3·1	304	0 50	− 1	1 42	S_g	—
Omaesaki	3·2	238	1 2	P*	1 34	+ 2	—
Miyako	3·4	6	1 0	+ 5	—	—	—
Hatidyozima	3·5	204	0 47	−10	1 34	− 6	—
Akita	3·6	343	0 56	− 2	1 56	S_g	—
Nagoya	3·8	254	1 22	P_g	2 19	S_g	—
Wazima	3·8	289	0 58	− 3	—	—	—
Gihu	3·9	258	1 0	− 2	—	—	—
Hatinohe	4·2	0	0 52	−15	1 52	− 5	—
Hikone	4·4	258	1 8	− 2	2 4	+ 2	—
Kameyama	4·4	251	1 13	+ 3	2 24	S_g	—
Aomori	4·6	354	1 18	+ 6	2 32	S_g	—
Kyoto	4·9	256	1 14	− 3	2 14	− 1	—
Osaka	5·2	251	1 17	− 4	2 45	S_g	—
Kobe	5·4	254	1 29	+ 5	2 34	+ 6	2·8
Toyooka	5·5	265	1 31	+ 6	2 58	L	(3·0)
Wakayama	5·6	250	1 26	− 1	3 9	L	(3·2)
Sumoto	5·7	252	1 29	+ 1	—	—	—
Mori	5·9	351	1 27	− 4	2 45	+ 5	—
Muroto	6·7	245	1 40	− 2	3 40	L	(3·7)
Sapporo	6·8	359	1 48	+ 4	4 1	L	(4·0)
Koti	7·1	250	1 45	− 3	3 44	S*	—
Nemuro	7·6	21	3 5	+70	—	—	—
Hamada	7·8	262	1 50	− 8	4 20	S_g	—
Hukuoka	9·5	257	2 19	− 1	3 27	−43	—
Kumamoto	9·5	252	2 19	− 1	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.
		°	°	m. s.	s.	m. s.	s.	m.
Sverdlovsk		55·7	319	i 9 34	− 6	e 17 21	− 5	—
Tinemaha	z.	76·2	55	e 11 53	+ 1	—	—	—
Pasadena	z.	77·7	56	i 12 2	+ 2	—	—	—
Riverside	z.	78·6	56	e 12 5	0	—	—	—
Palomar	z.	79·3	57	e 12 10	+ 1	—	—	—
Tucson		84·0	54	i 12 35	+ 2	—	—	—
Stuttgart		85·3	331	e 12 34	− 6	—	—	—

Stuttgart also gives e = 13m.18s.
Long waves were also recorded at Potsdam, Kew, and Granada.

July 11d. 16h. 41m. 27s. Epicentre 40°·8N. 117°·5W. (as on 1941 Feb. 1d.).

Felt at Tonopah and Manhattan, Nevada.

A = −·3506, B = −·6734, C = +·6509; δ = +6; h = −2;
D = −·887, E = +·462; G = −·301, H = −·577, K = −·759.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tinemaha		3·7	188	i 0 56	− 4	e 1 20	−25	—	—	—
Salt Lake City		4·3	88	—	—	e 1 59	− 1	—	—	i 2·1
Fresno	N.	4·4	204	e 1 7	− 3	i 1 41	−21	i 1 10	P	—
Logan		4·4	76	e 1 51	+41	i 2 8	+ 6	—	—	i 2·2
Berkeley		4·7	233	i 1 28	+14	i 2 9	− 1	i 1 31	P_g	i 2·7
Haiwee		4·7	186	e 1 10	− 4	i 1 52	−18	—	—	—
Lick	E.	4·7	224	e 1 18	+ 4	i 2 8	− 2	—	—	—
Branner		4·9	228	e 1 27	+10	i 2 18	+ 3	e 1 33	P_g	—
Santa Clara		4·9	226	e 0 43	?	i 1 16	?	—	—	—
Pasadena		6·6	185	e 1 37	− 4	2 53	− 5	1 53	P*	—
Santa Barbara		6·6	196	e 1 49	+ 8	2 49	− 9	—	—	—
Riverside		6·8	177	e 1 38	− 6	i 2 56	− 7	1 54	P*	—
Palomar	z.	7·4	176	e 1 48	− 4	e 3 20	+ 2	—	—	—
Tucson		10·1	146	e 2 29	+ 1	e 3 33	?	i 3 6	PP	4·8

Long waves were also recorded at Bozeman and Ferndale.

July 11d. Readings also at 3h. (Clermont-Ferrand, San Fernando, and near Granada (2)), 6h. (Agra, and Bozeman), 9h. (near Chur, Stuttgart, and Zurich), 12h. (Riverview, La Paz, and Huancayo), 13h. (Riverside, Tucson, and Branner), 15h. (near Apia), 16h. (Tucson, Philadelphia, and Branner), 17h. (Stuttgart, Triest, Chur, Zurich, near Sofia and Bucharest), 19h. (near Mizusawa), 21h. (Stuttgart, near Florissant, and St. Louis), 23h. (Palomar and near La Paz).

July 12d. 5h. 5m. 17s. Epicentre 0°·0 80°·0W. (as on 1942 May 15d.).

Mapa Sismico y tectonico de Columbia. Banco de la Republica, Bol. Grafico 7, feb. 1947. Epicentre suggested 0°·8N. 80°·5W. Depth 500km.?.

A = +·1736, B = −·9848, C = ·0000; δ = −3; h = +7;
D = −·985, E = −·174; G = ·000, H = ·000, K = −1·000.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Balboa Heights		8·9	2	i 2 16	+ 4	e 5 7	S_g	—	—	—
Huancayo		12·8	159	i 3 6	0	i 5 21	− 9	i 3 41	PP	i 5·5
Port au Prince		19·9	23	i 4 43	+ 7	e 8 13	− 2	5 3	PP	—
La Paz		20·2	146	i 4 39a	0	i 8 27	+ 6	—	—	11·4
San Juan		22·8	37	i 5 6	+ 1	i 9 5	− 6	—	—	e 10·0
Merida	N.	22·8	337	e 4 56	− 9	—	—	—	—	—
Fort de France		23·7	53	i 5 11	− 3	i 9 35	+ 8	5 44	PP	e 12·1
Vera Cruz	N.	24·8	322	e 5 21	− 4	—	—	—	—	—
Tacubaya	N.	26·9	317	e 5 49	+ 4	—	—	—	—	—
Columbia		33·8	358	e 6 45	− 1	i 12 8	− 2	—	—	e 16·2

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Bermuda		35·3	23	i 7 0	+ 1	i 12 36	+ 3	e 8 15	PP	i 15·2
Georgetown		38·8	5	i 7 37	+ 9	i 13 36	+10	i 9 4	PP	—
St. Louis		39·6	348	i 7 33	− 2	i 13 33	− 5	i 9 6	PP	—
Florissant	E.	39·8	348	i 7 36	0	i 13 35	− 7	e 9 9	PP	—
Philadelphia		40·0	8	i 7 41	+ 3	i 13 48	+ 4	i 9 17	PP	e 16·4
Pittsburgh		40·3	0	i 7 41	+ 1	i 13 20	−29	—	—	—
La Plata		40·4	152	e 7 40	− 1	13 47	− 3	9 43	PP	22·4
New Kensington		40·4	0	i 7 43	+ 2	i 13 49	− 1	—	—	i 17·7
Fordham		41·0	10	i 7 45	− 1	i 13 59	0	c 13 38·	PcS	—
Chicago		42·2	352	e 7 52	− 4	i 14 7	−10	e 9 35	PP	i 17·4
Rio de Janeiro	N.	42·4	125	i 7 52	− 6	i 14 10	−10	—	—	i 21·6
Harvard		43·0	11	i 8 6	+ 3	i 14 29	0	i 9 44	PP	e 21·7
Tucson		43·3	322	i 8 6	+ 1	e 14 29	− 4	e 9 46	PP	e 17·6
Vermont		44·7	8	i 8 19	+ 3	i 14 52	− 2	i 9 55	PP	i 18·6
Ottawa		45·4	5	8 20	− 2	i 15 0	− 4	e 10 11	PP	22·7
Halifax		46·8	17	8 29	− 4	15 18	− 6	18 18	SS	20·7
Shawinigan Falls		46·8	7	8 33	0	15 25?	+ 1	10 25?	PP	—
Seven Falls		47·6	10	8 39	0	i 15 34	− 1	18 32	SS	22·7
La Jolla		47·9	317	i 8 51	+ 9	e 15 45	+ 6	—	—	—
Palomar	Z.	48·0	318	i 8 43	0	e 15 43	+ 2	—	—	—
Mount Wilson		49·3	318	i 8 53	0	e 15 57	− 2	—	—	—
Pasadena		49·3	318	e 8 53	0	e 15 58	− 1	e 19 39	SS	e 20·7
Salt Lake City		49·8	330	e 8 57	+ 1	i 16 6	0	e 11 2	PP	e 24·0
Logan		50·5	331	i 9 1	− 1	16 12	− 4	e 11 8	PP	e 21·9
Bozeman		53·1	335	e 9 19	− 2	i 16 51	0	e 12 20	?	e 25·0
Lick		53·4	319	e 9 28	+ 4	e 16 57	+ 2	—	—	—
Santa Clara		53·6	319	e 9 34	+ 9	i 17 2	+ 4	e 21 0	SS	e 26·0
Butte		54·0	334	e 9 29	+ 1	e 16 59	− 4	—	—	e 26·1
Berkeley		54·2	319	i 9 29	0	e 17 8	+ 2	i 11 38	PP	i 25·4
Ukiah		55·5	320	e 9 40	+ 1	e 17 25	+ 1	e 21 28	SS	e 24·4
Saskatoon		56·6	341	9 50	+ 3	17 39	+ 1	—	—	29·7
Seattle		60·0	328	—	—	e 17 35	−48	—	—	e 29·3
Victoria		61·1	329	10 18	0	i 18 39	+ 2	—	—	28·7
Ivigtut		65·7	17	e 10 53	+ 5	e 19 36	+ 2	e 13 18	PP	e 30·7
Sitka		72·1	332	e 11 27	− 1	e 20 49	− 1	e 14 10	PP	e 32·8
Lisbon		75·1	50	11 45k	− 1	21 26	+ 2	22 32?	SKKS	36·9
San Fernando		77·0	53	i 11 57	+ 1	21 46	+ 1	22 23	PS	36·7
Honolulu		78·7	292	e 12 15	+ 9	e 22 8	+ 5	e 27 17	SS	e 34·6
Granada		79·2	52	i 12 8a	0	i 22 12	+ 4	15 12	PP	38·9
Scoresby Sund		79·8	17	i 12 10	− 2	e 22 11	− 3	e 14 50	PP	e 37·8
College		80·7	331	e 12 11	− 5	e 22 21	− 3	e 15 21	PP	e 33·4
Stonyhurst		82·7	36	12 27	0	22 45	+ 1	16 13	PP	39·4
Oxford		83·0	38	i 12 31	+ 3	i 22 49	+ 2	—	—	—
Aberdeen		83·4	33	—	—	i 22 51	0	e 28 43	SS	e 43·7
Kew		83·6	39	i 12 30a	− 1	i 22 52	− 1	i 12 40	PcP	e 39·7
Paris		85·1	42	i 12 40	+ 1	i 23 0	[− 1]	—	—	e 40·7
Clermont-Ferrand		85·2	45	i 12 40	+ 1	e 23 7	[+ 5]	e 15 41	PP	e 41·1
Uccle		86·4	39	i 12 45a	0	i 23 21	0	e 23 1	SKS	e 42·7
De Bilt		87·0	38	i 12 50a	+ 2	e 22 58	[−16]	e 15 53	PP	e 41·7
Neuchatel		87·9	43	e 12 53	0	e 23 21	−14	—	—	—
Basle		88·4	43	e 12 55	0	e 23 40	0	—	—	—
Strasbourg		88·5	42	e 12 57	+ 1	23 47?	+ 6	—	—	—
Zurich		89·0	43	e 12 59a	+ 1	e 23 27	[0]	—	—	—
Stuttgart		89·5	42	e 13 0a	0	e 23 27	[− 3]	e 16 37	PP	e 42·7
Chur		89·7	43	e 13 1	0	e 23 30	[− 1]	—	—	—
Jena		91·0	40	e 13 5	− 2	e 23 37?	[− 2]	e 24 13?	S	e 42·7
Copenhagen		91·4	34	e 13 9a	0	23 42	[+ 1]	i 24 12	S	—
Cheb		91·5	40	e 13 14	+ 4	(e 23 50)	[+ 8]	—	—	e 43·7
Potsdam		91·9	37	i 13 12a	+ 1	i 23 44?	[0]	e 16 43	PP	e 37·7
Triest		92·6	44	i 13 15	0	i 23 49	[+ 1]	i 16 20	PP	e 45·6

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Prague		92·9	40	—	—	e 23 43?	[− 7]	—	—	e 43·7
Upsala		93·8	30	e 16 43?	PP	e 23 45?	[−10]	—	—	e 44·7
Sofia		99·8	47	e 13 53	+ 6	e 24 25	[− 1]	e 17 51	PP	—
Bucharest		101·5	44	—	—	e 18 6	PP	—	—	44·7
Christchurch		102·6	225	24 40	SKS	(24 40)	[+ 1]	27 27	PS	47·8
Helwan		108·4	59	14 25	P	25 7	[+ 2]	18 51	PP	—
Ksara		111·3	54	e 18 30?	[− 6]	e 26 23	{+ 9}	—	—	—
Sverdlovsk		115·2	22	i 18 17	[−26]	i 25 31	[− 2]	i 19 37	PP	—
Tchimkent		129·8	29	i 19 11	[− 1]	i 22 33	PKS	—	—	—
Tashkent		130·4	30	i 19 15	[+ 2]	26 23	[+ 2]	21 30	PP	—
Agra	E.	145·7	35	i 19 44a	[+ 4]	23 47	PKS	e 23 1	PP	—
Bombay	E.	147·4	54	i 19 49	[+ 6]	i 30 0	{− 4}	i 23 18	PP	e 71·7
Calcutta	N.	154·9	26	e 20 9	[+15]	—	—	—	—	—
Kodaikanal	E.	155·4	64	e 19 56	[+ 1]	e 30 55	{+ 7}	e 24 13	PP	—

Additional readings :—
Port au Prince SS = 8m.8s.
La Paz iN = 8m.39s.
Fort de France PPP = 5m.57s., SS = 10m.21s., SSS = 10m.27s.
St. Louis isSE = 16m.22s.
Florissant esSE = 16m.26s.
Philadelphia e = 12m.29s. and 15m.6s.
Pittsburgh iZ = 7m.52s., i = 9m.20s., 13m.44s., and 14m.0s.
La Plata E = 8m.31s.?, P_cPN = 9m.25s., P_cPE = 9m.28s., PPPE = 10m.19s.?, SZ = 13m.37s., SN = 13m.44s., pSE = 14m.26s., N = 15m.43s.?, SSN = 16m.43s.?, SSE = 16m.54s.?, SSSE = 17m.37s.?, Q = 19·2m.
Fordham e = 9m.10s., i = 14m.15s., e = 16m.36s., i = 17m.50s.
Chicago ePPP = 9m.54s.
Rio de Janeiro iSE = 14m.13s.
Harvard i = 18m.0s.
Tucson iS = 14m.33s.
Vermont iSS = 18m.11s.
Ottawa SSE = 18m.15s.
Shawinigan Falls SS = 18m.27s.
Palomar iZ = 8m.52s.
Pasadena iNZ = 9m.0s.
Salt Lake City eS_cS? = 18m.42s.
Logan i = 10m.23s., S_cS = 18m.44s., e = 20m.4s.
Bozeman i = 20m.52s.
Butte e = 19m.13s.
Berkeley ipP = 9m.37s., iSE = 17m.11s., iSSEN = 21m.1s.
Victoria eN = 20m.8s.
Ivigtut eS_cS = 20m.46s., eSS? = 24m.38s.
Sitka eSS = 25m.34s.
Lisbon SKKS?E = 22m.14s., Q? = 33m.7s.
Granada P_cP = 12m.22s., PPP = 16m.47s., PS = 23m.6s., SSS = 30m.17s.
Scoresby Sund ePPS = 23m.11s., e = 26m.44s., eSSS = 30m.59s.
College e = 28m.39s.
Stonyhurst 12m.38s., S? = 23m.25s., 24m.20s., 25m.2s., 28m.23s., and 33m.13s.
Aberdeen e = 34m.34s.
Kew epP? = 13m.54s., ePPEZ = 15m.33s., ePPPEZ = 17m.34s., eZ = 21m.4s., iSKS = 22m.48s., eSS = 27m.23s.?, eSSS = 31m.23s.?, eQEN = 34·7m.
De Bilt iZ = 23m.32s., eSS? = 27m.23s.
Jena eN = 13m.8s., eZ13m.18s., eE = 16m.13s.?, eE = 25m.7s.
Copenhagen 16m.44s, PS = 25m.13s.
Cheb eS has been increased by ten minutes.
Potsdam eEZ = 16m.13s., iN = 16m.17s., iE = 17m.15s., iSN = 24m.13s.
Christchurch P_eSS_cP = 40m.3s., Q = 43m.13s.
Helwan iZ = 14m.39s. and 18m.11s., PSZ = 28m.19s., PPSZ = 29m.19s.
Sverdlovsk eP = 14m.55s., iS = 27m.31s., PS = 29m.17s., PPS = 30m.36s., SS = 35m.25s.
Tashkent PKS = 22m.45s., PS = 31m.37s.
Agra eE = 28m.4s., SSE = 41m.58s.
Bombay iPKP$_2$E = 20m.9s., iSKSPE = 33m.33s., SSE = 42m.19s.
Kodaikanal SKSPE = 34m.33s., SSE = 43m.43s.?
Long waves were also recorded at Brisbane, Riverview, Sydney, Perth, Auckland, Wellington and Tananarive.

July 12d. Readings also at 5h. (near Berkeley, Branner, Lick, Fresno, and near Mizusawa), 7h. (Balboa Heights), 8h. (Mount Wilson, Pasadena, Palomar, Tinemaha, Tucson, and Riverview), 10h. (Philadelphia and Ksara), 12h. (La Plata, Mount Wilson, Pasadena, Palomar, Tucson, and Tinemaha), 14h. (near Apia), 17h. (near Florissant and St. Louis), 19h. (De Bilt, Kew, and Sverdlovsk), 21h. (near Mitaka, Mizusawa, and Tokyo Imperial University), 22h. (Ksara, Mount Wilson, Pasadena, Palomar, Riverside, and Tinemaha), 23h. (Tashkent).

July 13d. 0h. Undetermined shock. Probably East Indies.

Miyazaki, P =12m.17s., S =17m.24s.
Kumamoto eP =13m.22s.
Matuyama P =13m.23s., S =18m.33s.
Hukuoka eP =13m.30s., eS =18m.21s., eL =21m.18s.
Nagoya eP =13m.34s.
Osaka P =13m.44s., S =17m.46s.
Gihu e =13m.52s.
Nagano eP =13m.56s.
Mori eP =14m.2s., S? =20m.5s.
Tokyo P =14m.10s., S? =14m.25s.
Sendai eP =14m.20s., S =20m.12s.
Mizusawa ePE =14m.23s., SE =18m.43s.
Colombo eE =15m.0s.
Sapporo eP =15m.2s., S =21m.25s.
Calcutta ePN =15m.32s., ePPN =16m.5s., iSN =19m.57s., eSSN =20m.51s., eS$_e$SN = 26m.37s.
Riverview iZ =15m.51s. and 17m.41s., eE =25m.52s., eLN =35·7m.
Kodaikanal ePE =16m.12s., eE =23m.12s.
Agra eE =16m.16s., iE =23m.18s.
Irkutsk eP =16m.52s.
Bombay iE =17m.0s. and 19m.0s., eE =20m.0s.
Sverdlovsk P =18m.40s., S =27m.52s.
Ksara e =19m.33s. and 30m.41s.
Helwan ePZ =20m.16s., eZ =20m.34s. and 21m.4s.
Stuttgart SKKSN =31m.38s., PSN =33m.30s., e =21m.16s., 21m.33s., 25m.19s., 25m.50s., and 28m.6s.
Scoresby Sund e =22m.11s. and 25m.42s., eSKS =31m.47s., eS =32m.11s., e =39m.3s., and 40m.18s., eL =46m.8s.
Hyderabad SN =22m.46s.
Bucharest eP?EN =24m.18s.?, eS?E =30m.45s., LEN =50m.
Potsdam e =25m.18s., eN =31m.42s., eLNZ =56m.
Triest eP? =25m.30s., ePPP? =31m.37s., eSKS? =34m.29s.
Tinemaha eZ =25m.50s. and 26m.11s.
Pasadena eZ =25m.50s., eLN =52m.0s.
Palomar eZ =25m.54s., 26m.36s., and 27m.3s.
Berkeley eZ =25m.58s., eE =34m.57s., eLE =55·1m.
Kew eL =26m.
Bozeman e =26m.16s. and 32m.23s., eL =41m.27s.
Mount Wilson eZ =26m.19s.
Ottawa eZ =26m.23s., L =65m.
Riverside eZ =26m.26s.
Tucson e =26m.38s. and 27m.13s., eS? =36m.55s., eL =61m.13s.
La Paz eP =27m.27s., LN =37m.0s.
Granada ePKP =27m.53s., ePP =29m.33s., ePPP =32m.21s., eSKS =34m.51s., SKKS =36m.54s., SS =46m.42s., SSS =51m.29s., L =66·6m.
Philadelphia e =29m.10s., 30m.21s., 39m.8s., 41m.14s., and 46m.10s., eL =67m.28s.
Cheb e =31m.and 40m., eL =63m.
Sitka e =31m.40s.
Victoria eE =31m.42s., LE =53m.
Uccle eE =31m.48s., eZ =35m.6s.?.
San Fernando eE =35m.26s., LE =69m.
Seven Falls e =45m.18s., L =59m.
Long waves were also recorded at Honolulu, De Bilt, Upsala, and Huancayo.

July 13d. Readings also at 0h. (La Paz), 1h. (Florissant, Mount Wilson, Pasadena, Palomar, Riverside, Tucson, Tinemaha, Stuttgart, Uccle, and near Apia), 3h. (Branner and near Berkeley), 7h. (Sofia and near Istanbul), 8h. (Fresno, Berkeley, and near Tashkent), 9h. (near Istanbul and near La Paz), 11h. (Tananarive), 14h. (St. Louis, Florissant, Mount Wilson, Pasadena, Riverside, and Tinemaha), 16h. (Mount Wilson, Pasadena, Palomar, Riverside, and Tinemaha), 17h. (Mount Wilson, Palomar, and Riverside), 18h. (near Mizusawa), 20h. (near Andijan), 23h. (Stalinabad).

July 14d. Readings at 0h. (Potsdam, Tashkent, and near Mizusawa), 1h. (Florissant, and near Mizusawa), 2h. (near Mizusawa), 8h. (Bucharest), 15h. (near Apia), 16h. (Stuttgart, near Andijan, near Berkeley (2), Branner, Lick, and Fresno), 17h. (near La Paz), 18h. (Agra, Calcutta, and Berkeley), 20h. (near Tashkent), 22h. (Palomar and Tucson).

July 15d. Readings at 1h. (Triest), 2h. (La Paz, Bozeman, Mount Wilson, Pasadena, Palomar, Tucson, Riverside and Tinemaha), 5h. (Tacubaya), 8h. (near Algiers), 9h. (Ksara), 11h. (Triest), 13h. (near Berkeley(2)), 17h. (La Paz), 19h. (near Apia), 20h. (Stuttgart, Tucson, Mount Wilson, Pasadena, Palomar, Riverside, and Tinemaha), 21h. (Florissant and near St. Louis).

July 16d. Readings at 3h. (near Mizusawa), 5h. (near Berkeley), 8h. (La Paz), 9h. (near Berkeley, Branner and Lick), 11h. (near Lick), 13h. and 14h. (Kew), 17h. (Stuttgart, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, and Tucson), 19h. (Pasadena, Tucson, Palomar, and Riverside).

July 17d. 10h. 26m. 39s. I. } Epicentre 48°·2N. 9°·2E.
10h. 42m. 42s. II. } (as on 1939 March 1d.).

Scale VI in S.W. Alps. V at Hallau. Slight damage at Onstmettingen.
Epicentre 48° 15′·5N. 9°·0E. (Stuttgart), suggested depth 10-20km.
E. Wanner, "Jahresbericht des Erdbebendienstes der Schweiz," Jahre 1942, p.2.
Macroseismic chart figure 4.

$A = +\cdot6605$, $B = +\cdot1070$, $C = +\cdot7432$; $\delta = +6$; $h = -5$;
$D = +\cdot160$, $E = -\cdot987$; $G = +\cdot743$, $H = +\cdot119$, $K = -\cdot669$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
I	Ebingen	0·2	264	i 0 5a	− 5	—	—	—	—	—
II		0·2	264	i 0 6a	− 4	—	—	—	—	—
I	Ravensburg	0·5	146	i 0 15k	+ 1	0 23	0	—	—	—
II		0·5	146	e 0 15	+ 1	e 0 24	+ 1	—	—	—
I	Stuttgart	0·6	0	i 0 13a	− 2	i 0 19	− 7	—	—	—
II		0·6	0	i 0 13a	− 2	i 0 19	− 7	—	—	—
I	Strasbourg	1·0	292	i 0 21	0	i 0 33	− 3	—	—	—
II		1·0	292	(e 0 22)	+ 1	(i 0 34)	− 2	—	—	—
I	Zurich	1·0	206	i 0 21a	0	i 0 33	− 3	—	—	—
II		1·0	206	i 0 21	0	i 0 34	− 2	—	—	—
I	Basle	1·3	238	i 0 24	− 1	i 0 40	− 4	—	—	—
II		1·3	238	i 0 26	+ 1	i 0 42	− 2	—	—	—
I	Chur	1·4	171	i 0 30	+ 3	i 0 48	+ 2	—	—	—
II		1·4	171	i 0 31	+ 4	i 0 48	+ 2	—	—	—
I	Neuchatel	1·9	232	i 0 33	− 1	e 1 7	S_g	i 0 38	P_g	—
II		1·9	232	i 0 38	P_g	e 1 3	S_g	—	—	—
I	Cheb	2·8	48	e 0 58	P_g	e 1 35	S_g	—	—	—
I	Jena	3·2	29	e 0 52	0	i 1 38	S*	i 1 4	P_g	i 1·7
II		3·2	29	i 0 57	P*	i 1 32	0	i 1 1	P_g	i 1·7
I	Triest	4·0	128	e 1 22	P_g	—	—	—	—	• —
I	Clermont-Ferrand	4·8	242	e 1 33a	P_g	i 2 41	S_g	—	—	—
II		4·8	242	e 1 48	?	e 2 58	L	—	—	(e 3·0)
I	Potsdam	4·9	29	—	—	e 2 36	S_g	—	—	—
II	N.	4·9	29	—	—	e 2 36	S_g	—	—	—

Additional readings :—
Ravensburg I e = 19s., i = 26s., II e = 21s.
Strasbourg I e = 28s., i = 40s., e = 45s., i = 50s. II readings have been decreased by 1m.
Jena I iP = 1m.0s.
Clermont-Ferrand I i = 1m.40s.
Potsdam I eZ = 2m.39s., iN = 2m.42s., iE = 2m.52s.

July 17d. 11h. 34m. 40s. Epicentre 37°·3N. 141°·3E.

Scale IV at Hukusima, Sendai, and Miyako, II-III at Onahama, Kakioka, and Tukubasan.
Epicentre 37°·3N. 141°·3E. Shallow.
Seismological Bulletin of the Central Meteorological Observatory Japan for 1942, Tokyo 1950, p.27. Macroseismic chart, p.27.

$A = -\cdot6223$, $B = +\cdot4986$, $C = +\cdot6034$; $\delta = -5$; $h = -1$;
$D = +\cdot625$, $E = +\cdot780$; $G = -\cdot471$, $H = +\cdot377$, $K = -\cdot797$.

		△	Az.	P.	O−C.	S.	O−C.
		°	°	m. s.	s.	m. s.	s.
Onahama		0·5	221	0 16k	+ 2	0 25	+ 2
Hukusima		0·8	304	0 18k	0	0 30	− 1
Sendai		1·0	342	0 20k	− 1	0 34	− 2
Mito		1·1	216	0 25	+ 3	0 39	0
Kakioka		1·4	220	0 26	− 1	0 45	− 1
Tukubasan		1·4	222	0 27	0	0 48	+ 2
Utunomiya		1·4	237	0 27	0	0 46	0
Mizusawa	E.	1·8	356	0 35	+ 3	0 53	− 3
Kumagaya		1·9	233	0 42	+ 8	1 9	+10
Macbasi		2·0	243	0 37	+ 2	—	—
Tokyo Cen. Met. Ob.		2·0	218	0 36	+ 1	1 0	− 2
Miyako		2·4	13	0 38	− 3	1 1	−11
Aikawa		2·5	287	0 44	+ 1	1 6	− 8
Akita		2·6	339	0 46	+ 2	—	—
Kohu		2·8	233	0 25	−22	1 4	−18
Misima		2·9	221	0 51	+ 3	—	—
Nagano		3·0	256	0 46	− 4	1 20	− 7
Osima		3·0	211	0 49	− 1	1 26	− 1
Hatinohe		3·2	3	0 51	− 1	1 27	− 5
Toyama		3·3	259	1 5	P_g	—	—
Shizuoka		3·3	225	0 57	+ 4	1 41	S*
Aomori		3·6	353	0 58	0	1 47	+ 5
Gihu		4·1	244	1 44	S	(1 44)	−11
Nagoya		4·1	240	1 5	0	2 0	+ 5
Hikone		4·5	245	1 18	P*	2 15	S*
Kameyama		4·6	239	1 37	P_g	—	—
Mori		4·8	353	1 20	+ 5	2 19	+ 7
Osaka		5·4	242	2 5	P_g	2 57	S_g

July 17d. 19h. Tokyo, Imp. Univ. of Japan gives epicentre 35°·70N. 139°·64E.

Tukubasan P = 27m.28s., S = 27m.37s.
Tokyo, Imp. Univ. P = 27m.30s., S = 27m.40s.
Komaba P = 27m.30s., S = 27m.40s.
, Mitaka P = 27m.30s., S = 27m.41s.
Titibu P = 27m.30s., S = 27m.43s.
Togane P = 27m.30s., S = 27m.43s.
Koyama P = 27m.30s., S = 27m.44s.
Yosiwara P = 27m.30s., S = 27m.47s.
Mizusawa ePE = 28m.40s., SE = 28m.55s.

July 17d. Readings also at 2h. (Oaxaca, Puebla, Tacubaya, Tucson, Mount Wilson, Palomar, Riverside, and Bozeman), 3h. (Berkeley and Branner), 10h. (Zurich, Stuttgart, and near Ebingen, near Almata), 13h. (Agra, Calcutta, Sverdlovsk, Potsdam, De Bilt, Kew, and Upsala), 14h. (Granada), 15h. (near Stuttgart and Ebingen).

July 18d. 15h. 46m. 3s. Epicentre 47°·6N. 7°·6E.

Scale IV districts N.W. of Basle; III-IV, in other districts around Basle. Epicentre 47°·6N. 7°·6E.

E. Wanner. Jahresbericht des Erdbebendientstes der Schweiz im Jahre, 1942, p. 2.

Macroseismic chart Fig. 6.

A = +·6708, B = +·0895, C = +·7362; δ = −3; h = −4;
D = +·132, E = −·991; G = +·730, H = +·097, K = −·677.

	△	Az.	P.	O−C.	S.	O−C.	Supp.	
	°	°	m. s.	s.	m. s.	s.	m. s.	
Basle	0·0	—	i 0 5	− 2	i 0 7	− 4	—	—
Zurich	0·7	289	i 0 18a	+ 1	i 0 28	0	—	—
Neuchatel	0·8	216	i 0 15	− 3	i 0 23	− 8	—	—
Strasbourg	1·0	6	e 0 25	+ 4	i 0 37	+ 1	—	—
Ebingen	1·1	58	e 0 22	0	e 0 37	− 2	—	—
Chur	1·5	120	i 0 33	+ 5	i 0 54	+ 5	—	—
Stuttgart	1·6	42	i 0 29	− 1	i 0 54	+ 3	i 0 33	P_g
Clermont-Ferrand	3·6	241	i 1 9	P*	i 1 55	S*	—	—
Jena	4·2	36	e 1 38	P_g	—	—	—	—

Additional readings:—
Stuttgart i = 45s.
Jena e = 1m.47s. and 1m.50s.

July 18d. Readings at 2h. (near Algiers), 3h. (Berkeley (2) and Kew), 5h. (near Andijan), 7h. (De Bilt and Kew), 9h. (Zurich and near Chur), 12h. (near Zurich, Chur, Stuttgart, and Ebingen), 16h. (Almata, Tashkent, Sverdlovsk, Irkutsk, and Vladivostok), 17h. (De Bilt), 20h. (Kew, and near Andijan).

July 19d. Readings at 2h. (near Branner and near Mizusawa), 3h. (Branner, Fresno, and near Lick), 5h. (near Stalinabad, Tashkent, and Tchimkent), 9h. (near Branner and Lick (2)), 10h. (near Branner, Fresno, and Lick), 11h. (near Lisbon), 12h. (Branner and Lick), 13h. (Lick (2) and La Paz), 14h. (Branner and near Lick (2)), 16h. (Jena, Stuttgart, near Stalinabad, Tashkent, and Tchimkent), 17h. (Branner and near Lick), 19h. (near Komaba, Mitaka, Mizusawa, and Tokyo Imp. Univ.), 21h. (Branner and near Lick (4)).

July 20d. Readings at 1h. (Florissant), 9h. (De Bilt, Kew, Potsdam, and near Granada), 10h. (Kew, Potsdam, Bucharest, Stuttgart, Sofia, and Ksara), 11h. (Branner), 13h. (Philadelphia, Huancayo, La Paz, Tucson, Stuttgart, La Jolla, Mount Wilson, Pasadena, Palomar, Riverside, and Tinemaha), 14h. (Honolulu, De Bilt, Kew, Potsdam, and Wellington), 15h. (Arapuni, Christchurch, near Wellington, Riverview, Tucson, Mount Wilson, Pasadena, Palomar, Riverside, and Tinemaha), 16h. (Bozeman, Berkeley, and Santa Clara), 17h. (De Bilt, Kew, and Potsdam), 19h. (Wellington), 20h. (near Tashkent).

July 21d. 7h. 48m. 46s. Epicentre 20°·5S. 64°·0W. Depth of focus 0.080.

A = +·4110, B = −·8425, C = −·3481; δ = −10; h = +5;
D = −·899, E = −·438; G = −153, H = +·313, K = −·937.

		△	Az.	P.	O−C.	S.	O−C.	L.
		°	°	m. s.	s.	m. s.	s.	m.
La Paz		5·6	314	i 1 41k	+ 6	i 2 57	+ 6	3·2
Huancayo		13·8	306	e 3 2	+ 5	e 4 9	?	e 5·4
La Plata		15·3	161	3 28	+16	6 8?	+21	—
Fort de France		35·1	5	i 6 3	− 6	e 10 37	−28	—
San Juan		38·7	357	e 6 33	− 5	—	—	e 14·7
Pittsburgh		62·4	347	i 9 27	− 5	e 17 4	−13	—
Harvard		63·1	355	e 9 33	− 3	(e 19 14?)	?	e 19·2
St. Louis		63·8	337	i 9 35	− 6	e 17 29	− 5	—
Tucson		69·0	319	i 10 12	− 1	e 19 19	+44	—
La Jolla	z.	73·5	315	e 10 39	0	—	—	—
Palomar	z.	73·6	316	i 10 39	− 1	—	—	—
Riverside		74·3	316	i 10 44k	+ 1	e 19 27	− 7	—
Mount Wilson	z.	74·9	316	i 10 48k	+ 1	—	—	—
Pasadena		75·3	316	i 10 47k	− 2	i 19 33	−11	—
Haiwee		76·0	318	e 10 55	+ 2	e 19 44	− 8	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.		L.
		°	°	m. s.	s.	m. s.	s.		m.
Santa Barbara	z.	76·1	315	i 10 59	+ 6	—	—		—
Tinemaha		76·8	318	i 10 57	0	e 19 55	− 5		—
Berkeley	z.	79·8	317	i 11 13	0	—	—		—
Stuttgart		94·7	40	e 12 23	− 1	—	—		—
Potsdam		98·4	38	—	—	e 22 22	[− 5]		—

Additional readings :—
La Plata N =4m.2s. ?, SZ =6m.16s.
St. Louis iN =9m.39s. and 9m.44s.
Palomar iZ =10m.57s.
Riverside iZ =11m.1s.
Pasadena iZ =11m.3s.
Tinemaha iZ =11m.16s.

July 21d. 8h. 43m. 55s. Epicentre 14°·0S. 77°·0W. Approximate.

Pasadena suggests deep.

A = +·2184, B = −·9458, C = −·2404 ; δ = +3 ; h = +6 ;
D = −·974, E = −·225 ; G = −·054, H = +·234, K = −·971.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		2·5	40	i 0 39	− 4	—	—	—	—	—
La Paz		8·9	108	i 2 7a	− 5	i 3 55	0	—	—	4·7
Balboa Heights		22·9	354	e 5 14	+ 8	—	—	—	—	—
La Plata	E.	27·0	144	5 35?	−10	10 15	− 7	5 55	PP	14·7
	N.	27·0	144	5 41?	− 4	10 29?	+ 7	5 58	PP	15·1
Fort de France		32·6	30	e 6 57	+22	—	—	—	—	e 15·3
Rio de Janeiro	N.	33·2	110	e 11 5	S	(e 11 5)	−55	—	—	—
San Juan		33·9	18	e 6 55	+ 8	e 11 54	−17	—	—	e 14·6
Columbia		47·9	355	—	—	e 15 25	−14	e 18 34	SS	e 22·8
Philadelphia		53·7	1	e 9 18	− 8	e 16 41	−18	—	—	e 21·7
St. Louis		53·8	347	i 9 21	− 5	e 17 9	+ 8	17 14	PS	—
Florissant		54·0	347	e 9 28	0	i 16 47	−16	—	—	e 36·2
Tucson		56·2	325	e 9 45	+ 1	e 17 36	+ 3	e 10 56	PP	e 24·5
Chicago		56·4	350	e 9 37	− 8	e 17 27	− 9	e 21 15	SS	e 27·7
Ottawa		59·1	2	9 59	− 5	17 53?	−18	24 5?	SS	28·1
La Jolla	z.	60·4	321	e 10 18	+ 5	—	—	—	—	—
Palomar	z.	60·5	322	e 10 15	+ 1	—	—	—	—	—
Seven Falls		61·1	5	10 17?	− 1	18 29	− 8	—	—	27·1
Riverside	z.	61·3	322	e 10 21	+ 1	—	—	—	—	—
Mount Wilson	z.	61·8	322	e 10 26	+ 3	—	—	—	—	—
Pasadena		61·9	322	e 10 23	− 1	i 18 50	+ 3	—	—	—
Santa Barbara	z.	63·0	321	i 10 58	+27	—	—	—	—	—
Haiwee		63·1	323	e 10 48	+16	—	—	—	—	—
Salt Lake City		63·3	330	e 10 47	+14	e 19 2	− 2	e 23 26	SS	e 30·6
Tinemaha		64·0	323	e 10 39	+ 1	—	—	—	—	—
Berkeley		66·8	322	e 10 59	+ 3	e 19 45	− 3	—	—	33·5
Butte		67·8	334	e 11 4	+ 2	e 19 57	− 3	—	—	e 38·0
Victoria		74·6	330	11 47?	+ 4	21 21	+ 3	—	—	39·1
Scoresby Sund		92·3	16	e 12 50	−23	e 23 58	[+12]	e 30 19	SS	e 37·0
Auckland		95·7	230	—	—	24 5	[0]	—	—	41·1
Stuttgart		97·9	42	i 13 35	− 4	—	—	—	—	—

Additional readings :—
La Paz iZ =4m.14s.
La Plata PPPN =6m.29s. ?, P_cPN =8m.53s. ?
St. Louis eN =9m.38s., eEN =16m.45s., eE =19m.3s. and 19m.30s., eN =20m.50s.
Florissant iE =17m.17s. and 19m.7s.
Tucson e =17m.57s.
Palomar iZ =10m.24s.
Riverside iZ =10m.35s.
Mount Wilson iZ =10m.40s.
Pasadena iZ =10m.40s.
Tinemaha iZ =10m.53s., eEN =10m.56s.
Scoresby Sund ePS =24m.57s.
Stuttgart e =14m.22s.
Long waves were also recorded at Honolulu, Wellington, San Fernando, De Bilt, Kew, and Potsdam.

July 21d. Readings also at 0h. (Agra and Calcutta), 1h. (near Mizusawa (2)), 3h. (Berkeley), 6h. (Ksara), 11h. (near Mizusawa), 12h. (Riverview, La Paz, and near Andijan), 19h. (near Branner), 21h. (near Lick), 22h. (near Fresno and Lick).

July 22d. Readings at 2h. (Riverview), 7h. (Auckland, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, and Stuttgart), 8h. (Almata and near Andijan), 11h. (near Tashkent, Andijan, and near Algiers), 17h. (Haiwee, La Jolla, Mount Wilson, Pasadena, Palomar, Riverside, Santa Barbara, Tinemaha, Tucson, Mizusawa, Vladivostok, Stuttgart, and Scoresby Sund), 18h. (Branner), 20h. (Chur, Stuttgart, Bozeman, Mount Wilson, Pasadena, Tucson, and Tinemaha), 22h. (Mount Wilson, Riverside, Tinemaha, Tucson, La Paz, Agra, Bombay, Calcutta, Stuttgart, Semipalatinsk, Sverdlovsk, Almata, near Andijan, near Berkeley, and near Balboa Heights), 23h. (Potsdam).

July 23d. Readings at 0h. (Cheb), 6h. (Auckland, Christchurch, Wellington, and near Tucson), 11h. (Tchimkent), 12h. (Mizusawa, Haiwee, La Jolla (2), Mount Wilson (2), Pasadena (2), Palomar (2), Riverside (2), Santa Barbara, Tinemaha, Tucson, and Stuttgart), 14h. (Oaxaca, Puebla, Tacubaya, Mount Wilson, Palomar, Riverside, Tinemaha, Tucson, and near Lisbon), 18h. (near Mitaka, Tokyo Imp. Univ., and Mizusawa), 22h. (Stuttgart and Triest).

July 24d. 5h. Undetermined shock.

Bombay iE =7m.10s., iS?NE =12m.34s., eL?E =15m.10s.
Hyderabad eN =7m.27s., SN =12m.26s., LN =16m.2s.
Helwan ePZ =9m.42s., eEN =11m.6s., iEN =17m.44s., e =24m.12s.
Tashkent P =10m.23s., S =17m.21s.
Colombo eSE =10m.31s.
Kodaikanal iSE =10m.38s., LE =12m.
Potsdam eZ =12m.0s., eEN =22m.41s., eLEN =34m.
Stuttgart e =12m.0s., 12m.17s., and 12m.31s.
Granada P =12m.33s., PPP =17m.38s., iS =22m.57s., SS =28m.38s., SSS =32m.8s., L =43·1m.
Agra SE =14m.42s., iE =14m.46s., LE =18m.33s.
Calcutta iN =14m.44s.
Triest e =15m.7s.
Scoresby Sund e =18m.15s., 24m.45s., 26m.24s., 28m.37s., and 29m.17s., eL =43m.0s.
Victoria e =19m.24s. ?, L =70m.
Tucson e =19m.48s., 20m.51s., 22m.51s., 24m.35s., and 37m.24s., eL =83m.58s.
Mount Wilson eZ =19m.53s. and 20m.37s.
Palomar eZ =19m.53s. and 20m.42s.
Pasadena eZ =19m.58s. and 20m.38s., eLNZ =84m.
De Bilt eN =23m.20s. and 36m., LN =45m.
Long waves were also recorded at Kew, San Fernando, Bozeman, and St. Louis.

July 24d. Readings also at 0h. (near Branner), 4h. (near Spokane and near Balboa Heights), 9h. (near Istanbul), 11h. (College, near Fresno, and Berkeley (2)), 12h. (La Jolla, Mount Wilson, Tucson, Pasadena, Palomar, Riverside, Santa Barbara, Tinemaha, Bozeman, Chicago, Scoresby Sund, Granada, and near Lisbon), 15h. (Mount Wilson, Pasadena, Tucson, Palomar, Riverside, and Huancayo), 18h. (Sofia, and near Istanbul), 19h. (near Harvard), 21h. (near Harvard, and near San Juan), 22h. (Berkeley, near Branner and Lick), 23h. (Brisbane, Riverview, Sydney, Irkutsk, and Tashkent).

July 25d. 1h. Undetermined shock.

San Juan e =24m.52s. and 28m.23s., L =30m.25s.
College e =25m.5s., eL =28m.42s.
Tucson eP =25m.42s., eL =37m.33s.
Palomar ePZ =26m.22s., iZ =26m.28s., eZ =27m.56s.
Ottawa eZ =26m.24s., L =35m.
Riverside ePZ =26m.31s., eZ =28m.56s.
Pasadena eP =26m.38s.
Mount Wilson iP =26m.39s.
Salt Lake City eP? =27m.51s., e =36m.49s., eL =45m.34s.
Scoresby Sund e =52m.19s., eL =53m.48s.
Long waves were also recorded at Harvard, Philadelphia, and Huancayo.

July 25d. 6h. 22m. 39s. Epicentre 11°·8N. 125°·1E. Depth of focus 0·010.

A = −·5630, B = +·8011, C = +·2031; δ = −2; h = +6;
D = +·818, E = +·575; G = −·117, H = +·166, K = −·979.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Taityu		13·0	342	3 5	+ 3	4 47	−38	—	—	—
Nake		17·0	13	3 51	− 2	7 12	+15	—	—	—
Miyazaki		20·8	17	4 37a	+ 2	e 7 59	−18	i 8 28	sS	—
Hukuoka		22·2	13	4 53	+ 4	8 55	+13	—	—	e 11·1
Hamada		23·9	14	5 6	0	9 17	+ 5	—	—	—
Kobe		24·6	21	5 14	+ 2	9 27	+ 3	—	—	—
Nagoya		25·6	24	5 21	− 1	9 41	+ 1	—	—	—
Zinsen		25·6	2	5 40	pP	9 34	− 6	—	—	—
Yokohama		27·0	27	5 51	pP	11 27	sS	—	—	—
Tokyo Cen. Met. Ob.		27·2	27	5 32	− 4	9 19	−47	—	—	11·5
Nagano		27·4	23	5 39	+ 1	—	—	—	—	—
Sendai		29·9	26	5 58	− 3	10 48	− 2	—	—	—
Mizusawa	E.	30·7	25	e 6 2	− 6	11 1	− 1	—	—	—
Vladivostok		31·8	10	e 6 22	+ 5	i 11 16	− 3	—	—	—
Mori		33·1	21	e 6 32	+ 3	e 11 19	−21	—	—	—
Sapporo		34·2	21	6 39	+ 1	e 11 57	0	—	—	16·9
Nemuro		36·1	25	6 59	+ 5	—	—	—	—	—
Calcutta	N.	36·6	292	i 6 59k	+ 1	i 12 31	− 2	i 7 28	pP	—
Irkutsk		43·7	341	7 58	+ 1	i 14 18	− 1	—	—	—
Colombo	E.	44·9	268	8 51	pP	—	—	—	—	—
Hyderabad		45·4	283	8 12k	+ 2	14 45	+ 1	9 55	PP	21·6
Agra	E.	46·7	296	i 8 21k	0	e 14 45	−17	8 48	pP	—
Kodaikanal	E.	46·7	274	i 8 39	+18	i 15 16	+14	i 10 51	PP	22·3
Dehra Dun	N.	47·2	301	e 8 46	+21	e 14 13	−56	—	—	—
Brisbane	E.	47·5	146	e 8 26	− 1	i 15 13	0	e 10 18	PP	—
Bombay		50·8	285	i 8 51	− 1	i 15 58	− 1	i 9 21	pP	—
Riverview		51·7	153	e 8 59	0	e 16 13	+ 1	i 9 16	pP	e 22·1
Sydney		51·7	153	e 9 12	+13	i 15 54	−18	—	—	e 20·1
Almata		52·0	317	e 9 4	+ 3	—	—	—	—	—
Andijan		54·4	311	—	—	i 16 54	+ 6	—	—	—
Tashkent		56·8	311	9 37	+ 1	17 17	− 3	—	—	—
Auckland		67·3	138	11 1?	+15	19 42	+10	i 11 53	pP	—
Arapuni		68·5	139	—	—	19 51	+ 4	25 9?	SS	28·4
Wellington		69·9	143	11 1	− 1	20 1	− 2	i 20 33	pS	29·4
Honolulu		73·9	71	e 11 28	+ 2	i 20 58	+ 9	e 14 26	PP	e 33·8
College		78·2	26	e 11 51	+ 1	21 36	0	e 14 44	PP	e 35·9
Tananarive		82·3	249	15 15	PP	22 12	− 6	27 45	SS	39·5
Ksara		82·9	302	e 12 19?	+ 4	i 22 33	+ 9	e 12 45	pP	—
Sitka		85·2	33	e 12 28	+ 1	e 22 45	− 2	e 12 52	pP	e 40·1
Helwan		87·4	299	i 12 36a	− 1	23 12	+ 4	i 12 57	pP	—
Bucharest		88·2	315	e 12 45	+ 4	i 23 1	[+ 2]	e 15 54	PP	38·4
Upsala		88·5	331	12 44	+ 1	e 22 59	[− 2]	23 53	PS	42·4
Sofia		90·6	314	e 12 55	+ 2	i 23 41	+ 3	e 16 34	PP	—
Copenhagen		92·6	329	e 13 2k	0	23 58	+ 3	16 49	PP	—
Potsdam		93·7	326	i 13 7k	0	i 24 7	+ 2	i 16 59	PP	47·4
Prague		93·9	323	e 13 7	− 1	e 24 12	+ 6	e 23 33?	SKS	e 46·4
Scoresby Sund		94·9	350	e 13 14	+ 2	23 42	[+ 5]	17 3	PP	38·1
Victoria		95·0	39	e 13 39?	pP	i 23 43	[+ 5]	17 33?	PP	43·4
Cheb		95·1	324	e 17 13	PP	e 23 41	[+ 2]	—	—	—
Triest		96·0	319	e 13 39	pP	23 41	[− 3]	i 17 17	PP	e 55·4
Stuttgart		97·5	323	e 13 24	0	e 23 51	[0]	17 23	PP	50·4
De Bilt		98·1	328	i 13 31	+ 4	i 23 57	[+ 2]	17 29	PP	e 47·4
Chur		98·2	322	e 13 27	0	e 23 53	[− 3]	—	—	—
Strasbourg		98·4	324	17 21?	PP	e 23 59	[+ 2]	e 24 28	S	—
Aberdeen		98·8	334	i 17 36	PP	i 24 0	[+ 1]	31 33	SS	45·7
Ukiah		98·8	47	e 16 34	?	e 24 7	[+ 8]	e 17 38	PP	45·6
Uccle		99·2	327	e 13 36	+ 4	e 31 23	SS	17 33	PP	e 50·3
Berkeley		100·0	48	e 14 7	pP	i 24 45	−13	i 24 8	SKS	i 45·7
Santa Clara		100·5	48	e 13 41	+ 3	e 24 11	[+ 4]	—	—	e 46·0
Stonyhurst		101·0	331	—	—	i 24 9	[0]	i 32 4	SS	49·9

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Kew		101·3	329	e 26 44	PS	i 24 11	[0]	e 32 1? SS	e 47·4
Paris		101·3	325	—	—	i 24 14	[+ 3]	i 24 51 SKKS	e 38·3
Oxford		101·6	329	i 24 10	SKS	(i 24 10)	[− 2]	— —	e 44·4
Clermont-Ferrand		102·6	322	e 14 8	+21	e 24 20	[+ 4]	i 18 2 PP	e 52·3
Butte		102·7	37	e 17 59	PP	e 24 53	[+36]	— —	e 40·9
Tinemaha	z.	103·2	48	e 13 55	+ 5	e 30 3	?	— —	—
Santa Barbara	z.	103·3	51	e 13 34	−16	—	—	— —	—
Bozeman		103·8	37	e 17 42	PP	e 24 25	[+ 3]	e 27 13 PS	e 56·9
Mount Wilson	z.	104·6	50	e 14 0	P	30 0	?	i 14 21 pP	—
Pasadena		104·6	50	e 13 58	P	i 24 31	[+ 5]	i 14 18 pP	e 46·9
Riverside	z.	105·3	50	e 14 1	P	—	—	29 35 SKSP	—
Logan		105·4	40	e 18 22	PP	i 24 30	[0]	— —	e 48·6
La Jolla	z.	105·8	51	e 14 24	P	—	—	e 29 54 SKSP	—
Palomar	z.	105·9	51	e 14 4	P	—	—	i 29 39 SKSP	—
Salt Lake City		105·9	42	e 14 5	P	e 24 35	[+ 3]	e 18 43 PP	e 44·4
Ivigtut		107·1	357	e 17 45	PKP	e 24 55	[+18]	e 33 38 SS	e 46·6
Tucson		110·9	49	e 14 27	P	e 25 34	SKKS	i 19 2 PP	e 48·6
Granada		111·5	318	19 5	PP	30 14	PPS	22 27 PPP	63·4
San Fernando		113·6	319	19 7	PP	25 37	[+33]	2? 7 PS	58·4
Chicago		118·8	28	e 19 58	PP	e 25 27	[+ 4]	e 36 19 SS	e 57·8
Seven Falls		119·6	12	e 20 15	PP	27 50	?	e 36 12 SS	56·4
Florissant		119·8	32	e 19 29	PP	i 25 32	[+ 6]	i 29 22 PS	56·0
Ottawa		120·0	17	18 41	[+ 1]	25 32	[+ 5]	29 41 PS	57·4
St. Louis		120·0	32	i 15 11	P	24 31	[−56]	e 20 4 PP	—
Vermont		121·6	15	e 20 24	PP	e 25 39	[+ 7]	30 1 PS	48·9
Pittsburgh		123·1	22	i 18 48	[+ 2]	i 25 43	[+ 6]	i 20 45 PP	—
Harvard		123·8	15	i 18 52	[+ 4]	e 30 15	PS	e 20 13 PP	62·4
Fordham		124·8	17	i 18 50	[+ 1]	i 25 50	[+ 8]	i 20 56 PP	—
Philadelphia		125·2	18	e 20 59	PP	e 25 36	[− 7]	30 56 PS	53·1
Columbia		128·1	27	e 21 11	PP	e 37 59	SS	e 31 44 PS	56·8
Bermuda		135·1	12	e 22 2	PP	e 26 27	[+19]	39 25 SS	55·7
Balboa Heights		148·0	50	e 19 32	[+ 1]	—	—	— —	—
San Juan		148·0	20	e 19 39	[+ 8]	e 42 6	SS	23 32 PP	e 73·4
Fort de France		152·9	12	e 19 41	[+ 2]	—	—	— —	—
Huancayo		160·0	93	e 19 52	[+ 4]	e 28 0?	PPP	e 44 28 SS	61·0
La Paz		166·3	111	i 19 58k	[+ 4]	i 26 38	[− 7]	i 21 22 pPKP	i 77·9

Additional readings :—
Calcutta isS =13m.25s.
Hyderabad S_cSE =18m.23s.
Agra iPPE =10m.9s., iPPPE =10m.39s., iE =12m.54s., iPSE =14m.59s., isSE = 15m.44s., SSE =18m.0s., isSSE =18m.44s., iSSSE =19m.21s.
Kodaikanal SS =18m.21s.
Brisbane iE =15m.40s., iSS?E =18m.14s.
Bombay iE =9m.6s., 10m.45s., 11m.14s., and 12m.14s., iNE =16m.28s., iE =16m.44s., 16m.57s., and 17m.49s., eE =24m.21s.
Riverview iSE =16m.16s., iZ =16m.19s., ePSEN =16m.42s.
Auckland i =12m.46s., and 20m.13s.
Honolulu i =21m.31s.
College e =22m.14s., and 22m.32s., eSS =26m.38s.
Tananarive PS =23m.5s.
Sitka e =24m.4s., eSS? =28m.48s.
Helwan iZ =13m.28s., PPZ =16m.26s., PPPZ =18m.36s., SKKSEN =23m.45s., SN = 23m.57s., PSN =25m.9s.
Bucharest ePPN =15m.58s., ePPP?E =17m.57s., iE =23m.17s., iPSEN =23m.49s., iSSSE =31m.54s.
Upsala ePN =12m.57s.?, i =23m.20s., iPPSE =23m.56s.
Sofia eN =23m.13s., iEN =24m.15s.
Copenhagen 23m.28s., 24m.39s., 25m.10s., and 25m.43s.
Potsdam iSKSEN =23m.32s., iSN =24m.11s., eZ =24m.43s., iN =24m.47s.
Prague ePPS =24m.50s.
Scoresby Sund e =17m.39s., eS =24m.19s., i =24m.57s., eSS =30m.43s.
Victoria e =31m.3s.?.
Stuttgart eS =24m.41s., ePS? =25m.15s., e =34m.33s.?. ePKP,PKP =38m.31s.
De Bilt iZ =14m.1s., and 18m.1s., iE =24m.33s.
Strasbourg e =25m.48s.
Aberdeen iEN =24m.54s., iE =31m.46s.
Ukiah ePS =25m.12s., e =30m.5s., eSS =31m.47s.
Berkeley eZ =16m.33s., iSN =24m.39s.
Stonyhurst i =25m.6s. and 25m.45s.

Continued on next page.

Kew iSKKS =24m.49s., eSEN =25m.12s., ePPSE =27m.22s.
Paris ePPS =29m.12s.
Clarmont-Ferrand eS =26m.9s., ePS =26m.54s.
Bozeman e =24m.58s., eSS? =33m.24s.
Mount Wilson e =17m.1s.
Pasadena iZ =17m.0s., iEN =25m.6s., iZ =27m.20s., ePKKPZ =29m.39s.
Riverside eZ =17m.5s. and 29m.56s.
La Jolla eZ =14m.36s.
Palomar eZ =17m.0s., iZ =18m.29s., eZ =27m.32s., iZ =29m.55s.
Salt Lake City e =18m.15s., 21m.5s., 25m.19s., and 31m.17s., eSSS =37m.23s.
Ivigtut e =25m.27s., eS? =26m.15s., e =26m.52s.
Tucson e =17m.43s., i =19m.21s., ePS =28m.19s., e =29m.35s., eSS =34m.37s.
San Fernando PS?E =35m.45s., SS?E =43m.14s.
Chicago e =20m.26s., and 26m.47s., ePS =29m.44s., e =41m.12s.
Florissant ePPPE =22m.40s., iSKKSE =26m.57s., eSE =28m.16s.
Ottawa PP =20m.8s., PPP =22m.47s., SE =27m.51s.?, SS =36m.29s.
St. Louis ePPPN =22m.40s., eSKKSEN =26m.56s., eSPEN =29m.53s., ePPPE = 36m.13s.
Vermont eS =27m.51s., eSS =36m.36s., ePKP,PKP =39m.30s.
Pittsburgh iZ =19m.9s., 27m.13s.
Harvard i =19m.9s., e =20m.51s. and 37m.11s.
Fordham i =19m.13s., eSS =30m.28s., i =37m.26s.
Philadelphia e =27m.8s., 27m.26s., and 35m.47s., eSS =37m.29s., e =40m.6s., and 46m.26s.
Columbia e =27m.48s. and 40m.41s.
Bermuda e =22m.33s., eSSS =44m.32s.
San Juan e =20m.53s., 25m.59s., 29m.51s., and 33m.43s., eSSS =47m.34s.
Huancayo ePKP$_2$ =20m.47s., i =31m.0s., e =33m.32s., 34m.56s., and 42m.40s., eSSS? =50m.57s., e =51m.54s.
La Paz iPPZ =25m.9s., SKKSN =31m.27s., iN =32m.4s., iPSKS =35m.30s., iSSN = 45m.42s.

July 25d. 15h. 18m. 50s. Epicentre 5°·5S. 104°·5W.

A = −·2493, B = −·9638, C = −·0952; δ = +12; h = +7;
D = −·968, E = +·250; G = +·024, H = +·092, K = −·996.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tacubaya	N.	25·3	12	5 24	− 6	—	—	—	—	—
Huancayo		29·5	105	e 6 5	− 3	10 58	+ 4	e 7 13	PPP	e 12·0
La Paz		37·3	110	i 7 16k	0	i 13 3	− 1	—	—	17·7
Tucson		38·0	352	e 7 18	− 3	e 13 6	− 8	e 8 53	PP	e 18·4
La Jolla	Z.	40·0	344	e 7 38	0	—	—	—	—	—
Palomar	Z.	40·4	344	i 7 41	0	—	—	—	—	—
Riverside	Z.	41·1	344	i 7 47	0	—	—	—	—	—
Mount Wilson	Z.	41·5	344	e 7 50	0	—	—	—	—	—
Pasadena		41·5	344	i 7 50	0	e 14 7	0	—	—	e 19·4
Santa Barbara	Z.	42·2	342	e 7 57	+ 1	—	—	—	—	—
Haiwee		43·3	345	e 8 8	+ 3	—	—	—	—	—
Tinemaha	Z.	44·3	345	e 8 13	0	—	—	—	—	—
San Juan		44·7	57	e 9 13	+57	e 14 28	−26	e 9 48	PP	e 22·2
St. Louis		45·9	16	i 8 17	− 9	e 18 11	SS	e 15 51	PS	—
Florissant	E.	46·0	16	—	—	i 14 52	−20	e 18 16	SS	—
Berkeley		46·2	341	—	—	i 15 17	+ 2	—	—	i 21·7
Salt Lake City		46·5	352	e 8 44	+13	e 15 12	− 7	—	—	19·1
Pittsburgh		51·0	24	—	—	i 16 0	−22	i 18 51	SS	—
Ottawa		56·8	24	e 9 38	−10	e 17 18	−23	e 19 28?	PPS	27·2
Honolulu		58·7	300	—	—	e 18 50	PPS	—	—	28·5
Seven Falls		60·3	26	—	—	e 18 10	−16	—	—	28·2

St. Louis also gives eEN =17m.27s.
Long waves were also recorded at Harvard, Scoresby Sund, and Granada.

July 25d. Readings also at 0h. (Tucson, Pasadena, Mount Wilson, Riverside, Victoria, Scoresby Sund, Granada, San Fernando, and Stuttgart), 6h. (near Mizusawa), 7h. (Kew), 8h. (Sofia and near Istanbul), 13h. (near Istanbul), 9h. (Tashkent and Andijan), 10h. (Tucson, Pasadena, Mount Wilson, Riverside, Palomar, Tinemaha, and Tacubaya), 11h. (near La Paz), 15h. (Upsala and near Almata), 16h. (St. Louis and Florissant), 17h. (Upsala and near Berkeley), 19h. (La Paz and near Berkeley (2)), 21h. (Ivigtut and Florissant), 23h. (near Istanbul and near Branner).

July 26d. Readings at 1h. (Helwan, Ksara, Stuttgart, and Vermont), 7h. (De Bilt, Potsdam, and near Triest), 8h. (Tucson, Mount Wilson, Palomar, and Tinemaha), 18h. (Tucson, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Stuttgart, Granada, near Florissant, St. Louis, and near Mizusawa).

July 27d. 11h. 5m. 28s. Epicentre 43°·0N. 147°·2E. Depth of focus 0·020.

Scale V at Kusiro and Nemuro, IV at Hatinohe, II-III at Urakawa. Macroseismic radius greater than 300km., depth 120km. Epicentre 43°·0N. 147°·2E.

" Seismological Bulletin of the Central Meteorological Observatory Tokyo," 1942. Tokyo 1950, macroseismic chart p.28.

$A = -·6167$, $B = +3974$, $C = +·6795$; $\delta = -3$; $h = -3$;
$D = +·542$, $E = +·841$; $G = -·571$, $H = +·368$, $K = -·734$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Nemuro		1·2	286	0 16	−12	0 32	−17	—	—	—
Sapporo		4·3	273	1 0a	− 5	1 48	− 7	—	—	—
Hatinohe		4·9	241	1 11	− 2	2 5	− 5	—	—	—
Mori		5·0	262	1 17a	+ 3	2 13	+ 1	—	—	—
Miyako		5·2	231	1 8	− 9	2 5	−12	—	—	—
Aomori		5·3	248	1 16	− 2	2 15	− 4	—	—	—
Mizusawa	E.	6·0	232	e 1 28	0	2 33	− 3	—	—	—
Sendai		6·7	227	1 37	0	2 51	− 1	—	—	—
Hukusima		7·3	227	1 21	−24	2 5	−62	—	—	—
Onahama		7·8	221	1 58	+ 6	—	—	—	—	—
Aikawa		8·4	237	1 58	− 2	3 30	− 3	—	—	—
Mito		8·4	220	2 2	+ 2	3 34	+ 1	—	—	—
Utunomiya		8·5	224	2 6	+ 5	—	—	—	—	—
Kakioka		8·7	221	2 4	0	3 37	− 3	—	—	—
Tukubasan		8·7	221	2 28	+24	3 35	− 5	—	—	—
Tyosi		8·8	216	2 2	− 3	3 48	+ 5	—	—	—
Kumagaya		9·1	224	2 19	+10	3 54	+ 4	—	—	—
Maebasi		9·1	226	2 12	+ 3	3 50	0	—	—	—
Tokyo Cen. Met. Ob.		9·3	221	2 28	+16	3 58	+ 4	—	—	—
Nagano		9·4	230	2 14	+ 1	3 59	+ 2	—	—	—
Hunatu		9·9	224	2 32	+13	4 13	+ 4	—	—	—
Toyama		10·0	234	2 21	0	4 9	− 2	—	—	—
Misima		10·2	222	2 37	+14	—	—	—	—	—
Gihu		11·1	230	2 48	+13	4 42	+ 5	—	—	—
Nagoya		11·1	229	2 49	+14	4 39	+ 2	—	—	—
Vladivostok		11·2	276	i 2 29	− 7	i 5 1	+22	—	—	—
Hikone		11·5	232	2 39	− 1	4 49	+ 3	—	—	—
Kameyama		11·7	229	3 27	+44	—	—	—	—	—
Hamada		14·3	240	3 19	+ 3	5 9	−42	—	—	—
Koti		14·3	233	3 24	+ 8	—	—	—	—	—
Hukuoka		16·2	240	3 44	+ 4	6 52	+18	—	—	—
Kumamoto		16·5	237	3 47	+ 4	7 0	+19	—	—	—
Miyazaki		16·7	234	3 52	+ 6	6 57	+12	—	—	—
Kagosima		17·4	235	3 0	−54	6 23	−38	—	—	—
Irkutsk		30·0	304	e 5 53	− 3	e 10 8	−32	—	—	—
Sverdlovsk		53·7	318	—	—	i 16 24	− 3	—	—	—
Tinemaha	z.	68·8	59	i 10 50	+ 1	—	—	e 11 13	pP	—
Santa Barbara	z.	69·5	62	e 10 54	+ 1	—	—	—	—	—
Haiwee		69·6	60	e 10 55	+ 1	—	—	—	—	—
Mount Wilson	z.	70·7	61	i 11 1	+ 1	—	—	i 11 24	pP	—
Riverside	z.	71·3	61	i 11 4	0	—	—	i 11 28	pP	—
Copenhagen		74·5	336	—	—	20 43	0	—	—	—
Tucson		76·6	59	e 11 35	+ 1	—	—	i 11 59	pP	—
Potsdam		77·1	334	—	—	i 21 9	− 2	—	—	e 40·5
Ksara		81·1	309	e 11 56	− 3	e 22 11	+18	—	—	—
Stuttgart		81·4	334	e 11 59	− 1	—	—	e 12 21	pP	—
Helwan		86·6	308	i 12 27	+ 1	e 22 53	+ 5	—	—	—

Additional readings :—
Sendai 2m.47s.
Potsdam eZ = 21m.13s.
Long waves were also recorded at Granada,

July 27d. Readings also at 0h. (Branner and near Berkeley), 10h. (Paris, Tucson, Mount Wilson, Palomar, and La Paz), 19h. (near Lick), 21h. (Branner and near Frunse).

July 28d. Readings at 1h. (Tucson, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, and near La Paz), 2h. (Palomar and Tucson), 8h. (Branner, Lick, and near Fresno), 9h. (Upsala), 14h. (near Apia), 17h. (near Berkeley and near Mizusawa), 18h. (Berkeley), 22h. (Triest), 23h. (near Mizusawa).

July 29d. 20h. 22m. 4s. Epicentre 29°·5N. 57°·5E. (as on 1937 May 12d.).

$A = +\cdot4684$, $B = +\cdot7353$, $C = +\cdot4899$; $\delta = +7$; $h = +2$;
$D = +\cdot843$, $E = -\cdot537$; $G = +\cdot263$, $H = +\cdot413$, $K = -\cdot872$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tashkent		15·2	35	3 34	− 4	8 17	L	—	—	(8·3)
Andijan		16·5	43	3 54	0	—	—	—	—	—
Bombay	E.	17·5	124	—	—	i 7 41	+20	—	—	e 10·9
Agra	E.	18·2	92	e 4 4	−12	e 7 23	−14	—	—	—
Ksara		18·9	287	e 4 30	+ 6	e 8 10	+17	—	—	(10·8)
Almata		20·7	42	4 47	+ 3	—	—	—	—	—
Hyderabad		22·6	117	5 6	+ 3	9 29	+22	—	—	11·8
Helwan		22·8	277	i 5 8a	+ 3	9 20	+ 9	5 38	PP	—
Kodaikanal	E.	26·7	132	e 7 58	?	—	—	—	—	—
Calcutta	N.	28·5	96	i 11 11	S	(i 11 11)	+25	—	—	i 14·5
Sofia		30·4	305	e 7 26?	PP	e 12 26?	SS	—	—	—
Colombo	E.	30·8	133	—	—	e 12 56	SS	—	—	—
Triest		37·7	308	e 7 18	− 1	—	—	i 8 58	PP	—
Potsdam		39·8	318	e 7 38	+ 2	i 13 38	− 4	e 9 8	PP	e 22·9
Upsala	N.	40·5	331	—	—	e 16 46	SS	—	—	—
Irkutsk		41·1	42	7 47	0	—	—	—	—	—
Copenhagen		41·2	323	i 7 47	− 1	14 2	0	—	—	—
Stuttgart		41·3	312	e 7 46	− 3	—	—	e 9 29	PP	—
Zurich		41·5	310	e 7 48a	− 2	—	—	—	—	—
Neuchatel		42·6	309	e 7 52	− 7	—	—	—	—	—
Uccle		44·7	314	e 8 16	0	e 14 53	− 1	e 18 21	SS	—

Additional readings :—
Ksara L is recorded as SS.
Helwan PPPZ = 5m.48s.
Calcutta iPPN = 11m.18s., iSN = 13m.47s., iSSN = 14m.10s., phases have been wrongly identified.
Potsdam ePPE = 9m.12s.
Long waves are also recorded at De Bilt, Cheb, Kew, Granada, and Clermont-Ferrand.

July 29d. 21h. 18m. 35s. Epicentre 0°·8N. 80°·5W. (as on 10d.).

$A = +\cdot1650$, $B = -\cdot9862$, $C = +\cdot0138$; $\delta = +1$; $h = +7$;

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		13·7	158	e 3 19	+ 1	e 6 41	+49	e 6 59	SS	e 7·5
La Paz		21·1	146	4 47	− 1	1 9 21	+42	—	—	13·0
San Juan		22·5	39	e 5 4	+ 2	e 9 7	− 2	—	—	e 10·0
St. Louis	N.	38·7	348	e 9 46	PP	e 12 28	SS	—	—	—
Tucson		42·4	322	e 7 57	− 1	—	—	—	—	e 24·3
Palomar	Z.	47·0	318	i 8 33	− 2	—	—	—	—	—
Riverside	Z.	47·8	318	i 8 40	− 1	—	—	—	—	—
Mount Wilson	Z.	48·4	318	e 8 45	− 1	—	—	—	—	—
Pasadena	Z.	48·4	318	e 8 44	− 2	—	—	—	—	—
Granada		79·1	53	—	—	(21 19)	−48	—	—	21·3
Scoresby Sund		79·1	18	—	—	e 21 42	−25	e 28 19	SS	e 36·2

Additional readings :—
La Paz iPNZ = 4m.53s.
Palomar iZ = 8m.46s.
Long waves are also recorded at Salt Lake City, Cheb, and Stuttgart.

July 29d. 22h. 49m. 13s. Epicentre 2°·8S. 127°·7E.

A = −·6108, B = +·7903, C = −·0485; δ = 0; h = +7.
D = +·791, E = +·612; G = +·030, H = −·038, K = −·999.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Taihoku		28·3	348	e 5 58	+ 1	—	—	—	—	—
Naha		28·8	359	e 6 2	0	—	—	—	—	—
Perth		31·1	199	(7 17)	PP	(11 7)	−21	—	—	—
Brisbane		34·5	138	i 6 45	− 7	i 12 13	− 7	i 8 0	PP	—
Miyazaki		34·7	7	6 53	− 1	11 46	−38	—	—	e 16·2
Kumamoto		35·5	5	e 7 2	+ 2	12 46	+10	—	—	—
Hukuoka		36·3	4	·7 6	− 1	12 53	+ 5	—	—	e 16·0
Matuyama		36·8	8	e 7 11	0	12 49	− 7	—	—	—
Hamada		37·7	6	7 19	0	—	—	—	—	—
Riverview		37·9	148	i 7 20k	0	i 13 10	− 3	i 8 50	PP	e 18·4
Sydney		37·9	148	e 7 32	+12	i 13 29	+16	i 8 47	PP	e 15·9
Osaka		38·0	12	7 18	− 3	12 57	−17	—	—	—
Kameyama		38·3	13	7 25	+ 1	—	—	—	—	19·8
Kyoto		38·4	11	e 7 25	0	13 13	− 7	—	—	—
Nagoya		38·7	13	e 7 28	+ 1	13 21	− 4	—	—	20·2
Yokohama		39·7	15	e 7 53	+17	15 8	+88	—	—	—
Tokyo Cen. Met. Ob.		39·9	15	7 48	+11	9 20	PP	—	—	—
Zinsen		40·1	357	7 39	0	12 37	−69	e 9 11	PP	e 15·8
Nagano		40·5	12	i 7 42	0	13 44	− 8	—	—	—
Sendai		42·6	15	e 7 59	0	14 19	− 4	—	—	—
Mizusawa	E.	43·5	15	e 8 8	+ 1	14 30	− 6	—	—	—
Calcutta	N.	45·9	305	i 8 20k	− 6	i 15 0	−11	i 9 8	PP	—
Vladivostok		45·9	4	i 8 27	+ 1	i 15 5	− 6	—	—	—
Mori		46·2	13	(8 29)	+ 1	(15 13)	− 2	(i 9 29)	PP	(e 23·4)
Sapporo		47·3	13	8 40	+ 3	15 27	− 4	e 18 44	SS	21·7
Colombo	E.	48·7	281	8 48	0	—	—	—	—	—
Kodaikanal	E.	51·7	286	i 9 17k	+ 6	16 47	+15	i 11 37	PP	i 22·8
Hyderabad		52·6	294	9 19	+ 1	16 40	− 4	11 31	PP	26·1
Auckland		55·0	134	9 37	+ 2	17 22	+ 5	i 13 47	?	24·0
Arapuni		56·1	135	9 47?	+ 4	17 47?	+15	—	—	23·8
Agra		56·4	305	i 9 34k	−11	i 17 23	−13	i 11 39	PP	—
Christchurch		56·8	142	9 49	+ 1	17 44	+ 3	11 58	PP	27·4
Wellington		57·0	139	9 50	0	17 44	− 1	i 12 47?	PP	25·8
Dehra Dun	N.	57·7	309	e 10 25	+30	e 18 30	+37	—	—	—
Bombay		58·1	293	i 9 58	0	i 17 52	− 6	12 7	PP	i 36·8
Irkutsk		58·3	343	9 58	− 1	i 17 54	− 7	—	—	—
Apia		60·7	104	e 10 15	0	e 18 46	+14	—	—	—
Almata		64·6	322	e 10 43	+ 2	—	—	—	—	—
Andijan		66·4	317	10 51	− 2	19 39	− 4	—	—	—
Tashkent		68·8	316	11 6	− 2	20 7	− 4	—	—	—
Honolulu		76·6	67	i 11 54	0	e 21 40	0	e 15 5	PP	e 32·9
Tananarive		79·8	251	12 33	+21	22 38	+24	23 29	PS	39·8
College		90·2	25	e 13 2	− 2	e 23 54	− 2	e 16 35	PP	e 36·0
Ksara		93·0	302	e 13 18	+ 1	e 24 5	{+ 1}	e 16 57	PP	—
Sitka		96·1	33	e 13 32	+ 1	e 24 6	[− 1]	e 17 16	PP	e 45·2
Helwan		96·9	299	i 13 32	− 2	25 12	+18	17 8	PP	—
Bucharest		100·2	314	e 13 48	− 1	(e 24 30)	[+ 2]	(e 18 1)	PP	—
Sofia		102·4	313	e 14 0	+ 1	e 24 51	[+12]	e 18 6	PP	e 50·8
Upsala		102·4	330	e 13 47?	−12	e 24 47?	[+ 8]	e 18 7	PP	e 49·8
Victoria		104·5	40	14 11	+ 3	24 51	[+ 3]	18 33	PP	37·8
Seattle		105·5	41	—	—	e 29 52	?	e 36 1	SSS	e 50·9
Copenhagen		106·3	328	e 14 14	− 3	25 2	[+ 6]	18 43	PP	—
Ukiah		106·5	50	e 14 0	−17	e 24 58	[+ 1]	e 18 37	PP	e 44·8
Prague		106·9	322	e 18 5?	PKP	e 24 47?	[−12]	e 18 47	PP	—
Potsdam		107·1	324	i 14 18k	− 1	e 24 55	[− 5]	i 18 45	PP	e 54·8
Berkeley		107·5	51	e 14 13	− 8	i 24 57	[− 5]	i 18 49	PP	i 57·7
Santa Clara		107·8	51	i 14 28	P	i 28 8	PS	i 18 55	PP	e 50·4
Cheb		108·2	322	e 14 18	P	e 28 27	PS	e 18 53	PP	e 58·8
Jena		108·4	322	e 18 16	PKP	e 28 6	PS	e 36 53?	SSS	e 50·9
Triest		108·6	317	i 18 52	PP	i 25 14	[+ 8]	i 28 20	PS	e 54·3

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Fresno	N.	109·6	52	e 4 19	?	—	—	—	—	—
Scoresby Sund		109·6	350	e 14 28	P	e 25 3	[− 7]	e 18 53	PP	e 56·9
Stuttgart		110·6	321	e 14 29	P	e 25 5	[− 9]	e 19 15	PP	e 56·4
Tinemaha	Z.	110·8	52	—	—	—	—	e 19 22	PP	—
Haiwee		111·2	52	—	—	e 29 2	PS	e 19 31	PP	—
Pasadena		111·4	54	e 14 39	P	e 25 19	[+ 1]	i 19 16	PP	e 44·8
Mount Wilson		111·5	54	e 14 35	P	—	—	e 19 17	PP	—
Strasbourg		111·5	321	e 19 19	PP	i 29 47	PPS	i 21 45	PPP	49·8
Zurich		111·5	320	e 18 34	[− 2]	e 29 17	PS	—	—	—
De Bilt		111·7	326	i 14 39k	P	i 29 1	PS	i 19 21	PP	e 55·8
Basle		112·0	320	e 18 41	[+ 4]	—	—	—	—	—
Riverside	Z.	112·1	54	e 14 59	P	e 29 30	PS	e 19 18	PP	—
Butte		112·3	40	e 14 56	P	e 26 10	{−11}	e 19 24	PP	e 53·6
Neuchatel		112·6	320	e 18 44	[+ 6]	—	—	—	—	—
Uccle		112·7	325	e 14 41	P	i 28 53	PS	i 19 28	PP	—
Palomar	Z.	112·7	54	e 14 46	P	—	—	i 19 27	PP	—
Aberdeen		112·9	333	e 19 6	[+27]	i 25 31	[+ 7]	—	—	e 55·2
Bozeman		113·5	40	e 14 42	P	e 25 26	[0]	e 19 29	PP	e 46·9
Logan		114·3	44	e 18 10	[−32]	e 25 41	[+12]	i 19 40	PP	e 47·7
Salt Lake City		114·6	46	e 17 6	?	e 26 9	[+39]	e 19 38	PP	e 48·7
Paris		114·6	323	i 19 43	PP	29 27	PS	—	—	e 42·8
Stonyhurst		114·9	330	e 19 28	PP	29 12	PS	—	—	56·0
Kew		115·0	327	i 14 56a	P	e 25 40	[+ 8]	i 19 43	PP	e 53·8
Oxford		115·4	327	e 18 21	[−23]	i 29 10	PS	i 19 47	PP	—
Clermont-Ferrand		115·6	320	e 18 45	[+ 1]	i 30 34	PPS	e 19 53	PP	e 59·8
Tucson		117·9	54	e 15 5	P	i 26 13	[+30]	i 20 2	PP	e 48·6
Algiers		119·0	310	e 19 58	PP	e 25 47	[0]	e 30 9	PS	e 44·8
Ivigtut		121·7	357	e 19 13	[+17]	e 28 31	{+66}	e 20 42	PP	e 54·6
Granada		123·8	314	e 18 55	[− 5]	27 24	{−16}	i 20 43	PP	66·9
San Fernando		125·9	314	e 18 58	[− 6]	e 27 38	{−15}	e 21 0	PP	65·8
Lisbon		126·9	318	21 6	PP	38 17	SS	—	—	64·3
Chicago		129·9	34	e 19 13	[+ 1]	e 26 19	[− 1]	e 21 21	PP	e 54·2
Florissant		130·1	39	e 19 22	[+10]	e 29 27	?	i 22 37	PKS	e 73·8
St. Louis		130·3	39	i 19 12	[− 1]	e 26 16	[− 5]	i 21 22	PP	—
Tacubaya	N.	131·3	66	e 19 26	[+12]	—	—	—	—	—
Ottawa		132·9	22	19 17	[0]	31 53	PS	22 45	PKS	55·8
Shawinigan Falls		132·9	18	e 19 27	[+10]	31 47?	PS	e 22 45	PKS	31·8
Seven Falls		133·0	16	e 19 17?	[− 1]	29 33	{+55}	i 22 47	PKS	56·8
Vermont		134·6	20	e 21 44	PP	e 25 55	[−35]	i 22 57	PKS	e 54·6
Pittsburgh		135·0	29	i 19 26	[+ 5]	—	—	—	—	i 51·9
New Kensington		135·0	29	19 29?	[+ 8]	—	—	—	—	—
Harvard		136·9	20	i 19 25	[0]	—	—	e 21 53	PP	e 53·8
Fordham		137·4	23	e 19 15	[−11]	i 23 4	PKS	i 22 14	PP	—
Philadelphia		137·6	25	e 19 15	[−11]	e 28 52	{−14}	i 22 13	PP	e 59·0
Columbia		139·0	36	e 19 22	[− 7]	e 25 41	[−56]	e 22 19	PP	e 56·6
Merida	N.	139·4	60	e 20 5	[+36]	—	—	—	—	—
La Plata	E.	142·1	172	19 29?	[− 5]	29 23?	{−11}	20 29	PP	71·6
Bermuda		148·4	20	i 19 52	[+ 7]	e 29 37	{−32}	i 23 17	PP	e 76·2
Balboa Heights		152·2	75	e 19 47?	[− 4]	—	—	—	—	—
Huancayo		152·8	123	e 19 57	[+ 5]	e 29 7	?	e 23 38	PP	e 62·7
Rio de Janeiro	E.	153·0	198	e 20 7	[+15]	—	—	—	—	—
La Paz		155·2	142	i 19 59k	[+ 4]	26 29	[−31]	i 21 23	pPKP	74·3
San Juan		159·4	39	e 20 1	[+ 1]	e 31 43	{+34}	e 24 23	PP	e 64·2
Fort de France		165·3	35	e 20 0	[− 6]	—	—	c 24 46	PP	—

Additional readings and notes :—
Perth readings are given as S and SS respectively.
Brisbane iSN =12m.17s.
Riverview iZ =8m.11s., iEN =8m.55s., iN =12m.11s., $iP_cS?E$ =13m.27s., iN = 13m.33s., iSSZ =15m.57s., SSSNZ =16m.29s., ?E =16m.47s., $iS_cS?N$ =17m.18s.
Zinsen e =14m.48s.
Calcutta iN =16m.11s.
Mori all readings have been decreased by 3 minutes.
Hyderabad SS =20m.27s.
Auckland Q? =21·3m.

Continued on next page.

Agra E pP =9m.50s., iPPP =13m.4s., iP_cS? =14m.27s., iS_cS =19m.26s., iSS =21m.36s., iSSS? =23m.3s.
Christchurch P_cP =10m.44s., PPP =13m.13s., P_cS =14m.41s., PS =18m.9s., SS =21m.35s., Q =23m.8s., P_cSS_cP =25m.38s.
Wellington iZ =11m.17s. and 14m.5s., S_cS? =19m.34s., Q =21·8m.
Bombay P_cPE =10m.45s., S_cSE =19m.11s., SSE =21m.40s., i?E =30m.47s.
Honolulu e =14m.3s., i =22m.3s., e =22m.45s., eSS =26m.30s.
College e =18m.17s., ePPS =24m.55s., eSS =29m.47s.
Sitka e =15m.21s., eS =25m.8s., e =27m.30s., eSSS =35m.53s.
Helwan iZ =14m.2s. and 18m.0s., SKPZ =19m.47s., SZ =26m.14s., PPSZ =29m.9s.
Bucharest ePN =14m.1s., ePPN =14m.11s., eSSN =18m.47s., eS_cS?N =24m.37s., PP and SKS are given as eS and eS_cS respectively.
Sofia eE =18m.13s., eN =27m.5s., eE =27m.20s.
Upsala ePN =11m.47s.?, ePPP?N =19m.5s.?, eN =24m.13s., ePPS?E =26m.55s., eN =47m.29s.?.
Copenhagen 20m.55s. and 28m.12s.
Ukiah e =14m.19s., eS =26m.24s., ePS? =27m.57s., e =30m.13s., eSS =33m.9s.
Prague ePS? =28m.5s.?.
Potsdam iEZ =14m.47s., ePKPN =18m.29s., iZ =20m.54s., iE =20m.59s., iPPPEZ =21m.35s., ePKSN =22m.10s., iE =23m.22s., iSKSE =24m.58s., $iSKS_2E$ =25m.47s. iZ =27m.55s., iPS =28m.19s., iPSN =28m.24s., iZ =28m.31s., iE =28m.55s.
Berkeley iPZ =14m.21s., iPPEN =18m.53s., iE =24m.33s., iN =26m.37s., iE =26m.58s.
Santa Clara iSSE =33m.8s.
Cheb ePKP =17m.48s.
Jena eE =18m.23s.?, eN =18m.29s.?
Triest e =13m.6s.
Scoresby Sund e =18m.0s. and 22m.5s., ePS =27m.59s., eSS =33m.53s., eSSS =37m.30s.
Stuttgart eP =14m.35s., e =14m.43s., ePKP =17m.57s. and 18m.22s., ePP =18m.59s., ePPP =21m.43s., eSKKS =25m.51s., eSP =28m.53s., ePKKP =29m.34s., ePPS =29m.53s., eSS =35m.5s.?, eSSS =39m.11s.?
Pasadena ePKKPZ =18m.46s., iPSEZ =28m.46s., iE =29m.5s.
Mount Wilson eZ =14m.53s.
Butte ePS =29m.18s., e =37m.59s.
Uccle ePKPZ =18m.10s., iZ =19m.53s., ePPPE =21m.35s., iPSE =28m.56s., iPPSZ =30m.0s., eSSSE =39m.30s., iN =46m.10s.
Aberdeen iEN =43m.21s.
Bozeman e =20m.6s., eS =27m.9s., ePS =29m.5s., e =32m.23s. and 38m.19s.
Logan e =22m.3s., 23m.54s., and 27m.41s., iPS =29m.18s.
Salt Lake City ePS =29m.4s., eSS =35m.23s., e =40m.17s.
Stonyhurst iP =19m.46s., i =21m.59s. and 30m.29s., 31m.22s., and 36m.21s.
Kew eZ =18m.38s.?, iPPP =22m.0s., iEZ =24m.26s. and 24m.51s., iSKKSNZ =26m.12s., iPSEZ =29m.16s., ePPS =30m.28s., eSSEZ =35m.28s., eSSSZ =39m.47s.?, eQEN =44·8m.
Oxford ePP =19m.25s., i =30m.26s.
Clermont-Ferrand iPPP =22m.38s.
Tucson ePKP =18m.51s., eS =27m.52s., e =29m.15s., ePS =29m.47s., eSS =36m.23s., eSSS =39m.55s., e =40m.9s.
Algiers e =23m.36s.
Ivigtut e =27m.31s., ePS =30m.33s., eSS =36m.50s., e =43m.46s.
Granada iPP =23m.37s., SKKS =30m.37s., SKSP =33m.13s., SS =42m.1s.
Lisbon N =21m.11s., E =24m.8s., N =40m.50s. and 41m.10s.
Chicago e =22m.33s., ePS? =31m.25s., e =35m.14s., 37m.36s., and 41m.7s., eSSS =43m.24s.
Florissant iPPE =24m.21s., eSKKSE =31m.23s., iSE =33m.4s., iPPSE =36m.7s.
St. Louis iZ =19m.22s., eSKPZ =21m.30s., eNZ =22m.36s., ePPPN =24m.26s., ePPPPN =26m.45s., eN =27m.13s., eSKKSN =28m.24s., eN =28m.42s., eS?N =29m.59s., eN =30m.49s., 31m.4s., 31m.42s., 33m.0s., 33m.31s., 33m.37s., 34m.58s., and 38m.46s., eSPSN =39m.42s., ePPSSN =40m.10s.
Ottawa e =21m.47s.?, PPS =34m.47s.?, SSS =44m.47s.?
Shawinigan Falls e =21m.28s.
Seven Falls e =21m.47s., SS =39m.11s.?
Vermont e =31m.39s. and 34m.55s., eSS =39m.35s., e =49m.41s.
Harvard e =21m.8s. and 23m.18s.
Fordham iPKP =19m.28s.
Philadelphia i =22m.52s. and 24m.43s., e =32m.4s. and 49m.38s.
Columbia e =23m.7s.
La Plata PKP?N =19m.41s.?, PKS =22m.11s., PKSZ =22m.47s.?, PKSN =23m.17s.?, SKKS?N =31m.53s.?, PSSE =41m.41s.?, PSSN =41m.59s., SSSE =46m.35s., SSSN =46m.53s.?, QE =57m.47s.
Bermuda e =21m.28s., 25m.39s., and 34m.39s., eSS =42m.32s., e =64m.3s.
Huancayo e =30m.53s., ePKP, PKP =39m.40s., eSS =43m.7s., e =50m.26s.
La Paz iSKPN? =23m.35s., iPPZ =23m.57s., iPPPN =27m.35s., iSKKS =30m.55s., iPSKS =34m.35s., iSSN =44m.47s., SSSN =50m.43s.
San Juan e =30m.2s., 34m.9s., 34m.30s., and 35m.54s., ePKP, PKP =43m.1s., eSS =45m.17s.
Long waves were also recorded at Lincoln.

July 29d. Readings also at 3h. (Mount Wilson and Palomar), 4h. (Apia, Auckland, Riverview and Honolulu), 7h. and 8h. (Tananarive), 9h. (La Paz), 13h. (Tacubaya, Tucson, and Palomar), 16h. (Mizusawa), 17h. (Florissant and St. Louis), 18h. (near Florissant and St. Louis), 19h. (Florissant, Andijan, Tashkent, Potsdam, Stuttgart, near Bucharest, and Sofia), 20h. (St. Louis, De Bilt, Upsala, Potsdam, and Bucharest), 21h. (Merida, Oaxaca, Puebla, Tacubaya, Vera Cruz, Tucson (2), Haiwee, Mount Wilson (2), Pasadena (2), Palomar (2), Riverside (2), Santa Barbara, Tinemaha (2), St. Louis, Agra, and Stuttgart), 22h. (Triest).

July 30d. Readings at 0h. (Branner (4)), 13h. (Pasadena, Mount Wilson, Palomar, Tinemaha, Tucson, Fort de France, San Juan, La Paz, and Huancayo), 15h. (near Berkeley), 18h. (Tucson, Pasadena, Mount Wilson, Riverside, and Palomar), 21h. (near Stuttgart, Ebingen, Zurich, and Strasbourg).

July 31d. Readings at 4h. (Berkeley), 5h. (La Paz), 18h. (Tucson, Pasadena, Mount Wilson, Riverside, Tinemaha, and Palomar), 20h. (St. Louis), 21h. (St. Louis, Florissant, and near Berkeley), 22h. (near Berkeley).

August 1d. 4h. 47m. 48s. Epicentre 40°·9S. 175°·8E. (as on 1942 June 24d.).

Scale V in district of Masterton, epicentre 40°·9S. 175°·9E.

C. R. Hayes: "Earthquakes in New Zealand during 1942," New Zealand Journal of Science and Technology, Vol. XXIV, No. 4B, p. 193B, with map of epicentres p. 191B. Wellington 1944.

$A = -\cdot7560$ $B = +\cdot0555$, $C = -\cdot6522$; $\delta = -2$; $h = -2$;
$D = +\cdot073$, $E = +\cdot997$; $G = +\cdot650$, $H = -\cdot048$, $K = -\cdot758$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Riverview		20·8	282	i 4 57a	+12	i 8 38	+ 5	—	—	c 10·3
Sydney		20·8	282	e 0 42	?	—	—	—	—	—
Brisbane	E.	23·0	299	i 5 10	+ 3	i 9 12	− 2	—	—	e 11·8
La Jolla	Z.	95·9	52	e 13 28	− 2	—	—	—	—	—
Pasadena	Z.	96·3	50	e 13 28	− 4	—	—	e 17 31	PP	e 45·2
Mount Wilson	Z.	96·4	50	i 13 30	− 2	—	—	—	—	—
Palomar	Z.	96·4	52	i 13 30	− 2	—	—	—	—	—
Riverside	Z.	96·6	50	e 13 29	− 4	—	—	—	—	—
Berkeley		96·7	46	—	—	e 24 54	+ 1	—	—	e 45·7
Tucson		99·3	56	e 13 43	− 2	—	—	—	—	e 46·6
St. Louis		116·5	61	—	—	i 29 22	PS	e 37 36	SS	e 54·5
Ottawa		129·2	60	e 19 5	[− 5]	e 21 12?	PP	—	—	62·2
Scoresby Sund		149·0	12	e 19 44	[− 2]	e 26 33	[−19]	e 41 57	SS	e 67·0
Helwan	Z	149·2	260	19 42	[− 4]	23 15	PKS	20 0	PKP_2	—
Potsdam		163·5	320	e 19 59	[− 5]	e 31 12	{−18}	e 24 36	PP	e 82·2
De Bilt	Z.	167·1	333	i 19 24	[−43]	—	—	—	—	e 84·2
Stuttgart		167·7	314	e 20 2	[− 6]	—	—	—	—	—
Uccle	Z.	168·4	332	e 20 1	[− 7]	—	—	—	—	—
Kew	Z.	169·1	347	e 20 5	[− 4]	e 25 8	PP	e 29 37	PPP	e 83·2
Granada		176·3	188	i 19 5a	[−67]	25 24	PP	19 20	pPKP	85·6

Additional readings :—
Riverview iZ = 5m.12s., iN = 5m.21s., eN = 8m.30s., iZ = 8m.42s., iN = 8m.53s., isSZ = 9m.7s.
Scoresby Sund e = 20m.54s., 27m.27s., 32m.48s., and 50m.6s.
Helwan eZ = 24m.27s.
Granada PKP_2 = 20m.50s., iPP = 24m.41s., sSKS = 28m.5s., SKSP = 35m.17s.
Long waves were also recorded at Chicago, Harvard, and Huancayo.

August 1d. 12h. 33m. 59s. Epicentre 40°·9S. 175°·8E. (as at 4h.).

$A = -·7560$, $B = +·0555$, $C = -·6522$; $\delta = -2$; $h = -2$;
$D = +·073$, $E = +·997$; $G = +·650$, $H = -·048$, $K = -·758$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Riverview		20·8	282	i 4 46k	+ 1	i 8 37	+ 4	5 2	pP	e 9·9
Sydney		20·8	282	i 5 1	+16	i 8 46	+13	—	—	10·6
Brisbane	E.	23·0	299	i 5 7	0	i 9 4	−10	—	—	—
Apia		29·1	28	e 6 7?	+ 3	—	—	—	—	—
Perth		48·2	291	8 46	+ 2	15 36	− 7	10 19	PP	22·2
Honolulu		66·6	27	i 10 54	0	e 19 43	− 2	e 13 23	PP	e 33·3
Hatidyozima		80·8	330	12 17	0	22 19	− 6	—	—	—
Taihoku		82·7	312	12 25	− 2	22 40	− 4	—	—	—
Yokohama		82·9	331	12 31	+ 3	22 41	− 5	—	—	—
Tokyo		83·1	331	i 12 29	0	22 45	− 3	—	—	e 39·5
Miyazaki		83·2	323	12 15	−14	22 30	−19	—	—	—
Kameyama		83·6	329	12 31	0	—	—	—	—	—
Koti		83·7	325	e 12 32	0	22 48	− 6	—	—	—
Osaka		83·8	327	12 26	− 6	22 5	−50	—	—	—
Kobe		84·0	329	12 33	0	22 48	− 9	—	—	—
Nagano		84·5	331	i 12 36	0	22 58	− 4	—	—	—
Sendai		85·0	334	i 12 36	− 2	22 57	−10	—	—	—
Hamada		85·5	326	12 39	− 2	22 58	−14	—	—	—
Mizusawa		85·7	335	12 32	−10	23 10	− 4	—	—	—
Mori		88·6	335	12 54k	− 2	e 23 38	− 4	—	—	e 44·1
Sapporo		89·2	336	12 58	− 1	23 46	− 1	—	—	e 43·7
La Plata		89·8	138	12 59	− 3	—	—	16 46	PP	41·8
Vladivostok		92·5	330	i 13 13	− 1	24 18	+ 1	i 17 9	PP	—
Santa Barbara		95·6	49	i 13 29k	+ 1	e 24 51	+ 8	—	—	—
La Jolla		95·9	52	e 13 31k	+ 1	—	—	—	—	—
Huancayo		96·0	113	e 13 32	+ 2	e 24 52	+ 5	e 17 32	PP	38·1
Pasadena		96·3	50	i 13 32k	0	i 25 19	+30	i 17 27	PP	e 39·5
Mount Wilson		96·4	50	i 13 33k	+ 1	e 30 47	SS	e 30 17	PKKP	—
Palomar	z.	96·4	52	i 13 34k	+ 2	e 25 3	+13	i 17 28	PP	—
Santa Clara		96·5	45	i 13 33	+ 1	e 25 22	+31	i 17 28	PP	e 44·3
Riverside		96·6	50	i 13 33k	0	e 25 2	+10	i 17 28	PP	—
Berkeley		96·7	46	i 13 34	+ 1	i 25 20	+27	i 17 26	PP	i 45·0
Ukiah		97·1	43	e 13 35	0	e 25 3	+ 7	e 17 32	PP	e 40·6
Haiwee		97·8	49	e 13 41	+ 3	—	—	e 18 2	PP	—
La Paz		97·8	120	i 13 41k	+ 3	i 25 10	+ 8	i 17 40	PP	45·5
Tinemaha		98·3	48	e 13 42k	+ 1	e 24 37	[+18]	—	—	—
Colombo	E.	99·0	271	13 42	− 2	24 20	[− 2]	17 48	PP	40·7
Tucson		99·3	56	i 13 47	+ 2	e 31 52	SS	e 17 46	PP	e 44·6
Calcutta	N.	102·6	289	i 27 11	PS	i 24 26	[−13]	i 32 31	SS	e 51·6
Kodaikanal	E.	102·9	273	e 18 9	PP	i 24 51	[+10]	27 36	PS	—
Tananarive		103·5	230	21 19	?	24 50	[+ 6]	33 10	SSP	53·9
Victoria		104·0	37	14 10	+ 4	24 40	[− 6]	18 26	PP	48·0
Salt Lake City		104·5	48	e 14 8	0	e 24 33	[−15]	e 18 26	PP	e 44·3
Logan		105·1	47	i 14 15	+ 4	e 25 17	[+26]	i 18 33	PP	e 44·6
Sitka		106·3	26	—	—	e 26 8	− 5	—	—	42·2
Hyderabad		106·7	279	e 14 19	P	24 52	[− 6]	18 32	PP	47·0
Rio de Janeiro	E.	106·9	143	e 18 1	PKP	—	—	—	—	—
Butte		107·5	44	e 14 36	P	e 26 48	S	e 18 51	PP	44·7
Bozeman		108·1	46	e 14 20	P	e 26 58	S	i 18 56	PP	e 44·2
College		109·2	15	e 18 11	PKP	e 25 1	[− 8]	18 57	PP	e 45·8
Irkutsk		111·5	321	19 17	PP	25 13	[− 5]	34 43	SS	—
Bombay		111·8	277	i 18 15	[−22]	25 6	[−13]	e 28 35	PS	—
Agra	E.	112·8	287	e 18 40	[+ 1]	i 25 4	[−20]	i 26 9	SKKS	—
Lincoln		113·6	57	e 29 10	PS	—	—	—	—	e 55·4
Florissant	E.	116·5	61	e 19 23	PP	—	—	—	—	—
St. Louis	E.	116·5	61	e 15 4	P	e 25 31	[− 6]	e 19 55	PP	46·2
Chicago		119·9	59	e 20 17	PP	e 27 17	{+ 4}	e 36 25	SS	e 50·7
Columbia		120·4	70	e 20 8	PP	e 35 55	SS	e 30 5	PS	e 56·5
San Juan		122·9	94	e 21 4	PP	e 37 37	SS	e 40 55	SSS	e 54·2
Pittsburgh	z.	124·3	64	i 19 3	[+ 2]	—	—	—	—	—

Continued on next page.

	Δ	Az.	P.		O−C.	S.		O−C.	Supp.			L.
	°	°	m.	s.	s.	m.	s.	s.	m.	s.		m.
Tashkent	126·3	296	19	3	[− 2]	25	55	[−15]	20	54	PP	—
Philadelphia	127·4	67	e 19	6	[− 1]	e 28	0	{− 3}	i 21	9	PP	52·9
Ottawa	129·2	60	19	9	[− 1]	39	8	SS	21	21	PP	e 56·0
Vermont	130·5	62	i 21	30	PP	i 22	38	SKP	e 38	46	SS	e 55·6
Harvard	130·9	65	i 19	9	[− 5]	i 22	31	SKP	i 21	31	PP	e 40·0
Bermuda	131·6	81	e 19	16	[+ 1]	i 22	41	SKP	e 21	44	PP	61·9
Seven Falls	133·0	59	19	17	[− 1]	22	45	SKP	21	46	PP	—
Sverdlovsk	136·2	314	i 19	21	[− 3]	i 26	50	[+17]	i 21	48	PP	—
Halifax	137·1	65	e 19	25	[0]	e 22	55	SKP	—		—	68·0
Ivigtut	146·6	38	i 19	50	[+ 8]	e 42	5	SS	e 23	12	PP	e 62·6
Ksara	147·6	269	e 19	47	[+ 3]	36	29	PPS	23	23	PP	74·0
Scoresby Sund	149·0	12	i 19	46	[0]	e 28	16	[+84]	e 23	18	PP	e 63·0
Helwan	149·2	260	i 19	46a	[0]	23	16	SKP	23	1	PP	—
Upsala	156·7	332	e 20	1?	[+ 4]	e 43	42	SS	e 23	28	PP	e 70·0
Bucharest	157·5	288	e 19	42	[−16]	—		—	e 23	9	PP	—
Sofia	159·4	283	e 19	1	[−59]	—		—	—		—	—
Copenhagen	161·6	329	i 20	2	[0]	27	39	[+33]	24	26	PP	—
Potsdam	163·5	320	i 20	3k	[− 1]	i 31	20	{−10}	i 24	41	PP	e 77·0
Aberdeen	163·7	356	i 20	3	[− 2]	—		—	i 52	50	SSS	e 80·5
Prague	164·1	312	e 20	1?	[− 4]	e 31	26	{− 7}	e 24	45	PP	e 71·0
Jena	165·1	318	i 19	50	[−16]	e 31	55	{+16}	e 29	1	PPP	e 71·0
Cheb	165·2	314	e 20	13	[+ 7]	e 28	53	PPP	e 45	32	SS	e 83·0
Triest	166·1	296	i 20	2	[− 5]	i 31	35	{− 8}	i 24	54	PP	75·0
Stonyhurst	167·0	355	e 20	8	[+ 1]	52	15	SSS	i 29	57	PPP	79·8
De Bilt	167·1	333	i 20	6k	[− 2]	e 27	1	[− 9]	i 25	3	PP	e 81·0
Stuttgart	167·7	314	i 20	5	[− 3]	e 31	42	{− 9}	i 25	8	PP	e 79·0
Uccle	168·4	332	i 20	6k	[− 2]	e 26	50	[−21]	e 25	5	PP	e 65·0
Chur	168·5	306	e 20	6	[− 2]	—		—	e 25	7	PP	e 86·0
Strasbourg	168·5	316	e 20	7	[− 1]	e 27	3	[− 8]	e 25	5	PP	86·0
Zurich	168·8	309	20	6k	[− 3]	—		—	e 24	59	PP	—
Kew	169·1	347	i 20	7a	[− 2]	i 27	4	[− 7]	i 25	8	PP	e 76·0
Basle	169·2	312	e 20	6	[− 3]	e 29	29	PPP	e 25	10	PP	—
Neuchatel	169·9	311	e 20	7	[− 2]	—		—	—		—	—
Paris	170·8	331	e 20	10	[0]	i 32	21	{+14}	i 25	26	PP	80·0
Clermont-Ferrand	172·8	315	i 20	10	[− 1]	e 26	53	[−20]	i 25	29	PP	e 80·0
Algiers	173·1	237	e 20	13	[+ 2]	i 26	42	[−31]	i 25	31	PP	e 78·5
San Fernando	175·3	160	i 20	12	[0]	—		—	—		—	—
Lisbon	175·6	118	20	13a	[+ 1]	47	15	SS	25	42	PP	82·7
Granada	176·3	188	i 20	12a	[0]	i 32	36	{+ 3}	20	34	pPKP	79·8

Additional readings :—
Riverview iEN =5m.17s., iE =5m.28s., iSE =8m.40s., iZ =8m.48s., isSN =8m.58s., iE =9m.31s.
Perth SS =18m.36s., SSS =19m.56s.
Honolulu e =12m.36s., iS =19m.46s., e =20m.16s.
La Plata P_cPZ =13m.15s.
Vladivostok iSKS =23m.36s., iPS =25m.38s.
Huancayo e =18m.51s., eSKS =23m.59s., ePS =36m.3s., e =30m.31s., iSS =31m.38s., e =36m.13s.
Pasadena e =24m.57s., iZ =25m.55s., and 26m.17s., ePKKPZ =30m.20s., iZ =32m.7s.
Mount Wilson eZ =30m.28s.
Palomar iPKKPZ =30m.21s.
Riverside ePKKPZ =30m.16s.
Berkeley iSKSN =25m.27s., iZ =26m.18s., iE =26m.25s.
Ukiah e =19m.4s., ePS =26m.18s., eSS =31m.32s., eSSS =35m.34s.
La Paz iPPP? =20m.11s., iSKSN =24m.15s., PSN =26m.31s., PPS =27m.13s., iZ = 27m.37s., SSS =35m.37s.
Tucson i =13m.59s., ePS =30m.9s., i =30m.34s., e =37m.40s.
Calcutta iPSN =26m.6s.
Kodaikanal SS =33m.16s.
Victoria PS =27m.25s., SS =33m.19s.
Salt Lake City e =21m.16s., eS =26m.26s., ePS =27m.42s., eSS =32m.55s., eSSS = 37m.32s.
Logan e =17m.55s., iPS =27m.55s., e =31m.55s.
Hyderabad SKKSN =35m.9s., SN =35m.40s.
Butte ePS =28m.18s., eSS =33m.13s.
Bozeman e =21m.47s., iPS =28m.20s., eSS =34m.16s., eSSS =37m.51s.
College e =25m.12s., eS =26m.49s., e =31m.48s.

Continued on next page.

Bombay ePKPN =18m.21s., iN =25m.16s., iE =25m.37s., SKKSEN =26m.13s., iE =27m.5s., isSP =28m.52s., iE =29m.30s., 29m.52s., and 32m.37s.
Agra iE =19m.12s., iSPE =28m.52s., i =34m.40s.
Florissant eE =20m.24s.
St. Louis eSKKSE =25m.51s., eSPE =29m.35s., ePPSE =30m.37s., ePPPSE =31m.39s.
Chicago e =21m.16s., ePS =29m.39s., eSSS =40m.41s.
San Juan e =29m.36s., ePS =30m.24s.
Tashkent S =28m.49s., PS =31m.3s.
Philadelphia e =22m.10s., ePS =31m.3s., e =33m.6s., eSS =37m.58s., eSSS =42m.56s.
Ottawa SKP =22m.25s., PS =32m.13s., SSS =44m.1s.
Vermont e =28m.15s., ePS =31m.33s., e =33m.27s., eSSS =43m.50s.
Bermuda e =19m.27s. and 28m.31s., eSS =39m.21s., e =54m.38s.
Seven Falls PPS =34m.43s., SS =40m.7s.
Sverdlovsk eP =16m.30s.
Ivigtut e =38m.11s., 40m.37s., 50m.4s., and 51m.10s.
Scoresby Sund i =20m.1s., e =26m.16s. and 33m.30s., ePKP,PKP =41m.36s., e =42m.16s., eSSS =48m.55s.
Helwan PKP,E =19m.55s., eEZ =20m.38s., and 21m.21s., SKKSEZ =30m.10s., PSKSZ =33m.22s.
Upsala eSKSPN =34m.23s., eE =42m.1s.?, eSSSN =49m.43s., eSSSE =50m.1s.?.
Bucharest iZ =19m.57s., eE =20m.30s.
Copenhagen 20m.46s., 32m.31s., and 35m.55s.
Potsdam iPKP$_2$EN =20m.56s., iPPPZ =28m.37s., iPPPEN =28m.40s., iSKKSN =31m.27s., iSSE =45m.30s., iSSPN =45m.59s., iSSPZ =46m.3s.
Aberdeen iE =20m.10s., iN =33m.57s., eE =52m.45s.
Jena iE =20m.1s., iN =20m.7s., iZ =20m.48s., eN =34m.55s.
Cheb e =32m.9s. and 51m.51s.
Triest iPSKS =35m.44s., e =45m.20s., i =51m.32s.
Stonyhurst 33m.30s., 47m.25s., i =48m.20s., 53m.42s.
De Bilt iPKP$_2$ =21m.11s., iPSKS =35m.56s.
Stuttgart i =20m.17s., iPKP$_2$ =21m.13s., e =21m.43s. and 25m.23s., ePPP =29m.40s., e =32m.58s., and 34m.13s., ePSKS =35m.25s., eSS =46m.19s.
Uccle iPKP$_2$Z =21m.17s., iPPZ =25m.9s., iPPPZ =28m.45s., eSKKSN =31m.50s., ePSKSN =35m.39s., eZ =47m.40s., eN =48m.10s.
Chur ePKP$_2$ =21m.16s.
Strasbourg PKP$_2$ =21m.23s., eSS =46m.1s.
Zurich ePKP$_2$ =21m.16s.
Kew iPKP$_2$Z =21m.18s., iZ =23m.0s., ePKSZ =23m.52s., iPPNZ =26m.51s., eNZ =28m.50s., iPPP =29m.50s., eSKKSN =31m.42s., ePPS =39m.1s., eSSEN =45m.41s., eSSS =52m.11s.
Basle e =29m.29s.
Paris iPPP =28m.38s., i =33m.31s. and 37m.0s.
Clermont-Ferrand i =20m.24s., ePPP =29m.23s., e =32m.8s., eSS =46m.56s.
Algiers i =24m.36s., PPP =33m.28s., iSKKS =36m.20s., eSS =50m.23s.
Lisbon PKPE =20m.17s., PKPZ =20m.26s. and 20m.42s., Z =28m.54s., E =32m.29s., N =36m.13s., SSN =46m.43s., E =54m.43s., N =54m.50s.
Granada iPKP$_2$ =21m.54s., sPKP$_2$ =22m.26s., iPP =25m.45s., pPP =26m.0s., sPP =26m.15s., iSKS =26m.33s., sSKS =29m.10s., SKSP =36m.24s., iPPS =39m.26s., iSS =47m.29s., sSS =49m.0s.

August 1d. 14h. 30m. 6s. Epicentre 48°·0S. 100°·0E.

A = −·1166, B = +·6614, C = −·7409; δ = −2; h = −5;
D = +·985, E = +·174; G = +·129, H = −·730, K = −·672.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Perth		20·0	43	4 34	− 3	—	—	—	—	—
Riverview		40·4	88	i 7 40$_a$	− 1	e 13 55	+ 5	i 9 17	PP	e 19·3
Sydney		40·4	88	—	—	i 13 57	+ 7	—	—	i 19·8
Brisbane	E.	45·7	83	i 8 21	− 3	i 14 27	−41	—	—	21·7
Christchurch		49·1	113	8 57	+ 6	16 2	+ 6	11 54	PP	24·5
Tananarive		51·2	285	e 9 6	− 1	16 36	+11	22 3	SSS	26·8
Wellington	Z.	51·7	111	8 15	−56	—	—	—	—	20·9
Arapuni		54·1	109	—	—	16 54	−11	—	—	22·9
Auckland		54·3	107	—	—	17 16	+ 9	—	—	22·9
Colombo	E.	57·5	335	—	—	17 53	+ 3	—	—	24·2
Kodaikanal	E.	61·3	334	—	—	i 18 54	+15	e 24 47	SS	—
Hyderabad		67·9	337	e 13 18	PP	19 57	− 4	22 58	f	27·8
Bombay		70·9	332	e 11 23	+ 2	20 37	+ 1	25 11	SS	30·9
Calcutta	N.	71·0	349	—	—	i 20 23	−14	i 24 38	SS	—
Agra	E.	77·4	341	—	—	i 21 28	−21	e 25 10	SS	30·2

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Dehra Dun	N.	80·4	341	e 12 19?	+ 4	e 24 12	?	—	—	e 42·1
Osaka		88·2	28	12 48	− 6	18 16	PP	—	—	—
Tokyo		90·6	31	13 13	+ 8	—	—	—	—	—
Nagano		90·9	30	13 11	+ 4	—	—	—	—	—
Tashkent		93·0	337	13 16	− 1	24 8	−13	25 27	PS	—
Vladivostok		95·0	23	13 34	+ 8	24 13	[+12]	17 30	PP	—
Helwan		98·9	304	e 13 54	+11	e 24 42	−29	e 26 44	PS	—
Ksara		99·6	309	e 18 8	PP	e 24 8	[−17]	—	—	—
Irkutsk		100·0	2	17 34	PP	23 54	[−33]	—	—	—
Sverdlovsk		109·5	337	19 1	PP	—	—	—	—	—
Bucharest		112·5	311	e 19 12	PP	—	—	—	—	48·9
Sofia		112·7	308	e 19 54	PP	—	—	—	—	—
Focsani		112·9	313	e 16 54	?	—	—	—	—	—
Honolulu		113·6	83	—	—	e 26 19	{−11}	e 29 13	PS	e 56·6
Triest		119·8	305	e 20 12	PP	—	—	—	—	e 51·2
Huancayo		120·1	185	e 19 21	[+28]	e 28 5	{+50}	e 37 0	SSP	e 43·4
Prague		122·2	310	e 24 54?	?	—	—	—	—	—
Cheb		123·3	309	e 30 40	PS	e 41 12	SSS	—	—	e 62·9
Zurich		123·7	304	e 19 0	[0]	—	—	—	—	—
Stuttgart		124·2	306	e 18 56	[− 5]	e 30 54	PS	e 20 45	PP	e 53·9
Basle		124·3	304	e 19 2	[+ 1]	—	—	—	—	—
Potsdam		124·3	311	e 19 6	[+ 5]	—	—	e 20 55	PP	e 59·9
Neuchatel		124·4	303	e 19 4	[+ 3]	—	—	—	—	—
Granada		124·9	288	e 20 25k	PP	—	—	i 21 12	?	61·5
Clermont-Ferrand		125·8	300	e 19 6	[+ 2]	—	—	e 21 5	PP	—
Upsala		126·5	321	—	—	e 37 54?	SS	—	—	e 59·9
Uccle		127·9	305	e 19 13	[+ 5]	—	—	e 38 11	SS	e 53·9
De Bilt		128·2	308	e 20 54?	PP	—	—	—	—	e 69·9
Kew	Z.	130·8	305	e 21 35	PP	—	—	—	—	e 68·9
Stonyhurst		133·1	307	e 23 0	?	—	—	—	—	70·2
Aberdeen		134·3	311	i 22 3	PP	—	—	—	—	e 65·9
College		141·1	38	e 31 11	?	—	—	e 42 23	SS	e 56·5
Scoresby Sund		144·8	329	e 18 29	[−70]	e 28 8	[+82]	e 26 51	PPP	e 68·2
Sitka		146·1	53	e 19 31	[−10]	—	—	—	—	e 74·3
Tacubaya	N.	147·5	145	e 19 54	[+11]	—	—	—	—	—
Santa Barbara	Z.	147·6	100	e 19 52	[+ 9]	—	—	—	—	—
Santa Clara		147·7	92	i 19 59	[+15]	—	—	i 47 26	SSS	—
Berkeley		147·8	92	e 19 46	[+ 2]	i 23 6	PP	—	—	i 70·7
Ukiah		147·8	89	e 19 59	[+15]	e 32 56	SKSP	e 43 17	SS	e 69·3
Lick	E.	147·9	92	e 19 52	[+ 8]	—	—	—	—	—
La Jolla	Z.	148·2	104	i 19 49	[+ 4]	—	—	—	—	—
San Juan		148·4	205	e 20 0	[+15]	e 43 41	SSP	e 34 26	PS	e 64·3
Pasadena		148·4	101	e 19 44	[− 1]	e 33 36	SKSP	e 33 51	PS	e 69·1
Mount Wilson	Z.	148·5	101	e 19 41	[− 4]	e 33 54	SKSP	—	—	—
Palomar	Z.	148·8	104	e 19 39	[− 6]	i 33 55	SKSP	—	—	—
Riverside	Z.	148·8	101	e 19 43	[− 2]	e 33 54	SKSP	—	—	—
Haiwee	E.	149·7	98	e 19 54	[+ 7]	—	—	—	—	—
Tinemaha		150·1	97	i 19 53	[+ 5]	e 33 58	SKSP	—	—	—
Victoria		151·4	72	e 19 36	[−13]	e 23 18	PKS	e 42 18	SS	61·9
Tucson		151·9	112	e 19 49	[− 1]	e 33 46	SKSP	e 22 32	PP	e 67·0
Salt Lake City		156·2	95	e 20 6	[+10]	—	—	e 40 37	P'P'	e 74·2
Logan		156·7	92	e 20 6	[+ 9]	e 28 9	PPP	—	—	—
Butte		157·8	82	e 20 22	[+24]	—	—	—	—	e 77·1
Bozeman		158·7	84	e 20 19	[+20]	—	—	e 45 10	SSP	e 65·1
Bermuda		160·6	221	e 25 4	PP	—	—	e 45 37	SSS	e 63·9
Florissant		168·1	137	e 20 13	[+ 5]	e 31 43	{−10}	i 34 39	PS	e 56·2
St. Louis		168·1	138	e 20 0	[− 8]	e 31 16	{−37}	e 25 45	PP	e 75·9
Philadelphia		171·3	203	e 25 14	PP	e 43 57	SS	e 50 24	SSS	e 69·3
Chicago		171·8	136	—	—	e 46 42	SS	—	—	e 84·2
Harvard		171·9	230	e 20 14	[+ 4]	e 25 23	PP	—	—	—
Seven Falls		173·8	266	e 25 0	PP	(45 54?)	SS	—	—	45·9
Ottawa		176·1	230	e 20 8	[− 4]	e 25 54	PP	e 47 6	SS	70·9

For Notes see next page.

NOTES TO AUGUST 1d. 14h. 30m. 6s.

Additional readings :—
Riverview iNZ =7m.45s., iSEN =13m.59s., iZ =14m.2s., iSSN =16m.55s., iZ =17m.1s., eQ =17m.36s.
Christchurch P_cP =10m.2s., SS =19m.48s., Q =21m.6s.
Tananarive e =23m.23s. and 25m.30s.
Wellington iZ =8m.56s.
Bombay SPN =21m.2s., SPE =21m.9s., S_cSN =21m.27s., SSSE =28m.36s.
Calcutta iN =23m.1s., iSSSN =25m.23s.
Agra iSSSE =26m.47s.
Dehra Dun eN =19m.18s. and 39m.1s.
Vladivostok PS =25m.55s.
La Plata ($\triangle$ =95°·1) gives readings PKP?E =14h.5m.24s., SSE =14h.34m.30s., PSSE =14h.37m.30s., LE =15h.8m.30s.
Helwan eZ =18m.0s. and 21m.1s.
Honolulu e =35m.30s.
Huancayo e =29m.39s.
Upsala eN =51m.54s.?.
Stonyhurst i =23m.20s., 35m.3s., and 36m.28s.
College e =37m.5s., ePKPPKP =41m.1s., e =46m.7s.
Scoresby Sund i =19m.45s., ePP =25m.10s., e =36m.28s., ePKPPKP =40m.26s., eSS =42m.23s., e =46m.45s., eSSS =51m.0s.
Berkeley iN =22m.42s., iE =27m.36s., iN =27m.48s.
Ukiah e =29m.16s.
Lick eN =19m.59s. and 20m.12s.
San Juan e =20m.58s. and 37m.22s.
Pasadena iPKP =19m.56s., eSSE =43m.6s.
Palomar iZ =19m.58s.
Riverside iZ =19m.53s.
Tucson iPKP =19m.57s., e =22m.46s., ePPP =24m.10s., e =28m.40s., 34m.15s., and 42m.46s., eSSS =45m.0s., e =49m.11s.
Salt Lake City e =29m.55s. and 32m.3s.
Logan e =20m.38s.
Bozeman e =20m.39s. and 33m.9s., ePKPPKP =41m.18s.
Florissant iSKSZ =30m.49s.
St. Louis e?Z =14m.4s., eZ =20m.7s., eE =29m.56s., eN =36m.3s.
Philadelphia e =29m.55s., 36m.23s., 56m.36s., and 60m.32s.
Ottawa eZ =21m.58s., 29m.12s.
Long waves were also recorded at La Paz.

August 1d. Readings also at 3h. (near Branner), 13h. (Dehra Dun), 20h. (Harvard), 21h. (near Ottawa), 22h. and 23h. (near Branner).

August 2d. Readings at 0h. (Berkeley), 2h. (Tacubaya), 4h. (La Paz, Mount Wilson, Pasadena, Palomar, Riverside, and Tinemaha), 9h. (near Branner), 12h. (Palomar, Riverside, Tucson, and Tinemaha), 14h. (Sverdlovsk and Vladivostok), 15h. (near Apia), 18h. (Cheb), 22h. (Sverdlovsk, Tashkent, and Vladivostok), 23h. (near Branner).

August 3d. 20h. 9m. 0s. Epicentre 26°·0S. 173°·0W. Depth of focus 0·005.

$A = -\cdot8933$, $B = -\cdot1097$, $C = -\cdot4360$, $\delta = +11$; $h = +3$;
$D = -\cdot122$, $E = +\cdot993$; $G = +\cdot433$, $H = +\cdot053$, $K = -\cdot900$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Apia		12·2	6	e 2 39	−14	i 4 44	−24	—	—	—
Auckland		15·0	221	3 40	+10	5 50	−24	4 0	pP	—
Wellington		18·3	212	4 0	−11	7 4	−25	15 36	S_cS	—
Christchurch		21·0	211	—	—	7 59	−26	—	—	—
Brisbane		30·3	261	i 5 57	−10	e 10 52	− 9	e 6 22	pP	—
Riverview	z.	31·9	248	i 6 22	+ 1	—	—	i 6 53	pP	—
Sydney		31·9	248	e 6 36	+15	—	—	—	—	—
Honolulu		49·3	19	e 8 42	− 2	e 16 36	+51	—	—	e 21·2
Santa Barbara		78·5	43	i 12 0	+ 4	—	—	—	—	—
La Jolla		79·0	46	i 12 2	+ 3	—	—	—	—	—
Santa Clara		79·2	39	i 12 6	+ 6	e 23 26	?	—	—	—
Pasadena	z.	79·3	44	e 12 3	+ 3	e 22 0	+ 6	i 15 10	PP	e 36·7
Mount Wilson	z.	79·4	44	i 12 3k	+ 2	—	—	i 15 9	PP	—
Berkeley		79·4	39	e 12 3	+ 2	i 22 12	+17	—	—	—
Riverside		79·7	44	i 12 5k	+ 3	—	—	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ukiah		79·8	37	e 12 3	0	e 22 6	+ 7	—	—	e 32·8
Fresno	N.	80·0	41	e 12 8	+ 4	—	—	—	—	—
Haiwee	E.	80·7	43	i 12 13	+ 5	—	—	—	—	—
Tinemaha		81·2	42	i 12 12	+ 2	—	—	—	—	—
Tucson		82·8	49	i 12 23	+ 5	e 22 55	+25	e 15 36	PP	e 48·4
Victoria		86·4	30	e 12 24	−12	(22 0?)	−65	—	—	22·0
Salt Lake City		87·4	41	e 12 39	− 2	e 29 21	SS	e 16 32	PP	—
Bozeman		90·8	38	—	—	e 23 20	[− 2]	—	—	e 41·5
College		92·7	10	e 16 25	PP	e 23 53	−10	e 23 15	SKS	—
Florissant	E.	100·5	53	—	—	i 24 15	[+ 2]	i 25 13	S	e 42·7
San Juan		112·6	80	e 17 27	PP	e 26 9	S	e 22 24	PKS	e 54·2
Sverdlovsk		131·1	325	18 52	[−13]	28 54	SKKS	—	—	—
Scoresby Sund		132·5	13	e 21 24	PP	e 28 11	SKKS	e 33 26	PPS	—
Copenhagen		150·1	354	e 19 33	[− 5]	—	—	—	—	—
Potsdam		153·3	352	e 19 35	[− 8]	e 42 30	SS	i 23 18	PP	—
Ksara		153·8	264	e 19 39	[− 5]	—	—	23 10	PP	—
De Bilt	z.	153·9	3	i 19 37k	[− 7]	e 33 10	PPS	i 23 29	PP	—
Kew	z.	154·0	11	i 19 37k	[− 7]	—	—	i 23 29	PP	—
Jena	z.	154·9	353	i 19 46	[0]	—	—	—	—	—
Uccle		155·2	6	e 19 40	[− 6]	—	—	e 23 33	PP	—
Stuttgart		157·2	356	e 19 38	[−10]	—	—	e 23 40	PP	—
Helwan	z.	158·2	285	e 19 36	[−14]	—	—	i 20 39	pPKP	—
Zurich		158·6	358	e 20 14a	[+23]	—	—	—	—	—
Neuchatel		159·0	359	e 19 43	[− 8]	—	—	—	—	—
Chur		159·1	356	e 20 15	[+24]	—	—	—	—	—
Clermont-Ferrand		160·1	8	e 19 46	[− 6]	—	—	i 20 23	PKP_2	—
San Fernando	z.	164·6	44	e 19 51	[− 6]	—	—	—	—	—
Granada		165·7	36	20 59	PKP_2	35 7	SKSP	24 47	PP	e 81·1

Additional readings :—
Auckland sS =6m.22s.
Wellington sS? =7m.45s., i =10m.40s., esS_cS =16m.41s.
Brisbane eE =9m.50s.
Riverview iE =6m.57s., eZ =9m.53s.
Berkeley iPPZ =12m.8s., iEN =23m.13s.
Riverside i =12m.8s.
Salt Lake City e =24m.4s. and 25m.3s.
Florissant eE =25m.52s.
San Juan eS =27m.12s., ePS =28m.23s.
Scoresby Sund e =22m.30s., e =44m.49s.
Potsdam iPKPZ =19m.40s., iPKP_2Z =19m.50s., eSSE =42m.33s.
De Bilt iZ =19m.45s. and 19m.57s.
Kew iPKP_2Z =19m.58s., ipPKP_2Z =20m.41s.
Jena iN =19m.50s., iZ =19m.58s., iN =20m.3s.
Uccle iPKP_2NZ =20m.2s., eZ =20m.47s.
Stuttgart i =19m.42s., e =19m.51s., i =20m.8s.
Helwan iZ =20m.0s.
Long waves were also recorded at Huancayo.

August 3d. 22h. 59m. 44s. Epicentre 55°·8N. 153°·8W. (as on 1941, April 1d.).

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

		△	Az.	P.	O−C.	S.	O−C.	L.
		°	°	m. s.	s.	m. s.	s.	m.
College		9·6	16	e 3 29	?	e 4 53	S*	e 5·6
Victoria		19·9	98	e 4 40	+ 4	(8 16?)	+ 1	8·3
Ukiah		26·3	115	—	—	e 8 41	?	e 13·6
Bozeman		28·5	92	—	—	e 10 50	+ 4	e 15·6
Tinemaha	z.	30·3	113	e 6 18	+ 3	—	—	—
Mount Wilson	z.	32·7	115	e 6 38	+ 2	—	—	—
Riverside	z.	33·2	115	e 6 41	+ 1	—	—	—
Palomar	z.	34·0	115	i 6 49	+ 1	—	—	—
Chicago		44·1	80	e 6 55	?	—	—	e 21·6
St. Louis		44·8	84	e 8 11	− 6	e 14 50	− 5	25·4

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	L.
		°	°	m. s.	s.	m. s.	s.	m.
Ottawa		48·1	68	e 8 43	0	—	—	25·3
Sverdlovsk		64·3	340	i 10 35	− 4	19 15	− 2	—
Stuttgart		74·8	11	e 11 43	− 1	—	—	—
Granada		83·9	24	22 57	S	(22 57)	+ 1	41·8

Additional readings :—
College e = 4m.31s.
Bozeman e = 11m.34s.
St. Louis eZ = 11m.18s., iZ = 11m.31s., eZ = 13m.28s., iZ = 13m.49s., eE = 22m.16s.
Long waves were also recorded at Pasadena, Butte, Philadelphia, Salt Lake City, Columbia, Scoresby Sund, and Kew.

August 3d. Readings also at 3h. (Florissant), 10h. (Sverdlovsk), 18h. (Riverview, Mount Wilson, Palomar, and Tinemaha), 19h. (Pasadena and near Apia), 20h. (Stuttgart, near Tokyo, Imperial University, Mitaka, Togane, and Titibu).

August 4d. Readings at 0h. (St. Louis), 1h. (near Berkeley, Branner, and Lick), 13h. (near Berkeley and Branner), 14h. (near Branner and Lick), 15h. (near Granada), 16h. (Berkeley and Tacubaya (2)), 17h. (Tacubaya), 19h. (Agra, Bombay, and Tashkent), 20h. (Granada, Potsdam, Stuttgart, Kew, De Bilt, Sverdlovsk, Calcutta, and Kodaikanal), 22h. (Branner), 23h. (Zurich, Triest, near Stuttgart, and near Mizusawa).

August 5d. Readings at 2h. (Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, and Tucson), 3h. (La Paz and Tacubaya), 6h. (La Paz), 9h. (Wellington, Auckland), 12h. (near Istanbul), 13h. (near Lick and near Mizusawa), 14h. (Florissant), 15h. (Helwan and Granada), 17h. (near Branner and near Mizusawa).

August 6d. 23h. 36m. 54s. Epicentre 13°·9N. 90°·8W.

Felt strongly in the State of Chiapas, and at Vera Cruz and Tabasco. Also near Guatemala and San Salvador.
"Catalogo Compendiado de Tremblores," 1941 to 1944. Instituto de Geologia Mexico 1945, p.31.

$$A = -\cdot0136,\ B = -\cdot9710,\ C = +\cdot2387\ ;\quad \delta = 0\ ;\quad h = +6\ ;$$
$$D = -1\cdot000,\ E = +\cdot014\ ;\quad G = -\cdot003,\ H = -\cdot239,\ K = -\cdot971.$$

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Merida	Z.	7·1	9	i 2 7	P*	—	—	—	—	—
Vera Cruz	N.	7·3	316	e 1 53	+ 3	—	—	—	—	—
Puebla	E.	8·7	306	i 2 8	− 2	—	—	—	—	—
Tacubaya	E.	9·7	305	e 2 25	+ 3	—	—	—	—	—
Balboa Heights		12·1	113	e 3 0	+ 3	—	—	—	—	—
Guadalajara	E.	13·8	301	i 3 15	− 4	—	—	—	—	—
Manzanillo	E.	13·9	293	e 3 12	− 9	—	—	—	—	—
Mobile		16·9	8	4 6	+ 7	7 19	+12	—	—	—
Mazatlan	E.	17·4	304	e 3 59	− 7	—	—	—	—	—
Columbia		21·9	22	i 5 0	+ 3	i 8 57	+ 3	i 5 14	PP	i 9·4
San Juan		24·1	76	e 5 20	+ 2	i 9 37	+ 3	i 6 21	PPP	i 10·5
St. Louis		24·6	0	i 5 22	− 1	e 9 48	+ 6	—	—	—
Florissant		24·8	0	i 5 25	0	e 9 48	+ 2	i 6 6	PP	—
Tucson		25·9	319	e 5 34	− 1	i 9 46	−18	i 6 51	PPP	i 10·6
Lincoln		27·3	354	e 5 48	0	—	—	—	—	—
Des Moines		27·7	357	i 6 2	+10	i 9 6	?	—	—	—
Georgetown		27·7	24	i 5 56	+ 4	—	—	—	—	—
Chicago		27·9	4	i 5 53	− 1	i 10 31	− 6	i 6 42	PP	i 11·3
Pittsburgh	Z.	28·1	17	i 5 55	0	—	—	—	—	—
Denver	E.	28·7	337	e 6 6	+ 5	e 10 52	+ 2	—	—	—
	N.	28·7	337	e 6 3	+ 2	e 10 59	+ 9	i 7 21	PPP	—
Ann Arbor		28·9	11	i 6 43	+40	i 11 56	+63	—	—	—
Fort de France		28·9	85	e 6 6	+ 3	i 11 56	+63	e 7 18	PP	e 16·7
Pennsylvania		29·1	20	i 6 35	+31	(11 6)	+10	—	—	11·1
Philadelphia		29·4	25	i 6 7	0	i 10 58	− 3	i 6 55	PP	i 13·8
Huancayo		30·0	149	i 6 18	+ 6	i 11 12	+ 2	i 7 15	PP	e 13·8

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Bermuda		30·1	48	e 6 18	+ 5	i 11 29	+17	i 7 5	PP	i 13·9
Fordham		30·6	26	i 6 19	+ 1	i 10 50	−30	i 7 21	PP	—
La Jolla		30·6	313	i 6 17	− 1	i 11 19	− 1	i 13 8	SS	—
Palomar	Z.	30·6	315	e 6 19	+ 1	—	—	—	—	—
Riverside		31·3	315	i 6 24	0	i 11 32	+ 1	i 13 31	SS	—
Mount Wilson		31·9	315	i 6 29k	0	e 11 40	0	i 13 16	SS	—
Pasadena		31·9	315	i 6 29	0	i 11 44	+ 4	i 8 8	PP	e 14·7
Salt Lake City		32·5	329	i 6 34	0	i 11 44	− 5	i 8 1	PP	i 14·4
Haiwee	N.	32·9	318	e 6 39	+ 1	i 11 57	+ 1	—	—	—
Harvard		33·0	26	i 6 39	0	i 12 1	+ 4	—	—	—
Weston		33·0	26	i 6 40	+ 1	i 12 0	+ 3	—	—	—
Logan		33·2	331	i 6 40	0	i 11 55	− 5	i 8 13	PPP	i 13·6
Santa Barbara		33·2	313	i 6 40	0	i 12 18	+18	—	—	—
Tinemaha		33·7	318	i 6 44	− 1	i 13 9	+61	—	—	—
Ottawa		33·9	18	i 6 47a	0	i 12 18	+ 7	8 14	PPP	17·1
Vermont		34·0	23	i 6 48	0	i 12 24	+11	—	—	i 15·0
Fresno	N.	34·5	317	i 6 51	− 1	e 11 32	−48	—	—	e 17·3
Shawinigan Falls		35·9	21	7 2	− 2	12 51	+ 9	—	—	18·1
Bozeman		36·0	337	i 7 5	0	i 12 37	− 7	i 8 33	PP	i 15·2
Lick	N.	36·0	316	i 7 5	0	e 12 54	+10	—	—	—
Branner		36·4	316	i 7 9	+ 1	i 13 53	+63	—	—	i 19·2
Berkeley		36·7	316	e 7 11	+ 1	i 12 54	0	i 8 30	PP	e 21·1
Butte		36·9	337	e 7 32	+20	i 12 57	− 1	i 8 36	PP	e 15·4
Seven Falls		37·1	22	7 12	− 2	13 8	+ 7	8 58	PPP	18·1
La Paz		37·6	142	i 7 20	+ 2	i 13 20	+12	—	—	16·1
Ukiah		38·0	318	e 7 23	+ 2	i 13 16	+ 2	i 9 27	PPP	i 16·5
Halifax		38·4	31	7 29	+ 4	13 29	+ 9	9 6	PP	18·1
Ferndale	E.	39·5	319	i 7 40	+ 6	e 13 38	+ 1	—	—	e 20·1
Saskatoon		40·2	345	7 43	+ 3	13 47	− 1	9 27	PPP	18·1
Seattle		42·6	329	e 8 3	+ 4	e 14 0	−23	—	—	e 17·7
Victoria		43·8	329	8 13	+ 4	14 36	− 4	10 5	PPP	20·1
Sitka		55·0	332	i 9 33	− 2	i 17 10	− 7	i 12 56	PPP	i 24·9
Ivigtut		56·3	23	e 9 58	+13	i 17 53	+19	e 12 11	PP	i 24·8
La Plata	E.	57·7	148	9 55	0	17 53	0	12 12	PP	24·4
	N.	57·7	148	9 54	− 1	17 54	+ 1	12 6	PP	24·8
	Z.	57·7	148	9 52	− 3	—	—	12 21	PP	29·2
Rio de Janeiro		59·2	127	i 10 7	+ 2	i 18 16	+ 4	—	—	i 29·7
Angra do Heroismo		60·9	53	i 10 26	+ 9	i 19 3	+29	13 6?	PP	29·1
College		63·8	337	e 10 35	− 1	i 19 7	− 4	e 12 54	PP	e 26·1
Honolulu		63·9	287	e 10 34	− 3	e 19 1	−11	e 12 51	PP	i 26·4
Scoresby Sund		70·0	19	i 11 15	0	i 20 6	−20	i 13 56	PP	i 28·2
Lisbon		75·0	52	e 11 44k	− 1	i 21 25	+ 2	14 25	PP	i 35·6
San Fernando		77·6	55	i 11 56	− 4	i 22 24	+33	i 14 56	PP	—
Aberdeen		77·7	33	i 12 0	0	i 21 50	− 2	i 15 0	PP	35·2
Stonyhurst		77·9	37	e 12 2	+ 1	i 22 5	+11	i 15 5	PP	37·1
Oxford		78·9	39	i 12 10	+ 3	22 3	− 2	i 27 16	SS	32·1
Granada		79·5	54	i 12 10a	0	i 21 59	−12	14 59	PP	34·3
Kew		79·6	39	i 12 10a	0	i 22 10	− 2	i 15 7	PP	e 37·6
Paris		81·8	42	e 12 19	− 3	i 22 36	+ 1	i 15 38	PP	39·1
Uccle		82·6	40	e 12 24a	− 2	i 22 43	0	i 15 39	PP	37·1
De Bilt		82·8	38	i 12 28a	+ 1	i 22 56	+11	i 15 35	PP	e 38·1
Clermont-Ferrand		82·9	45	e 12 26	− 2	e 22 53	+ 7	—	—	e 35·9
Besançon		84·5	43	i 12 40	+ 4	i 23 6?	+ 4	—	—	40·1
Algiers		84·8	54	e 12 41	+ 4	e 23 10	+ 5	i 15 56	PP	i 35·4
Apia		84·8	254	i 12 47	+10	i 23 25	+20	e 15 25	PP	—
Marseilles		85·0	47	e 13 20	+42	e 23 36	+29	e 28 57	SS	e 38·1
Neuchatel		85·2	42	e 12 37	− 2	e 22 53	−16	—	—	—
Strasbourg		85·3	41	i 12 39	− 1	i 23 11	+ 1	i 28 48	SS	e 38·1
Basle		85·4	42	e 12 39	− 1	e 23 11	0	—	—	—
Copenhagen		85·9	33	i 12 42	− 1	23 11	− 5	16 13	PP	—
Stuttgart		86·1	40	i 12 42a	− 2	i 23 19	+ 1	e 16 14	PP	e 40·1

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Zurich		86·1	42	e 12 43k	− 1	e 23 18	0	e 16 14	PP	—
Chur		86·9	47	e 12 47	− 1	e 23 24	− 2	e 16 32	PP	—
Jena		87·0	38	e 12 47	− 1	i 23 16	−11	i 15 48	PP	e 39·1
Upsala		87·1	29	e 12 48	− 1	e 23 22	− 6	16 17	PP	e 35·1
Hof		87·3	38	e 12 57	+ 7	i 23 25	− 4	e 16 19	PP	e 39·1
Potsdam		87·4	37	i 12 50a	0	i 23 26	− 4	i 16 19	PP	38·1
Cheb		87·7	39	e 12 58	+ 6	e 23 28	− 5	—	—	e 42·1
Prague		89·0	38	e 14 1?	+63	e 24 24	+39	e 17 54	PP	e 38·1
Triest		90·1	43	e 13 10	+ 7	e 23 40	[+ 7]	i 24 34	PS	e 42·1
Belgrade		94·8	42	e 20 21	PPP	—	—	e 31 17	SS	e 49·9
Cernauti		96·5	37	e 14 36	+64	25 0	+ 9	—	—	47·1
Sofia		97·6	43	e 13 39	+ 1	24 23	[+ 9]	17 51	PP	47·1
Bucharest		98·5	41	e 13 41k	− 1	e 24 33	[+14]	e 17 38	PP	47·1
Focsani		98·6	39	e 14 48	+66	—	—	—	—	47·1
Arapuni		101·2	232	13 48	− 6	24 18	[−15]	17 36	PP	—
Auckland		101·7	234	18 36	PP	24 46	[+11]	26 46	PS	e 33·1
Wellington		102·3	230	i 17 16	?	24 21	[−17]	i 19 16	?	32·1
Christchurch		104·2	228	14 14	+ 7	24 51	[+ 4]	18 30	PP	48·2
Sverdlovsk		105·6	16	e 14 12	− 2	24 57	[+ 4]	i 18 40	PP	—
Sapporo		105·9	323	18 36	PP	24 55	[0]	—	—	—
Mizusawa		108·4	320	e 17 54	?	25 3	[− 2]	—	—	—
Helwan		109·3	52	e 14 36	P	25 9	[0]	27 33	PS	—
Ksara		110·4	46	18 12	[−22]	e 28 56	PS	e 19 25	PP	—
Vladivostok		111·1	327	e 14 43	P	i 25 7	[−10]	i 19 30	PP	—
Yokohama		111·5	317	19 23	PP	26 13	{− 2}	—	—	—
Irkutsk		112·8	350	e 15 1	P	27 5	{+40}	19 37	PP	—
Nagoya		113·4	318	19 25	PP	26 39	{+10}	—	—	—
Kobe		114·9	319	19 30	PP	26 52	{+13}	—	—	—
Hamada		116·7	321	20 1	PP	25 46	[+ 8]	—	—	—
Matuyama		117·0	320	e 18 39	[− 8]	27 15	{+21}	—	—	—
Zinsen		118·0	327	e 18 54	[+ 5]	—	—	—	—	—
Kumamoto		118·9	321	e 19 23	[+33]	—	—	—	—	—
Brisbane		119·3	246	e 19 50	PP	e 25 27	[−20]	e 27 15	SKKS	30·1
Riverview		120·8	238	i 19 3a	[+ 9]	i 26 6	[+13]	i 20 21	PP	49·1
Sydney		120·8	238	e 20 36	PP	e 26 0	[+ 7]	e 30 24	PS	e 55·5
Tashkent		122·1	18	e 15 21	P	25 55	[− 2]	37 24	SS	—
Andijan		123·4	15	e 19 4	[+ 5]	—	—	37 54	SS	—
Naha		125·3	317	e 19 7	[+ 4]	—	—	—	—	—
Dehra Dun		134·7	13	e 19 3?	[−18]	i 31 9	PS	i 22 18	PP	i 64·2
Tananarive		139·8	103	e 19 43	[+13]	30 0	{+40}	22 37	PP	68·1
Bombay	N.	143·6	27	19 39	[+ 2]	29 49	{+ 7}	25 51	PPP	—
Calcutta	N.	143·8	1	e 19 50	[+13]	29 51	{+ 8}	i 23 21	PP	e 49·4
Hyderabad		147·1	19	19 51	[+ 8]	i 30 20	{+17}	23 10	PP	47·4
Kodaikanal	E.	153·4	27	e 20 34	[+42]	e 31 6	{+29}	i 43 36	SS	72·5
Colombo	E.	157·4	25	20 10	[+12]	—	—	—	—	78·1

Additional readings :—
Columbia i =6m.57s.
San Juan iP =5m.27s.
St. Louis iPE =5m.25s., eSE =9m.51s.
Chicago i =8m.0s.
Denver iPN =6m.9s., iPPN =6m.29s., iPPPN =7m.1s., iN =7m.13s. and 10m.39s.
Fort de France PPP =7m.43s., e =14m.5s. and 14m.30s.
Pennsylvania e =6m.44s. and 7m.46s., i =8m.5s., 9m.0s., 9m.46s., and 9m.56s.
Philadelphia e =9m.19s. and 11m.14s.
Huancayo i =8m.32s.
Bermuda i =6m.25s.
Fordham i =11m.35s.
La Jolla iZ =9m.26s.
Mount Wilson iZ =9m.35s.
Pasadena iZ =7m.57s., i =9m.29s.
Salt Lake City i =7m.32s.
Harvard i =12m.19s. and 12m.51s.
Logan i =6m.48s., e =10m.27s.
Tinemaha iZ =17m.36s.
Ottawa SS =14m.28s.
Vermont i =6m.55s. and 7m.18s.
Bozeman i =8m.5s.

Continued on next page.

Branner iN =7m.19s., iE =7m.31s.
Berkeley ePZ =7m.16s., iPNZ =7m.21s., ePPZ =9m.46s., iSE =12m.40s., eSE = 12m.57s., iEN =14m.18s., iN =14m.54s., eN =17m.30s., iEN =17m.36s.
Butte i =9m.7s.
Seven Falls SSS =16m.24s.
La Paz iSN =13m.23s.
Ukiah e =8m.28s.
Halifax SSS =16m.24s.
Saskatoon SSS =16m.42s.
Victoria SSS =18m.0s.
Sitka i =12m.11s. and 22m.7s.
Ivigtut iP =10m.3s., i =10m.11s., 10m.26s., and 12m.22s., iPPP =13m.42s., i =21m.11s., eSS =21m.43s.
La Plata Z =10m.39s., P_cPZ =11m.0s., PPPE =12m.48s., PPPN =12m.52s., N = 13m.24s., E =13m.36s., P_cSN =14m.42s., P_cSE =14m.48s., N =16m.0s., SKSE = 19m.24s., SKSN =19m.42s., SSE =21m.18s., SSN =21m.42s.
Rio de Janeiro iPN =10m.10s.
Angra do Heroismo PPP =13m.41s.?, PS =19m.51s., S =24m.2s.
College e =14m.55s., eSS =23m.12s.
Honolulu iP =10m.43s., i =14m.16s., iS =19m.20s., iSS =23m.23s.
Scoresby Sund iPPP =15m.35s., i =20m.31s., e =24m.39s.
Lisbon Z =11m.51s., iPN =11m.57s., E =13m.19s.?, iSZ =21m.36s., SSN =26m.0s., SSEZ =26m.24s., N =29m.43s., iN =31m.44s., iZ =32m.6s.
San Fernando SSEZ =27m.3s.
Aberdeen iN =23m.50s., iE =26m.40s., iSSE =30m.38s., iN =30m.58s. and 33m.5s., iE =33m.30s.
Stonyhurst i =12m.8s., 12m.14s., and 15m.51s., iPS =22m.54s., iSS =27m.24s., iSSS = 30m.38s.
Granada P_cP =12m.23s., pP =12m.55s., pPP =15m.55s., i =18m.44s., SS =26m.59s.
Kew iP_cP =12m.18s., iPPP =16m.56s., iSKS =22m.10s., iPS =22m.45s., iPPS =23m.8s., eSSEZ =27m.26s., eSSSEZ =31m.26s., eQEN =34·6m.
Paris eP_cP =13m.19s., iPPP =17m.43s., iSS =27m.46s., iSSS =32m.4s.
Uccle iPZ =12m.32s., iE =21m.48s., iZ =23m.20s. and 23m.57s., iE =24m.25s. and 28m.4s., eE =31m.28s.
De Bilt eE =21m.36s., eSS =28m.6s.?.
Algiers i =12m.55s., 13m.40s., and 16m.36s., ePPP =17m.52s., i =23m.22s., iPS = 23m.50s., i =24m.29s. and 28m.40s., iSS? =29m.32s., SSS? =32m.59s.
Marseilles e =13m.59s., 24m.31s., 25m.6s., and 29m.14s.
Neuchatel ePP =20m.3s.
Strasbourg ePS =24m.4s., e =25m.0s., eSSS =32m.36s.
Basle e =12m.52s.
Copenhagen 12m.57s., iE =23m.16s., iN =23m.23s., 29m.0s., and 32m.42s.
Stuttgart iPP =16m.18s., ePPP =17m.54s., iSP =24m.16s., eSS =29m.6s., ePKKP = 30m.45s., eSSS =32m.36s., ePKP,PKP =38m.41s. and 39m.0s., eP′P′P′ =59m.21s., iP′P′P′ =59m.39s.
Jena ePN =12m.52s., iPE =12m.56s., iPZ =13m.0s., i =13m.35s., iPPZ =15m.52s., iPPE =16m.16s., iZ =24m.36s., iN =24m.47s. and 24m.52s., eSS =29m.24s., eSSSE =32m.52s., eSSS =33m.6s.
Upsala iE =13m.0s., PPE =16m.24s., eSKS =23m.6s., eSS?E =28m.6s.?, eN = 30m.6s., eSSSE =32m.54s.
Hof eP =13m.0s., e =13m.41s., iS =23m.36s., eSS =29m.6s., e =33m.6s.
Potsdam iP_cP =12m.57s., iPPN =16m.24s., iPPE =16m.30s., iEN =19m.34s., iSSPE = 29m.45s., iN =31m.6s., iSSSZ =32m.53s., iE =33m.4s.
Prague eSS =30m.54s., eSSS =34m.36s.
Belgrade e =22m.10s., i =28m.44s.
Sofia ePEN =13m.45s., eN =20m.6s.?, eE =38m.54s. and 45m.6s.
Bucharest eE =13m.49s., ePPE =17m.43s.
Arapuni Q =26m.54s. (PS).
Wellington P?Z =10m.6s.?, Q =27·1m.
Christchurch PPP =20m.38s., S =26m.2s., PS =27m.46s., SS =33m.16s., SSS = 37m.25s., Q =43m.1s.
Sverdlovsk iPS =27m.50s.
Mizusawa SN =25m.13s., SSPE =34m.3s. (given as L).
Helwan eZ =17m.42s., e =19m.6s., PPPZ =20m.51s., SEN =26m.18s., PPSN =28m.18s.
Vladivostok S =26m.56s., iPS =28m.42s.
Brisbane ePN =20m.9s.
Riverview eE =27m.30s., iSKKSE =27m.36s., iPSE =30m.26s., iPSZ =30m.29s., iPPSZ =31m.35s., iPPSE =31m.43s., iSSZ =37m.7s., eSSE =37m.13s., eE = 40m.23s., iSSSN =40m.36s., SSSE =41m.25s., eN =44m.48s.
Sydney e =27m.30s.
Dehra Dun iN =40m.16s., 49m.0s., 54m.0s.
Tananarive eN =18m.55s., iEN =23m.25s., PS =33m.6s.
Bombay iN =19m.47s. and 20m.16s., iE =20m.24s., SKPEN =23m.28s., SPN =33m13s., PPSN =35m.32s., E =42m.12s., SSPN =42m.17s., iN =47m.44s., iE =48m.19s.
Calcutta iN =25m.17s. and 30m.45s.
Hyderabad i =36m.2s.
Kodaikanal eSKSPE =34m.30s.

Aug. 6d. Readings also at 8h. (Triest), 12h. (near Mizusawa), 17h. (near Andijan and Tashkent), 18h. (Auckland, Riverview, Mount Wilson, Palomar, Pasadena, Riverside, Santa Barbara, Tinemaha, and Tucson), 20h. (near Fresno), 22h. (near Berkeley), 23h. (near Branner and Berkeley).

Aug. 7d. 1h. 15m. 32s. Epicentre 34°·1N. 116°·3W. (as on 1940, June 2d.).

$A = -·3677$, $B = -·7439$, $C = +·5580$; $\delta = -5$; $h = 0$;
$D = -·896$, $E = +·443$; $G = -247$, $H = -·500$, $K = -·830$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Palomar	Z.	0·9	212	i 0 21 k	+ 1	—	—	—	—
Riverside		0·9	263	i 0 18 a	− 2	i 0 29	− 5	—	—
La Jolla		1·5	213	i 0 30 k	+ 2	i 0 50	+ 1	—	—
Mount Wilson		1·5	275	i 0 28 a	0	i 0 48	− 1	—	—
Pasadena		1·6	275	i 0 28	− 2	i 0 48	− 3	—	—
Haiwee	N.	2·4	326	e 0 43	+ 2	i 1 14	+ 2	—	—
Santa Barbara		2·8	277	i 0 46	− 1	i 1 32	+10	—	—
Tinemaha		3·4	332	e 0 53	− 2	i 1 44	+ 7	—	—
Fresno	N.	3·9	314	e 1 1	− 1	i 1 57	+ 7	i 1 10	P*
Tucson		4·9	110	e 1 15	− 2	i 1 33	P_g	i 2 37	S_g
Lick	E.	5·4	308	—	—	e 0 59	?	—	—
Branner		5·8	306	e 1 35	+ 6	e 2 59	S*	e 3 13	S_g

Aug. 7d. 6h. 4m. 26s. Epicentre 12°·0N. 90°·7W. (as on 1937, April 3d.).

$A = -·0120$, $B = -·9783$, $C = +·2066$; $\delta = -10$; $h = +7$;
$D = -1·000$, $E = +·012$; $G = -·003$, $H = -·207$, $K = -·978$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m.	s.	m.
Puebla	N.	10·1	315	—	—	i 4 22	− 3	—	—	—
Tacubaya	N.	11·0	313	2 38	− 4	—	—	—	—	—
Columbia		23·6	20	e 5 15	+ 2	e 9 22	− 3	—	—	e 13·8
San Juan		24·5	72	e 5 22	0	e 10 18	+38	e 6 0	PP	e 13·8
Florissant	Z.	26·7	2	i 5 42	− 1	e 10 21	+ 4	e 11 49	SS	e 15·4
Tucson		27·4	322	e 5 48	− 1	e 10 15	−13	e 7 7	PP	e 13·0
Huancayo		28·4	148	—	—	e 11 39	+54	—	—	e 15·6
Chicago		29·8	3	e 6 40	+29	e 10 50	−17	—	—	e 11·1
Philadelphia		31·1	25	e 7 12	+50	e 11 20	− 8	e 11 51	SS	e 14·8
La Jolla	Z.	32·0	315	e 6 35	+ 5	—	—	—	—	—
Palomar	Z.	32·0	317	e 6 31	+ 1	—	—	—	—	—
Riverside	Z.	32·7	317	e 6 37	+ 1	—	—	—	—	—
Mount Wilson	Z.	33·3	317	e 6 43	+ 2	—	—	—	—	—
Pasadena		33·3	317	e 6 44	+ 3	—	—	—	—	e 15·6
Salt Lake City		34·2	332	e 6 46	− 3	e 12 10	− 6	—	—	e 15·8
Haiwee	N.	34·4	320	e 6 59	+ 8	—	—	—	—	—
Tinemaha	Z.	35·2	320	e 7 3	+ 5	—	—	—	—	—
Ottawa		35·7	17	7 2	0	12 48	+ 9	14 46	SS	19·6
Vermont		35·7	21	—	—	e 12 48	+ 9	—	—	e 18·6
Berkeley		38·2	318	e 7 26	+ 3	e 13 10	− 7	—	—	e 18·1
Seven Falls		38·8	21	e 9 4	PP	—	—	—	—	20·6
Ukiah		39·5	319	—	—	e 13 45	+ 8	—	—	e 19·2
Victoria		45·4	330	—	—	e 13 58	−66	—	—	24·6
Scoresby Sund		71·7	19	e 12 7	+41	e 21 6	+21	—	—	e 31·9

Additional readings :—
Tucson iP = 5m.51s.
Riverside eZ = 6m.59s.
Mount Wilson eZ = 7m.1s.
Pasadena eZ = 7m.1s.
Scoresby Sund e = 25m.33s.
Long waves were also recorded at Sitka, Santa Clara, Lincoln, La Paz, Granada, Kew, De Bilt, and Potsdam.

Aug. 7d. Readings also at 0h. (Granada, La Paz (4), Tucson, Palomar, and Santa Clara), 1h. (Tucson (2)), 2h. (near Branner, Berkeley, Lick, and near Mizusawa (2)), 5h. (La Paz), 6h. (Tacubaya (2)), 7h. (Tacubaya, Tucson, Pasadena, Mount Wilson, Palomar, and Tinemaha), 8h. (La Paz), 9h. (Tacubaya, La Paz, Sofia, Jena, Potsdam, De Bilt, Kew, Basel, Zurich, Neuchatel, Chur, near Stuttgart and Triest), 10h. (Tacubaya and Huancayo), 11h. (La Paz), 13h. (Palomar and Tucson), 14h. (Sofia), 15h. (Tacubaya, Tucson, Palomar, and Tinemaha), 18h. (Tacubaya, near Andijan, Tashkent, and near Branner), 20h. (Tacubaya, Mount Wilson, Palomar, Tucson, and near Tashkent), 22h. (St. Louis and near Tashkent), 23h. (St. Louis and near Branner).

Aug. 8d. 0h. 20m. 28s. Epicentre 41°·9N. 143°·6E. Depth of focus 0·020.

Scale VI at Kusiro ; V at Urakawa, Obihiro, Hatinohe ; IV at Hakodate, Nemuro, Mori, and Aomori ; II-III at Sapporo, Morioka, Muroran, Hukusima, and Tukubasan.
Macroseismic radius over 300km.
Seismological Bulletin of the Central Meteorological Observatory, Japan, for 1942. Tokyo, 1950, pp. 29, 30, with Macroseismic Chart.

$A = -\cdot6009$, $B = +\cdot4430$, $C = +\cdot6653$; $\delta = -5$; $h = -2$;
$D = +\cdot593$, $E = +\cdot805$; $G = -\cdot536$, $H = +\cdot395$, $K = -\cdot747$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m.	s.	m.
Sapporo	2·0	305	0 23k	−13	0 44	−20	—	—	—
Nemuro	2·0	46	0 23	−13	0 41	−23	—	—	—
Hatinohe	2·1	229	0 33a	− 4	1 2	− 4	—	—	—
Mori	2·3	275	0 32k	− 8	1 0	−10	—	—	—
Aomori	2·4	243	0 37	− 4	1 8	− 4	—	—	—
Miyako	2·6	208	0 36	− 7	1 12	− 5	—	—	—
Mizusawa	3·4	216	0 51	− 3	1 37	+ 2	—	—	—
Akita	3·4	232	0 54	0	1 37	+ 2	—	—	—
Sendai	4·2	211	1 2a	− 2	1 54	+ 1	—	—	—
Hukusima	4·8	212	1 12	0	2 9	+ 2	—	—	—
Onahama	5·4	204	1 18a	− 2	2 22	+ 1	—	—	—
Aikawa	5·6	229	1 24	+ 2	2 28	+ 2	—	—	—
Utunomiya	6·1	210	1 28	− 1	2 44	+ 6	—	—	—
Kakioka	6·3	207	1 30	− 2	2 44	+ 1	—	—	—
Tukubasan	6·3	207	1 31	− 1	2 42	− 1	—	—	—
Maebasi	6·5	214	1 35	+ 1	2 49	+ 1	—	—	—
Tyosi	6·5	200	1 12	−22	2 26	−22	—	—	—
Kumagaya	6·6	211	1 37	+ 1	2 55	+ 5	—	—	—
Nagano	6·7	221	1 38	+ 1	2 56	+ 4	—	—	—
Tokyo Imp. Met. Obs.	6·8	207	1 39k	+ 1	2 58	+ 3	—	—	—
Wazima	6·8	231	1 44	+ 6	3 2	+ 7	—	—	—
Yokohama	7·1	207	1 44a	+ 2	3 6	+ 4	—	—	—
Toyama	7·2	226	1 46	+ 2	3 4	0	—	—	—
Hunatu	7·4	213	1 47	+ 1	—	—	—	—	—
Kohu	7·4	214	1 51	+ 5	3 14	+ 5	—	—	—
Mera	7·6	205	1 49	0	3 17	+ 3	—	—	—
Misima	7·7	210	1 53	+ 3	3 20	+ 4	—	—	—
Osima	7·8	207	1 53	+ 1	3 18	− 1	—	—	—
Shizuoka	8·0	212	1 55	+ 1	3 27	+ 3	—	—	—
Gihu	8·4	222	2 1	+ 1	3 37	+ 4	—	—	—
Nagoya	8·5	220	2 4	+ 3	3 46	+11	—	—	—
Hamamatu	8·5	215	2 4	+ 3	—	—	—	—	—
Hikone	8·8	224	2 11	+ 6	3 47	+ 4	—	—	—
Kameyama	9·0	221	2 12	+ 4	4 14	+27	—	—	—
Hatidyozima	9·3	200	2 16	+ 4	4 52	+58	—	—	—
Osaka	9·6	224	2 21	+ 6	4 37	+36	—	—	—
Kobe	9·8	225	2 20a	+ 2	—	—	—	—	—
Wakayama	10·1	224	2 23	+ 1	—	—	—	—	—
Siomisaki	10·5	219	2 45	+18	—	—	—	—	—
Hamada	11·4	236	2 44a	+ 5	4 52	+ 8	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Muroto		11·4	224	2 43	+ 4	—	—	—	—	—
Koti		11·5	227	2 48	+ 8	5 20	+34	—	—	—
Hirosima		11·6	233	2 42	0	5 52	+64	—	—	—
Matuyama		11·8	230	2 42	− 2	—	—	—	—	—
Taikyu		13·1	248	3 1	0	5 42	+19	—	—	—
Hukuoka		13·3	236	3 6	+ 3	—	—	—	—	—
Kumamoto		13·7	233	3 10a	+ 2	—	—	—	—	—
Irkutsk		28·4	306	e 5 13	−29	—	—	—	—	—
Almata		47·9	296	e 8 23	− 1	—	—	—	—	—
Andijan		52·0	295	e 8 54	− 1	e 16 8	+ 4	—	—	—
Sverdlovsk		52·7	317	i 8 56	− 4	i 16 13	− 1	—	—	—
Tashkent		53·9	297	e 9 8	− 1	16 30	0	—	—	—
Scoresby Sund		67·4	356	e 10 33	− 7	e 19 24	+ 3	e 13 12	PP	e 29·8
Bozeman	•	70·4	46	e 10 55	− 4	e 19 59	+ 3	e 25 2	SS	e 34·2
Tinemaha	Z.	71·6	57	i 11 8	+ 2	—	—	—	—	—
Haiwee		72·4	57	e 11 12	+ 2	—	—	—	—	—
Santa Barbara	Z.	72·4	60	e 11 12	+ 2	—	—	—	—	—
Mount Wilson	Z.	73·6	59	e 11 19	+ 2	—	—	—	—	—
Pasadena		73·6	59	i 11 17	0	e 20 40	+ 7	—	—	e 33·7
Riverside	Z.	74·2	59	i 11 21	0	—	—	—	—	—
Copenhagen		74·3	335	i 11 21	0	20 43	+ 2	—	—	—
Palomar	Z.	74·9	59	i 11 25	0	—	—	—	—	—
La Jolla	Z.	75·0	60	i 11 27	+ 2	—	—	—	—	—
Potsdam		76·8	332	—	—	i 21 10	+ 2	e 16 32	PP	e 36·5
Bucharest		77·5	320	—	—	i 21 22	+ 6	e 15 32?	PP	40·6
Tucson		79·4	56	i 11 51	+ 1	—	—	e 17 30	PP	—
De Bilt		79·7	336	—	—	i 21 43	+ 4	—	—	e 37·0
Ksara		79·7	307	e 12 18	+27	e 21 49	+10	—	—	—
Uccle		81·1	336	e 12 2	+ 3	e 21 53	0	—	—	e 37·5
Stuttgart		81·2	332	e 11 59	0	e 24 2	?	e 14 49	?	—
Kew		81·9	339	—	—	i 22 5	+ 4	—	—	e 41·5
Triest		82·0	328	—	—	i 22 3	+ 1	—	—	—
Helwan		85·2	306	i 12 21k	+ 2	i 22 38	+ 4	—	—	—
St. Louis		86·1	40	i 12 24	0	e 22 40	− 3	e 12 44	pP	38·5
Ottawa		86·3	27	e 12 24	− 1	e 22 32?	−13	—	—	—
Granada		95·8	334	e 24 22	S	(e 24 22)	+13	—	—	49·8

Additional readings :—
Scoresby Sund eSS = 24m.3s.
Tucson e = 14m.6s.
Kew e = 22m.41s.
Helwan eZ = 12m.42s.
St. Louis iZ = 12m.37s., eZ = 15m.46s., ePPNZ = 16m.2s., epPPNZ = 16m.22s., ePPPN = 19m.3s., eSEN = 23m.17s.
Long waves were also recorded at Cheb.

August 8d. 7h. 19m. 24s. Epicentre 14°·3N. 91°·2W. (as on 1942 March 1d.).

A = −·0203, B = −·9692 ; C = +·2454 ; δ = −2 ; h = +5 ;
D = −1·000, E = +·021 ; G = −·005, H = −·245, K = −·969.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tacubaya	N.	9·2	305	2 13	− 3	—	—	—	—	—
Columbia		21·7	24	e 4 57	+ 2	e 9 3	+12	—	—	e 13·3
St. Louis		24·3	2	i 5 20	0	e 9 42	+ 5	e 5 56	PP	e 10·8
San Juan		24·4	77	e 5 22	+ 1	e 9 20	−19	e 5 59	PP	e 10·3
Florissant		24·4	2	e 5 23	+ 2	e 9 46	+ 7	e 10 47	SS	—
Tucson		25·3	319	e 5 27	− 3	e 10 4	+10	e 6 13	PP	e 13·0
Chicago		27·6	6	e 5 51	0	e 10 46	+14	—	—	e 14·0
Pittsburgh		27·8	18	i 5 56	+ 3	i 11 33	+58	—	—	—
Philadelphia		29·2	27	e 6 7	+ 2	e 10 58	0	e 7 6	PP	e 14·2
Palomar	Z.	30·0	315	i 6 10	− 2	—	—	i 9 16	?	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
La Jolla	Z.	30·1	313	i 6 11	− 2	—	—	—	—	—
Bermuda		30·1	49	e 7 36	PPP	—	—	—	—	—
Huancayo		30·5	148	e 6 1	−16	e 11 11	− 7	—	—	e 13·5
Riverside	Z.	30·8	314	e 6 16	− 4	—	—	i 9 18	?	—
Mount Wilson	Z.	31·4	314	e 6 22	− 3	—	—	—	—	—
Pasadena	Z.	31·4	314	i 6 21	− 4	—	—	e 7 36	PP	e 14·6
Salt Lake City		31·9	329	e 6 35	+ 6	e 11 42	+ 2	—	—	e 17·0
Haiwee	N.	32·4	318	e 6 37	+ 3	—	—	—	—	—
Harvard		32·8	28	i 6 40	+ 3	—	—	—	—	e 16·6
Tinemaha	Z.	33·1	318	i 6 38	− 2	—	—	e 9 19	?	—
Ottawa		33·7	20	6 46	+ 1	12 16	+ 8	8 16	PPP	15·6
Bozeman		35·5	337	e 6 59	− 1	e 12 40	+ 4	—	—	e 17·3
Santa Clara		35·7	317	e 7 0	− 2	e 12 46	+ 7	—	—	e 18·5
Berkeley		36·2	317	i 7 4	− 2	i 12 52	+ 5	—	—	i 18·1
Butte		36·4	337	e 7 9	+ 1	e 12 24	−26	—	—	e 22·1
Seven Falls		36·9	23	7 15	+ 3	13 0	+ 2	—	—	20·6
Ukiah		37·5	318	e 7 12	− 5	e 13 8	+ 1	—	—	e 17·8
La Paz		38·2	142	e 7 36	+13	—	—	—	—	17·6
Victoria		43·2	330	8 6	+ 2	14 37	+ 5	—	—	23·6
Scoresby Sund		69·7	20	e 11 12	− 2	e 20 56	+34	e 21 56	?	e 38·1
De Bilt		82·7	39	i 12 31	+ 4	—	—	—	—	e 38·6
Potsdam		87·3	38	—	—	e 23 36	+ 7	—	—	e 44·6

Additional readings :—
St. Louis ePPPN = 6m.5s.
Tucson e = 6m.29s., eP_cP = 8m.41s.
Pittsburgh e = 11m.29s.
Philadelphia e = 12m.56s.
Pasadena eZ = 9m.14s.
Long waves were also recorded at Sitka, College, and Kew.

August 8d. 22h. 36m. 30s. Epicentre 13°·9N. 90°·8W. (as on 6d.).

$A = -·0136$, $B = -·9710$, $C = +·2387$; $\delta = 0$; $h = +6$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Oaxaca	E.	6·5	299	e 1 33	− 6	—	—	—	—	—
Merida	Z.	7·1	9	e 2 7	P*	—	—	—	—	—
Tacubaya	E.	9·7	305	e 2 20	− 2	—	—	—	—	—
Balboa Heights		12·1	113	e 2 59	+ 2	—	—	—	—	—
Mobile		16·9	8	e 4 9	+10	e 7 31	+24	—	—	i 12·2
Columbia		21·9	22	e 5 2	+ 5	e 9 2	+ 8	e 5 50	PP	e 11·3
San Juan		24·1	76	e 5 20	+ 2	e 9 37	+ 3	e 6 2	PP	i 10·6
St. Louis		24·6	0	i 5 22	− 1	i 9 43	+ 1	i 5 42	pP	e 12·2
Florissant		24·8	0	i 5 24	− 1	e 9 53	+ 7	i 10 23	sS	i 15·6
Tucson		25·9	319	i 5 32	− 3	e 10 1	− 3	e 6 15	PP	e 12·2
Lincoln		27·3	354	e 7 9	PP	(e 11 8)	+41	—	—	e 11·1
Georgetown		27·7	24	e 5 53	+ 1	i 10 36	+ 3	—	—	—
Chicago		27·9	4	e 5 54	0	e 10 30	− 7	e 6 42	PP	e 11·5
Pittsburgh		28·1	17	i 6 3	+ 8	e 10 46	+ 6	—	—	—
New Kensington		28·3	17	e 6 54	+57	—	—	e 12 24	SS	i 13·9
Fort de France		28·9	85	e 6 3	0	—	—	—	—	—
Philadelphia		29·4	25	e 6 9	+ 2	e 11 1	0	e 6 54	PP	e 12·3
Huancayo		30·0	149	e 6 13	+ 1	e 11 29	+19	i 6 50	PP	i 13·9
Bermuda		30·1	48	e 6 32	+19	e 11 21	+ 9	— •	—	14·2
La Jolla	Z.	30·6	313	e 6 10	− 8	—	—	—	—	—
Palomar	Z.	30·6	315	i 6 15	− 3	e 11 24	+ 4	—	—	—
Fordham		30·6	26	e 6 23	+ 5	i 11 29	+ 9	e 7 13	PP	i 14·5
Riverside	Z.	31·3	315	e 6 20	− 4	—	—	i 7 6	PP	—
Mount Wilson	Z.	31·9	315	e 6 26	− 3	—	—	i 9 22	?	—
Pasadena		31·9	315	i 6 25	− 4	i 11 45	+ 5	i 7 51	PP	e 14·8
Salt Lake City		32·5	329	e 6 33	− 1	e 11 41	− 8	e 7 30	PP	e 15·5
Haiwee	E.	32·9	318	e 6 36	− 2	—	—	—	—	—
Harvard		33·0	26	e 6 41	+ 2	e 12 3	+ 6	—	—	e 14·0
Logan		33·2	331	i 6 40	0	e 11 57	− 3	e 7 42	PP	e 14·2
Santa Barbara	Z.	33·2	313	e 6 41	+ 1	—	—	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tinemaha		33·7	318	i 6 43	− 2	—	—	—	—	—
Ottawa		33·9	18	6 46	− 1	12 14	+ 3	8 12	PP	17·5
Vermont		34·0	23	e 6 50	+ 2	e 12 9	− 4	e 8 17	PP	e 14·5
Fresno	N.	34·5	317	e 6 55	+ 3	e 13 19	+59	—	—	—
Shawinigan Falls		35·9	42	7 4	0	12 49	+ 7	16 42	SS	—
Lick	N.	36·0	316	(e 7 1)	− 4	e 7 1	P	—	—	—
Bozeman		36·0	337	e 7 2	− 3	e 12 40	− 4	e 8 34	PP	e 18·1
Santa Clara		36·2	316	i 7 7	+ 1	i 12 54	+ 7	—	—	e 18·1
Berkeley		36·7	316	i 7 10	0	i 12 58	+ 4	i 9 4	PPP	i 19·5
Butte		36·9	337	e 7 11	− 1	e 12 28	−30	e 8 44	PP	e 16·2
Seven Falls		37·1	22	7 13	− 1	13 6	+ 5	8 56	PP	17·5
La Paz		37·6	142	i 7 21a	+ 3	i 13 25	+17	i 8 53	PP	19·0
Ukiah		38·0	318	e 7 18	− 3	e 13 14	0	e 8 13	PP	e 16·3
Halifax		38·4	31	—	—	—	—	e 9 0	PP	21·5
Victoria		43·8	329	8 9	0	14 39	− 1	17 0	SS	22·5
Sitka		55·0	332	e 9 34	− 1	i 17 17	0	e 12 55	PPP	e 23·3
Ivigtut		56·3	23	—	—	e 17 46	+12	—	—	e 23·8
Rio de Janeiro	E.	59·2	127	e 10 10	+ 5	e 18 20	+ 8	—	—	e 29·7
College		63·8	337	e 10 35	− 1	e 19 3	− 8	e 13 36	PP	e 29·8
Honolulu		63·9	287	e 11 12	+35	e 19 12	0	—	—	e 26·9
Scoresby Sund		70·0	19	e 11 14	− 1	e 20 13	−13	e 14 6	PP	e 31·4
Aberdeen		77·7	33	—	—	i 21 47	− 5	—	—	e 38·2
Stonyhurst		77·9	37	—	—	e 21 30?	−24	—	—	e 36·5
Granada		79·5	54	i 12 13k	+ 3	i 22 20	+ 9	23 23	PS	37·4
Kew		79·6	39	e 12 16	+ 6	—	—	e 22 51	PS	e 34·0
Uccle		82·6	40	e 12 27	+ 1	e 22 38	− 5	e 23 29	PS	e 39·5
De Bilt		82·8	38	i 12 31	+ 4	e 22 30	−15	e 28 30?	SS	e 39·5
Clermont-Ferrand		82·9	45	e 12 24?	− 4	e 22 52	+ 6	—	—	e 40·9
Copenhagen		85·9	33	e 12 41	− 2	22 45	−31	16 13	PP	—
Stuttgart		86·1	40	e 12 43	− 1	—	—	e 16 6	PP	e 44·5
Upsala		87·1	29	—	—	e 23 11	[− 4]	—	—	e 41·5
Potsdam	E.	87·4	37	e 12 48	− 2	e 23 19	[+ 2]	—	—	e 42·5
	N.	87·4	37	e 12 54	+ 4	e 23 24	[+ 7]	—	—	e 42·5
Cheb		87·7	39	e 14 2	?	e 23 24	[+ 5]	—	—	e 43·5
Triest		90·1	43	—	—	i 24 34	PS	—	—	—
Bucharest		98·5	41	—	—	e 24 22	[+ 2]	—	—	50·5
Christchurch		104·2	228	27 41	PS	33 46	SS	43 39	Q	48·4
Helwan		109·3	52	—	—	e 25 12	[+ 3]	—	—	—

Additional readings :—
San Juan e =9m.51s.
St. Louis isSE =10m.20s.
Tucson e =6m.58s.
Pittsburgh i =11m.15s.
Philadelphia iP =6m.12s.
Huancayo e =7m.39s.
Bermuda e =10m.8s.
Palomar iZ =6m.22s., eZ =9m.19s., iZ =13m.3s.
Riverside iZ =9m.20s. and 13m.5s.
Pasadena iZ =6m.35s. and 9m.20s., iS_ePZ =13m.7s.
Logan e =6m.55s.
Ottawa SS =13m.58s.
Vermont i =12m.49s.
Lick eE =7m.5s.
Bozeman e =15m.25s.
Berkeley ePZ =7m.13s., eSEN =13m.3s.
Butte e =9m.19s.
Seven Falls SS =15m.48s.
La Paz iPPPN =10m.1s., SSN =16m.18s., iSSSN =16m.48s.
Sitka e =19m.23s.
Ivigtut e =21m.28s.
College e =24m.16s.
Scoresby Sund e =19m.45s., 25m.1s., and 25m.45s.
Granada SS =27m.45s.
Copenhagen 23m.14s.
Potsdam eZ =13m.44s., 16m.14s., and 23m.48s.
Long waves were also recorded at Seattle, Prague, San Fernando, and Riverview.

August 8d. Readings also at 2h. and 6h. (Tacubaya), 7h. (La Paz, 9h. (Tacubaya, Tucson, Palomar, and Tinemaha), 14h. (Helwan, Ksara, Bucharest, Sofia, Cernauti, Focsani, Triest, Cheb, Potsdam, Upsala, Stuttgart, Copenhagen, De Bilt, and Kew), 16h. (Palomar, Tucson, and Tinemaha), 22h. (near Berkeley, Branner, Lick, Fresno, and Santa Clara), 23h. (Berkeley and Ferndale).

August 9d. Readings at 0h. (near Branner), 1h. (near Berkeley, Branner, Lick and Fresno), 3h. (Ksara, and Helwan), 5h. (De Bilt, Kew, and Potsdam), 13h. (Tucson), 16h. (Potsdam, Triest, Bucharest, near Sofia, and near Berkeley), 17h. (Mount Wilson, Pasadena, Palomar, Riverside, Tucson, Tinemaha, Scoresby Sund, Jena, near Basle, Stuttgart (2), and Zurich), 18h. (De Bilt and Kew), 21h. (Mizusawa and Triest).

August 10d. Readings at 6h. (Helwan), 8h. (Pasadena), 11h. (near Berkeley, Branner and Lick), 13h. (near Andijan), 14h. (Florissant and Tucson), 15h. (Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, and Tacubaya), 16h. (Helwan and Ksara), 19h. (Ksara), 21h. (Almata, near Andijan, and Tashkent), 22h. (near Branner).

August 11d. 4h. 48m. 13s. Epicentre 13°·9N. 90°·8W. (as on 8d.).

$A = -\cdot0136$, $B = -\cdot9710$, $C = +\cdot2387$; $\delta = 0$; $h = +6$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Oaxaca	N.	6·5	299	e 0 31	?	—	—	—	—	—
Vera Cruz	E.	7·3	316	e 1 26	−24	—	—	—	—	—
Tacubaya	N.	9·7	305	2 23	+ 1	—	—	—	—	—
Balboa Heights		12·1	113	e 2 47?	−10	—	—	—	—	—
Columbia		21·9	22	e 5 2	+ 5	e 9 10	+16	e 5 49	PP	e 13·3
San Juan		24·1	76	e 5 18	0	e 10 53	SSS	e 6 0	PP	e 14·1
St. Louis		24·6	0	e 5 26	+ 3	e 10 0	+18	i 5 51	pP	—
Florissant		24·8	0	i 5 27	+ 2	i 11 1	SSS	i 5 56	PP	i 14·7
Tucson		25·9	319	i 5 34	− 1	e 9 48	−16	i 6 20	PP	e 12·7
Lincoln		27·3	354	e 5 33	−15	e 11 8	SS	—	—	e 19·1
Chicago		27·9	4	e 6 45	PP	e 11 15	SS	e 6 52	PPP	e 13·9
Pittsburgh		28·1	17	e 6 7?	+12	e 12 0	SS	—	—	—
Huancayo		30·0	149	e 6 13	+ 1	e 11 15	+ 5	—	—	e 15·2
Bermuda		30·1	48	e 6 3	−10	12 23	SS	—	—	14·1
La Jolla		30·6	313	e 6 17	− 1	—	—	—	—	—
Palomar	Z.	30·6	315	i 6 16k	− 2	—	—	—	—	—
Riverside		31·3	315	e 6 23	− 1	—	—	i 7 1	PP	—
Mount Wilson	Z.	31·9	315	i 6 28k	− 1	—	—	—	—	—
Pasadena		31·9	315	i 6 29k	0	—	—	i 7 4	PP	e 15·2
Salt Lake City		32·5	329	e 6 34	0	e 11 54	+ 5	—	—	e 15·8
Haiwee		32·9	318	i 6 37	− 1	—	—	—	—	—
Harvard		33·0	26	i 6 42	+ 3	e 12 5	+ 8	—	—	13·8
Logan		33·2	331	e 6 42	+ 2	—	—	—	—	e 15·0
Santa Barbara	Z.	33·2	313	e 6 39	− 1	—	—	—	—	—
Tinemaha	Z.	33·7	318	i 6 44	− 1	—	—	—	—	—
Ottawa		33·9	18	6 49	+ 2	12 24	+13	8 5	PPP	16·8
Fresno	N.	34·5	317	e 9 51	?	—	—	—	—	—
Bozeman		36·0	337	e 7 0	− 5	13 18	+34	—	—	16·9
Santa Clara		36·2	316	e 7 9	+ 3	—	—	—	—	e 19·2
Berkeley		36·7	316	i 7 9	− 1	e 12 57	+ 3	i 8 37	PP	i 19·3
Butte		36·9	337	e 7 10	− 2	e 13 22	+24	—	—	e 17·0
Seven Falls		37·1	22	7 16	+ 2	13 28	+27	—	—	19·8
La Paz		37·6	142	e 7 13	− 5	—	—	—	—	18·2
Ukiah		38·0	318	e 7 19	− 2	e 13 17	+ 3	—	—	e 20·2
Victoria		43·8	329	e 8 8	− 1	—	—	—	—	19·8
Scoresby Sund		70·0	19	e 16 27	?	e 20 34	+ 8	—	—	e 28·8
Granada		79·5	54	—	—	e 23 54	PPS	—	—	36·3
Stuttgart		86·1	40	e 12 45	+ 1	—	—	e 16 5	PP	—

For Notes see next page.

NOTES TO AUGUST 11d. 4h. 48m. 13s.

Additional readings :—
San Juan e = 5m.32s.
St. Louis eE = 9m.52s., eSN = 10m.4s., eSSN = 10m.40s.
Florissant iE = 11m.41s.
Tucson e = 6m.51s.
Huancayo e = 6m.17s.
Riverside eZ = 9m.19s.
Pasadena iZ = 9m.19s.
Logan iP = 6m.46s.
Santa Barbara iZ = 9m.29s.
Tinemaha iZ = 9m.24s.
Berkeley iPE = 7m.15s.
Ukiah e = 7m.28s.
Long waves were also recorded at College, Sitka, Kew, De Bilt, and Potsdam.

August 11d. 7h. 11m. 28s. Epicentre 13°·9N. 90°·8W. (as at 4h.).

	•	△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Oaxaca	E.	6·5	299	e 0 32	?	—	—	—	—	—
Vera Cruz	N.	7·3	316	e 2 40	P_g	—	—	—	—	—
Tacubaya	E.	9·7	305	e 2 24	+ 2	—	—	—	—	—
Balboa Heights		12·1	113	e 2 32?	−25	—	—	—	—	—
Columbia		21·9	22	e 5 7	+10	e 9 4	+10	—	—	e 12·6
San Juan		24·1	76	e 5 7	−11	e 10 31	SS	e 5 49	PP	e 13·7
St. Louis		24·6	0	e 5 25	+ 2	e 9 55	+13	e 5 44	PP	—
Florissant		24·8	0	i 5 27	+ 2	i 9 37	− 9	e 6 0	PP	16·3
Tucson		25·9	319	i 5 34	− 1	e 9 59	− 5	e 6 13	PP	e 13·4
Chicago		27·9	4	e 5 53	− 1	e 10 42	+ 5	e 6 39	PP	e 12·8
Bermuda		30·1	48	e 7 25	PP	—	—	—	—	e 13·1
La Jolla	Z.	30·6	313	e 6 17	− 1	—	—	—	—	—
Palomar	Z.	30·6	315	i 6 17	− 1	—	—	—	—	—
Riverside	Z.	31·3	315	e 6 23	− 1	—	—	—	—	—
Mount Wilson	Z.	31·9	315	i 6 28	− 1	—	—	—	—	—
Pasadena		31·9	315	i 6 29	0	e 13 53	SSS	—	—	e 14·6
Salt Lake City		32·5	329	e 6 33	− 1	e 11 41	− 8	—	—	e 15·0
Haiwee		32·9	318	e 6 41	+ 3	—	—	—	—	—
Logan		33·2	331	e 6 38	− 2	e 11 37	−23	—	—	e 14·6
Santa Barbara	Z.	33·2	313	e 6 40	0	—	—	—	—	—
Tinemaha	Z.	33·7	318	i 6 44	− 1	—	—	—	—	—
Ottawa		33·9	18	6 48	+ 1	12 16	+ 5	—	—	15·5
Bozeman		36·0	337	e 7 4	− 1	e 12 47	+ 3	—	—	e 19·0
Berkeley		36·7	316	e 7 12	+ 2	i 13 0	+ 6	—	—	i 19·5
Butte		36·9	337	e 7 12	0	12 58	0	e 13 44	?	e 20·8
Seven Falls		37·1	22	—	—	e 13 5	+ 4	—	—	20·5
La Paz		37·6	142	e 7 49	+31	—	—	—	—	22·0
Victoria		43·8	329	—	—	e 14 38	− 2	—	—	24·5

Tucson also gives i = 6m.40s.
Long waves were also recorded at Huancayo, Scoresby Sund, Kew, Granada, and other American stations.

August 11d. Readings also at 0h. (near Bucharest and Sofia), 10h. (Tucson), 12h. (Pasadena. Mount Wilson, Riverside, Palomar, Tucson, and Sofia), 13h. (Pasadena, Mount Wilson, Riverside, Palomar, La Paz, Tinemaha, Tucson, and near Andijan), 15h. (near Andijan), 19h. (Wellington), 20h. (Tucson), 21h. (Florissant).

August 12d. 20h. 38m. 38s. Epicentre 39°·0N. 28°·0E. (as on 1942 Feb. 5d.).

Felt at Gelenbe (Kirkagac). Epicentre 39° 10′N. 27° 45′E. (Istanbul).
Bulletin meteorologique, seismique et magnetique de l'Observatoire de Kandilli, 1942, Istanbul 1947, No. 35, p.38.

$A = +\cdot6880$, $B = +\cdot3658$, $C = +\cdot6268$; $\delta = +3$; $h = -1$;
$D = +\cdot469$, $E = -\cdot883$; $G = +\cdot553$, $H = +\cdot294$, $K = -\cdot779$.

	△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Istanbul	2·2	21	0 43	+ 5	1 15	S_g	0 47	P_g	—
Sofia	5·1	318	e 1 18	− 2	i 2 22	+ 2	1 27	P*	2·7
Bucharest	5·6	344	e 1 26	− 1	i 2 42	+ 9	e 1 48	P_g	e 2·9
Focsani	6·7	354	e 2 0	P*	e 3 12	+12	e 3 38	S_g	e 3·8
Ksara	8·2	127	e 2 12	+ 9	e 4 44	S_g	—	—	—
Cernauti	9·4	351	e 1 33	−45	e 3 58	− 9	e 4 44	S*	4·9
Helwan	9·5	163	e 2 22	+ 2	i 4 44	S*	e 3 42	?	17·7
Triest	12·4	307	e 2 57	− 4	—	—	—	—	—
Prague	14·7	324	e 3 27	− 4	e 6 46?	+30	—	—	e 7·9
Chur	15·6	306	e 3 47	+ 4	e 9 12	L	—	—	(e 9·2)
Cheb	15·7	320	—	—	e 6 22?	−17	—	—	e 8·0
Zurich	16·4	307	e 3 52	− 1	e 8 38	L	—	—	(e 8·6)
Jena	16·6	321	e 3 54	− 2	—	—	—	—	e 8·4
Stuttgart	16·7	312	e 3 52	− 5	e 6 42	−21	i 3 58	PP	e 9·1
Potsdam	16·9	327	3 57	− 2	e 7 8	+ 1	7 16	SS	8·4
Basle	17·1	307	e 4 1	− 1	—	—	—	—	—
Neuchatel	17·3	304	e 4 2	− 2	—	—	—	—	—
Clermont-Ferrand	19·7	298	e 4 32	− 2	—	—	—	—	e 12·7
Copenhagen	19·7	333	4 30	− 4	8 17	+ 7	—	—	10·4
Uccle	20·4	313	e 4 39	− 2	e 8 26	+ 1	—	—	e 10·4
De Bilt	20·5	317	i 4 41	− 1	e 8 36	+ 9	—	—	e 10·4
Upsala	21·9	345	e 4 55	− 2	e 9 11	+17	—	—	e 11·4
Kew	23·3	312	i 5 11a	+ 1	i 9 25	+ 5	e 10 13	SS	e 11·9
Granada	24·9	276	i 5 24	− 2	10 0	+13	—	—	12·8
Stonyhurst	25·5	316	—	—	e 9 22?	−35	—	—	—
Sverdlovsk	27·8	39	5 52	− 1	10 36	+ 1	—	—	—
Scoresby Sund	40·6	336	—	—	e 14 28	+34	—	—	e 17·0

Additional readings :—
Bucharest iN = 2m.30s., iE = 2m.35s.
Focsani eE = 2m.6s. and 2m.46s.
Cernauti e = 1m.58s.
Potsdam eP_gPE = 8m.40s.
Kew eQEN = 10m.43s.
Long waves were also recorded at San Fernando, Belgrade, Paris, and Aberdeen.

August 12d. 21h. 52m. 46s. Epicentre 39°·0N. 28°·0E. (as at 20h.).

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Istanbul		2·2	21	0 38	0	1 10	+ 4	0 42	P*	—
Sofia		5·1	318	e 1 10	−10	e 2 18	− 2	e 2 3	P_g	e 2·5
Bucharest		5·6	344	e 1 35	+ 8	e 2 44	+11	e 1 42	P*	i 3·0
Focsani		6·7	354	e 2 14	P_g	3 32	S*	—	—	3·7
Ksara		8·2	127	e 2 4	+ 1	—	—	—	—	e 4·7
Helwan	z.	9·5	163	e 2 17	− 3	e 4 20	+10	e 2 44	PPP	e 5·3
Chur		15·6	306	e 4 44	PPP	—	—	—	—	—
Stuttgart		16·7	312	e 3 46	−11	e 7 54	SS	—	—	—
Clermont-Ferrand		19·7	298	e 4 22	−12	—	—	—	—	e 12·7
Uccle		20·4	313	e 4 54	+13	e 8 21	− 4	—	—	e 11·2
Kew		23·3	312	e 9 17	P_cP	i 9 27	+ 7	—	—	e 11·5

Additional readings :—
Bucharest eE = 1m.46s., eP* = 1m.50s.
Long waves were also recorded at other European stations.

August 12d. Readings also at 13h. (La Paz), 18h. (Tananarive and near Branner), 21h. (Tashkent, near Istanbul, and Sofia), 23h. (near Istanbul and Sofia).

August 13d. 15h. 44m. 45s. Epicentre 9°·0S. 158°·5E. (as on 1942 March 6d.).

$A = -\cdot 9191$, $B = +\cdot 3621$, $C = -\cdot 1554$; $\delta = +1$; $h = +7$;
$D = +\cdot 367$, $E = +\cdot 930$; $G = +\cdot 145$, $H = -\cdot 057$, $K = -\cdot 988$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane	E.	19·1	195	i 4 29	+ 2	i 8 3	+ 6	i 4 48	PP	11·6
Riverview		25·6	194	i 5 34k	+ 2	e 10 2	+ 3	i 6 8	PP	e 13·1
Sydney		25·6	194	e 5 27	− 5	i 10 15	+16	—	—	—
Auckland		31·4	155	—	—	11 37	+ 5	—	—	16·2
Arapuni		32·8	155	e 9 15?	?	12 15	+21	—	—	16·2
Wellington		35·2	159	6 59	+ 1	12 45	+14	8 23	PP	19·2
Christchurch		36·5	163	6 47a	−22	12 54	+ 3	8 47	PP	20·1
Naha		46·1	320	e 8 27	− 1	—	—	—	—	—
Yokohama		47·6	340	e 8 39	0	(e 15 28)	− 7	—	—	—
Tokyo Cen. Met. Ob.		47·8	341	e 8 45	+ 4	e 9 55	PP	—	—	—
Miyazaki		48·2	330	e 8 37	− 7	15 42	− 1	—	—	24·4
Nagoya		48·4	338	e 8 46	0	—	—	—	—	—
Koti		48·5	332	e 8 45	− 1	15 45	− 3	—	—	—
Kumamoto		49·3	330	e 8 52	− 1	—	—	—	—	—
Nagano		49·3	339	e 8 48	− 5	—	—	—	—	—
Sendai		49·8	344	e 8 56	0	—	—	—	—	24·7
Hukuoka		50·1	330	8 58	− 1	16 7	− 3	—	—	23·9
Hamada		50·4	333	8 56	− 5	16 8	− 6	—	—	—
Mizusawa		50·5	344	e 9 0	− 2	12 10	PPP	—	—	—
Honolulu		52·4	54	e 9 1	−15	e 16 19	−23	e 18 53	SeS	e 24·2
Mori		53·4	345	e 9 34	+10	—	—	—	—	—
Sapporo		54·1	346	9 29	0	—	—	—	—	—
Zinsen		55·0	330	e 9 32	− 3	—	—	—	—	—
Vladivostok		57·3	338	i 9 48	− 4	i 17 45	− 2	—	—	—
Calcutta	N.	75·5	297	—	—	i 21 33	+ 5	—	—	—
Irkutsk		76·6	329	11 52	− 2	21 34	− 6	—	—	—
Colombo	E.	79·9	278	12 14	+ 2	22 19	+ 3	—	—	—
Kodaikanal	E.	82·9	281	e 13 5	+37	i 23 20	+34	—	—	—
Hyderabad	N.	83·3	289	—	—	22 45	− 5	—	—	—
College		83·7	20	e 12 30	− 2	e 22 48	− 6	e 23 51	PS	e 35·1
Sitka		85·2	31	e 13 8	+29	e 23 6	− 3	e 28 45	SS	e 37·5
Berkeley		87·1	52	i 12 49	0	e 23 1	[−13]	—	—	—
Santa Clara		87·2	51	i 13 3	+14	e 23 5	[−10]	—	—	e 43·4
Santa Barbara		88·3	55	i 12 58	+ 3	—	—	—	—	—
Bombay		88·8	289	e 12 58	+ 1	i 23 39	− 5	23 21	SKS	—
Victoria		88·9	42	—	—	e 23 30	[+ 4]	—	—	38·2
Pasadena		89·5	56	i 13 1a	+ 1	i 23 54	+ 4	e 23 31	SKS	e 40·4
Mount Wilson	Z.	89·6	56	i 13 3a	+ 2	—	—	—	—	—
La Jolla		90·0	57	e 13 6	+ 3	—	—	—	—	—
Tinemaha		90·0	52	i 13 5	+ 2	—	—	—	—	—
Haiwee	Z.	90·1	54	e 13 5	+ 2	—	—	—	—	—
Riverside		90·2	56	e 13 6	+ 2	—	—	—	—	—
Palomar	Z.	90·4	56	i 13 6a	+ 2	—	—	—	—	—
Tashkent		95·3	311	13 25	− 2	24 35	− 6	—	—	—
Tucson		95·3	59	e 13 29	+ 2	e 24 46	+ 5	e 19 54	PP	e 42·6
Salt Lake City		95·5	50	e 13 29	+ 1	e 26 15	PS	e 28 18	?	e 54·7
Butte		95·7	44	e 14 6	+37	e 24 10	[+ 5]	e 28 36	?	e 48·7
Bozeman		96·7	45	e 14 22	+49	e 24 11	[+ 1]	e 26 8	PS	e 46·0
Sverdlovsk		101·8	327	i 13 54	− 2	24 32	[− 4]	18 4	PP	—
Florissant		112·0	52	e 17 53	[−44]	i 26 26	{+ 7}	e 19 20	PP	e 53·8
St. Louis		112·2	52	—	—	e 25 37	[+16]	e 30 6	PPS	—
Chicago		113·7	48	e 19 32	[+52]	e 25 25	[− 2]	e 20 17	PP	e 50·8
Scoresby Sund		118·6	0	e 19 18	[+28]	e 25 46	[+ 1]	e 20 8	PP	e 49·7
Pittsburgh		119·7	47	—	—	i 27 18	{+ 6}	—	—	—
Ottawa		121·2	42	18 55	[0]	25 51	[− 3]	30 23	PS	53·2
Upsala	N.	121·4	338	—	—	e 40 15?	SSS	—	—	e 64·2
Ksara		122·0	303	e 20 32	PP	e 26 0	[+ 3]	—	—	—
Huancayo		122·5	110	—	—	e 25 57	[− 1]	e 30 42	PS	e 58·3
Philadelphia		123·3	47	—	—	e 26 1	[0]	e 30 29	PS	e 55·6
Harvard		125·0	42	e 19 3	[+ 1]	—	—	e 20 51	PP	e 60·2

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Copenhagen		126·3	338	e 20 57	PP	30 57	PS	—	—	—
Helwan		126·5	300	19 6	[+ 1]	e 38 9	SS	i 20 50	PP	—
La Paz	Z.	127·4	119	i 19 12	[+ 5]	—	—	—	—	61·2
Potsdam		128·4	334	i 21 14a	PP	—	—	i 22 31	PKS	e 67·2
Prague		129·4	330	—	—	e 32 15?	PS	—	—	—
Cheb		130·3	332	e 22 42	PP	e 33 23	PPS	—	—	e 65·2
De Bilt		131·8	338	i 21 36	PP	e 31 35	PS	i 22 42	PKS	e 63·2
Triest		132·6	326	e 21 41	PP	—	—	i 22 45	PKS	—
Stonyhurst		132·7	344	—	—	i 25 32	?	42 37	SSS	—
Stuttgart		132·7	332	i 19 17	[0]	—	—	e 22 43	PP	—
Uccle		133·2	339	e 19 18	[0]	e 31 48	PS	i 21 44	PP	e 64·2
Chur		133·9	331	e 21 46	PP	—	—	—	—	—
Zurich		134·0	332	e 19 21	[+ 1]	—	—	—	—	—
Basle		134·4	332	e 21 12	PP	—	—	—	—	—
Kew		134·2	342	i 19 22	[+ 2]	e 28 46	{ 0}	e 21 50	PP	e 64·2
San Juan		135·8	72	e 20 42	?	e 27 6	[+34]	e 21 57	PP	e 60·6
Clermont-Ferrand		137·7	334	e 19 30	[+ 4]	—	—	e 22 5	PP	e 73·8
Granada		147·6	333	i 19 55a	[+11]	33 45	PS	i 23 16	PP	70·4
Lisbon		148·4	341	19 50k	[+ 5]	i 20 16	?	—	?	82·0
San Fernando		149·3	336	e 19 52	[+ 6]	—	—	—	—	79·2

Riverview iPPPE = 6m.25s., eZ = 9m.56s. eN = 10m.6s., iEZ = 10m.16s., iN = 10m.23s., SSZ = 11m.6s.
Wellington P_cS = 12m.32s.
Christchurch P_cP = 8m.35s., S_cS = 15m.34s., SS = 16m.19s., Q = 16m.48s.
Yokohama S has been increased by 4m.
Miyazaki i = 8m.48s.
College e = 12m.47s., eSS = 28m.46s.
Sitka e = 24m.24s.
Pasadena iZ = 13m.13s.
Tinemaha iZ = 13m.18s.
Tucson e = 14m.53s., 24m.8s., and 26m.46s., eSS = 31m.0s., e = 34m.20s.
Bozeman eS = 24m.56s., e = 25m.22s. and 37m.20s.
Sverdlovsk S = 25m.30s.
Florissant iE = 26m.40s. and 28m.56s.
St. Louis eEN = 26m.35s. and 26m.52s.
Chicago eS = 27m.30s., ePS = 29m.36s., e = 38m.34s., eSSS = 39m.24s.
Scoresby Sund e = 29m.54s., eSS = 35m.44s., e = 36m.19s.
Pittsburgh i = 27m.31s.
Ottawa PP = 20m.33s.
Huancayo eSS = 37m.31s.
Philadelphia e = 27m.33s. and 32m.56s., eSS = 37m.7s.
Helwan iEZ = 21m.3s., iZ = 21m.43s., eZ = 22m.43s.
Potsdam eE = 21m.23s.
De Bilt iZ = 21m.48s., i = 22m.55s.
Stuttgart e = 19m.25s., and 20m.5s., i = 22m.59s., e = 31m.58s., and 45m.45s.
Uccle iSKPNZ = 22m.46s., iZ = 22m.58s.
Kew iPKS = 22m.51s., ePKS = 23m.2s., ePS = 32m.1s., eSSZ = 39m.55s.
San Juan e = 23m.52s., e = 32m.18s., eSS = 39m.21s., e = 48m.3s.
Granada iPKP$_2$ = 20m.18s., pPKP = 20m.59s., pPP = 24m.24s., sSKS = 28m.17s., PPS = 37m.39s., iSS = 42m.23s., sSS = 44m.11s., eSSS = 49m.19s.
Long waves were also recorded at Ukiah, Paris, and Aberdeen.

August 13d. 19h. 28m. 14s. Epicentre 10°·4S. 77°·2W., depth of focus 0·010.
(as on 1940 May 24d.).

$A = +·2180$, $B = -·9594$, $C = -·1794$; $\delta = +16$; $h = +6$;
$D = -·975$, $E = -·222$; $G = -·040$, $H = +·175$, $K = -·984$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		2·4	132	i 0 46	+ 8	i 1 16	+ 9	—	—	i 3·4
La Paz	Z.	10·7	126	i 2 37	+ 5	i 4 46	+16	—	—	5·8
Balboa Heights		19·4	354	e 3 46?	−35	—	—	—	—	—
Fort de France		29·6	35	e 6 1	+ 3	—	—	—	—	—
San Juan		30·6	22	e 6 47	+40	i 11 4	+ 4	e 7 25	PP	e 13·2
St. Louis		50·3	347	e 8 59	+10	e 16 6	+14	e 9 7	pP	—
Florissant	E.	50·5	347	—	—	i 14 56	−59	—	—	—
Chicago		52·8	350	e 9 5	− 3	e 16 23	− 4	e 10 27	PP	e 24·9
Harvard		52·9	6	i 9 11	+ 3	—	—	i 9 32	pP	—
Tucson		53·2	324	i 9 7	− 3	—	—	i 9 30	pP	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ottawa		55·5	1	e 9 28	+ 1	e 17 9	+ 6	—	—	—
La Jolla	Z.	57·5	320	i 9 38	− 3	—	—	—	—	—
Seven Falls		57·5	6	—	—	e 17 39	+10	—	—	26·8
Palomar	Z.	57·6	321	i 9 39k	− 3	—	—	i 9 59	pP	—
Riverside		58·4	321	i 9 45k	− 3	—	—	—	—	—
Mount Wilson		58·9	321	i 9 49k	− 2	—	—	—	—	—
Pasadena		59·0	321	i 9 49k	− 3	—	—	i 10 9	pP	—
Haiwee		60·1	323	i 9 57	− 2	—	—	—	—	—
Santa Barbara		60·1	320	i 9 56	− 3	—	—	—	—	—
Tinemaha		61·0	323	i 10 2k	− 4	—	—	—	—	—
Bozeman		63·6	335	—	—	e 23 12	SS	—	—	e 26·4
Granada		83·5	51	i 12 42	+24	i 22 45	+15	13 12	PcP	45·6
Uccle	E.	92·7	38	—	—	e 23 35	[+10]	e 30 32	SS	e 44·8
Stuttgart		95·4	42	e 13 17	+ 2	—	—	—	—	—

Additional readings :—
Huancayo i = 1m.23s.
Florissant iE = 15m.24s. and 17m.30s., eE = 18m.1s.
Tucson e = 12m.31s.
Granada PS = 23m.25s.

August 13d. Readings also at 0h. (near Branner), 1h. (La Paz, near Branner, and Lick), 3h. (La Plata), 8h. (Sverdlovsk, Tashkent, Helwan, and Ksara), 10h. (near Tashkent), 11h. (near Mizusawa), 13h. (Prague and near Mizusawa), 14h. (Sofia), 15h. (near Berkeley), 17h. (near Branner and Ferndale). 21h. (De Bilt).

August 14d. 8h. 13m. 30s. Epicentre 7°·0S. 123°·0E. (as on 1941 Jan. 4d.).

$A = -·5406$, $B = +·8325$, $C = -·1211$; $\delta = -3$; $h = +7$;
$D = +·839$, $E = +·545$; $G = +·066$, $H = -·102$, $K = -·993$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane		35·0	130	e 7 20	+24	—	—	—	—	i 17·1
Riverview		37·3	140	i 7 21a	+ 5	—	—	—	—	i 18·7
Sydney		37·3	140	e 12 15	?	—	—	—	—	—
Nagoya		44·0	17	e 7 57	−14	—	—	—	—	—
Nagano		45·7	16	e 8 22	− 2	15 6	− 2	—	—	—
Sendai		48·0	19	8 39	− 4	15 22	−19	—	—	—
Vladivostok		50·5	9	e 9 1	− 1	16 18	+ 2	—	—	—
Bombay	E.	55·7	299	i 9 41	+ 1	i 17 25	− 1	e 18 4	PPS	—
Irkutsk		61·2	347	—	—	e 18 43	+ 5	—	—	—
Almata		65·1	325	e 10 47	+ 2	—	—	—	—	—
Andijan		66·4	319	e 10 51	− 2	—	—	—	—	—
Tashkent		68·7	319	e 11 9	+ 2	20 13	+ 3	—	—	—
Sverdlovsk		81·3	331	i 12 16	− 4	22 25	− 5	—	—	—
Copenhagen		107·3	326	e 18 51	PP	28 47	PS	—	—	—
Potsdam		107·7	323	i 18 56a	PP	—	—	—	—	e 49·5
Stuttgart		110·8	319	e 18 59	[+24]	—	—	e 19 14	PP	—
De Bilt		112·3	324	i 19 33	PP	—	—	—	—	61·5
Uccle		113·3	323	e 19 38	PP	e 29 30?	PS	—	—	—
Pasadena	Z.	117·7	54	i 18 36	[−12]	—	—	i 19 13	PP	—
Mount Wilson		117·8	54	e 18 37	[−11]	—	—	—	—	—
Riverside	Z.	118·4	54	e 18 38	[−11]	—	—	—	—	—
Palomar	Z.	118·9	55	e 18 41	[−10]	—	—	—	—	—
Granada		123·1	310	i 29 10	?	—	—	—	—	69·6
Tucson		124·1	54	e 18 49	[−12]	—	—	(e 32 32)	PPS	e 32·5
Harvard		142·4	17	e 19 22	[−13]	—	—	—	—	—
La Paz	Z.	154·2	155	19 49	[− 4]	—	—	—	—	—

Additional readings :—
Brisbane eE = 11m.40s., iN = 11m.43s., and 13m.30s.
Riverview iE = 12m.17s., eN = 14m.46s., iZ = 14m.49s., iE = 17m.0s.
Long waves were also recorded at Auckland and Wellington.

August 14d. 17h. Undetermined shock.

Andijan eP = 22m.10s.
Tashkent iP = 22m.14s.
Almata eP = 22m.57s.
Semipalatinsk eP = 23m.38s.
Bombay P = 24m.56s., eN = 28m.8s., S = 28m.17s.
Hyderabad eP = 25m.25s., S = 28m.57s.
Sverdlovsk iP = 25m.33s., pP = 26m.9s., S = 29m.20s.
Potsdam iP = 28m.42s., ePP = 31m.0s., eE = 31m.31s., iN = 34m.49s., eNZ = 38m.18s.
Copenhagen iP = 28m.44s., 30m.29s., PP = 31m.25s., 34m.57s., 38m.23s., S = 36m.10s.
Calcutta iS = 28m.55s.
Stuttgart e = 29m.2s.

August 14d. 20h. 50m. 29s. Epicentre 18°·9N. 107°·0W. (as in 1941 Sept. 13d.).

A = −·2768, B = −·9054, C = +·3220; δ = +5; h = +5;
D = −·956, E = +·292; G = −·094, H = −·308, K = −·947.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Guadalajara	N.	3·9	60	1 13	P*	—	—	—	—	—
Tacubaya	N.	7·4	85	1 56	+ 4	—	—	—	—	—
Tucson		13·7	346	e 3 14	− 4	—	—	e 3 40	PPP	e 6·0
La Jolla		16·7	328	i 4 10	+13	—	—	—	—	—
Palomar	Z.	16·9	330	e 3 55	− 4	—	—	i 4 12	PP	—
Riverside		17·7	331	e 4 8	− 2	—	—	—	—	—
Mount Wilson		18·2	331	e 4 13a	− 3	—	—	i 4 25	PP	—
Pasadena		18·2	331	i 4 13	− 3	—	—	i 4 25	PP	e 7·3
Santa Barbara		19·2	328	e 4 34	+ 6	—	—	—	—	—
Haiwee		19·7	334	e 4 38	+ 4	—	—	i 4 50	PP	—
Tinemaha		20·6	334	e 4 45	+ 2	—	—	i 4 53	PP	—
Salt Lake City		22·2	352	e 5 1	+ 1	e 9 14	+14	e 6 19	PPP	e 11·6
Santa Clara		22·6	329	i 5 48	PP	e 9 23	+16	—	—	e 13·3
Berkeley		23·1	329	e 5 10	+ 2	i 9 25	+ 9	i 5 43	PP	i 13·3
Logan		23·1	353	i 5 18	+10	e 9 19	+ 3	i 5 37	PP	12·3
Lincoln		23·6	21	e 5 36	PP	e 9 50	SS	—	—	e 12·5
Florissant		24·5	33	e 5 25	+ 3	e 10 1	+21	—	—	i 12·9
St. Louis		24·5	33	e 5 24	+ 2	e 9 48	+ 8	—	—	—
Ukiah		24·6	329	e 5 57	PP	e 9 40	− 2	—	—	e 12·6
Bozeman		26·9	355	e 5 56	+11	e 10 29	+ 9	—	—	e 14·6
Columbia		27·6	51	—	—	e 10 59	+27	—	—	16·9
Chicago		28·2	31	—	—	e 10 35	− 6	—	—	e 13·1
Philadelphia		34·5	46	e 8 10	PP	e 12 17	− 3	e 14 21	SS	e 15·2
Ottawa		37·0	36	7 17	+ 4	13 7	+ 8	15 37	SS	17·5
Harvard		38·1	40	e 7 46	+24	e 13 19	+ 3	e 9 9	PPP	19·5
San Juan		38·7	83	e 8 32	PP	—	—	—	—	e 13·7
Bermuda		40·0	62	e 9 21	PP	13 58	+14	e 18 18	Q	18·9
Seven Falls		40·8	38	e 9 25	PP	e 17 14	SSS	—	—	20·5
Huancayo		43·8	131	e 8 6	− 3	e 14 43	+ 3	—	—	e 18·2
Honolulu		47·6	282	—	—	e 18 1	SS	—	—	e 21·8
La Paz		52·0	129	e 9 31	+18	16 54	+18	—	—	26·0
De Bilt		88·1	34	—	—	e 23 56	+19	e 29 31?	SS	e 39·5
Uccle		88·3	36	—	—	e 23 37	− 2	e 29 34	SS	e 39·5
Granada		88·9	51	e 13 16	+18	e 23 46	+ 2	29 16	SS	e 42·6
Stuttgart		92·0	36	e 13 17	+ 5	—	—	e 17 41	PP	—
Potsdam		92·1	31	e 20 1	?	e 24 13	0	e 23 49	SKS	e 40·5

Additional readings :—
Tucson i = 3m.20s. and 4m. 0s.
Logan e = 6m.41s.
St. Louis ePZ = 4m.55s., iZ = 5m.30s., iEN = 10m.3s.
Philadelphia e = 12m.34s.
Stuttgart e = 13m.37s.
Potsdam eN = 27m.55s., eE = 30m.1s.
Long waves were also recorded at Scoresby Sund, Kew, Sitka, College, and Butte.

August 14d. Readings also at 1h. (Berkeley), 3h. (Granada and near Mizusawa (2)), 6h. (Pasadena, Mount Wilson, Riverside, Tinemaha, Palomar, Tucson, Berkeley, Butte, Huancayo, and La Paz), 7h. (Ukiah and Honolulu), 9h. (Pasadena, Mount Wilson, Riverside, Tinemaha, Tucson, Palomar, Branner, Mizusawa, La Plata, and La Paz), 10h. (Mount Wilson, Tinemaha, Palomar, and Tucson), 15h. (Stuttgart, near Berkeley, Branner, and Lick, and near Mizusawa), 18h. (near Branner), 20h. (Almata, Andijan, Tashkent, Sverdlovsk, and Kew), 21h. (Pasadena, Mount Wilson, Riverside, La Jolla, Tucson, Tinemaha, Palomar, Puebla, Tacubaya, Merida, Berkeley, also near Tashkent, Andijan, and Almata, Stuttgart, and near Mizusawa), 22h. and 23h. (Prague).

August 15d. 6h. 35m. 32s. Epicentre 13°·9N. 90°·8W. (as on 11d.).

$A = -\cdot0136$, $B = -\cdot9710$, $C = +\cdot2387$; $\delta = 0$; $h = +6$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Merida	Z.	7·1	9	i 2 13	P_g	—	—	—	—	—
Puebla	N.	8·7	306	i 2 41	P*	—	—	—	—	—
Tacubaya	E.	9·7	305	2 24	+ 2	—	—	—	—	—
Columbia		21·9	22	e 4 54	− 3	e 9 5	+11	—	—	e 12·9
San Juan		24·1	76	e 5 46	+28	e 10 7	SS	e 6 0	PP	e 10·7
St. Louis		24·6	0	i 5 28	+ 5	e 10 4	+22	i 5 46	PP	—
Florissant		24·8	0	i 4 53	−32	e 10 41	SS	—	—	e 16·6
Tucson		25·9	319	e 5 31	− 4	e 9 50	−14	e 6 13	PP	e 13·6
Philadelphia		29·4	25	e 6 24	+17	e 11 8	+ 7	—	—	e 13·1
Huancayo		30·0	149	—	—	e 11 16	+ 6	—	—	e 14·6
La Jolla	Z.	30·6	313	i 6 57	PP	—	—	—	—	—
Palomar	Z.	30·6	315	i 6 14	− 4	—	—	—	—	—
Riverside	Z.	31·3	315	e 6 20	− 4	—	—	—	—	—
Mount Wilson	Z.	31·9	315	e 6 24	− 5	—	—	i 6 29	P	—
Pasadena		31·9	315	i 6 28	− 1	—	—	—	—	e 14·5
Salt Lake City		32·5	329	e 6 31	− 3	12 0	+11	—	—	e 14·8
Tinemaha	Z.	33·7	318	e 6 45	0	—	—	—	—	—
Ottawa		33·9	18	e 6 45	− 2	e 12 12	+ 1	e 14 28?	SSS	18·5
Granada		79·5	54	—	—	e 31 4	SSS	—	—	37·3

Additional readings :—
Tucson e = 9m.8s.
Ottawa eE = 12m.37s.
Long waves were also recorded at La Paz, Scoresby Sund, Calcutta, and other American and European stations.

August 15d. 15h. 2m. 27s. Epicentre 3°·5S. 149°·5E. (as on 1940 April 24d.).

$A = -\cdot8601$, $B = +\cdot5066$, $C = -\cdot0606$; $\delta = +9$; $h = +7$;
$D = +\cdot508$, $E = +\cdot862$; $G = +\cdot052$, $H = -\cdot031$, $K = -\cdot998$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane	E.	24·1	172	i 5 19	+ 1	i 9 33	− 1	i 6 8	PPP	12·1
Riverview		30·2	176	i 7 3a	PP	e 11 30	+17	i 13 43	SSS	e 16·2
Sydney		30·2	176	—	—	e 12 57	SS	—	—	—
Tokyo		40·0	348	e 8 15	+37	—	—	—	—	—
Kobe		40·3	342	e 7 42	+ 2	13 45	− 4	—	—	—
Auckland		40·5	150	—	—	15 59	?	—	—	20·6
Hukuoka		41·1	336	7 54	+ 7	—	—	—	—	e 17·7
Hamada		41·6	338	—	—	e 14 8	0	—	—	e 17·2
Arapuni		41·9	149	—	—	14 33?	+20	—	—	17·6
Sendai		42·3	351	(7 44)	−13	(15 4)	+45	—	—	(19·3)
Mizusawa	E.	43·3	352	7 38	−27	13 53	−40	—	—	—
	N.	43·3	352	8 1	− 4	14 22	−11	—	—	—
Wellington		43·9	152	8 8	− 2	14 33?	− 9	—	—	21·6
Christchurch		44·8	156	—	—	14 44	−11	18 30	Q	21·8
Sapporo		46·9	353	e 8 23	−11	—	—	—	—	—
Honolulu		57·1	63	e 12 4	PP	e 18 3	+18	—	—	e 24·6
Calcutta	N.	65·0	296	e 14 1	PPP	i 19 11	−15	i 20 47	PPS	e 22·8
Kodaikanal	E.	73·0	282	e 11 58	+25	e 22 5	PPS	—	—	38·1
Hyderabad		73·1	288	—	—	20 53	− 8	—	—	—
Bombay		78·6	289	e 12 10	+ 5	22 0	− 2	i 14 47	PP	—
College		81·9	23	—	—	e 22 22	−14	—	—	e 32·9

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sitka		85·0	32	—	—	e 23 3	[+ 2]	—	—	e 35·1
Pasadena		93·9	56	e 13 15	− 6	—	—	—	—	e 38·7
Mount Wilson	z.	94·0	56	e 13 17	− 4	—	—	—	—	—
Riverside	z.	94·5	56	e 13 16	− 7	—	—	—	—	—
Palomar	z.	94·9	57	e 13 19	− 6	—	—	—	—	—
Butte		98·0	43	e 16 12	?	e 24 26	[+ 9]	e 18 27	?	—
Salt Lake City		98·8	49	e16 44	?	—	—	—	—	e 44·7
Bozeman		99·1	45	e 14 47	+63	e 24 1	[−21]	e 36 3	SSS	e 43·3
Tucson		100·0	57	e 18 3	PP	e 26 9	+49	e 38 40	P'P'	e 44·9
Ksara		111·5	304	e 19 0	PP	e 28 40	PS	—	—	—
Scoresby Sund		112·9	356	e 22 9	PPP	e 27 10	?	—	—	e 43·2
Upsala	E.	112·9	336	e 21 33	PPP	—	—	—	—	e 57·6
Florissant		115·4	48	e 18 21	[−23]	—	—	e 20 18	PP	e 50·3
Helwan	z.	116·1	301	e 19 30	[+45]	—	—	i 20 3	PP	—
Copenhagen		117·6	334	20 9	PP	36 21	SS	30 51	PPS	53·6
Potsdam		119·4	331	e 20 19	PP	—	—	—	—	e 52·6
Cheb		121·2	329	e 30 59	PS	e 40 41	SSS	—	—	e 63·6
Ottawa		122·6	36	e 18 51	[− 7]	e 26 33?	[+34]	—	—	47·6
Triest		123·0	324	e 20 33	PP	—	—	—	—	—
De Bilt		123·2	334	e 20 33	PP	e 37 3	SS	—	—	e 57·6
Stuttgart		123·6	329	e 18 51	[− 8]	—	—	e 20 36	PP	e 64·6
Seven Falls		124·3	31	—	—	e 36 9	?	—	—	55·6
Uccle		124·5	334	e 20 53	PP	e 37 51	SS	e 30 32	PS	e 58·6
Kew		125·9	337	e 20 54	PP	—	—	—	—	e 55·6
Clermont-Ferrand		128·7	330	e 21 13	PP	—	—	—	—	e 61·6
Huancayo		132·8	109	e 24 37	PPP	e 40 4	SSP	—	—	e 74·6
La Paz	z.	137·8	119	e 20 4	[+37]	—	—	—	—	—
Granada		138·4	327	23 11	PP	e 41 2	SSP	25 47	PPP	60·9
San Juan		142·1	63	e 24 4	?	—	—	e 25 53	PPP	65·8
Fort de France		147·8	69	e 20 45	[+61]	—	—	—	—	—

Additional readings :—
Brisbane iSSE =10m.27s.
Riverview eN =13m.46s., iZ =14m.15s., iEN =14m.48s.
Sendai readings reduced by 2min.
Bombay e? =12m.21s., iE =21m.35s., N =21m.48s., iN =22m.13s., iE =27m.3s.
College e =26m.16s.
Pasadena iZ =13m.28s.
Mount Wilson iZ =13m.28s.
Riverside eZ =13m.32s.
Palomar eZ =13m.28s., iZ =13m.34s.
Tucson e =23m.37s. and 29m.35s.
Helwan eZ =20m.58s.
Copenhagen 30m.31s.
Potsdam eN =20m.33s.
Stuttgart e =18m.57s. and 19m.13s.
Huancayo e =63m.12s.
Granada PP =27m.56s., SKS =32m.27s., SS =43m.47s., SSS =49m.35s.
San Juan ePKP,PKP =40m.5s.
Long waves were also recorded at Tananarive and other American and European stations.

August 15d. Readings also at 0h. (near Andijan), 7h. (Stuttgart, and Vladivostok), 8h. (Kew, Uccle, Potsdam, and De Bilt), 16h. (near Ksara), 18h. (near Berkeley, Branner, and Lick), 20h. (near La Paz), 21h. (Philadelphia and near Mizusawa), 22h. (near Branner), 23h. (Andijan, Sverdlovsk, Irkutsk, and Vladivostok).

August 16d. 11h. 21m. 40s. Epicentre 1°·0S. 117°·0E.

$$A = -\cdot4539,\ B = +\cdot8908,\ C = -\cdot0173\ ;\quad \delta = -15\ ;\quad h = +7\ ;$$
$$D = +\cdot891,\ E = +\cdot454\ ;\quad G = +\cdot008,\ H = -\cdot015,\ K = -1\cdot000.$$

Doubtful.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Taito		24·0	10	e 5 30	+13	6 56	?	—	—	—
Naha		28·9	21	e 6 8	+ 5	—	—	—	—	—
Calcutta	N.	36·4	312	e 7 24	+16	i 13 14	+24	—	—	—
Colombo	E.	37·9	283	—	—	i 13 20	+ 7	—	—	—
Kameyama		40·0	27	e 7 31	− 7	13 28	−16	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Nagoya		40·5	27	8 4	+22	14 32	PPS	—	—	—
Kodaikanal	E.	40·9	288	e 8 20	+34	i 14 30	PPS	i 17 20?	SSS	—
Hyderabad		42·1	298	e 8 1	+ 6	14 25	+ 9	9 33	PP	20·4
Nagano		42·3	26	7 47	−10	14 1	−18	—	—	—
Brisbane	N.	43·4	131	i 11 37	?	i 14 33	− 2	—	—	—
Mizusawa		45·7	28	e 7 54	−30	14 48	−20	—	—	—
Riverview		45·7	140	i 8 24a	0	i 15 15	+ 7	—	—	—
Sydney		45·8	140	e 12 2	?	—	—	—	—	—
Bombay		47·7	297	8 41	+ 1	15 37	+ 1	10 7	P_cP	—
Irkutsk		54·2	351	e 9 28	− 1	17 10	+ 4	—	—	—
Stalinabad		59·2	318	i 10 7	+ 2	e 18 18	+ 6	—	—	—
Tashkent		60·3	321	i 10 11	− 2	18 22	− 4	—	—	—
Auckland		64·1	131	—	—	19 10	− 4	—	—	—
Wellington		65·6	136	—	—	16 38	?	—	—	—
Sverdlovsk		73·1	332	i 11 23	−11	i 20 49	−12	—	—	—
Ksara		83·2	304	e 12 21	− 8	e 22 35	−14	—	—	—
Helwan	Z.	86·7	300	i 12 29	−18	—	—	i 16 22	PP	—
Copenhagen		99·0	326	e 17 57	PP	—	—	26 26	PPS	—
Potsdam		99·3	322	e 17 50	PP	—	—	e 27 20	PPS	e 55·3
Triest		100·0	316	e 18 20	PP	—	—	—	—	—
Stuttgart		102·4	320	e 13 38	−21	—	—	i 17 40	PKP	—
De Bilt		104·1	324	e 18 38	PP	—	—	e 27 15	PS	—
Scoresby Sund		105·6	347	e 18 39	PP	e 24 47	[− 6]	e 27 23	PS	e 52·7
Kew		107·5	324	e 18 59	PP	e 29 1	PPS	e 21 21	PPP	e 58·3
Victoria		109·9	38	e 18 20?	?	(26 20?)	{+16}	—	—	26·3
Berkeley		114·5	48	e 30 58	PPS	—	—	—	—	—
Granada		114·6	311	e 18 33	[− 9]	e 29 33	PS	e 21 15	SKS	66·1
Santa Barbara	Z.	117·6	51	i 17 57	[−51]	—	—	—	—	—
Tinemaha		117·8	48	e 17 59	[−49]	—	—	—	—	—
Haiwee		118·3	49	e 17 58	[−51]	—	—	e 19 24	PP	—
Bozeman		118·7	36	e 19 35	?	—	—	e 22 33	PPP	e 67·3
Pasadena		118·9	51	i 18 0k	[−51]	—	—	—	—	—
Mount Wilson	Z.	119·0	51	i 18 1	[−50]	—	—	e 30 0	PS	—
Riverside	Z.	119·6	51	e 18 0	[−52]	—	—	e 30 5	PS	—
La Jolla	Z.	120·0	52	i 18 2	[−51]	—	—	—	—	—
Palomar	Z.	120·4	51	i 18 2	[−51]	—	—	i 29 56	PS	—
Tucson		125·3	50	i 18 12	[−51]	e 28 55	?	e 21 59	PKP	e 48·8
Ottawa		134·4	12	i 18 28	[−52]	—	—	—	—	—
Florissant		134·8	30	i 19 4	[−17]	—	—	i 22 10	PP	—
Harvard		138·0	8	i 18 42	[−45]	—	—	i 21 58	PP	—
Philadelphia		139·7	12	e 18 43	[−47]	—	—	e 22 2	PP	—
La Paz	Z.	161·9	164	15 41	?	—	—	—	—	—
San Juan		162·4	10	e 24 9	PP	e 30 53	{−32}	—	—	—

Additional readings :—
Hyderabad SSE =17m.8s., S_cSN =18m.5s.
Riverview iN =12m.11s.
Bombay iE =10m.47s. and 13m.40s., S_cSE =18m.16s.
Auckland S? =16m.25s.
Helwan eZ =14m.14s.
Copenhagen 27m.26s., 27m.54s., 30m.14s.
Potsdam iZ =17m.59s., eZ =27m.26s.
Stuttgart iPP =18m.19s., ePKKP =28m.46s.
De Bilt e =28m.20s.
Scoresby Sund e =30m.34s., eSSS =38m.15s.
Kew eZ =20m.33s. and 27m.49s., ePSZ =32m.0s.
Berkeley eZ =31m.10s., iE =34m.34s.
Granada PPS =33m.15s., SS =38m.25s., SSS =42m.49s.
Bozeman ePS =31m.31s., e =38m.48s.
Pasadena iZ =19m.49s.
Mount Wilson iZ =19m.28s. 19m.53s., and 28m.18s.
Riverside iZ =18m.23s., eZ =19m.32s. and 28m.15s.
Palomar iZ =19m.33s., eZ =28m.8s.
Tucson ePS =31m.41s.
Florissant iZ =21m.24s.
Harvard e =20m.28s.
Philadelphia e =35m.20s.
La Paz iZ =19m.6s.
San Juan e =39m.56s.
Long waves were also recorded at Sitka,

August 16d. 20h. 7m. 45s. Epicentre 13°·7N. 91°·0W.

$A = -·0170$, $B = -·9718$, $C = +·2354$; $\delta = +10$; $h = +5$;
$D = -1·000$, $E = +·017$; $G = -·004$, $H = -·237$, $K = -·972$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Oaxaca	Z.	6·5	301	i 1 34	− 5	—	—	—	—	—
Merida	Z.	7·3	10	i 2 18	P_g	—	—	—	—	—
Tacubaya	N.	9·7	307	2 25	+ 3	—	—	—	—	—
Balboa Heights		12·1	111	e 3 0	+ 3	—	—	—	—	—
Columbia		22·1	22	e 5 0	+ 1	e 9 7	+ 9	—	—	e 11·7
San Juan		24·3	76	e 5 20	0	e 9 28	− 9	—	—	e 11·6
St. Louis	N.	24·8	0	e 5 25	0	e 9 57	+11	i 5 42	pP	—
Florissant		25·0	0	i 5 27	0	i 10 14	+25	i 6 12	pP	—
Tucson		25·9	319	i 5 36	+ 1	e 10 3	− 1	i 6 21	PP	e 12·4
Lincoln		27·5	354	e 4 48	−62	e 8 49	?	—	—	e 10·5
Chicago		28·1	4	e 5 55	0	e 10 37	− 3	e 6 43	PP	e 13·0
Pittsburgh		28·3	17	i 5 58	+ 1	e 11 12	+29	—	—	—
Fort de France		28·9	85	e 6 58	PP	—	—	—	—	—
Huancayo		29·9	149	e 6 12	0	i 11 16	+ 7	—	—	e 14·7
Bermuda		30·2	48	e 6 19	+ 5	—	—	—	—	e 12·5
La Jolla		30·6	313	e 6 19	+ 1	—	—	—	—	—
Palomar	Z.	30·6	315	i 6 19	+ 1	—	—	i 9 17	P_cP	—
Riverside		31·3	315	e 6 24a	0	—	—	e 9 19	P_cP	—
Pasadena		31·9	315	i 6 30a	+ 1	i 11 43	+ 3	i 9 20	P_cP	e 13·6
Mount Wilson	Z.	31·9	315	i 6 31a	+ 2	—	—	i 9 20	P_cP	—
Salt Lake City		32·5	329	e 6 35	+ 1	e 11 50	+ 1	e 7 30	PP	e 14·5
Haiwee		32·9	318	i 6 39	+ 1	—	—	—	—	—
Harvard		33·2	26	i 6 41	+ 1	e 11 53	− 7	—	—	e 17·2
Santa Barbara		33·2	313	i 6 42	+ 2	—	—	—	—	—
Logan		33·3	331	i 6 44	+ 3	e 12 4	+ 2	e 8 2	PPP	e 14·5
Tinemaha		33·7	318	i 6 45	0	—	—	i 9 25	P_cP	—
Ottawa		34·1	18	6 49	+ 1	12 15	+ 1	7 57	PP	17·2
Fresno	N.	34·5	317	e 6 51	− 1	—	—	—	—	—
Bozeman		36·1	337	e 7 5	0	e 12 57	+12	e 8 40	PP	e 15·4
Shawinigan Falls		36·2	21	7 7	+ 1	12 42	− 5	—	—	—
Santa Clara		36·2	316	i 7 9	+ 3	e 12 52	+ 5	—	—	e 18·4
Berkeley		36·7	316	i 7 12	+ 2	i 12 58	+ 4	e 8 53	PPP	i 17·8
Butte		37·0	337	e 7 12	− 1	e 13 21	+22	e 8 25	PP	e 16·4
Seven Falls		37·3	22	7 16	0	13 4	0	8 46	PPP	21·2
La Paz		37·6	142	e 7 38	+20	i 13 28	+20	—	—	19·2
Ukiah		38·0	318	e 7 23	+ 2	e 13 18	+ 4	—	—	e 16·7
Victoria		43·8	329	8 9	0	14 39	− 1	—	—	24·2
College		63·9	337	e 12 34	PP	—	—	—	—	e 33·3
Scoresby Sund		70·2	19	—	—	e 20 54	+26	e 25 23	SS	e 30·0
Granada		79·8	54	i 12 13k	+ 1	22 57	+43	17 2	PPP	37·5
Uccle	E.	82·9	40	—	—	e 22 51	+ 5	e 28 27	SS	e 38·2
Clermont-Ferrand		83·1	45	e 12 28	− 1	—	—	—	—	—
Copenhagen		86·2	33	—	—	23 40	+21	—	—	40·2
Stuttgart		86·4	40	i 12 45	0	—	—	e 16 9	PP	—
Potsdam		87·6	37	—	—	e 23 39	+ 7	e 24 3	PS	e 42·2
Triest		90·3	43	—	—	e 23 37	−20	—	—	—
Tashkent		122·3	18	19 59	PP	—	—	31 9	PPS	—

Additional readings :—
San Juan i = 6m.52s.
St. Louis isSN = 10m.28s.
Florissant isSE = 11m.39s.
Tucson i = 6m.33s. and 10m.23s.
Bermuda e = 9m.42s.
Pasadena iZ = 13m.4s.
Mount Wilson iZ = 7m.58s.
Logan i = 6m.52s., e = 12m.24s.
Ottawa SSS = 14m.51s.
Butte ePPP = 9m.5s.
Seven Falls SSS = 16m.26s.
Granada P_cP = 12m.25s., SS = 27m.28s.
Uccle eSSSE = 32m.3s.
Tashkent PP = 21m.32s., PPS = 32m.55s.
Long waves were also recorded at Puebla, Sitka, Wellington, San Fernando, De Bilt, and Kew.

August 16d. Readings also at 0h. (near Branner), 1h. and 6h. (Tacubaya), 8h. (Mizusawa), 9h. (Stuttgart, Guadalajara, Tacubaya, Pasadena, Mount Wilson, Riverside, Tinemaha, La Jolla, Palomar, and Tucson), 18h. (Palomar, Tucson, Sverdlovsk, and Ksara), 19h. (Pasadena, Mount Wilson, Riverside, Palomar, Tucson, New Kensington, and La Paz), 20h. (Merida and Tacubaya), 21h. (Pasadena, Mount Wilson, Riverside, Tinemaha, Palomar, Tucson, and Puebla), 23h. (Port au Prince).

August 17d. Readings at 0h. (near Mizusawa), 1h. (near Triest), 5h. (Riverview), 6h. (Kew and Huancayo), 12h. (Tucson, Mount Wilson, Palomar, Merida, Puebla, and Tacubaya), 22h. (La Paz).

August 18d. 21h. 55m. 28s. Epicentre 38°·6N. 118°·5W.

Scale V-VI at Mason and Mount Montgomery, Nevada. Epicentre as adopted. Macroseismic area 7000 sq. m.
R. R. Bodle.
United States Earthquakes, 1942. Washington 1944, p.10.

$A = -\cdot3739$, $B = -\cdot6886$, $C = +\cdot6213$; $\delta = -2$; $h = -1$;
$D = -\cdot879$, $E = +\cdot477$; $G = -\cdot296$, $H = -\cdot546$, $K = -\cdot784$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tinemaha		1·5	172	i 0 25k	− 3	—	—	—	—	—
Fresno	N.	2·1	209	e 0 36	− 1	i 1 5	+ 1	i 0 42	P_g	—
Haiwee		2·5	170	e 0 43	0	i 1 12	− 2	—	—	—
Lick	E.	2·8	243	e 0 53	+ 6	e 1 35	S_g	—	—	—
Santa Clara		3·0	245	i 1 4	P_g	i 1 45	S_g	—	—	—
Branner		3·1	248	e 1 2	P_g	e 1 45	S_g	—	—	—
Ukiah		3·7	280	e 1 14	P_g	—	—	—	—	e 2·2
Santa Barbara		4·2	194	e 1 9	+ 2	i 2 10	S*	—	—	—
Mount Wilson		4·4	176	i 1 10	0	i 2 15	S*	—	—	—
Pasadena		4·5	177	i 1 10	− 1	i 2 15	S*	i 1 21	P*	—
Riverside	Z.	4·7	168	e 1 10	− 4	i 2 23	S*	—	—	—
Ferndale	E.	4·9	296	i 2 48	S_g	—	—	—	—	—
Palomar	Z.	5·4	165	i 1 23	− 1	—	—	—	—	—
La Jolla		5·8	170	e 1 43	P*	i 2 59	S*	—	—	—
Logan		6·0	56	e 1 40	+ 8	e 2 17	?	e 1 58	P_g	i 2·8
Butte		8·6	29	—	—	e 3 0	P_g	—	—	e 4·6
Tucson		8·9	133	i 2 11	− 1	e 4 17	S*	i 2 45	P*	i 4·6
Bozeman		9·0	35	(e 2 15)	+ 2	e 2 15	P	e 2 45	P*	e 5·0
St. Louis		22·1	81	e 4 42	−17	e 9 7	+ 9	—	—	e 11·3
Chicago		23·8	72	—	—	e 9 27	− 1	—	—	e 12·7
Stuttgart		81·4	32	e 17 18	PP	—	—	—	—	—

Additional readings :—
Lick ePN = 59s.
Ferndale iPN = 2m.54s.
Seattle (△ = 9°·5) e = 21h.52m.41s. and 21h.53m.11s., eL = 21h.54m.0s.
Long waves were also recorded at College, Philadelphia, Potsdam, and Granada.

August 18d. Readings also at 7h. (Berkeley, Lick, and La Paz), 9h. (Palomar, Tucson, and near Apia), 12h. (Rio de Janeiro), 17h. (Palomar, Mount Wilson, and Tucson), 19h. (Palomar, Pasadena, Mount Wilson, San Juan, Bermuda, Tucson, Granada, De Bilt, Uccle, Stuttgart, Potsdam, and Kew), 20h. (Florissant).

August 19d. 18h. 29m. 37s. Epicentre 18°·0N. 96°·0E. Approximate.

A = −·0995, B = +·9465, C = +·3071; δ = +7; h = +5;
D = +·995, E = +·105; G = −·032, H = +·305, K = −·952.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Calcutta	N.	8·5	303	i 1 52	−15	—	—	—	—	—
Hyderabad		16·7	271	3 54	− 3	6 58	− 5	4 5	PP	8·7
Colombo	E.	19·2	237	4 35	+ 7	8 13	+14	—	—	10·7
Kodaikanal	E.	19·5	251	e 5 23	+52	i 8 46	+40	—	—	e 11·9
Dehra Dun	N.	20·4	311	—	—	e 8 10	−15	—	—	e 11·7
Bombay		22·0	276	i 4 59	+ 1	i 8 44	−12	5 21	PP	—
Almata		29·9	332	e 6 6	− 6	—	—	—	—	—
Andijan		30·4	322	e 6 18	+ 2	11 30	+14	—	—	—
Tashkent		32·6	321	6 33	− 2	11 51	0	—	—	—
Irkutsk		34·8	9	e 7 8	+14	—	—	—	—	—
Vladivostok		39·3	43	e 7 30	− 2	i 13 48	+14	—	—	—
Sverdlovsk		46·9	334	8 33	− 1	15 25	0	—	—	—
Helwan	Z.	59·6	295	e 10 11	+ 3	—	—	—	—	—
Potsdam	N.	71·7	321	—	—	i 20 30	−15	e 28 50	SS	e 32·5
Triest		72·0	313	—	—	e 20 35	−14	—	—	—
Stuttgart		74·6	317	e 11 46	+ 3	—	—	—	—	—
College		84·4	23	—	—	e 22 39	[−18]	—	—	e 39·8
San Fernando	E.	88·9	308	—	—	e 23 57	+13	—	—	—
Sitka		93·5	25	—	—	e 23 53	[0]	e 28 41	?	e 50·8
Pasadena	Z.	118·8	32	i 19 8	[+18]	—	—	—	—	—
Mount Wilson	Z.	118·8	32	i 19 9	[+19]	—	—	i 20 25	PP	—
Riverside	Z.	119·3	32	i 19 10	[+19]	—	—	—	—	—
Palomar	Z.	120·1	30	e 19 13	[+20]	—	—	i 20 33	PP	—
Tucson		123·8	27	i 19 19	[+19]	—	—	—	—	—

Additional readings :—
Bombay iE = 5m.12s., iN = 8m.51s., iE = 8m.55s., SSE = 9m.13s., iE = 9m.39s., iN = 10m.13s.
Helwan iZ = 10m.23s., eN = 11m.23s.
Potsdam i = 20m.46s., and 21m.5s., eZ = 28m.54s.
Stuttgart e = 11m.59s., i = 12m.14s.
College e = 23m.33s.
Tucson i = 19m.42s. and 20m.35s.
Long waves were also recorded at De Bilt, Upsala, and Kew.

August 19d. Readings also at 2h. (Helwan, Ksara, Granada, Potsdam, and Stuttgart), 4h. (Helwan and Ksara), 5h. (Wellington), 6h. (Auckland, Riverview, Mount Wilson, Pasadena, Palomar (2), Riverside, Tinemaha, Tucson (2), and Stuttgart), 7h. (near Branner), 8h. (Mount Wilson, Pasadena, Tucson, Palomar, Riverside, Tinemaha, College, Scoresby Sund, Kew, De Bilt, Triest, Potsdam, Stuttgart, and Granada), 10h. (Palomar and Tucson), 14h. (Mizusawa), 15h. (Tucson), 16h. and 17h. (De Bilt), 19h. (Copenhagen and near Branner), 21h. (Salt Lake City, Mount Wilson, Palomar, Riverside, La Plata, and near St. Louis).

August 20d. 22h. 37m. 0s. Epicentre 13°·9N. 90°·8W. (as on 15d.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Oaxaca	E.	6·5	299	e 1 29	−10	—	—	—	—	—
Merida	Z.	7·1	9	e 2 12	P*	—	—	—	—	—
Vera Cruz	N.	7·3	316	e 1 46	− 4	—	—	—	—	—
Puebla	N.	8·7	306	—	—	i 4 48	S_e	—	—	—
Tacubaya	N.	9·7	305	2 22	0	—	—	—	—	—
Columbia		21·9	22	e 5 0	+ 3	e 9 2	+ 8	—	—	e 13·5
San Juan		24·1	76	e 5 45	+27	e 9 38	+ 4	e 10 47	SS	e 12·8
St. Louis		24·6	0	i 5 23	0	e 9 42	0	e 6 9	PP	—
Florissant		24·8	0	i 5 24	− 1	e 9 33	−13	i 5 54	PP	—
Tucson		25·9	319	i 5 33	− 2	e 10 5	+ 1	i 6 29	PP	e 12·7
Chicago		27·9	4	e 5 53	− 1	e 10 31	− 6	e 6 30	PP	e 11·3
Pittsburgh		28·1	17	e 6 29	+34	e 11 34	+54	—	—	i 14·9
Philadelphia		29·4	25	6 23	+16	e 10 54	− 7	—	—	e 13·6
Huancayo		30·0	149	e 6 15	+ 3	e 11 15	+ 5	—	—	e 15·1
La Jolla	Z.	30·6	313	e 6 16	− 2	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Riverside	z.	31·3	315	e 6 23	− 1	e 12 59	SS	i 9 17	?	—
Mount Wilson	z.	31·9	315	i 6 28	− 1	e 13 0	SS	i 9 19	?	—
Pasadena		31·9	315	i 6 27	− 2	i 11 39	− 1	i 7 59	PP	e 15·6
Salt Lake City		32·5	329	e 6 31	− 3	e 11 58	+ 9	—	—	e 16·8
Haiwee	z.	32·9	318	e 6 37	− 1	—	—	—	—	—
Harvard		33·0	26	e 6 39	0	e 11 55	− 2	—	—	e 19·0
Tinemaha	z.	33·7	318	e 6 43	− 2	e 13 9	+61	—	—	—
Ottawa		33·9	18	6 47	0	12 11	0	8 0	PP	15·0
Shawinigan Falls		35·9	21	7 4	0	12 41	− 1	—	—	—
Bozeman		36·0	337	e 7 16	+11	e 12 41	− 3	e 8 22	PP	e 16·6
Butte		36·9	337	e 7 8	− 4	—	—	e 8 36	PP	e 14·8
Seven Falls		37·1	22	e 8 48	PP	e 16 0	SSS	—	—	20·0
Victoria		43·8	329	8 15	+ 6	14 40	0	—	—	24·0
Sitka		55·0	332	e 9 41	+ 6	e 17 13	− 4	e 11 55	PP	e 27·4
Scoresby Sund		70·0	19	e 15 47	PP	—	—	—	—	e 27·9
Stuttgart		86·1	40	e 12 44	0	—	—	—	—	—

Additional readings :—
St. Louis iNZ =5m.34s., eN =5m.47s. and 10m.15s.
Florissant eSSE =10m.36s.
Tucson i =6m.33s., e =11m.26s.
Pittsburgh i =13m.9s.
Philadelphia S =11m.1s.
Pasadena iZ =9m.18s. and 13m.3s.
Tinemaha iZ =6m.55s. and 9m.23s.
Scoresby Sund e =15m.56s.
Long-waves were also recorded at College, De Bilt, Kew, Potsdam, Uccle, Granada, and Wellington.

August 20d. Readings also at 0h. (Palomar and Tucson), 3h. (Salt Lake City), 5h. (near La Paz), 6h. (Tucson), 7h. (Mount Wilson, Riverside, Tucson, and Tinemaha), 9h. (Mount Wilson, Pasadena, Riverside, Tinemaha, Tucson, Copenhagen, and Stuttgart), 11h. (near Branner and Fresno (2)), 12h. (Tucson, near Branner, Lick (2), and Fresno), 14h. (Stuttgart), 15h. (Oaxaca, Merida, Tacubaya, St. Louis, Tucson, Haiwee, Mount Wilson, Pasadena, Riverside, Tinemaha, near Fresno, and Lick), 16h. (Oaxaca, Merida, Tacubaya, San Juan, St. Louis, Florissant, Ottawa, Tucson, Haiwee, Mount Wilson, Pasadena, Riverside, Tinemaha, and Copenhagen), 17h. (Philadelphia, Scoresby Sund, Stuttgart, Triest, and near Fresno), 18h. (Tacubaya, Vera Cruz, Tucson, Lincoln, Butte, Bozeman, Mount Wilson, Pasadena, Riverside, Tinemaha, Scoresby Sund, and Helwan), 20h. (near Fresno).

August 21d. Readings at 0h. (Branner), 1h. (Vladivostok), 4h. (Bucharest, Triest, and near Sofia), 5h. (Stalinabad and Auckland), 6h. (Potsdam), 8h. (near Mizusawa), 10h. (Harvard), 12h. (Brisbane, Riverview, Sydney, Christchurch, Wellington, Vladivostok, Sverdlovsk, and near Granada), 13h. (Kew), 15h. (Branner), 20h. (near Harvard), 23h. (Tucson, near Branner, Fresno, and Lick).

August 22d. 8h. 31m. 25s. Epicentre 52°·8N. 164°·0W.

$A = -·5836$, $B = -·1674$, $C = +·7945$; $\delta = -16$; $h = -6$;
$D = -·276$, $E = +·961$; $G = -·763$, $H = -·219$, $K = -·607$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		14·7	28	e 3 36	+ 5	e 6 55	+39	—	—	e 8·7
Sitka		17·0	62	e 3 54	− 7	e 7 4	− 6	—	—	e 7·8
Tinemaha	z.	35·3	98	e 7 1	+ 2	—	—	—	—	—
Haiwee	z.	36·1	99	e 7 12	+ 7	—	—	—	—	—
Mount Wilson	z.	37·4	101	e 7 16	0	—	—	—	—	—
Pasadena	z.	37·4	101	i 7 19	+ 3	—	—	—	—	e 17·4
Riverside	z.	37·9	101	e 7 21	+ 1	—	—	—	—	—
La Jolla	z.	38·8	102	e 7 29	+ 1	—	—	—	—	—
Tucson		43·1	96	i 8 4	0	—	—	e 9 52	PP	e 21·9
Chicago		50·6	70	e 9 19	+17	e 16 3	−14	—	—	e 24·2
Ottawa		54·8	59	e 9 28	− 6	—	—	—	—	25·6
Sverdlovsk		64·8	335	i 10 43	0	e 19 41	+18	—	—	—
Copenhagen		71·8	2	i 11 26	0	—	—	—	—	—
Stuttgart		78·6	5	e 12 5	0	—	—	—	—	—

For Notes see next page.

Notes to August 22d. 8h. 31m. 25s.

Additional readings :—
College e =6m.14s.
Tinemaha iZ =7m.22s.
Haiwee iZ =7m.28s.
Mount Wilson iZ =7m.35s.
Pasadena iZ =7m.36s. and 9m.4s.
Riverside eZ =7m.40s.
La Jolla eZ =7m.43s.
Tucson ePPP =10m.19s.
Long waves were also recorded at Florissant, St. Louis, Honolulu, and Scoresby Sund.

August 22d. 9h. 0m. 46s. Epicentre 32°·3N. 132°·4E. (as on 1941 Nov. 18d.).

Scale VI at Ooita V at Simidu, IV at Saga, Kumamoto, Koti, Tadotu, II-III at Hirosima, Hukuoka, and Kashiwara. Epicentre 32°·2N. 132°·3E. Macroseismic radius greater than 300km. Shallow.
Seismological Bulletin of the Central Meteorological Observatory, Japan for 1942. Tokyo 1950, pp. 30, 31. Macroseismic chart page 30.

A = −·5711, B = +·6254, C = +·5318 ; δ = +9 ; h = +1 ;
D = +·738, E = +·674 ; G = −·359, H = +·393, K = −·847.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Simidu	0·7	45	0 15k	− 2	0 26	− 2	—	—	—
Miyazaki	0·9	245	0 13k	− 7	0 23	−11	—	—	—
Kumamoto	1·5	290	0 26k	− 2	0 49	0	—	—	—
Matuyama	1·5	11	0 28k	0	0 53	+ 4	—	—	—
Koti	1·6	37	0 30k	0	0 58	+ 7	—	—	—
Kagosima	1·8	245	0 29a	− 3	0 50	− 6	—	—	—
Muroto	1·8	58	0 30k	− 2	0 59	+ 3	—	—	—
Unzendake	1·8	283	0 32k	0	1 0	+ 4	—	—	—
Izuka	2·0	313	0 28	− 7	0 59	− 3	—	—	—
Hirosima	2·1	1	0 31k	− 6	1 9	+ 5	—	—	—
Hukuoka	2·1	308	0 36	− 1	1 5	+ 1	—	—	—
Yakusima	2·5	221	0 38a	− 5	0 50	−24	—	—	—
Hamada	2·7	354	0 46	+ 1	1 23	+ 4	—	—	—
Sumoto	2·9	45	0 48	0	1 42	S_g	—	—	—
Wakayama	3·0	50	0 48k	− 2	1 39	S_g	—	—	—
Siomisaki	3·1	68	0 48	− 3	1 38	S_g	—	—	—
Tomie	3·1	276	0 46k	− 5	1 30	+ 1	—	—	—
Kobe	3·3	44	0 54	+ 1	1 42	S*	—	—	1·9
Osaka	3·5	46	0 59	+ 2	1 59	S_g	—	—	—
Owase	3·6	60	1 1	+ 3	2 17	S_g	—	—	—
Toyooka	3·8	31	0 48	−13	1 52	+ 5	—	—	—
Kyoto	3·9	44	1 3	+ 1	2 13	S_g	—	—	—
Kameyama	4·2	52	1 9	+ 2	2 25	S_g	—	—	—
Hikone	4·3	45	1 10	+ 2	2 26	S_g	—	—	—
Gihu	4·7	48	1 17	+ 3	2 40	S_g	—	—	—
Nagoya	4·7	52	1 16	+ 2	2 20	+10	—	—	—
Nake	4·7	214	1 8	− 6	2 1	− 9	—	—	—
Taikyu	4·8	319	1 14	− 1	2 16	+ 4	—	—	—
Omaesaki	5·4	63	1 24	0	2 27	− 1	—	—	—
Shizuoka	5·6	60	1 30	+ 3	2 57	S*	—	—	—
Toyama	5·8	40	1 35	+ 6	3 5	S*	—	—	—
Kohu	6·1	55	(1 39)	+ 5	(3 29)	S_g	—	—	—
Misima	6·1	61	1 31	− 3	2 32	−13	—	—	—
Hunatu	6·2	57	1 37	+ 2	—	—	—	—	—
Hatidyozima	6·3	81	1 42	+ 6	—	—	—	—	—
Osima	6·3	65	1 37	+ 1	3 57	S_g	—	—	—
Nagano	6·4	45	1 41	+ 3	3 30	S_g	—	—	—
Mera	6·7	65	1 43	+ 1	4 8	?	—	—	—
Yokohama	6·7	61	1 48	+ 6	3 22	S*	—	—	—
Maebasi	6·8	51	1 50	+ 6	3 57	S_g	—	—	—
Keizyo	6·9	321	1 43	− 2	3 22	S*	—	—	—
Zinsen	7·0	319	1 45	− 1	—	—	—	—	—
Tokyo Cent. Met. Ob.	7·0	59	1 51	+ 5	3 33	S*	—	—	—
Aikawa	7·4	38	1 52	0	4 7	S_g	—	—	—
Tukubasan	7·4	56	1 53	+ 1	3 40	S*	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Naha		7·4	216	1 52	0	—	—	—	—	—
Kakioka		7·5	56	1 55	+ 2	3 36	+16	—	—	—
Mito		7·8	56	2 3	+ 5	3 54	S*	—	—	—
Tyosi		7·8	62	1 59	+ 1	4 11	S_g	—	—	—
Onahama		8·4	54	2 10	+ 4	4 0	S*	—	—	—
Heizyo		8·6	323	2 18	+ 9	4 40	S_g	—	—	—
Sendai		9·1	47	2 15	+ 1	4 45	S_g	5 7	?	—
Miyakozima		9·8	222	2 34	+10	—	—	—	—	—
Mizusawa		9·8	44	e 2 30	+ 6	5 38	S_g	—	—	—
Miyako		10·6	44	2 38	+ 2	5 20	S_g	—	—	—
Aomori		10·8	36	2 44	+ 5	4 51	S*	—	—	—
Vladivostok		10·8	358	e 3 2	+23	15 9	S*	—	—	—
Dairen		10·9	310	4 50	S	(4 50)	+ 6	—	—	—
Hatinohe		11·0	39	2 43	+ 1	5 46	S_g	—	—	—
Taihoku		12·0	236	3 2	+ 7	7 11	?	—	—	—
Sintiku		12·5	236	3 1	− 1	—	—	—	—	—
Karenko		12·6	232	3 9	+ 6	—	—	—	—	—
Sapporo		12·9	31	3 11	+ 4	6 23	S*	—	—	—
Taityu		13·1	235	3 23	+13	5 7	−31	—	—	—
Taito		13·8	229	3 24	+ 5	5 36	−18	—	—	—
Irkutsk		28·5	323	e 6 12	+13	e 10 43	− 3	—	—	—
Calcutta		40·1	267	e 11 8	?	i 17 18	?	—	—	i 23·2
Andijan		48·2	298	e 8 46	+ 2	—	—	—	—	—
Tashkent		50·3	300	e 8 55	− 5	—	—	—	—	—
Hyderabad	E.	50·6	267	—	—	16 13	− 4	—	—	—
Sverdlovsk		53·9	321	9 24	− 3	—	—	—	—	—
Bombay	E.	54·8	272	—	—	e 17 24	+10	—	—	—
College		57·0	31	e 9 51	+ 1	e 17 44	+ 1	e 21 26	SS	e 27·8
Honolulu		62·3	81	—	—	e 19 29	+37	—	—	e 27·2
Sitka		64·5	38	e 10 44	+ 3	e 19 25	+ 6	e 23 45	SS	e 33·7
Scoresby Sund		75·9	352	—	—	e 21 40	+ 8	—	—	e 40·9
Potsdam		80·5	328	—	—	e 22 14	− 8	—	—	e 40·2
Sofia		81·1	316	e 12 14?	− 4	e 22 14	−14	e 23 14	PS	e 45·2
Jena		82·1	327	e 12 26	+ 2	e 22 32	− 6	—	—	e 38·2
Butte		82·4	39	e 12 24	− 1	e 22 43	+ 2	—	—	e 47·6
Helwan	Z.	83·0	301	e 12 26	− 2	—	—	—	—	—
Tinemaha	Z.	84·5	50	e 12 38	+ 2	—	—	—	—	—
Triest		84·6	322	—	—	e 22 55	− 8	—	—	e 44·6
Stuttgart		84·7	326	e 12 34	− 3	—	—	e 15 54	PP	e 45·0
Santa Barbara		85·2	53	e 12 45	+ 6	—	—	—	—	—
Haiwee	Z.	85·3	50	e 12 41	+ 1	—	—	—	—	—
Chur		85·9	325	e 12 40	− 3	—	—	—	—	e 45·5
Salt Lake City		86·2	44	e 12 46	+ 2	e 23 11	− 8	e 17 34	PP	e 40·3
Mount Wilson	Z.	86·4	52	e 12 44	− 1	—	—	i 16 8	PP	—
Pasadena	Z.	86·4	52	i 12 45	0	—	—	i 16 10	PP	e 40·1
Basle		86·4	326	e 12 42	− 3	e 23 20	− 1	—	—	—
Riverside	Z.	87·0	52	e 12 50	+ 2	—	—	e 16 13	PP	—
La Jolla		87·7	52	e 12 57	+ 5	—	—	—	—	—
Tucson		92·3	50	e 13 12	− 1	e 30 19	SS	e 16 45	PP	e 43·3
Chicago		97·6	30	—	—	e 24 12	[− 3]	—	—	e 37·9
Ottawa		98·6	19	e 13 45	+ 3	e 24 14	[− 6]	—	—	46·2
Florissant	E.	98·9	33	—	—	i 24 22	[0]	—	—	e 50·4
La Paz	Z.	155·6	53	e 20 1	[+ 6]	—	—	e 54 14	?	70·7

Additional readings :—
Tomie S=1m.33s.
Siomisaki S=1m.41s.
Kohu readings reduced by 1min.
Mizusawa SE=5m.41s.
Calcutta ePPN=12m.38s., iSSN=19m.59s., iS_cSN =21m.18s., phases either incorrectly identified or attributed to the wrong station.
Scoresby Sund e=22m.10s.
Potsdam eN=22m.18s.
Stuttgart e=13m.0s.
Tucson iP=13m.19s., ePS=25m.27s.
Long waves were also recorded at Ivigtut, Huancayo, and other European stations.

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

August 22d. 19h. 52m. 10s. Epicentre 13°·9N. 90°·8W. (as on 20d.).

Pasadena suggests deep.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Oaxaca	N.	6·5	299	1 46	+ 7	—	—	—	—	—
Vera Cruz	N.	7·3	316	1 51	+ 1	—	—	—	—	—
Tacubaya	N.	9·7	305	e 2 13	− 9	—	—	—	—	—
Florissant		24·8	0	i 5 58	+33	i 9 54	+ 8	—	—	—
Tucson		25·9	319	i 5 35	0	e 9 48	−16	—	—	e 12·0
Chicago		27·9	4	e 6 25	+31	—	—	—	—	e 14·3
La Jolla	Z.	30·6	313	e 6 18	0	—	—	—	—	—
Riverside	Z.	31·3	315	i 6 24a	0	—	—	—	—	—
Mount Wilson	Z.	31·9	315	i 6 29a	0	—	—	—	—	—
Pasadena		31·9	315	i 6 29a	0	—	—	—	—	—
Salt Lake City		32·5	329	e 6 34	0	e 12 5	+16	—	—	e 14·9
Haiwee	Z.	32·9	318	i 6 39	+ 1	—	—	—	—	—
Santa Barbara	Z.	33·2	313	i 6 40a	0	—	—	—	—	—
Tinemaha	Z.	33·7	318	i 6 45a	0	—	—	—	—	—
Ottawa		33·9	18	e 7 10	+23	—	—	—	—	12·8
Lick	N.	36·0	316	e 7 6	+ 1	—	—	—	—	—
Stuttgart		86·1	40	e 13 11	+27	—	—	—	—	—

Additional readings :—
Florissant iN=6m.27s., 6m.37s., and 6m.51s., iE=10m.37s., eE=10m.58s.
Tucson i=6m.25s. and 6m.34s., iS=10m.0s.
La Jolla eZ=6m.49s.
Riverside iZ=6m.45s.
Mount Wilson iZ=6m.51s., 7m.0s., and 7m.20s.
Pasadena i=6m.50s., iZ=7m.0s.
Haiwee iZ=7m.0s. and 7m.10s.
Tinemaha iZ=7m.7s.

August 22d. Readings also at 2h. (Pittsburgh), 3h. (Mount Wilson and Tucson), 5h. (near Almata), 8h. (Tananarive). 10h. (Mount Wilson, Pasadena, and Tucson), 13h. (Tucson), 14h. (Ksara), 15h. (Copenhagen), 18h. (Tacubaya), 20h. (Ksara and near Mizusawa), 21h. (near Mizusawa).

August 23d. 6h. 35m. 17s. Epicentre 53°·7N. 163°·4E.

$A=-\cdot5687$, $B=+\cdot1695$, $C=+\cdot8049$; $\delta=+1$; $h=-7$;
$D=+\cdot286$, $E=+\cdot958$, $G=-\cdot771$, $H=+\cdot230$, $K=-\cdot593$.

Pasadena suggests deep and quotes U.S.C.G.S. depth =150km.

	△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sapporo	18·1	243	4 11	− 3	8 22	SSS	—	—	10·6
Mizusawa	21·1	235	4 48	0	8 39	0	—	—	—
Sendai	21·9	233	4 52	− 5	8 53	− 1	—	—	—
Vladivostok	23·3	255	5 6	− 4	i 9 2	−18	—	—	—
Tokyo Cen. Met. Ob.	24·5	232	e 5 27	+ 5	e 11 10	SSS	e 6 7	pP	—
Nagano	24·5	237	5 22	0	9 53	+13	—	—	—
Yokohama	24·8	232	i 5 35	+10	9 59	+13	—	—	—
Nagoya	26·3	235	e 5 40	+ 1	10 20	+ 9	—	—	—
College	26·5	46	e 5 43	+ 2	e 10 14	0	e 6 30	PPP	e 12·4
Osaka	27·4	237	5 43	− 6	10 7	−21	—	—	—
Hamada	28·9	242	6 5	+ 2	10 8	?	—	—	—
Zinsen	30·0	253	6 12	0	—	—	—	—	—
Hukuoka	30·8	242	6 15	− 5	11 27	+ 4	—	—	14·5
Kumamoto	31·3	241	6 26	+ 2	—	—	—	—	—
Miyazaki	31·6	238	6 31	+ 5	11 33	− 2	—	—	—
Sitka	33·7	59	i 6 50	+ 5	i 12 19	+11	—	—	e 16·7
Irkutsk	34·7	293	6 52	− 2	12 22	− 2	—	—	—
Naha	38·2	239	e 6 24	?	—	—	—	—	—
Honolulu	43·8	122	e 8 17	+ 8	e 14 41	+ 1	e 8 41	pP	e 18·1
Seattle	45·4	66	e 11 46	?	—	—	—	—	e 21·5

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Semipalatinsk		48·4	302	i 8 45	− 1	i 15 40	− 6	—	—	—
Ukiah		50·4	75	e 9 1	0	e 16 19	+ 5	e 10 49	PP	e 22·0
Saskatoon		50·7	53	9 6	+ 3	16 23	+ 5	20 7	SS	24·7
Butte		51·7	62	e 9 10	− 1	e 16 29	− 3	e 11 8	PP	e 20·1
Santa Clara		52·3	76	i 9 18	+ 3	e 16 47	+ 7	e 22 26	SSS	—
Lick	N.	52·5	76	e 9 17	0	—	—	—	—	—
Bozeman		52·7	62	e 9 13	− 5	i 16 49	+ 3	—	—	e 23·7
Sverdlovsk		53·1	318	i 9 22	+ 1	16 47	− 4	—	—	—
Fresno	N.	54·0	75	e 9 30	+ 2	—	—	—	—	—
Tinemaha		54·6	74	i 9 33k	+ 1	e 17 15	+ 4	—	—	—
Almata		54·8	297	9 32	− 2	—	—	—	—	—
Haiwee	Z.	55·6	75	e 9 40k	0	—	—	—	—	—
Salt Lake City		55·6	66	i 9 40	0	e 17 29	+ 4	e 21 27	SS	e 25·0
Santa Barbara		55·6	77	e 9 40k	0	—	—	—	—	—
Scoresby Sund		56·0	3	i 9 31	−12	i 17 25	− 5	i 10 20	pP	e 24·4
Mount Wilson		56·7	76	i 9 48k	0	—	—	e 39 37	P'P'	—
Pasadena		56·7	76	i 9 49k	+ 1	i 17 42	+ 2	i 17 57	PS	e 24·1
Riverside		57·3	76	i 9 52k	0	—	—	e 39 26	P'P'	—
La Jolla		58·2	77	i 9 59k	+ 1	—	—	—	—	—
Andijan		59·0	298	10 5	+ 1	—	—	—	—	—
Tucson		62·3	73	i 10 27	+ 1	e 18 55	+ 3	e 12 33	PP	e 26·5
Ivigtut		62·7	17	e 19 40	PPS	—	—	—	—	e 27·1
Calcutta	N.	63·4	272	e 10 33	− 1	i 19 5	− 1	e 11 5	pP	—
Upsala		63·4	342	i 10 34	0	i 19 6	0	e 22 33	SS	e 34·7
Dehra Dun	N.	63·5	286	e 10 19	−15	—	—	—	—	—
Chicago		67·1	51	e 10 57	0	e 19 50	− 1	e 13 23	PP	e 27·4
Florissant		68·1	55	i 11 4	0	i 20 3	0	i 11 31	pP	—
Copenhagen		68·3	344	i 11 6k	+ 1	i 20 10	+ 4	13 37	PP	31·7
St. Louis		68·3	55	i 11 6	+ 1	e 20 5	− 1	i 24 35	SS	e 30·2
Aberdeen	E.	68·8	353	—	—	i 20 14	+ 3	—	—	e 44·2
Ottawa		69·1	41	11 9	− 1	20 13	− 2	13 43	PP	31·7
Shawinigan Falls		69·2	38	11 12	+ 2	20 18	+ 2	—	—	44·7
Seven Falls		69·4	36	11 13	+ 1	20 19	+ 1	28 19	SSS	32·7
Potsdam		71·3	342	i 11 26k	+ 3	i 20 41	0	i 11 48	pP	e 33·7
Pittsburgh		71·5	46	i 11 24	0	i 20 45	+ 2	—	—	—
Cernauti		72·1	332	—	—	20 50	0	—	—	—
Stonyhurst		72·1	352	—	—	i 20 50	0	28 48	SSS	41·7
De Bilt		72·9	347	i 11 35k	+ 2	i 21 4	+ 5	i 14 19	PP	e 36·7
Jena		73·0	341	i 11 34	+ 1	e 20 52	− 8	i 14 13	PP	e 36·7
Harvard		73·2	39	i 11 35	0	—	—	i 14 20	PP	e 39·7
Hyderabad		73·2	277	11 36	+ 1	21 2	0	14 20	PP	34·9
Prague		73·3	340	11 37k	+ 2	21 5	+ 1	—	—	e 37·7
Cheb		73·7	341	e 11 41	+ 3	e 21 19	+11	—	—	e 41·7
Philadelphia		73·9	43	i 11 43	+ 4	e 20 45	?	—	—	i 31·0
Oxford		74·0	351	—	—	i 21 16	+ 5	—	—	e 43·0
Focsani		74·1	330	e 11 46	+ 6	21 15	+ 3	—	—	—
Kew		74·2	350	i 11 41k	+ 1	e 21 13	− 1	i 11 52	PcP	e 37·7
Uccle	Z.	74·3	347	i 11 42k	+ 1	e 21 16	+ 1	i 14 30	PP	e 40·7
Bombay		75·3	282	i 11 47	0	e 21 20	− 6	12 21	pP	—
Stuttgart		75·5	343	i 11 49k	+ 1	e 21 30	+ 2	e 14 36	PP	e 42·7
Bucharest		75·6	330	11 49	+ 1	21 33	+ 4	20 57	PS	35·7
Strasbourg		75·9	344	i 11 52k	+ 2	e 21 37	+ 5	i 12 6	pP	—
Columbia		76·4	50	e 11 53	0	e 21 45	+ 7	e 14 27	PP	e 35·9
Paris		76·5	348	i 11 44	−10	—	—	—	—	e 46·7
Basle		77·0	343	e 11 58	+ 2	e 21 50	+ 5	—	—	—
Zurich	—	77·0	343	e 11 56k	0	e 21 42	− 3	—	—	—
Chur		77·3	342	e 12 0	+ 2	e 21 50	+ 2	—	—	—
Neuchatel		77·6	343	e 12 1	+ 1	e 21 54	+ 3	—	—	—
Triest		77·6	338	i 12 0	0	i 21 51	0	—	—	e 36·1
Sofia		78·0	331	e 12 3	+ 1	e 21 57	+ 2	—	—	e 39·7

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Clermont-Ferrand		79·4	347	i 12 12	+ 3	e 22 14	+ 4	—	—	e 32·0
Kodaikanal		79·4	273	e 12 56	?	i 22 53	?	27 43	SS	38·5
Colombo	E.	80·7	268	—	—	22 24	0	—	—	—
Ksara		81·7	318	e 12 23	+ 1	e 22 35	+ 1	—	—	—
Bermuda		84·6	40	i 12 38	+ 2	e 22 53	−10	e 15 53	PP	e 44·0
Helwan		86·9	319	i 12 49a	+ 1	23 37	+11	16 20	PP	—
Lisbon	N.	87·6	354	12 33	−18	23 31	− 1	12 54	pP	41·7
Riverview	Z.	87·9	190	i 12 49k	− 4	—	—	—	—	e 43·8
Algiers		88·2	344	i 12 57	+ 3	i 23 55	+17	—	—	e 31·7
Granada		88·7	350	i 12 57a	0	i 23 51	+ 8	23 47	S_cS	43·4
San Fernando	E.	89·7	351	—	—	e 23 58	+ 6	—	—	50·7
Auckland		90·8	171	11 33	?	24 3	+ 1	—	—	47·7
Wellington		95·2	172	—	—	24 38	− 2	—	—	47·7
San Juan		96·5	47	e 13 33	+ 1	e 24 59	+ 8	i 17 28	PP	e 39·5
Christchurch		97·3	173	31 32	SS	—	—	48 56	Q	49·8
Huancayo		117·9	71	—	—	e 19 8	?	(e 29 37)	PS	e 29·6
La Paz		125·5	67	i 19 6	[+ 3]	—	—	i 21 2	PP	70·7

Additional readings :—
Mizusawa SE=8m.29s.
Tokyo sPN=6m.51s., ePPP?=8m.5s., SP=11m.24s., esS=12m.53s., eP_cP=13m.27s., eSSE=13m.45s., eS_cS=15m.47s.
Sitka i=11m.51s.
Honolulu e=9m.10s.
Seattle e=17m.50s.
Ukiah eSS=19m.29s.
Bozeman iP=9m.18s., e=10m.16s., i=10m.41s.
Scoresby Sund eP=9m.44s., ePP=11m.48s., e=13m.2s., ePPP=13m.11s., e=21m.10s., and 21m.30s.
Pasadena iEN=10m.3s., eSS=21m.30s., iP′P′Z=39m.27s.
Tucson e=11m.46s., 13m.10s., and 21m.55s., eSS=23m.9s.
Calcutta isSN=20m.6s.
Upsala eN=22m.36s., eSSSE=26m.7s.
Dehra Dun eN=17m.31s.
Chicago e=21m.1s., eSS=24m.3s.
Florissant isSE=20m.52s.
Copenhagen 22m.19s.
Aberdeen eE=30m.39s.
Ottawa PPP=15m.25s., SS=24m.53s., SSS=27m.43s.
Potsdam ePPE=14m.0s., ipPPN=14m.55s., isPPN=15m.40s., iPPPZ=15m.51s., iSE=20m.45s., iEZ=21m.2s., isS=21m.29s., iSSN=25m.25s.
Pittsburgh iZ=11m.29s.
De Bilt iP=11m.59s., iS=21m.26s., eSS=25m.43s.
Jena eSN=21m.1s., eSS=25m.43s.
Harvard eP_cS=16m.3s., e=25m.43s.?.
Hyderabad SSE=25m.39s.
Philadelphia ePPP=16m.8s., eSS=25m.11s., e=25m.54s., eSSS=29m.8s.
Kew ePPNZ=14m.37s., iPPPNZ=16m.17s., eZ=20m.57s., ePSEN=21m.45s., eEZ=22m.49s., eEN=23m.7s., eSSNZ=25m.31s., eSSE=26m.10s., eSSSE=29m.53s., eQE=32·7m.
Bombay iE=13m.16s., PPEN=14m.39s., iN=21m.25s. and 21m.57s., sSE=22m.20s., iE=24m.6s.
Stuttgart e=12m.30s. and 24m.21s., eSS=26m.13s., PKP PKP=39m.7s.
Bucharest PSN=21m.1s.
Strasbourg eSS=26m.31s.
Columbia e=21m.37s., eSS=27m.1s.
Zurich ePP=13m.44s.
Bermuda e=23m.4s., eSS=28m.6s.
Helwan eZ=13m.8s., PSZ=24m.31s.
Lisbon iS=23m.39s.
Granada PS=24m.41s., PPS=25m.34s., SS=29m.31s., SSS=33m.49s.
San Juan e=17m.58s. and 22m.3s., ePS=26m.0s.
Huancayo e=20m.8s.
La Paz iN=23m.46s.
Long waves were also recorded at Lincoln and Tananarive.

August 23d. 13h. Local Japanese shock.

Komaba P=18m.22s., S=18m.32s.
Mitaka P=18m.22s., S=18m.32s.
Togane P=18m.22s., S=18m.32s.
Tokyo I.U. P=18m.22s., S=18m.32s.
Titibu P=18m.22s., S=18m.35s.
Mizusawa ePE=19m.13s., SE=19m.47s.

August 23d. 15h. 41m. 25s. Epicentre 43°·5N. 26°·4E.

Scale VII at Razgrad, Gara Samuyl, Borisovo, Gorozvet, Kamenar Lovsko, Trapichtche, Ouchintzi, and Jacsenovetz; VI-VII at Drinovo and Kladenetz; VI at Goliam Izvor, Zarajevo, Kitchenitza, and Poroitche.
K. Jankow. "Das Razgrader Erdbeben vom 23 VIII 1942." Publications de l'Institut Meteorolog. Central de Bulgarie, Sofia 1943. Epicentre as adopted.

$A = +·6518$, $B = +·3236$, $C = +·6859$; $\delta = +2$; $h = -3$;
$D = +·445$, $E = -·896$; $G = +·614$, $H = +·304$, $K = -·728$.

	△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Bucharest	0·9	347	0 20	0	0 33	− 1	—	—	—
Focsani	2·3	15	0 47	P_g	e 1 11	+ 2	e 1 17	S_g	—
Sofia	2·4	250	0 42	+ 1	i 1 12	0	0 47	P_g	—
Cernauti	4·8	357	1 37?	P_g	2 42	S_g	—	—	—
Triest	9·3	288	—	—	e 4 58	S_g	—	—	—
Stuttgart	13·0	300	e 3 3	− 6	—	—	—	—	e 7·5

Additional readings:—
Bucharest iN = 24s.
Focsani eN = 1m.14s.
Sofia iEN = 51s., iN = 59s. and 1m.15s., iE = 1m.19s., iS_gE = 1m.23s.
Long waves were also recorded at De Bilt, Potsdam, Copenhagen, and Granada.

August 23d. Readings also at 1h. (near Branner), 3h. (near Andijan), 5h. (Potsdam, Uccle, De Bilt, Kew, Stonyhurst, and Scoresby Sund), 6h. (Stuttgart and Balboa Heights), 9h. (Ksara), 11h. (La Paz), 15h. (Mount Wilson and Tucson), 17h. (Stuttgart), 20h. (near Fresno), 21h. (Copenhagen), 22h. (near Granada), 23h. (Triest and near Fresno).

August 24d. 17h. 15m. 52s. Epicentre 2°·0N. 124°·0E. (as on 1941 Jan. 2d.).

$A = -·5589$, $B = +·8285$, $C = +·0347$; $\delta = -1$; $h = +7$;
$D = +·829$, $E = +·559$; $G = -·019$, $H = +·029$, $K = -·999$.

	△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Kumamoto	31·3	11	6 24	0	—	—	—	—	—
Kobe	34·2	17	7 42	+53	12 13	− 3	—	—	—
Kameyama	34·7	17	6 45	− 9	—	—	—	—	—
Nagano	36·9	18	6 55	−17	—	—	—	—	—
Vladivostok	41·6	9	—	—	i 13 20	−48	—	—	—
Auckland	60·9	134	—	—	18 38	+ 4	—	—	e 35·1
Tashkent	62·8	316	10 33	+ 3	19 2	+ 4	—	—	—
Sverdlovsk	74·0	329	11 39	0	21 4	− 7	—	—	—
Uccle	106·7	325	—	—	e 25 8?	[+10]	—	—	e 52·1
Kew	109·0	327	—	—	e 28 18	PS	e 38 28	SSS	e 58·1

Long waves were also recorded at Cheb, Potsdam, De Bilt, Granada, and Scoresby Sund.

August 24d. 22h. 50m. 24s. Epicentre 15°·1S. 75°·0W.

Damage at Nazca and Ica near Lima. Epicentre 14°·7S. 75°·0W. Suggested depth 150km. See U.S.C.G.S. Seismological Bulletin August 1942, page 3.

$A = +·2500$, $B = -·9330$, $C = -·2589$; $\delta = +2$; $h = +5$;
$D = -·966$, $E = -·259$; $G = -·067$, $H = +·250$, $K = -·966$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		3·1	354	i 0 57	+ 6	—	—	—	—	—
La Paz		6·7	103	i 1 47a	+ 5	—	—	—	—	—
Balboa Heights		24·3	351	e 5 21	+ 1	i 9 52	+15	—	—	13·8
La Plata		25·0	145	5 25	− 2	9 54	+ 5	—	—	12·4
Rio de Janeiro	E.	31·0	109	i 6 20	− 1	—	—	—	—	—
Fort de France		32·6	27	e 6 26	− 9	i 12 32	+41	e 14 49	SS	e 17·7
Port au Prince		33·6	6	i 7 25	+41	i 13 1	+55	8 27	PPP	18·0
San Juan		34·4	15	i 6 48	− 3	i 12 12	− 7	i 7 20	pP	i 14·4
Oaxaca	N.	38·5	327	e 7 32	+ 6	—	—	—	—	—
Merida	W.	38·6	339	e 7 42	+16	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Vera Cruz	N.	39·9	329	e 7 40	+ 3	—	—	—	—	—
Tacubaya	N.	41·7	325	e 7 56	+ 4	—	—	—	—	—
Guadalajara	E.	45·2	322	e 8 28	+ 8	—	—	—	—	—
Mobile		47·3	345	e 8 38	+ 1	e 15 28	− 3	—	—	—
Bermuda		48·2	12	i 8 43	− 1	i 15 37	− 6	i 9 17	pP	i 25·1
Columbia		49·2	355	e 8 49	− 3	i 15 50	− 8	e 10 56	PP	e 20·4
Chihuahua	Z.	52·9	326	e 8 26	−54	—	—	—	—	—
Georgetown		53·8	359	e 9 25	− 1	17 5	+ 4	—	—	—
Philadelphia		54·8	0	i 9 38	+ 4	i 17 19	+ 5	i 10 1	pP	i 23·0
St. Louis		55·3	346	i 9 35	− 3	i 17 15	− 6	i 10 7	pP	—
Pittsburgh		55·4	356	i 9 40	+ 2	i 17 11	−11	—	—	—
New Kensington	N.W.	55·5	356	i 8 36	−63	i 16 42	−42	—	—	—
Florissant		55·5	346	e 9 35	− 4	i 17 18	− 6	i 10 8	pP	—
Fordham		55·7	3	i 9 39	− 1	i 17 31	+ 5	i 10 14	pP	—
Pennsylvania		55·7	358	i 9 49	+ 9	e 18 0	+34	i 11 52	PP	—
Weston		57·3	5	i 9 50	− 2	i 17 49	+ 2	—	—	—
Harvard		57·4	5	i 9 51	− 2	i 17 48	− 1	i 18 25	PPS	e 24·6
Chicago		57·8	348	e 9 51	− 4	i 17 37	−17	i 10 18	pP	i 23·8
Tucson		58·3	325	i 9 56	− 3	i 17 53	− 8	i 12 13	PP	i 25·2
Ottawa		60·2	0	10 11a	− 1	18 24	− 1	12 36	PP	28·6
Halifax		60·3	10	9 59	−14	18 16	−10	12 56	PPP	29·6
Denver		61·4	335	e 10 19	− 1	e 18 33	− 7	e 10 41	pP	—
Shawinigan Falls		61·4	3	10 18	− 2	18 43	+ 3	—	—	29·6
Seven Falls		62·0	4	10 27	+ 3	i 18 53	+ 5	25 0	SSS	26·6
La Jolla		62·5	321	e 10 26	− 2	—	—	e 39 37	P′P′	—
Palomar	Z.	62·6	322	i 10 26a	− 2	—	—	i 39 40	P′P′	—
Riverside		63·3	321	e 10 31	− 2	i 19 10	+ 6	e 39 33	P′P′	—
Mount Wilson		63·9	321	e 10 34	− 3	i 19 15	+ 3	i 39 35	P′P′	—
Pasadena		63·9	321	i 10 35	− 2	i 19 11	− 1	i 39 36	P′P′	e 28·4
Santa Barbara		65·1	320	i 10 48	+ 3	—	—	—	—	—
Haiwee		65·2	323	e 10 47	+ 2	i 19 29	+ 1	e 39 52	P′P′	—
Salt Lake City		65·3	330	i 10 45	− 1	i 19 26	− 3	—	—	e 29·8
Tinemaha		66·0	323	e 10 48	− 2	e 19 34	− 4	e 39 29	P′P′	—
Lick	N.	68·2	321	e 11 6	+ 2	e 20 5	+ 1	—	—	—
Santa Clara		68·3	321	i 11 8	+ 3	e 20 16	+10	—	—	—
Branner		68·5	321	e 11 9	+ 3	e 20 10	+ 2	—	—	e 30·1
Bozeman		68·7	334	e 11 6	− 1	e 20 0	−10	i 11 40	pP	—
Butte		69·6	333	e 11 8	− 5	i 20 16	− 5	e 24 24	SS	e 29·0
Ukiah		70·3	322	e 11 17	0	e 20 28	− 1	e 11 56	pP	e 29·0
Ferndale	E.	71·8	323	i 11 28	+ 2	e 21 3	+17	—	—	—
	N.	71·8	323	i 11 32	+ 6	i 20 43	− 3	—	—	e 38·2
Saskatoon		72·4	340	11 36	+ 6	20 55	+ 2	e 12 2	pP	30·6
Spokane		73·1	332	e 11 35	+ 1	e 21 0	− 1	i 12 5	pP	—
Seattle		75·4	330	e 14 54	PPP	—	—	e 24 30	SS	e 37·2
Ivigtut		79·0	13	e 12 52	+45	i 22 50	+44	i 13 15	pP	e 32·9
Lisbon		81·5	46	12 19	−2	22 21	−11	28 18	SS	38·1
San Fernando		82·6	50	i 12 26	0	i 22 10	−33	i 16 16	PP	41·6
Granada		84·8	50	i 12 40k	+ 3	i 23 19	+14	i 13 30	pP	i 43·0
Sitka		87·7	332	i 12 52	0	i 23 16	[− 2]	i 24 22	PS	e 34·3
Honolulu		88·9	292	e 13 4	+ 6	e 23 21	[− 5]	e 17 40	PP	e 37·0
Algiers		89·6	52	i 13 8	+ 7	i 23 17	[−13]	i 13 30	pP	33·2
Oxford		92·0	36	e 13 13	+ 1	i 23 49	[+ 5]	—	—	i 37·2
Stonyhurst		92·1	34	i 13 13	+ 1	i 24 21	+ 8	i 17 14	PP	44·8
Kew		92·4	37	i 13 12a	− 2	i 24 20	+ 4	e 16 48	PP	e 43·6
Clermont-Ferrand		92·6	43	e 13 14	− 1	e 23 57	[+ 9]	i 13 25	pP	e 44·6
Apia		92·8	255	e 12 56	−20	e 23 50	[+ 1]	i 29 24	SS	i 42·8
Scoresby Sund		92·8	15	i 13 17	+ 1	i 23 5	[−44]	i 16 59	PP	e 34·3
Paris		93·2	40	e 13 17	0	i 24 29	+ 6	i 17 12	PP	44·9
Marseilles		93·4	46	e 13 32?	+14	23 56?	[+ 4]	e 14 13	pP	42·6
Aberdeen		93·6	31	i 13 17	− 2	i 23 49	[− 4]	i 17 9	PP	46·2
Wellington		94·7	225	13 26	+ 2	23 46	[−13]	13 48	pP	42·4
Johannesburg		94·7	118	13 36	+12	24 36	0	17 36?	PP	e 49·6
Besançon		95·0	43	e 14 5	+39	(24 36?)	− 2	i 17 51	PP	24·6
Uccle		95·0	38	i 13 25a	− 1	i 24 3	[+ 2]	i 13 57	pP	40·6
Christchurch		95·2	222	13 33	+ 6	24 0	[− 2]	17 31	PP	46·6
Arapuni		95·4	228	13 36?	+ 8	24 12	[+ 9]	i 17 48	PP	42·6

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Neuchatel		95·5	43	e 13 27	− 1	e 24 7	[+ 3]	—	—	—
De Bilt		95·9	37	i 13 30a	0	i 24 46	0	e 17 36	PP	e 47·6
Basle		96·1	42	e 13 30	− 1	e 24 19	[+12]	—	—	—
College		96·4	336	e 13 36	+ 4	e 23 54	[−15]	i 18 6	PP	e 39·3
Auckland		96·5	229	13 41	+ 9	23 46	[−23]	24 36	PS	41·6
Strasbourg		96·5	41	i 13 36	+ 4	—	—	e 17 36	PP	43·6
Zurich		96·7	43	e 13 28a	− 5	e 24 20	[+10]	e 17 26	PP	—
Chur		97·2	43	e 13 36	0	e 24 30	[+17]	—	—	—
Stuttgart		97·4	41	e 13 36	− 1	e 24 26	[+12]	i 14 2	pP	e 43·6
Jena		99·4	40	i 13 47	+ 1	e 24 30	[+ 6]	i 18 16	PP	e 43·0
Hof		99·5	40	e 27 8	PS	e 24 36	[+11]	e 32 36	SS	e 42·6
Cheb		99·8	40	e 13 50	+ 3	e 24 50	[+24]	e 17 37	PP	e 52·6
Triest		99·8	45	i 13 48	+ 1	e 24 12	[−14]	i 17 53	PP	e 46·1
Potsdam		100·6	38	e 13 54	+ 3	i 24 35	[+ 5]	e 19 2	PP	49·6
Copenhagen		100·9	34	e 13 53	+ 1	24 50	[+19]	18 36	PP	—
Prague		101·1	40	13 58	+ 5	e 24 52	[+20]	e 18 1	PKP	e 42·6
Upsala		104·2	31	e 14 9	+ 2	e 24 36?	[−11]	e 18 27	PKP	e 43·6
Belgrade		104·3	47	e 14 26	+18	i 25 26	{+ 1}	e 19 12	PP	e 38·3
Sofia		106·1	49	e 14 22	P	i 26 54	+43	e 17 58	PKP	34·4
Bucharest		108·3	47	e 14 29	P	25 26	[+21]	18 19	PKP	47·6
Cernauti		108·4	43	e 14 30	P	25 18	[+13]	18 57	PP	47·6
Focsani		109·1	46	e 18 24	[− 7]	25 24	[+16]	—	—	—
Istanbul		110·4	51	19 14	PP	29 38	PPS	22 32	PKS	e 56·6
Helwan		111·4	64	14 39	P	25 8	[−10]	18 30	PKP	53·6
Tananarive		114·1	118	e 19 40	PP	26 1	[+32]	23 0	PKS	54·7
Riverview		114·4	221	e 19 6	[+24]	i 25 55	[+25]	i 20 8	PP	53·2
Sydney		114·4	221	e 18 9	[−33]	i 29 30	PS	e 19 54	PP	e 53·2
Ksara		115·5	60	e 15 16	P	29 42	PS	19 54	PP	—
Brisbane	E.	117·1	228	e 19 47	PP	i 30 1	PS	i 36 35	SS	54·9
	N.	117·1	228	e 19 51	PP	i 29 55	PS	i 36 31	SS	54·8
Sverdlovsk		126·6	28	e 15 48	P	28 41	{+43}	i 19 10	PKP	—
Sapporo		138·3	320	19 48	[+21]	—	—	—	—	—
Tchimkent		139·3	40	19 32	[+ 3]	—	—	—	—	—
Tashkent		139·6	43	19 25	[− 5]	26 17	[−21]	22 34	PP	—
Mizusawa	E.	140·3	314	e 19 41	[+10]	37 56	?	—	—	—
	N.	140·3	314	e 19 35	[+ 4]	39 58	SS	—	—	—
Stalinabad		140·5	46	19 45	[+14]	—	—	—	—	—
Sendai		140·9	313	19 36	[+ 4]	—	—	41 30	SS	—
Tokyo		142·8	310	19 42	[+ 7]	41 51	SS	26 12	PPP	66·1
Irkutsk		142·9	1	e 19 23	[−13]	—	—	—	—	—
Nagano		143·5	313	19 46	[+ 9]	—	—	—	—	—
Vladivostok		143·8	325	19 42	[+ 5]	28 36	{−67}	—	—	—
Nagoya		145·1	311	19 47	[+ 8]	—	—	—	—	43·3
Kobe		146·6	311	19 44	[+ 2]	—	—	e 22 10	PP	—
Koti		148·3	311	19 47	[+ 2]	26 42	[−10]	23 36	PP	61·1
Hamada		148·7	314	19 56	[+11]	—	—	(39 27)	P'P'	39·4
Bombay		149·0	78	19 54	[+ 8]	27 1	[+ 8]	43 20	SS	—
Hukuoka		150·5	313	19 56	[+ 8]	42 52	SS	24 15	PP	—
Zinsen		150·6	324	20 1	[+13]	27 10	[+16]	23 26	PKS	67·4
Dehra Dun	N.	151·0	53	e 18 30?	?	e 29 21?	?	e 41 30?	?	e 77·7
New Delhi	E.	151·0	56	e 13 18	?	24 19	?	—	—	i 67·5
Kodaikanal	E.	152·7	95	e 21 6	?	i 31 46	{+73}	—	—	—
Colombo	E.	154·0	106	19 59	[+ 6]	—	—	—	—	—
Hyderabad		154·4	80	20 4	[+10]	31 25	{+43}	24 20	PP	—
Calcutta	N.	162·6	62	e 20 41	[+38]	i 27 33	[+26]	i 25 23	PP	e 79·5

Additional readings :—
La Plata Z=5m.42s., SE=10m.18s.
Fort de France eSSS=15m.22s.
Port au Pr;nce PPP=8m.46s., S=15m.6s.
Bermuda i=11m.15s., isS=16m.14s., iSS=19m.5s., isSS=19m.31s.
Columbia i=11m.24s., isS=16m.30s., e=19m.0s.
Philadelphia iPP=11m.44s., i=12m.28s., isS=18m.3s., i=20m.1s., iSS=21m.24s., i=21m.34s.
St. Louis isPZ=10m.25s., iP_cPZ=10m.37s., ipP_cPZ=11m.9s., iPPZ=11m.41s., ipPPZ=12m.13s., iPPP=12m.38s., iPPPP=13m.34s., iSPEN=17m.51s., isSEN=18m.16s., iSSEN=21m.35s.

Continued on next page.

Florissant iPPN=11m.41s., ipPPN=12m.13s., iSPN=18m.4s., isSN=18m.19s., isSPN=18m.54s., iSSN=21m.27s.
Fordham iSP=18m.14s.
Pennsylvania e=10m.33s. and 11m.3s., i=12m.8s.
Harvard e=20m.10s.
Chicago iP=9m.56s., i=12m.51s., isS=18m.21s., i=19m.41s., iSS=22m.1s.
Tucson epPP=12m.42s., i=12m.47s., iPPP=13m.30s., isS=18m.36s., iSS=21m.58s., isSSS=22m.27s.
Ottawa PPP=13m.48s., PS=19m.0s., SS=22m.41s., SSS=24m.36s.
Halifax PS=18m.54s., SSS=24m.48s.
Denver ipPN=10m.53s., iE=11m.5s., iN=11m.10s., and 11m.19s., iE=11m.41s., ePP=12m.48s., eN=14m.17s., eE=18m.48s., eN=19m.13s., eE=19m.37s., eN=24m.0s.
Palomar iZ=10m.30s. and 40m.7s.
Riverside i=10m.36s. and 40m.11s.
Tinemaha iZ=10m.53s., iZ=39m.44s.
Lick eSE=20m.18s.
Branner iE=11m.28s., iN=11m.39s., iE=12m.4s., iN=12m.14s., iSE=20m.19s., eN=20m.52s.
Bozeman iP=11m.10s., ePP=13m.37s., iPPP=15m.25s., iS=20m.10s., iSS=20m.46s.
Butte iP=11m.11s., i=14m.12s., isS=20m.54s.
Ukiah ePP=14m.5s., ePPP=15m.59s., isS=21m.10s., eSS=24m.46s.
Saskatoon PS=21m.36s.?, SS=25m.36s.?.
Spokane iE=21m.35s.
Seattle i=25m.32s.
Ivigtut iPP=16m.0s., e=16m.3s., ePPP=17m.48s., eS=23m.1s., isS=23m.27s., e=26m.5s., eSS=28m.8s., esSS=28m.33s., eSSS=31m.35s.
Lisbon PN=12m.26s., N=19m.16s. and 19m.57s., S_cSE=22m.44s. and 22m.54s., PPSN=23m.13s., SSN=28m.18s., SSE=28m.24s., N=34m.30s., E=36m.18s.
San Fernando iSSE=28m.12s.
Granada sP=14m.1s., iPP=16m.24s., PPP=19m.33s., SKS=22m.48s., sS=24m.32s., PPS=25m.13s., SS=29m.8s., sSS=31m.3s., sSSS=34m.26s., Q=36m.36s.
Sitka i=15m.36s., isS=24m.13s., eSS=29m.29s.
Honolulu i=14m.59s., iS=23m.50s., i=25m.58s., iSS=29m.43s., e=34m.46s.
Algiers i=13m.16s., isP=13m.51s., i=14m.9s., PP=16m.48s., pPP=17m.31s., sPP?=17m.19s., iPPP=18m.49s., ipPPP=19m.10s., i=19m.58s. and 21m.58s., iS=23m.50s., ipS=24m.16s., PS=25m.0s., sPS=25m.33s., iPPS?=25m.57s., iSS=29m.49s., esSS=30m.28s., SSS=33m.50s., i=35m.0s. and 37m.7s.
Oxford iP=13m.18s.
Stonyhurst i=17m.30s., iPS=25m.34s., iPPS=26m.6s., iSS=30m.44s., i=37m.27s., and 40m.16s.
Kew iPPP=18m.51s., iSKSEN=23m.48s., eSKKSEN=23m.57s., iPSE=25m.22s., iPPSE=26m.4s., eSSEN=30m.11s., eSSSE=33m.52s., eQEN=39·6m.
Clermont-Ferrand iPP=17m.19s., eSS=31m.2s.
Apia iS=24m.27s.
Scoresby Sund i=16m.2s., e=16m.38s., i=17m.49s., e=24m.3s., epS=24m.51s., i=25m.48s.
Paris iSKKS=24m.8s., iPPS=26m.18s., Q=41m.54s.
Marseilles ePP=17m.13s.?, PPP=19m.6s.?. SKKS=24m.20s., S=24m.37s.
Aberdeen i=31m.24s., iN=34m.49s.
Wellington sPZ=14m.1s., iZ=14m.33s.? and 17m.10s., sPPZ=17m.42s., S_cS?=24m.24s., SP=25m.10s., SPP?=26m.21s., i=27m.38s. and 31m.56s., Q=37·6m.
Johannesburg iPSEN=26m.30s., eSSEN=31m.24s., eQ?N=38·6m.
Uccle iN=16m.46s., iPPE=17m.8s., iSKKSEN=24m.38s., iSN=25m.12s., iPPSE=26m.40s., iSSSE=35m.18s.
Christchurch PS=25m.54s., SS=31m.40s., Q=40·0m.
Arapuni PS=24m.36s., SS?=28m.36s., i=31m.36s. and 35m.36s.?.
College e=16m.45s., iS=24m.40s., isS=25m.17s., e=29m.33s., eSS=31m.49s.
Auckland e=14m.56s., S?=24m.10s., PPS=25m.28s., i=26m.36s., SS=30m.1s., Q=37·6m.
Strasbourg i=14m.20s. and 16m.20s.
Stuttgart e=16m.26s., 16m.36s., and 17m.0s., ePPZ=17m.36s., ePP=17m.46s. and 20m.46s., iSKKS=25m.2s., iS=25m.30s., iSP=27m.8s., ePKKP=30m.51s., and 31m.14s., iSS=32m.36s., eSSS=35m.56s., e=37m.54s., ePKP, PKP=38m.32s. iPKP, PKP=38m.50s., eP′P′P′=59m.42s.
Jena iN=14m.13s., iE=14m.30s., e=17m.36s., eZ=17m.48s., iSN=24m.18s., i=25m.36s., iPSE=26m.55s., iPSZ=28m.0s., eSS=32m.6s., eE=36m.24s.
Hof eSSNW=32m.55s., e=36m.36s.
Triest eSKKS=25m.0s., eS=25m.22s.
Potsdam ePNW=13m.58s., eE=17m.49s.?, iNW=17m.58s., ePPNW=19m.8s., iPPPNW=20m.38s., iNW=21m.36s.?, and 22m.36s.?, eSKKSNW=25m.16s., iSNW=25m.39s., iNW=26m.4s., iE=26m.49s., iPSE=27m.28s., eSSPE=33m.6s.?, iE=33m.22s., and 34m.23s., iSSSE=36m.34s., iE=40m.45s., iNW=42m.52s., iE=44m.44s., iNW=44m.52s.
Copenhagen 17m.53s., 24m.6s., 25m.34s., 26m.7s., 27m.42s., 28m.27s., 29m.42s., 32m.36s, 36m.48s.
Prague ePS=26m.54s., ePPS=27m.24s., eSS=32m.36s.

Continued on next page,

Upsala ePN=14m.20s., ePPPE=17m.24s., eN=17m.57s., eE=20m.36s.?, eSKKSN=21m.36s.?, eN=26m.1s., iE=27m.47s. and 28m.14s., eN=32m.6s., eSSSE=34m.12s., eN=38m.36s.?.
Belgrade iPPS=28m.16s.
Sofia iPPE=19m.12s., SKSEN=25m.2s., iPSE=28m.42s.
Bucharest eN=14m.49s., ePKPN=18m.24s., PPZ=18m.54s., PPE=19m.1s., PPPN=21m.27s., PPPZ=21m.33s., SKKS=26m.8s., SN=26m.56s., SZ=27m.0s., PSZ=28m.32s., SSN=34m.44s., SSE=35m.16s.
Cernauti PSE=28m.28s.
Istanbul PPP=24m.39s., SSS=37m.36s.?.
Helwan PPPZ=20m.39s., SKKSEN=25m.44s., PSEN=27m.12s.
Tananarive iPP=20m.13s., SKKS=27m.4s., iPS=29m.55s., iEN=30m.13s., SS=36m.33s., SSS=40m.24s.
Riverview ePZ=15m.29s., SKPZ=21m.50s., ePPPEN=22m.42s., eSKKSEN=27m.9s., iSN=28m.3s., iPSZ=29m.27s., iPSEN=29m.36s., iZ=30m.59s., eSS?E=35m.36s., iSSEN=36m.8s., iSSZ=36m.15s., iSSSE=40m.19s., eQN=47m.12s.
Sydney i=30m.57s., e=34m.48s.
Brisbane QE=44m.16s., iE=49m.39s., iN=50m.58s.
Sverdlovsk PP=20m.56s.
Tashkent P=16m.46s., S=29m.32s.
Tokyo ePPP=27m.21s., S=31m.39s., SSS=46m.47s.
Kobe P_cP=20m.7s., PPP=23m.40s., S_cS=30m.20s.
Koti SS=44m.0s.
Bombay PPPN=27m.20s., PPSN=36m.59s., SSPN=44m.6s.
Zinsen P=18m.28s., PP=24m.8s., SKS=25m.42s., SKKS=30m.18s., SKSP=33m.24s., PPS=37m.17s., SS=43m.8s., SSS=49m.12s.
New Delhi iPKPE=13m.38s., ePPE=17m.16s., iSKPE=17m.29s., eE=21m.31s., iPSKSE=27m.39s., iPPSE=30m.24s., iSSE=37m.46s., iSSSE=43m.10s., iE=55m.33s., record wrongly interpreted.
Hyderabad PKP_2E=20m.53s., PKS=23m.45s., SKSPE=34m.54s., SSE=43m.20s.
Calcutta $ePKP_2N$=21m.38s., iPPPN=29m.23s., iSSN=46m.8s.

August 24d. Readings also at 0h. (Des Moines). 1h. (near Andijan), 5h. (Tucson (2), Bozeman, Mount Wilson (2), Pasadena, Palomar, and Riverside), 6h. and 7h. (2) (near Mizusawa), 11h. (Sverdlovsk), 12h. (De Bilt, Kew, Tashkent, Tchimkent, and near Stalinabad), 13h. (near Tchimkent), 16h. (Algiers), 23h. (La Paz (2), Tucson, Mount Wilson, Palomar, and Riverside).

August 25d. 13h. Pasadena suggests Central America. Deep focus.

Tacubaya PN=33m.14s.
La Paz ePZ=35m.0s.
San Juan e=35m.16s. and 39m.23s., eL=41m.36s.
Vera Cruz iE=35m.39s.
Tucson eP=36m.7s., iP=36m.20s., e=38m.28s.
Philadelphia eP=36m.27s., eS=41m.8s., eL=44m.12s.
Chicago eP=36m.30s., eS=41m.32s., eL=45m.38s.
Palomar iPZ=36m.50s., iZ=37m.7s. and 37m.49s., iP_cPZ=39m.32s., iZ=39m.51s., iS_cPZ=43m.11s.
Riverside ePZ=36m.56s., eP_cPZ=39m.33s., eZ=39m.52s., eS_cPZ=43m.15s.
Ottawa iZ=36m.57s., e=42m.18s., L=48m.
Mount Wilson ePZ=37m.1s., eP_cPZ=39m.35s., eS_cPZ=43m.16s.
Pasadena iP=37m.1s., iZ=37m.19s., iP_cPZ=39m.35s., iZ=39m.54s., iS_cPZ=43m.15s., eZ=43m.53s.
Tinemaha iPZ=37m.17s., eP_cPZ=39m.41s.
Long waves were recorded at Scoresby Sund and Prague.

August 25d. 14h. 54m. 48s. Epicentre 29°·8N. 131°·2E. (as on 1938 Jan. 10d.).

$A=-\cdot5725$, $B=+\cdot6540$, $C=+\cdot4945$; $\delta=0$; $h=+2$;
$D=+\cdot752$, $E=+\cdot659$; $G=-\cdot326$, $H=+\cdot372$, $K=-\cdot869$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mizusawa		12·4	39	e 2 32	−29	e 4 53	−28	—	—	—
Vladivostok		13·3	2	(e 3 15)	+ 2	e 3 15	P	—	—	—
Irkutsk		29·9	326	e 6 36	+24	—	—	—	—	—
Calcutta	N.	39·0	270	—	—	e 16 36	SS	—	—	—
Tashkent		50·7	301	9 8	+ 5	e 16 31	+13	—	—	—
Sverdlovsk		55·1	321	e 9 34	− 2	e 17 9	− 9	—	—	—
Scoresby Sund		78·2	352	—	—	e 21 44	−13	—	—	e 43·9
Triest		85·9	321	—	—	e 22 48	[−19]	—	—	—
Stuttgart		86·2	326	e 12 42	− 2	—	—	—	—	—
Tinemaha	Z.	87·0	49	e 12 47	− 1	i 13 13	?	i 12 54	?	—

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.	87·7	49	i 12 54	+ 2	—	—	—	—	—
Pasadena	z.	88·7	51	i 12 56	− 1	—	—	i 16 20	PP	e 42·1
Mount Wilson	z.	88·8	51	e 12 56	− 1	i 13 0	?	e 16 16	PP	—
Palomar	z.	90·1	51	i 13 6	+ 3	i 13 51	?	i 16 31	PP	—
Tucson		94·8	49	e 13 24	− 1	i 13 28	?	16 53	PP	e 44·5

Additional readings :—
Vladivostok eP=1m.29s.
Pasadena iZ=13m.0s. and 13m.25s.
Long waves were also recorded at other European stations.

August 25d. 20h. 15m. 48s. Epicentre 15°·1S. 75°·0W. (as on 24d.).

A = +·2500, B = −·9330, C = −·2589 ; δ = +2 ; h = +5 ;
D = −·966, E = −·259 ; G = −·067, H = +·250, K = −·966.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		3·1	354	i 0 54	+ 3	—	—	—	—	—
La Paz	z.	6·7	103	i 1 52a	+10	i 3 18	+18	—	—	i 3·8
Balboa Heights		24·3	351	e 5 12?	− 8	—	—	—	—	—
La Plata		25·0	145	5 26	− 1	9 52	+ 3	5 58	PP	12·2
Rio de Janeiro	E.	31·0	109	e 6 30	+ 9	i 11 31	+ 5	—	—	e 16·6
Fort de France		32·6	27	e 6 29	− 6	—	—	—	—	—
San Juan		34·4	15	e 7 1	+10	e 12 16	− 3	—	—	e 14·6
Bermuda		48·2	12	e 9 26	?	e 15 44	+ 1	—	—	e 25·9
Columbia		49·2	355	e 8 50	− 2	e 15 52	− 6	—	—	e 21·6
Philadelphia		54·8	0	e 9 41	+ 7	i 17 17	+ 3	e 19 47	sS	23·8
St. Louis		55·3	346	i 9 34	− 4	e 17 14	− 7	e 11 46	PP	—
Pittsburgh		55·4	356	i 11 39	PP	i 17 32	+10	—	—	—
Florissant		55·5	346	i 9 38	− 1	i 17 12	−12	i 10 14	pP	e 32·3
Harvard		57·4	5	i 9 50	− 3	e 17 46	− 3	e 19 38	S_cS	e 31·2
Chicago		57·8	348	e 9 54	− 1	e 17 43	−11	e 19 33	S_cS	e 23·5
Tucson		58·3	325	i 9 53	− 6	e 17 55	− 6	i 12 12	PP	e 25·0
Lincoln		59·2	343	—	—	e 15 22	?	e 19 39	S_cS	—
Ottawa		60·2	0	10 10	− 2	18 24	− 1	25 12	SSS	28·2
Seven Falls		62·0	4	—	—	e 18 47	− 1	—	—	26·2
La Jolla	z.	62·5	321	e 10 23	− 5	—	—	—	—	—
Palomar	z.	62·6	322	i 10 25	− 3	—	—	e 39 44	P'P'	—
Riverside	z.	63·3	321	i 10 29	− 4	—	—	e 39 47	P'P'	—
Mount Wilson	z.	63·9	321	i 10 33	− 4	—	—	e 39 34	P'P'	—
Pasadena		63·9	321	i 10 35k	− 2	i 19 13	+ 1	e 39 35	P'P'	e 31·2
Santa Barbara	z.	65·1	320	e 10 42	− 3	—	—	—	—	—
Haiwee		65·2	323	e 10 46	+ 1	—	—	—	—	—
Salt Lake City		65·3	330	e 10 45	− 1	e 19 25	− 4	e 14 35	PPP	e 27·7
Tinemaha	z.	66·0	323	i 10 47	− 3	—	—	—	—	—
Santa Clara		68·3	321	i 11 12	+ 7	—	—	—	—	e 35·2
Bozeman		68·7	334	e 11 25	+18	e 20 10	0	e 13 42	PP	e 33·6
Butte		69·6	333	—	—	e 20 18	− 3	—	—	e 28·7
Victoria		76·5	330	11 59	+ 5	21 40	+ 1	—	—	36·2
Lisbon		81·5	46	12 15	− 6	22 44	+12	—	—	37·3
San Fernando	E.	82·6	50	e 12 45	+19	22 55	+12	—	—	43·2
Granada		84·8	50	i 12 39	+ 2	i 23 14	+ 9	—	—	43·6
Sitka		87·7	332	e 12 52	0	i 23 34	+ 1	e 29 42	SS	e 45·2
Honolulu		88·9	292	—	—	e 23 30	−14	—	—	e 41·4
Oxford		92·0	36	—	—	e 23 55	−17	—	—	e 46·7
Stonyhurst		92·1	34	e 22 17	?	—	—	—	—	—
Kew		92·4	37	e 8 17	?	—	—	e 25 37	PS	e 39·7
Clermont-Ferrand		92·6	43	e 13 36	+21	—	—	—	—	e 45·7
Scoresby Sund		92·8	15	e 13 18	+ 2	e 24 20	+ 1	e 25 36	PS	e 43·7
Aberdeen	E.	93·6	31	—	—	e 24 12?	−14	—	—	—
Uccle		95·0	38	e 13 25	− 1	i 24 48	{+30}	e 26 2	PS	e 43·2
De Bilt		95·9	37	e 13 31	+ 1	e 24 22	{− 2}	—	—	e 47·2

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Stuttgart		97·4	41	e 13 38	+ 1	—	—	—	—	—
Cheb		99·8	40	e 24 59	SKKS	(e 24 59)	{+ 6}	—	—	e 54·2
Triest		99·8	45	e 17 21	?	e 24 33	[+ 7]	i 26 51	PS	e 51·2
Copenhagen		100·9	34	24 42	SKS	(24 42)	[+11]	—	—	—
Upsala		104·2	31	—	?	e 36 12?	SSS	—	—	—
Helwan	N.	111·4	64	—	—	e 27 12	{+57}	—	—	—
Tananarive		114·1	118	—	?	e 40 34	SSS	—	—	63·0
Bombay	E.	149·0	78	e 23 25	PP	—	—	—	—	—
Colombo	E.	154·0	106	i 22 12?	?	—	—	—	—	—
Calcutta	N.	162·6	62	e 35 58	?	—	—	—	—	—

Additional readings :—
La Plata SN =10m.0s., SZ =10m.12s.
San Juan e =7m.19s.
Bermuda e =18m.37s.
Philadelphia eSS =21m.3s., esSS =21m.17s.
St. Louis iZ =9m.44s., eN =18m.29s., eE =19m.34s.
Pittsburgh i =11m.47s.
Tucson epPP =12m.27s., ePPP =13m.27s., eSS =21m.32s.
Palomar iZ =10m.36s.
Salt Lake City eSS =23m.54s.
Santa Clara ePSEZ =21m.17s.
Bozeman e =13m.45s.
Lisbon PZ =12m.22s., PN =12m.26s.
Sitka e =23m.39s. and 34m.2s.
Scoresby Sund e =28m.29s., eSS =30m.44s.
Uccle eE =17m.54s., eSKSE =23m.48s.
De Bilt eN =24m.57s.
Copenhagen 25m.34s.
Tananarive e =53m.25s. and 57m.1s.
Long waves were also recorded at Potsdam, College, and Wellington.

August 25d. 20h. 51m. 16s. Epicentre 15°·1S. 75°·0W. (as at 20h. 15m.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m.	s.	m.
Huancayo		3·1	354	e 0 57	+ 6	—	—	—	—	—
La Paz	Z.	6·7	103	1 54	+12	i 3 12	+12	i 2 2	PP	3·7
Balboa Heights		24·3	351	e 5 24	+ 4	—	—	—	—	—
La Plata	N.	25·0	145	5 27	0	—	—	—	—	12·9
Fort de France		32·6	27	e 6 33	− 2	e 13 1	SS	—	—	—
St. Louis	Z.	55·3	346	e 9 34	− 4	i 9 46	?	i 9 41	?	—
Tucson		58·3	325	e 9 56	− 3	e 18 3	+ 2	e 12 0	PP	e 29·3
Lincoln		59·2	343	e 14 58	PPP	—	—	—	—	e 26·2
Ottawa		60·2	0	10 11	− 1	18 26	+ 1	—	—	27·7
La Jolla	Z.	62·5	321	e 10 29	+ 1	—	—	—	—	—
Palomar	Z.	62·6	322	i 10 27	− 1	—	—	e 39 40	P'P'	—
Riverside	Z.	63·3	321	e 10 31	− 2	—	—	—	—	—
Mount Wilson	Z.	63·9	321	e 10 35	− 2	—	—	e 39 33	P'P'	—
Pasadena	Z.	63·9	321	i 10 35	− 2	i 10 44	?	e 39 35	P'P'	—
Santa Barbara	Z.	65·1	320	e 10 51	+ 6	—	—	—	—	—
Haiwee	Z.	65·2	323	e 10 48	+ 3	—	—	—	—	—
Salt Lake City		65·3	330	e 10 47	+ 1	e 19 16	−13	—	—	e 31·0
Tinemaha	Z.	66·0	323	e 10 48	− 2	—	—	—	—	—
Bozeman		68·7	334	e 11 37	+30	e 20 5	− 5	—	—	e 30·2
Butte		69·6	333	e 11 23	+10	e 20 19	− 2	—	—	e 26·4
Granada		84·8	50	i 12 39	+ 2	i 23 14	+ 9	29 0	SS	36·7
Clermont-Ferrand		92·6	43	e 13 16	+ 1	—	—	—	—	—
Stuttgart		97·4	41	e 14 38	+61	—	—	—	—	—
Triest		99·8	45	—	—	e 24 44	[+18]	—	—	52·7

Long waves were also recorded at Rio de Janeiro, Tananarive, Kodaikanal, and other European stations.

August 25d. Further repetitions from the epicentre 15°·1S. 75°·0W. of 24d. 22h. were recorded at the undermentioned times.

	h.	m.	s.		h.	m.	s.		h.	m.	s.		h.	m.	s.
I	0	36	20	V	2	30	50	IX	7	32	21	XIII	10	34	42
II	0	49	31	VI	3	2	53	X	7	40	18	XIV	15	27	56
III	1	44	57	VII	3	50	4	XI	8	45	34	XV	15	55	25
IV	2	2	47	VIII	5	31	45	XII	9	30	27				

All recorded at Huancayo and La Paz ; I to VI, IX, X, XI, and XV at stations in California and Tucson ; III, IV, V, and VI at La Plata ; X at Rio de Janeiro ; II and VI at Chicago ; VI at Butte and Granada ; III, IV, V, VI, and XI at Stuttgart.

August 25d. Readings also at 0h. (La Paz and near Stalinabad), 1h. (Granada and La Paz (4)), 2h. (La Paz), 3h. (La Paz and Potsdam), 4h. (Oaxaca, Tacubaya, Vera Cruz, Huancayo, La Paz (3), Tucson, Palomar, and Riverside), 5h. (Huancayo, La Paz (2), Mount Wilson, Palomar, Riverside, Tinemaha, and Tucson), 7h. (La Paz (2)), 8h. (Kew, La Plata, and La Paz), 9h. (Huancayo (2) and La Paz), 10h. (near Lick), 11h. (Tacubaya and La Paz (2)), 12h. (Triest), 14h. (La Paz), 16h. (La Paz (3)), 18h. (Ksara), 20h. (Bombay), 21h. (Stuttgart, Palomar, Tucson, La Paz, Riverview, near St. Louis, and near Mizusawa), 22h. (Kodaikanal), 23h. (College, Mount Wilson (2), Pasadena (2), Palomar (2), Tucson (2), and Riverside).

August 26d. 12h. 8m. 30s. Epicentre 15°·1S. 75°·0W. (as on 25d.).

$A = +\cdot2500$, $B = -\cdot9330$, $C = -\cdot2589$; $\delta = +2$; $h = +5$;
$D = -\cdot966$, $E = -\cdot259$; $G = -\cdot067$, $H = +\cdot250$, $K = -\cdot966$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		3·1	354	i 1 1	+10	—	—	—	—	—
La Paz		6·7	103	i 1 42a	0	i 3 0	0	—	—	3·5
Balboa Heights		24·3	351	e 5 30?	+10	—	—	—	—	—
La Plata		25·0	145	5 21	− 6	9 42	− 7	—	—	13·0
Rio de Janeiro	E.	31·0	109	e 6 25	+ 4	e 11 30	+ 4	—	—	e 17·3
Fort de France		32·6	27	e 6 32	− 3	—	—	—	—	—
Philadelphia		54·8	0	i 9 38	+ 4	i 17 20	+ 6	e 19 0	ScS	e 23·5
St. Louis		55·3	346	i 9 37	− 1	e 17 27	+ 6	17 49	PPS	—
Pittsburgh		55·4	356	i 10 38	+60	e 17 18	− 4	e 17 44	PPS	—
Florissant		55·5	346	i 9 39	0	i 17 22	− 2	i 10 15	pP	—
Harvard		57·4	5	i 9 52	− 1	e 17 48	− 1	i 10 2	pP	e 31·5
Chicago		57·8	348	e 9 50	− 5	e 17 46	− 8	e 18 6	PS	e 26·6
Tucson		58·3	325	i 9 59	0	e 18 16	+15	e 12 3	PP	e 27·9
Ottawa		60·2	0	10 11	− 1	18 28	+ 3	13 54	PPP	28·5
Seven Falls		62·0	4	—	—	e 18 55	+ 7	—	—	28·5
La Jolla	z.	62·5	321	e 10 28	0	—	—	—	—	—
Palomar	z.	62·6	322	i 10 30	+ 2	—	—	e 39 35	P′P′	—
Riverside	z.	63·3	321	i 10 34a	+ 1	—	—	—	—	—
Mount Wilson	z.	63·9	321	i 10 37	0	—	—	e 39 27	P′P′	—
Pasadena		63·9	321	i 10 37a	0	i 19 36	+24	i 39 31	P′P′	e 32·1
Santa Barbara	z.	65·1	320	e 10 54	+ 9	—	—	—	—	—
Haiwee	z.	65·2	323	e 10 48	+ 3	—	—	—	—	—
Salt Lake City		65·3	330	e 10 55	+ 9	e 19 28	− 1	e 20 46	PPS	e 32·9
Tinemaha	z.	66·0	323	i 10 51	+ 1	—	—	e 39 22	P′P′	—
Bozeman		68·7	334	e 11 4	− 3	e 20 17	+ 7	, —	—	e 34·7
Butte		69·6	333	e 11 13	0	e 20 20	− 1	—	—	e 40·3
Victoria		76·5	330	12 0	+ 6	21 45	+ 6	—	—	37·5
Lisbon	z.	81·5	46	12 20k	− 1	—	—	—	—	43·4
San Fernando		82·6	50	e 12 24	− 2	e 22 53	+10	—	—	44·5
Granada		84·8	50	i 12 42	+ 5	i 23 12	+ 7	—	—	e 46·8

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sitka		87·7	332	e 12 52	0	e 23 26	− 7	e 23 46	PS	—
Kew		92·4	37	e 13 10?	− 4	e 25 2	PS	—	—	e 39·2
Clermont-Ferrand		92·6	43	e 13 12	− 3	—	—	—	—	e 46·5
Scoresby Sund		92·8	15	e 13 12	− 4	e 24 26	+ 7	e 16 37	PP	e 38·1
Uccle		95·0	38	e 13 25	− 1	e 23 59	[− 2]	e 26 2	PS	46·5
De Bilt		95·9	37	e 13 30	0	—	—	e 17 15	PP	e 46·5
Stuttgart		97·4	41	i 13 35	− 2	—	—	—	—	—
Potsdam		100·6	38	e 13 50	− 1	i 24 50	[+20]	e 17 57	PP	e 42·5
Copenhagen		100·9	34	e 13 52	0	24 32	[0]	18 0	PP	—
Helwan	z.	111·4	64	e 18 48	[+12]	—	—	—	—	—
Ksara		115·5	60	e 19 40	PP	e 29 38	PS	—	—	—

Additional readings :—
St. Louis iZ =9m.47s. and 10m.1s.
Pittsburgh iZ =10m.50s., e =18m.2s.
Harvard esS =18m.5s.
Chicago e =19m.36s.
Tucson e =13m.21s.
Ottawa iZ =10m.22s., SSS =25m.30s.
Palomar iZ =10m.40s.
Mount Wilson iZ =10m.48s.
Pasadena iZ =10m.47s.
Tinemaha iZ =11m.6s.
Lisbon PZ =12m.36s., PN =12m.54s.
Uccle eEZ =24m.17s.
Stuttgart i =13m.46s.
Potsdam iPSE =27m.17s., ePSZ =27m.25s.
Copenhagen 24m.52s., 27m.53s.
Long waves were also recorded at Stonyhurst and Cheb.

August 26d. 14h. 18m. 13s. Epicentre 15°·1S. 75°·0W. (as at 12h.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m.	s.	m.
Huancayo		3·1	354	i 0 1	−50	i 1 40	+11	—	—	—
La Paz		6·7	103	i 1 42	0	i 2 59	− 1	—	—	3·5
La Plata		25·0	145	5 23	− 4	9 29	−20	—	—	13·6
Rio de Janeiro	E.	31·0	109	e 11 7	S	(e 11 7)	−19	—	—	e 17·4
San Juan		34·4	15	—	—	e 12 31	+12	—	—	e 18·0
Philadelphia		54·8	0	—	—	e 16 54	−20	—	—	e 24·2
St. Louis		55·3	346	e 10 38	+60	e 17 23	+ 2	e 18 24	PPS	—
Ottawa		60·2	0	10 14	+ 2	18 35	+10	—	—	28·8
Palomar	Z.	62·6	322	e 10 28	0	—	—	—	—	—
Riverside	Z.	63·3	321	e 10 34	+ 1	—	—	—	—	—
Mount Wilson	Z.	63·9	321	e 10 38	+ 1	—	—	—	—	—
Pasadena	Z.	63·9	321	e 10 38	+ 1	—	—	—	—	e 36·5
Tinemaha	Z.	66·0	323	e 10 50	0	—	—	—	—	—
Bozeman		68·7	334	e 18 2	?	e 20 20	+10	—	—	e 37·1
Victoria		76·5	330	—	—	e 21 59	+20	—	—	42·8

St. Louis also gives iZ =10m.44s.
Long waves were also recorded at De Bilt, Uccle, Scoresby Sund, and Potsdam.

August 26d. Readings also at 0h. (Huancayo and La Paz), 1h. (Tucson and Palomar), 2h. (Mount Wilson, Riverside, Palomar, Tucson, and Tinemaha), 3h. (Huancayo and La Paz), 4h. (Mount Wilson, Riverside, Palomar (2), Tucson (2), Granada, Kew, La Paz (2), and Huancayo), 5h. (Palomar, Tucson, Huancayo, and La Paz), 6h. and 7h. (La Paz), 13h. (La Paz and Huancayo), 14h. (Tucson, La Paz, and Huancayo), 15h. (Mount Wilson, Palomar, and Tucson), 16h. (Pasadena, Mount Wilson, Riverside, Palomar, Tucson, San Juan, Mizusawa, La Paz, and Huancayo), 17h. (Potsdam, Shawinigan Falls, Seven Falls, and near Ottawa), 18h. (La Paz), 20h. (La Paz), 21h. (near St. Louis), 22h. (Pasadena, Mount Wilson, Riverside, Palomar, Tinemaha, Tucson, Stuttgart, and near Mizusawa (2)).

August 27d. 6h. 14m. 11s. Epicentre 41°·6N. 20°·5E.

Intensity X at Pespkopeja (Drin Nero valley), IX at Vojnik, Alaiberg, Herbeli, and Erebara.
Epicentre 41° 35′N. 20° 31′E., near Magellara, great damage.

Magnani (Mario).
Tettonica e Sismicita 'nella Regione Albanese, Geofisica Pura e Appilicata Vol. VIII, Fasc. 1-2, pp. 1-42, appendice 1, p. 30, 3 fig.

C. Morelli. Carta Sismica dell 'Albania, Comm. Italiana di studio per i problemi del soccorse alle popolagioni, Vol. X, Florence, 1942, p. 88.

$A = +\cdot7025$, $B = +\cdot2627$, $C = +\cdot6614$; $\delta = -3$; $h = -3$;
$D = +\cdot350$, $E = -\cdot937$; $G = +\cdot620$, $H = +\cdot232$, $K = -\cdot750$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sofia		2·4	62	i 0 43a	+ 2	1 17	+ 5	1 24	S_g	—
Belgrade		3·3	359	i 0 51a	− 2	1 42	S*	i 1 0	P*	—
Bucharest		5·0	54	e 1 19	+ 1	2 20	+ 2	1 41	P_g	2·6
Triest		6·4	312	i 1 38	0	e 2 57	+ 4	—	—	3·7
Istanbul		6·4	92	2 10	P_g	—	—	—	—	3·4
Chur		9·5	307	e 2 21	+ 1	e 4 10	0	i 4 26	S*	i 5·0
Prague		9·5	336	i 2 23a	+ 3	e 4 9	− 1	——	—	e 5·3
Ravensburg		9·9	312	e 2 28	+ 3	e 4 24	+ 4	e 3 11	PPP	4·8
Cheb		10·2	329	e 2 34	+ 3	e 4 25	− 2	—	—	e 5·6
Zurich		10·3	308	e 2 30k	− 2	e 4 33	+ 3	—	—	—
Ebingen		10·5	313	e 2 33	− 2	e 4 4	−31	e 2 37	PP	e 5·2
Hof		10·5	329	i 2 37	+ 2	e 5 6	SS	—	—	5·7
Stuttgart		10·7	316	e 2 36	− 2	e 4 33	− 6	e 4 58	SS	i 5·4
Basle		11·0	307	e 2 39	− 3	e 4 58	+11	—	—	—
Neuchatel		11·1	304	e 2 41	− 2	e 4 40	− 9	—	—	—
Jena		11·2	329	i 2 45	+ 1	e 5 1	+ 9	e 5 25	SS	e 5·8
Marseilles		11·3	284	e 2 57	+11	e 4 58	+ 4	e 3 7	PP	6·0
Strasbourg		11·4	312	2 44?	− 3	i 5 16	+20	i 3 15	PP	i 5·7
Besançon		11·8	304	e 2 51	− 2	i 5 0	− 6	—	—	—
Potsdam		11·9	337	i 2 56a	+ 2	i 5 2	− 7	5 20	SS	i 5·8
Clermont-Ferrand		13·3	298	i 3 9	− 4	i 6 6	SS	—	—	i 7·6
Algiers		14·4	255	i 3 29	+ 2	i 6 19	+10	i 3 33	PP	i 8·2
Ksara		14·4	117	e 3 30	+ 3	e 6 47	SSS	—	—	—
Uccle		14·5	315	i 3 27k	− 1	e 6 18	+ 7	—	—	7·3
Paris		14·6	306	i 3 31	+ 1	i 6 32	+19	—	—	8·4
Helwan	Z.	14·7	140	e 3 22	− 9	e 6 4	−12	4 26	PPP	—
De Bilt		14·8	320	i 3 33k	+ 1	—	—	—	—	e 7·3
Copenhagen		15·1	342	i 3 35	− 1	6 26	+ 1	—	—	7·8
Kew		17·3	312	i 3 45	−19	i 7 9	− 7	i 3 51	PP	—
Oxford		18·0	311	i 4 14	+ 1	i 7 35	+ 3	i 8 55	SSS	i 9·6
Upsala	E.	18·4	355	4 19	+ 1	e 7 41	0	—	—	e 9·8
	N.	18·4	355	4 16	− 2	7 46	+ 5	—	—	e 9·8
Granada		19·1	265	i 4 27	0	i 8 7	+10	8 39	SSS	9·9
Stonyhurst		19·6	317	i 4 28	− 4	e 8 12	+ 4	i 8 33	SS	1 10·8
Aberdeen		21·3	325	i 4 51	+ 1	i 8 45	+ 2	—	—	i 12·6
San Fernando		21·3	265	e 4 49	− 1	e 8 38	− 5	—	—	9·8
Lisbon		22·8	273	e 5 8	+ 3	9 18	+ 7	5 29	PP	12·6
Sverdlovsk		29·8	46	i 6 12	+ 1	i 11 7	0	—	—	—
Scoresby Sund		36·0	338	e 8 9	PP	e 12 51	+ 7	e 8 27	PPP	e 15·6
Andijan		38·6	74	e 7 38	+12	—	—	—	—	—
Almata		41·0	68	e 8 9	+23	—	—	—	—	—
Semipalatinsk		41·4	57	e 8 17	+27	—	—	—	—	—
Ivigtut		44·7	321	—	—	e 15 39	+45	—	—	e 24·5
Bombay	E.	49·7	101	—	—	i 16 4	0	e 19 56	SS	—
Seven Falls		61·9	309	10 28	+ 4	19 1	+14	12 46	PP	28·8
Harvard		64·8	305	i 10 44	+ 1	e 19 27	+ 4	—	—	e 35·8
Ottawa		65·7	310	10 48	0	19 37	+ 3	—	—	29·8
Philadelphia		68·5	305	—	—	e 20 17	+ 9	—	—	e 30·6
Pittsburgh		71·1	308	i 11 23	+ 1	e 20 44	+ 6	—	—	—
Chicago		74·6	314	—	—	e 21 22	+ 4	—	—	33·5

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Juan		75·6	282	—	—	e 21 33	+ 4	—	—	e 36·9
St. Louis		78·3	312	i 12 3	0	e 22 0	+ 1	—	—	33·7
Sitka		79·1	347	e 18 13	?	e 22 18	+11	—	—	e 41·4
Bozeman		82·9	328	e 12 31	+ 3	e 22 44	− 2	—	—	e 42·5
Victoria		84·8	337	—	—	e 23 7	+ 2	—	—	46·8
Salt Lake City		87·3	326	—	—	e 23 18	[+ 2]	—	—	e 46·1
Tinemaha	z.	93·1	328	e 13 19	+ 2	—	—	—	—	—
Tucson		93·9	321	e 13 22	+ 1	e 25 52	PS	e 17 9	PP	e 47·9
Mount Wilson	z.	95·5	327	e 13 32	+ 4	—	—	—	—	—

Additional readings :—
Sofia iEN=1m.1s.
Belgrade iP =54s., iP_g =1m.6s., i =1m.12s., iPPS =1m.29s.
Ebingen e =3m.56s.
Stuttgart e =5m.4s.
Jena eSN =5m.5s., eSZ =5m.9s.
Potsdam iSE =5m.7s., iSSZ =5m.24s.
Algiers iPPP =3m.40s., i =5m.44s.
Helwan iZ =4m.58s.
Kew eSS =7m.25s., eSSS =7m.39s.?.
Lisbon PP?E =5m.38s.
Long waves were also recorded at Tananarive, College, and Pasadena.

August 27d. Readings also at 0h. (La Paz), 1h. (near Huancayo (2) and La Paz (3)), 4h. (La Paz), 5h. (La Paz, near Mizusawa, near Bucharest, Sofia, Focsani, Cernauti, and near Huancayo), 6h. and 8h. (La Paz), 11h. (near Balboa Heights, near Stuttgart, Neuchatel, Zurich, Basle and Chur), 12h. (Tucson, Tinemaha, Mount Wilson, Riverside, Palomar, La Paz (3), and near Huancayo), 16h. (Balboa Heights, La Paz (2), and near Branner), 17h. (La Paz), 19h. (La Paz and Florissant), 21h. (La Paz and near Andijan).

August 28d. Readings at 0h. and 1h. (La Paz), 5h. (near Lick), 6h. (Pasadena, Mount Wilson, Riverside, Palomar, Tucson, Clermont-Ferrand, and near Branner), 7h. (Tucson), 8h. (La Paz (2)), 11h. (near Basle, Zurich, Chur, Neuchatel, and Stuttgart), 12h. (La Paz), 13h. (Ksara), 16h. (Copenhagen, La Paz, near Stuttgart (3), and Ebingen (3), and near Stalinabad), 17h. (near Branner), 19h. (Helwan), 23h. (near Sofia).

August 29d. 0h. 57m. 36s. Epicentre 53°·6N. 159°·5E. Depth of focus 0·005 (as on 1937 July 15d.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		28·3	46	—	—	e 10 31	+ 1	—	—	e 13·0
Sverdlovsk		51·7	317	i 9 0	− 3	e 16 49	PS	—	—	—
Tinemaha		56·9	71	i 9 44k	+ 3	e 17 28	0	e 39 15	P′P′	—
Salt Lake City		57·8	64	e 9 47	0	e 17 43	+ 4	—	—	—
Mount Wilson	z.	59·0	73	i 9 58k	+ 3	—	—	—	—	—
Pasadena	z.	59·0	73	i 9 58	+ 3	—	—	—	—	—
Riverside		59·6	73	e 9 59	0	—	—	—	—	—
Palomar	z.	60·3	73	i 10 6k	+ 2	—	—	i 39 29	P′P′	—
Tucson		64·6	69	e 10 35	+ 2	—	—	—	—	—
Copenhagen		67·8	341	i 10 52	− 1	—	—	20 35	PPS	—
St. Louis		70·3	51	i 11 8	− 1	e 20 13	− 1	e 11 39	pP	—
Potsdam		70·7	340	i 11 10k	− 1	e 20 19	0	e 20 56	PS	—
Jena	z.	72·4	339	i 11 18	− 3	—	—	—	—	—
De Bilt	z.	72·5	344	i 11 22k	0	—	—	—	—	—
Pittsburgh	z.	73·3	44	i 11 25	0	—	—	i 21 26	PS	—
Kew	z.	73·9	347	i 11 30	0	—	—	(e 16 24?)	PPP	e 16·4
Uccle		73·9	345	i 11 29k	− 1	—	—	e 21 46	PS	e 36·4
Stuttgart		74·9	340	i 11 35k	− 1	—	—	—	—	—
Basle		76·4	341	e 11 45	+ 1	—	—	—	—	—
Zurich		76·4	340	i 11 44k	0	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Chur		76·7	340	e 11 46	0	—	—	—	—	—
Clermont-Ferrand		79·0	344	i 12 58	?	—	—	—	—	—
Ksara		80·2	314	e 12 4	− 1	—	—	e 15 35	PP	—
Helwan	Z.	85·5	317	i 12 30 a	− 2	—	—	i 15 49	PP	—
Granada		88·4	347	e 14 26	?	i 24 18	?	16 51	PP	41·0

Additional readings :—
Tinemaha i =10m.10s., iZ =11m.7s.
Mount Wilson iZ =10m.23s.
Pasadena iZ =10m.24s.
Riverside eZ =10m.27s.
Palomar iZ =10m.33s. and 11m.10s.
Tucson e =11m.49s.
St. Louis esSN =21m.11s.
Potsdam eN =11m.43s., eZ =11m.48s. and 16m.13s., eE =16m.18s. and 21m.0s., eNZ =21m.11s., eE =21m.15s.
Jena iPN =11m.21s., iN =11m.30s.
Kew eZ =12m.12s.
Helwan iZ =16m.36s.
Granada SKS =23m.37s.

August 29d. 1h. Probably near Kermadec Islands. Deep.

Apia iP =42m.14s., iS =44m.42s.
Auckland P =42m.20s., S =44m.40s.
Tuai P =42m.28s., S =44m.56s., S_cS? =53m.40s.
New Plymouth P =42m.45s., S =45m.26s.
Wellington P =42m.57s., S =45m.45s., S_cS =53m.28s.
Christchurch P =43m.21s., S =46m.29s.
Riverview iZ =44m.15s.a, and 46m.49s., iN =48m.7s., iEZ =54m.5s.
Arapuni S? =45m.
La Jolla iPZ =50m.53s.k.
Santa Barbara iPZ =50m.53s.
Pasadena iP =50m.53s.k, eZ =51m.59s., epPZ =52m.58s., eSEN =60m.34s., eZ =61m.30s.
Mount Wilson iP =50m.53s.k, ipPZ =52m.55s., eP′P′Z =79m.46s.
Riverside iPZ =50m.55s.k, epPZ =52m.57s., eP′P′Z =79m.45s.
Palomar iPZ =50m.56s.k, iPKP,PKPZ =79m.51s.
Tinemaha iPNZ =51m.2s.k, eSZ =60m.37s., eP′P′Z =79m.43s.
Tucson iP =51m.14s., ePP =53m.18s., esP =54m.5s., e =55m.48s., eS =61m.13s., eSP =62m.18s.
Salt Lake City eP =51m.29s., eSKS =61m.0s., eS =61m.46s., eL =68m.4s.
Ukiah ePPS =56m.21s., e =60m.28s.
Sverdlovsk iP =57m.22s., S =63m.36s.
De Bilt eZ =58m.
Copenhagen eP =58m.2s., i =58m.5s. and 60m.9s.
Potsdam iZ =58m.6s. and 60m.16s.
Jena eZ =58m.8s., i =58m.15s., iE =58m.18s.
Helwan eZ =58m.8s., iZ =58m.15s. and 60m.18s.
Kew eZ =58m.8s., eLZ =64m.
Uccle ePKP =58m.11s., eL =92m.
Stuttgart iPKP =58m.12s., i =58m.21s., e =58m.33s., i =60m.5s.
Ksara e =58m.12s. and 60m.18s.
Zurich eP =58m.13s.
Basle eP =58m.14s.
Chur eP =58m.15s.
Bozeman eS =62m.21s., ePS =64m.39s., e =65m.53s., eL =84m.34s.
St. Louis eN =63m.51s.

August 29d. 12h. 23m. 51s. Epicentre 13°·9N. 90°·8W. (as on 22d.).

A = −·0136, B = −·9710, C = +·2387 ; δ = 0 ; h = +6 ;
D = −1·000, E = +·014 ; G = −·003, H = −·239, K = −·971.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Merida	Z.	7·1	9	2 4	PPP	—	—	—	—	—
Puebla	E.	8·7	306	i 3 57	S	(i 3 57)	+ 7	—	—	—
Tacubaya	N.	9·7	305	2 23	+ 1	—	—	—	—	—
Balboa Heights		12·1	113	e 2 56	− 1	—	—	—	—	—
Columbia		21·9	22	e 4 58	+ 1	e 8 59	+ 5	—	—	e 11·7

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
St. Louis		24·6	0	e 5 23	0	e 9 41	− 1	e 5 57	PP	—
Florissant		24·8	0	i 6 10	PP	i 12 6	?	i 11 1	SSS	—
Tucson		25·9	319	i 5 34	− 1	e 10 16	+12	i 6 8	PP	e 12·8
Chicago		27·9	4	e 5 54	0	e 10 45	+ 8	e 6 45	PP	e 13·9
Pittsburgh		28·1	17	i 5 56	+ 1	i 11 8	+28	i 6 34	pP	—
Philadelphia		29·4	25	i 6 9	+ 2	e 11 0	− 1	i 6 53	PP	15·0
Huancayo		30·0	149	e 6 7	− 5	e 11 12	+ 2	e 6 45	PP	e 13·5
Bermuda		30·1	48	e 6 16	+ 3	—	—	i 7 9	PP	14·8
La Jolla	z.	30·6	313	e 6 18	0	—	—	—	—	—
Palomar	z.	30·6	315	i 6 17 a	− 1	—	—	i 12 59	SS	—
Riverside	z.	31·3	315	e 6 23	− 1	—	—	i 9 19	P_cP	—
Mount Wilson		31·9	315	6 30	+ 1	i 13 5	SS	i 9 20	P_cP	—
Pasadena		31·9	315	i 6 29	0	e 11 42	+ 2	i 9 20	P_cP	e 14·9
Salt Lake City		32·5	329	e 6 34	0	e 12 20	?	—	—	e 18·8
Tinemaha	z.	33·7	318	i 6 46	+ 1	—	—	i 9 26	P_cP	—
Ottawa		33·9	18	6 48	+ 1	12 11	0	—	—	19·2
Shawinigan Falls		35·9	21	7 5	+ 1	12 45	+ 3	—	—	—
Bozeman		36·0	337	e 7 7	+ 2	—	—	—	—	e 16·5
Santa Clara		36·2	316	e 7 9	+ 3	e 13 16	+29	—	—	e 19·0
La Paz		37·6	142	e 7 20	+ 2	—	—	—	—	18·7
Ukiah		38·0	318	e 7 21	0	e 13 16	+ 2	e 8 51	PP	e 20·0
Victoria		43·8	329	e 8 9	0	e 14 39	− 1	—	—	26·1
Scoresby Sund		70·0	19	e 27 20	?	—	—	—	—	e 32·7
Kew		79·6	39	e 12 9?	− 1	—	—	—	—	e 36·1
Stuttgart		86·1	40	e 12 42	− 2	—	—	—	—	—

Additional readings :—
St. Louis eZ =5m.43s., eN =8m.48s., eE =10m.3s., 10m.28s., 11m.13s., and 12m.8s.
Pittsburgh e =10m.14s., 10m.54s., and 11m.27s.
Bermuda e =10m.38s.
Long waves were also recorded at Potsdam, De Bilt, Sitka, and College.

August 29d. 21h. 40m. 15s. Epicentre 13°·9N. 90°·8W. (as at 12h.).
Pasadena suggests deep.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Oaxaca		6·5	299	e 1 45	+ 6	—	—	—	—	—
Merida	z.	7·1	9	e 2 24	P_g	—	—	—	—	—
Vera Cruz	n.	7·3	316	i 2 8	P^*	—	—	—	—	—
Tacubaya	z.	9·7	305	e 2 28	+ 6	—	—	—	—	—
Columbia		21·9	22	e 4 59	+ 2	e 9 1	+ 7	—	—	e 11·6
St. Louis		24·6	0	i 5 24	+ 1	e 9 39	− 3	i 5 40	PP	—
Florissant		24·8	0	e 5 27	+ 2	e 9 41	− 5	i 11 42	SSS	e 13·0
Tucson		25·9	319	i 5 34	− 1	e 10 3	− 1	e 6 12	PP	e 13·3
Chicago		27·9	4	e 5 53	− 1	e 10 31	− 6	e 6 25	PP	e 13·3
Pittsburgh		28·1	17	—	—	i 11 10	+30	—	—	—
Philadelphia		29·4	25	e 6 23	+16	e 11• 5	+ 4	—	—	13·8
Huancayo		30·0	149	e 6 16	+ 4	e 11 21	+11	—	—	e 13·7
La Jolla	z.	30·6	313	e 6 18	0	—	—	—	—	—
Palomar	z.	30·6	315	i 6 23 a	+ 5	—	—	i 7 57	PPP	—
Riverside	z.	31·3	315	e 6 24	0	—	—	e 13 32	SSS	—
Mount Wilson	z.	31·9	315	i 6 30	+ 1	—	—	i 13 33	SS	—
Pasadena		31·9	315	e 6 29	0	e 11 39	− 1	—	—	e 15·0
Salt Lake City		32·5	329	e 6 56	+22	e 12 9	+20	—	—	e 17·0
Tinemaha	z.	33·7	318	e 6 45	0	—	—	—	—	—
Ottawa		33·9	18	6 47	0	12 9	− 2	e 14 45	SSS	17·8
Bozeman		36·0	337	e 6 57	− 8	e 13 6	+22	—	—	e 16·0
Santa Clara		36·2	316	e 7 9	+ 3	e 12 14	?	—	—	e 19·9
Sitka		55·0	332	—	—	e 17 38	+21	—	—	e 28·0
Scoresby Sund		70·0	19	e 18 20	?	e 20 47	+21	—	—	e 29·0
Uccle	e.	82·6	40	—	—	e 22 33	−10	—	—	e 38·8

For Notes see next page.

NOTES TO AUGUST 29d. 21h. 40m. 15s.

Additional readings :—
St. Louis eN =10m.1s.
Florissant iN =10m.6s.
Tucson i =5m.50s.
Philadelphia e =10m.31s.
La Jolla eZ =6m.33s. and 8m.50s.
Palomar iZ =6m.34s. 6m.47s., and 13m.29s.
Riverside iZ =6m.39s., 9m.19s., and 9m.36s.
Mount Wilson iZ =6m.45s. and 9m.37s.
Pasadena eEZ =6m.45s., eZ =9m.20s. and 9m.36s.
Tinemaha iZ =7m.3s. and 9m.44s., eZ =13m.40s.
Long waves were also recorded at San Juan, Ukiah, College, Kew, Granada, San Fernando, Potsdam, and De Bilt.

August 29d. Readings also at 1h. (La Paz and Ukiah), 2h. (Bozeman, Granada, Stonyhurst, and La Paz), 4h. (near Fresno), 7h. (La Paz), 9h. (Branner), 12h. (Copenhagen and La Paz), 14h. (Paris and La Paz), 15h. (Copenhagen), 17h. (near Mizusawa), 18h. (near Apia and near Ferndale), 19h. (near St. Louis), 21h. (La Paz), 22h. (near Branner).

August 30d. Readings at 1h. (near Mizusawa), 3h. and 4h. (La Paz), 5h. (near Tananarive), 8h. (near Ferndale), 9h. (Paris and near La Paz), 15h. (La Paz), 18h. (near Andijan), 21h. (near Branner), 22h. (La Paz).

August 31d. 3h. Local Japanese shock.
Komaba P =53m.35s., S =53m.45s.
Mitaka P =53m.35s., S =53m.45s.
Togane P =53m.35s., S =53m.45s.
Tokyo I.U. P =53m.35s., S =53m.45s.
Titibu P =53m.35s., S =53m.48s.
Koyama P =53m.35s., S =53m.51s.
Mizusawa ePE =54m.20s., eSN =55m.4s.

August 31d. Readings also at 2h. (Riverside, Tinemaha, Palomar, Mount Wilson, and Tucson), 3h. (Pasadena, Mount Wilson, Riverside, Tinemaha, Santa Barbara, La Jolla, Palomar, Tucson, and Huancayo), 4h. (La Paz), 5h. (near Branner and Lick), 6h. (Pasadena, Mount Wilson, Riverside, Tinemaha, La Jolla, Palomar, Santa Barbara, Tucson, Huancayo, La Paz, San Juan, Fort de France, and Stuttgart), 7h. (Pasadena, Mount Wilson, Riverside, Tinemaha, La Jolla, Palomar, Tucson, Sverdlovsk, Potsdam, De Bilt, and Kew), 9h. (Pasadena, Mount Wilson (2), Riverside (2), Tinemaha (2), Palomar (2), Tucson (2), La Paz (2), and Huancayo), 10h. (Pasadena, Mount Wilson, Riverside, Tinemaha, Santa Barbara, La Jolla, Palomar, La Paz, Huancayo, Tucson, Irkutsk, Andijan, Sverdlovsk, Mizusawa, near St. Louis, and Florissant), 13h. (Huancayo and La Paz), 14h. (Mount Wilson, Tinemaha, Palomar, Riverside, Tucson, near Andijan, and Tashkent), 16h. (Paris), 20h. (Riverview, Riverside, Palomar, Tinemaha, Tucson, and near Branner), 21h. (Kew, Granada, La Paz, near Huancayo, and near St. Louis), 23h. (La Paz).

Sept. 1d. 9h. 42m. 15s. Epicentre 36°·4N. 27°·4E. (as on 1942, June 21d.).

$A = +\cdot7163$, $B = +\cdot3713$, $C = +\cdot5908$; $\delta = -1$; $h = 0$;
$D = +\cdot460$, $E = -\cdot888$; $G = +\cdot525$, $H = +\cdot272$, $K = -\cdot807$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Istanbul		4·8	15	1 43	P_g	—	—	2 47	S_g	—
Sofia		7·0	355	i 1 59	P*	i 3 28	S*	—	—	—
Helwan		7·3	152	i 1 32k	−18	i 2 44	P_g	2 3	P*	—
Ksara		7·4	108	e 1 49	− 3	3 16	− 2	—	—	—
Bucharest		8·1	353	e 2 16	PP	e 4 14	S*	—	—	—
Focsani		9·3	358	e 2 38	+21	e 4 42	S*	—	—	5·3
Belgrade		9·9	330	2 33	+ 8	i 4 36	SS	i 2 39	PP	—
Cernauti		11·9	356	e 3 8	PP	e 5 52	SSS	—	—	6·7
Triest		13·8	316	e 3 23	+ 4	e 6 16	SS	—	—	e 7·0
Prague		16·6	330	i 3 59s	+ 3	7 22	SS	—	—	e 9·3
Cheb		17·5	326	e 4 15	+ 8	e 7 36	+15	—	—	e 9·8
Zurich		17·8	313	e 4 10	− 1	e 7 34	+ 6	—	—	—
Stuttgart		18·2	319	e 4 17	+ 1	e 7 51	+14	i 4 22	PP	e 10·8
Basle		18·4	313	e 4 18	0	e 8 48	?	i 4 28	PP	—
Jena		18·4	327	i 4 20	+ 2	i 8 6	SS	i 4 27?	PP	e 9·8
Neuchatel		18·5	312	e 4 18	− 1	e 7 51	+ 7	i 4 25	PP	—
Strasbourg		18·8	317	i 4 24	+ 1	i 8 5	SS	i 4 31	PP	—
Potsdam		18·9	331	e 4 29	+ 5	i 8 11	SS	i 5 1	PPP	10·8
Besançon		19·2	312	i 4 32	+ 4	e 8 10	+11	—	—	—
Algiers		19·6	277	e 4 26	− 6	i 7 56	−12	i 4 33	PP	—
Clermont-Ferrand		20·5	304	e 4 38	− 4	e 9 18	SSS	i 4 45	PP	e 10·8
Copenhagen		21·8	337	e 4 58	+ 2	9 3	+11	e 5 2	PP	10·8
Uccle		21·9	319	e 4 57	0	i 9 1	+ 7	i 5 0	PP	11·8
Paris		22·0	312	e 4 59	+ 1	i 9 12	+16	—	—	—
De Bilt		22·2	322	e 5 0	0	i 9 9	+ 9	—	—	e 11·8?
Upsala		24·3	348	5 24	+ 4	e 9 48	+11	—	—	e 13·3
Granada		24·8	282	i 5 16	− 9	i 9 38	− 8	5 28	pP	11·7
Kew		24·8	317	e 5 26k	+ 1	i 10 2	+16	e 6 31	PP	e 12·3
Oxford		25·5	316	e 5 34	+ 2	e 9 51	− 6	—	—	—
San Fernando	E.	27·0	280	e 5 41	− 4	10 34	+12	6 18	PP	—
Stonyhurst		27·2	320	i 5 50	+ 3	i 10 26	+ 1	i 11 28	SS	15·9
Aberdeen		28·6	327	i 11 17	?	—	—	i 12 7	SS	19·9
Lisbon		29·0	287	5 57	− 7	10 43	−11	—	—	18·7
Sverdlovsk		30·2	37	i 6 20	+ 6	i 11 25	+12	—	—	—
Stalinabad		32·7	73	i 6 41	+ 5	—	—	—	—	—
Tashkent		32·8	68	6 41	+ 4	11 54	0	—	—	—
Tchimkent		32·9	66	i 6 42	+ 4	—	—	—	—	—
Scoresby Sund		43·1	337	e 8 2	− 2	e 14 31	+ 1	—	—	e 17·7
Bombay	E.	43·4	102	e 10 12	PPP	—	—	e 17 58	SS	—
Hyderabad		48·7	98	8 44	− 4	15 48	− 2	10 44	PP	—
Irkutsk		54·7	47	i 9 36	+ 3	—	—	17 36	PPS	—
Seven Falls		69·3	314	11 9	− 2	20 17	0	—	—	34·8
Harvard		72·3	310	e 11 31	+ 2	—	—	—	—	e 38·8
Ottawa		73·2	314	11 21	−14	21 2	0	25 45?	SS	34·8
Vladivostok		75·2	47	11 47	+ 1	—	—	—	—	—
Philadelphia		75·9	309	—	—	i 21 30	− 2	—	—	e 37·8
Pittsburgh		78·6	312	i 12 4	− 1	i 21 56	− 6	—	—	—
College		79·0	358	—	—	e 22 8	+ 2	—	—	e 37·2
Sitka		85·3	351	—	—	e 23 16	+ 6	e 28 37	SS	e 39·6
Florissant		85·7	316	e 12 40	− 2	i 23 13	− 1	i 24 34	PPS	e 46·8
Tucson		101·3	325	e 13 53	− 1	—	—	e 18 3	PPP	e 52·3
Riverside	z.	102·6	331	e 18 14	PP	—	—	—	—	—
Mount Wilson	z.	102·7	331	e 18 12	PP	—	—	—	—	—
Pasadena	z.	102·8	331	e 18 13	PP	—	—	—	—	e 61·0
Palomar	z.	103·0	329	e 18 14	PP	—	—	—	—	—
La Paz		104·0	259	e 24 45	SKS	(e 24 45)	[− 1]	—	—	53·8

Additional readings :—
Istanbul SS = 3m.12s., PPS = 3m.50s.
Sofia iEN = 4m.38s.
Helwan S_gN = 4m.23s.

Continued on next page.

Bucharest eS* =5m.2s., eS_g =5m.32s.
Belgrade i =5m.54s.
Cernauti eE =3m.15s.
Triest e =5m.54s.
Jena iPN =4m.24s., iZ =4m.36s., iN =4m.41s.
Strasbourg i =4m.47s. and 5m.52s.
Potsdam iSZ =8m.14s.
Algiers iSS =8m.13s.
Copenhagen 9m.33s.
Uccle iE =9m.12s.
Paris e =12m.45s.
Upsala eE =11m.15s. ?
Granada PP =5m.56s., pPP =6m.3s., sS =10m.8s., SS =10m.47s.
Kew eP_cPZ =8m.52s., e =9m.42s., eSS =11m.0s., eSSSNZ =11m.12s.
San Fernando SSE =11m.48s.
Stonyhurst i =10m.50s.
Aberdeen iE =14m.42s., iN =17m.27s.
Scoresby Sund e =8m.52s.
Bombay iE =25m.45s.
Hyderabad SSE =19m.46s.
Pittsburgh i =22m.8s.
Florissant iE =23m.27s.
Tucson e =26m.12s. and 28m.11s.
Long waves were also recorded at Huancayo, Kodaikanal, and Colombo.

Sept. 1d. 18h. 59m. 34s. Epicentre 47°·0N. 127°·0E.

A = −·4119, B = +·5467, C = +·7291 ; δ = +13 ; h = −5 ;
D = +·799, E = +·602 ; G = −·439, H = +·582, K = −·685 ;

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Vladivostok		5·2	136	e 1 32	P*	i 2 55	S_g	—	—	—
Irkutsk		15·6	298	3 50	+ 7	6 56	+19	—	—	—
Sverdlovsk		40·5	310	i 7 44	+ 2	e 13 51	− 1	—	—	—
Tashkent		41·0	285	7 53	+ 7	14 8	+ 9	—	—	—
College		46·9	36	e 10 17	PP	e 18 42	SS	—	—	e 25·6
Sitka		55·6	40	e 17 11	PS	—	—	—	—	e 30·8
Upsala	N.	59·0	327	e 23 48	?	—	—	—	—	—
Scoresby Sund		60·7	350	e 27 27	?	—	—	—	—	e 36·3
Copenhagen		63·9	325	e 10 36	− 1	—	—	—	—	e 34·4
Potsdam		66·0	323	i 10 51	+ 1	—	—	—	—	e 34·4
Jena	N.	67·7	322	e 11 2	+ 1	—	—	—	—	e 33·4
De Bilt		69·4	326	i 11 13	+ 1	—	—	—	—	e 36·4
Stuttgart		70·4	322	i 11 18	0	—	—	—	—	—
Uccle		70·8	326	e 11 20	0	—	—	—	—	e 37·4
Zurich		71·7	321	e 11 26	0	—	—	—	—	—
Basle		72·0	322	e 11 28	0	—	—	—	—	—
Helwan	z.	72·4	294	i 11 33	+ 3	—	—	—	—	—
Clermont-Ferrand		75·3	324	e 11 47	0	—	—	—	—	e 40·4
Tinemaha	z.	78·0	48	e 12 0	− 2	—	—	—	—	—
Mount Wilson	z.	80·3	50	e 12 13	− 1	—	—	—	—	—
Pasadena	z.	80·3	50	i 12 12$_a$	− 2	—	—	—	—	—
Riverside	z.	80·8	50	e 12 15	− 2	—	—	—	—	—
Palomar	z.	81·6	49	i 12 20$_a$	− 1	—	—	i 15 3	PP	—
Tucson		85·5	46	i 12 42	+ 1	—	—	—	—	e 52·7
Ottawa		85·8	16	e 12 40	− 2	—	—	—	—	41·4
Harvard		89·5	13	e 12 58	− 2	—	—	—	—	e 53·4
La Paz		147·1	27	e 18 48	[−55]	—	—	—	—	—

Additional readings :—
College e =10m.40s.
Upsala eN =27m.58s., eE =28m.53s., eN =31m.26s. ?, eE =35m.26s. ?
Potsdam eE =12m.32s.
Stuttgart i =11m.22s., e =12m.23s.
Basle e =13m.16s.
Pasadena iZ =12m.17s.
Palomar iZ =12m.25s. and 13m.14s.
Tucson i =13m.8s.
Long waves were also recorded at Bombay, Calcutta, Philadelphia, and other European stations.

Sept. 1d. 20h. 27m. 14s. Epicentre 36°·5N. 141°·6E. (as on 1941, Nov. 25d.).

Intensity V at Onahama, Kakioka, Hukusima; IV at Tyosi, Sendai, Tokyo; II-III at Yokohama, Titibu, Hunatu, Katuura. Epicentre 36°·6N. 141°·5E. Macroseismic radius 200-300km.

Seismological Bulletin of the Central Meteorological Observatory, Japan, 1942. Tokyo 1950, pp. 32-33. Macroseismic Chart, p. 32.

$A = -·6315$, $B = +·5005$, $C = +·5922$; $\delta = -1$; $h = 0$;
$D = +·621$, $E = +·784$; $G = -·464$, $H = +·368$, $K = -·806$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Onahama	0·7	308	0 18	+ 1	0 32	+ 4	—	—	—
Mito	0·9	263	0 20k	0	0 29	− 5	—	—	—
Tyosi	1·0	218	0 17k	− 4	0 26	−10	—	—	—
Kakioka	1·2	257	0 22k	− 2	0 29	−12	—	—	—
Tukubasan	1·2	257	0 23	− 1	0 29	−12	—	—	—
Togane	1·4	227	0 29	+ 2	0 49	+ 3	—	—	—
Utunomiya	1·4	272	0 27k	0	0 48	+ 2	—	—	—
Hukusima	1·5	324	0 30	+ 2	0 50	+ 1	—	—	—
Tokyo, Cent. Met. Obs.	1·7	242	0 30a	− 1	0 52	− 2	—	—	—
Tokyo, Imp. Univ.	1·7	242	0 29	− 2	0 51	− 3	—	—	—
Kumagaya	1·8	259	0 32k	0	0 53	− 3	—	—	—
Sendai	1·8	343	0 35k	+ 3	0 58	+ 2	—	—	—
Mitaka	1·9	243	0 29	− 5	1 4	+ 5	—	—	—
Yokohama	1·9	236	0 31	− 3	0 59	0	—	—	—
Maebasi	2·0	267	0 36k	0	—	—	—	—	—
Mera	2·1	222	0 37	0	0 59	− 5	—	—	—
Kohu	2·4	251	0 44	+ 3	1 29	+17	—	—	—
Hunatu	2·5	246	0 41	− 2	1 17	+ 3	—	—	—
Misima	2·6	237	0 44k	0	1 30	+13	—	—	—
Mizusawa	2·6	352	0 48	+ 4	1 20	+ 3	—	—	—
Osima	2·6	266	0 42	− 2	1 8	− 9	—	—	—
Nagano	2·7	273	0 46k	+ 1	1 20	+ 1	—	—	—
Shizuoka	3·0	239	0 51a	+ 1	1 21	− 6	—	—	—
Aikawa	3·1	300	0 53	+ 2	1 39	+10	—	—	—
Akita	3·4	340	1 5	+10	1 54	+17	—	—	—
Toyama	3·6	275	0 58	0	1 31	−11	—	—	—
Hatidyozima	3·7	205	0 59	− 1	1 34	−11	—	—	—
Wazima	3·9	286	1 4a	+ 2	—	—	—	—	—
Hatinohe	4·0	359	1 7	+ 3	1 54	+ 2	—	—	—
Nagoya	4·0	252	1 7	+ 3	1 51	− 1	—	—	—
Gihu	4·1	256	1 7	+ 2	2 14	+19	—	—	—
Aomori	4·4	352	1 10	0	2 9	+ 7	—	—	—
Hikone	4·5	256	1 12	+ 1	2 4	− 1	—	—	—
Kameyama	4·5	250	1 12	+ 1	2 31	+26	—	—	—
Kyoto	5·0	254	1 17	− 1	2 23	+ 5	—	—	—
Oiwase	5·0	244	1 18k	0	2 42	+24	—	—	—
Kobe	5·5	253	1 25a	0	2 42	+12	—	—	—
Toyooka	5·6	262	1 34	+ 7	—	—	—	—	—
Mori	5·7	352	1 30	+ 2	2 47	+12	—	—	—
Siomisaki	5·7	242	1 37	+ 9	3 21	L	—	—	(3·4)
Wakayama	5·7	248	1 28	0	3 2	+27	—	—	—
Sumoto	5·9	250	1 34a	+ 3	3 10	+30	—	—	—
Sapporo	6·6	358	1 40	− 1	3 7	+ 9	—	—	—
Muroto	6·9	244	1 45	0	3 25	+20	—	—	—
Koti	7·2	249	1 50	+ 1	3 21	+ 8	—	—	—
Nemuro	7·5	23	1 23	−30	—	—	—	—	—
Matuyama	7·7	253	2 0	+ 4	3 47	+22	—	—	—
Hamada	7·9	261	1 53	− 6	4 4	L	—	—	(4·1)
Titizima	9·4	177	2 14	− 4	3 48	−19	—	—	—
Hukuoka	9·6	256	2 24	+ 3	5 3	L	—	—	(5·1)
Miyazaki	9·6	245	2 24	+ 3	4 38	+26	—	—	—
Kumamoto	9·7	251	2 26a	+ 4	4 51	+36	—	—	—
Vladivostok	10·0	315	2 27	0	4 52	+30	—	—	—
Kagosima	10·4	245	1 54	−40	—	—	—	—	—
Taikyu	10·5	270	2 36	+ 1	5 49	L	—	—	(5·8)

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Naha		15·7	233	2 41	−63	—	—	—	—	—
Irkutsk		30·6	313	6 15	− 3	11 16	− 4	—	—	—
Tchimkent		54·4	300	9 0	−31	—	—	—	—	—
Sverdlovsk		55·6	319	i 9 38	− 2	e 17 20	− 5	—	—	—
Tinemaha	z.	76·0	54	e 11 51	0	—	—	i 12 2	?	—
Santa Barbara	z.	76·5	57	e 11 55	+ 1	—	—	i 12 6	?	—
Pasadena	z.	77·7	57	e 12 0	0	—	—	i 12 12	?	e 36·0
Mount Wilson	z.	77·8	57	e 12 1	0	—	—	—	—	—
Riverside	z.	78·4	57	e 12 4	0	—	—	e 12 15	?	—
Palomar	z.	79·1	57	e 12 9	+ 1	—	—	i 12 20	?	—
Potsdam		80·8	332	e 12 15	− 2	—	—	—	—	42·8
Jena	N.	82·5	331	e 12 25	− 1	—	—	—	—	—
Tucson		83·8	54	i 12 33	+ 1	—	—	i 12 42	?	—
Stuttgart		85·1	331	i 12 38	− 1	—	—	i 12 50	?	—
Uccle		85·3	335	e 12 39	− 1	—	—	—	—	44·8
Zurich		86·3	331	e 12 57	+12	—	—	—	—	—
Basle		86·8	331	e 12 46	− 1	—	—	—	—	—
Helwan	z.	87·1	305	e 12 46	− 3	i 16 37	?	i 16 12	PP	—
La Paz		147·0	61	e 20 0	[+17]	—	—	—	—	—

Tucson also gives i = 13m.18s.
Long waves were also recorded at other European stations.

Sept. 1d. Readings also at 0h. (near Andijan, Tashkent, and near Huancayo), 1h. (near La Paz and near Mizusawa), 5h. (near Mizusawa), 7h. (Pasadena, Mount Wilson, Riverside, Tinemaha, Palomar, Tucson, St. Louis, and La Paz), 9h. (La Paz), 11h. (Stuttgart, Christchurch, Auckland, and Wellington), 12h. (Basle, Stuttgart, near Huancayo, and near La Paz (2)), 13h. (near La Paz, Tucson, Huancayo, Tinemaha, Pasadena, Mount Wilson, Riverside, Palomar, and Santa Barbara), 15h. (near La Paz), 16h. (De Bilt, and Scoresby Sund), 18h. (Copenhagen), 19h. (Tashkent).

Sept. 2d. 3h. 17m. 17s. Epicentre 53°·4N. 168°·7W. (as on 1939, Sept. 11d.).

$A = -·5872$, $B = -·1173$, $C = +·8009$; $\delta = 0$; $h = -7$;
$D = -·196$, $E = +·981$; $G = -·785$, $H = -·157$, $K = -·599$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		15·6	35	e 3 49	+ 6	e 6 55	+18	e 4 27	PPP	e 7·2
Sitka		19·3	66	i 4 28	− 1	e 8 0	− 2	—	—	e 9·5
Victoria		28·6	83	6 4	+ 4	10 47	− 1	—	—	12·7
Honolulu		33·1	162	—	—	e 11 30	−29	—	—	e 13·5
Ukiah		33·9	96	—	—	e 12 16	+ 5	—	—	e 14·8
Branner		35·7	98	e 6 59	− 3	—	—	—	—	—
Santa Clara	E.	35·8	98	e 8 49	PPP	e 12 39	− 2	—	—	—
Lick	N.	36·0	98	e 7 0	− 5	—	—	—	—	—
Butte		36·2	77	e 7 18	+12	e 12 44	− 3	e 8 34	PP	e 15·1
Tinemaha	z.	38·2	95	e 7 21	− 2	—	—	—	—	—
Santa Barbara	z.	39·1	100	e 7 28	− 3	—	—	—	—	—
Salt Lake City		39·7	86	e 7 41	+ 5	e 13 15	−25	e 9 12	PP	e 16·5
Vladivostok		39·8	280	i 7 42	+ 6	—	—	—	—	—
Nagano		40·1	268	e 7 42	+ 3	—	—	—	—	—
Pasadena		40·2	98	i 7 36	− 4	i 13 41	− 7	e 9 22	PP	e 16·8
Mount Wilson	z.	40·3	98	i 7 37	− 3	e 13 27	−22	—	—	—
Riverside	z.	40·8	98	e 7 39	− 6	—	—	—	—	—
Nagoya		41·8	267	e 8 0	+ 7	—	—	—	—	—
Osaka		43·0	268	8 4	+ 1	—	—	—	—	—
Tucson		45·9	94	i 8 23	− 3	e 15 6	− 5	e 10 19	PP	e 18·3
Lincoln		48·6	74	e 8 26	−21	—	—	—	—	e 18·6
Irkutsk		49·4	307	e 8 50	− 3	18 43	S_eS	10 53	PP	—
Chicago U.S.C.G.S.		53·0	68	e 9 14	− 7	e 16 39	−11	—	—	e 24·9
Florissant		53·5	73	i 9 25	+ 1	i 16 49	− 8	—	—	e 25·1
St. Louis		53·7	73	i 9 23	− 3	i 16 51	− 8	—	—	e 23·3

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Scoresby Sund		54·1	14	e 9 31	+ 2	e 17 7	+ 2	—	—	e 24·4
Ivigtut		56·4	31	e 9 18	−27	—	—	e 12 59	PPP	e 33·3
Ottawa		56·9	57	9 47	− 2	17 35	− 7	—	—	26·7
Seven Falls		58·1	53	e 10 19?	+21	e 17 55	− 3	—	—	29·7
Pittsburgh		58·2	65	—	—	e 19 44	?	—	—	—
Harvard		61·0	58	e 10 23	+ 5	e 18 28	− 7	—	—	e 31·7
Fordham		61·1	60	e 10 15	− 3	i 18 31	− 6	—	—	e 30·8
Philadelphia		61·1	62	e 10 23	+ 5	i 18 28	− 9	e 14 10	PPP	e 25·4
Columbia		62·2	71	—	—	e 18 46	− 5	—	—	e 26·0
Sverdlovsk		63·0	333	i 10 31	0	19 2	+ 1	—	—	—
Upsala		67·0	358	e 11 43?	?	e 19 43?	− 7	—	—	—
Bermuda		72·3	60	e 11 53	+24	e 20 46	− 6	e 25 23	SS	e 35·9
Potsdam		74·6	0	i 11 42	− 1	e 21 21	+ 3	—	—	e 33·7
De Bilt		74·7	6	e 11 43	0	—	—	—	—	e 32·7
Jena		76·0	0	e 11 49?	− 2	—	—	—	—	—
Stuttgart		78·2	3	i 12 3	0	—	—	—	—	—
Basle		79·4	4	e 12 10	+ 1	—	—	—	—	—
Zurich		79·6	4	e 12 12	+ 2	—	—	—	—	—
Clermont-Ferrand		81·0	8	e 12 20	+ 2	—	—	—	—	39·7
Triest		81·3	359	i 22 32	?	—	—	—	—	e 48·7
Granada		88·9	14	e 13 1k	+ 3	23 44	0	—	—	43·7
Christchurch		97·9	194	27 33	PPS	37 1	?	47 42	Q	51·7
Huancayo		101·6	96	e 24 31	SKS	(e 24 31)	[− 4]	—	—	e 48·6
La Paz	z.	109·4	92	28 20	PS	—	—	—	—	53·7

Additional readings :—
Branner eE =11m.35s.
Tinemaha iZ =7m.35s.
Pasadena eZ =13m.25s.?
Tucson i =8m.46s.
Lincoln e =14m.40s.
Irkutsk SS =20m.7s.?
Chicago e =19m.4s.
Scoresby Sund e =14m.32s. and 19m.17s.
Ivigtut e =13m.6s.
Ottawa SSS =22m.55s.?
Upsala eE =30m.43s.?, eN =41m.43s.?
Bermuda e =29m.24s.
Jena eN =11m.52s.
Long waves were also recorded at Stonyhurst, Prague, Kew, Cheb, San Juan, Auckland, and Wellington.

Sept. 2d. 16h. 12m. 2s. Epicentre 15°·1S. 75°·0W. (as on 1942, Aug. 26d.).

A = +·2500, B = −·9330, C = −·2589 ; δ = +2 ; h = +5 ;

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		3·1	354	i 0 55	+ 4	i 1 30	S*	i 1 52	S_g	—
La Paz	z.	6·7	103	i 1 51k	+ 9	i 3 12	+12	—	—	i 4·0
Rio de Janeiro	N.	31·0	109	e 10 58	S	(e 10 58)	−28	—	—	e 17·2
San Juan		34·4	15	—	—	e 11 13	−66	—	—	—
St. Louis	E.	55·3	346	—	—	e 17 13	− 8	e 19 16	?	—
Tucson		58·3	325	e 9 54	− 5	—	—	e 12 8	PP	e 32·3
Ottawa		60·2	0	e 10 10	− 2	(18 28)	+ 3	—	—	18·5
Riverside	z.	63·3	321	e 10 35	+ 2	—	—	—	—	—
Mount Wilson	z.	63·9	321	e 10 33	− 4	—	—	—	—	—
Pasadena	z.	63·9	321	e 10 33	− 4	—	—	—	—	—
Tinemaha	z.	66·0	323	e 10 47	− 3	—	—	—	—	—

Sept. 2d. Readings also at 0h. (Stuttgart), 1h. (near Huancayo and near La Paz), 5h. (Kew), 7h. (Mount Wilson, Pasadena, Riverside, Tinemaha, Tucson, College, Sverdlovsk, De Bilt, and Potsdam), 8h. (Kew), 13h. (Fresco and near Tucson), 14h. (near Tashkent), 15h. (Triest), 18h. (near Samarkand), 19h. (Cape Girardeau), 20h. (Mount Wilson, Pasadena, Palomar, Riverside, Tucson, St. Louis, Huancayo, La Paz, and near Balboa Heights), 21h. (near Fresno), 22h. (Branner, near Samarkand, and Stalinabad).

Sept. 3d. 7h. 44m. 20s. Epicentre 29°·8N. 95°·3E. (as on 1938, Nov. 21d.).

$A = -·0878$, $B = +·8648$, $C = +·4945$; $\delta = +12$; $h = +2$;
$D = +·995$, $E = +·101$; $G = -·050$, $H = +·492$, $K = -·869$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Calcutta	N.	9·8	225	—	—	e 4 33	+16	—	—	i 5·6
Dehra Dun	N.	15·4	276	e 4 22?	?	e 6 32	0	—	—	i 8·6
Hyderabad		20·1	236	—	—	8 48	+29	—	—	—
Andijan		22·0	307	e 5 4	+ 6	—	—	—	—	—
Irkutsk		23·3	14	e 5 1?	− 9	i 9 8	−12	—	—	—
Bombay		23·5	248	i 5 16	+ 4	e 9 46	+23	i 11 9	?	13·1
Semipalatinsk		23·7	337	e 4 56	−18	—	—	—	—	—
Tashkent		24·3	307	5 13	− 7	9 38	+ 1	—	—	—
Kodaikanal	E.	25·7	226	—	—	e 11 22	SSS	—	—	—
Colombo	E.	27·3	216	e 7 40?	PPP	—	—	—	—	—
Vladivostok		31·7	55	i 6 33	+ 6	—	—	—	—	—
Sverdlovsk		36·5	329	7 8	− 1	i 12 54	+ 3	—	—	—
Helwan		55·2	288	9 40	+ 3	17 27	+ 7	—	—	—
Copenhagen		62·3	322	—	—	18 54	+ 2	—	—	—
Potsdam		62·7	318	e 19 1	PS	18 58	+ 1	e 26 10	SSS	e 31·7
Triest		64·1	310	—	—	19 14	0	—	—	e 36·7
Stuttgart		66·1	315	e 10 48	− 3	—	—	i 10 52	?	e 37·7
Zurich		67·0	314	e 10 53	− 4	—	—	—	—	—
De Bilt		67·5	319	—	—	i 20 6	+10	—	—	e 35·7
Kew		70·9	320	—	—	e 20 39?	+ 3	(e 28 40)	SSS	e 28·7
College		73·6	24	—	—	e 20 48	−19	—	—	38·3

Long waves were also recorded at Cheb, Prague, and Granada.

Sept. 3d. Readings also at 3h. (Fresno), 4h. (near Mizusawa), 7h. (Pasadena, Mount Wilson, Riverside, Tinemaha, Tucson, Palomar, and Upsala), 9h. (Stuttgart, Mount Wilson, Riverside, Palomar, Tucson, Tinemaha, and near Mizusawa), 11h. (near Apia), 13h. (near Basle, Zurich, and Neuchatel), 14h. (near Pasadena, Mount Wilson, Riverside, Tinemaha, Palomar, Santa Barbara, Branner, Tucson, and near Fresno), 16h. (Granada), 17h. (Zurich, Basle, Chur, and Neuchatel), 18h. (Tashkent and Sverdlovsk), 20h. (Pasadena, Mount Wilson, Riverside, Tinemaha, Palomar, Tucson, St. Louis, Florissant, and near La Paz), 23h. (Tacubaya).

Sept. 4d. 2h. 53m. 56s. Epicentre 14°·7N. 91°·2W. (as on 1942, April 11d.).

$A = -·0203$, $B = -·9674$, $C = +·2522$; $\delta = -12$; $h = +6$;
$D = -1·000$, $E = +·021$; $G = -·005$, $H = -·252$, $K = -·968$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Oaxaca	E.	5·8	294	e 1 33	+ 4	—	—	—	—	—
Merida	Z.	6·4	13	e 2 16	P_g	—	—	—	—	—
Vera Cruz	N.	6·5	314	e 2 8	P_g	—	—	—	—	—
Puebla	E.	8·0	304	—	—	i 3 39	+ 6	—	—	—
Tacubaya	E.	9·0	303	2 17	+ 4	—	—	—	—	—
Mobile		16·2	10	i 4 2	+12	i 7 43	+52	—	—	—
Columbia		21·3	24	e 4 49	− 1	e 9 14	SS	5 33	PPP	e 11·6
Cape Girardeau		22·6	5	e 5 3	0	e 9 5	− 2	—	—	—
St. Louis		23·9	2	i 5 20	+ 4	e 9 49	+19	i 5 42	pP	—
Florissant		24·0	2	i 5 21	+ 4	i 9 52	+20	i 5 49	pP	e 14·0
San Juan		24·3	78	e 5 19	− 1	e 9 57	+20	e 5 46	PP	e 12·4
Tucson		25·0	318	i 5 25	− 2	i 9 39	−10	i 6 28	PP	e 12·6
Georgetown		27·1	26	5 45	− 1	10 33	+ 9	—	—	14·1
Chicago		27·2	6	e 5 34	−13	e 10 34	+ 9	—	—	e 13·4
Philadelphia		28·8	28	e 6 15	+13	e 10 59	+ 8	—	—	i 14·6
Palomar	Z.	29·8	314	i 6 7	− 4	—	—	i 6 33	PP	—
Bermuda		29·9	49	e 6 8	− 4	e 12 21	SS	—	—	e 13·8
Fordham		30·1	27	6 9	− 4	11 28	+16	—	—	—
Riverside	Z.	30·5	314	e 6 12	− 5	—	—	—	—	—
Huancayo		30·9	149	e 6 16	− 4	i 11 6	−18	7 8	PP	e 12·7

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mount Wilson	Z.	31·1	314	i 6 18	− 4	—	—	—	—	—
Pasadena		31·1	314	e 6 18	− 4	—	—	—	—	e 14·8
Salt Lake City		31·6	330	e 6 25	− 1	e 12 58	SS	—	—	e 17·4
Santa Barbara	Z.	32·4	313	i 6 35	+ 1	—	—	—	—	—
Harvard		32·5	28	e 6 13	−21	e 12 9	+20	—	—	e 17·1
Tinemaha	Z.	32·8	318	e 6 34	− 3	—	—	—	—	—
Ottawa		33·3	20	e 6 38	− 3	12 31	+29	15 4	SSS	18·1
Bozeman		35·1	337	e 7 13	+16	e 12 39	+ 9	—	—	e 18·8
Shawinigan Falls		35·3	23	e 6 58?	− 1	—	—	—	—	22·1
Santa Clara	E.	35·4	317	e 7 9	+ 9	e 12 5	−29	—	—	—
Butte		36·0	336	e 8 59	PPP	e 12 28	−16	—	—	e 16·5
Seven Falls		36·5	24	e 8 46?	PPP	e 13 4?	+13	e 16 4?	SSS	20·1
La Paz	Z.	38·5	142	i 7 23	− 3	e 13 17	− 5	—	—	19·1
Rio de Janeiro	E.	60·0	127	e 18 4	S	(e 18 4)	−19	—	—	—
Scoresby Sund		69·3	19	—	—	e 22 44	?	—	—	e 34·9
Granada		79·4	54	e 12 9 a	0	e 22 54	+44	—	—	38·5
Stuttgart		85·8	41	e 12 34	− 8	—	—	—	—	—

Additional readings :—
St. Louis iZ =6m.15s.
San Juan e =9m.11s.
Tucson e =8m.50s.
Long waves were also recorded at Potsdam, Kew, De Bilt, Triest, Sitka, Ukiah, Uccle, Cheb, and College.

Sept. 4d. 17h. 46m. 16s. Epicentre 53°·4N. 168°·7W. (as on 2d.).

A = − ·5872, B = − ·1173, C = + ·8009 ; δ = 0 ; h = − 7.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		15·6	35	e 3 50	+ 7	e 6 48	+11	—	—	e 8·6
Sitka		19·3	66	e 4 27	− 2	i 8 6	+ 4	i 4 51	PP	e 9·5
Victoria		28·6	83	e 6 14	+14	e 10 45	− 3	—	—	12·7
Ukiah		33·9	96	e 7 0	+13	e 12 5	− 6	—	—	e 14·7
Branner	E.	35·7	98	e 6 59	− 3	—	—	—	—	—
Santa Clara		35·8	98	e 7 1	− 2	e 12 44	+ 3	—	—	e 16·6
Butte		36·2	77	e 7 4	− 2	e 12 44	− 3	—	—	e 16·1
Bozeman		37·3	78	e 7 15	− 1	e 12 50	−14	—	—	e 15·7
Sendai		37·4	267	e 7 17	+ 1	—	—	—	—	—
Tinemaha	Z.	38·2	95	i 7 21	− 2	i 13 20	+ 3	i 8 37	PP	—
Santa Barbara	Z.	39·1	100	e 7 16	−15	—	—	e 7 30	?	—
Salt Lake City		39·7	86	e 7 37	+ 1	e 13 31	− 9	e 9 9	PP	e 16·6
Tokyo, Cen. Met. Ob.		39·8	265	7 55	+19	—	—	—	—	—
Vladivostok		39·8	280	i 7 44	+ 8	—	—	—	—	—
Nagano		40·1	268	7 40	+ 1	—	—	—	—	—
Pasadena		40·2	98	i 7 36	− 4	i 13 40	− 8	—	—	e 16·9
Mount Wilson	Z.	40·3	98	i 7 36	− 4	—	—	i 8 50	PP	—
Riverside	Z.	40·8	98	e 7 41	− 4	—	—	i 7 53	?	—
Palomar	Z.	41·6	98	7 48	− 3	e 13 3	−65	i 8 1	?	—
Nagoya		41·8	267	7 55	+ 2	—	—	—	—	—
Osaka		43·0	268	8 5	+ 2	—	—	—	—	—
Koti		45·0	268	e 8 20	+ 1	—	—	—	—	—
Tucson		45·9	94	i 8 22	− 4	e 15 3	− 8	e 10 13	PP	e 18·6
Miyazaki		47·4	267	8 41	+ 3	—	—	—	—	—
Irkutsk		49·4	307	—	—	16 44	PPS	—	—	—
Chicago		53·0	68	e 9 23	+ 2	16 42	− 8	e 11 23	PP	24·4
Florissant	Z.	53·5	73	i 9 22	− 2	i 16 48	− 9	—	—	e 21·4
St. Louis	E.	53·7	73	i 9 22	− 4	i 16 52	− 7	—	—	e 24·5
Scoresby Sund		54·1	14	e 11 18	PP	—	—	—	—	e 28·5
Cape Girardeau	E.	55·0	74	e 9 33	− 2	e 17 7	−10	e 19 17	?	—
Ottawa		56·9	57	9 47	− 2	17 37	− 5	—	—	27·7
Shawinigan Falls		57·5	55	9 52	− 1	17 49	− 1	—	—	—
Seven Falls		58·1	53	—	—	e 17 50	− 8	—	—	29·7
Georgetown		60·8	64	e 10 15	− 1	i 18 26	− 7	e 12 40	PP	29·7
Harvard		61·0	58	e 10 1	−17	e 18 30	− 5	—	—	e 30·7

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Fordham		61·1	60	i 10 17	− 1	i 18 32	− 5	—	—	—
Philadelphia		61·1	62	e 10 22	+ 4	e 18 29	− 8	13 59	PPP	25·5
Columbia		62·2	71	e 8 53	?	e 18 43	− 8	12 54	PP	26·0
Sverdlovsk		63·0	333	i 10 32	+ 1	e 19 3	+ 2	—	—	—
Upsala		67·0	358	e 8 44?	?	e 30 44?	?	e 11 44?	?	e 35·7
Almata		68·5	315	e 11 26	+20	—	—	—	—	—
Copenhagen		71·3	1	11 24	+ 1	—	—	—	—	—
Bermuda		72·3	60	—	—	20 46	− 6	e 25 26	SS	35·7
Andijan		72·5	317	e 11 36	+ 6	—	—	—	—	—
Tashkent		73·3	319	11 37	+ 2	21 8	+ 4	—	—	—
Potsdam		74·6	0	e 12 14	+31	—	—	—	—	37·7
Jena	N.	76·0	0	e 11 52	+ 1	—	—	—	—	—
Uccle		76·0	7	e 11 55	+ 4	—	—	—	—	38·7
Stuttgart		78·2	3	i 12 4	+ 1	—	—	i 12 26	?	—
Basle		79·4	4	e 12 8	− 1	—	—	—	—	—
Zurich		79·6	4	e 12 12a	+ 2	—	—	—	—	—
Neuchatel		79·9	4	e 12 13	+ 1	—	—	—	—	—
Chur		80·1	3	e 12 14	+ 1	—	—	—	—	—
San Juan		82·7	70	e 12 30	+ 3	i 22 30	−14	—	—	e 34·6
Granada		88·9	14	i 12 21a	−37	23 22	[− 4]	16 11	PP	44·5
Huancayo		101·6	96	e 18 7	PP	e 24 29	[− 6]	(e 32 37)	SS	e 32·6
La Paz	z.	109·4	92	e 18 28	PP	28 24	PS	—	—	53·7

Additional readings :—
Sitka iP =40m.30s., e =8m.47s.
Santa Barbara eZ =7m.47s.
Philadelphia eSS =22m.35s.
Columbia e =20m.11s.
Bermuda e =29m.19s.
Granada PS =25m.10s., SS =30m.41s.
Long waves were also recorded at Bombay, Kodaikanal, Honolulu, Cheb, Kew, and Triest.

Sept. 4d. Readings also at 0h. (near Branner), 2h. (Harvard), 3h. (near Irkutsk (2)), 6h. (near Tucson, near Lick, Fresno, Santa Clara, and Branner), 10h. (near Apia), 12h. (near Huancayo, near La Paz, and near Lick and Branner), 15h. (Stuttgart, Pasadena, Mount Wilson, Tucson, Palomar, Tinemaha, near Sverdlovsk, Tashkent, Andijan, and Almata), 16h. (near Almata and near La Paz), 17h. (Helwan, Sofia, De Bilt, Uccle, Copenhagen, Bombay, Kodaikanal, Potsdam, Stuttgart, Ksara, Andijan, Sverdlovsk, Almata, and Tashkent), 21h. (near Andijan), 23h. (near Andijan).

Sept. 5d. Readings at 0h. (Pasadena, Riverside, Mount Wilson, Palomar, Tinemaha, and Tucson), 6h. (Pasadena, Mount Wilson, Tucson, and Tinemaha), 8h. (Pasadena, Riverside, Mount Wilson, and Tucson), 11h. (Pasadena, Mount Wilson, Riverside, Tinemaha, Palomar, Santa Clara, Tucson, St. Louis, College, Sitka, Huancayo, La Paz, and near Basle, Zurich, and Neuchatel), 14h. (Calcutta, Shawinigan Falls, and near Seven Falls), 17h. (Clermont-Ferrand), 19h. (Pasadena, Mount Wilson, Riverside, and Palomar), 21h. (Pasadena, Mount Wilson, Riverside, Palomar, Sydney, and Riverview), 22h. (Palomar, Tucson, and Mount Wilson).

Sept. 6d. 15h. 53m. 27s. Epicentre 28°·0S. 70°·0W. Focus at base of Superficial layers. (as on 1938, June 23d.).

Intensity VIII (R.F.) at Copiapo, Caldera, and Vallenar. Macroseismic area between Potrerillos and Petorca.

Federico Greve.
Determinacion del Coeficiente de Seguridad Antisimico para las Diferentes Zonas de Chile, p. 15.

$A = +\cdot3024$, $B = -\cdot8310$, $C = -\cdot4670$; $\delta = +10$; $h = +2$;
$D = -\cdot940$, $E = -\cdot342$; $G = -\cdot160$, $H = +\cdot439$, $K = -\cdot884$.

	△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
La Paz	11·6	9	i 2 58	+12	5 14	+18	—	—	5·3
La Plata	12·4	127	3 0	+ 3	5 17	+ 2	—	—	6·2
Huancayo	16·6	341	e 3 55	+ 3	i 7 4	+10	i 4 10	pP	i 8·4
Fort de France	43·3	13	e 8 3	+ 3	—	—	—	—	—
San Juan	46·3	6	e 8 22	− 2	e 15 3	− 5	i 10 15	PP	e 18·2

Continued on next page,

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Cape Girardeau	E.	67·5	344	e 10 55	0	e 19 44	− 3	—	—	—
Philadelphia		67·8	356	e 10 54	− 3	e 19 46	− 5	e 14 0	?	e 27·0
Pittsburgh		68·7	353	i 11 16	+14	e 20 15	+13	i 11 22	pP	—
St. Louis	N.	68·9	344	i 11 2	− 1	i 20 3	− 1	i 11 17	pP	—
Florissant		69·1	344	i 11 2	− 3	i 20 3	− 3	i 11 19	pP	—
Harvard		70·2	359	i 11 12	+ 1	—	—	i 11 28	pP	e 39·6
Tucson		71·4	324	i 11 18	− 1	e 20 36	+ 3	i 11 33	pP	e 34·8
Ottawa		73·2	356	i 11 28	− 1	e 20 55	+ 1	i 11 45	pP	44·6
Seven Falls		74·8	359	e 11 39?	0	e 21 11	− 1	—	—	40·6
Palomar	Z.	75·5	321	i 11 43	0	—	—	i 11 58	pP	—
Riverside	Z.	76·2	321	i 11 47	0	—	—	i 12 1	pP	—
Mount Wilson	Z.	76·8	321	e 11 49	− 1	—	—	i 12 5	pP	—
Pasadena		76·8	321	i 11 49a	− 1	e 21 27	− 7	i 12 4	pP	e 36·8
Santa Barbara	Z.	77·9	320	i 11 56	0	—	—	i 12 11	pP	—
Salt Lake City		78·7	329	e 12 14	+14	e 21 51	− 3	—	—	e 40·7
Tinemaha		79·0	322	i 12 2	0	—	—	i 12 17	pP	—
Fresno	N.	79·6	322	e 12 18	+13	—	—	—	—	—
Lick		81·1	321	e 12 5	− 8	—	—	e 12 18	pP	—
Branner		81·4	321	e 12 30	+15	—	—	—	—	—
Bozeman		82·3	333	e 12 37	+17	e 22 31	− 1	e 12 51	pP	e 40·0
Granada		89·9	47	i 13 1	+ 4	24 9	+24	13 29	pP	43·6
Stuttgart		103·9	42	e 14 3	+ 3	e 18 19	PP	e 14 20	pP	—
Helwan	Z.	112·5	67	e 19 24	PP	—	—	e 19 42	pPP	—

Additional readings :—
La Plata E =3m.14s. and 5m.2s., S =5m.22s.
Philadelphia e =24m.8s.
St. Louis iN =11m.23s.
Florissant isSE =20m.28s.
Tucson ePP =13m.47s., e =14m.44s., 17m.49s., and 29m.6s.
Palomar iZ =12m.25s.
Riverside iZ =12m.7s.
Pasadena i =12m.10s., iSPEN =21m.57s.
Tinemaha i =12m.25s., iZ =12m.51s.
Bozeman eSS =27m.58s.
Granada PP =17m.11s., sS =25m.19s., PKKP =29m.5s., SS =31m.45s.
Long waves were also recorded at Cheb, Potsdam, De Bilt, Uccle, Kew, and San Fernando.

Sept. 6d. Readings also at 6h. (Mount Wilson, Tucson, Palomar, and Tinemaha), 14h. (Cape Girardeau), 22h. (La Paz).

Sept. 7d. 4h. 51m. 42s. Epicentre 13°·9N. 90°·8W. (as on August 29d.).

$A = -\cdot0136$, $B = -\cdot9710$, $C = +\cdot2387$; $\delta = 0$; $h = +6$;
$D = -1\cdot000$, $E = +\cdot014$; $G = -\cdot003$, $H = -\cdot239$, $K = -\cdot971$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Merida	Z.	7·1	9	1 23	−25	—	—	—	—	—
Columbia		21·9	22	e 4 53	− 4	e 9 7	+13	—	—	e 12·5
San Juan		24·1	76	e 6 36	?	—	—	—	—	e 11·5
St. Louis	N.	24·6	0	i 10 44	?	—	—	—	—	—
Tucson		25·9	319	i 5 37	+ 2	e 10 9	+ 5	e 7 24	?	e 16·0
Chicago		27·9	4	e 7 15	PPP	e 10 59	+22	e 11 37	SS	e 15·8
Philadelphia		29·4	25	e 8 35	?	e 11 17	+16	—	—	e 14·5
Palomar	Z.	30·6	315	i 6 19	+ 1	—	—	—	—	—
Riverside	Z.	31·3	315	e 6 25	+ 1	—	—	—	—	—
Mount Wilson	Z.	31·9	315	e 6 30	+ 1	—	—	—	—	—
Pasadena		31·9	315	e 6 32	+ 3	—	—	—	—	e 16·8
Tinemaha	Z.	33·7	318	i 6 47	+ 2	—	—	—	—	—
Ottawa		33·9	18	e 6 42	− 5	e 12 18	+ 7	—	—	19·3
Bozeman		36·0	337	e 8 43	PPP	—	—	—	—	e 18·7

Additional readings :—
St. Louis eN =16m.52s. and 19m.35s.
Philadelphia e =10m.23s.
Long waves were also recorded at Harvard and Sitka.

Sept. 7d. Readings also at 1h. (Ksara and Helwan), 3h. (Palomar, near La Paz, Tucson, and near Huancayo), 4h. (Palomar, Mount Wilson, and Tucson), 12h. (La Paz), 13h. (near Mizusawa), 14h. (Pasadena, Mount Wilson, Palomar, Tucson, and Tinemaha), 15h. (La Paz), 16h. (near Andijan), 17h. (near Algiers), 19h. (near Fresno, Lick, and Branner), 22h. (Palomar, Tucson, and Granada), 23h. (Stuttgart, Clermont-Ferrand, Santa Barbara, Pasadena, Mount Wilson, Riverside, Palomar, Tucson, Tinemaha, near Andijan, Almata, and near Apia).

Sept. 8d. 16h. 7m. 25s. Epicentre 36°·5N. 141°·6E. (as on 1d.).

Intensity VII-VIII at Onahama, VI at Mito, Hukusima, Shirakawa, V at Yamagata, Kakioka, Tokyo, Sendai, Tyosi; IV at Kohu, Sakata, Oiwake; II-III at Kusiro, Hunatu, Misima, and Hatinohe.
Epicentre 36°·5N. 141°·3E. Macroseismic radius over 300km. Shallow. Seismological Bulletin of the Central Meteorological Observatory, Japan, for the year 1942, Tokyo 1950, pp. 33-34. Macroseismic chart p. 33.
Pasadena suggests deep.

$$A = -\cdot 6315,\ B = +\cdot 5005,\ C = +\cdot 5922\ ; \qquad \delta = -1\ ; \qquad h = 0.$$

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Onahama	0·7	308	0 20k	+ 3	0 29	+ 1	—	—
Mito	0·9	263	0 23	+ 3	0 34	0	—	—
Kakioka	1·2	257	0 23	− 1	0 35	− 6	—	—
Tukubasan	1·2	257	0 34	+10	0 47	+ 6	—	—
Togane	1·4	227	0 34	+ 7	0 52	+ 6	—	—
Utunomiya	1·4	272	0 27	0	0 40	− 6	—	—
Hukusima	1·5	324	0 25	− 3	0 42	− 7	—	—
Tokyo Imp. Univ.	1·7	242	0 34	+ 3	0 52	− 2	—	—
Tokyo Cent. Met. Obs.	1·7	242	0 33k	+ 2	0 51	− 3	—	—
Kumagaya	1·8	259	0 34	+ 2	0 52	− 4	—	—
Sendai	1·8	343	0 35a	+ 3	0 56	0	—	—
Mitaka	1·9	243	0 34	0	0 54	− 5	—	—
Yokohama	1·9	236	0 38	+ 4	0 59	0	—	—
Maebasi	2·0	267	0 37a	+ 2	0 56	− 6	—	—
Mera	2·1	222	0 42a	+ 5	1 14	+10	—	—
Titibu	2·1	256	0 34	− 3	0 54	−10	—	—
Kohu	2·4	251	0 45a	+ 4	1 13	+ 1	—	—
Koyama	2·4	242	0 34	− 7	1 7	− 5	—	—
Hunatu	2·5	246	0 44a	+ 1	1 3	−11	—	—
Misima	2·6	237	0 45a	+ 1	1 15	− 2	—	—
Mizusawa	2·6	352	0 48	+ 4	1 19	+ 2	—	—
Osima	2·6	266	0 46a	+ 2	1 4	−13	—	—
Nagano	2·7	273	0 46a	+ 1	1 17	− 2	—	—
Shizuoka	3·0	239	0 51a	+ 1	1 23	− 4	—	—
Miyako	3·1	6	0 55	+ 4	1 31	+ 2	—	—
Omaesaki	3·3	236	0 55	+ 2	1 26	− 9	—	—
Akita	3·4	340	1 10a	+15	2 8	+31	—	—
Hamamatu	3·6	242	1 1	+ 3	1 42	0	—	—
Toyama	3·6	275	0 58a	0	1 31	−11	—	—
Hatidyozima	3·7	205	1 2	+ 2	1 36	− 9	—	—
Wazima	3·9	286	0 58	− 4	1 52	+ 2	—	—
Hatinohe	4·0	359	1 6	+ 2	1 52	0	—	—
Nagoya	4·0	252	1 6a	+ 2	1 52	0	—	—
Gihu	4·1	256	1 5a	0	—	—	—	—
Aomori	4·4	352	1 12	+ 2	1 57	− 5	—	—
Hikone	4·5	256	1 12	+ 1	1 57	− 8	—	—
Kameyama	4·5	250	1 12a	+ 1	2 16	+11	—	—
Kyoto	5·0	254	1 19	+ 1	2 25	+ 7	—	—
Owase	5·0	244	1 12a	− 6	—	—	—	—
Kobe	5·5	253	1 25a	0	2 36	+ 6	—	—
Toyooka	5·6	262	1 25a	− 2	2 25	− 8	—	—
Mori	5·7	352	1 29k	+ 1	3 1	+26	—	—
Siomisaki	5·7	242	1 28a	0	2 25	−10	—	—
Wakayama	5·7	248	1 28a	0	2 42	+ 7	—	—
Sumoto	5·9	250	1 32	+ 1	2 58	+18	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sapporo		6·6	358	1 42	+ 1	2 54	− 4	—	—	—
Muroto		6·9	244	1 44k	− 1	3 24	+19	—	—	—
Koti		7·2	249	1 48	− 1	3 9	− 4	—	—	—
Nemuro		7·5	23	1 54	+ 1	3 11	− 9	—	—	—
Matuyama		7·7	253	1 50a	− 6	3 28	+ 3	—	—	—
Hirosima		7·8	257	1 53	− 5	3 43	+15	—	—	—
Simidu		8·0	246	1 59a	− 1	4 6	+33	—	—	—
Titizima		9·4	177	2 7	−11	3 42	−25	—	—	—
Hukuoka		9·6	256	2 21	0	4 49	+37	—	—	—
Miyozaki		9·6	245	2 21a	0	5 9	+57	—	—	—
Kumamoto		9·7	251	2 21a	− 1	4 32	+17	—	—	—
Kagosima		10·4	245	2 32	− 2	4 51	+19	—	—	—
Taikyu		10·5	270	2 33	− 2	5 9	+34	—	—	—
Tomie		11·3	254	2 42	− 4	5 51	+57	—	—	—
Keizyo		11·8	280	2 48	− 5	5 12	+ 6	—	—	—
Zinsen		12·0	279	2 55	0	—	—	—	—	—
Nake		13·0	236	3 6	− 3	—	—	—	—	—
Miyakozima		18·2	237	4 10	− 6	—	—	—	—	—
Irkutsk		30·6	313	6 11	− 7	11 7	−13	—	—	—
Calcutta	N.	47·8	269	e 8 22	−19	i 15 5	−33	—	—	—
Almata		49·0	300	8 48	− 2	—	—	—	—	—
College		49·5	32	e 8 53	− 1	e 15 56	− 6	e 16 28	PPS	24·0
Andijan		53·0	297	e 9 14	− 7	—	—	—	—	—
Sverdlovsk		55·6	319	i 9 33	− 7	17 6	−19	—	—	—
Sitka		56·7	40	e 9 46	− 2	e 17 39	− 1	e 18 19	PPS	e 29·2
Kodaikanal	E.	63·2	263	—	—	18 56	− 7	—	—	—
Victoria		66·7	48	10 53?	− 2	19 43	− 3	—	—	—
Branner	E.	73·2	56	e 11 35	0	—	—	—	—	—
Tinemaha	Z.	76·0	54	i 11 51	0	—	—	12 15	?	—
Santa Barbara	Z.	76·5	57	11 53	− 1	—	—	i 12 16	?	—
Pasadena		77·7	57	i 12 0	0	21 49	− 3	e 14 57	PP	e 35·7
Mount Wilson	Z.	77·8	57	i 12 0k	− 1	—	—	—	—	—
Salt Lake City		77·8	48	—	—	e 21 50	− 3	e 22 38	PS	—
Riverside	Z.	78·4	57	e 12 4	0	—	—	i 12 27	?	—
Copenhagen		78·5	334	i 12 1	− 3	21 48	−13	—	—	—
Palomar	Z.	79·1	57	i 12 7k	− 1	—	—	e 15 8	PP	—
Potsdam		80·8	332	e 12 14	− 3	i 22 13	−12	—	—	e 43·6
Cheb		82·8	331	—	—	e 22 35?	−10	—	—	e 45·6
Tucson		83·8	54	i 12 32	0	e 22 52	− 3	e 15 48	PP	e 39·3
De Bilt		83·9	335	i 12 50	+17	i 22 47	− 9	—	—	e 42·6
Stuttgart		85·1	331	e 12 35	− 4	—	—	i 13 12	?	—
Uccle		85·3	335	e 12 37	− 3	22 52	[−11]	e 23 50	PS	e 40·6
Triest		85·7	327	—	—	e 22 52	[−14]	—	—	—
Kew		86·3	337	i 13 3	+18	e 23 0	[−10]	—	—	e 43·6
Zurich		86·3	331	e 8 55	?	—	—	—	—	—
Basle		86·8	331	12 43	− 4	—	—	e 13 21	?	—
Helwan		87·1	305	16 9	PP	22 59	[−16]	23 53	PS	—
Clermont-Ferrand		90·0	333	e 12 35?	−28	—	—	—	—	e 52·6
St. Louis		91·2	38	i 13 6	− 2	i 24 2	− 3	i 24 42	PS	—
Ottawa		91·8	25	13 8	− 3	24 1	−10	e 36 35	SSS	44·6
Seven Falls		91·8	21	—	—	e 23 59?	−12	—	—	44·6
La Paz	Z.	147·0	61	i 19 47	[+ 4]	—	—	—	—	—

Additional readings :—
Sitka i = 10m.11s., e = 20m.13s.
Branner eE = 11m.45s., eN = 11m.49s.
Pasadena iZ = 12m.22s.
Palomar iZ = 12m.31s.
Tucson i = 12m.54s., eS? = 23m.37s.
St. Louis iZ = 13m.29s.

Sept. 8d. Readings also at 0h. (Kew, Potsdam, Granada, and near Branner), 3h. (Pasadena, Mount Wilson, Riverside, Tinemaha, Tucson, and Palomar), 5h. (La Paz), 6h. (near Andijan, Tashkent, and Almata), 7h. (Pasadena, Mount Wilson, Riverside, Tinemaha, Palomar, Tucson, and Stuttgart), 11h. (near Mizusawa), 16h. (La Paz), 17h. (near St. Louis), 19h. (Pasadena, Mount Wilson, and Tucson), 21h. (Huancayo and near La Paz (2)),

Sept. 9d. 1h. 25m. 17s. Epicentre 53°·5N. 165°·9W.

Pasadena suggests depth = 80km.

A = −·5794, B = −·1455, C = +·8019; δ = −8; h = −7;
D = −·244, E = +·970; G = −·778, H = −·195, K = −·597.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		14·6	32	e 3 25	− 5	i 6 31	+18	i 3 35	PP	i 8·0
Sitka		17·7	67	i 4 10	0	i 7 25	− 1	i 4 48	PP	i 8·8
Victoria		26·9	83	5 45	0	10 19	− 1	—	—	12·7
Seattle		27·9	84	e 6 24	PP	—	—	e 6 49	PPP	e 13·8
Ferndale	E.	30·7	97	e 6 35	+16	e 10 23	?	—	—	—
Ukiah		32·3	99	e 6 33	0	e 11 46	0	e 12 11	sS	e 15·1
Honolulu		32·7	166	e 6 31	− 5	e 11 50	− 2	e 7 10	sP	e 14·0
Branner		34·0	100	e 6 47	− 1	e 12 12	− 1	—	—	e 16·1
Santa Clara	E.	34·2	100	e 6 50	+ 1	e 12 20	+ 4	—	—	e 22·2
Lick		34·4	100	e 6 51	0	e 12 20	+ 1	—	—	—
Butte		34·5	79	e 6 56	+ 4	i 12 22	+ 2	e 7 16	pP	e 16·7
Bozeman		35·6	80	e 7 0	− 1	i 12 35	− 3	e 8 15	PP	e 15·2
Fresno	N.	35·9	98	e 7 5	+ 1	—	—	—	—	—
Tinemaha		36·5	97	e 7 10	+ 1	i 12 57	+ 6	—	—	—
Logan		37·4	84	i 7 18	+ 2	e 13 2	− 3	i 8 43	PP	—
Santa Barbara		37·5	101	i 7 19	+ 2	i 13 8	+ 1	i 7 31	pP	—
Salt Lake City		38·0	87	e 7 22	+ 1	e 13 11	− 3	e 8 51	PP	e 16·2
Mizusawa	E.	38·4	271	e 7 10	−15	8 59	PP	—	—	—
Mount Wilson		38·6	100	i 7 27a	+ 1	i 13 22	− 1	—	—	—
Pasadena		38·6	100	i 7 25k	− 1	i 13 21	− 2	i 7 43	pP	i 16·3
Riverside	Z.	39·2	100	e 7 30	− 1	e 13 23	− 9	i 9 43	PPP	—
Palomar	Z.	39·9	100	i 7 38a	+ 1	e 13 44	+ 1	—	—	—
Vladivostok		41·4	282	i 7 49	− 1	14 6	+ 1	—	—	—
Tucson		44·3	96	i 8 12	− 1	14 47	− 1	i 8 41	pP	e 18·3
Irkutsk		50·7	308	9 2	− 1	i 16 14	− 4	—	—	—
Chicago		51·5	70	e 9 6	− 3	e 16 13	−16	e 9 27	pP	e 19·9
Florissant		51·9	74	i 9 10	− 2	i 16 29	− 6	i 9 28	pP	—
St. Louis		52·1	74	i 9 11	− 3	16 30	− 8	i 9 28	pP	—
Cape Girardeau	E.	53·4	75	e 9 22	− 2	e 16 49	− 6	—	—	—
Scoresby Sund		53·6	15	e 9 34	+ 9	e 16 56	− 2	e 17 22	PPS	e 22·0
Ottawa		55·4	59	e 9 35	− 3	17 17	− 5	11 43?	PP	26·7
Shawinigan Falls		56·1	55	9 42	− 1	17 25?	− 7	—	—	28·7
Pittsburgh		56·6	65	i 9 42	− 5	i 17 30	− 8	i 11 52	PP	—
Seven Falls		56·7	54	9 46	− 2	17 32	− 8	21 7?	SS	26·7
Georgetown		59·3	65	i 10 4	− 2	18 8	− 6	12 16	PP	30·1
Philadelphia		59·5	63	e 10 6	− 1	i 18 11	− 5	e 10 48	pP	—
Fordham		59·6	61	10 5	− 3	18 13	− 4	—	—	e 33·4
Harvard		59·6	58	e 10 5	− 3	e 18 12	− 5	e 12 18	PP	e 24·7
Weston		59·8	58	i 10 7	− 2	i 18 15	− 5	12 20	PP	—
Columbia		60·6	72	e 10 11	− 4	e 18 22	− 8	e 13 56	PPP	e 30·7
Halifax		61·9	52	—	—	e 18 49?	+ 2	—	—	30·7
Semipalatinsk		62·5	319	e 10 24	− 4	—	—	—	—	—
Sverdlovsk		63·6	334	i 10 30	− 5	i 19 2	− 6	—	—	—
Upsala		67·0	359	e 10 56	− 1	19 43	− 7	e 20 4	PS	31·7
Aberdeen	N.	68·9	10	i 20 11	S	(i 20 11)	− 2	—	—	35·4
Almata		69·6	316	e 11 14	+ 1	—	—	—	—	—
Bermuda		70·8	62	e 11 20	0	e 20 28	− 7	e 15 38	PPP	34·1
Copenhagen		71·2	2	11 22	− 1	20 37	− 3	—	—	32·7
Stonyhurst		72·1	12	—	—	i 20 50	0	i 21 34	PS	e 38·7
Oxford		74·3	12	—	—	i 21 11	− 4	i 21 48	PS	40·7
Tashkent		74·3	320	i 11 41	0	i 21 14	− 1	—	—	—
De Bilt		74·5	7	i 11 48	+ 6	i 21 17	0	—	—	e 34·7
Potsdam		74·5	2	e 11 43	+ 1	i 21 15	− 2.	e 12 24	pP	e 29·7
Kew		74·7	11	i 11 43a	0	e 21 14	− 5	e 14 38	PP	e 36·7
Uccle		75·8	8	11 50	0	e 21 24	− 7	e 26 22	SS	e 37·7

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Jena		75·9	2	e 11 48	− 2	e 21 29	− 3	e 21 56	PS	35·7
Cheb		76·8	2	—	—	e 21 40	− 2	—	—	37·7
Prague		76·8	0	e 11 59	+ 4	e 21 38?	− 4	—	—	40·7
Paris		77·6	9	—	—	e 21 31	−20	—	—	40·7
Stuttgart		78·0	4	e 12 0	− 2	e 22 7	+12	38 56	P'P'	e 46·6
Basle		79·2	5	i 12 8	0	e 22 18	+10	—	—	—
Zurich		79·4	5	i 12 9	0	e 22 7	− 3	—	—	—
Neuchatel		79·7	5	e 12 11 a	0	e 22 10	− 3	—	—	—
Chur		79·9	4	e 12 14	+ 2	e 22 14	− 2	—	—	—
Clermont-Ferrand		80·7	10	i 12 17	+ 1	e 22 21	− 3	—	—	e 38·4
Calcutta		81·1	296	e 12 16	− 2	i 22 22	− 6	—	—	—
San Juan		81·1	72	e 12 18	0	i 22 24	− 4	e 27 18	SS	e 38·6
Triest		81·2	1	e 11 43	?	i 22 27	− 2	—	—	e 39·7
Belgrade		81·9	357	e 12 24	+ 1	—	—	—	—	—
Bucharest		82·0	353	—	—	i 22 31	− 6	—	—	40·7
Sofia		83·8	354	e 12 37	+ 5	e 22 52	− 3	—	—	—
Lisbon		86·0	19	—	—	i 23 17	0	23 4	SKS	42·2
Fort de France		86·8	70	e 12 49	+ 2	e 23 7	[− 6]	—	—	—
Granada		88·4	16	i 12 59	+ 4	i 23 38	− 2	13 23	pP	45·1
San Fernando	E.	88·7	18	—	—	e 23 27	[+ 2]	—	—	47·7
Algiers		89·6	9	—	—	i 23 56	+ 5	i 23 30	SKS	—
Hyderabad	E.	90·5	301	23 51	S	(23 51)	− 8	—	—	—
Ksara		91·0	342	e 13 21?	+14	e 24 13	+10	23 38	SKS	—
Auckland		91·5	197	—	—	24 3	− 5	—	—	41·7
Helwan		95·6	346	—	—	24 1	[− 3]	31 15	SS	—
Huancayo		99·9	97	e 12 29	?	e 24 00	[−27]	e 24 22	pS	e 48·4
La Paz	Z.	107·7	94	e 24 59	SKS	(e 24 59)	[− 4]	—	—	62·7

Additional readings :—
College iPP =3m.54s.
Sitka e =8m.11s.
Seattle e =10m.49s.
Ferndale ePN =6m.48s.
Butte e =8m.5s. and 8m.41s., esS =13m.19s.
Bozeman e =7m.13s. and 8m.5s.
Tinemaha iZ =7m.55s. and 13m.15s.
Logan i =8m.46s. and 13m.19s., eSS =16m.4s., e =18m.35s.
Salt Lake City esS =13m.43s.
Mount Wilson iZ =17m.49s.
Pasadena isPZ =7m.52s., iS_cSN =17m.31s.
Palomar iZ =7m.50s., 8m.3s., and 13m.27s.
Tucson iPP =9m.56s., epPP =10m.19s., i =11m.21s., iS_cP =13m.45s., eSS =17m.59s., esSS =18m.24s.
Chicago eP_cP =10m.30s., e =16m.7s.
Florissant iPPZ =11m.11s., isSE =16m.55s.
St. Louis ePPZ =11m.14s., isSE =17m.1s.
Cape Girardeau iE =16m.59s.
Ottawa SS =20m.55s.?.
Pittsburgh i =19m.33s.
Philadelphia e =12m.15s. and 13m.31s., S =18m.8s., eS_cS =19m.27s., e =21m.44s., eSS =22m.12s., eSSS =25m.9s., i =30m.15s.
Harvard e =13m.39s.
Weston PS =19m.55s., SS =22m.23s.
Columbia e =13m.59s. and 20m.0s., eSS =22m.53s.
Upsala ePE =11m.2s., eN =12m.18s., e =20m.46s.?, eSSE =23m.43s.?, eSSS?N = 27m.19s.?.
Bermuda iS =20m.31s., eSS =25m.4s., eSSS =28m.29s.
Copenhagen 21m.24s.
Potsdam eSZ =21m.20s., iSKSE =21m.38s., iSKSN =21m.42s.
Kew ePPPZ =16m.17s., iPS =21m.37s., iPPSZ =21m.52s., iSSZ =26m.37s., eSSSN = 29m.43s.?, eQE =32m.43s.?.
Uccle iSE =21m.27s., eE =30m.40s.
Jena ePN =11m.51s., eZ =12m.14s., eN =12m.19s., eS?N =21m.24s.
Prague P and S readings reduced by 10 minutes.
Stuttgart iP =12m.3s., eSS =27m.41s.
San Juan e =13m.48s. and 14m.28s.
Belgrade e =12m.37s., 12m.47s., and 13m.16s.
Sofia eEN =34m.43s?.
Granada P_cP =13m.14s., sP =13m.52s., SKS =23m.19s., sPPS =25m.29s., SS = 29m.29s.
Helwan PSE =25m.31s.
Huancayo e =15m.53s., epS =25m.18s.
La Paz eZ =54m.43s.
Long waves were also recorded at Ivigtut, Wellington, Colombo and Bombay.

Sept. 9d. Readings also at 0h. (Pasadena, Mount Wilson, Palomar, Riverside, and Tucson), 2h. (Harvard), 3h. (Wellington, Potsdam, De Bilt, and Uccle), 5h. (Fresno, Ksara, Lick, Santa Barbara, near Riverside, Tinemaha, Palomar, Tucson, Pasadena, and Mount Wilson), 8h. (near La Paz), 9h. (Tinemaha, Palomar, Tucson, and Stuttgart), 13h. (Triest and Stuttgart), 15h. (La Paz, St. Louis, and near Branner), 18h. (Tashkent, Sverdlovsk, and Stuttgart), 22h. (near La Paz, Palomar, Riverside, Mount Wilson, near Tucson, and Pasadena).

Sept. 10d. 4h. 48m. 30s. Epicentre 11°·5N. 122°·8E.

$A = -\cdot5310$, $B = +\cdot8239$, $C = +\cdot1981$; $\delta = +2$; $h = +6$;
$D = +\cdot841$, $E = +\cdot542$; $G = -\cdot107$, $H = +\cdot167$, $K = -\cdot980$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Kumamoto		22·4	18	e 5 23	+21	—	—	—	—	—
Osaka		25·8	26	5 37	+ 3	—	—	—	—	—
Nagoya		26·8	28	e 5 42	− 2	—	—	—	—	—
Nagano		28·6	27	5 58	− 2	—	—	—	—	—
Tokyo Cen. Met. Ob.		28·6	31	e 7 17	PP	—	—	—	—	—
Vladivostok		32·5	14	e 6 41	+ 7	i 12 33	+44	—	—	—
Calcutta	N.	34·6	294	e 9 24	?	i 13 4	+42	—	—	i 16·9
Hyderabad	E.	43·3	284	8 20	+15	14 52	+19	9 45	PP	21·6
Irkutsk		43·3	344	e 8 39	+34	i 15 49	?	—	—	—
Kodaikanal	E.	44·5	274	e 8 18	+ 3	e 14 56	+ 5	e 9 50	PP	—
Bombay	E.	48·7	285	e 8 45	− 3	e 16 0	+10	—	—	—
Riverview		52·5	150	e 13 54?	?	e 17 15	+32	—	—	e 23·5
Sydney		52·5	150	e 13 54?	?	—	—	—	—	—
Sverdlovsk		65·4	329	i 10 42	− 5	20 1	+31	—	—	—
Ksara		81·2	302	e 16 10	PP	e 22 40	+11	—	—	—
Helwan		85·6	299	e 16 30	PP	e 22 51	[−14]	—	—	—
Sitka		86·7	33	e 12 16	−31	e 22 47	[−25]	e 15 53	PP	e 35·7
Victoria		96·6	38	—	—	e 23 36	[−34]	—	—	46·5
Tinemaha	Z.	105·1	46	e 18 15	PKP	—	—	—	—	—
Mount Wilson	Z.	106·5	49	e 17 40	PKP	—	—	—	—	—
Pasadena		106·5	49	e 17 39	PKP	e 24 13	[−44]	—	—	e 48·1
Tucson		112·8	47	e 17 55	[−43]	e 24 46	[−37]	e 20 46	PP	e 51·6
Seven Falls		120·4	10	—	—	e 37 0?	SS	—	—	55·5
Ottawa		121·0	14	e 18 17	[−38]	—	—	—	—	57·5
Harvard		124·7	12	—	—	—	—	i 21 36	PP	e 66·5
Philadelphia		126·1	16	e 21 46	PP	e 27 53	{− 2}	e 38 1	SS	e 58·7
San Juan		149·0	15	19 13	[−33]	30 23	{+10}	e 23 44	PP	e 75·0
La Paz	Z.	168·3	116	i 20 2	[− 6]	—	—	23 56	PP	76·5

Additional readings :—
Hyderabad SSE =17m.43s., S_cSE =18m.39s.
Bombay iS?N =16m.8s.
Sitka eS =23m.16s., eSS =28m.16s.
Tucson eS? =28m.7s.
San Juan e =33m.58s. and 41m.36s.
Long waves were also recorded at Honolulu, Chicago, Huancayo, and European stations.

Sept. 10d. Readings also at 6h. (Samarkand), 13h. (Bombay, Colombo, Kodaikanal, and near Calcutta), 16h. (near Mizusawa), 18h. (near Branner (2)), 22h. (Branner, La Paz, Mount Wilson, Pasadena, Palomar, and Riverside), 23h. (Honolulu, Mount Wilson (2), Pasadena, Palomar (2), Riverside (2), Tucson (2), Victoria, Sitka (2), Bozeman, Butte, Salt Lake City, St. Louis, Columbia, Harvard, Ottawa, Philadelphia, Merida, Oaxaca, Tacubaya (2), San Juan, Huancayo, and La Paz (2)).

Sept. 11d. Readings at 0h. (La Paz, Tucson, Mount Wilson, Pasadena, Palomar, and Riverside), 1h. (Riverview), 2h. (Tucson, Mount Wilson (2), Pasadena (2), Palomar, and Riverside (2)), 5h. (La Paz), 6h. (Tucson, Mount Wilson (2), Pasadena (2), Palomar (2), Riverside (2), Tashkent, and near Andijan), 11h. (Shawinigan Falls, Seven Falls, and Ottawa), 13h. (Ksara), 14h. (near Andijan), 15h. (Florissant, St. Louis, and near Andijan (3)), 16h. 18h. 19h. and 20h. (near Andijan), 22h. (near Lick).

Sept. 12d. 5h. 40m. 24s. Epicentre 15°·1S. 75°·0W. (as on 2d.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		3·1	354	e 0 56	+ 5	i 1 46	S_g	—	—	i 2·1
La Paz	Z.	6·7	103	i 1 39k	− 3	i 2 58	− 2	—	—	3·5
La Plata		25·0	145	5 24	− 3	9 36	−13	—	—	12·6
Rio de Janeiro	N.	31·0	109	e 11 16	S	(e 11 16)	−10	—	—	e 16·5
San Juan		34·4	15	e 7 7	+16	e 12 32	+13	e 9 4	PP	e 16·4
Bermuda		48·2	12	e 11 0	PP	e 15 44	+ 1	—	—	e 19·6
Columbia		49·2	355	e 9 8	+16	e 16 19	+21	—	—	e 24·8
Philadelphia		54·8	0	e 9 36	+ 2	e 17 18	+ 4	e 21 12	SS	e 25·0
Florissant	N.	55·5	346	i 9 48	+ 9	e 17 44	+20	—	—	e 21·6
Chicago		57·8	348	e 13 38	?	e 18 15	+21	—	—	e 26·0
Tucson		58·3	325	e 9 51	− 8	e 17 39	−22	—	—	e 29·3
Ottawa		60·2	0	10 6	− 6	18 20	− 5	—	—	28·6
Seven Falls		62·0	4	—	—	e 19 12?	+24	—	—	30·6
Palomar	Z.	62·6	322	e 10 31	+ 3	—	—	—	—	—
Riverside	Z.	63·3	321	e 10 38	+ 5	—	—	—	—	—
Mount Wilson	Z.	63·9	321	e 10 31	− 6	—	—	—	—	—
Pasadena	Z.	63·9	321	e 10 38	+ 1	—	—	—	—	e 33·6
Tinemaha	Z.	66·0	323	e 10 44	− 6	—	—	—	—	—
Butte		69·6	333	e 12 57	?	e 20 49	+28	—	—	e 39·5
Victoria		76·5	330	—	—	e 21 45	+ 6	—	—	40·6
Granada		84·8	50	13 7	+30	e 23 54	+49	—	—	e 43·9

Additional readings :—
La Plata P?N =5m.36s., SN =9m.30s., E =11m.48s.?.
Rio de Janeiro ePE =11m.21s.
Philadelphia e =15m.35s. and 22m.20s.
Mount Wilson eZ =10m.38s.
Long waves were also recorded at De Bilt, Kew, and Potsdam.

Sept. 12d. Readings also at 0h. (near La Paz), 2h. (near Basle, Neuchatel, Zurich, Clermont-Ferrand, and Stuttgart), 3h. (La Paz), 5h. (Harvard), 6h. (Almata and Pittsburgh), 7h. (Sofia and near Istanbul), 8h. (Stuttgart and near Triest), 14h. (near Lick), 16h. (Riverside, Tinemaha, Tucson, near Branner (2), and Lick (2)), 17h. (near Branner and Fresno), 18h. (Branner), 21h. (near Ferndale), 22h. (near Mizusawa).

Sept. 13d. Readings at 0h. (Ksara (3) and Helwan), 1h. (near Branner and Lick), 6h. (Bozeman, Tucson, Palomar, Riverside, and Tinemaha), 7h. (Butte), 9h. (near Samarkand, Stalinabad, Tashkent, and Tchimkent), 12h. (near Mizusawa), 17h. (near Huancayo, near La Paz (2), San Juan, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, and near Lick), 18h. (Kew), 19h. (Palomar, Tucson, and Tinemaha), 20h. (Mount Wilson, Pasadena, Palomar, Riverside, Santa Barbara, Tinemaha, Tucson, and Sofia), 22h. (Pasadena, Palomar, Tinemaha, Tucson, and near Apia), 23h. (Stuttgart).

Sept. 14d. 11h. 30m. 53s. Epicentre 22°·0S. 171°·7E. (as on 1941 November 23d.).

Pasadena suggests depth =130km.

$A = -·9184$, $B = +·1340$, $C = -·3724$; $\delta = +10$; $h = +4$;
$D = +·144$, $E = +·990$; $G = +·368$, $H = -·054$, $K = -·928$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Auckland	15·1	170	3 35	− 1	6 35	+10	i 3 42	PP	8·0
Arapuni	16·4	169	3 49?	− 4	7 1	+ 5	—	—	—
New Plymouth	17·1	175	4 8	+ 6	7 37	+25	—	—	—
Tuai	17·4	166	4 9	+ 3	7 21	+ 2	—	—	—
Apia	17·7	66	i 4 13	+ 3	i 7 34	+ 8	i 4 20	pP	—
Brisbane	17·8	248	i 4 13	+ 2	i 7 27	− 1	i 4 17	PP	—
Wellington	19·4	174	4 29	− 1	8 7	+ 3	4 46	pP	10·1
Kiamata	20·5	181	4 39?	− 3	8 27	0	i 4 44	PP	10·1
Christchurch	21·5	179	4 52	0	8 44	− 3	9 10	Q	11·0
Riverview	21·6	232	i 4 53a	− 1	i 8 44	− 5	i 5 4	PP	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sydney		21·6	232	e 4 49	− 5	i 8 43	− 6	—	—	—
Honolulu		52·3	37	e 9 19	+ 4	e 16 33	− 7	− 11 25	PP	i 22·4
Branner		85·8	47	e 12 44	+ 2	—	—	—	—	—
Santa Clara		85·9	47	e 12 42	− 1	e 23 12	{+ 1}	—	—	e 36·7
Santa Barbara	Z.	86·0	50	e 12 38	− 5	—	—	i 13 19	pP	—
Ukiah		86·0	45	e 12 45	+ 2	e 23 10	− 7	e 24 10	sS	e 36·5
Lick		86·1	47	e 12 42	− 2	—	—	—	—	—
Pasadena		86·9	51	i 12 45a	− 3	e 23 18	− 8	i 13 19	pP	e 35·8
Mount Wilson	Z.	87·1	51	i 12 47a	− 2	—	—	i 13 22	pP	—
Riverside		87·4	51	i 12 47a	− 3	—	—	i 14 22	pP	—
Palomar	Z.	87·5	53	i 12 49a	− 2	—	—	i 13 23	pP	—
Tinemaha		88·3	49	i 12 52a	− 3	e 23 34	− 5	—	—	—
Victoria		90·9	37	13 13	+ 6	23 57	− 6	25 2	PS	37·1
Tucson		91·6	56	i 13 8	− 2	e 23 32	[−10]	i 13 42	pP	e 38·0
College		92·0	15	e 17 8	PP	e 23 29	[−15]	e 23 39	SKKS	e 38·9
Calcutta	N.	92·5	293	e 20 4	?	—	—	—	—	—
Colombo	E.	94·2	275	e 7 7	?	—	—	—	—	—
Salt Lake City		94·4	48	e 13 22	− 1	e 23 47	[−11]	e 25 34	PS	e 41·5
Bozeman		97·0	43	e 18 15	?	e 24 47	− 8	e 23 57	SKKS	e 45·6
Kodaikanal	E.	97·6	278	e 17 27	PP	i 24 6	[− 9]	i 26 31	PS	—
Hyderabad	E.	99·2	285	17 45	PP	24 4	[−19]	26 42	PS	30·1
Bombay	E.	104·8	284	i 9 33	?	i 24 27	[−23]	i 18 22	PP	—
Huancayo		106·1	110	e 12 7	?	e 24 40	[−15]	e 18 51	PP	e 44·4
Florissant		109·4	55	e 19 0	PP	i 26 40	?	i 27 43	sS	e 51·7
St. Louis		109·5	55	—	—	e 25 46	{−15}	—	—	e 46·5
Chicago		112·1	52	e 19 51	PP	e 26 59	?	e 25 7	SKS	e 46·8
Ottawa		121·0	49	e 18 48	[− 7]	—	—	—	—	47·1
Philadelphia		121·2	55	e 20 6	PP	e 25 38	[−16]	e 36 47	SS	e 45·7
Harvard		124·0	52	e 18 56	[− 4]	—	—	e 20 42	PP	e 54·1
Seven Falls		124·4	46	e 30 49?	PS	—	—	—	—	38·1
San Juan		125·9	82	e 21 36	?	e 25 53	[−15]	e 38 46	sSS	e 49·8
Scoresby Sund		130·8	6	e 21 29	PP	—	—	i 22 42	sPP	e 53·9
Upsala		138·0	341	e 22 52	?	e 26 38	[+ 2]	—	—	e 59·7
Ksara		139·5	296	e 19 28	[− 2]	—	—	e 22 27	PP	—
Copenhagen		143·0	340	e 19 27	[− 9]	—	—	22 47	PP	—
Helwan		143·7	291	e 19 27	[− 9]	e 29 28	{−17}	e 22 40	PP	—
Bucharest		144·0	316	e 19 29	[− 8]	—	—	—	—	—
Potsdam		145·5	338	i 19 34a	[− 6]	—	—	i 19 53	PKP_2	e 64·1
Sofia		146·5	315	e 19 38	[− 4]	e 29 42	{−17}	e 35 37?	PPS	
Prague		146·8	333	i 19 43	[+ 1]	—	—	—	—	—
Belgrade		147·2	320	e 19 37	[− 6]	—	—	e 20 9	PKP_2	—
Jena		147·2	335	i 19 37	[− 6]	—	—	i 20 17	PKP_2	—
De Bilt		148·2	344	i 19 44a	[− 1]	e 26 27	[−25]	i 23 20	PP	e 69·1
Uccle		149·6	345	e 19 41	[− 5]	i 26 43	[−10]	i 23 27	PP	—
Kew		149·9	350	i 20 7k	[+20]	e 27 7	[+14]	i 20 20	PKP_2	e 61·1
Stuttgart		149·9	336	i 19 40	[− 7]	—	—	e 23 30	PP	—
Triest		150·3	328	e 19 44	[− 4]	—	—	—	—	e 70·1
Chur		151·3	335	e 19 43	[− 6]	—	—	—	—	—
Zurich		151·3	336	e 19 43	[− 6]	—	—	—	—	—
Basle		151·5	337	e 19 43	[− 7]	—	—	e 23 27	PP	—
Neuchatel		152·2	337	e 19 44	[− 7]	—	—	—	—	—
Clermont-Ferrand		154·6	342	e 19 49	[− 5]	—	—	(43 7?)	SS	e 43·1
Granada		164·3	346	i 20 0	[− 5]	—	—	20 22	pPKP	—
San Fernando	E.	165·5	354	e 20 6	[0]	—	—	—	—	—

Additional readings :—
Auckland pP = 3m.50s., i = 6m.47s.
Apia iPP = 4m.42s.
Brisbane iSN = 7m.23s.
Wellington i = 8m.17s., P_cPZ = 8m.42s., S_cS = 15m.52s.
Kiamata pP = 4m.58s., i = 8m.37s.
Riverview ipP = 5m.15s., iZ = 5m.36s., iN = 8m.47s., iE = 8m.50s., iN = 9m.4s., isS?E = 9m.29s., eN = 9m.33s., iZ = 9m.36s., iN = 16m.5s.
Lick eN = 13m.21s., eE = 13m.25s.
Pasadena ePPZ = 16m.12s., iNZ = 24m.23s.
Mount Wilson iZ = 16m.49s.

Continued on next page.

Palomar eZ =16m.53s.
Tinemaha eZ =13m.26s.
Victoria SS =30m.7s.?.
Tucson e =16m.24s., epPP =17m.15s., e =20m.0s., iS =24m.9s., e =24m.13s., iPS = 25m.17s., e =28m.25s.
College e =24m.58s., 26m.8s., 31m.25s., and 33m.42s.
Calcutta iN =23m.4s.
Salt Lake City e =18m.6s. and 24m.32s.
Bozeman epS =25m.52s., csS =26m.22s., eSS =31m.33s.
Bombay iE =10m.7s., iN =24m.35s., iE =25m.18s., and 27m.40s.
Huancayo e =25m.30s. and 28m.25s., eSS =33m.34s.
St. Louis iN =26m.38s.
Chicago ePP =20m.40s., epS =28m.3s., e =32m.49s.
Philadelphia e =28m.21s., 29m.22s., and 40m.7s.
Harvard e =20m.2s., 21m.19s., and 21m.39s.
San Juan e =34m.23s.
Scoresby Sund eSS =38m.28s.
Ksara e =22m.55s.
Helwan eN =41m.21s.
Potsdam iPKPEN =19m.37s., ipPKPZ =20m.7s.?.
Prague e? =29m.37s.?.
Belgrade i =19m.44s., e =20m.47s.
Jena iN =19m.40s., i =19m.45s., and iN =20m.25s.
De Bilt eSS =42m.17s.
Uccle iPKP =19m.47s.k, eSSE =42m.20s.
Kew iPPNZ =23m.44s.
Stuttgart i =19m.45s., 20m.13s., and 20m.26s., eSS? =42m.7s.?.
Chur i =19m.50s.
Zurich i =19m.49s., e =20m.31s.
Basle e =19m.49s.
Granada iPKP$_2$ =20m.59s., iPP =24m.39s., pPP =25m.3s., PPP =28m.41s., SKSP = 35m.15s.

Sept. 14d. Readings also at 1h. (Mount Wilson, Riverside, Tinemaha, and Pasadena), 4h. (near Fresno), 9h. (La Paz and near Stalinabad, Tashkent and Tchimkent), 10h. (near Tashkent), 11h. (Ksara, Tashkent, and Sverdlovsk), 13h. (Prague), 14h. (near Mizusawa), 17h. (Branner and near Fresno (2)), 19h. (Riverview, Sydney, Pasadena, Mount Wilson, Riverside, and Palomar), 20h. (Stuttgart).

Sept. 15d. 23h. Undetermined shock.
Riverview eE =45m.0s.?, eN =48m.18s.?, eZ =48m.34s., eLZ =52·1m.
Auckland e =48m., L =57m.
Pasadena iP =50m.49s., eLN =77m.
Mount Wilson iPZ =50m.50s.
Riverside ePZ =50m.52s.
La Jolla ePZ =50m.53s.
Palomar iPZ =50m.54s.
Santa Barbara eZ =50m.55s.
Tucson eP =51m.18s., e =55m.20s., eL =83m.2s.
Wellington S? =51m.25s., Q =57m., R? =59m.
Ottawa eZ =56m.32s., L =96m.
Stuttgart i =56m.40s. and 56m.44s.
Chur eP =56m.42s.
Sitka eS =60m.54s., eL =73m.28s.
Victoria eE =61m.18s.?, L =81m.
San Juan e =61m.26s. and 71m.33s., eL =104m.48s.
Bozeman eS =62m.9s., eL =85m.30s.
Long waves were also recorded at Scoresby Sund, and other American and European stations.

Sept. 15d. Readings also at 0h. (La Paz and Triest), 1h. (near Fort de France), 3h. (Auckland, Lick, Tashkent, and near Andijan), 5h. (Pasadena, Riverside, Mount Wilson, Palomar, and near Berkeley), 6h. (near Berkeley), 10h. (La Paz), 15h. (near Andijan), 16h. (Stuttgart and near Branner, Lick, and Berkeley), 18h. (near Branner), 19h. (Potsdam and Berkeley (2)), 21h. (near St. Louis), 22h. (near Branner, near Granada, and near Ottawa).

Sept. 16d. Readings at 0h. (Berkeley and near Mizusawa), 1h. (Kew), 3h. (near Fresno), 9h.. (Florissant), 16h. (Cape Girardeau), 17h. (near Berkeley), 20h. (Branner (2)), 21h. (near St. Louis, Berkeley, and Branner), 22h. (Berkeley and Branner).

Sept. 17d. 11h. 40m. 19s. Epicentre 49°·5N. 151°·0E. Depth of focus 0·030.

$A = -·5703$, $B = +·3161$, $C = +·7582$; $\delta = +3$; $h = -5$;
$D = +·485$, $E = +·875$; $G = -·663$, $H = +·368$, $K = -·652$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mizusawa	E.	12·5	218	2 53	+ 2	4 54	−13	—	—	—
Vladivostok		14·6	251	3 20	+ 3	e 6 20	+26	—	—	—
College		34·9	41	e 7 33	PP	—	—	—	—	e 15·2
Sitka		42·5	51	i 7 41	+ 6	e 13 50	+10	i 8 41	pP	e 17·2
Sverdlovsk		50·9	316	8 15	−25	i 15 39	+ 1	—	—	—
Victoria		53·2	56	e 8 53	− 4	—	—	—	—	47·7
Tashkent		55·3	296	—	—	i 16 38	+ 1	—	—	—
Spokane	E.	56·9	54	e 9 21	− 3	—	—	—	—	—
Berkeley		60·5	66	i 9 48	− 1	—	—	—	—	—
Butte		60·5	52	e 9 41	− 8	e 18 1	+16	e 11 57	PP	e 26·0
Lick	N.	61·2	66	e 9 54	+ 1	—	—	—	—	—
Bozeman		61·5	52	e 9 53	− 2	e 18 0	+ 3	—	—	e 25·9
Santa Barbara	Z.	64·3	67	i 10 15a	+ 1	—	—	—	—	—
Salt Lake City		64·4	57	e 10 15	+ 1	e 18 39	+ 6	—	—	e 29·0
Mount Wilson	Z.	65·4	66	i 10 22a	+ 2	—	—	i 11 29	pP	—
Pasadena		65·4	66	i 10 21a	+ 1	—	—	i 11 27	pP	—
Riverside	Z.	66·0	66	i 10 24a	0	—	—	i 11 31	pP	—
Palomar	Z.	66·8	66	i 10 30a	+ 1	—	—	i 11 37	pP	—
La Jolla	Z.	66·9	67	i 10 31a	+ 1	—	—	i 11 27	pP	—
Copenhagen		69·6	338	—	—	19 36	+ 1	—	—	—
Tucson		71·1	63	i 10 57	+ 1	e 19 52	0	i 12 5	pP	e 30·1
Potsdam		72·4	335	—	—	i 20 9	+ 2	i 22 10	sS	e 35·7
Bucharest		74·8	323	—	—	e 20 34	0	—	—	—
Stuttgart		76·7	336	e 11 31	+ 3	—	—	—	—	—
St. Louis	N.	77·0	46	—	—	e 20 54	− 4	e 22 18	pS	—
Triest		78·2	332	—	—	e 21 2	− 9	—	—	—
Zurich		78·2	336	e 11 35	− 1	—	—	—	—	—
Basle		78·3	337	e 11 39	+ 2	—	—	—	—	—
Cape Girardeau		78·4	46	i 11 39	+ 2	—	—	—	—	—
Ksara		79·1	310	e 11 29	−12	e 21 23	+ 3	—	—	—
Helwan		84·5	311	i 13 20	pP	e 22 11	− 4	i 24 17	sS	—

Additional readings :—
College e = 7m.44s., 9m.10s., and 12m.50s.
Sitka e = 15m.29s.
Berkeley iZ = 9m.52s.
Butte e = 16m.36s.
Tucson i = 11m.16s., e = 19m.7s.
Stuttgart e = 11m.34s. and 11m.47s.

Sept. 17d. Readings also at 1h. (Tucson), 4h. (Berkeley and Tashkent), 5h. (near Berkeley), 7h. (La Paz), 8h. (Apia), 10h. (near Berkeley (2)), 11h. (near Tashkent and Tchimkent), 12h. (Bozeman, Butte, Tucson, Mount Wilson, Pasadena, Palomar, Riverside and Sitka), 13h. (near Lick (2)), 14h. (Mizusawa), 17h. (Granada (3), and near Mizusawa), 18h. (La Paz), 19h. (near Mizusawa), 20h. (Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Berkeley, Tucson, Huancayo, Brisbane, Riverview, Sydney, and Wellington), 21h. (Berkeley and De Bilt).

Sept. 18d. Readings at 1h. (near La Paz, La Plata, Tucson, Mount Wilson, and Riverside), 2h. (Berkeley and Branner), 3h. (Berkeley (4) and Branner), 5h. (Berkeley), 7h. (Balboa Heights, near Tashkent, and Tchimkent), 9h. (near Tashkent), 11h. (De Bilt, Stuttgart, Triest, Bucharest, Potsdam, Focsani, Sofia, and Berkeley (2)), 13h. (Cape Girardeau), 17h. (Potsdam, Stuttgart, Triest, near Belgrade, and Sofia), 18h. (near Granada), 19h. (Branner and near Granada), 22h. (Branner (2) and near Ottawa), 23h. (Ksara).

Sept. 19d. 10h. Undertermined shock.

Chur ePg =59m.52s., eSg? =60m.25s.
Triest eP =59m.52s., e =60m.30s.
Zurich eP =60m.0s., eSg =60m.40s.
Neuchatel eP =60m.8s., eSg? =60m.56s.
Basle eP =60m.11s., eSg =61m.20s.
Stuttgart eP? =60m.18s., ePg? =60m.30s., eS? =61m.2s., eSg? =61m.45s., i = 61m.54s.
Ravensburg e =60m.52s. and 61m.12s., eSg? =61m.15s.
Jena e =62·0m., eN =62m.52s.

Sept. 19d. 23h. Local Japanese shock. Tokyo Imperial University quotes epicentre 35°·9N. 140°·1E.

Tukubasan P =30m.56s., S =31m.2s.
Komaba P =30m.56s., S =31m.4s.
Togane P =30m.56s., S =31m.4s.
Tokyo Imp. Univ. P =30m.56s., S =31m.4s.
Mitaka P =30m.56s., S =31m.5s.
Koyama P =30m.56s., S =31m.10s.

Sept. 19d. Readings also at 0h. (near Lick, Branner, and Berkeley), 4h. (near La Paz, and near Huancayo), 4h. (near Berkeley), 7h. (Scoresby Sund, Kew, De Bilt, Potsdam, Stuttgart, Helwan, Ksara, Tashkent, Sverdlovsk, and Upsala), 11h. and 12h. (near Berkeley), 13h. (near Seven Falls), 15h. (Branner).

Sept. 20d. 23h. 42m. 25s. Epicentre 13°·7S. 167°·2E. (as on 1942 April 11d.).

Pasadena suggests deep.

$A = -·9478$, $B = +·2153$, $C = -·2354$; $\delta = +9$; $h = +6$;
$D = +·222$, $E = +·975$; $G = +·230$, $H = -·052$, $K = -·972$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.			L.
		°	°	m. s.	s.	m. s.	s.	m. s.			m.
Brisbane		19·0	222	i 4 24	− 2	i 8 6	+11	i 8 9	SS		—
Apia		20·4	93	i 4 59	+18	e 8 58	SS	—		—	—
Riverview	E.	24·8	213	5 55	PP	—	—	—		—	—
Honolulu		48·9	45	—	—	e 15 22	−31	—		—	—
Berkeley		83·5	49	i 12 29	− 2	e 21 59	−53	i 13 5	?		e 34·8
Lick	N.	83·8	49	e 12 32	0	—	—	—	—		—
Santa Barbara	Z.	84·2	53	i 12 34	0	—	—	e 13 12	?		—
Pasadena		85·3	53	i 12 40a	0	—	—	i 13 16	?		e 38·6
Mount Wilson	Z.	85·4	53	i 12 41a	+ 1	—	—	i 13 21	?		—
La Jolla	Z.	85·6	55	i 12 42	+ 1	—	—	—	—		—
Riverside	Z.	85·9	53	i 12 41a	− 2	—	—	e 13 16	?		—
Palomar	Z.	86·0	54	i 12 45	+ 2	—	—	—	—		—
Tinemaha	Z.	86·2	50	i 12 44	0	—	—	—	—		—
Victoria		87·0	38	e 12 41?	− 7	e 23 17?	−10	—	—		45·6
Tucson		90·6	57	i 13 7a	+ 2	e 24 43	PS	i 13 42	?		e 43·8
Copenhagen		133·8	341	22 46	PP	—	—	—	—		—
Potsdam		136·2	338	i 19 23	[0]	e 22 57	PKS	i 21 55	PP		e 70·6
Helwan	Z.	136·3	299	i 19 26	[+ 2]	—	—	e 22 1	PP		—
Stuttgart		140·6	338	e 19 20	[−12]	—	—	i 19 31	PKP		—
Kew	Z.	141·0	348	e 19 34	[+ 2]	—	—	(e 22 35?)	PP		e 22·6
Triest		141·1	331	i 23 5	PP	—	—	—	—		—
Granada		155·2	343	i 20 15	[+20]	30 58	{+11}	24 20	PP		—

Additional readings :—
Potsdam ePKSN =22m.53s.
Helwan eZ =20m.2s., and 20m.53s.
Granada SS =44m.37s.

Sept. 20d. Readings also at 1h. (Kew), 3h. (New Delhi), 5h. (near Bucharest, Cernauti, and Focsani), 6h. (Berkeley), 13h. (near La Paz), 16h. (near Fresno, Branner, and Lick), 18h. (Huancayo, La Paz, Kew, Granada, San Fernando, De Bilt, Helwan, Cheb, and near Sofia), 19h. (Potsdam and near La Paz), 20h. (Sverdlovsk, and near Cernauti and Focsani), 21h. (Pasadena, Mount Wilson, Riverside, Tucson, Oaxaca, and Tacubaya), 22h. (near Branner), 23h. (Mount Wilson, Tinemaha, Tucson, Belgrade, Andijan, near Tashkent, and near Berkeley and Branner).

Sept. 21d. 5h. 52m. 29s. Epicentre 36°·5N. 141°·6E. (as on 8d.).

$A = -·6315$, $B = +·5005$, $C = +·5922$; $\delta = -1$; $h = 0$;
$D = +·621$, $E = +·784$; $G = ·464$, $H = +·368$, $K = -·806$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mizusawa	E.	2·6	352	i 0 42	− 2	1 19	+ 2	—	—	—
Irkutsk		30·6	313	6 20?	+ 2	11 9?	−11	—	—	—
College		49·5	32	—	—	e 15 46	−16	—	—	e 23·9
Tashkent		55·0	300	10 37	+62	19 33	?	—	—	—
Sverdlovsk		55·6	319	i 9 40	0	17 27	+ 2	—	—	—
Victoria		66·7	48	e 20 37	PPS	—	—	—	—	32·5
Ukiah		71·6	55	—	—	e 16 58	?	—	—	e 20·6
Scoresby Sund		72·7	355	—	—	e 20 50	− 7	e 20 21	?	e 25·7
Upsala		73·5	334	—	—	e 20 31	−35	—	—	e 37·5
Tinemaha	Z.	76·0	54	i 11 56	+ 5	—	—	—	—	—
Pasadena	Z.	77·7	57	11 50	−10	—	—	—	—	e 36·5
Mount Wilson	Z.	77·8	57	11 55	− 6	—	—	—	—	—
Riverside	Z.	78·4	57	e 11 57	− 7	—	—	—	—	—
Copenhagen		78·5	334	—	—	22 2	+ 1	—	—	42·5
Potsdam		80·8	332	e 12 16	− 1	e 22 24	− 1	e 15 18	PP	e 43·5
Sofia		83·2	319	e 12 31?	+ 2	e 22 54	+ 5	—	—	—
Tucson		83·8	54	e 12 37	+ 5	—	—	e 13 27	?	e 43·6
Stuttgart		85·1	331	e 12 37	− 2	—	—	e 13 4	?	—
Triest		85·7	327	e 23 4	SKS	(e 23 4)	[− 2]	—	—	—
Kew		86·3	337	e 12 42	− 3	—	—	—	—	e 46·5
La Paz	Z.	147·0	61	e 19 42	[− 1]	—	—	—	—	—

Long waves were also recorded at Honolulu, Huancayo, and other American and European stations.

Sept. 21d. Readings also at 0h. (Branner), 1h. (near Branner and Lick), 2h. (Granada), 10h. (Pasadena, Mount Wilson, Riverside, Tinemaha, Palomar, Tucson, and La Paz), 11h. (Triest, La Paz, and Branner), 12h. (Tinemaha and Tucson), 13h. (Tananarive), 17h. (near Branner, Fresno, and Lick), 19h. (Lick), 20h. (Tinemaha, Tucson, near La Paz, Samarkand, and near Algiers), 21h. (near Helwan), 22h. (Huancayo and near Branner), 23h. (Balboa Heights).

Sept. 22d. 0h. 46m. 25s. Epicentre 35°·8S. 98°·7W.

$A = -·1230$, $B = -·8036$, $C = -·5823$; $\delta = -2$; $h = 0$;
$D = -·988$, $E = +·151$; $G = +·088$, $H = +·576$, $K = -·813$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		31·7	47	e 6 20	− 7	i 11 37	0	e 7 26	PP	e 13·7
La Plata	E.	33·1	99	6 25	−15	—	—	7 53	PP	12·5
La Paz	Z.	33·3	63	i 6 32	− 9	i 12 4	+ 2	—	—	i 15·6
Rio de Janeiro	N.	49·4	90	i 15 46	S	(i 15 46)	−14	i 19 26	SS	i 21·6
Fort de France		61·5	43	e 10 10	−11	—	—	—	—	—
San Juan		62·1	35	e 10 18	− 7	e 18 39	−10	e 12 30	PP	e 24·9
Wellington		65·2	236	10 31?	−14	19 31	+ 3	—	—	29·6
Christchurch		65·6	232	19 41	S	(19 41)	+ 8	27 41	Q	30·4
Arapuni		66·0	239	e 14 35?	PPP	20 5	PPS	—	—	28·6
Auckland		67·2	241	—	—	19 35?	−17	23 55	SS	30·6
Tucson		68·6	349	e 11 6	− 1	e 20 13	+ 4	i 13 38	PP	e 29·5
La Jolla	Z.	70·5	344	e 11 18	0	—	—	—	—	—
Palomar	Z.	70·9	344	e 12 23	?	—	—	—	—	—
Columbia		71·4	15	e 11 39	+15	e 20 39	− 3	e 25 13	SS	e 29·9
Riverside	Z.	71·6	343	e 11 26	+ 1	—	—	—	—	—
Pasadena		71·9	343	e 11 29	+ 2	i 20 41?	− 7	—	—	i 30·8
Mount Wilson		72·0	343	e 11 28	0	—	—	—	—	—
Santa Barbara	Z.	72·6	342	e 11 34	+ 3	—	—	—	—	—
St. Louis		74·5	6	i 11 39	− 3	i 21 16	− 1	—	—	e 33·0
Florissant		74·6	6	e 12 10	+27	e 21 10	− 8	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tinemaha	Z.	74·8	344	i 11 46	+ 2	—	—	—	—	—
Bermuda		74·9	30	e 17 28	?	e 21 21	− 1	e 26 40	SS	e 37·3
Santa Clara		75·9	341	e 12 34	?	e 21 44	+12	—	—	e 35·2
Branner	N.	76·0	341	e 12 26	?	—	—	—	—	—
Berkeley		76·5	341	e 11 56	+ 2	i 21 47	+ 8	—	—	e 36·3
Salt Lake City		77·1	350	e 12 47	?	e 21 50	+ 4	—	—	e 33·2
Chicago		77·9	7	e 16 40	PPP	e 22 0	+ 6	e 22 50	PPS	e 33·2
Ukiah		77·9	341	—	—	e 22 0	+ 6	e 27 6	SS	e 33·1
Philadelphia		78·4	19	—	—	e 21 51	− 9	e 27 8	SS	32·9
Honolulu		79·7	306	e 13 37	?	e 22 37	+24	e 23 10	PS	e 36·7
Bozeman		81·9	352	—	—	e 22 29	− 7	e 28 5	SS	e 34·4
Ottawa		83·4	16	12 27	− 3	22 47	− 4	28 23?	SS	40·6
Riverview		84·9	231	22 5?	?	—	—	e 24 3	PS	e 38·9
Seven Falls		86·2	19	e 22 17	?	—	—	—	—	35·6
Victoria		86·8	344	e 23 33	S	(e 23 33)	+ 8	—	—	37·6
Sitka		98·0	340	e 26 35	PS	—	—	e 31 44	SS	e 41·3
Lisbon	E.	111·0	56	—	—	—	—	34 47	SS	55·7
Granada		114·1	60	23 2	?	i 30 25	PPS	40 1	SSS	52·8
Kew		121·9	46	i 30 14?	PS	e 41 58	SSS	e 58 35?	Q	e 63·6
De Bilt	E.	125·4	46	—	—	e 37 35	SS	e 42 35	SSS	e 59·6
Stuttgart		127·0	51	e 19 1	[− 5]	—	—	—	—	—
Cheb		129·3	49	e 20 35?	?	—	—	—	—	e 61·6
Triest		129·3	56	e 20 59	?	—	—	—	—	e 62·6
Copenhagen		130·2	42	31 30	PS	—	—	39 5?	SS	62·6
Potsdam		130·2	47	e 21 22	PP	e 38 56	SS	i 22 33	PKS	e 53·6
Bucharest		137·6	59	e 21 59	PP	e 28 6	{−61}	e 22 45	PKS	68·6
Helwan		138·0	82	e 19 50	[+23]	—	—	e 23 5	PKS	59·6
Ksara		142·9	79	e 20 7?	?	—	—	e 23 27	PKS	—

Additional readings :—
Huancayo e =8m.9s. and 10m.4s.
La Plata N =6m.35s.?, E =6m.59s.?, 7m.23s.?, and 8m.47s.?.
La Paz iSEN =11m.54s.
San Juan e =12m.12s. and 22m.11s.
Wellington i =10m.45s.
Auckland Q =27m.5s.
Tucson i =11m.43s. and 12m.8s., ePPP =15m.25s., e =19m.12s. and 20m.19s., eS_cS = 21m.17s., eSS =24m.40s.
Pasadena eZ =12m.32s.
Florissant iSE =21m.17s
Berkeley eZ =12m.7s., iZ =12m.55s.
Philadelphia eSSS =30m.35s.
Ottawa SSS =31m.47s.?.
Riverview e?N =22m.11s.?, eZ =24m.11s., eN =28m.38s., eZ =28m.51s., eE =29m.3s.
Granada SS =36m.10s.
Kew eSSS? =53m.35s.?.
Potsdam eSSNZ =38m.59s.
Helwan eZ =27m.56s.
Long waves were also recorded at College, San Fernando, Uccle, Clermont-Ferrand, Prague, and Upsala.

Sept. 22d. 7h. 40m. 42s. Epicentre 36°·0N. 140°·1E. (as on 1940 Aug. 25d.).

Scale V at Tukubasan and Kakioka ; IV at Mito, Tyosi, Titibu, and Kohu ; II-III at Yokohama, Misima, Sendai, Hunatu, and Oiwake. Macroseismic radius 200-300km.

Bulletin of Central Meteorological Observatory Japan, for 1942, Tokyo 1950, pp. 35, 36. Chart p. 35. Epicentre 36°·2N. 140°·2E. Tokyo Imperial University : Epicentre 36°·97N. 140°·08E.

$A = -·6221$, $B = +·5202$, $C = +·5852$; $\delta = +8$; $h = 0$;
$D = +·641$, $E = +·767$; $G = -·449$, $H = +·375$, $K = -·811$.

	Δ	Az.	P.	O−C.	S.	O−C.
	°	°	m. s.	s.	m. s.	s.
Kakioka	0·2	16	0 13	+ 3	0 21	+ 5
Tukubasan	0·2	0	0 12	+ 2	0 19	+ 3
Tokyo Cen. Met. Ob.	0·4	222	0 14	+ 1	0 25	+ 4
Tokyo Imp. Univ.	0·4	222	0 15	+ 2	0 28	+ 7
Komaba	0·5	224	0 15	+ 1	0 28	+ 5

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.
		°	°	m. s.	s.	m. s.	s.
Mito		0·5	38	0 14	0	0 22	− 1
Togane		0·5	153	0 15	+ 1	0 28	+ 5
Kumagaya		0·6	285	0 16	+ 1	0 22	− 4
Mitaka		0·6	233	0 15	0	0 28	+ 2
Utunomiya		0·6	341	0 17	+ 2	0 29	+ 3
Tyosi		0·7	113	0 18	+ 1	0 28	0
Yokohama		0·7	213	0 18	+ 1	0 31	+ 3
Titibu		0·8	269	0 15	− 3	0 29	− 2
Maebasi		0·9	296	0 15	− 5	0 28	− 6
Koyama		1·1	234	0 15	− 7	0 46	+ 7
Onahama		1·1	35	0 19	− 3	0 33	− 6
Kohu		1·3	254	0 20	− 5	0 40	− 4
Misima		1·3	227	0 26	+ 1	0 44	0
Osima		1·4	205	0 26	− 1	0 42	− 4
Nagano		1·7	294	0 31	0	0 54	0
Shizuoka		1·7	233	0 33	+ 2	0 57	+ 3
Hukusima		1·8	10	1 2	+30	1 24	+28
Omaesaki		2·1	228	0 39	+ 2	1 5	+ 1
Sendai		2·3	16	0 37	− 3	0 55	−14
Aikawa		2·4	324	0 41	0	1 11	− 1
Toyama		2·4	286	0 44	+ 3	1 18	+ 6
Hatidyozima		2·6	184	0 49	+ 5	1 20	+ 3
Gihu		2·8	258	0 48	+ 1	1 21	− 1
Hikone		2·9	257	0 54	+ 6	1 33	S_g
Wazima		2·9	298	0 51	+ 3	—	—
Kameyama		3·2	249	0 54	+ 2	1 47	S_g
Mizusawa		3·2	15	0 49	− 3	1 27	− 5
Kyoto		3·7	255	0 54	− 6	1 44	− 1
Owase		3·8	241	1 3	+ 2	1 53	+ 6
Kobe		4·2	254	1 16	P*	2 12	S*
Toyooka		4·3	266	1 19	P*	2 13	S*
Siomisaki		4·4	237	1 49	P_g	—	—
Wakayama		4·4	248	1 10	0	2 6	+ 4
Sumoto		4·6	251	1 18	+ 6	2 27	S_g
Hatinohe		4·7	14	1 8	− 6	1 58	−12
Aomori		4·8	6	1 15	0	2 2	−10
Muroto		5·6	243	1 56	P_g	—	—
Koti		5·9	248	1 56	P_g	2 36	− 4
Mori		6·1	3	1 51	P*	3 5	S*
Miyazaki		8·3	243	0 23	?	0 40	?
Tinemaha	z.	77·3	54	i 11 53	− 5	—	—
Tucson		85·1	53	i 12 30	− 9	—	—

Sept. 22d. Readings also at 1h. (La Plata and near Branner), 3h. (near Branner), 4h. (La Plata, La Paz, and Huancayo), 5h. (Berkeley), 6h. (Tchimkent and near Tashkent), 9h. (near Mizusawa), 10h. (Calcutta and Bombay), 14h. (near La Paz), 19h. (Balboa Heights), 20h. (Balboa Heights and near Branner), 21h. (near Mizusawa).

Sept. 23d. Readings at 6h. (Semipalatinsk), 7h. (La Paz and near Lick), 8h. (near Berkeley (3), Branner (3), and Lick (3)), 10h. (Mount Wilson, Pasadena, Riverside, Tinemaha, Tucson, Bozeman, and Huancayo), 11h. and 14h. (La Paz), 18h. (Almata, near Andijan, and Tashkent), 20h. (near Andijan), 21h. (Apia, Riverview, Mount Wilson, Haiwee, Pasadena, Riverside, Tinemaha, Tucson, and Stuttgart).

Sept. 24d. 3h. 38m. 58s. Epicentre 23°·9N. 121°·7E. (as on 1939 May 16d.).

A = −·4809, B = +·7787, C = +·4029; δ = −3; h = +4;
D = +·851, E = +·525; G = −·212, H = +·343, K = −·915.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Vladivostok		21·0	22	i 4 43	− 4	i 8 45	+ 8	—	—	—
Mizusawa		22·4	42	e 5 19	+17	8 59	− 5	e 5 22	PP	—
Calcutta		30·7	275	e 6 21	+ 2	i 10 9	?	i 6 41	PP	e 12·1
Irkutsk		31·3	340	i 6 23	− 1	11 50	+19	—	—	—
Dehra Dun	N.	39·2	290	—	—	e 13 50?	+18	—	—	e 22·0
Hyderabad		40·9	270	7 49	+ 3	14 1	+ 3	9 25	PP	21·3
Almata		41·4	310	7 56	+ 6	—	—	—	—	—
Semipalatinsk		41·5	321	7 50	0	—	—	—	—	—
Kodaikanal	E.	44·2	261	e 7 24	−48	e 14 2	−44	e 17 42	SS	—
Andijan		44·4	305	8 16	+ 2	e 14 58	+ 9	—	—	—
Bombay		45·6	274	i 8 27	+ 3	i 15 9	+ 3	e 10 12	PP	22·0
Tashkent		46·7	306	8 40	+ 8	15 28	+ 6	—	—	—
Sverdlovsk		54·6	324	i 9 32	0	17 14	+ 3	—	—	—
Brisbane	N.	59·4	147	i 18 22	S	(i 18 22)	+ 7	—	—	e 25·1
Riverview		63·9	153	e 10 59	+22	i 19 14	+ 2	i 19 19	PS	e 33·1
Sydney		63·9	153	—	—	e 19 2	−10	—	—	—
College		68·8	27	e 11 5	− 3	e 20 6	− 5	e 24 46	SS	e 31·5
Honolulu		73·3	73	—	—	e 21 5	+ 1	—	—	e 34·8
Ksara		73·8	300	e 11 43	+ 5	e 21 18	+ 9	—	—	—
Upsala		76·4	331	11 49	− 4	e 21 33	− 5	e 30 56	SSS	e 37·0
Sitka		77·0	33	e 11 55	− 1	i 21 39	− 6	—	—	e 32·6
Bucharest		77·5	313	e 11 59	0	e 21 53	+ 3	e 15 9	PP	37·0
Helwan		78·8	298	e 12 6	0	22 8	+ 4	15 11	PP	—
Sofia		79·6	312	e 12 15	+ 5	e 22 18	+ 6	—	—	45·0
Copenhagen		80·7	328	i 12 17k	+ 1	22 23	− 1	15 20	PP	39·0
Belgrade		81·0	315	e 12 17	− 1	—	—	e 28 4	SS	e 52·3
Christchurch		81·8	146	22 39	S	(22 39)	+ 4	i 31 18	SSS	43·7
Potsdam		82·0	325	i 12 25k	+ 2	i 22 39	+ 2	—	—	e 41·0
Prague		82·1	322	e 36 30	?	—	—	—	—	e 42·0
Scoresby Sund		82·4	349	e 14 16	?	—	—	e 27 46	SS	e 41·7
Cheb		83·5	323	—	—	e 22 51	− 1	—	—	e 49·0
Jena		83·5	323	i 12 32	+ 1	e 22 44?	− 8	—	—	e 38·0
Triest		84·9	318	—	—	i 22 59	− 7	—	—	e 43·0
Stuttgart		86·0	323	e 12 42	− 1	—	—	i 16 5	PP	e 45·0
De Bilt		86·3	327	i 12 47k	+ 2	e 23 25	+ 5	e 29 2	SS	e 41·0
Aberdeen		86·5	333	—	—	i 23 0	[−11]	—	—	e 43·2
Chur		86·7	322	e 12 46	− 1	e 22 56	[−16]	—	—	e 45·9
Zurich		87·1	322	e 12 48a	− 1	—	—	e 16 6	PP	—
Uccle		87·4	327	e 12 48	− 2	23 19	[+ 2]	e 16 15	PP	e 43·0
Basle		87·5	322	e 12 51	0	e 22 58	[−20]	—	—	—
Victoria		87·5	37	e 12 46	− 5	e 23 13	[− 5]	—	—	34·0
Neuchatel		88·2	322	e 12 54	0	—	—	—	—	—
Kew		89·4	328	i 13 1	+ 1	i 23 25	[− 4]	e 16 34	PP	e 43·0
Clermont-Ferrand		91·2	322	e 13 2?	− 6	e 23 2?	?	—	—	e 50·7
Ukiah		92·8	45	—	—	e 23 38	[−11]	—	—	e 65·2
Berkeley		94·1	46	e 13 16	− 6	i 23 53	[− 3]	—	—	i 48·9
Santa Clara	E.	94·6	46	e 23 46	SKS	(e 23 46)	[−13]	—	—	—
Butte		94·8	34	e 13 8	−17	e 24 3	[+ 3]	—	—	e 51·1
Ivigtut		94·8	355	e 11 53	?	—	—	—	—	e 60·2
Bozeman		95·8	34	—	—	e 23 56	[−10]	—	—	e 47·6
Tinemaha	Z.	97·2	44	i 13 33	− 3	—	—	—	—	—
Santa Barbara	Z.	97·8	47	e 13 38	0	—	—	—	—	—
Haiwee	Z.	97·9	45	e 13 37	− 2	—	—	—	—	—
Salt Lake City		98·7	38	—	—	e 25 4	− 6	e 24 17	SKS	e 42·2
Mount Wilson	Z.	99·0	47	e 13 43	− 1	—	—	—	—	—
Pasadena		99·0	47	i 13 41	− 3	e 24 9	[−13]	—	—	e 40·6
Riverside	Z.	99·6	47	e 13 47	+ 1	—	—	—	—	—
Granada		100·4	319	i 17 44	PP	—	—	—	—	53·5
San Fernando	E.	102·4	320	—	—	e 24 38	[0]	—	—	53·0
Tucson		104·9	44	e 14 9	− 1	e 24 41	[− 9]	e 18 21	PP	e 41·0

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		108·4	9	e 37 2?	?	—	—	—	—	e 48·0
Ottawa		109·2	13	—	—	e 25 2?	[− 7]	e 28 6	PS	47·0
St. Louis	N.	111·0	26	—	—	i 25 10	[− 6]	i 28 48	PS	e 63·4
Harvard		112·8	10	e 29 2	PS	—	—	e 30 2	PPS	e 62·0
Philadelphia		114·6	14	e 19 37	PP	e 26 36	{− 1}	e 29 2	PS	e 44·4
Columbia		118·5	22	e 29 42	PS	—	—	—	—	e 56·1
Bermuda		123·7	6	—	—	e 26 14	[+12]	e 31 55	PPS	e 59·4
San Juan		137·3	11	e 22 57	?	e 29 14	{+ 9}	e 25 34	PPP	e 64·5
Huancayo		160·0	57	e 20 6	[+ 5]	—	—	—	—	e 55·5
La Paz		168·2	53	i 20 13k	[+ 5]	31 57	{+ 3}	i 25 4	PP	81·0

Additional readings :—
Hyderabad P_cPE =9m.57s., S_cSE =17m.48s.
Bombay SSEN =18m.22s.
Riverview eZ =26m.28s.
College e =16m.27s.
Upsala eSN =21m.44s., eSSE =26m.53s., eSSS?E =31m.2s.?.
Sitka e =15m.28s.
Bucharest ePS =22m.37s., eE =26m.10s.
Helwan eE =22m.20s.
Copenhagen 23m.18s.
Belgrade e =45m.23s.
Christchurch Q =39m.30s.
Scoresby Sund e =28m.18s.
Jena eN =22m.38s.?.
Stuttgart e =26m.46s.
Aberdeen eN =33m.50s.
Uccle SKS?EN =21m.59s., eSSEN =29m.38s.?.
Kew eSZ =24m.0s.?, iPS =25m.1s., eSSN =30m.4s.?, eSSSEN =34m.4s.
Butte e =29m.47s.
Ivigtut e =19m.32s.
Salt Lake City e =37m.33s.
Pasadena eN =23m.51s.
Granada PP =21m.58s., S =28m.40s.
Tucson e =17m.25s. and 24m.54s., eS =27m.29s.
Ottawa eN =34m.38s.?.
Philadelphia eSS =35m.37s.
Bermuda eSS =37m.22s.
San Juan eSS =39m.42s.
Long waves were also recorded at Colombo, New Delhi, Chicago, Paris, Stonyhurst, Lisbon, Algiers, Tananarive, and La Plata.

Sept. 24d. Readings also at 2h. (near Andijan), 5h. (Mizusawa), 9h. (San Fernando), 13h. (La Paz), 14h. (near Almata and Andijan), 16h. (near Chur), 17h. (Ksara), 19h. (Guadalajara and Ksara), 22h. (Branner and Ksara), 23h. (near Fresno).

Sept. 25d. 8h. 14m. 17s. Epicentre 53°·5N. 165°·9W. (as on Sept. 9d.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		14·6	32	e 3 36	+ 6	e 6 46	+33	—	—	e 8·6
Sitka		17·7	67	e 4 16	+ 6	i 7 58	+32	e 4 33	PP	e 9·8
Victoria		26·9	83	e 6 13?	+28	(10 43?)	+23	—	—	10·7
Seattle		27·9	84	e 5 42	−12	e 12 25	SS	—	—	e 15·6
Ukiah		32·3	99	e 9 16	?	e 12 7	+21	—	—	e 14·3
Honolulu		32·7	166	e 6 58	+22	e 12 4	+12	—	—	e 13·7
Berkeley		33·7	100	e 6 45	0	i 12 17	+ 9	—	—	i 17·9
Branner		34·0	100	e 6 50	+ 2	—	—	—	—	—
Santa Clara	E.	34·2	100	e 8 36	PP	e 12 24	+ 8	—	—	e 14·2
Butte		34·5	79	—	—	e 11 37	−43	—	—	e 14·3
Bozeman		35·6	80	—	—	e 12 44	+ 6	—	—	e 17·0
Tinemaha	Z.	36·5	97	i 7 12	+ 3	—	—	—	—	—
Haiwee	Z.	37·4	98	i 7 20	+ 4	—	—	—	—	—
Salt Lake City		38·0	87	e 9 12	PP	—	—	—	—	e 16·5
Mount Wilson	Z.	38·6	100	i 7 28	+ 2	—	—	—	—	—
Pasadena		38·6	100	i 7 27	+ 1	—	—	—	—	e 16·4
Riverside	Z.	39·2	100	e 7 31	0	—	—	—	—	—
La Jolla	Z.	40·1	101	e 7 39	0	—	—	—	—	—
Tucson		44·3	96	e 8 15	+ 2	e 14 53	+ 5	e 9 30	PP	e 18·5
Chicago		51·5	70	—	—	e 16 34	+ 5	e 18 57	S_cS	e 25·4

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		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Florissant	N.	51·9	74	—	—	i 16 42	+ 7	—	—	e 25·2
Scoresby Sund		53·6	15	e 9 41	+16	—	—	—	—	e 25·5
Ottawa		55·4	59	9 47	+ 9	17 33	+11	—	—	27·7
Seven Falls		56·7	54	—	—	e 17 49?	+ 9	—	—	29·7
Philadelphia		59·5	63	—	—	e 18 26	+10	e 22 31	SS	e 29·4
Columbia		60·6	72	e 10 6	− 9	e 18 37	+ 7	e 13 55	PP	e 30·0
Sverdlovsk		63·6	334	i 10 32	− 3	e 19 9	+ 1	—	—	—
Bermuda		70·8	62	—	—	e 20 41	+ 6	e 25 21	SS	e 34·7
Tashkent		74·3	320	11 35	− 6	21 20	+ 5	—	—	—
Stuttgart		78·0	4	e 10 3	−119	—	—	—	—	—
San Juan		81·1	72	—	—	e 22 32	+ 4	—	—	e 39·8
Bombay		92·0	306	e 21 3	?	e 24 3	− 9	e 25 43	PS	e 48·7
Riverview		94·6	215	e 19 43?	PPP	—	—	—	—	—
Sydney		94·6	215	e 20 19?	PPP	—	—	—	—	—

Additional readings :—
Seattle e = 9m.49s.
Berkeley iE = 14m.31s., iN = 14m.37s., iEN = 16m.1s.
Branner eE = 6m.57s.
Tinemaha iZ = 7m.27s.
Mount Wilson iZ = 7m.37s.
Pasadena iZ = 7m.39s., eE = 14m.29s.
Tucson i = 8m.30s.
Philadelphia e = 24m.31s., eSSS = 25m.16s.
Riverview eE = 21m.53s., eN = 22m.10s.
Long waves were also recorded at Harvard and other European stations.

Sept. 25d. Readings also at 1h. (Branner), 2h. (near Fresno), 5h. (Tananarive and near Fresno), 7h. (near Berkeley), 9h. (La Paz), 10h. (Mount Wilson, Pasadena, Riverside, and Tucson), 11h. (near Lick), 14h. (near Fresno and near La Paz), 16h. (Bombay and Calcutta), 19h. (near Branner (2) and near La Paz).

Sept. 26d. 4h. 0m. 16s. Epicentre 13°·0N. 87°·8W.

A = +·0374, B = −·9740, C = +·2235 ; δ = +3 ; h = +6 ;
D = −·999, E = −·038 ; G = +·009, H = −·223, K = −·975.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Balboa Heights		9·0	115	e 2 44	PPP	—	—	—	—	—
Oaxaca	Z.	9·5	296	e 2 20	0	—	—	—	—	—
Vera Cruz	N.	10·1	309	e 2 32	+ 4	—	—	—	—	—
Puebla	E.	11·6	302	e 3 6	PP	—	—	—	—	—
Tacubaya	N.	12·6	302	3 10	+ 7	—	—	—	—	—
Guadalajara	Z.	16·7	299	i 3 55	− 2	—	—	—	—	—
Mobile		17·6	359	i 4 9	+ 1	i 7 37	+14	—	—	—
San Juan		21·5	74	i 4 52	0	e 8 50	+ 3	i 5 11	PP	i 9·8
Columbia		21·8	15	e 4 59	+ 3	i 8 56	+ 4	e 5 26	PP	e 11·4
Cape Girardeau	E.	24·3	357	e 5 23	+ 3	i 9 33	− 4	—	—	—
St. Louis		25·6	4	i 5 32	0	e 10 0	+ 1	i 5 52	pP	—
Florissant		25·8	4	i 5 34	0	i 10 0	− 2	i 5 53	pP	—
Fort de France		25·9	84	e 5 34	− 1	e 9 44	−20	—	—	—
Georgetown		27·5	19	i 5 54	+ 4	i 10 33	+ 3	—	—	14·2
Huancayo		27·8	155	e 5 50	− 3	e 10 20	−15	—	—	i 11·4
Pittsburgh		28·2	13	i 5 58	+ 2	e 10 53	+12	i 6 40	PP	13·5
New Kensington		28·4	13	i 5 56?	− 2	i 10 44?	− 1	—	—	—
Tucson		28·5	317	i 5 59	0	e 10 34	−12	i 7 16	PPP	i 11·7
Bermuda		28·6	45	i 6 3	+ 3	—	—	e 6 44	PP	e 12·4
Chicago		28·7	359	e 6 0	− 1	i 10 46	− 4	c 6 44	PP	e 13·0
Philadelphia		29·1	21	i 6 5	+ 1	i 10 52	− 4	—	—	i 12·0
Fordham		30·3	22	i 6 17	+ 2	i 11 17	+ 2	—	—	i 15·7
Buffalo		30·8	14	i 6 21	+ 1	e 11 2	−21	i 7 15	PP	—
Harvard		32·6	23	e 6 37	+ 2	e 11 53	+ 2	e 7 52	PP	e 14·7
Weston		32·6	23	i 6 36	+ 1	i 11 53	+ 2	7 49	PP	e 15·3
La Jolla		33·5	312	e 6 40	− 3	—	—	e 13 1	S_cP	—
Vermont		33·8	19	e 6 47	+ 1	i 12 14	+ 4	e 7 55	PP	e 14·8
Ottawa		33·9	15	6 46	− 1	i 12 11	0	8 6	PP	16·7
Mount Wilson		34·6	314	i 6 53	0	—	—	i 9 25	P_cP	—
Pasadena		34·7	314	i 6 52	− 2	e 12 17	− 7	i 9 26	P_cP	e 16·9

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Salt Lake City		34·8	328	e 6 54	0	e 12 20	− 5	e 8 18	PP	e 14·9
La Paz	Z.	35·2	146	i 7 4k	+ 6	i 12 49	+18	—	—	18·1
Logan		35·5	332	i 7 0	0	i 12 30	− 6	i 8 27	PP	e 14·8
Haiwee	Z.	35·6	317	e 7 1	0	—	—	i 9 28	P_cP	—
Shawinigan Falls		35·8	18	7 3	0	12 41	0	—	—	16·7
Santa Barbara	Z.	35·9	313	e 7 5	+ 1	—	—	i 9 34	P_cP	—
Tinemaha		36·3	318	i 7 6	− 1	e 13 12	+24	i 9 32	P_cP	—
Seven Falls		36·9	19	7 12?	0	12 56	− 2	8 44?	PP	16·7
Halifax		37·7	29	7 26?	+ 7	13 20?	+10	—	—	18·7
Bozeman		38·1	335	e 7 21	− 1	e 13 9	− 7	e 8 55	PP	e 15·6
Santa Clara	E.	38·9	316	i 7 24	− 5	e 13 40	+12	—	—	—
Butte		39·0	334	e 6 37	?	e 12 25	?	—	—	e 15·3
Branner		39·1	316	e 7 24	− 7	e 13 31	0	—	—	—
Berkeley		39·4	316	i 7 35	+ 2	i 13 25	−10	e 9 17	PPP	i 19·8
Ukiah		40·7	317	e 7 52	+ 8	e 13 50	− 5	—	—	e 20·3
Victoria		45·9	328	8 2?	−24	14 50?	−21	17 56?	SS	24·7
Rio de Janeiro	N.	56·4	129	e 9 44	− 1	e 17 25	−11	—	—	—
College		65·8	337	e 14 54	PPP	e 19 25	−10	—	—	e 27·0
Honolulu		67·0	288	—	—	e 19 46	− 4	—	—	—
Scoresby Sund		69·8	19	e 15 40	PPP	e 20 23	0	e 27 42	SSS	e 29·7
San Fernando		75·7	56	—	—	21 31	+ 1	—	—	34·7
Stonyhurst		76·9	38	e 21 44?	S	(e 21 44?)	+ 1	e 26 44?	SS	36·4
Granada		77·7	54	i 12 17	+17	i 21 47	− 5	14 59	PP	i 34·8
Kew		78·4	40	e 12 3k	− 1	e 21 43	−17	e 14 59	PP	e 34·2
Clermont-Ferrand		81·4	46	—	—	e 22 19	−12	—	—	e 38·0
Uccle		81·4	40	e 12 20	0	e 22 19	−12	e 15 47	PP	e 38·7
De Bilt		81·7	38	e 12 19	− 3	i 22 28	− 6	—	—	e 37·7
Copenhagen		85·1	34	—	—	22 54	−14	24 19	PPS	—
Potsdam		86·3	38	e 12 41	− 4	e 23 8?	[− 1]	—	—	e 38·7
Upsala		86·4	29	e 10 44?	?	e 22 44?	[−26]	—	—	e 39·7
Cheb		86·6	39	e 12 46	0	e 23 7	[− 4]	—	—	e 40·7
Triest		88·7	44	—	—	e 23 18	[− 7]	—	—	e 41·7
Helwan		107·6	53	—	—	e 37 54	SSS	—	—	59·7
Ksara		109·0	48	18 44?	PP	—	—	e 28 34	PS	59·7
Riverview	Z.	122·8	238	20 50	PP	—	—	e 30 34	PS	57·0
New Delhi	N.	136·2	17	(e 21 54)	PP	—	—	—	—	(e 67·7)
Bombay	E.	143·0	31	e 21 54	?	e 29 59	(+20)	—	—	e 70·7

Additional readings :—
San Juan iS = 9m.3s.
St. Louis isSN = 10m.35s.
Florissant isSN = 11m.32s.
Pittsburgh iZ = 6m.14s. and 6m.49s., e = 10m.2s., i = 10m.15s. and 10m.42s.
Tucson i = 10m.3s.
Bermuda e = 10m.8s.
Chicago e = 7m.14s.
Philadelphia i = 6m.25s., e = 9m.28s.
Fordham e = 9m.17s., iPS = 12m.17s.
Buffalo iPP = 6m.38s.
Harvard ePP = 6m.56s., eSS = 12m.49s., e = 14m.5s.
Weston PP = 6m.55s.
La Jolla eNZ = 9m.21s., eS_cSN = 17m.2s.
Ottawa e = 14m.32s.?.
Mount Wilson iS_cPZ = 13m.6s.
Pasadena iZ = 9m.8s., iS_cP = 13m.6s., iSSEN = 15m.4s., iS_cSEN = 17m.10s.
Logan e = 7m.45s.
Haiwee iS_cPZ = 13m.10s.
Santa Barbara iS_cPZ = 13m.12s.
Tinemaha eS_cS = 17m.15s.
Seven Falls SS = 15m.44s.?.
Butte e = 8m.15s.
Branner eE = 13m.20s.
Berkeley eZ = 9m.50s., iSN = 13m.30s., iSE = 13m.33s., iN = 16m.40s., iE = 16m.47s.
Scoresby Sund e = 15m.50s.
Granada SS = 26m.58s.
Kew ePPPZ = 17m.1s.?, eS?N = 22m.21s., ePSEZ = 22m.57s., eSSN = 27m.31s.?, eSSS = 31m.1s.
Uccle eSSE = 27m.26s.
Copenhagen 28m.44s.
New Delhi readings decreased by one hour.
Bombay eE = 34m.14s. and 57m.44s.
Long waves were also recorded at Lisbon, Paris, Prague, Sofia, and Auckland.

Sept. 26s. Readings also at 3h. (Balboa Heights), 6h. (Ksara), 10h. (Huancayo, San Juan, Tucson, Pasadena, Mount Wilson, Haiwee, and Tinemaha), 13h. (Mount Wilson, Tucson, Pasadena, near La Paz, and near Huancayo), 17h. (Balboa Heights), 21h. (near St. Louis), 22h. (Berkeley (2)).

Sept. 27d. 13h. Undertermined shock. South-east Pacific.

La Plata P?E =14m.12s., P?N =14m.18s., pP_cPZ =16m.30s., pP_cPE =16m.35s., pP_cPN =16m.47s., sP_cP?E =17m.12s., PPPN =18m.6s., N =20m.24s., E =20m.31s., and 21m.0s., SPE =22m.0s., SPN =22m.6s., SSE =22m.48s., PSN =23m.6s., SKSE =23m.48s., SSN =25m.48s., sS_cSE =25m.54s., LN =29m.0s.,
La Paz PZ =18m.17s., iPZ =18m.25s., PPZ =20m.39s., S?Z =26m.21s.
San Juan e =22m.7s., eS =31m.19s., eL =42m.4s.
Tucson eP =24m.27s., e =26m.47s., and 27m.26s., eS? =34m.49s., e =36m.32s., eL =49m.58s.
St. Louis ePZ =24m.39s., eS?E =34m.54s., eE =40m.29s., eL?E =47m.46s.
La Jolla ePZ =24m.44s.
Riverside ePZ =24m.44s.
Philadelphia e =24m.46s., eS =34m.50s., e =38m.24s., and 40m.42s., eL =43m.48s.
Mount Wilson ePZ =24m.47s.
Pasadena ePZ =24m.48s., iZ =24m.59s., iSEN =35m.25s., eLE =45m.
Haiwee ePZ =25m.0s.
Tinemaha ePZ =25m.0s.
Riverview eP?Z =25m.28s., eS?N =35m.52s., eE =36m.7s., eN =37m.12s., eZ =37m.16s., eSS?Z =41m.32s., eLZ =52·6m.
Berkeley ePNZ =26m.12s., eE =26m.20s., iN =26m.24s., iSN =36m.18s., iSE =36m.22s., iPSN =37m.20s., iLN =55·0m.
Bozeman e =30m.45s., eS =35m.49s., eL =51m.39s.
Ukiah e =31m.12s. and 36m.37s., eL =50m.45s.
Bombay eEN =32m.12s., and 82m., eL? =92m.0s.
Wellington S? =32m.30s.?, Q =42m.?, R =45m.?.
Christchurch S =32m.48s., Q =40m.12s., R =44m.16s.
Auckland S? =33m.18s., Q =43m.?, R =47m.
Arapuni e =34m.?, L =42m.?.
Potsdam eZ =34m.42s.?, eL =78m.
Ottawa e =35m.42s., eN =42m., L =48m.
Brisbane eN =36m.24s. and 42m.40s.
Seven Falls e =36m.30s.? and 42m.42s.?, L =49m.
Victoria eE =37m.54s., L =55m.
Sitka eSS =47m.12s., eL =57m.42s.
Long waves were also recorded at Apia, Sydney, Honolulu, College, De Bilt, and Uccle.

Sept. 27d. 17h. 2m. 0s. Epicentre 13°·9N. 90°·8W. (as on 7d.).

A = −·0136, B = −·9710, C = +·2387 ; δ = 0 ; h = +6.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Oaxaca	E.	6·5	299	i 1 34	− 5	—	—	—	—	—
Merida	Z.	7·1	9	e 2 34	P_g	—	—	—	—	—
Vera Cruz	N	7·3	316	e 1 58	+ 8	—	—	—	—	—
Puebla	E.	8·7	306	e 2 9	− 1	—	—	—	—	—
Tacubaya	Z.	9·7	305	e 2 20	− 2	—	—	—	—	—
Guadalajara	N.	13·8	301	e 4 52	?	—	—	—	—	—
Columbia		21·9	22	e 5 4	+ 7	e 9 8	+14	—	—	e 10·4
Cape Girardeau		23·4	4	e 5 12	+ 1	e 9 21	0	e 5 14	pP	—
San Juan		24·1	76	e 5 58	PP	e 11 0	SSS	—	—	e 13·5
St. Louis		24·6	0	i 5 25	+ 2	i 9 44	+ 2	i 5 46	pP	e 12·1
Florissant		24·8	0	i 5 26	+ 1	i 9 34	−12	i 5 42	pP	—
Tucson		25·9	319	i 5 34	− 1	e 10 4	0	i 6 14	PP	e 13·0
Lincoln		27·3	354	—	—	e 11 8	SS	—	—	e 15·4
Chicago		27·9	4	e 5 10	−44	e 9 41	−56	—	—	e 11·3
Philadelphia		29·4	25	e 7 25	PPP	11 0	− 1	e 11 49	SS	13·0
La Jolla		30·6	313	e 6 17	− 1	—	—	—	—	—
Fordham		30·6	26	—	—	e 11 26	+ 6	—	—	—
Riverside	z.	31·3	315	i 6 24k	0	—	—	i 9 22	P_cP	—
Mount Wilson	z.	31·9	315	i 6 29	0	—	—	—	—	—
Pasadena		31·9	315	i 6 29k	0	e 13 31	SS	i 9 23	P_cP	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Salt Lake City		32·5	329	e 6 35	+ 1	e 12 45	+56	—	—	e 17·0
Haiwee		32·9	318	i 6 38k	0	—	—	—	—	—
Santa Barbara	z.	33·2	313	e 6 31	− 9	—	—	—	—	—
Tinemaha	z.	33·7	318	i 6 44	− 1	i 13 11	SS	i 9 28	P_cP	—
Ottawa		33·9	18	e 6 52	+ 5	e 12 0	−11	—	—	e 15·0
Bozeman		36·0	337	e 8 25	PP	—	—	—	—	17·4
Lick	N.	36·0	316	e 7 6	+ 1	—	—	—	—	—
Branner		36·4	316	e 7 8	0	—	—	—	—	—
Berkeley		36·7	316	i 7 12	+ 2	e 12 46	− 8	e 8 30	PP	i 18·1
Seven Falls		37·1	22	—	—	e 13 6?	+ 5	e 16 6?	SSS	19·0
La Paz		37·6	142	8 6	PP	—	—	—	—	21·0
Spokane		40·3	333	i 7 39	− 1	—	—	—	—	—

Additional readings :—
St. Louis iS?E =9m.56s.
Florissant iSE =9m.9s.
Tucson i =5m.57s. and 6m.39s.
Pasadena eZ =13m.3s.
Berkeley eN =13m.18s.
Long waves were also recorded at Potsdam, Kew, and Scoresby Sund.

Sept. 27d. Readings also at 4h. and 7h. (La Paz), 8h. (Pasadena, Mount Wilson, Tinemaha, Tucson, Haiwee, Scoresby Sund, De Bilt, Stuttgart, Potsdam, and Kew), 9h. (Helwan, Ksara, Tashkent, Bombay, and Potsdam), 10h. (Vera Cruz and Tacubaya), 12h. (De Bilt and Kew), 13h. (Kew and Tashkent), 14h. (Pasadena, Mount Wilson, Riverside, Tinemaha, Tucson, Tacubaya, and Vera Cruz), 15h. (Potsdam), 16h. (Pasadena, Mount Wilson, Riverside, Tinemaha, Tucson, Tacubaya, and Vera Cruz), 17h. (Balboa Heights).

Sept. 28d. Readings at 1h. (near Ksara), 6h. (Tashkent and near Almata, and Andijan), 8h. (Lick, Berkeley and Branner), 9h. (Auckland), 11h. (Branner and near Triest), 14h. (Tucson), 16h. (Ksara, Stuttgart, Mount Wilson, Pasadena, Tucson, Haiwee, Riverside, Tinemaha, Apia, Auckland, Wellington, Riverview, and Sydney), 17h. (Berkeley), 18h. (Kew), 21h. (Zurich), 23h. (Ksara, near Almata, and Andijan).

Sept. 29d. 12h. 45m. 26s. Epicentre 6°·2N. 82°·4W. (as on 1938 July 2d.).

A = +·1315, B = −·9855, C = +·1073 ; δ = +2 ; h = +7 ;
D = −·991, E = −·132 ; G = +·014, H = −·106, K = −·994.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Balboa Heights		3·9	45	e 1 2	0	e 1 54	+ 4	e 1 59	S*	—
Huancayo		19·4	159	i 4 26	− 4	e 8 0	− 4	—	—	e 9·4
San Juan		20·0	51	i 4 42	+ 5	i 8 36	+19	e 5 12	PPP	9·8
Fort de France		22·5	68	e 5 7	+ 5	9 32	SS	—	—	—
La Paz	z.	26·6	147	5 37	− 5	i 11 30	SS	—	—	14·8
Tucson		37·1	318	i 7 15	+ 1	e 13 10	+ 9	i 8 45	PP	e 17·2
La Jolla	z.	41·9	314	e 7 56	+ 2	—	—	—	—	—
Riverside	z.	42·6	315	e 8 0	+ 1	—	—	—	—	—
Mount Wilson	z.	43·2	315	i 8 4	0	—	—	—	—	—
Pasadena		43·2	315	i 8 6	+ 2	e 13 53	−39	—	—	e 21·5
Haiwee	z.	44·1	313	e 8 14	+ 2	—	—	—	—	—
Tinemaha	z.	44·9	319	e 8 17	− 1	—	—	—	—	—
Bozeman		46·5	333	—	—	e 15 26	+ 7	—	—	e 26·0
Berkeley		48·0	317	—	—	e 15 52	+11	—	—	e 24·7
Rio de Janeiro	N.	48·0	127	e 15 24	S	(e 15 24)	−17	(e 19 13)	SS	—

Tucson also gives e =12m.49s.
Rio de Janeiro SS is given as S.
Long waves were also recorded at Bermuda, Auckland, Philadelphia, De Bilt, Kew, and Potsdam.

Sept. 29d. Readings also at 0h. (Pasadena (2), Mount Wilson (2), Riverside (2), Tucson (2), La Paz, Santa Barbara, Bozeman, Huancayo, and Berkeley), 1h. (Santa Barbara, Pasadena, Riverside, Mount Wilson, Tinemaha, Haiwee, and Tucson), 2h. (Auckland and Wellington), 4h. (Auckland), 8h. (Pasadena, Mount Wilson, Riverside, Tinemaha, Haiwee, Tucson, near Ukiah, near Santa Clara, Fresno, Branner, Lick, and Berkeley), 18h. (Mount Wilson, Riverside, Tucson, and Tinemaha), 20h. (near Belgrade, Sofia, and Stuttgart).

Sept. 30d. 16h. 4m. 26s. Epicentre 15°·1S. 75°·0W. (as on 12d.).

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		3·1	354	i 1 3	P_g	i 1 47	S_g	—	—	i 2·0
La Paz	z.	6·7	103	i 1 43$_a$	+ 1	i 3 10	+10	—	—	3·6
La Plata		25·0	145	5 16?	−11	9 52	+ 3	—	—	12·4
Fort de France		32·6	27	e 6 29	− 6	—	—	—	—	—
San Juan		34·4	15	—	—	e 12 31	+12	—	—	e 15·1
Tucson		58·3	325	i 9 59	0	—	—	—	—	e 30·1
Ottawa		60·2	0	e 10 12	0	—	—	—	—	31·6
Riverside	z.	63·3	321	i 10 35	+ 2	—	—	—	—	—
Mount Wilson	z.	63·9	321	i 10 38	+ 1	—	—	—	—	—
Pasadena	z.	63·9	321	i 10 39	+ 2	—	—	—	—	—
Santa Barbara	z.	65·1	320	e 10 49	+ 4	—	—	—	—	—
Uccle		95·0	38	e 22 34?	?	—	—	—	—	e 48·6

Additional readings :—
La Plata SN =10m.4s.?
San Juan e =11m.36s.
Tucson i =10m.7s., e =11m.17s.
Long waves were also recorded at De Bilt, Kew, and Potsdam.

Sept. 30d. 22h. 30m. 55s. Epicentre 34°·8N. 25°·6E.

$A = +·7422$, $B = +·3556$, $C = +·5681$; $\delta = +5$; $h = 0$;
$D = +·432$, $E = -·902$; $G = +·512$, $H = +·245$, $K = -·823$.

	△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Helwan	6·9	134	e 1 45	0	3 2	− 3	2 18	P_g	—
Sofia	8·1	348	e 2 3	+ 1	i 3 35	0	—	—	e 5·1
Ksara	8·6	94	e 2 8?	− 1	e 3 45	− 3	—	—	—
Bucharest	9·6	2	e 2 23	+ 2	e 4 5	− 7	5 7	S_g	—
Belgrade	10·8	340	—	—	e 5 18	S*	e 6 0	S_g	i 6·6
Triest	14·1	324	—	—	e 6 5	+ 3	e 6 49	Q	—
Zurich	17·9	321	e 4 10	− 2	e 7 36	+ 6	—	—	—
Cheb	18·1	333	e 6 5?	?	e 7 37	+ 2	—	—	e 9·5
Basle	18·5	321	e 4 17	− 2	e 7 44	0	—	—	—
Stuttgart	18·5	325	e 4 17	− 2	e 7 32	−12	e 4 36	PP	e 10·8
Neuchatel	18·6	319	e 4 18	− 3	—	—	—	—	—
Jena N.	19·1	335	e 4 31	+ 4	i 8 10	+13	i 4 44	PP	—
Potsdam	19·7	338	e 4 44	+10	i 8 10	0	—	—	11·1
Uccle	22·2	323	e 4 58	− 2	9 3	+ 3	—	—	e 12·1
De Bilt	22·6	327	—	—	i 9 9	+ 2	—	—	e 11·6
Copenhagen	22·8	342	—	—	9 9	− 2	—	—	—
Kew	25·0	320	—	—	e 9 52	+ 3	—	—	e 13·1
Upsala	25·6	352	—	—	e 10 5?	+ 6	—	—	e 15·1
Oxford	25·7	320	e 8 33	?	i 10 5	+ 4	—	—	e 13·6
Sverdlovsk	32·3	37	6 31	− 2	11 44	− 2	—	—	—

Additional readings :—
Bucharest ePEN =2m.27s., eS*E =4m.40s.
Jena iN =4m.35s., eN =7m.13s.
Potsdam eSZ =8m.15s.

Sept. 30d. Readings also at 0h. (near Algiers), 1h. (Branner), 2h. (Stuttgart), 12h. (near St. Louis), 15h. (Haiwee, Mount Wilson, Tucson, Pasadena, La Paz, and near Huancayo), 22h. (Florissant), 23h. (near Angra do Heroismo).

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

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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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