The International Seismological Summary.
1944 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 1944 contains 85 epicentres, 44 of which are repetitions from previous determinations.

Cases of abonormal focal depth are noted below :—

July	2d.	7h.	34·0°N.	135·5°E.	0·005
	2d.	8h.	Undetermined Shock.		Suggested Deep.
	10d.	12h.	42·8N.	144·0E.	0·015
	10d.	13h.	15·4S.	174·6W.	0·020
	10d.	15h.	31·0S.	178·5W.	0·015
	11d.	18h.	Undetermined Shock.		Suggested Deep.
	16d.	10h.	18·5S.	178·0W.	0·060
	22d.	11h.	17·2N.	94·6W.	Suggested Deep.
	23d.	11h.	Undetermined Shock.		Suggested Deep.
	23d.	16h.	23·7S.	65·7W.	0·030
	27d.	0h.	53·9N.	165·6W.	0·005
	27d.	8h.	12·4N.	92·5E.	Suggested Deep.
Aug.	5d.	13h.	13·0N.	87·4W.	Suggested Deep.
	7d.	12h.	5·6S.	150·5E.	0·005
	8d.	8h.	3·7S.	140·3E.	0·015
	14d.	11h.	58·7N.	154·4W.	0·010
	15d.	11h.	12·5N.	143·0E.	0·010
	18d.	10h.	38·3N.	140·5E.	0·015
	21d.	2h.	Undetermined Shock.		Suggested Deep.
	24d.	0h.	Undetermined Shock.		Suggested Deep.
	24d.	23h.	15·9N.	93·0W.	0·010
	25d.	12h.	17·7S.	175·7W.	0·030
	30d.	4h.	17·7S.	69·2W.	0·010

Sept.	3d.	22h.	22·5°S.	66·0°W.	0·010
	5d.	1h.	Undetermined Shock.		Suggested Deep.
	5d.	4h.	44·9N.	74·7W.	Suggested Deep
	6d.	5h.	22·0S.	171·7E.	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.

KEW OBSERVATORY,
RICHMOND,
SURREY.

December, 1953.

1944 JULY, AUGUST, SEPTEMBER.

July 1d. Readings at 4h. (Kew, De Bilt, Uccle, Triest, and Cheb), 10h. (Tucson), 11h. (St. Louis, Philadelphia, Mount Wilson, and Tucson), 18h. (near Berkeley), 21h. (Riverview and Suva), 22h. (Granada), 23h. (Riverview).

July 2d. 7h. 29m. 42s. Epicenre 34°·0N. 135°·5E. Depth of focus 0·005.
(as on 1940, November 18d.).
Intensity V at Wakayama; IV at Sumoto, Kobe, Tu, Kyoto, and Toyooka; II-III at Tadotu, Tottori, and Okayama.
Epicentre 34°·1N. 135°·6E. Shallow. Macroseismic radius 200-300km.
Seismological Bulletin of the Central Meteorological Observatory, Japan, for the year 1944, Tokyo, 1951, p. 16. Isoseismic chart p. 16.

A = −·5926, B = +·5823, C = +·5566; δ = +5; h = 0;
D = +·701, E = +·713; G = −·397, H = +·390, K = −·831.

	Δ	Az.	P.	O−C.	S.	O−C.
	°	°	m. s.	s.	m. s.	s.
Wakayama	0·4	310	0 15a	+ 3	0 22	0
Owase	0·6	83	0 14	0	0 25	0
Siomisaki	0·6	158	0 16a	+ 2	0 27	+ 2
Sumoto	0·6	304	0 16	+ 2	0 25	0
Kobe	0·7	339	0 16a	+ 1	0 25	− 2
Kyoto	1·0	11	0 17a	− 2	0 29	− 4
Kameyama	1·2	43	0 21a	− 1	0 33	− 5
Muroto	1·3	236	0 27	+ 4	0 44	+ 4
Hikone	1·4	26	0 24a	0	0 39	− 4
Toyooka	1·6	340	0 26a	− 1	0 44	− 3
Koti	1·7	255	0 31	+ 3	0 53	+ 3
Nagoya	1·7	46	0 27k	− 1	0 37	−13
Gihu	1·9	37	0 27	− 4	0 47	− 7
Hamamatu	2·0	69	0 30	− 2	0 49	− 8
Matuyama	2·3	266	0 38	+ 1	1 5	+ 1
Omaesaki	2·3	75	0 47	+10	—	—
Shizuoka	2·5	68	0 47	+ 8	1 17	+ 8
Simidu	2·5	240	0 41	+ 2	1 7	− 2
Hamada	3·0	288	0 48	+ 1	1 22	0
Toyama	3·0	27	0 45	− 2	1 28	+ 6
Hunatu	3·1	61	0 49	+ 1	1 17	− 7
Misima	3·1	69	0 46	− 2	1 17	− 7
Osima	3·3	75	0 49	− 2	1 22	− 7
Nagano	3·4	38	0 55	+ 3	2 14	+42
Mera	3·7	74	1 8	+12	1 56	sS
Kumagaya	3·8	55	0 58	0	1 38	− 4
Maebasi	3·8	49	1 8	+10	1 52	+10
Miyazaki	4·0	240	1 2	+ 1	1 48	+ 1
Hukuoka	4·2	266	1 8	+ 5	2 19	sS
Sendai	6·1	44	1 28	− 2	2 47	+ 8

Sendai gives also 3m.17s.

July 2d. 8h. South Pacific. Pasadena suggests deep focus.
Apia iP = 38m.20s., iS = 40m.5s.
Auckland P = 40m.0s. ?, S? = 42m.15s.
Suva P = 40m.10s. ?, S? = 41m.19s.?
Wellington P = 40m.20s., S = 43m.39s., i = 43m.45s.
Brisbane iN = 45m.9s. and 51m.1s.
Riverview iN = 45m.56s., eN = 48m.50s., eE = 49m.7s., iN = 51m.13s.
Pasadena iPZ = 47m.19s., eZ = 49m.22s.
La Jolla ePZ = 47m.20s.
Mount Wilson iPZ = 47m.20s.k.
Riverside iPZ = 47m.22s.k, eZ = 49m.35s.
Palomar iPEN = 47m.24s., eN = 49m.40s.
Haiwee ePEN = 47m.27s.
Tinemaha iP = 47m.30s.k.
Tucson iP = 47m.42s., e = 49m.47s.
Victoria eN = 57m.29s., LN = 94m.
St. Louis eSKS?N = 60m.1s., eSN = 63m.41s.
San Juan e = 77m.34s., eL = 81m.54s.
Philadelphia e = 81m.5s., eL = 83m.23s.

July 2d. 22h. 12m. 15s. Epicentre 13°·8N. 93°·1W. (as on 1944, June 28d.).

$A = -\cdot0525$, $B = -\cdot9701$, $C = +\cdot2370$; $\delta = +2$; $h = +6$;
$D = -\cdot999$, $E = +\cdot054$; $G = -\cdot013$, $H = -\cdot237$, $K = -\cdot972$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Oaxaca	Z.	4·7	313	0 57	−17	—	—	—	—	—
Vera Cruz	N.	6·1	333	i 1 22	−12	—	—	—	—	—
Bogota		20·9	114	e 4 55	+ 9	—	—	—	—	—
Columbia		22·9	26	e 5 5	− 1	e 9 18	+ 5	—	—	e 11·6
Tucson		24·5	322	i 5 22	0	e 9 52	+12	i 6 15	PP	e 12·9
St. Louis		24·9	5	e 5 22	− 4	i 9 53	+ 6	—	—	—
San Juan		26·3	76	e 5 40	+ 1	e 10 50	+39	e 6 54	PP	e 11·9
Chicago		28·4	7	e 6 9	+11	e 10 20	−25	—	—	e 11·7
Georgetown		28·7	27	e 5 58	− 3	e 10 39	−11	—	—	e 14·8
Palomar		29·1	316	i 6 3	− 1	—	—	—	—	—
Boulder City		29·5	325	e 6 8	0	—	—	—	—	e 16·0
Riverside	Z.	29·8	317	e 6 12	+ 1	—	—	—	—	—
Mount Wilson	Z.	30·4	317	i 6 17	+ 1	—	—	—	—	—
Pasadena		30·4	317	i 6 17	+ 1	—	—	—	—	e 14·8
Philadelphia		30·4	28	e 6 14	− 2	—	—	—	—	e 15·3
Huancayo		31·1	144	—	—	e 11 42	+14	—	—	e 18·8
Rapid City		31·4	346	—	—	e 12 35	+63	—	—	e 15·2
Fordham		31·7	29	e 6 25	− 2	e 11 39	+ 2	—	—	—
Bermuda		31·9	50	e 8 25	?	—	—	—	—	e 15·5
Tinemaha	Z.	32·3	320	i 6 34	+ 1	—	—	—	—	—
Ottawa		34·8	21	6 52	− 2	12 25	0	7 45	PP	15·8
Ukiah		36·5	320	—	—	e 13 7	+16	—	—	e 19·2
Shawinigan Falls		36·9	24	e 7 45	+33	—	—	—	—	22·8
Seven Falls		38·1	24	8 45	PP	—	—	—	—	18·8
Victoria		42·7	331	e 7 57	− 2	e 14 27	+ 3	—	—	23·8
Sitka		54·0	334	e 9 25	− 3	e 17 3	0	—	—	e 27·8
Malaga		80·9	54	i 12 19k	+ 2	—	—	e 17 21	PP	48·4
Kew		81·1	39	e 12 18	0	(e 22 45?)	[+11]	—	—	e 22·8
Granada		81·4	54	i 12 25k	+ 5	i 22 29	− 3	—	—	36·0
Uccle		84·1	39	e 12 35	+ 1	(e 22 45?)	−13	—	—	e 40·8
De Bilt		84·2	38	i 12 39	+ 5	e 23 10	+11	—	—	e 39·8
Cheb		89·2	38	—	—	e 23 45?	− 2	—	—	e 52·8
Triest		91·6	42	—	—	23 46	[+ 4]	—	—	—
Helwan		111·1	51	—	—	e 30 9	PPS	—	—	—

Additional readings :—
Columbia e = 5m.41s.
St. Louis iP = 5m.28s.
Georgetown eP = 6m.24s.
Philadelphia e = 10m.32s. and 12m.23s.
Huancayo e = 14m.10s.
Ottawa SSE = 14m.45s.?
Shawinigan Falls e = 8m.33s.
Uccle gives S as a premature L.
Long waves were also recorded at La Paz, Aberdeen, Potsdam, and Clermont-Ferrand.

July 2d. Readings also at 0h. (Auckland and near Balboa Heights), 1h. (Granada, Kew, and Vera Cruz), 2h. (Bogota and Ksara (2)), 4h. (Palomar, Riverside, Tucson, St. Louis, Ottawa, Philadelphia, San Juan, Granada, and Kew), 8h. (Vera Cruz), 9h. (St. Louis, Tucson, and Palomar), 11h. (near Balboa Heights), 18h. (Ksara), 19h. (Triest and near Mizusawa), 23h. (Riverview (2)).

July 3d. 5h. 38m. 22s. Epicentre 35°·4N. 117°·8W.

Intensity VI at Cantil ; V at Monolith ; IV at Bakersfield and Glenville.
Epicentre 35° 21′N. 117° 52′W.

R. R. Bodle.
United States Earthquakes, 1944. Washington, 1946, p. 20.

A = −·3810, B = −·7227, C = +·5767 ; δ = +4 ; h = 0 ;
D = −·885, E = +·466 ; G = −·269, H = −·510, K = −·817.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Haiwee		0·7	350	i 0 16k	− 1	i 0 26	− 2	—	—	—
Mount Wilson		1·2	190	i 0 23a	− 1	—	—	—	—	—
Pasadena		1·3	194	i 0 24a	− 1	i 0 41	− 3	—	—	—
Riverside		1·4	176	i 0 27a	0	i 0 46	0	—	—	—
Tinemaha		1·7	348	i 0 32k	+ 1	i 0 56	+ 2	—	—	—
Santa Barbara		1·8	238	i 0 33	+ 1	i 0 58	+ 2	—	—	—
Lick	N.	3·6	302	e 0 58	0	i 1 30	−12	i 1 51	S*	—
Branner	N.	4·1	301	i 1 6	+ 1	—	—	—	—	—
Berkeley		4·4	305	i 1 7a	− 3	i 2 0	− 2	—	—	—
San Francisco	E.	4·4	304	e 1 11	+ 1	—	—	—	—	—
Mineral	E.	5·8	330	e 1 37	+ 8	e 2 30	− 8	e 3 8	S_g	—
Tucson		6·6	117	i 1 39	− 2	—	—	—	—	i 3·5

Additional readings :—
Branner iE = 2m.26s., iN = 2m.32s.
Berkeley iEN = 1m.14s., iZ = 1m.23s., 2m.5s., and 2m.58s.
Tucson i = 1m.46s., e = 2m.7s., i = 2m.10s.
Long waves were also recorded at Salt Lake City and St. Louis.

July 3d. Readings also at 0h. (Berkeley), 4h. (Bogota, San Juan, Oaxaca (2), Vera Cruz (2), St. Louis, Tucson, and Tinemaha), 5h. (near Fort de France), 7h. (St. Louis, Tucson, Mount Wilson, Pasadena, Palomar, Riverside, and Tinemaha), 12h. (Kew), 14h. (Paris and Seven Falls), 15h. (Ksara), 17h. (De Bilt), 18h. and 19h. (Ksara), 23h. (Helwan, Ksara, Tucson, Mount Wilson, Pasadena, Palomar, and Tinemaha).

July 4d. Readings at 0h. (Berkeley), 1h. (San Juan), 2h. (Wellington, Riverview, and near Harvard), 3h. (San Juan, St. Louis, Tucson, Mount Wilson, and Palomar), 4h. (Brisbane and Granada), 10h. (Berkeley), 12h. (Jena, near Basle, and Zürich), 15h. (Jena), 16h. (Merida), 17h. (La Paz), 18h. (Kew), 23h. (Helwan and Ksara).

July 5d. Readings at 0h. (Granada and Kew), 7h. (near Bogota), 8h. (Ottawa), 9h. (Merida, Vera Cruz, San Juan, Columbia, Ottawa, St. Louis, Tucson (2), Mount Wilson (2), Pasadena, Palomar, Riverside, Tinemaha (2), De Bilt, and Kew), 10h. (Auckland, Christchurch, Wellington, Riverview, Colombo, Calcutta, Hyderabad, Kodaikanal, New Delhi, Helwan, Uccle, Copenhagen, De Bilt, Kew, Granada, St. Louis, Mount Wilson, Pasadena, Riverside, Tinemaha, Tucson, Sitka, and Huancayo), 11h. (La Paz), 12h. (Auckland), 14h. (Mineral), 17h. (Tucson, Pasadena, and Riverside), 18h. (Bucharest), 21h. (La Paz).

July 6d. Readings at 3h. (Triest and Bucharest), 5h. (Kew), 13h. (Malaga and near Bucharest), 14h. (near La Paz), 15h. (Malaga), 22h. (Tucson, Mount Wilson, Pasadena, Riverside, and near Mizusawa).

July 7d. Readings at 0h. (Kew, Fort de France, and near Berkeley), 2h. (Auckland, Wellington, Apia, Riverview, Tucson, and Pasadena), 6h. (Merida, Tucson (2), Mount Wilson (2), Pasadena, Palomar, Riverside, Tinemaha (2), De Bilt, and Kew), 8h. (Tucson), 9h. (near Mizusawa), 10h. (Mizusawa), 14h. (near Ferndale), 17h. (Arapuni, Auckland, Christchurch, Wellington, Brisbane, Riverview, Sydney, Haiwee, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, and Kew), 18h. (Huancayo, Granada, Kew, and Uccle), 22h. and 23h. (Mineral).

July 8d. Readings at 1h. (Huancayo, San Juan, and near Triest), 2h. (Ksara), 5h. (near La Paz), 8h. (Tucson (2), Tinemaha (2), Mount Wilson (2), Palomar, and Riverside), 9h. (Pasadena (2), Mount Wilson (2), Riverside (2), Tinemaha (2), Palomar, Santa Barbara, Haiwee, La Jolla, and Tucson (2)), 10h. (Tucson, Tinemaha, Haiwee, Riverside, Mount Wilson, Pasadena, near Bucharest and Campulung), 14h. (Tucson, Pasadena, Mount Wilson, Riverside, Tinemaha, and near Apia), 17h. (La Paz), 20h. (La Paz and Jena).

July 9d. 2h. 47m. 52s. Epicentre 40°·6N. 124°·6W. (as on 1943 October 2d.).

Epicentre 40°·8N. 124°·8W. (Berkeley).

$A = -·4324$, $B = -·6268$, $C = +·6482$; $\delta = +1$; $h = -2$;
$D = -·823$, $E = +·568$; $G = -·368$, $H = -·534$, $K = -·762$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ferndale		0·2	98	i 0 8	− 2	i 0 15	− 1	i 0 29	?	—
Mineral	E.	2·3	96	e 0 36	− 4	i 1 6	− 3	—	—	—
Branner	E.	3·7	148	e 1 2	+ 2	—	—	e 1 13	P_g	—
Lick	N.	4·0	143	e 1 3	− 1	e 1 52	0	—	—	—
Tinemaha	Z.	6·0	125	i 1 39	+ 7	i 3 9	S*	—	—	—
Haiwee	Z.	6·9	128	e 1 47	+ 2	—	—	—	—	—
Mount Wilson	Z.	8·2	138	i 2 3	0	—	—	—	—	—
Pasadena		8·2	138	i 1 26	?	—	—	i 2 2	P	e 5·6
Riverside	Z.	8·7	136	2 9	− 1	—	—	—	—	—
Palomar		9·5	137	i 2 19	− 1	—	—	—	—	—
Tucson		13·9	123	3 29	+ 8	—	—	—	—	—
St. Louis		26·5	83	e 5 35	− 6	—	—	—	—	e 14·5

Long waves were also recorded at Santa Clara.

July 9d. Readings also at 1h. (near Branner, Lick, and Berkeley (2)), 2h. (Tucson, Palomar, Mount Wilson, and Tinemaha), 14h. (Mizusawa), 17h. (Bogota, Bucharest, and near Sofia), 18h. (near Mizusawa), 20h. (Suva).

July 10d. 12h. 31m. 32s. Epicentre 42°·8N. 144°·0E. Depth of focus 0·015.

Intensity VI at Shironuka, Shibecha, and Hokkaido; V at Kushiro, Urakawa, and Obihiro; IV at Aomori and Hatinohe; II-III at Sapporo, Hakodate, and Morioka.
Epicentre as adopted. Depth 100 km. Macroseismic radius 300 km.
Seismological Bulletin of the Central Met. Observatory, Japan for 1944, Tokyo 1951, p. 17, with isoseismic chart.

$A = -·5954$, $B = +·4326$, $C = +·6770$; $\delta = -3$; $h = -3$;
$D = +·588$, $E = +·809$; $G = -·548$, $H = +·398$, $K = -·736$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Nemuro		1·3	65	0 26	0	0 45	− 1	—	—
Sapporo		2·0	278	0 30k	− 4	0 54	− 6	—	—
Mori		2·6	255	0 42a	0	1 12	− 2	—	—
Hatinohe		2·9	224	0 48a	+ 2	1 22	+ 1	—	—
Aomori		3·1	230	0 47	− 2	1 24	− 2	—	—
Miyako		3·5	206	0 54	0	1 34	− 2	—	—
Morioka		3·8	215	0 58a	0	1 40	− 3	—	—
Mizusawa	E.	4·3	212	i 1 5	0	i 1 52	− 3	—	—
Sendai		5·1	208	1 15a	− 1	2 9	− 5	—	—
Hukusima		5·7	209	1 24a	0	2 24	− 4	—	—
Onahama		6·3	203	1 30	− 2	2 46	+ 3	—	—
Aikawa		6·5	225	1 35	0	2 45	− 3	—	—
Mito		7·0	204	1 41k	0	2 56	− 4	—	—
Utunomiya		7·0	208	1 43a	+ 2	3 1	+ 1	—	—
Kakioka		7·2	205	1 42	− 2	2 48	−17	—	—
Tukubasan		7·2	205	1 42	− 2	2 52	−13	—	—
Maebasi		7·4	212	1 46	− 1	—	—	—	—
Kumagaya		7·5	210	1 55	+ 7	3 11	− 1	—	—
Nagano		7·6	218	1 50	+ 1	3 13	− 2	—	—
Wazima		7·7	227	1 58	+ 7	3 20	+ 3	—	—
Tokyo		7·8	206	1 51a	− 1	3 16	− 3	—	—
Toyama		8·0	223	1 54	− 1	—	—	—	—
Yokohama		8·1	206	1 56	0	—	—	—	—
Hunatu		8·3	211	1 58	− 1	3 32	+ 1	—	—
Mera		8·5	204	2 1	− 1	3 34	− 2	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Misima		8·6	209	2 2	− 1	—	—	—	—
Osima		8·8	206	2 3	− 2	3 37	− 6	—	—
Shizuoka		9·0	211	2 6	− 2	3 44	− 4	—	—
Gihu		9·3	220	2 11	− 1	3 53	− 2	—	—
Nagoya		9·4	218	2 13	0	4 8	+10	—	—
Hamamatu		9·4	213	2 15	+ 2	—	—	—	—
Tinemaha	z.	70·9	57	i 11 5	0	—	—	i 11 25	pP
Haiwee		71·7	57	i 11 10	0	—	—	i 11 37	pP
Pasadena	z.	72·8	59	i 11 15	− 1	—	—	i 11 44	pP
Mount Wilson	z.	72·9	59	i 11 16	− 1	—	—	i 11 45	pP
Riverside	z.	73·4	59	i 11 19	− 1	—	—	e 11 44	pP
Copenhagen		73·6	334	i 11 18	− 3	—	—	—	—
Palomar		74·2	59	i 11 23	− 1	—	—	i 11 43	pP
La Jolla	z.	74·3	60	e 11 24	− 1	—	—	e 11 54	pP
Tucson		78·7	56	i 11 50	0	—	—	i 12 19	pP
Zürich		81·9	332	e 12 4	− 3	—	—	—	—
Basle		82·1	332	e 12 4	− 4	—	—	—	—
St. Louis	E.	85·2	40	—	—	e 22 40	− 1	—	—
Granada		95·1	335	e 14 40	+90	24 46	+36	—	—
Malaga		95·8	335	e 17 6	PP	e 21 4	?	—	—

Additional readings :—
Mizusawa iSN = 1m.55s.
Pasadena iZ = 11m.19s., 11m.31s., and 11m.52s.
Mount Wilson iZ = 11m.52s.
Palomar iZ = 11m.53s.

July 10d. 13h. 25m. 1s. Epicentre 15°·4S. 174°·6W. Depth of focus 0·020.

Suggested by Apia.

A = −·9603, B = −·0908, C = −·2639 ; δ = +6 ; h = +6 ;
D = −·094, E = +·996 ; G = +·263, H = +·025, K = −·965.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Apia		3·2	60	i 0 53	+ 2	i 1 30	0	—	—	—
Suva		7·2	247	i 0 59?	?	i 2 24?	?	—	—	—
Auckland		23·4	201	(4 54)	− 1	(9 11)	+18	—	—	9·2
Wellington		27·4	197	—	—	e 9 59?	0	—	—	—
Christchurch		30·1	198	e 8 23	?	e 12 49	SS	—	—	13·7
Brisbane		32·3	243	i 6 12k	− 4	e 13 43	?	i 7 17	PcP	—
Riverview		35·9	233	i 6 44k	− 2	—	—	i 7 50	PP	e 14·2
Honolulu		40·0	25	e 7 17	− 3	e 13 17	+ 3	—	—	e 16·5
Santa Barbara	z.	71·9	45	i 11 17	+10	—	—	e 11 58	pP	—
Berkeley		72·2	41	i 12 2	+53	i 20 23	+ 6	—	—	e 30·7
La Jolla		72·8	47	e 11 13	0	—	—	e 11 58	pP	—
Pasadena		72·8	46	i 11 13k	0	—	—	i 11 56	pP	e 30·6
Mount Wilson		73·0	46	i 11 15k	+ 1	—	—	i 12 4	pP	—
Riverside		73·3	46	i 11 16k	0	—	—	i 12 0	pP	—
Palomar		73·3	48	i 11 16k	0	—	—	i 12 0	pP	—
Haiwee		74·1	44	i 11 21k	+ 1	—	—	e 12 4	pP	—
Tinemaha		74·4	43	i 11 23k	+ 1	—	—	—	—	—
Boulder City		76·1	47	i 11 33	+ 1	—	—	i 12 37	sP	—
Tucson		77·2	50	i 11 39	+ 1	e 21 14	+ 2	i 12 7	pP	e 38·1
Victoria		78·2	32	e 12 17	+34	e 21 27	+ 4	—	—	—
Sitka		79·6	20	e 12 35	+44	i 21 35	− 3	—	—	e 31·1
Saskatoon		89·1	34	—	—	e 22 51	[+ 1]	—	—	29·0
Florissant		95·1	51	e 13 5	− 1	i 23 26	[+ 2]	i 13 53	pP	—
Huancayo		95·6	104	e 14 52	?	e 23 27	[− 1]	e 25 30	SP	—
Copenhagen		139·4	354	e 19 8	[− 1]	—	—	22 31	PP	—
Kew	z.	143·7	5	e 19 16	[0]	e 23 55?	—	—	—	e 28·0
Jena		144·2	351	e 19 16	[0]	—	—	—	—	—
Bucharest		146·2	332	18 59?	[−21]	—	—	—	—	—
Paris		146·6	3	i 19 24	[+ 3]	i 23 33	PP	i 20 1	pPKP	—
Strasbourg		146·8	357	e 19 26	[+ 4]	—	—	—	—	—

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ksara	147·0	308	e 19 26	[+ 4]	—	—	e 22 50	PP	—
Basle	147·9	357	e 19 27	[+ 4]	—	—	—	—	—
Zürich	148·0	356	e 19 24k	[+ 1]	—	—	—	—	—
Chur	148·5	354	e 19 24	[0]	—	—	—	—	—
Neuchatel	148·5	357	e 19 24	[0]	—	—	—	—	—
Clermont-Ferrand	149·7	3	i 19 33	[+ 7]	—	—	—	—	—
Helwan	152·2	305	i 19 30a	[0]	23 20	PP	—	—	—
Granada	156·9	19	i 20 25k	[+49]	45 3	SS	i 24 48	PP	81·0
Malaga	157·0	20	i 19 37a	[+ 1]	i 24 35	PP	i 20 9	pPKP	e 28·6

Additional readings :—
Auckland P? =1m.10s., i =5m.31s. and 5m.54s., P and S are given as S and L respectively.
Brisbane iE =7m.31s.
Riverview iZ =8m.15s., eE =9m.11s.
Pasadena iZ =11m.19s., 11m.31s., 12m.2s., and 12m.8s.
Tucson isP =12m.22s.
Copenhagen 23m.48s.
Kew ePPP?Z =19m.59s., iP$_c$S?Z =23m.15s.
Jena eE =19m.19s., eN =20m.8s.
Paris e =32m.27s.
Strasbourg e =20m.29s.
Zürich i =19m.28s.
Clermont-Ferrand i =20m.27s.
Helwan iZ =19m.38s., PKP$_2$? =19m.49s., iZ =20m.26s., eN =44m.2s.
Granada iPKP$_2$ =21m.12s., SKP =24m.8s.
Malaga ePP =20m.53s., eP$_c$P =22m.7s.
Long waves were also recorded at Ukiah.

July 10d. 15h. 47m. 55s. Epicentre 31°·0S. 178°·5W. Depth of focus 0·015.
(as on 1943 Dec. 30d.).

A = −·8584, B = −·0225, C = −·5125 ; δ = +1 ; h = +2 ;
D = −·026, E = +1·000 ; G = +·512, H = +·013, K = −·859.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Auckland		8·1	222	1 56	0	3 31	+ 4	i 2 7	PP	4·5
Wellington		11·6	206	2 42	− 1	4 38	−12	i 3 20	PPP	6·8
Suva		13·1	347	i 2 45?	−17	i 5 25?	0	i 3 5?	pP	5·9
Christchurch		14·4	207	3 25	+ 6	5 42	−14	—	—	6·6
Apia		18·2	23	e 4 1	− 4	—	—	—	—	—
Brisbane		25·1	271	i 5 16a	+ 2	i 10 19	+52	i 12 22	Q	e 13·8
Riverview		25·7	255	i 5 21a	+ 1	i 9 33	− 4	i 5 44	pP	e 11·2
Sydney		25·7	255	e 6 17	+57	e 12 29	Q	—	—	e 14·3
Santa Barbara	z.	85·5	45	i 12 24	− 1	—	—	—	—	—
La Jolla		85·9	48	e 12 26	− 1	—	—	—	—	—
Pasadena		86·2	46	i 12 27	− 1	e 22 43	− 7	i 12 39	pP	e 34·9
Mount Wilson	z.	86·3	46	i 12 28a	− 1	—	—	i 12 46	pP	—
Berkeley		86·3	41	i 12 27	− 2	i 22 54	+ 3	e 38 48	P'P'	i 44·8
Palomar		86·5	47	i 12 29a	− 1	e 22 51	− 2	i 12 46	pP	—
Riverside		86·6	46	i 12 28	− 2	—	—	i 12 44	pP	—
Haiwee		87·6	45	i 12 36	+ 1	—	—	—	—	—
Tinemaha		88·1	44	i 12 36a	− 1	—	—	i 12 53	pP	—
Tucson		89·9	50	i 12 46	0	e 23 38	+13	e 29 45	SS	e 40·2
Montezuma		94·1	119	e 26 29	PPS	—	—	—	—	—
Huancayo		94·9	107	e 17 17	PP	e 23 45	[+15]	e 30 57	SS	e 43·8
Sitka		95·4	22	e 15 50	?	e 23 38	[+ 5]	e 16 42	PP	e 46·6
College		98·5	12	—	—	e 23 57	[+ 8]	—	—	e 45·9
Florissant		107·3	55	e 18 28	PP	e 24 36	[+ 6]	e 25 30	SKKS	—
St. Louis		107·4	55	e 18 33	PP	e 24 37	[+ 6]	1 27 53	PS	—
New Delhi	N.	115·5	290	e 29 18	PS	—	—	—	—	—
San Juan		118·1	84	—	—	e 25 21	[+ 8]	e 29 34	PS	e 55·3
Ottawa		119·8	52	e 18 34	[− 1]	—	—	—	—	53·1
Seven Falls		123·5	50	—	—	e 29 41	PS	—	—	61·1
Upsala		149·2	344	e 19 45	[+16]	e 31 37	PS	—	—	e 61·1
Ksara		150·9	282	e 19 36	[+ 4]	—	—	e 22 58	PP	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Copenhagen		154·1	346	e 19 37	[+ 1]	—	—	e 23 31	PP	—
Helwan	Z.	154·3	274	e 19 39	[+ 2]	e 23 36	PP	19 59	pPKP	—
Kew		159·5	2	e 19 42	[− 2]	e 30 5?	SKKS	e 20 22	pPKP	e 74·1
Paris		162·2	357	19 47	[0]	—	—	24 3	PP	e 79·1
Clermont-Ferrand		165·2	356	i 19 49	[− 1]	24 33	PP	20 45	pPKP	e 78·1
Tortosa	N.	170·2	4	i 19 51	[− 1]	—	—	—	—	—
Granada		172·5	33	i 19 56a	[+ 3]	26 55	[+13]	20 9	pPKP	81·4
Malaga		172·5	39	i 19 55a	[+ 2]	i 32 5	SKKS	i 25 10	PP	e 81·9

Additional readings :—
Auckland i =2m.22s., 3m.47s., and 3m.55s.
Wellington i =4m.54s. and 5m.5s.
Riverview iE =5m.28s., 5m.49s., and 6m.21s., iN =10m.6s. and 10m.32s.
Pasadena iZ =12m.45s., iEN =13m.1s., ePPZ =15m.59s.
Mount Wilson ePKP,PKPZ =38m.39s.
Berkeley eN =37m.48s., eEZ =39m.6s.
Palomar iZ =12m.32s. and 13m.5s., ePKP,PKPZ =38m.32s.
Riverside ePKP,PKPZ =38m.32s.
Tucson i =12m.54s., 12m.59s., 13m.18s., and 13m.46s., e =15m.49s., 16m.40s., and 24m.42s.
Montezuma e =27m.0s.
Huancayo ePS =24m.43s.
Sitka e =24m.21s., 24m.34s., and 25m.36s.
St. Louis iSKKS?E =25m.30s.
San Juan e =34m.9s.
Upsala eN =20m.46s.
Copenhagen e =19m.49s.
Helwan PP?Z =24m.35s.
Kew ePP?Z =23m.57s., ePPP?Z =28m.16s., eZ =32m.22s.
Paris ePPP? =28m.25s.
Granada iPP =24m.58s., pPP =25m.12s., PPP =29m.12s., SKSP =35m.35s., SS =46m.50s.
Malaga iPKP$_2$ =21m.19s., ePPP =29m.7s.
Long waves were also recorded at La Paz, Kodaikanal, Ukiah, De Bilt, Prague, and San Fernando.

July 10d. Readings also at 2h. (Rapid City and near Malaga), 4h. (Bucharest), 6h. (Clermont-Ferrand, De Bilt, Kew, Paris, Copenhagen, and near Reykjavik), 7h. (near Tananarive), 14h. (near Malaga), 15h. (near Toledo (2)), 16h. (Tucson, Pasadena, Mount Wilson, Palomar, Riverside, and near Toledo (2)), 20h. (Bucharest (2)), 22h. (Balboa Heights).

July 11d. 18h. South-West Pacific. Pasadena suggests deep focus.

Brisbane iP =36m.14s.k, iSN =39m.26s., eLN =40m.43s.
Suva iP =37m.0s.?, iS? =38m.55s.?, L =39m.26s.
Wellington P =37m.2s., S =41m.5s., R =42·8m.
Riverview iPZ =37m.5s.a, iPPZ =37m.35s., iSE =40m.59s., iSN =41m.2s., iP$_c$PZ =41m.8s., iN =41m.28s., iQN =41m.36s., eREZ =42·4m.
Sydney e =40m.42s., eL =42m.22s.
Christchurch SEN =41m.30s., QE =43m.28s., RZ =45m.30s.
Pasadena ePZ =45m.12s.
Mount Wilson ePZ =45m.13s., iZ =45m.28s.
Riverside ePZ =45m.16s., iZ =45m.30s.
Palomar iPZ =45m.17s., iEZ =45m.31s.
La Jolla ePZ =45m.21s.
Tinemaha iPZ =45m.21s.
Santa Barbara eZ =45m.38s.
Tucson e =45m.50s., eL =77m.14s.
De Bilt ePKP =52m.10s., eL =110m.
Berkeley eN =83m.9s., eZ =86m.7s., eE =89m.42s.
Granada i =88m.31s. and 94m.18s., L =119·2m.
Long waves were also recorded at Auckland, Helwan, Paris, Kew, Jena, and Uccle.

July 11d. Readings also at 0h. (Tucson), 5h. (near Apia), 15h. (La Paz), 16h. (St. Louis), 19h. (Haiwee, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Santa Barbara, Tucson, Copenhagen, and near Suva), 23h. (Berkeley).

July 12d. 8h. 1m. 11s. Epicentre 18°·0N. 47°·0W. (as on 1944, January 15d.).

A = +·6491, B = −·6960, C = +·3071; δ = +6; h = +5;
D = −·731, E = −·682; G = +·209, H = −·225, K = −·952.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Juan		18·2	275	e 4 10	− 6	e 8 11	SSS	—	—	i 10·3
Bermuda		21·4	315	—	—	(e 8 59)	+14	—	—	e 9·0
Philadelphia		32·7	319	e 7 30	PP	—	—	—	—	15·0
Seven Falls		35·0	332	—	—	e 12 31	+ 3	—	—	15·8
Shawinigan Falls		35·5	329	e 7 2	+ 2	—	—	—	—	—
Ottawa		36·3	326	—	—	e 14 49?	SS	—	—	—
La Paz	z.	40·1	212	7 15	−24	—	—	—	—	—
Malaga		41·8	54	—	—	e 14 14	+ 3	—	—	e 20·3
Chicago		41·9	314	—	—	e 14 15	+ 2	e 17 9	SS	e 21·4
St. Louis		42·8	308	e 8 2	+ 1	e 14 26	0	e 17 41	SSS	—
Florissant		42·9	308	e 8 15	+13	e 14 28	+ 1	—	—	—
Tucson		58·8	297	e 10 3	+ 1	—	—	—	—	—
Palomar	z.	63·8	299	i 10 37	+ 1	—	—	—	—	—
Riverside	z.	64·1	300	i 10 39	+ 1	—	—	—	—	—
Tinemaha	z.	64·6	303	e 10 40	− 1	—	—	—	—	—
Mount Wilson	z.	64·7	300	e 10 41	− 1	—	—	—	—	—
Pasadena	z.	64·8	300	e 10 39	− 4	—	—	—	—	—

Additional readings :—
San Juan e = 5m.10s.
Mount Wilson iZ = 11m.5s.
Pasadena eZ = 10m.55s.
Long waves were also recorded at Fort de France, Huancayo, Columbia, Salt Lake City, Aberdeen, De Bilt, and Kew.

July 12d. 8h. 14m. 33s. Epicentre 18°·0N. 47°·0W. (as at 8h. 1m.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m.	s.	m.
San Juan		18·2	275	e 4 16	0	e 7 38	+ 1	—	—	i 9·2
Bermuda		21·4	315	—	—	(e 8 42)	− 3	—	—	e 8·7
Shawinigan Falls		35·5	329	e 6 59	− 1	—	—	—	—	—
Ottawa		36·2	326	e 8 15	PP	—	—	—	—	14·4
La Paz	z.	40·1	212	7 48	+ 9	—	—	—	—	24·4
Huancayo		40·9	225	e 7 49	+ 3	—	—	—	—	e 20·6
Malaga		41·8	54	—	—	e 14 8	− 3	—	—	e 22·5
Granada		42·5	54	i 8 5k	+ 6	14 42	PS	8 32	pP	19·6
St. Louis		42·8	308	e 7 58	− 3	i 14 24	− 2	i 17 40	SSS	—
Florissant		42·9	308	e 8 6	+ 4	i 14 29	+ 2	—	—	—
Tucson		58·8	297	e 10 0	− 2	e 21 48	SS	—	—	e 31·3
Palomar	z.	63·8	299	i 10 34	− 2	—	—	—	—	—
Riverside	z.	64·1	300	i 10 37	− 1	—	—	—	—	—
Haiwee	z.	64·4	302	e 10 41	+ 1	—	—	—	—	—
Tinemaha	z.	64·6	303	i 10 42	+ 1	—	—	—	—	—
Mount Wilson	z.	64·7	300	i 10 42	0	—	—	—	—	—
Pasadena		64·8	300	e 10 42	− 1	—	—	—	—	e 29·0
Helwan	z.	71·4	64	e 11 27	+ 3	—	—	e 15 42	PP	—
Sitka		74·1	326	—	—	e 22 40	PPS	e 27 40	SS	e 35·6

Additional readings :—
San Juan e = 4m.27s., eS = 8m.9s.
Granada SS = 17m.44s.
Long waves were also recorded at Fort de France, Columbia, Berkeley, and De Bilt.

July 12d. 19h. 30m. 22s. Epicentre 44°·7N. 115°·2W.

Intensity VII at Cascade and Seafoam (Idaho); VI at Atlanta (Idaho); V at Boise and Salmon (Idaho), Wisdom (Montana), and Vale (Oregon). Macroseismic area 70,000 square miles.

R. R. Bodle.
United States Earthquakes, 1944. Washington, 1946, p. 10. Isoseismic chart, p. 11. Epicentre as adopted.

$A = -\cdot3037$, $B = -\cdot6453$, $C = +\cdot7010$; $\delta = +5$; $h = -3$;
$D = -\cdot905$, $E = +\cdot426$; $G = -\cdot298$, $H = -\cdot634$, $K = -\cdot713$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Butte		2·3	55	(i 0 45?)	+ 5	(i 1 18?)	+ 9	—	—	—
Spokane		3·4	334	i 0 56	+ 1	i 1 40	+ 3	i 1 9	P_g	—
Grand Coulee		4·2	322	i 1 14	P*	i 2 3	+ 6	i 1 21	P_g	—
Salt Lake City		4·6	147	e 1 9	− 3	e 2 1	− 6	—	—	i 2·9
Seattle		5·8	304	e 1 45	P*	e 2 23	−15	—	—	—
Mineral	E.	6·4	229	e 1 32	− 6	—	—	i 1 54	P*	—
Victoria		6·8	307	1 46	+ 2	2 57	− 6	—	—	—
Ferndale	E.	7·8	241	e 2 6	+ 8	e 3 44	+16	—	—	—
Tinemaha		7·9	198	i 1 59	0	i 4 1	S*	—	—	—
Ukiah		8·2	230	e 2 2	− 1	e 3 36	− 2	—	—	e 4·2
Berkeley	N.	8·6	220	e 2 10	+ 1	e 4 15	S*	—	—	—
	Z.	8·6	220	e 2 14	+ 5	i 4 10	S*	—	—	—
Rapid City		8·6	90	i 2 7	− 2	e 3 45	− 3	i 2 36	P*	e 4·2
Boulder City		8·7	178	e 2 5	− 5	—	—	—	—	—
Haiwee	Z.	8·8	195	e 2 9	− 2	—	—	—	—	—
Lick	N.	8·8	215	e 2 12	+ 1	e 4 9	+16	—	—	i 4·7
San Francisco		8·8	221	e 2 41?	P*	—	—	—	—	e 5·1
Santa Clara	N.	8·9	217	e 2 17	+ 5	e 3 48	− 7	—	—	—
Branner		9·0	218	e 1 52	−21	—	—	—	—	e 5·0
Denver		9·0	120	—	—	i 4 7	+ 9	—	—	—
Saskatoon		9·4	34	2 52	+34	e 4 30	+23	4 54	S*	—
Mount Wilson		10·7	193	i 2 36	− 2	—	—	—	—	—
Pasadena		10·8	193	i 2 38	− 1	i 4 29	−13	—	—	e 4·8
Riverside	Z.	10·8	190	i 2 37	− 2	—	—	—	—	—
Santa Barbara	Z.	10·8	200	e 2 41	+ 2	—	—	—	—	—
Palomar		11·4	187	i 2 46	− 1	—	—	—	—	—
La Jolla	Z.	11·9	188	e 2 55	+ 1	—	—	—	—	—
Tucson		12·9	163	i 3 6	− 1	i 5 49	+16	—	—	i 6·5
Sitka		17·9	323	e 4 11	− 1	e 7 43	+13	—	—	e 8·9
Florissant		19·4	99	e 4 24	− 6	e 8 0	− 4	—	—	i 9·8
St. Louis		19·6	99	e 4 25	− 7	e 8 7	− 1	—	—	i 10·1
Chicago		20·2	88	e 4 34	− 5	e 8 20	− 1	—	—	e 9·8
New Kensington		26·3	86	e 9 6	?	e 10 40	+29	—	—	e 13·9
College		27·1	331	e 5 46	0	e 10 29	+ 5	—	—	e 13·8
Ottawa		27·7	74	5 54	+ 2	10 28	− 5	—	—	14·2
Shawinigan Falls		29·5	71	e 6 11	+ 3	—	—	—	—	14·6
Philadelphia		29·8	84	—	—	e 11 20	+13	—	—	14·8
Seven Falls		30·7	69	—	—	e 11 32	+11	—	—	14·6
Kew		69·0	37	e 12 48	PP	e 28 0	SSS	—	—	e 32·6
La Paz	Z.	74·4	132	—	—	e 28 8	SSS	—	—	e 32·8
Granada		77·7	50	e 12 3k	+ 3	i 21 45	− 7	—	—	29·2

Additional readings and notes :—
Butte readings have been diminished by 2m.
Spokane i = 1m.0s., iP* = 1m.5s.
Sale Lake City iS = 2m.7s., i = 2m.20s.
Victoria i = 3m.16s.
Ferndale ePN = 2m.13s.
Berkeley eN = 2m.20s. and 2m.54s., iN = 3m.11s., iE = 3m.15s., iN = 3m.48s., iE = 3m.56s., iEZ = 5m.16s.
Branner ePN = 3m.8s.
Tucson i = 3m.28s. and 5m.5s.
Sitka iP = 4m.14s., i = 4m.30s.
Long waves are also recorded at San Juan and other American and European stations.

July 12d. Readings also at 1h. (near Ferndale), 2h. (near Mizusawa), 3h. (near Bogota), 5h. (near Mizusawa and near Zürich), 7h. (Malaga, Paris, St. Louis, Tucson, Mount Wilson, Pasadena, Palomar, Riverside, and Tinemaha), 12h. (Berkeley), 14h. (near Malaga), 15h. (La Plata, Tucson, Haiwee, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Santa Barbara, Ukiah, near Berkeley, Branner, Lick, Mineral, San Francisco, and Ferndale), 16h. (Bucharest, near Sofia, and near Bogota), 17h. (Wellington, Tucson, Mount Wilson, Pasadena, Palomar, Riverside, and Tinemaha), 18h. (near Berkeley, Branner, Lick, Santa Clara, and San Francisco), 20h. (near Lick).

July 13d. 0h. South West Pacific. Pasadena suggest deep focus.

Auckland P =18m.5s., i =18m.14s., S =21m.15s., sS =21m.56s., i =23m.12s., S_cP? = 24m.27s., L =24·8m., P_cS? =26m.25s.
Brisbane ePZ =18m.11s., iN =23m.14s., eLN =24m.44s.
Wellington P =18m.58s.k, iZ =19m.3s., PP? =19m.24s., iZ =20m.10s. and 21m.20s., S =22m.35s., P_cP =22m.50s., R =25m., S_cP =26m.21s.
Riverview iPEZ =19m.49s.a, iZ =19m.53s., iS?N =24m.18s., iN =24m.31s., iE = 24m.44s., eN =25m.41s., eLEN =25·9m.
Christchurch P_cPN =22m.6s., S =23m.27s., QE =24m.24s., RZ =26m.23s.
Sydney e =24m.24s.
Mount Wilson iPZ =27m.8sa..
Pasadena iPZ =27m.10s., eZ =30m.36s., eLZ =53m.58s.
Riverside iPZ =27m.12s.a.
Palomar iP =27m.15s.a, iNZ =27m.32s.
Haiwee iPEZ =27m.16s.
Tinemaha iPZ =27m.18s.a.
Tucson eP =27m.33s., iP =27m.36s., e =27m.50s., eL =56m.12s.
Helwan PZ =34m.14s., iZ =34m.18s., eZ =34m.33s.
Kew iPKPZ =34m.22s., $iPKP_2Z$ =34m.36s., ePP?Z =38m.0s.?, ePPS?Z =52m.58s., eLZ =97m.
Paris ePKP =34m.23s., eL =103m.
Granada iPKP =35m.37s.a, iPP =39m.20s., PPP =43m.21s., SKSP =49m.22s., SS = 60m.17s., eL =97·1m.
Malaga iPKP =35m.40s.a, PP =39m.25s., SKS =42m.47s., PPP =43m.7s., PPS = 53m.39s., SS =59m.26s., L =103m.31s.
Long waves were also recorded at Ukiah, De Bilt, and San Fernando.

July 13d. 10h. Undetermined shock.

Mizusawa ePE =46m.57s., eSN =51m.2s.
College eP? =55m.20s., e =61m.54s. and 62m.6s., eL =73m.13s.
Sitka e =55m.30s. and 63m.32s., eS =65m.15s., e =70m.2s., eL =76m.18s.
Tinemaha iPZ =57m.27s.
Mount Wilson iPZ =57m.36s.
Pasadena ePZ =57m.36s., eSE? =68m.58s., eLE =80·2m.
Riverside ePZ =57m.40s.
Palomar iPZ =57m.43s.
La Jolla iPZ =57m.44s.
Copenhagen eP =57m.48s., S =67m.53s.
Uccle eP? =58m., eSKS?EN =68m., eL =91m.
Kew ePKPZ =58m.2s.?, ePPZ =58m.55s., ePPSEN =69m.21s., eSSE =74m.22s.?, eSSS =78m.22s., eL =91m.
Ksara e =58m.8s. and 68m.44s.
Tucson eP =58m.8s., eL =85m.13s.
De Bilt eP =58m.15s., iS =68m.53s., eL =91m.
Helwan eP?Z =58m.21s., eZ =58m.41s. and 59m.10s., SKS?N =68m.50s., eEN = 69m.9s., S =69m.22s.
Paris eP =58m.32s., e =70m.32s., eL =97m.
St. Louis ePZ =58m.39s., eSKSE =69m.18s., eSKKSE =69m.54s., eN =70m.1s., eS?N =70m.15s., ePPS?N =72m.5s.
Florissant eZ =58m.46s., eSKSE =69m.20s., eSKKSE =69m.57s.
Clermont-Ferrand e =59m., eL =95m.
Prague e =62m.20s. and 68m.30s., eL =91m.
Granada ePKP =62m.27s., PP =64m.5s., PPS =75m.16s., L =102·2m.
Honolulu e =62m.40s., eL =70m.10s.
Malaga ePKP =63m.31s., ePP =66m.4s., PPP =69m.24s., SKS =70m.34s., SKKS = 72m.36s., ePS =76m.48s., SSS =89m.28s., L =107m.16s.
Bucharest EN =64m.24s.
Riverview eEN =65m.24s., eLEN =85·4m.
Victoria e =65m.42s., L =75m.

Continued on next page.

Berkeley ePE =66m.47s., eE =72m.3s., eN =77m.3s., iE =78m.54s., eE =80m.18s., iE =80m.40s., iN =80m.43s.
Saskatoon e =67m.0s., L =85m.
Upsala e =67m., eN =85m., eE =85m.46s., eLN =91m.
Ukiah e =67m.8s., eL =76m.45s.
Salt Lake City e =67m.43s., eL =83m.23s.
Aberdeen iEN =68m.34s., LE =93m.45s.
Cheb eS? =68m.39s., eSS? =74m.22s., eL =95m.
Seven Falls e =68m.42s., L =95m.
Ottawa eE =69m.24s., L =96m.
Long waves were also recorded at Suva, Auckland, Wellington, New Delhi, Bergen, Potsdam, and Tortosa.

July 13d. Readings also at 0h. (Suva), 2h. (near Berkeley), 6h. (Tucson, Mount Wilson, Palomar, Riverside, and near Mizusawa), 7h. (Jena, near Granada, Toledo (2), and Malaga (2)), 8h. (near Toledo), 11h. (Ksara), 13h. (Malaga), 18h. (Suva, Auckland, Wellington, Tucson, Mount Wilson, Pasadena, Palomar, Riverside, and Tinemaha), 19h. (Oaxaca, Puebla, Tacubaya, Florissant, St. Louis, Tucson, La Jolla, Mount Wilson, Pasadena, Palomar, Riverside, Santa Barbara, and Tinemaha), 20h. (Kew and Salt Lake City), 21h. (near Branner), 22h. (Mineral), 23h. (near Branner).

July 14d. Readings at 0h. (Berkeley), 1h. (near Berkeley, Branner (2), Lick (2), and San Francisco), 12h. (Bucharest), 21h. (Tacubaya, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, and near Berkeley), 22h. (near Berkeley, Branner, and Lick), 23h. (Tucson, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, and near Branner).

July 15d. Readings at 0h. (near Lick), 8h. (Ksara), 13h. (Tucson, Mount Wilson, Pasadena, Palomar, and Tinemaha), 16h. (De Bilt and Kew), 17h. (Fort de France, and near Seven Falls), 22h. (Palomar, Riverside, Tinemaha, and near Apia), 23h. (Riverview, Mount Wilson, Palomar, Riverside, Santa Barbara, Tinemaha, Tucson (2), Ferndale (2), St. Louis, Mizusawa, Helwan, Kew, Uccle, and Granada).

July 16d. 10h. 19m. 10s. Epicentre 18°·5S. 178°·0W. Depth of focus 0·060.

A = −·9484, B = −·0331, C = −·3154; δ = +4; h = +5;
D = −·035, E = +·999; G = +·315, H = +·011, K = −·949.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Apia		7·6	53	i 1 52	0	i 3 23	+ 3	i 3 13	?	—
Wellington		23·5	194	4 41	+ 4	8 31	+12	14 55	ScS	—
Brisbane	N.	28·1	246	—	—	i 12 7	SS	i 15 17	ScS	—
Riverview		31·5	235	i 5 50a	+ 3	i 10 28	+ 3	i 7 20	pP	—
Honolulu		44·2	28	i 13 27	S	(i 13 27)	− 7	i 13 44	SP	e 18·5
Santa Barbara		76·4	46	i 11 8	+ 1	—	—	—	—	—
Berkeley	E.	76·7	42	(i 11 17)	+ 9	(e 20 35)	+15	(e 25 36)	SS	—
La Jolla	Z.	77·3	48	i 11 13	+ 1	—	—	—	—	—
Pasadena		77·3	47	i 11 12a	0	e 20 12	−14	i 12 52	pP	e 31·5
Mount Wilson		77·5	47	i 11 13a	0	—	—	i 12 56	pP	—
Palomar		77·8	48	i 11 15	+ 1	i 20 32	0	e 12 54	pP	—
Riverside		77·8	47	i 11 14a	0	e 20 28	− 4	i 12 57	pP	—
Haiwee		78·6	46	i 11 19	+ 1	e 20 38	− 2	i 12 50	pP	—
Tinemaha		78·9	45	i 11 21	+ 1	e 20 42	− 1	—	—	—
Tucson		81·7	52	i 11 37	+ 2	e 21 12	0	e 13 18	pP	e 40·8
Sitka		83·7	22	—	—	e 21 19	−13	e 26 58	SS	e 33·1
Huancayo		97·9	105	—	—	e 20 50	?	e 26 37	PPS	—
Florissant	E.	99·6	52	—	—	e 23 28	−24	e 26 16	sS	—
St. Louis		99·6	52	e 13 1	+ 2	i 23 54	+ 2	e 30 50	SS	—
San Juan		115·8	77	—	—	e 24 4	[− 2]	—	—	—
Aberdeen		141·3	3	—	—	i 24 50	[−20]	e 39 42	SS	—
Copenhagen		142·0	350	i 18 40	[− 4]	—	—	i 21 40	PP	—
Potsdam		145·1	348	e 18 50	[+ 1]	—	—	e 28 20?	?	—
De Bilt		146·4	355	i 18 55k	[+ 3]	—	—	—	—	—
Jena		146·8	347	e 18 55	[+ 2]	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Kew	z.	147·1	2	i 18 55	[+ 2]	e 25 44	[+25]	e 20 46	pPKP	—
Strasbourg		149·6	352	19 4	[+ 8]	—	—	20 30	pPKP	—
Basle		150·7	352	e 19 4	[+ 7]	—	—	—	—	—
Zürich		150·7	351	e 19 0k	[+ 3]	—	—	i 19 5	?	—
Helwan	z.	151·0	298	19 0	[+ 2]	e 25 22	[− 2]	e 20 14	pPKP	—
Chur		151·1	349	e 19 0	[+ 2]	—	—	i 19 6	?	—
Neuchatel		151·3	352	e 19 1	[+ 3]	—	—	e 19 4	?	—
Clermont-Ferrand		152·8	358	19 5	[+ 4]	—	—	—	—	—
Granada		160·7	13	19 40	[+29]	—	—	—	—	—
Malaga		161·0	14	i 19 56k	[+45]	e 27 27	PPP	—	—	i 36·5

Additional readings :—
Wellington i =4m.45s. and 8m.40s.
Riverview isSE =13m.15s., iSSN =13m.19s., iS_cS?N =15m.29s., iE =15m.33s.
Honolulu iS =17m.12s., iSS =18m.4s.
Berkeley eE =(24m.36s.), readings decreased by two minutes.
Pasadena iZ =11m.31s., eZ =14m.11s.
Mount Wilson eZ =13m.56s., iZ =14m.9s.
Riverside iZ =14m.22s.
Florissant eE =23m.57s., eSS?E =30m.59s.
St. Louis eZ =15m.58s. and 17m.28s., eE =25m.17s.
San Juan eSP =27m.25s., e =31m.4s.
Kew ePPP?Z =21m.40s., eZ =22m.24s.?.
Strasbourg e =22m.14s.
Helwan iZ =19m.6s., PKP_2?Z =19m.17s., iZ =19m.30s., eZ =22m.1s., PSKS?Z = 33m.14s., eN =41m.26s.
Granada e =29m.43s., SS =46m.38s.
Malaga PP =21m.56s., PPP =23m.13s., eSS? =31m.13s.

July 16d. Readings also at 0h. (Berkeley, Pasadena, Cheb, and De Bilt), 1h. (Kew), 3h. (Rapid City), 6h. (near Mizusawa), 7h. (Fort de France), 8h. (near Mizusawa), 10h. (Pasadena, Palomar, Tinemaha, Riverside, Mount Wilson, and Tucson), 14h. (La Paz and Bogota), 22h. (near La Paz), 23h. (near Bucharest).

July 17d. 10h. 53m. 46s. Epicentre 35°·8N. 43°·0E.

A = +·5945, B = +·5544, C = +·5823 ; δ = −14 ; h = 0 ;
D = +·682, E = −·731 ; G = +·426, H = +·397, K = −·813.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ksara		6·2	252	e 1 36	+ 1	3 34	S_g	—	—	—
Helwan		11·5	242	i 2 50a	+ 2	5 4	+ 5	i 3 5	PPP	—
Istanbul		12·1	299	3 25	PPP	7 1	?	—	—	8·6
Bucharest		15·5	309	e 3 38	− 4	e 6 47	SS	i 3 48	PP	7·9
Campulung		16·6	310	e 4 0	+ 4	—	—	(7 44)	SS	7·7
Sofia		16·7	300	e 3 14?	−43	—	—	—	—	—
Belgrade		19·4	304	e 4 28a	− 2	i 8 17	+13	i 4 39	PP	e 11·4
Triest		24·1	304	i 5 17	− 1	i 9 36	+ 2	i 5 44	PP	—
Prague		25·1	314	i 5 30k	+ 2	10 1	+10	—	—	e 12·2
Cheb		26·4	313	e 6 10	PP	e 10 11	− 1	e 8 54	P_cP	e 15·2
Potsdam		26·9	318	e 5 44	− 1	e 10 14	− 6	—	—	e 13·2
Jena		27·1	314	e 5 44	− 2	e 10 30	+ 6	e 11 50	SSS	—
Milan		27·2	302	i 5 50	+ 3	10 27	+ 2	i 11 13	SS	16·9
Chur		27·3	305	e 5 47	− 1	—	—	—	—	—
Zürich		28·0	305	e 5 51a	− 4	e 10 38	0	—	—	—
Basle		28·7	306	e 5 57	− 4	e 10 51	+ 1	—	—	—
Copenhagen		28·8	324	i 6 0	− 2	10 51	0	7 24	PPP	—
Strasbourg		28·8	309	e 6 29	+27	e 11 10	+19	—	—	16·2
Neuchatel		29·0	305	e 6 0	− 4	e 10 44	−10	—	—	—
Upsala		29·1	333	i 6 44	PP	10 56	0	7 9	PPP	e 13·2
New Delhi	N.	29·7	94	e 7 27	PPP	i 11 13	+ 7	12 25	SS	—
Bombay		31·2	115	i 6 27	+ 4	e 11 31	+ 2	13 32	SSS	—
De Bilt		31·3	314	i 6 13	−11	e 11 14	−17	—	—	e 15·2
Clermont-Ferrand		31·5	300	e 6 28	+ 2	e 11 25	− 9	e 13 35	SSS	e 19·7
Uccle		31·5	310	e 6 26a	0	e 11 14?	−20	e 7 32	PP	e 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.
Paris		32·3	307	e 6 14?	−19	—	—	e 7 28	PP	e 17·2
Tortosa		33·5	293	i 6 41	− 2	12 6	+ 1	9 47	PcP	e 15·2
Bergen		34·4	328	—	—	e 12 14?	− 5	—	—	—
Kew		34·5	311	i 6 50k	− 2	e 12 19	− 1	e 8 2	PP	e 15·2
Stonyhurst		36·2	315	e 12 36	S	(e 12 36)	−11	e 17 22	ScS	—
Hyderabad	N.	36·3	111	12 46	S	(12 46)	− 2	13 35	PcS	—
Aberdeen		36·8	320	—	—	i 12 56	0	—	—	22·9
Granada		37·2	287	i 7 16k	+ 1	i 12 43	−19	8 45	PP	—
Malaga		37·9	287	i 7 18k	− 2	i 13 15	+ 2	8 49	PP	19·9
San Fernando	E.	39·4	286	—	—	13 37	+ 2	15 57	SS	—
Kodaikanal	E.	40·3	121	e 11 24	?	—	—	—	—	—
Lisbon		41·2	291	7 47a	− 1	14 8?	+ 6	9 23	PP	18·9
Calcutta	N.	41·4	96	—	—	—	—	e 17 29	SSS	i 19·8
Colombo		44·3	122	8 20	+ 7	—	—	—	—	26·3
Seven Falls		78·4	321	—	—	e 22 2	+ 2	—	—	37·2
College		79·3	6	e 15 55	?	e 22 12	+ 3	e 22 52	PS	e 32·7
Ottawa		82·1	322	—	—	e 22 44	+ 6	—	—	37·2
Bermuda		84·2	306	—	—	e 22 56	− 3	—	—	e 39·1
Sitka		87·0	358	—	—	e 23 22	(+ 2)	e 24 37	PS	e 35·9
Saskatoon		88·5	343	—	—	e 23 44	+ 3	—	—	42·2
Chicago		90·5	326	—	—	e 25 2	PS	—	—	e 39·7
San Juan		94·0	296	—	—	e 24 35	+ 5	e 27 40	?	e 45·4
St. Louis		94·2	325	e 13 18	− 4	e 24 26	− 5	e 26 22	PPS	—
Salt Lake City		100·4	341	—	—	—	—	e 27 30	PPS	e 48·6
Berkeley		105·4	347	e 30 59	?	i 33 17	SS	i 36 6	?	e 43·4
Tinemaha	z.	105·4	344	e 18 32	PP	—	—	—	—	—
Tucson		108·0	337	e 18 37	[+ 8]	—	—	—	—	e 50·7
Pasadena		108·2	343	e 18 31	[+ 2]	—	—	—	—	e 47·3
Palomar	z.	108·7	342	e 19 16	PP	—	—	—	—	—

Additional readings :—
Helwan iZ =3m.18s.
Istanbul PP =4m.21s., S =7m.59s.
Bucharest eE =3m.41s., eN =3m.44s., iSE =6m.58s.
Belgrade e =4m.56s., i =5m.8s.
Triest iPPP =5m.53s.
Cheb e =10m.30s. and 11m.54s.
Jena eS?EZ =10m.42s.
Milan iSE =10m.56s.
Copenhagen 7m.52s. and 8m.41s.
Upsala iSSN =11m.36s., eSSSE =12m.16s.?
Bombay eE =12m.28s., eN =12m.31s., ScSN =16m.48s.
Clermont-Ferrand e =14m.10s.
Paris e =12m.31s.
Tortosa PcSN? =12m.58s., SSN =14m.24s.
Kew iZ =6m.54s. and 7m.34s., iPPPEZ =8m.12s., eSSN =14m.44s.
Stonyhurst iSKS =17m.57s., iPS =18m.54s., iPPS =19m.55s., i =20m.13s., e =23m.32s., iSS =24m.36s.; readings wrongly identified.
Hyderabad PPN =14m.46s., SN =21m.5s., ScSN =22m.44s., SSN =24m.41s., LN = 29m.35s. ; readings wrongly identified.
Aberdeen iE =19m.16s., iN =20m.6s.
Granada PcP =9m.27s., SS =15m.32s.
Malaga PcP =9m.27s., SS =16m.22s., ScS =17m.21s.
San Fernando SSE =23m.53s., SSSE =27m.54s. ; readings wrongly identified.
Lisbon iPZ =7m.50s.k, PP?Z =9m.26s., E =12m.20s., SE =13m.51s.
St. Louis eSS?E =31m.7s.
Long waves were also recorded at Dehra Dun, Tananarive, Ukiah, Rapid City, Huancayo, and La Paz.

July 17d. Readings also at 2h. (near Mineral), 8h. (Fort de France, near Zürich, and Basle), 9h. (Brisbane and near La Paz), 10h. (Riverview), 12h. (Helwan and Ksara), 14h. (Kew, Helwan, and Ksara), 15h. (near Apia), 16h. (Bucharest and Istanbul), 17h. (De Bilt and Triest), 21h. (near Berkeley, Branner, and Lick), 22h. (Mineral), 23h. (Ksara).

July 18d. Readings at 0h. (Ksara), 5h. (near Berkeley, Mineral, and Santa Clara), 9h. (Zürich and near Chur), 12h. (Mizusawa), 14h. (near Triest), 15h. (Basle, Neuchatel, Strasbourg, and Zürich), 16h. (Kew), 20h. (near Lick), 22h. (near Toledo).

July 19d. 10h. 21m. 13s. Epicentre 31°·6N. 141°·7E. (as on 1944, June 3d.).

A = −·6696, B = +·5289, C = +·5214; δ = −4; λ = +1;
D = +·620, E = +·785; G = −·409, H = +·323, K = −·853

Many readings, especially P, wrongly identified.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s		m.
Mizusawa	N.	7·5	357	1 30	−23	3 19	− 1	—	—	—
Calcutta	N.	48·0	273	8 56	+13	e 16 11	PS	—	—	—
College		53·6	29	e 9 16	− 9	e 16 36	−22	—	—	e 23·4
Dehra Dun	N.	53·9	286	—	—	e 20 23	SS	—	—	—
Honolulu		54·5	84	e 9 37	+ 5	e 17 31	+21	e 12 0	PP	e 23·0
New Delhi	N.	55·2	285	e 9 44	+ 7	e 17 14	− 6	17 32	PS	—
Hyderabad	N.	58·5	271	—	—	17 59	− 4	18 6	PS	29·0
Brisbane	N.	59·7	168	—	—	i 18 50	+31	—	—	—
Sitka		60·3	38	e 9 55	−18	e 18 22	− 4	e 12 3	PP	e 24·9
Colombo		62·5	259	9 47?	−41	17 47?	−67	—	—	39·8
Bombay		62·7	276	e 10 29	0	e 18 53	− 4	19 6	PS	—
Kodaikanal	E.	62·8	265	e 7 47	?	i 16 27	?	20 47	SS	28·8
Riverview		65·7	171	i 11 31a	+43	i 20 5	+31	i 13 38	PP	e 30·8
Victoria		70·1	44	11 14	− 2	20 29	+ 2	—	—	29·8
Seattle		71·1	45	e 18 9	?	e 20 7	−31	—	—	e 31·0
Ferndale		73·0	52	—	—	i 21 14	+14	—	—	e 41·8
Ukiah		74·4	53	e 11 47	+ 5	e 21 13	− 3	—	—	e 31·3
Auckland		74·8	152	i 12 13	+29	21 45	+25	—	—	37·8
Berkeley		75·7	54	e 11 46	− 3	e 21 30	0	—	—	e 32·8
Branner		75·9	54	e 18 47?	?	—	—	—	—	—
Santa Clara		76·1	54	i 11 55	+ 3	e 21 45	+10	—	—	e 37·2
Arapuni		76·2	152	e 8 47?	?	21 47?	+11	—	—	37·8
Saskatoon		77·5	37	—	—	21 49	− 1	—	—	39·8
Butte		77·7	43	e 13 16?	+76	e 22 53?	+61	—	—	e 35·2
Upsala	E.	77·9	334	e 12 15	+14	21 35	−19	e 30 39	SSS	e 34·8
	N.	77·9	334	e 12 10	+ 9	21 32	−22	26 41	SS	e 36·8
Wellington		78·7	155	11 23	−43	22 30	+27	15 27	PP	39·8
Tinemaha	Z.	78·8	53	i 12 3	− 3	—	—	—	—	—
Santa Barbara		79·2	56	i 12 6	− 2	—	—	—	—	—
Haiwee		79·5	53	i 12 6	− 4	—	—	—	—	—
Christchurch		79·9	157	e 12 40	+28	22 42	+26	28 2	SS	40·6
Mount Wilson	Z.	80·4	55	i 12 10	− 5	—	—	—	—	—
Pasadena		80·4	55	e 12 12	− 3	e 22 5	−16	—	—	—
Riverside	Z.	81·0	55	e 12 13	− 5	—	—	—	—	—
Salt Lake City		81·0	47	e 12 21	+ 3	e 22 17	−10	e 15 31	PP	e 34·1
Bergen		81·6	339	—	—	e 22 8	−25	—	—	36·8
La Jolla	N.	81·7	56	e 12 22	0	—	—	—	—	—
Palomar		81·7	55	e 12 16	− 6	e 22 24	−10	—	—	—
Copenhagen		82·9	333	e 12 32	+ 4	22 28	−18	—	—	44·8
Rapid City		84·2	41	e 12 35	+ 1	e 22 45	−14	—	—	e 42·4
Bucharest		84·3	319	e 12 31	− 4	—	—	e 15 5	PP	43·8
Ksara		84·5	306	e 12 44	+ 8	e 23 46	PS	—	—	—
Potsdam		85·1	331	e 12 47?	+ 8	e 22 54	−14	—	—	e 36·8
Prague		86·2	328	e 12 42	− 2	e 23 2	[− 7]	—	—	e 38·8
Aberdeen		86·4	341	e 12 48	+ 3	i 23 24	+ 3	41 58	Q	47·5
Tucson		86·6	53	e 12 41	− 5	e 23 13	[+ 2]	e 16 4	PP	e 34·5
Jena		86·8	330	e 12 51	+ 4	e 23 17	[+ 4]	—	—	e 45·2
Belgrade		87·1	322	e 12 59k	+10	e 23 13	[− 2]	e 25 21	PPS	e 45·3
Cheb		87·1	330	e 13 39	+50	i 23 35	+ 7	e 17 15	PP	e 44·8
De Bilt		88·4	334	e 12 47	− 8	e 23 32	− 8	e 33 17	SSS	e 44·8
Stonyhurst		89·4	339	e 12 47?	−13	i 23 50	+ 1	—	—	i 41·8
Uccle		89·7	334	e 12 56?	− 5	e 23 47	[+16]	e 16 47	PP	e 45·8
Triest		89·8	326	e 13 24	+22	i 23 55	+ 2	e 16 27	PP	—
Helwan		89·9	305	e 12 58	− 4	24 11	+17	18 52	PPP	—
Strasbourg		90·2	331	—	—	e 23 44	[+10]	—	—	48·8
Kew		90·8	337	e 13 0	− 6	e 23 50	−12	e 18 32?	PPP	e 39·8

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Zürich		90·8	331	e 13 18	+12	e 23 51	−11	—	—	—
Basle		91·1	330	e 13 39	+31	e 23 56	− 8	—	—	—
Neuchatel		91·8	331	e 13 44	+33	—	—	—	—	—
Milan	E.	92·0	329	23 30?	SKS	(23 30?)	[−14]	34 27	SSS	47·9
Paris		92·0	335	—	—	e 24 1	[+17]	—	—	e 45·8
Chicago		94·0	35	e 17 28	PP	e 23 53	[− 3]	e 24 28	S	e 38·2
Clermont-Ferrand		94·3	332	e 13 31	+ 8	—	—	—	—	e 59·8
Florissant		94·8	38	e 13 24	− 1	e 23 52	[− 8]	e 17 15	PP	—
St. Louis		95·0	38	e 13 30	+ 4	e 24 9	[+ 8]	i 24 47	S	e 45·6
Ottawa		96·2	26	e 17 17	PP	e 24 2	[− 6]	—	—	e 45·8
Seven Falls		96·3	21	e 17 41	PP	e 24 56	+ 7	—	—	45·8
New Kensington		98·6	31	e 17 49	PP	e 24 21	[+ 1]	—	—	e 52·2
Tortosa		99·5	331	—	—	e 24 17	[− 8]	—	—	e 48·8
Georgetown		101·1	30	e 18 6	PP	—	—	e 32 21	SS	—
Columbia		103·3	35	e 18 15	PP	e 24 59	[+16]	e 33 12	SSP	e 46·0
Granada		104·3	331	e 15 11	P	25 33	−23	i 18 32	PKP	63·2
Lisbon		105·0	337	14 6	− 5	25 53	− 9	21 25	PPP	41·1
Malaga		105·0	333	e 14 45	+34	26 1	− 1	e 18 19	PKP	e 56·8
Bermuda		111·6	24	—	—	e 24 1	?	e 29 1	PPS	e 56·9
San Juan		123·6	32	e 20 14	PP	e 24 36	?	e 30 39	PS	e 54·0
Huancayo		140·8	68	e 19 10	[−22]	e 39 49	SS	e 23 4	PP	e 63·8
La Paz		149·0	67	19 54	[+ 8]	32 47	?	i 23 31	PKS	74·1
Rio de Janeiro	N.	170·3	28	e 21 47	PKP_3	—	—	—	—	e 41·3

Additional readings :—
Mizusawa eSE =3m.24s.
Honolulu e =12m.57s. and 19m.51s., eSS =21m.1s.
New Delhi iN =18m.47s., SSN =20m.38s., SSSN =22m.0s.
Hyderabad S_cSN =19m.56s.
Sitka e =12m.27s. and 21m.39s.
Bombay P_cPN =11m.19s., PPSE =19m.16s., PPSN =19m.23s., S_cSN =20m.21s.
Riverview iN =11m.46s., iE =20m.30s.
Ferndale eN =30m.38s., eE =31m.25s., eN =34m.0s., eE =34m.33s.
Berkeley ePZ =11m.52s., eEN =26m.47s.?
Arapuni e =30m.47s.?
Butte e =29m.25s.?
Upsala eN =13m.1s., 13m.24s., and 16m.14s., eE =22m.49s.?, eSSSN =30m.29s.
Wellington iZ =12m.28s., 13m.14s., 14m.54s., and 16m.15s., PS =24m.14s., SS? = 28m.2s., SSS =33m.21s., Q =37·8m.
Christchurch PZ =12m.52s., SSSE =31m.34s., Q =34m.47s.
Salt Lake City e =29m.38s.
Bergen eN =22m.29s., eE =24m.24s.
Palomar iEZ =12m.25s.
Rapid City e =14m.39s., 27m.35s., and 32m.54s.
Bucharest eE =14m.6s.
Potsdam eSE =22m.57s.
Prague e =32m.11s.
Aberdeen eN =12m.58s.
Tucson e =15m.13s., eSS =28m.25s.
Jena eE =12m.57s.
Belgrade e =33m.29s.
Cheb eSS =29m.10s., eSSS =33m.27s.
Stonyhurst e =23m.29s., i =26m.3s. and 36m.23s.
Uccle eSSN =29m.54s.
Triest iSKS? =23m.36s., ePS? =24m.46s.
Helwan SKSN =23m.25s., PSZ =25m.22s., PPSN =26m.2s.
Kew eZ =13m.24s.?, e =13m.42s.?, 14m.12s., and 17m.14s., ePSZ =24m.52s., eEN = 24m.59s., ePPSZ =25m.27s., eSSSEN =33m.32s., eSSSZ =34m.32s.
Chicago e =26m.42s., eSS =30m.42s., e =31m.53s.
Florissant iSE =24m.44s., ePS?E =26m.1s., eE =27m.15s., eSSE =31m.21s.
St. Louis iPSN =25m.52s., iPPS?N =26m.55s., eSSN =31m.14s., eSSSE =34m.15s.
Ottawa eE =28m.47s. and 37m.47s.
New Kensington e =23m.18s.
Georgetown e =18m.13s., 33m.27s., and 38m.56s.
Granada PS =29m.1s., SS =35m.1s.
Malaga iPP =19m.10s., PPP =22m.3s., SKS =25m.15s., PS =28m.31s., iPPS =29m.38s., SS =34m.31s., SSS =39m.23s.
San Juan e =21m.15s. and 32m.35s., eSSS =42m.14s.
Huancayo e =48m.7s., i =49m.21s., eS? =56m.32s., e =61m.27s.; these readings with the L in the table are recorded separate from the earlier three readings.
La Paz iPKPZ =19m.57s., iZ =20m.41s. and 22m.27s., iPSKS =34m.21s., SSZ = 44m.3s., SSS =49m.37s.
Long waves were also recorded at Apia, Sydney, Pehpei, Lick, San Fernando, and La Plata.

July 19d. Readings also at 0h. (near Triest), 1h. (Haiwee, Mount Wilson, Palomar, Pasadena, Riverside, and Tucson), 3h. (near Mizusawa), 8h. (Triest), 11h. (Mount Wilson (2), Pasadena (2), Palomar (2), Riverside (2), Tinemaha (2), Tucson (2), St. Louis (3), near La Paz, and near Mizusawa), 12h. (Wellington), 15h. (near Lick and near Malaga), 16h. (Florissant, St. Louis, Tucson, Palomar, Pasadena, Riverside, Tinemaha, San Juan, and La Paz), 17h. (Wellington, Kew, near Berkeley, Branner, and Lick), 18h. (San Juan, La Paz, Florissant, Huancayo, Tucson, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Sitka, Kew, and De Bilt), 19h. (near Mizusawa), 20h. (near La Paz and near Zürich), 21h. (Tucson, Mount Wilson, Pasadena, Palomar, Riverside, and Tinemaha), 22h. (Kew), 23h. (Arapuni, Auckland, Christchurch, Wellington, Brisbane, Riverview, Sydney, Perth, Pasadena, Riverside, Tinemaha, Berkeley, Tucson, La Paz, and Granada).

July 20d. 10h. 37m. 20s. Epicentre 35°·5N. 26°·5E.

$A = +·7303$, $B = +·3641$, $C = +·5781$; $\delta = +11$; $h = 0$;
$D = +·446$, $E = -·895$; $G = +·517$, $H = +·258$, $K = -·816$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Helwan		6·9	143	i 1 49k	+ 4	3 4	− 1	2 4	P*	e 5·5
Sofia		7·6	343	e 2 40?	P_g	—	—	—	—	—
Ksara		7·9	99	e 1 55	− 4	e 3 20	−10	—	—	—
Bucharest		8·9	357	e 2 8	− 4	e 3 49	− 6	—	—	4·2
Belgrade		10·4	335	e 2 34	0	e 4 36	+ 4	—	—	e 5·8
Triest		14·0	320	e 3 18	− 4	i 6 4	+ 5	i 6 32	SSS	—
Milan	E.	16·5	312	4 0	+ 6	7 6	+ 8	—	—	—
Prague		17·0	333	4 1	0	e 7 8	− 2	—	—	e 9·2
Cheb		17·8	329	e 4 13	+ 2	e 7 28	0	e 7 51	SS	e 9·7
Zürich		17·9	317	e 4 12	0	e 7 45	+15	—	—	—
Basle		18·5	318	e 4 19	0	—	—	—	—	—
Neuchatel		18·6	316	e 4 20	− 1	—	—	—	—	—
Jena		18·8	330	e 4 21	− 2	e 7 57	+ 7	e 8 12	SS	e 10·6
Strasbourg		19·0	320	4 38	+12	7 45	−10	—	—	10·7
Potsdam		19·4	335	e 4 32	+ 2	i 8 8	+ 4	e 5 12	PPP	e 10·7
Clermont-Ferrand		20·4	307	e 4 46	+ 5	—	—	—	—	—
Tortosa		21·1	293	4 44	− 4	i 8 52	+13	5 24	PPP	e 12·7
Uccle		22·1	321	e 4 58a	− 1	8 59	+ 1	—	—	e 10·7
Copenhagen		22·4	339	e 4 58	− 4	9 4	0	—	—	11·7
De Bilt		22·5	325	i 5 2	0	e 9 10	+ 5	—	—	e 11·7
Granada		24·2	284	i 5 33	+14	i 9 39	+ 4	5 53	PP	i 12·2
Malaga		24·9	283	i 5 31a	+ 5	i 9 59	+12	i 6 12	PPP	12·7
Kew		25·0	318	e 2 51?	?	e 9 54	+ 5	e 10 42	SS	e 12·2
Upsala		25·0	349	i 5 23	− 4	9 42?	− 7	—	—	e 12·1
Stonyhurst		27·3	322	e 5 40?	− 8	i 10 50	+23	e 8 40?	?	—
Bergen	E.	28·4	339	—	—	e 10 7	−38	—	—	—
Aberdeen		28·9	328	e 9 46	P_cP	e 10 41	−12	—	—	—

Additional readings:—
Helwan eZ = 2m.58s., S*E = 3m.29s., eEN = 4m.1s.
Belgrade e = 3m.9s.
Cheb e = 5m.1s.
Jena eN = 9m.0s.
Tortosa SSN? = 9m.50s.
Granada PPP = 6m.15s.
Malaga iP_cP = 9m.11s., i = 10m.51s., S_cP = 12m.31s.
Kew ePPZ = 4m.31s.?, iEZ = 10m.8s.

July 20d. 20h. 7m. 14s. Epicentre 33°·5N. 141°·0E. (as on 1937 June 17d.).

$A = -·6494$, $B = +·5259$, $C = +·5493$; $\delta = +2$; $h = 0$;
$D = +·629$, $E = +·777$; $G = -·427$, $H = +·347$, $K = -·836$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mizusawa		5·6	1	e 1 29	+ 2	e 2 33	0	—	—	—
New Delhi	N.	54·1	282	—	—	e 17 59	+54	—	—	e 31·7
Upsala		76·0	334	e 20 21	?	e 21 26	− 8	—	—	e 40·8
Tinemaha	Z.	78·2	53	i 12 3	0	—	—	i 12 26	P_cP	—
Mount Wilson	Z.	79·9	55	i 12 13	+ 1	—	—	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Pasadena		79·9	55	e 11 58	−14	—	—	i 12 10	P	e 33·6
Riverside	Z.	80·5	55	i 12 12	− 3	—	—	—	—	—
Copenhagen		80·9	334	e 12 17	0	22 27	+ 1	—	—	40·8
Palomar	Z.	81·2	56	e 12 15	− 4	—	—	—	—	—
Ksara		82·9	306	e 12 22	− 6	e 22 48	+ 2	—	—	—
Cheb		85·2	330	—	—	e 22 46?	[−16]	—	—	e 45·8
Tucson		85·9	54	e 12 41	− 2	—	—	—	—	e 40·9
De Bilt		86·4	335	e 12 46	+ 1	e 23 11	[+ 1]	e 16 8	PP	e 42·8
Helwan		88·4	305	e 12 16	?	e 23 20	[− 3]	e 12 55	P	—
Kew		88·8	337	e 13 0	+ 3	e 23 46	+ 2	e 16 31?	PP	e 38·8
Florissant	E.	93·7	38	—	—	e 24 27	0	e 23 53	SKS	—
St. Louis		93·9	38	—	—	e 24 23	− 6	e 23 50	SKS	—
Granada		102·3	332	e 18 43	PP	—	—	—	—	54·9
La Paz	Z.	148·8	64	e 19 57	[+12]	—	—	—	—	79·8

St. Louis gives also eSS?E =30m.5s., eN =31m.22s.
Long waves were also recorded at Sitka and at other European stations.

July 20d. Readings also at 0h. (Florissant, Cheb, De Bilt, Kew, San Fernando, and near La Paz), 1h. (Clermont-Ferrand, and Mizusawa), 2h. (Honolulu, Florissant, Sitka, Seattle, Butte, Salt Lake City, Rapid City, Berkeley, Tinemaha, Riverside, Mount Wilson, Palomar, and near Tucson), 3h. (Granada), 7h. (Tucson, Palomar, Haiwee, Tinemaha, Riverside, Mount Wilson, Pasadena, Sitka and near College), 8h. (Zürich, Malaga, and Alicante (2)), 9h. (near Triest), 12h. (Ksara), 14h. (near Lick), 19h. (Triest and near Granada), 20h. (Triest, Branner, and Berkeley (2)), 21h. (near Almeria).

July 21d. 12h. 24m. 35s. Epicentre 42°·0N. 130°·5W.

A = −·4841, B = −·5668, C = +·6666; δ = −3; λ = −2;
D = −·760, E = +·649; G = −·433, H = −·507, K = −·745.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ferndale		4·9	105	e 1 13	− 4	i 3 37	?	—	—	—
Berkeley		7·6	121	i 1 51	− 4	e 3 25	+ 2	e 3 55	S*	—
Santa Clara		8·1	123	(e 2 1)	− 1	(e 3 33)	− 2	—	—	e 3·6
Seattle		8·1	43	e 2 10	+ 8	—	—	—	—	—
Lick	N.	8·3	122	e 2 4	0	e 3 55	+15	—	—	—
Tinemaha		10·6	114	i 2 38	+ 2	—	—	—	—	—
Haiwee	Z.	11·4	117	e 2 49	+ 2	—	—	—	—	—
Mount Wilson	Z.	12·5	125	i 3 3	+ 1	—	—	—	—	—
Pasadena		12·5	125	i 3 2	0	(e 5 26)	+ 3	—	—	e 5·4
Riverside		13·1	124	i 3 10	0	—	—	—	—	—
Butte		13·5	67	e 3 8?	− 7	(e 5 42?)	− 5	—	—	e 5·7
Palomar		13·8	124	e 3 19	0	—	—	—	—	—
Salt Lake City		14·1	82	e 3 10	−13	e 6 1	− 1	—	—	e 7·5
Sitka		15·9	350	e 4 16	PPP	e 7 23	SSS	—	—	e 7·8
Tucson		18·4	115	i 4 18	0	e 7 44	+ 3	e 4 40	PPP	e 8·9
Saskatoon		19·1	51	4 25	− 2	7 50	− 7	—	—	10·4
Rapid City		20·0	75	e 4 29	− 8	—	—	e 9 5	SSS	e 10·5
Florissant		30·5	83	e 6 23	+ 6	e 11 5	−13	—	—	—
St. Louis		30·7	83	e 6 19	0	e 11 2	−19	—	—	e 13·9
Chicago		31·7	76	—	—	e 11 32	− 5	—	—	e 16·5

Additional readings :—
Berkeley ePNZ =1m.55s., eE =2m.0s., eN =2m.6s., iZ =2m.55s., iSN =3m.20s., eZ =3m.58s., eE =4m.6s.
Santa Clara P given as S, S given as L.
St. Louis eZ =6m.24s., iZ =6m.29s.
Long waves were also recorded at Ukiah and Kew.

July 21d. 18h. 50m. 47s. Epicentre 33°·5N. 141°·0E. (as on 20d.).

$A = -\cdot6494$, $B = +\cdot5259$, $C = +\cdot5493$; $\delta = +2$; $h = 0$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mizusawa		5·6	1	e 1 35	+ 8	2 45	S*	1 39	P*	—
Tinemaha	z.	78·2	53	12 3	0	—	—	—	—	—
Haiwee	z.	78·9	54	e 12 4	− 3	—	—	—	—	—
Mount Wilson	z.	79·9	55	i 12 11	− 1	—	—	—	—	—
Pasadena	z.	79·9	55	i 12 10	− 2	—	—	—	—	e 37·2
Riverside	z.	80·5	55	i 12 14 a	− 1	—	—	—	—	—
Copenhagen		80·9	334	i 12 19	+ 2	22 30	+ 4	—	—	42·2
La Jolla	z.	81·2	57	e 12 19	0	—	—	—	—	—
Palomar		81·2	56	i 12 18 a	− 1	—	—	—	—	—
Tucson		85·9	54	12 43	0	—	—	e 16 9	PP	e 50·0
St. Louis		93·9	38	e 13 23	+ 2	e 24 30	+ 1	—	—	—
Granada		102·3	332	—	—	e 25 50	+10	—	—	55·4
La Paz	z.	148·8	64	19 58	[+13]	—	—	—	—	—

Long waves were also recorded at other European stations.

July 21d. Readings also at 0h. (La Plata), 2h. (Kew, St. Louis, Tucson, and Tinemaha), 4h. (near Zurich and Chur), 6h. (near Apia), 7h. (Kew), 8h. (De Bilt and Triest), 10h. (Tinemaha, Mount Wilson, Riverside, Tucson, St. Louis, De Bilt, Triest, and Bucharest), 15h. (Bucharest), 16h., 22h., and 23h. (near Triest).

July 22d. 11h. 28m. 35s. Epicentre 17°·2N. 94°·6W. Pasadena suggests deep focus.

Felt strongly at Jaltipan and Covarrubias. Intensity IV at Oaxaca.
Epicentre 17° 14′N. 94° 37′W.
Universidad nacional de Mexico, Instituto de Geologia, Catalogo compendiado de temblores durante el periodo, Enero 1941—Diciembre 1944, p. 61.

$A = -\cdot0767$, $B = -\cdot9527$, $C = +\cdot2939$; $\delta = -10$; $h = +5$;
$D = -\cdot997$, $E = +\cdot080$; $G = -\cdot023$, $H = -\cdot293$, $K = -\cdot956$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Vera Cruz	z.	2·5	325	0 45	+ 2	—	—	—	—	—
Puebla	n.	3·9	298	1 2	0	—	—	—	—	—
Tacubaya	n.	4·9	298	1 18	+ 1	—	—	—	—	—
Merida	n.	6·0	51	1 37	+ 5	—	—	—	—	—
Guadaljara	e.	9·0	294	e 2 35	PPP	—	—	—	—	—
Tucson		21·0	320	i 4 47	0	i 8 42	+ 5	i 5 3	PP	e 11·2
St. Louis		21·7	10	i 4 53	− 2	i 8 53	+ 2	i 5 10	PP	—
Florissant		21·8	10	i 4 55	− 1	i 8 55	+ 3	i 5 14	PP	—
Bogota		23·7	119	e 5 16	+ 2	—	—	e 6 0	PPP	—
Chicago		25·2	12	e 5 27	− 2	e 9 49	− 3	e 6 10	PP	e 10·6
La Jolla	z.	25·7	313	e 5 33	0	—	—	i 6 1	PP	—
Palomar		25·7	314	e 5 31	− 2	—	—	i 6 3	PP	—
Riverside	z.	26·4	314	e 5 37	− 3	—	—	i 6 14	PP	e 14·4
Mount Wilson	z.	27·0	314	i 5 44	− 1	—	—	—	—	—
Pasadena		27·0	314	e 5 44	− 1	e 10 24	+ 2	i 6 14	PP	e 15·0
San Juan		27·1	83	e 6 33	PP	e 11 10	SS	e 7 5	PPP	e 14·3
Rapid City		27·8	348	e 5 54	+ 1	e 11 35	SS	e 6 6	?	e 15·4
Salt Lake City		27·8	333	e 6 8	+15	e 10 53	+18	e 11 44	SS	e 15·6
Haiwee	z.	28·0	319	e 5 56	+ 1	—	—	i 6 33	PP	—
Tinemaha		28·8	319	e 5 59	− 3	—	—	—	—	e 14·6
Ottawa		32·3	26	—	—	e 11 40	− 6	—	—	14·4
Shawinigan Falls		34·4	28	e 7 11	+20	—	—	—	—	15·4
Saskatoon		36·1	347	—	—	e 12 45	0	(15 25?)	SSS	15·4
La Paz	z.	42·5	140	e 7 55	− 4	—	—	—	—	—
Granada		80·6	54	i 12 19	+ 3	i 21 46	−37	—	—	33·8

For Notes see next page.

NOTES TO JULY 22d. 11h. 28m. 35s.

Additional readings :—
Tucson e =5m.17s. and 8m.16s.
St. Louis iE =9m.10s., iN =9m.33s., iSSN =9m.45s., iSSSN =9m.52s.
Florissant iE =9m.14s.
Chicago e =5m.47s.
La Jolla iZ =5m.50s.
Palomar i =5m.51s., iN =9m.26s.
Riverside iZ =5m.51s., 6m.0s., and 9m.24s.
Pasadena i =6m.3s., iZ =9m.26s.
Haiwee eZ =6m.11s.
Tinemaha iZ =6m.10s. and 6m.19s.
Long waves were also recorded at New Kensington.

July 22d. Readings also at 0h. (near Berkeley), 2h. (Tucson), 6h. (Tucson, Palomar, Pasadena, Riverside, Tinemaha, Mount Wilson, Wellington, Apia, and Riverview), 7h. (Kew, Tucson, Palomar, Tinemaha, and Riverview), 9h. (Berkeley), 11h. (Palomar, Mount Wilson, Pasadena, Haiwee, Tucson, and St. Louis), 12h. (Berkeley), 17h. (Potsdam, De Bilt, Triest, Cheb, Belgrade, Bucharest, Ksara, and Helwan), 18h. (near Branner), 20h. (Strasbourg), 23h. (Tucson and near Berkeley (2)).

July 23d. 11h. South-west Pacific. Pasadena suggests deep focus.

Brisbane ePN =51m.14s., ipP?N =52m.6s., iSN =54m.35s.
Riverview iP?Z =52m.10s.a, ipP? =53m.10s., iS?N =56m.16s., iE =56m.19s., iEN = 57m.7s., iN =57m.42s. and 57m.55s.
Pasadena iPZ =59m.25s., eZ =60m.12s., iZ =60m.22s.
Mount Wilson iPZ =59m.27s., iZ =60m.20s.
Haiwee ePZ =59m.28s.
La Jolla ePZ =59m.28s.
Riverside iPZ =59m.28s., iZ =59m.51s. and 60m.23s.
Palomar iPZ =59m.30s.
Tinemaha iPZ =59m.35s., iZ =60m.24s.
Tucson iP =59m.52s.
New Delhi ePN =61m.37s., iS =64m.49s., i =65m.1s. and 65m.29s., L =66m.16s.
Hyderabad ePN =61m.53s., PPN =62m.58s., P_cPN =64m.26s., SN =67m.10s., LN = 71m.15s.
Bombay iPN =62m.3s., PPN =62m.12s., iSE =65m.29s., LE =68m.
Ksara eP =62m.12s., eS =65m.57s.
Helwan iPZ =62m.52s.k, eZ =63m.15s. and 64m.9s., SN =67m.6s.
Bucharest 63m.
De Bilt e =65m.
Potsdam eE =65m.20s. and 71m.0s., eLEN =81m.
Copenhagen iP =65m.29s., 67m.2s. and 71m.51s.
Zürich eP =65m.31s.
Basle eP =65m.37s.
Kodaikanal eE =65m.40s. and 71m.30s.
Neuchatel eP =65m.40s.
Granada eP =65m.43s.a, S =70m.28s., SS =72m.18s.
Clermont-Ferrand P =66m.1s.
Triest e =66m.33s.
Malaga iP =66m.45s., i =67m.51s.
Cheb eP =66m.50s., eS =71m.22s., eL =80m.
Prague e =67m.6s., 73m.12s., and 75m.54s.
Strasbourg PP? =67m.10s., e =69m.1s.
Dehra Dun eN =67m.16s.?, e =70m.2s.?, eL =72m.41s.
Calcutta iN =69m.25s. and 73m.37s.
Upsala eN =78m., eE =84m.
Long waves were also recorded at Kew and Stonyhurst.

July 23d. 16h. 13m. 40s. Epicentre 23°·7S. 65°·7W. Depth of focus 0·030.
(as on 1942, June 5d.).

$A = +\cdot3772$, $B = -\cdot8355$, $C = -\cdot3996$; $\delta = +2$; $h = +4$;
$D = -\cdot911$, $E = -\cdot412$; $G = -\cdot164$, $H = +\cdot364$, $K = -\cdot917$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Montezuma		3·1	290	i 0 45	− 7	i 1 18	−15	—	—	e 1·5
La Paz	z.	7·5	341	i 1 43a	− 4	i 2 55	−17	—	—	3·4
La Plata		13·0	151	i 3 13	+15	5 44	+26	—	—	6·5
Huancayo		14·8	320	i 3 18	− 2	i 5 50	− 8	i 3 41	PP	i 6·3
Bogota		29·3	344	i 5 40	− 4	—	—	i 6 32	pP	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Fort de France		38·4	8	e 6 20?	−41	—	—	—	—	—
San Juan		41·8	0	e 8 55	PP	e 13 11	−18	e 16 35	SS	e 18·5
St. Louis		66·1	340	i 10 24	− 1	e 18 46	− 8	i 11 19	pP	—
Tucson		70·4	321	i 10 51	− 1	—	—	i 11 49	pP	—
Palomar		74·8	318	i 11 18	+ 1	—	—	i 12 16	pP	—
Riverside		75·5	318	i 11 21k	0	—	—	i 12 19	pP	—
Mount Wilson		76·1	318	i 11 25k	0	—	—	i 12 24	pP	—
Pasadena		76·1	318	i 11 25k	0	e 20 46	− 2	i 12 23	pP	e 31·5
Haiwee		77·3	320	i 11 33	+ 2	—	—	i 12 32	pP	—
Tinemaha		78·1	320	i 11 37k	+ 1	e 21 9	− 1	i 12 36	pP	—
Malaga		83·3	45	e 12 9	+ 6	—	—	i 13 5	pP	—
New Delhi	N.	146·4	75	—	—	i 27 39	SKKS	—	—	—

Additional readings :—
La Paz iZ = 3m.5s.
San Juan e = 9m.55s.
St. Louis ePP = 13m.1s., ePSE? = 19m.50s., eE = 21m.37s.
Tucson iP_cP = 11m.10s., e = 14m.37s.
Palomar iZ = 11m.43s.
Pasadena iP_cPZ = 11m.37s., eZ = 14m.21s., eEN = 21m.14s.
Tinemaha iP_cPZ = 11m.47s.
New Delhi iN = 27m.47s.
Long waves were recorded at New Kensington and Prague.

July 23d. Readings also at 2h. (Tucson, near Berkeley, Branner, and Lick), 7h. (near Mizusawa), 10h. (Kodaikanal, San Francisco, Palomar, Riverside (2), Mount Wilson (2), Pasadena (2), Tucson (2), and Riverview), 11h. (De Bilt, Kodaikanal, Wellington, Brisbane, Sydney, and Riverview), 12h. (Tucson and Copenhagen), 13h. (Riverview, Mount Wilson, Riverside, Palomar, and Copenhagen), 15h. (St. Louis), 23h. (Tucson, Palomar, Riverside, Mount Wilson, Pasadena, and Tinemaha).

July 24d. 7h. 30m. 15s. Epicentre 9°·2S. 159°·5E. (as on 1939, May 1d.).

$A = -·9248$, $B = +·3458$, $C = -·1589$; $\delta = +8$; $h = +7$;
$D = +·350$, $E = +·937$; $G = +·149$, $H = -·056$, $K = -·987$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane		19·2	198	i 4 28k	0	i 8 6	+ 7	i 8 22	SS	i 10·0
Suva		20·4	118	e 4 35	− 6	i 8 18	− 7	i 5 2	PP	i 9·0
Riverview		25·7	196	i 5 35k	+ 2	i 10 3	+ 2	i 5 46	pP	e 12·2
Sydney		25·7	196	e 8 3	?	e 10 21	+20	—	—	—
Wellington		34·7	160	6 47	− 7	12 15	− 9	7 10	pP	16·8
Honolulu		51·7	54	—	—	e 16 43	+11	—	—	e 26·2
Sitka		84·6	30	—	—	e 23 9	+ 6	—	—	e 40·2
Berkeley		86·4	52	e 12 52	+ 7	e 22 57	[−13]	—	—	—
Victoria		88·4	42	—	—	e 23 14	[− 9]	—	—	41·8
Pasadena		88·8	56	e 13 1	+ 4	—	—	—	—	e 40·2
Mount Wilson	z.	88·9	56	i 13 1	+ 3	—	—	—	—	—
Tinemaha	z.	89·4	53	e 13 3	+ 3	—	—	—	—	—
Palomar		89·7	57	i 13 6a	+ 5	—	—	—	—	—
Tucson		94·6	58	e 14 6	+42	e 25 56	PS	e 16 55	PP	e 44·0
Saskatoon		99·6	38	—	—	e 24 33	[+ 8]	—	—	49·8
St. Louis	E.	111·5	52	—	—	e 25 21	[+ 3]	e 26 25	SKKS	—

Additional readings :—
Brisbane iSE = 8m.9s.
Suva i = 6m.45s.
Riverview iPPZ = 6m.17s., isS = 10m.21s., iEN = 10m.52s., eQE = 11m.3s.
Wellington sPZ = 7m.25s., Q = 14m.45s.
St. Louis ePSE = 28m.51s., epPSE = 29m.20s., ePPSE = 30m.5s.
Long waves were also recorded at Auckland, Christchurch, Chicago, De Bilt, Uccle, and Granada.

July 24d. Readings also at 5h. (Istanbul, Belgrade, Bucharest, Sofia, and near Triest), 6h. (Bucharest), 15h. (Tananarive), 22h. (St. Louis), 23h. (near Lick (2)).

July 25d. Readings at 0h. (Ksara and near Harvard), 3h. (Granada), 4h. and 5h. (near Mizusawa), 17h. (near Alicante), 19h. (New Delhi and near Harvard), 21h. (Tucson, Riverside, Mount Wilson, Pasadena, and near La Paz).

July 26d. Readings at 0h. (near Berkeley), 4h. (Mizusawa), 5h. (Tucson, Riverside, Mount Wilson, and Pasadena), 9h. (near Tucson), 10h. (Ksara), 13h. (near Triest), 15h. (Riverview), 20h. (Berkeley), 23h. (Tucson).

July 27d. 0h. 4m. 24s. Epicentre 53°·9N. 165°·6W. Depth of focus 0·005.

$A = -\cdot5732$, $B = -\cdot1472$, $C = +\cdot8061$; $\delta = +2$; $h = -7$;
$D = -\cdot249$, $E = +\cdot969$; $G = -\cdot781$, $H = -\cdot201$, $K = -\cdot592$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		14·2	32	i 3 12	− 7	i 5 57	+ 1	i 3 18	PP	i 6·7
Victoria		26·7	84	5 38	+ 3	10 8	+ 4	—	—	—
Seattle		27·7	85	e 5 54	+10	e 10 21	+ 1	e 9 42	P_cP	e 12·4
Ferndale		30·6	98	e 6 32	+22	e 11 8	+ 2	—	—	e 13·6
Ukiah		32·1	99	e 6 22	− 1	e 11 25	− 5	e 7 6	PP	e 14·3
Mineral	E.	32·3	96	e 6 26	+ 1	e 11 34	+ 1	—	—	e 15·6
Honolulu		33·1	166	i 6 34	+ 2	i 12 4	+19	i 6 52	pP	i 14·8
San Francisco		33·5	100	e 6 36	+ 1	—	—	e 16 54	S_cS	e 19·0
Berkeley		33·6	100	e 6 33	− 3	e 11 53	0	i 6 48	pP	12·8
Branner		33·9	100	i 6 39	0	e 11 49	− 9	e 9 4	P_cP	e 15·3
Santa Clara		34·1	100	i 6 41	+ 1	i 12 6	+ 5	—	—	e 14·3
Lick		34·3	100	i 6 42	0	e 12 5	+ 1	e 9 16	P_cP	e 12·9
Butte		34·3	80	e 6 57?	+15	i 12 16?	+12	e 7 49?	PP	e 14·5
Saskatoon		34·6	68	6 47	+ 2	12 6	− 2	—	—	14·6
Sapporo		36·0	276	e 7 16	pP	17 5	S_cS	—	—	—
Tinemaha		36·4	98	i 7 2	+ 2	e 12 41	+ 5	i 13 5	S_cP	—
Mori		37·0	274	7 32	pP	17 13	S_cS	—	—	—
Haiwee		37·2	98	i 7 8a	+ 1	e 12 51	+ 3	i 7 29	pP	—
Santa Barbara		37·6	102	i 7 9a	− 1	e 12 52	− 2	i 7 29	pP	—
Salt Lake City		37·8	87	e 7 12	0	i 12 56	− 1	e 13 25	SS	e 16·6
Pasadena		38·5	101	i 7 17a	− 1	i 13 6	− 2	i 7 34	pP	e 17·7
Mount Wilson		38·5	101	i 7 19a	+ 1	i 13 11	+ 3	i 7 41	pP	—
Mizusawa		38·6	270	e 7 25	+ 7	13 1	− 9	12 54	?	17·4
Riverside		39·1	101	i 7 22a	− 1	i 13 17	0	i 7 43	pP	—
Boulder City		39·2	95	i 7 23	0	i 13 19	0	—	—	—
Sendai		39·3	269	e 7 21	− 3	17 28	S_cS	—	—	—
Palomar		39·8	100	i 7 28a	0	i 13 29	+ 1	i 7 48	pP	—
La Jolla		40·0	101	i 7 20a	−10	e 13 33	+ 2	i 7 49	pP	—
Rapid City		40·9	77	i 7 36	− 1	e 13 34	−10	i 7 54	pP	e 16·8
Tokyo		41·7	267	e 7 44	0	18 46	L	—	—	(18·8)
Toyama		42·5	270	e 7 52	+ 1	17 47	S_cS	—	—	—
Shizuoka		43·0	267	7 46	− 9	17 52	S_cS	—	—	—
Nagoya		43·7	269	8 7	+ 7	17 59	S_cS	—	—	—
Tucson		44·2	96	i 8 3	− 1	i 14 33	+ 1	i 8 14	pP	e 17·8
Chicago		51·2	70	e 8 55	− 4	e 16 2	− 9	e 10 57	PP	e 24·7
St. Louis		51·8	74	i 8 59	− 4	i 16 13	− 6	i 9 16	pP	—
Cape Girardeau	E.	53·1	75	e 9 9	− 4	e 16 31	− 6	—	—	—
Ottawa		55·1	59	9 23	− 5	16 57	− 7	11 29	PP	25·8
Shawinigan Falls		55·7	56	9 30	− 2	17 6	− 6	11 35	PP	26·6
Seven Falls		56·3	54	9 36	0	17 16	− 4	11 45	PP	25·6
New Kensington		56·3	66	e 9 38	+ 2	e 17 6	−14	e 11 45	PP	e 23·6
Georgetown		58·9	65	i 9 51	− 4	i 17 49	− 5	12 4	PP	—
Fordham		59·2	62	i 9 55	− 2	i 17 56	− 2	i 12 9	PP	i 28·3
Harvard		59·2	59	i 9 55	− 2	e 17 55	− 3	e 12 7	PP	e 29·6
Weston		59·4	59	i 9 55	− 3	e 17 55	− 5	12 8	PP	—
Columbia		60·3	72	e 10 4	0	e 18 4	− 8	e 12 14	PP	e 25·0
Halifax		61·5	53	10 13	+ 1	e 18 28	+ 1	22 30	SS	28·6
Bergen		65·8	6	10 37	− 4	19 17	− 4	e 11 4	pP	e 29·6
Upsala		66·6	359	10 44	− 2	i 19 25	− 5	i 11 30	pP	e 30·6
Aberdeen		68·5	11	i 10 55	− 3	i 19 42	−11	i 27 31	SSS	32·9

Continued on next page.

Bermuda		70·4	62	e	11	9		0	i	20	10	−	5	i	24	27	SS	e	34·5
Copenhagen		70·8	2	i	11	11	−	1		20	18	−	2		11	29	pP		33·6
Stonyhurst		71·7	12	e	11	16	−	1	i	20	28	−	2	i	21	26	S_cS	e	32·6
De Bilt		74·1	7	i	11	30k	−	1	i	20	55	−	2	i	11	48	pP	e	33·6
Kew		74·3	9	i	11	32k		0	i	20	59	−	1	i	11	40	pP	e	34·6
Uccle		75·3	7	i	11	37k	−	1	i	21	10	−	1	i	12	29	pP	e	35·6
Jena		75·5	2	e	11	38	−	1	e	21	11	−	2	e	11	56	pP	e	36·3
Cheb		76·4	2	e	11	55	+11		e	21	23		0	e	14	56	PP	e	42·6
Prague		76·4	0	e	11	49	+	5	e	21	22	−	1	e	14	42	PP	e	33·6
Paris		77·2	8	e	11	48	−	1		21	27	−	5		—		—	e	38·6
Strasbourg		77·7	4		11	51		0		21	32	−	5		12	7	pP		37·6
Basle		78·8	4	e	11	56	−	1	e	21	58	+	9		—		—		—
Zürich		79·0	4	e	11	58k	−	1	e	21	48	−	3		—		—		—
Neuchatel		79·3	5	e	12	0		0	e	21	52	−	2		—		—		—
Clermont-Ferrand		80·3	8	i	12	6	+	1	i	22	3	−	1	i	12	22	pP	e	38·6
Balboa Heights		80·5	87	i	12	6	−	1	e	22	1	−	6		—		—		—
San Juan		80·8	72	e	12	11	+	3	i	22	9	−	1	e	15	18	PP	e	32·9
Triest		80·8	0	e	12	8		0	i	22	16	+	6	i	15	6	PP		—
Milan	E.	80·9	4		12	10	+	1		22	8	−	3		—		—		—
Belgrade		81·5	356	i	12	12a		0	i	22	18	+	1	e	15	32	PP	e	42·2
New Delhi	N.	81·6	307		—		—		i	22	10	−	8		27	34	SS		—
Bucharest		81·6	351	i	12	11k	−	1	i	22	15	−	3	e	15	5	PP		38·6
Barcelona		84·5	9	e	12	25	−	2	i	22	44	−	3		—		—	e	42·6
Tortosa		84·9	10	i	12	31	+	2		22	44	−	7		15	44	PP	e	37·6
Lisbon		85·5	18		12	33a	+	1		22	58	+	1		12	49	pP		40·4
Fort de France		86·5	70	i	20	54	?			—			—		—		—		—
Granada		88·0	14	i	12	46	+	2	i	23	7	[+	2]		16	25	PP		—
Malaga		88·3	15	i	12	45k	−	1	i	23	8	[+	1]	i	13	1	pP		42·6
San Fernando		88·3	17	i	12	46		0		23	10	[+	3]		16	12	PP		37·6
Brisbane		88·6	216	i	12	51	+	4	i	23	16	[+	8]	i	23	46	SKKS	e	40·9
Hyderabad	N.	90·4	301	e	12	59	+	4		23	18	[−	1]		23	43	S		—
Ksara		90·7	342	e	12	48?	−	9	e	23	23	[+	2]	i	23	50	S		45·3
Bombay		91·9	306		13	5	+	3		23	27	[	0]	i	23	56	S		—
Auckland		92·0	196		23	32	SKS			(23	32)	[+	4]		24	3	S		41·6
Riverview		95·0	215	i	13	19a	+	2	i	24	19	−	4	i	13	47	pP	e	43·8
Sydney		95·1	215	e	13	12	−	5	e	24	36	+13			—		—		—
Helwan		95·3	345	i	13	19a	+	1		23	43	[−	2]		17	24	PP		—
Wellington		96·3	195		23	48	SKS			(23	48)	[−	4]		24	23	S		45·6
Kodaikanal	E.	97·0	298		—		—			24	13	[+17]			—		—		49·7
Colombo		98·5	294		24	11	SKS			(24	11)	[+	7]		—		—		—
Christchurch		98·8	196		13	42	+	8		24	0	[−	5]		18	7	PP		45·4
Huancayo		99·8	97		—		—		e	24	32	[+22]		e	31	59	SS	e	42·4
La Paz		107·5	94	e	18	46	[+26]		i	28	2	PS		i	34	50	?		53·6

Additional readings :—
College i =3m.41s.
Ukiah e =12m.0s.
Honolulu e =7m.15s. and 8m.12s., i =11m.21s., 12m.22s., and 13m.57s.
Berkeley iZ =6m.53s., iN =6m.56s., iE =7m.9s., iP_cP =9m.16s., eS_cSEZ =16m.52s.
Branner eS_cSE =16m.45s., eS_cSN =16m.56s.
Lick eSE =12m.8s., eS_cSE =16m.57s.
Tinemaha eS_cSEN =17m.10s.
Haiwee iP_cPZ =9m.27s., iS_cP =13m.6s., iZ =13m.42s., eS_cSEN =17m.14s.
Santa Barbara iZ =9m.26s., iS_cPNZ =13m.6s., eS_cS =17m.15s.
Salt Lake City i =15m.54s.
Pasadena $isPZ$ =7m.50s., iZ =8m.11s., iP_cPZ =9m.11s., iS_cPEZ =13m.9s., iSS = 16m.5s., iS_cSEN =17m.20s.
Riverside iS_cPZ =13m.11s., iZ =13m.25s.
Palomar iN =8m.21s., iS_cPZ =13m.15s., iS_cS =17m.31s.
La Jolla iP_cPNZ =9m.35s., iS_cPNZ =13m.16s., eS_cSEN =17m.29s.
Rapid City e =8m.36s., ePP =9m.4s., e =13m.16s.
Tucson ePPP =10m.35s., i =10m.44s. and 13m.33s., e =14m.22s., and 14m.58s.
Chicago i =17m.33s., eS_cS =18m.37s., e =19m.6s.
St. Louis iP_cPZ =10m.7s., isSN =16m.44s., iS_cSN =18m.42s., isS_cSN =19m.16s.
Ottawa PS =17m.25s., iE =19m.5s., SS =20m.44s.
Seven Falls SS =21m.2s.
New Kensington e =19m.17s. and 21m.14s.
Georgetown i =21m.38s.
Fordham iPS =18m.24s.

Continued on next page.

Weston e = 10m.11s., SS = 21m.40s.
Columbia e = 18m.33s. and 19m.43s.
Halifax SSS = 25m.0s.
Bergen eN = 13m.36s.? and 15m.7s., SE = 19m.25s.
Upsala iN = 11m.2s., ePPPN = 14m.58s., isS = 20m.33s., iN = 21m.4s., eSSE = 23m.36s., eSSS?N = 26m.56s., eE = 28m.0s., readings have been increased by 38m.
Aberdeen iE = 11m.5s. and 12m.47s., iN = 15m.27s.
Copenhagen 21m.6s.
Stonyhurst iPS = 21m.4s., iPKKP = 31m.9s.
De Bilt ePP = 14m.20s., ePPP = 15m.44s., isS = 21m.35s., eSS = 25m.36s.
Kew ePP = 14m.12s., ePPP = 16m.24s.?, iSKS = 21m.34s., eSSEN = 25m.36s.?, eSSSZ = 29m.26s., eQEN = 31·1m.
Uccle iPPEN = 14m.41s., eN = 25m.54s.
Jena eN = 12m.4s., eS?E = 21m.6s.
Cheb e = 23m.4s., eSS = 25m.32s.
Prague ePPP = 16m.29s., ePS = 21m.49s., eSS = 26m.30s., eSSS = 29m.36s.
Strasbourg ePP = 15m.8s.
San Juan i = 12m.54s., e = 14m.26s., i = 22m.42s., eS = 27m.11s., e = 27m.36s.
Triest iPS = 23m.15s.
Belgrade e = 33m.30s.
Bucharest ePPPE = 16m.56s., eS?E = 22m.23s., PSEN = 22m.50s.
Tortosa P_cPN = 12m.39s., PPPN = 17m.52s., S_cSN = 23m.11s., PSE = 23m.42s., SSE = 28m.2s., SSSE = 31m.8s.
Lisbon N = 13m.25s., PP? = 15m.34s., iSN = 22m.48s., SSE = 28m.24s.?, SSN = 28m.28s.?
Granada sS = 24m.14s., pPS = 24m.44s., iSS = 28m.46s.
Malaga iPP = 16m.14s., isS = 23m.25s.
San Fernando PSE = 24m.16s.
Bombay PPN = 16m.38s., PPE = 16m.43s., PPPN = 18m.35s., iN = 19m.8s., eE = 20m.50s., SPN = 25m.9s.
Auckland P_cP? = 24m.39s., i = 25m.39s., sPP = 26m.33s., S? = 33m.12s., readings wrongly identified.
Riverview iPPZ = 17m.10s., iZ = 18m.15s., iSKS?EN = 23m.51s., iEN = 24m.35s., iZ = 24m.38s., iEN = 24m.59s., isSEZ = 25m.8s., iN = 25m.36s., 26m.8s., 26m.21s., and 26m.41s., iSSE = 30m.53s., eQE = 38·6m.
Helwan eZ = 13m.36s., and 16m.36s., pPPZ = 17m.43s., PPPZ = 19m.28s., PSN = 25m.12s.
Wellington iZ = 25m.1s., PPZ = 26m.22s., sPPZ = 26m.57s., PPP? = 27m.34s., e = 31m.36s.?, S = 32m.36s., readings wrongly identified.
Kodaikanal eE = 28m.13s. and 38m.3s.
Christchurch PPPZ = 20m.3s., PPSEN = 26m.53s., SSN = 32m.4s., SSSN = 36m.1s., QE = 40m.15s.

July 27d. 0h. 48m. 14s. Epicentre 45°·0N. 114°·9W.

A = −·2987, B = −·6435, C = +·7047; δ = −8; h = −4;
D = −·907, E = +·421; G = −·297, H = −·639, K = −·710.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Salt Lake City		4·8	151	e 1 22	P*	e 2 21	S*	—	—	e 2·5
Tinemaha		8·3	199	e 2 4	0	—	—	i 2 24	PP	i 4·2
Haiwee		9·2	196	e 2 14	− 2	4 37	S*	i 2 44	PPP	—
Mount Wilson	z.	11·0	193	e 2 41	− 1	—	—	—	—	i 5·7
Riverside	z.	11·2	191	e 2 42	− 2	—	—	i 3 21	PPP	e 5·7
Pasadena		11·2	195	i 2 41	− 3	—	—	i 3 28	PPP	i 5·8
Palomar		11·7	188	i 2 55	+ 4	—	—	—	—	—
Tucson		13·1	164	e 3 9	− 1	—	—	e 3 38	PPP	e 6·9
St. Louis	z.	19·4	100	e 4 32	+ 2	—	—	—	—	—

July 27d. 8h. 18m. 40s. Epicentre 12°·4N. 92°·5E. (as on 1944 May 30d.).

Pasadena suggests deep focus.

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

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Calcutta	N.	10·8	339	e 2 30	− 9	i 4 42	0	i 5 2	SS	—
Colombo		13·6	248	(3 20?)	+ 3	(5 20?)	−30	—	—	—
Hyderabad	N.	14·4	292	3 27	0	6 5	− 4	—	—	—
Kodaikanal	E.	14·9	264	i 3 47	+13	i 6 27	+ 7	—	—	7·4
Bombay		20·0	292	e 4 42	+ 5	i 8 24	+ 7	5 8	pP	9·7

Continued on next page.

New Delhi	E.	21·5	322	i	4	48a	− 4	i	8	53	+ 6	—		—	10·8
	N.	21·5	322	i	4	56a	+ 4	i	8	52	+ 5	—		—	10·8
Debra Dun		22·3	326	e	5	41?	+40	e	8	59	− 3	—		—	e 14·6
Tananarive		54·1	236		—		—	e	17	6	+ 1	24	30	?	26·1
Helwan		59·0	297	i	10	4a	0		18	10	0	12	14	PP	—
Bucharest		64·6	314	i	10	40k	− 1	e	19	20	− 1	e	10	43	?	38·3
Belgrade		68·6	313	e	11	6k	− 1	e	21	0	[− 3]		—		—	—
Brisbane		70·8	125	e	11	13	− 7	i	20	25	−10	i	20	52	PS	—
Upsala		71·8	329		—		—	e	20	35	−11	e	34	20?	PKKS	e 39·3
Riverview		72·3	132		—		—	i	20	40	−12	i	21	18	PS	e 33·6
Prague		72·9	319	e	11	36	+ 3	i	20	59	0	e	14	33	PP	e 39·8
Triest		73·4	314	i	11	35	− 1	i	21	39	[0]	i	14	31	PP	—
Potsdam	N.	73·8	322		—		—	i	21	7	− 2		—		—	e 41·3
Copenhagen		74·2	325	e	11	41k	+ 1		21	13	− 1		—		—	—
Cheb		74·3	320	e	11	23	−18	e	21	34	+19		14	34	PP	e 44·3
Jena	E.	74·8	320	e	11	42	− 2		—		—		—		—	—
Milan	E.	76·6	315		11	57	+ 3		21	38	− 2		—		—	—
Zürich		76·9	316	e	11	54	− 2	e	21	39	− 4		—		—	—
Basle		77·5	316	e	11	58	− 1	e	21	47	− 3		—		—	—
Neuchatel		78·0	316	e	12	1	− 1		—		—		—		—	—
De Bilt		78·7	321	i	12	6	0	i	22	1	− 2	e	15	7	PP	e 41·3
Uccle		79·3	320	e	12	7k	− 2	i	22	6	− 3	e	15	25	PP	e 44·3
Clermont-Ferrand		80·8	315	e	12	17	0		—		—	e	15	25	PP	e 46·4
Kew		82·2	321	i	12	23k	− 1	e	22	33?	− 6	e	15	24	PP	e 38·3
Tortosa	E.	83·5	311	i	12	32	+ 1		22	46	− 6		15	46	PP	e 59·3
Granada		87·4	307	i	12	48	− 2		23	10	[− 7]		12	56	PcP	40·5
Malaga		88·1	307	i	12	51k	− 3		23	16	[− 5]		13	5	pP	e 51·3
College		90·8	23		—		—	e	23	56	− 6		—		—	e 46·7
Auckland		91·3	127	i	23	30	SKS		23	58	− 8		—		—	—
Christchurch		91·4	135	e	20	45	?	i	23	52	{ 0}	e	34	30	PcPPKP	41·8
Seven Falls		118·9	347		—		—		—		—	e	36	32	SS	50·3
Ottawa		121·5	349	e	18	54	[− 2]		—		—	e	30	44	PS	54·3
Tinemaha	Z.	122·9	29	i	18	58	[0]	e	22	26	PKS	e	32	39	PcPPKP	—
Haiwee	Z.	123·8	29	i	19	0	[0]		—		—		—		—	—
Mount Wilson	Z.	125·3	31	i	19	2	[− 1]		—		—	i	19	14	?	—
Pasadena	Z.	125·3	31	i	19	4	[+ 1]		—		—	i	19	17	?	—
Riverside	Z.	125·8	31	i	19	3	[− 1]		—		—		—		—	—
Palomar	Z.	126·6	31	i	19	5	[0]		—		—	e	21	12	PP	—
La Jolla		126·8	32	e	19	4	[− 2]		—		—		—		—	—
St. Louis		129·2	3	e	19	7	[− 3]	e	29	17	{+63}	e	21	18	PP	—
Tucson		130·7	26	i	19	13	[0]	e	29	12	{+48}	i	21	42	PP	e 70·0
San Juan		142·8	325	e	19	28	[− 7]	e	32	37	SKSP	e	22	45	PP	e 76·2
La Paz	Z.	160·8	256		20	12	[+10]		—		—	i	24	28	PP	82·8

Additional readings :—
Colombo readings have been increased by 10 mins.
Bombay iPPEN = 4m.55s., iSEN = 8m.32s., PcPN = 8m.43s., SSE = 9m.3s., SSN = 9m.6s.
Helwan eZ = 10m.41s., iN = 19m.50s.
Upsala iE = 20m.42s., eE = 32m.50s.
Riverview eSSS?E = 28m.39s.
Prague ePPP = 16m.3s., eSSS = 29m.20s.?.
Triest iPS = 22m.29s.
Cheb ePPP = 16m.28s., e = 24m.42s., eSS = 26m.30s., e = 29m.5s.
Uccle e = 18m.23s., eSSN = 27m.28s.
Kew ePPP?Z = 17m.28s., eEZ = 19m.8s., ePSNZ = 23m.8s.?, ePPS?EZ = 23m.36s., eSSEZ = 27m.38s.?, eQEN = 34·8m.
Tortosa PcPE = 12m.38s., PPPN? = 17m.37s., PSE = 23m.29s.
Malaga iPP = 16m.17s., PPP = 18m.17s., isS = 23m.35s., SS = 28m.43s., PKP,PKP = 39m.5s.
Christchurch eN = 29m.40s.
Palomar iZ = 19m.18s.
St. Louis eSKPZ = 22m.24s., eE = 29m.44s., ePSE = 31m.45s., eSSE = 38m.30s.
Tucson i = 19m.27s. and 22m.30s., e = 33m.2s.
San Juan e = 19m.42s.
Long waves were also recorded at Bergen, Stonyhurst, Apia, and Huancayo.

July 27d. Readings also at 0h. (Copenhagen, near Berkeley, and Santa Clara), 1h. (Tucson, Tinemaha, Palomar, Pasadena, Mount Wilson, Riverside, and Haiwee), 2h. (Uccle, De Bilt, Cheb, Balboa Heights, and Wellington), 4h. (near Mizusawa), 6h. (near Mineral), 8h. (near Triest), 10h. (Tucson, Riverside, Mount Wilson, Pasadena, Palomar, Tinemaha, St. Louis, Fort de France, Port au Prince, and near San Juan), 12h. (near Berkeley), 16h. (Fort de France), 17h. (Wellington and Riverview), 20h. (Kew), 23h. (Ksara).

July 28d. Readings at 2h. (near La Paz), 3h. (Tucson, Tinemaha, Mount Wilson, St. Louis, near Huancayo, and near La Paz), 6h. (near Mizusawa), 8h. (near Alicante), 10h. (Bucharest), 11h. (Tucson, Mount Wilson, Tinemaha, and Pasadena), 14h. (Mineral), 15h. (Fort de France), 19h. (Berkeley), 22h. (Ottawa).

July 29d. 11h. 37m. 18s. Epicentre 40°·6N. 125°·0W.

$A = -\cdot4368$, $B = -\cdot6238$, $C = +\cdot6482$; $\delta = +8$; $h = -2$;
$D = -\cdot819$, $E = +\cdot574$; $G = -\cdot372$, $H = -\cdot531$, $K = -\cdot762$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ferndale		0·6	93	e 0 20	+ 5	i 0 39	+11	—	—	—
Ukiah		2·0	137	(e 0 38)	+ 3	—	—	—	—	e 0·6
Mineral	E.	2·6	95	i 0 53	+ 9	i 1 34	S_g	—	—	—
San Francisco		3·4	143	e 0 53	− 2	e 1 36	− 1	—	—	—
Berkeley		3·4	141	i 0 53	− 2	e 1 41	+ 4	e 0 59	P*	—
Branner		3·9	144	i 0 59	− 3	i 1 51	+ 1	—	—	—
Lick		4·2	140	e 1 4	− 3	e 1 57	0	—	—	—
Tinemaha		6·3	122	e 1 41	+ 5	e 3 9	S*	—	—	—
Haiwee		7·1	126	i 1 51	+ 3	e 3 36	S*	—	—	—
Mount Wilson	z.	8·4	137	e 2 6	0	i 3 43	0	—	—	—
Pasadena	z.	8·4	137	e 2 3	− 3	e 3 43	0	—	—	—
Riverside	z.	9·0	135	e 2 11	− 2	—	—	—	—	—
Palomar	z.	9·7	135	i 2 16	− 6	—	—	—	—	—
Tucson		14·1	122	i 3 26	+ 3	—	—	—	—	—
St. Louis	z.	26·8	83	e 5 45	+ 1	—	—	—	—	—

Additional readings :—
Berkeley iZ = 1m.2s., eN = 1m.6s., eE = 1m.59s., eNZ = 2m.2s., eN = 2m.12s., iE = 2m.16s., iN = 2m.50s., iE = 2m.53s.

July 29d. 22h. Undetermined shock. Japan.

Mizusawa ePE = 25m.31s., eSN = 29m.37s., SE = 29m.48s.
Honolulu e = 34m.0s., 37m.5s., 42m.8s., and 47m.52s., eL? = 55m.25s.
Tinemaha ePZ = 35m.33s., iZ = 35m.41s. and 36m.53s.
Pasadena iPZ = 35m.45s., iZ = 36m.26s. and 38m.44s., eLZ = 62m.32s.
Mount Wilson iPZ = 35m.45s.
Riverside iPZ = 35m.48s.
Palomar iPZ = 35m.55s., eN = 36m.20s.
Tucson iP = 36m.15s., i = 37m.52s., e = 39m.45s., eL = 66m.30s.
La Paz iPZ = 43m.33s.
Copenhagen P = 44m.47s., L = 66m.
Cheb e = 46m.57s., eL = 71m.0s.
St. Louis eSKS?N = 47m.36s.
Kew eZ = 48m.50s.?, eL = 78m.0s.
Long waves were also recorded at Berkeley and at other European stations.

July 29d. Readings also at 0h. (near Toledo, Malaga, and Lisbon), 1h. (Kodaikanal), 2h. (Granada and near Mineral), 4h. (near Mizusawa), 8h. (Alicante), 9h. (Tucson, Mount Wilson, Riverside, Palomar, Santa Clara, and Riverview), 11h. (La Paz, Tucson, Palomar, Riverside, Mount Wilson, Pasadena, and Tinemaha), 12h. (Ferndale), 13h. (Tucson, Palomar, and St. Louis), 16h. (near Granada), 19h. (near Branner), 20h. (near Berkeley), 21h. (near La Paz), 22h. (Pasadena, Mount Wilson, Riverside, Tinemaha, Palomar, and Tucson).

July 30d. 3h. Undetermined shock. Northern California.

Ferndale ePE =42m.53s., ePEN =43m.0s.?, iSEN =43m.8s.?.
Mineral iPE =43m.2s.?.
Berkeley iPZ =43m.32s.s, iZ =43m.36s., eN =43m.40s. and 43m.43s., iZ =43m.51s., eE =44m.6s. and 44m.13s., iZ =44m.22s., eN =44m.43s.
Lick ePEN =43m.40s.
Branner ePEN =43m.40s., iSE =44m.24s.
Tinemaha ePEZ =44m.4s., i =44m.19s., iSEN =45m.25s.
Haiwee ePZ =44m.26s., iSN =45m.50s.
Pasadena iPZ =44m.31s., iZ =45m.13s., iSZ =46m.43s.
Mount Wilson iPZ =44m.32s., iSZ =46m.35s.
Riverside iPZ =44m.46s., iSZ =47m.7s.
Palomar iPZ =44m.49s.
Tucson e =45m.46s. and 49m.46s.

July 30d. 4h. 0m. 35s. Epicentre 36°·7N. 22°·5E.

A = +·7425, B = +·3076, C = +·5951 ; δ = +7 ; h =0 ;
D = +·383, E = −·924 ; G = +·550, H = +·228, K = −·804.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sofia		6·0	3	e 1 36	+ 4	i 2 43	0	—	—	—
Istanbul		6·7	48	1 48	+ 6	3 8	+ 8	—	—	—
Bucharest		8·2	19	e 2 4	+ 1	e 3 36	− 2	i 3 49	SS	i 4·2
Helwan	z.	10·1	130	i 2 33k	+ 5	i 4 30	+ 5	2 43	PP	—
Triest		11·1	327	i 2 41	− 2	i 4 39	−10	—	—	e 5·2
Ksara		11·3	101	e 2 50	+ 4	e 5 4	+10	—	—	—
Milan	E.	13·3	315	3 17	+ 4	5 58	+16	—	—	—
Prague		14·5	340	3 24	− 4	e 6 3	− 8	—	—	e 7·7
Zürich		14·8	320	e 3 33	+ 1	e 6 21	+ 3	—	—	—
Cheb		15·2	335	e 3 44	+ 6	e 6 35	+ 7	—	—	e 8·4
Neuchatel		15·4	317	e 3 42	+ 2	e 6 37	+ 5	—	—	—
Basle		15·4	319	e 3 40	0	—	—	—	—	—
Strasbourg		16·1	322	e 3 48	− 1	6 47	− 2	—	—	—
Jena		16·2	335	e 3 51	+ 1	e 7 1	+10	e 4 9	PP	e 8·7
Barcelona		16·5	293	e 3 51	− 3	e 6 53	− 5	—	—	e 8·7
Potsdam		17·0	340	e 4 1	0	7 16	+ 6	i 5 30	PP	e 9·4
Clermont-Ferrand		17·1	308	e 4 0	− 2	—	—	e 7 24	SS	e 8·9
Tortosa		17·6	290	i 4 6	− 2	7 22	− 1	4 19	PP	e 11·4
Paris		19·0	315	i 4 22	− 4	i 7 51?	− 4	—	—	10·7
Uccle		19·2	322	i 4 25k	− 3	e 7 58	− 1	i 8 13	SS	e 9·4
De Bilt		19·7	327	i 4 31k	− 3	i 8 14	+ 4	—	—	e 9·9
Copenhagen		20·2	342	i 4 36	− 3	8 18	− 3	4 52	PP	10·4
Granada		20·8	280	i 4 47	+ 2	i 8 52	+19	9 5	SS	10·8
Malaga		21·6	279	i 4 40	−14	i 8 54	+ 5	i 5 12	sP	10·4
Kew		21·9	319	i 4 54	− 3	i 8 50	− 4	i 9 6?	SS	e 10·4
San Fernando		23·0	278	5 10	+ 3	9 10	− 4	5 46	PP	—
Upsala		23·4	352	i 5 7	− 4	i 9 17	− 4	—	—	e 12·4
Stonyhurst		24·4	323	i 9 30	S	(i 9 30)	− 9	—	—	e 13·5
Lisbon		25·1	284	5 25k	− 3	9 46	− 5	6 10	PP	14·8
Bergen		26·1	341	—	—	e 10 1	− 6	—	—	13·8
Aberdeen		26·2	329	i 5 38	0	i 10 13	+ 4	—	—	14·4
New Delhi	N.	46·2	83	i 8 31	+ 3	i 15 20	+ 5	19 17	SSS	—
Bombay		47·4	98	i 8 43	+ 5	15 38	+ 6	10 34	PP	—
Seven Falls		66·2	312	e 10 55	+ 3	—	—	—	—	32·4
Florissant		82·7	313	e 12 28	+ 1	e 22 42	− 2	e 23 2	pS	—
St. Louis		82·7	313	i 12 27	0	i 22 42	− 2	23 1	pS	—
Tucson		98·7	321	i 13 42	0	e 23 55	[−26]	e 17 29	PP	e 51·3

Additional readings :—
Bucharest eZ =3m.31s.
Helwan PPPZ =2m.50s.
Jena eN =4m.33s., eSZ =7m.7s., eSN =7m.10s.
Potsdam iN =8m.19s. and 8m.29s.
Tortosa PPPN =4m.41s., iEN =7m.3s., SSN =7m.50s.
Uccle eSN =7m.55s.
De Bilt iZ =5m.32s., eZ =6m.40s.
Copenhagen 8m.59s.

Continued on next page.

Granada PPP =5m.24s., P_cP =8m.38s.
Malaga P_cP =8m.40s., P_cS =10m.37s., i =15m.22s.
Kew eEZ =5m.46s.
San Fernando PPPE =6m.2s., SSE =10m.36s.
Stonyhurst iPP =9m.42s., iPPP =9m.50s., i =10m.4s., iS =12m.36s., iP_cP =14m.7s., readings wrongly identified.
Lisbon PPZ =6m.13s., SZ =9m.52s., QN =11m.44s.
Bombay SSE =19m.3s., SSSN =20m.25s.?.
St. Louis iZ =12m.30s. and 12m.33s.
Long waves were also recorded at Huancayo, La Paz, and Pasadena.

July 30d. Readings also at 1h. and 2h. (near Pehpei), 4h. (Triest and Fort de France), 9h. (Tucson (2), Riverside (2), Pasadena, Mount Wilson, Palomar (2), Tinemaha (2), Riverview, and Wellington), 11h. (Bucharest), 15h. (Ksara), 16h. (Ksara, Kew, and De Bilt), 18h. (Tucson, Riverside, Pasadena, Mount Wilson, Palomar, Tinemaha, Haiwee, and La Jolla).

July 31d. Readings at 0h. (Florissant and St. Louis). 11h. (Triest), 17h. (Tucson, Wellington, Berkeley, and near Balboa Heights), 18h. (Pasadena and near Alicante), 19h. (Kew), 21h. (Berkeley, Pasadena, Tucson, and St. Louis), 22h. (Kew).

Aug. 1d. Readings at 0h. (near Triest), 2h. (near Berkeley), 4h. (Balboa Heights), 6h. (La Paz), 8h. (near Granada and Malaga), 12h. (Auckland, Wellington, Christchurch, Riverview, Tananarive, Tucson, Huancayo, La Paz, Rio de Janeiro, Helwan, De Bilt, Uccle, Kew, Granada, and Malaga), 13h. (Helwan, Ksara, and Pasadena), 15h. (Oaxaca, Puebla, Vera Cruz, Tucson, St. Louis, Haiwee, Mount Wilson, Palomar, Riverside, and Tinemaha), 19h. (Fort de France), 20h. (Haiwee, Mount Wilson, Tucson, Pasadena, Palomar, Riverside, and Tinemaha), 22h. (La Paz, near Granada, and Malaga), 23h. (Brisbane).

Aug. 2d. 12h. 28m. 6s. Epicentre 9°·2N. 84°·2W. (as on 1941, Dec. 13d.).

$A = +\cdot0998$, $B = -\cdot9822$, $C = +\cdot1589$; $\delta = -7$; $h = +7$;
$D = -\cdot995$, $E = -\cdot101$; $G = +\cdot016$, $H = -\cdot158$, $K = -\cdot987$.

		Δ	Az.	P.	O−C.	S.	O−C.		Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m.	s.		m.
Balboa Heights		4·6	93	i 1 11	− 1	i 2 2	− 5	—	—		—
San Juan		19·8	60	e 4 35	0	e 8 9	− 4	—	—		e 10·1
Huancayo		22·9	158	e 5 38	PP	e 9 10	− 3	e 6 10	PPP		e 10·5
St. Louis		29·8	351	i 6 7	− 4	e 11 8	+ 1	—	—		—
La Paz	z.	30·1	148	—	—	e 11 54	+42	—	—		16·9
Philadelphia		31·7	13	—	—	e 12 2	+25	—	—		e 15·7
Tucson		33·7	318	i 6 44	− 1	—	—	e 8 16	PPP		e 20·6
Palomar		38·5	314	i 7 27a	+ 1	—	—	—	—		—
Riverside	z.	39·2	315	i 7 34	+ 3	—	—	e 9 38	P_cP		—
Mount Wilson	z.	39·8	315	i 7 37	+ 1	—	—	—	—		—
Pasadena	z.	39·8	315	i 7 37	+ 1	—	—	e 9 40	P_cP		—
Tinemaha	z.	41·5	318	i 7 52	+ 2	—	—	e 9 35	P_cP		—
Clermont-Ferrand		81·6	45	12 20	− 1	—	—	—	—		—

Additional readings :—
San Juan i =4m.42s., e =5m.12s.
Tucson i =6m.52s.
Palomar iEZ =7m.36s.
Mount Wilson iZ =7m.46s. and 8m.3s.
Long waves were also recorded at Kew and Paris.

Aug. 2d. Readings also at 0h. (Ksara), 1h. (Ksara, Tucson, Palomar, and Tinemaha), 4h. (Palomar, Riverside, Tinemaha, Tucson, Auckland, and Wellington), 6h. (Kew and Fort de France), 8h. (near Mizusawa), 11h. (Riverside, Tinemaha, and Tucson), 15h. (Malaga), 16h. (near Huancayo and La Paz), 17h. (Auckland and Berkeley), 18h. (Christchurch, Wellington, Riverview, Honolulu, La Paz, Mount Wilson, Pasadena, Palomar, Tinemaha, Tucson, Arapuni, Florissant, St. Louis, near Branner and Lick), 19h. (De Bilt, Kew, Paris, Malaga, and near Mineral), 20h. (Huancayo (2), La Paz (2), La Plata (2), Montezuma, Rio de Janeiro (2), Florissant (2), St. Louis (2), Mount Wilson, Pasadena, Palomar, Riverside (2), Tinemaha (2), Tucson (2), and near Mineral), 21h. (Bucharest, De Bilt, Paris (2), Kew, and near Mineral), 22h. (Bombay, Calcutta, Hyderabad, Kodaikanal, New Delhi, Upsala, and near La Paz), 23h. (Aberdeen, Bergen, Cheb, Prague, Copenhagen, De Bilt, Uccle, Kew, Paris, Potsdam, Stonyhurst, Helwan, Ksara, Malaga, Dehra Dun, and St. Louis).

Aug. 3d. Readings at 0h. (Sitka and near Berkeley), 1h. (near Mineral (2)), 3h. (New Delhi), 11h. (New Delhi and Tucson), 14h. (near Lick (2)), 17h. (Berkeley, Uccle, and near Alicante), 19h. (Palomar, Tucson, and Riverside), 20h. (near Bogota), 21h. (near Apia), 22h. (Berkeley), 23h. (Branner).

Aug. 4d. 20h. 29m. 4s. Epicentre 15°·0S. 77°·0W.

A = +·2174, B = −·9416, C = −·2572 ; δ = +3 ; h = +6 ;
D = −·974, E = −·225 ; G = −·058, H = +·251, K = −·966.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		3·4	28	i 1 2	P_g	i 1 48	S_g	—	—	e 2·4
La Paz		8·7	101	i 2 7	− 3	3 45	− 5	—	—	4·6
St. Louis		54·8	348	i 9 32	− 2	e 17 14	0	e 19 16	S_cS	—
Florissant	E.	55·0	348	—	—	e 17 14	− 3	e 19 20	S_cS	—
Tucson		57·1	326	i 9 50	0	—	—	—	—	e 29·2
Palomar		61·3	323	i 10 20a	0	—	—	—	—	—
Riverside		62·1	323	i 10 25a	0	—	—	—	—	—
Mount Wilson		62·6	323	i 10 29a	+ 1	—	—	—	—	—
Pasadena		62·6	323	i 10 29a	+ 1	—	—	—	—	—
Haiwee		63·9	324	e 10 41	+ 4	—	—	—	—	—
Tinemaha		64·8	324	e 10 43a	0	—	—	—	—	—
Malaga		85·5	50	—	—	e 23 13	+ 1	—	—	55·9

Additional readings :—
Tucson i = 10m.5s.
Riverside iZ = 10m.44s.
Mount Wilson iZ = 10m.40s.
Pasadena iZ = 10m.37s. and 10m.50s., eZ = 11m.16s.
Long waves were also recorded at Granada and Kew.

Aug. 4d. Readings also at 3h. (Tucson, Tacubaya, and Vera Cruz), 4h. (Riverview), 6h. (Tucson, near La Paz, and near Lick), 9h. (Brisbane, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, Lick, and Kew), 11h. (near Triest), 13h. (Mineral and Ukiah), 16h. (Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Berkeley, Tucson, and Ksara), 17h. and 18h. (near Alicante), 19h. (Merida, Vera Cruz, near Basle, Neuchatel, and Zürich), 20h. (Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, and St. Louis).

Aug. 5d. 0h. 57m. 9s. (I) } Epicentre 14°·8S. 93°·2W.
1h. 24m. 0s. (II) }

A = −·0540, B = −·9657, C = −·2538 ; δ = −9 ; h = +6;
D = −·998, E = +·056 ; G = +·014, H = +·253, K = −·967.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
I Huancayo		17·6	83	e 4 8	0	e 7 29	+ 6	e 4 36	PP	e 8·5
II		17·6	83	i 4 9	+ 1	i 7 30	+ 7	i 4 32	PP	i 8·3
I La Paz	z.	24·2	97	i 5 26k	+ 7	8 20	?	—	—	10·3
II	z.	24·2	97	i 5 25k	+ 6	8 11	?	—	—	i 10·2
II Montezuma		24·3	112	—	—	(e 10 40?)	SS	—	—	e 10·7
II San Juan		42·4	40	e 7 55	− 3	e 14 14	− 6	e 9 40	PP	e 17·3
I Tucson		49·7	340	i 8 57	+ 1	—	—	i 9 15	PP	e 24·9
II		49·7	340	i 8 57	+ 1	e 16 10	+ 6	i 9 24	PP	e 24·9
I La Jolla		52·7	335	i 9 18	0	—	—	—	—	—
II	z.	52·7	335	e 9 19	+ 1	—	—	—	—	—
I Palomar		52·9	336	i 9 21a	+ 1	—	—	—	—	—
II		52·9	336	i 9 22a	+ 2	e 16 50	+ 2	—	—	—
I St. Louis		53·2	3	i 9 19	− 3	e 16 47	− 5	e 10 30	P_cP	—
II		53·2	3	i 9 19	− 3	e 16 48	− 4	e 10 25	P_cP	—
I Florissant		53·4	3	i 9 21	− 3	e 16 51	− 4	—	—	—
II		53·4	3	i 9 21	− 3	e 16 50	− 5	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
I Riverside		53·7	335	i 9 27a	+ 1	—	—	—	—	—
II	z.	53·7	335	i 9 28	+ 2	—	—	—	—	—
I Mount Wilson		54·2	335	i 9 31a	+ 2	—	—	—	—	—
II		54·2	335	i 9 31a	+ 2	—	—	—	—	—
I Pasadena		54·2	335	i 9 31a	+ 2	—	—	—	—	e 26·3
II		54·2	335	i 9 30	+ 1	e 17 7	+ 1	—	—	e 25·8
I Santa Barabra	z.	55·1	334	i 9 37	+ 1	—	—	—	—	—
II	z.	55·1	334	i 9 38	+ 2	—	—	—	—	—
I Haiwee	z.	55·8	336	i 9 42a	+ 1	—	—	—	—	—
II		55·8	336	i 9 42	+ 1	—	—	—	—	—
I Tinemaha	z.	56·8	336	i 9 49a	+ 1	—	—	—	—	—
II		56·8	336	i 9 49	+ 1	—	—	—	—	—
II Philadelphia		57·0	17	9 47	− 3	e 17 30	−13	e 21 22	SS	e 24·2
II Berkeley		59·1	334	e 10 6	+ 2	—	—	—	—	e 28·2
II Granada		98·5	54	—	—	e 24 19	[− 1]	—	—	46·1

Additional readings :—
Huancayo I iP =4m.11s., II i =4m.50s.
Palomar II iZ =9m.39s.
St. Louis I eN =16m.56s. and 18m.16s., II iZ =9m.22s.
Pasadena II i =9m.39s., e =10m.5s.
Long waves were also recorded at Honolulu and Kew.

Aug. 5d. 13h. 6m. 53s. Epicentre 13°·0N. 87°·4W.

Pasadena suggests deep focus.

A = +·0442, B = −·9737, C = +·2235 ; δ = 0 ; h = +6 ;
D = −·999, E = −·045 ; G = +·010, H = −·223, K = −·975.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Merida	N.	8·2	345	i 3 46	S	(i 3 46)	+ 8	—	—	—
Balboa Heights		8·7	117	e 2 7	− 3	—	—	—	—	—
San Juan		21·2	72	e 4 48	− 1	e 8 56	+15	—	—	e 11·2
St. Louis		25·7	355	e 5 33	0	e 9 58	− 3	e 5 47	pP	i 12·6
Florissant		25·8	355	e 5 35	+ 1	e 10 2	0	e 10 54	SS	—
Huancayo		27·6	154	e 5 52	+ 1	e 10 25	− 7	—	—	e 11·7
Bermuda		28·4	44	e 6 34	+36	—	—	—	—	e 14·4
Chicago		28·7	359	e 6 46	?	e 10 55	+ 5	e 6 56	PP	e 14·9
Tucsou		28·8	316	e 6 1	− 1	—	—	i 6 51	PP	e 11·8
Philadelphia		28·9	20	i 6 5	+ 2	e 10 56	+ 3	e 7 3	PP	e 14·9
Harvard		32·5	23	e 6 35	+ 1	—	—	—	—	—
Palomar		33·6	312	i 6 43	− 1	—	—	i 9 21	P_cP	—
La Jolla	z.	33·7	311	e 6 50	+ 5	—	—	—	—	—
Ottawa		33·8	15	e 6 46	0	e 12 7	− 3	—	—	18·1
Riverside	z.	34·3	312	i 6 48	− 2	—	—	i 9 21	P_cP	—
Mount Wilson	z.	34·9	312	i 6 55	0	—	—	i 9 25	P_cP	—
Pasadena		35·0	312	i 6 55	− 1	—	—	i 9 24	P_cP	e 17·1
La Paz		35·0	145	e 7 16	+20	—	—	—	—	18·1
Tinemaha	z.	36·6	316	e 7 9	− 1	—	—	i 9 31	P_cP	—
Seven Falls		36·8	19	e 8 50	PP	e 15 22	SS	—	—	19·1

Additional readings :—
San Juan e =5m.58s. and 6m.22s.
St. Louis ePP?Z =6m.0s., iPPP?Z =6m.28s., eN =9m.43s., eSS?N =10m.48s.
Huancayo e =6m.22s.
Chicago e =11m.38s.
Tucson i =6m.13s. and 9m.8s.
Philadelphia e =11m.44s.
Palomar iZ =6m.52s., i =6m.56s., iZ =13m.6s.
Riverside iZ =7m.2s., eZ =8m.1s. and 9m.32s., iZ =9m.43s.
Pasadena iZ =9m.40s.
Long waves were also recorded at European stations.

Aug. 5d. Readings also at 1h. (La Paz), 5h. (Columbia), 9h. (La Paz), 11h. (near Malaga (2)), 12h. (Berkeley and near Lick), 13h. (Malaga), 14h. (Kew, Mizusawa, La Paz, Mount Wilson (2), Pasadena (2), Palomar (2), Riverside (2), Tucson (2), and Tinemaha (2)), 21h. (near Apia).

Aug. 6d. 18h. Undetermined shock.

Christchurch P?Z = 9m.57s., e = 16m.45s.?, SEZ = 19m.39s., sSN = 20m.19s., eEN = 32m.28s., QN = 34m.42s., RZ = 38m.24s.
Riverview iP?Z = 19m.9s., iNZ = 20m.33s., iS?E = 24m.34s., iS?N = 24m.37s., eE = 24m.43s., eZ = 25m.1s., iZ = 28m.15s., ? = 30m.6s.
Bombay ePE = 23m.30s., eSE = 31m.54s., eSN = 31m.57s., eN = 32m.19s., e = 33m.1s., eN = 34m.11s., eSS = 35m.56s.
New Delhi ePN = 23m.30s., iSN = 31m.43s., PSN = 32m.7s., S_cSN = 33m.34s., SSN = 35m.35s., SSSN = 37m.34s.
Sydney eP = 24m.30s., eS = 30m.18s., eL = 38·9m.
Perth i = 24m.35s., 25m.50s., 28m.53s., and 29m.55s.
Auckland P = 28m.17s., S = 32m.55s., R = 35m.
Helwan eN = 28m.24s. and 40m.36s.
Calcutta iSN = 29m.17s.
Tinemaha eZ = 29m.44s.
Pasadena eZ = 29m.53s., eL?N = 54·2m.
Colombo SE = 30m.3s.
Riverside eZ = 30m.36s.
Kodaikanal ePE = 30m.50s., PPE = 32m.20s., iSE = 36m.50s., LE = 38m.0s.
Malaga ePKP = 31m.25s., iPP = 34m.34s., ePS? = 44m.22s., iPPS? = 47m.41s.
Tucson e = 31m.50s., eL = 63m.55s.
Sitka eS? = 32m.13s., e = 36m.20s. and 41m.6s., eL = 47m.0s.
La Paz iPKPZ = 32m.29s., LZ = 88m.0s.
Uccle eE = 32m.37s. and 48m.0s.?, eL = 69m.
Florissant ePP?Z = 33m.28s.
St. Louis ePP?Z = 33m.31s., eN = 50m.33s.
Mizusawa eSE = 33m.48s.
Wellington S? = 34m.?, Q = 36m. ?, R = 39m.?
Granada PKP = 34m.41s., SS? = 55m.53s.
Philadelphia e = 35m.28s., 39m.46s., and 52m.21s., eL = 71m.30s.
Victoria e = 37m., L = 54m.
Berkeley eE = 42m.7s., eLE = 61m.1s.
Cheb e = 43m.0s.? and 52m.0s.?, eL = 72m.
Upsala eN = 46m.0s.?, eE = 54m.36s., eLN = 63m.
Long waves were also recorded at De Bilt, Clermont-Ferrand, Huancayo, Bermuda, and Arapuni.

Aug. 6d. Readings also at 5h. (New Delhi, Calcutta, and Stonyhurst), 6h. (near Apia), 7h. (Bombay, Calcutta, and New Delhi), 8h. (Kew, De Bilt, near Triest, and near New Delhi), 9h. (near Almeria (2)), 11h. (Alicante, near Granada, and near Triest), 15h. (Florissant, St. Louis, and Sitka), 16h. (Kew, Granada, Riverside, Pasadena, Sitka, Honolulu, Auckland, Wellington, Riverview, Brisbane, and Sydney), 17h. (Mizusawa, Christchurch, Malaga, Cheb, Kew, Clermont-Ferrand, De Bilt, Uccle, Tucson, Berkeley, and San Juan), 18h. (Kew and Brisbane), 19h. (Malaga), 20h. (Kew and near Granada), 23h. (Bermuda).

Aug. 7d. 1h. 18m. 54s. Epicentre 40°·2N. 119°·3W.

$A = -·3748$, $B = -·6679$, $C = +·6429$; $\delta = -11$; $h = -2$;
$D = -·872$, $E = +·489$; $G = -·315$, $H = -·561$, $K = -·766$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Mineral	E.	1·8	275	i 0 33	+ 1	i 0 57	+ 1	i 0 36	P*
Tinemaha		3·1	165	e 0 53	+ 2	i 1 37	S*	i 0 59	P*
Berkeley		3·3	226	e 0 52	− 1	i 1 29	− 6	e 0 56	P*
Lick		3·4	214	e 0 54	− 1	i 1 37	0	e 0 58	P*
San Francisco	E.	3·5	226	e 0 57	0	i 1 34	− 6	—	—
Branner		3·6	220	e 0 59	+ 1	i 1 39	− 3	i 1 36	?
Haiwee		4·2	165	i 1 16	P*	e 2 9	S*	—	—
Pasadena		6·1	171	e 1 34	0	i 3 4	S*	—	—
Riverside		6·4	166	e 1 39	+ 1	i 3 17	S*	—	—

Additional readings :—
Mineral iE = 0m.42s.
Berkeley eN = 1m.20s. and 2m.3s.
Lick eE = 1m.34s., iN = 1m.57s.
Long waves were recorded at Tucson.

Aug. 7d. 3h. 25m. 21s. Epicentre 16°·6S. 73°·6W.

$A = +·2707$, $B = -·9198$, $C = -·2839$; $\delta = -9$; $h = +5$;
$D = -·959$, $E = -·282$; $G = -·080$, $H = +·272$, $K = -·959$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		4·8	339	e 1 18	+ 3	—	—	—	—	—
La Paz		5·2	90	i 1 24a	+ 3	i 2 20	− 2	—	—	2·7
Montezuma		7·5	144	—	—	e 4 4	S_g	—	—	e 4·9
Bogota		21·1	358	e 4 49	+ 1	e 8 54	+15	i 5 9	PP	i 11·8
La Plata	N.	23·0	147	5 4	− 3	9 11	− 3	—	—	11·0
Balboa Heights		26·1	346	e 5 33	− 4	e 10 25	+18	—	—	e 15·6
Rio de Janeiro	E.	29·2	107	i 6 9	+ 4	i 11 4	+ 6	—	—	i 15·8
	N.	29·2	107	e 6 7	+ 2	i 11 2	+ 4	—	—	i 15·7
Fort de France		33·5	23	—	—	e 12 33?	+28	—	—	—
San Juan		35·5	12	e 6 55	− 5	i 12 31	− 5	e 8 9	PP	i 15·0
Vera Cruz	E.	41·9	327	e 9 15	PP	—	—	—	—	—
Tacubaya	N.	43·7	324	e 8 9	+ 1	—	—	—	—	—
Mobile		49·1	343	e 8 53	+ 2	i 15 57	+ 1	—	—	—
Columbia		50·8	352	e 9 2	− 2	e 16 14	− 6	e 11 4	PP	e 21·5
Georgetown		55·3	357	i 9 36	− 2	i 17 22	+ 1	—	—	23·7
Philadelphia		56·3	359	i 9 43	− 2	i 17 32	− 2	e 21 25	SS	24·0
New Kensington		57·1	355	e 9 59	+ 9	i 17 49	+ 4	i 19 43	S_cS	e 25·0
St. Louis		57·1	344	e 9 47	− 3	i 17 41	− 4	i 19 33	S_cS	—
Fordham		57·2	0	i 9 50	− 1	i 17 44	− 2	i 18 19	PPS	—
Weston		58·7	3	i 9 59	− 3	e 18 3	− 3	12 9	PP	—
Chicago		59·5	348	e 10 4	− 3	i 18 5	−11	i 19 52	S_cS	e 26·6
Tucson		60·3	324	i 10 10	− 3	e 18 23	− 3	e 12 23	PP	e 25·1
Ottawa		61·7	359	10 21	− 1	18 43	− 1	i 20 9	S_cS	28·7
Seven Falls		63·5	3	10 33	− 1	19 5	− 2	25 9	?	28·7
La Jolla		64·5	320	e 10 42	+ 1	—	—	—	—	—
Palomar		64·6	321	i 10 41a	0	e 19 21	0	e 39 18	P′P′	—
Riverside		65·3	321	i 10 46	0	e 19 31	+ 2	e 39 30	P′P′	—
Mount Wilson		65·9	321	e 10 51	+ 1	i 19 39	+ 2	—	—	—
Pasadena		65·9	321	i 10 50	0	i 19 37	0	e 39 28	P′P′	e 27·7
Rapid City		66·2	338	e 10 53	+ 1	e 19 39	− 1	e 13 24	PP	e 27·4
Santa Barbara	Z.	67·1	319	e 11 1	+ 4	—	—	—	—	—
Haiwee	Z.	67·2	322	i 10 59	+ 1	—	—	—	—	—
Salt Lake City		67·2	330	i 10 56	− 2	e 19 51	− 1	e 13 6	PP	e 31·7
Tinemaha		68·0	322	i 11 2	− 1	e 20 4	+ 2	e 39 14	P′P′	—
Santa Clara		70·4	321	i 11 21	+ 3	i 20 34	+ 4	—	—	e 37·6
Berkeley		70·9	321	e 11 20	− 1	e 20 34	− 2	—	—	e 29·1
Butte		71·6	333	e 10 1?	?	e 19 22?	?	e 12 47?	?	e 27·9
Ukiah		72·3	322	e 11 27	− 2	e 20 53	+ 1	e 26 43	?	e 29·7
Saskatoon		74·2	339	—	—	e 21 12	− 2	—	—	34·7
Victoria		78·5	329	12 5	+ 1	22 6	+ 5	—	—	41·7
San Fernando	E.	82·2	49	12 26	+ 2	22 49	+10	12 45	pP	42·7
Malaga		84·0	50	i 12 31	− 2	i 22 58	+ 1	i 15 43	PP	40·7
Granada		84·8	50	i 12 40a	+ 3	i 23 4	− 1	—	—	38·0
Tortosa		89·2	47	e 12 56	− 3	23 46	− 1	24 49	PS	38·5
Sitka		89·7	332	e 12 59	− 2	i 23 54	+ 2	e 24 50	PS	e 37·4
Barcelona		90·5	46	e 13 5	0	e 23 33	[− 3]	—	—	—
Honolulu		90·7	292	—	—	e 23 53	{+ 6}	e 30 29	SSP	e 40·9
Stonyhurst		92·6	34	i 13 14	− 1	i 23 50	[+ 2]	i 25 39	PS	e 43·7
Clermont-Ferrand		92·8	43	i 13 16	0	e 23 51	[+ 2]	e 25 41	PS	e 44·7
Kew		92·8	37	i 13 14a	− 2	e 24 23	+ 4	e 26 21	PPS	e 42·7
Paris		93·5	40	e 13 39?	+20	e 23 58	[+ 5]	e 23 18	?	e 41·7
Aberdeen		94·1	31	i 13 13	− 9	i 23 53	[− 3]	i 25 51	PS	48·5
Wellington		94·6	225	—	—	e 24 39?	+ 4	—	—	54·6
Uccle		95·3	38	13 26a	− 1	i 24 2	[− 1]	e 17 15	PP	e 45·7
Neuchatel		95·7	43	e 13 28	− 1	e 24 6	[+ 1]	—	—	—
De Bilt		96·2	37	i 13 32a	+ 1	e 24 9	[+ 1]	e 26 14	PS	e 43·7
Basel		96·3	42	e 13 32	0	e 24 9	[+ 1]	—	—	—
Milan		96·7	45	13 30?	− 3	26 25	PS	17 55	PP	—
Strasbourg		96·7	41	e 13 33	0	24 43	−10	—	—	—
Zürich		96·9	43	e 13 33	− 1	e 24 11	[0]	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.			L.
		°	°	m. s.	s.	m. s.	s.	m. s.			m.
College		98·4	336	e 17 28	PP	e 25 0	− 7	e 24 18	SKS		e 38·3
Bergen		98·9	29	—	—	e 25 5	− 6	e 25 29	S_cS		38·0
Triest		99·9	45	e 13 48	0	e 24 27	[0]	e 26 52	PS		—
Cheb		100·0	40	e 13 52	+ 4	e 24 30	[+ 3]	e 27 1	PS		e 50·7
Potsdam		101·0	38	e 18 1	PP	e 24 33	[+ 1]	e 25 33	S		e 44·7
Copenhagen		101·3	35	e 13 55 a	+ 1	25 35	+ 4	18 0	PP		—
Prague		101·3	40	e 13 53	− 1	e 25 39	+ 8	e 18 0	PP		e 39·7
Belgrade		104·3	47	e 14 44	+36	e 24 47	[0]	e 27 36	PS		e 57·8
Upsala		104·8	31	e 16 17	?	e 26 1	+ 1	e 27 41?	PS		e 45·7
Bucharest		108·3	48	e 18 9	[−21]	e 25 5	[0]	28 23	PS		42·7
Helwan		110·8	64	19 9?	PP	26 57	S	—	—		—
Riverview		114·2	220	—	—	i 25 32	[+ 3]	i 29 13	PS		e 52·7
Ksara		115·1	61	e 19 52	PP	—	—	e 29 37	PS		—
Bombay	E.	148·0	81	19 48	[+ 4]	33 25	SKSP	23 13	PP		—
New Delhi	N.	150·6	60	e 19 54	[+ 6]	i 30 18	{− 4}	i 43 47	SSP		—
Kodaikanal	E.	151·2	98	i 25 57	?	e 36 2	PPS	e 28 47	?		—
Hyderabad	N.	153·3	84	20 8	[+16]	33 42	SKSP	24 11	PP		—
Calcutta		162·0	67	e 24 41	PP	—	—	e 37 43	PPS		—

Additional readings :—
La Plata Z = 5m.15s., SZ = 9m.21s.
San Juan iPP = 8m.42s., i = 14m.41s.
Columbia eS_cS = 18m.48s.
Philadelphia e = 10m.16s. and 19m.1s.
St. Louis iZ = 10m.1s., iN = 18m.26s., 20m.18s., and 20m.53s., iSSN = 21m.45s., iSSS?N = 23m.25s., iSSS?N = 24m.36s.
Fordham eSS = 24m.31s.
Weston 10m.13s.
Tucson i = 13m.12s., e = 19m.52s., eSS = 22m.19s.
Ottawa SS = 22m.47s., SSSE = 25m.45s.
Pasadena iEZ = 13m.29s., eZ = 21m.51s.
Rapid City e = 12m.57s., eS_cS = 20m.51s., e = 23m.40s.
Salt Lake City eS_cS = 20m.44s., eSS = 23m.54s.
Butte e = 20m.3s.?
San Fernando PPE = 15m.16s., SE = 23m.8s., PSE = 23m.33s.
Malaga eSKS = 22m.37s., iPS = 23m.51s., SS = 28m.9s., PKP,PKP = 38m.27s.
Tortosa P_cPN? = 13m.36s., iN = 14m.39s., PPN = 17m.11s., SKSE = 23m.29s., SKKSE = 23m.54s., S_cSE = 24m.9s., PPSE? = 25m.53s.
Sitka e = 15m.49s., eS = 23m.27s., eSS = 29m.45s.
Stonyhurst i = 14m.3s., eSKS = 23m.19s., iS = 23m.56s.
Clermont-Ferrand iPP? = 16m.53s.
Kew iZ = 13m.31s.?, iPPEZ = 16m.56s., eZ = 21m.31s.?, iSKSEN = 23m.51s., eSKKS?E = 23m.59s., ePS = 25m.43s., eSS = 30m.41s., eSSS = 35m.39s.?, eQN = 39m.39s.?
Aberdeen eN = 14m.13s., QEN = 44m.53s.
Uccle iPSE = 26m.2s.
De Bilt iPP = 17m.22s., eS = 24m.59s.
College e = 29m.27s.
Triest ePP = 17m.48s., ePPP = 20m.1s., eSS = 22m.21s., eSSS = 36m.9s.
Cheb e = 17m.12s., eS? = 25m.51s.
Copenhagen 24m.36s., eE = 27m.9s.
Prague eSKS? = 24m.13s., e? = 24m.33s., ePS? = 26m.39s., ePPS? = 27m.15s., eSS = 32m.15s., eSSS = 36m.21s.
Belgrade ePP = 17m.35s.
Upsala ePKPE = 18m.28s., ePPN = 19m.28s., ePPPN = 21m.18s., eSKSE = 24m.41s.?, eSKKSE = 25m.24s., eN = 31m.15s., eSSE = 33m.15s.
Riverview iPSNZ = 29m.22s., eSSE = 35m.28s., iN = 35m.58s.
Bombay iEN = 20m.5s., iE = 20m.34s., iN = 20m.38s., SKKSE = 28m.7s.
Long waves were also recorded at Jena, Tananarive, Christchurch, Sydney, Auckland, and Arapuni.

Aug. 7d. 12h. 40m. 21s. Epicentre 5°·6S. 150°·5E. Depth of focus 0·005.
(as on 1943, July 7d.).

A = −·8663, B = +·4901, C = −·0969; δ = +6; h = +7;
D = +·492, E = +·870; G = +·084, H = −·048, K = −·995.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane	z.	21·9	174	e 4 49	0	e 8 46	+ 4	i 4 56	pP	—
		21·9	174	e 4 54	+ 5	i 8 43	+ 1	i 5 14	pP	e 10·8
Riverview		28·1	179	i 6 11a	pP	i 10 33	+ 7	i 6 36	PP	e 13·8
Sydney		28·1	179	—	—	e 10 21	− 5	—	—	—
Sitka		86·3	32	e 12 26	−10	e 22 59	− 5	e 23 24	sS	e 35·0
Berkeley		91·1	52	—	—	e 24 2	+13	e 24 41	PS	e 40·7
Victoria		91·6	42	—	—	e 24 3	+10	—	—	41·7
Santa Barabara	z.	92·9	56	i 13 20	pP	—	—	—	—	—
Pasadena		94·2	56	i 13 10a	− 3	—	—	i 13 24	pP	e 41·5
Mount Wilson		94·3	56	e 13 12	− 1	—	—	e 13 26	pP	—
Tinemaha		94·3	53	i 13 13	0	—	—	i 13 27	pP	—
Haiwee		94·5	54	i 13 13	− 1	—	—	i 13 28	pP	—
La Jolla	z.	94·9	57	i 13 29	pP	—	—	—	—	—
Riverside		94·9	56	i 13 18a	+ 2	—	—	i 13 33	pP	—
Palomar		95·2	57	i 13 16a	− 2	—	—	i 13 30	pP	—
Tucson		100·3	58	e 13 55	pP	—	—	e 17 31	PP	e 44·7
St. Louis	E.	116·2	49	—	—	e 29 11	SP	e 30 48	PPS	—
Ottawa		123·6	37	e 18 58	[+ 8]	—	—	—	—	62·7
Granada		140·7	327	i 19 27a	[+ 5]	e 29 36	SKKS	—	—	78·4
Malaga		141·4	327	e 19 18	[− 6]	—	—	i 19 42	pPKP	—

Additional readings:—
Brisbane iN = 5m.48s.
Riverview iZ = 10m.56s.
Sitka e = 24m.26s.
Pasadena isPZ = 13m.37s., ePPZ = 16m.59s.
Riverside esPZ = 14m.42s., ePPZ = 17m.10s.
Palomar isPNZ = 13m.42s., ePPZ = 17m.6s.
Tucson e = 17m.35s.
St. Louis ePSE = 33m.34s., eE = 34m.52s.
Granada ePP = 24m.15s., PPS = 39m.21s.
Granada SKKS given as PPP.
Long waves were also recorded at Christchurch, De Bilt, Uccle, and Kew.

Aug. 7d. 18h. 47m. 7s. Epicentre 14°·8N. 97°·6W.

A = −·1279, B = −·9587, C = +·2538; δ = −12; h = +6;
D = −·991, E = +·132; G = −·033, H = −·251, K = −·967.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Oaxaca	z.	2·3	20	0 41	+ 1	—	—	—	—	—
Puebla	N.	4·3	350	0 58	−10	—	—	—	—	—
Tacubaya	N.	4·8	342	1 8	− 7	—	—	—	—	—
Guadalajara		8·0	318	e 2 57	P_g	—	—	—	—	—
Merida	N.	9·8	50	1 47	−37	—	—	—	—	—
Tucson		21·2	328	i 4 46	− 3	e 8 30	−11	i 5 6	PP	e 10·2
Cape Girardeau		23·6	15	e 5 12	− 1	e 9 38	+13	—	—	—
Florissant		24·8	13	i 5 22	− 3	e 9 39	− 7	—	—	—
La Jolla		25·4	319	e 5 30	− 1	—	—	—	—	—
Palomar		25·4	321	i 5 32a	+ 1	—	—	—	—	—
Riverside		26·2	321	e 5 38	0	—	—	—	—	—
Mount Wilson		26·8	321	e 5 43	− 1	—	—	—	—	—
Pasadena		26·8	321	i 5 44	0	e 10 21	+ 2	—	—	e 13·6
Santa Barbara		27·9	320	i 6 2	+ 8	—	—	—	—	—
Haiwee	z.	28·0	324	e 5 53	− 2	—	—	—	—	—
Salt Lake City		28·7	338	e 5 53	− 8	e 10 42	− 8	e 12 6	SS	e 14·6
Tinemaha	z.	28·8	324	e 6 2	0	—	—	—	—	—
Berkeley		31·7	322	—	—	e 11 8	−29	—	—	e 14·8
Ukiah		33·1	323	—	—	e 10 6	?	—	—	e 15·7
Ottawa		35·7	27	e 7 2	0	—	—	—	—	20·9

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Malaga		83·8	54	i 12 38	+ 6	—	—	e 19 22	?	46·9
Granada		84·3	54	12 43a	+ 8	23 18	+18	—	—	42·5
Clermont-Ferrand		86·8	44	e 12 57	+10	—	—	—	—	—

Additional readings :—
Tucson i = 4m.56s.
Salt Lake City e = 5m.7s.
Long waves were also recorded at Santa Clara, Butte, Sitka, Philadelphia, De Bilt, Uccle, and Kew.

Aug. 7d. 23h. 38m. 18s. Epicentre 16°·6S. 73°·6W. (as at 3h.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		4·8	339	e 1 23	P*	i 2 27	S*	i 1 41	P_g	i 3·0
La Paz		5·2	90	i 1 23k	+ 2	i 2 33	S*	—	—	3·0
Bogota		21·1	358	i 4 50	+ 2	—	—	i 5 1	PP	11·8
La Plata	E.	23·0	147	5 0	− 7	—	—	9 6?	P_cP	11·5
	N.	23·0	147	4 42	−25	—	—	9 12?	P_cP	11·9
Rio de Janeiro	N.	29·2	107	e 11 2	S	(e 11 2)	+ 4	—	—	e 16·1
San Juan		35·5	12	e 7 3	+ 3	e 12 32	− 4	(e 14 52)	SS	e 14·9
Florissant		57·3	344	e 9 48	− 4	i 17 41	− 6	i 17 52	PS	—
Tucson		60·3	324	i 10 11	− 2	—	—	—	—	e 30·9
Tinemaha	z.	68·0	322	i 11 1	− 2	—	—	—	—	—
Malaga		84·0	50	i 12 31	± 2	e 23 15	+18	—	—	e 46·7
Granada		84·8	50	i 12 37a	0	23 4	− 1	—	—	45·0
Tortosa		89·2	47	e 13 9	+10	e 23 53	+ 6	—	—	—
Uccle		95·3	38	—	—	e 23 42?	[−21]	—	—	e 43·7

Additional readings :—
Huancayo e = 1m.51s.
Florissant $eS_eS?E$ = 19m.33s.
Tortosa eE = 13m.17s., PPN = 17m.9s., eSE = 23m.34s.
Long waves were also recorded at Montezuma, Riverview, Clermont-Ferrand, De Bilt, and Kew.

Aug. 7d. Readings also at 0h. (Granada, Branner, Tinemaha, Riverside, Palomar, Florissant, St. Louis, Tucson, Tacubaya (2), Vera Cruz (2), Oaxaca (2), Puebla, and near Bogota), 5h. (Upsala, Tinemaha (2), Tucson (2), Pasadena (2), Riverside, Palomar, St. Louis and La Plata), 6h. (near La Paz), 8h. (near Alicante), 10h. (Ksara and Helwan), 13h. (Sitka, Butte, Pasadena, Riverside, Palomar, La Jolla, Haiwee, Tinemaha, Tucson, Mount Wilson, and Berkeley), 16h. (near Almeria), 17h. (near Tortosa), 19h. (Balboa Heights), 22h. (San Francisco), 23h. (near Berkeley).

Aug. 8d. 8h. 33m. 30s. Epicentre 3°·7S. 140°·3E. Depth of focus 0·015.
(as on 1939, May 26d.).

A = −·7678, B = +·6375, C = −·0641 ; δ = +3 ; h = +7 ;
D = +·639, E = +·769 ; G = +·049, H = −·041, K = −·998.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane	26·6	155	i 5 26a	− 2	i 9 56	+ 5	i 6 0	PP	i 10·6
Riverview	31·6	164	i 6 14k	+ 1	i 11 16	+ 5	i 6 47	PP	14·8
Sydney	31·7	164	e 6 36	+22	e 10 42	−30	—	—	e 15·0
Perth	36·3	216	7 1	+ 8	10 23	?	i 14 5	SS	—
Kôti	37·6	352	e 6 31	−33	12 24	−19	—	—	—
Hukuoka	38·2	347	7 8	− 1	12 56	+ 4	—	—	18·5
Kameyama	38·5	358	6 55	−16	—	—	—	—	—
Kobe	38·5	354	7 13	+ 2	12 56	− 1	—	—	—
Nagoya	38·8	356	e 7 18	+ 4	—	—	—	—	—
Hikone	38·9	355	e 7 18	+ 3	—	—	—	—	—
Yokohama	38·9	359	e 7 38	+23	—	—	—	—	—
Hunatu	39·0	358	e 7 14	− 1	—	—	—	—	—
Kumagaya	39·6	359	7 14	− 6	—	—	—	—	—
Kakioka	39·7	0	7 16	− 5	—	—	—	—	—
Maebasi	39·9	359	7 23	0	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Utunomiya		40·0	359	i 7 22	− 2	—	—	—	—	—
Toyama		40·3	357	e 7 21	− 5	—	—	—	—	—
Hukusima		41·2	0	7 38	+ 5	—	—	—	—	—
Sendai		41·8	2	e 7 31	− 7	—	—	—	—	—
Mizusawa		42·6	1	e 7 50	+ 5	13 58	0	—	—	—
Auckland		45·7	141	8 26	+16	15 0	+18	15 46	sS	19·5
Sapporo		46·6	1	8 16	− 1	e 14 57	+ 2	—	—	—
Arapuni		47·0	142	e 12 30?	?	—	—	—	—	i 21·6
Wellington		48·5	146	8 39	+ 7	15 32	+10	9 1	pP	20·5
Christchurch		48·9	149	9 10	+35	15 37	+10	11 7	PPP	22·0
Colombo		61·2	280	10 5	+ 2	18 18	+ 7	—	—	—
Kodaikanal	E.	64·1	284	i 11 52	+89	i 20 22	?	12 42	PP	30·9
New Delhi	N.	68·5	302	—	—	i 19 36	− 5	i 20 52	?	—
Bombay	E.	70·1	292	e 10 58	− 2	i 20 0	+ 1	13 35	PP	—
College		85·7	24	e 12 24	− 2	e 22 39	− 6	e 15 51	PP	e 34·0
Sitka		90·0	33	e 12 48	+ 2	i 23 13	−13	e 16 7	PP	e 36·3
Victoria		97·0	41	e 13 30?	+12	e 24 53	+27	—	—	43·5
Berkeley		98·1	52	e 17 42	PP	e 23 56	[+ 9]	—	—	—
Tinemaha	Z.	101·3	53	e 13 55	+17	—	—	—	—	—
Pasadena		101·6	55	e 13 37	− 2	e 24 12	[+ 7]	e 17 14	PP	e 41·7
Riverside	Z.	102·3	55	e 13 46	+ 4	—	—	—	—	—
Palomar	Z.	102·7	57	i 14 1	+17	—	—	—	—	—
Salt Lake City		105·5	49	e 24 0	SKS	e 25 39	+ 2	e 26 31	PS	e 38·7
Saskatoon		106·9	37	—	—	e 24 42	[+13]	—	—	46·5
Tucson		107·9	58	e 18 43	PP	e 25 41	S	e 27 53	PS	e 48·8
Helwan		108·3	300	—	—	e 24 44	[+ 9]	e 26 8	S	—
Upsala		109·1	333	e 15 17	?	e 25 6	[+28]	e 18 46	PP	e 45·5
Copenhagen		113·6	331	19 20	PP	28 51	PS	—	—	—
Bergen	E.	114·0	338	—	—	e 28 54	PS	—	—	—
Prague		115·2	325	—	—	29 24	PS	—	—	—
Cheb		116·4	326	19 30?	PP	—	—	—	—	e 59·5
De Bilt		119·1	330	i 19 7	[+33]	e 29 30	PS	i 20 0	PP	e 56·5
Zürich		119·9	324	e 19 54	PP	—	—	—	—	—
Uccle		120·3	329	e 20 6	PP	e 25 30	[+ 9]	e 30 6	PS	e 59·5
Kew		122·2	332	e 20 18	PP	e 25 37	[+ 9]	e 22 57	PPP	e 59·5
Florissant		122·3	45	i 20 17	PP	e 25 35	[+ 7]	i 20 41	pPP	—
Clermont-Ferrand		123·9	325	e 19 8	[+25]	—	—	e 20 32	PP	—
Ottawa		127·9	31	e 19 13	[+22]	e 27 30?	SKKS	—	—	56·5
Tortosa	E.	128·3	321	e 19 35	[+44]	i 25 56	[+10]	e 31 40	PS	e 46·5
Seven Falls		129·1	26	—	—	—	—	e 21 0	PP	57·5
Granada		133·0	320	i 19 29a	[+29]	28 37	SKKS	i 22 11	PP	64·2
Malaga		133·8	320	i 19 30	[+28]	26 4	[+ 5]	i 24 33	PPP	69·5
San Fernando	E.	135·1	321	e 22 0	PKS	—	—	—	—	—
La Paz		145·5	126	i 19 28k	[+ 5]	29 26	SKKS	22 26	PP	87·5
Bogota		145·7	87	e 19 25	[+ 2]	—	—	e 20 46	?	—
San Juan		150·3	58	e 19 40	[+ 9]	e 42 17	SS	e 22 29	PP	e 74·9

Additional readings and notes :—
Brisbane eSE =10m.7s.
Riverview iN =7m.53s., iEZ =7m.59s., iN =12m.29s., Q?N =12m.42s.
Mizusawa SE =14m.10s.
Auckland i =8m.42s.
Wellington sP?Z =9m.30s., PPZ =10m.32s., iZ =11m.55s., sS =16m.13s., S_cS =18m.20s., SS =19m.10s.
Christchurch S_cS?E =18m.22s., SS =19m.24s., QEN =21m.22s.
Bombay PSE =20m.29s., PPSEN =20m.49s., iE =21m.31s., SSE =24m.25s., SSN =24m.28s.
College eS_cS =23m.23s., e =27m.59s.
Sitka i =23m.55s. and 24m.20s., ePPS =25m.13s., eSS =29m.13s.
Berkeley eE =17m.46s.
Pasadena eZ =13m.52s., eSN =25m.0s.
Salt Lake City e =27m.30s.
Tucson e =19m.3s.
Upsala eN =21m.7s., eE =25m.30s.? amd 28m.2s., eN =28m.5s., eE =33m.30s.?
De Bilt ePPP =22m.30s., eSS =36m.30s.
Kew eSKS =30m.4s., eSSS =49m.30s. ; phases wrongly identified.
Florissant ePPP?Z =23m.19s., esSKS =26m.20s., ePSE =30m.10s., epPSE =30m.34s., ePPSZ =31m.32s., epPPS?E =32m.12s., iSSN =36m.47s., isSSN =37m.28s.

Continued on next page.

Granada SS = 39m.23s.
Malaga i = 21m.33s., 22m.25s., and 23m.32s., PPP = 28m.29s., PPS? = 39m.28s.
La Paz PPP = 26m.4s., PPS = 34m.57s., SS = 40m.40s.
San Juan e = 20m.8s., 38m.42s., and 52m.4s.
Long waves were also recorded at Potsdam.

Aug. 8d. Readings also at 0h. (near Berkeley, Branner, Lick, and San Francisco), 1h. (near Mizusawa), 2h. (Huancayo, La Paz, Tucson, Pasadena, Palomar, Riverside, and Tinemaha), 3h. (Merida, San Juan, Cape Girardeau, Tucson, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, and Granada), 10h. (College, Sitka, Haiwee, Tucson, La Jolla, Mount Wilson, Pasadena, Palomar, Riverside, and Tinemaha), 13h. (Riverview), 15h. (Riverview, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, near Granada, and Malaga), 16h. (Philadelphia, La Jolla, Mount Wilson, Pasadena, Tucson, Palomar, Riverside, Tinemaha, Ukiah, Sitka, and Berkeley), 23h. (Branner).

Aug. 9d. 4h. 15m. 26s. Epicentre 19°·1N. 67°·1W. (as on 1943, Oct. 4d.).

A = +·3680, B = −·8711, C = +·3252; δ = −1; h = +5;
D = −·921, E = −·389; G = +·127, H = −·300, K = −·946.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Juan		1·2	128	e 0 26	+ 2	i 0 41	0	—	—	i 1·1
Port au Prince		5·0	265	i 1 28	+10	i 2 18	0	—	—	i 2·6
Fort de France		7·2	127	e 0 34?	?	—	—	—	—	—
Bogota		15·9	206	e 3 48	+ 1	i 6 57	+13	i 4 7	PPP	—
Philadelphia		21·9	344	e 8 44	S	(e 8 44)	−10	—	—	—
Harvard		23·6	353	e 5 34	+21	e 9 24	− 1	—	—	—
Ottawa		27·2	347	e 6 5	?	e 10 59	?	—	—	14·6
St. Louis		28·0	319	i 5 53	− 2	e 10 35	− 3	i 6 28	PP	—
Florissant	E.	28·1	319	—	—	e 10 41	+ 1	—	—	—
Tucson		41·3	298	i 7 49	0	i 13 37	−27	i 9 19	PP	e 26·7
Palomar		46·4	299	i 8 31a	+ 1	—	—	i 13 57	S_cP	—
La Jolla		46·7	298	e 8 33	+ 1	—	—	—	—	—
Riverside		46·9	300	i 8 34a	0	—	—	e 13 59	S_cP	—
Mount Wilson		47·5	300	i 8 39a	+ 1	—	—	e 14 3	S_cP	—
Haiwee		47·6	303	i 8 41	+ 2	—	—	—	—	—
Pasadena		47·6	300	i 8 39a	0	—	—	—	—	e 25·7
Tinemaha		48·0	303	i 8 43a	0	—	—	e 14 5	S_cP	—
Santa Barbara		48·9	300	i 8 50	0	—	—	—	—	—
Berkeley		51·2	304	e 12 16	PPP	—	—	—	—	e 29·6
Malaga		57·2	58	e 9 53	+ 2	—	—	—	—	e 27·3

Additional readings:—
Bogota i = 3m.53s.
St. Louis iZ = 11m.6s.
Long waves were also recorded at Huancayo, La Paz, and other European stations.

Aug. 9d. 17h. 36m. 24s. Epicentre 35°·5N. 26°·5E. (as on July 20d.).

A = +·7303, B = +·3641, C = +·5781; δ = +11; h = 0;
D = +·446, E = −·895; G = +·517, H = +·258, K = −·816.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Helwan	6·9	143	e 1 48	+ 3	2 57	− 8	3 18	S*	—
Ksara	7·9	99	e 1 58	− 1	e 3 16	−14	—	—	—
Bucharest	8·9	357	e 1 48	?	e 3 58	+ 3	e 2 2	P	i 6·0
Belgrade	10·4	335	e 2 35	+ 1	e 4 43	+11	e 2 44	PPP	i 5·9
Triest	14·0	320	e 4 12	+50	e 5 52	− 7	—	—	—
Prague	17·0	333	e 3 41?	?	e 7 49?	SSS	e 3 57	P	e 9·6
Cheb	17·8	329	e 3 37	?	e 7 32	+ 4	e 4 20	P	e 9·7
Zürich	17·9	317	e 4 12	0	e 7 43	+13	—	—	—
Basel	18·5	318	e 4 17	− 2	e 8 8	SSS	—	—	—
Neuchatel	18·6	316	e 4 20	− 1	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Jena		18·8	330	e 4 22	− 1	—	—	—	—	—
Strasbourg		19·0	320	4 37	+11	7 58	+ 3	—	—	—
Potsdam	N.	19·4	335	e 4 30	0	e 8 14	+10	—	—	e 11·6
Clermont-Ferrand		20·4	307	i 4 42	+ 1	8 32	+ 7	—	—	e 10·6
Tortosa		21·1	293	5 2	+14	i 8 48	+ 9	5 18	PPP	11·1
Uccle		22·1	321	e 4 57	− 2	e 8 59	+ 1	e 9 4	P_cP	e 11·6
Copenhagen		22·4	339	e 5 0	− 2	9 24	+20	—	—	11·6
De Bilt		22·5	325	e 5 3	+ 1	e 9 25	+20	—	—	e 12·6
Granada		24·2	284	i 5 21a	+ 2	9 27	− 8	—	—	10·8
Malaga		24·9	283	i 5 22	− 4	e 9 28	−19	5 58	PP	15·1
Kew		25·0	318	e 5 26	− 1	e 9 56	+ 7	(e 11 6)	SSS	e 11·1
Upsala		25·0	349	—	—	e 9 49	0	—	—	e 14·0
San Fernando	E.	26·4	282	e 5 57	+17	10 47	+35	—	—	—
Stonyhurst		27·3	322	—	—	e 10 36?	+ 9	—	—	—

Additional readings :—
Bucharest eN = 3m.14s., 3m.33s., and 4m.4s., eE = 4m.24s., iEN = 5m.4s.
Belgrade e = 3m.55s.
Cheb eSS = 9m.0s.
Tortosa PPPE? = 5m.45s., SSE = 9m.21s.
Malaga sP = 10m.0s., S_cP = 12m.28s.
Upsala eE = 9m.58s.
Long waves were also recorded at Sofia, Aberdeen, and Bergen.

Aug. 9d. Readings also at 0h. (Berkeley), 5h. (St. Louis, Mount Wilson, Palomar, Riverside, Tucson, Tinemaha, Balboa Heights, Bogota, and La Paz), 6h. (La Paz, Oaxaca, and Vera Cruz), 7h. (Haiwee, Tucson, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, and St. Louis), 8h. (Tucson (2), Mount Wilson, Palomar (2), Riverside (2), and Tinemaha), 10h. (Mount Wilson, Palomar, Pasadena, Riverside, Tinemaha, and near Ottawa), 12h. (Mount Wilson, Pasadena, Palomar, Riverside, Tucson, and Tinemaha), 13h. (Wellington, Riverview, Christchurch, and near Triest), 14h. (Tucson and near Lick), 22h. (near Berkeley).

Aug. 10d. 1h. 52m. 51s. Epicentre 50°·9N. 130°·7W.

A = −·4122, B = −·4792, C = +·7749 ; δ = +1 ; h = −6 ;
D = −·758, E = +·652 ; G = −·505, H = −·587, K = −·632.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Victoria		5·3	115	1 22	0	2 39	+14	e 1 52	PP	7·2
Sitka		7·1	340	e 1 39	− 9	i 3 4	− 6	i 1 54	PP	i 3·5
Grand Coulee		8·2	108	e 1 56	− 7	i 4 8	S*	—	—	—
Ferndale		11·3	154	e 2 46	0	e 6 3	L	—	—	(e 6·0)
Mineral	E.	12·4	146	e 2 59	− 2	e 6 39	L	—	—	(e 6·6)
Butte		13·0	106	e 3 21	+12	e 5 33	− 2	e 3 50	PP	e 6·0
Ukiah		13·0	153	e 3 8	− 1	e 5 40	+ 5	e 3 38	PP	e 6·3
Berkeley		14·4	152	e 3 25	− 2	e 6 15	+ 6	e 3 40	PP	e 8·2
Branner		14·9	153	e 3 39	+ 5	i 6 35	+15	i 3 57	PP	—
Santa Clara		15·0	152	i 3 39	+ 4	i 6 48	+25	—	—	e 8·0
Saskatoon		15·0	76	3 33	− 2	6 15	− 8	—	—	7·4
Lick		15·1	151	e 3 35	− 1	e 6 55	+30	—	—	—
Fresno	N.	16·2	147	e 4 57	+67	e 7 31	+40	—	—	—
Tinemaha		16·5	143	e 3 56	+ 2	e 7 27	+29	—	—	—
College		16·5	334	e 3 55	+ 1	e 7 0	+ 2	e 4 21	PP	e 7·4
Salt Lake City		16·6	121	i 3 54	− 2	e 7 11	+11	e 4 21	PP	e 8·0
Haiwee		17·4	143	e 4 8	+ 2	e 7 43	+24	—	—	—
Santa Barbara		18·4	149	i 4 19	+ 1	e 7 44	+ 3	—	—	—
Boulder City		18·9	137	i 4 21	− 3	e 8 37	+44	i 4 37	PP	e 11·4
Mount Wilson		19·1	146	i 4 26a	− 1	—	—	—	—	—
Pasadena		19·1	146	i 4 26a	− 1	i 8 7	+10	—	—	e 8·8
Riverside		19·6	146	i 4 31a	− 1	e 8 22	+14	—	—	—
Rapid City		19·7	99	i 4 32	− 2	e 8 6	− 4	—	—	e 8·6
Palomar		20·3	144	i 4 39a	− 1	—	—	—	—	—
La Jolla		20·6	146	e 4 42	− 1	e 8 50	+21	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tucson		23·8	133	i 5 14	− 1	i 9 37	+ 9	i 5 42	PP	e 11·2
Chicago		30·7	90	e 6 16	− 3	e 11 15	− 6	—	—	e 13·7
St. Louis		30·9	97	e 6 18	− 2	e 11 21	− 3	i 13 12	SS	i 15·1
Cape Girardeau		32·1	98	e 6 25	− 6	—	—	—	—	e 17·0
Honolulu		36·4	225	e 8 33	PP	e 12 57	+ 7	—	—	e 15·2
New Kensington		36·4	86	e 7 24	+16	e 12 44	− 6	—	—	—
Ottawa		36·4	76	7 6	− 2	12 48	− 2	—	—	18·2
Shawinigan Falls		37·6	72	e 7 21	+ 3	—	—	—	—	18·2
Seven Falls		38·5	71	7 25	− 1	13 27	+ 5	15 59	SS	19·2
Georgetown		39·0	85	e 7 30	0	e 13 25	− 4	—	—	18·2
Columbia		39·5	95	e 9 2	PP	e 13 31	− 6	—	—	e 16·2
Philadelphia		39·6	83	i 9 17	PP	e 13 20	−18	—	—	e 16·1
Fordham		39·9	82	e 7 36	− 1	e 13 40	− 3	—	—	i 19·8
Weston		40·6	77	e 7 44	+ 1	e 13 51	− 3	—	—	—
Halifax		44·1	71	—	—	e 18 3	SS	—	—	22·2
Bermuda		50·9	84	—	—	e 16 47	+26	—	—	e 24·0
San Juan		60·0	98	e 10 13	+ 2	e 18 16	− 7	—	—	e 24·4
Aberdeen		64·2	28	—	—	i 19 16	0	e 26 56	SSS	32·2
Bogota		65·9	113	e 10 49	− 1	—	—	—	—	—
Upsala		66·6	17	10 56	+ 2	e 19 43	− 2	e 14 3	PP	e 31·2
Stonyhurst		66·9	30	e 11 9?	+13	e 19 48	− 1	i 31 10	PKKP	—
Copenhagen		69·4	22	e 11 14	+ 2	20 24	+ 6	—	—	33·2
Kew		69·6	31	i 11 15	+ 2	e 20 21	0	e 13 37	PP	e 32·2
De Bilt		70·7	27	e 11 22	+ 2	e 20 43	+ 9	—	—	e 33·2
Uccle		71·6	29	e 11 27	+ 2	e 20 48	+ 4	—	—	e 33·2
Potsdam	N.	72·6	22	—	—	e 21 9	+13	—	—	e 39·2
Cheb		74·5	24	—	—	e 21 9?	− 8	—	—	e 40·2
Strasbourg		74·6	27	11 43	0	—	—	—	—	—
Prague		75·0	22	e 11 25	−20	e 21 3	−20	—	—	e 38·2
Basle		75·5	28	e 11 52	+ 4	—	—	—	—	—
Clermont-Ferrand		75·7	31	e 11 54	+ 5	—	—	—	—	e 33·2
Neuchatel		75·8	28	e 11 49	− 1	—	—	—	—	—
Lisbon		77·1	43	11 57k	0	21 49?	+ 3	12 8	?	31·8
Huancayo		79·0	124	—	—	e 22 2	− 4	—	—	e 32·9
Triest		79·0	24	e 12 18	+11	e 22 33	+27	e 15 29	PP	—
Tortosa		79·1	35	12 14	+ 6	22 20	+13	15 36	PP	e 40·2
San Fernando	E.	80·2	42	12 34	+20	22 28	+ 9	—	—	41·2
Granada		80·7	41	i 12 13k	− 3	22 33	+ 9	i 27 51	SS	37·0
Malaga		80·7	41	e 12 18	+ 2	e 22 38	[+ 7]	12 26	pP	e 39·2
La Paz		86·5	121	i 12 39	− 7	22 40	[−31]	16 5	PP	46·2
New Delhi	N.	97·0	335	—	—	e 24 11	[− 1]	—	—	e 57·1
Helwan	N.	98·0	16	—	—	e 24 39	{− 1}	e 27 26	PPS	—
Calcutta	N.	99·1	324	—	—	e 24 31	[+ 8]	—	—	—
Bombay	E.	107·4	336	—	—	26 16	{+29}	—	—	—

Additional readings :—
Berkeley eN = 3m.44s., eSN = 6m.27s. and 6m.38s.
Mount Wilson iEZ = 4m.42s.
Pasadena iZ = 4m.43s. and 4m.56s., iSE = 8m.13s.
Rapid City i = 5m.5s.
Palomar iZ = 4m.54s.
Tucson i = 5m.19s. and 6m.17s., iP_cP = 8m.3s.
Chicago e = 6m.58s.
St. Louis iSE = 11m.27s.
Fordham e = 7m.48s.
Bermuda e = 19m.26s. and 20m.34s.
San Juan e = 14m.52s.
Upsala eN = 12m.50s., eSE = 19m.49s.
Stonyhurst eS = 19m.29s., ePPS = 20m.18s. ; true S is given as ePS.
Copenhagen 20m.31s.
Kew eP_cPZ = 11m.45s., ePPP = 15m.29s., eP_cS?Z = 16m.25s.?, eSS = 24m.39s., Q = 28·2m.
Uccle eE = 29m.9s.?
Tortosa iN = 13m.0s., eE = 22m.15s., S_cSN = 22m.49s., SSN = 27m.23s., QN = 33m.32s.
Malaga PP = 15m.46s., iS = 22m.54s., PS = 24m.2s.
La Paz PPP = 17m.54s.
Long waves were also recorded at Tacubaya, Paris, Bergen, Christchurch, Wellington, Riverview, and Colombo.

Aug. 10d. 10h. South-west Pacific.

Riverview eN =49m.6s., eS? =53m.20s., iN =56m.49s. and 60m.33s., iE =60m.40s. and 62m.28s., eLE =64·2m.
Sydney e =53m.0s. and 59m.18s., eL =64·5m.
Brisbane eN =54m.18s., 54m.24s., and 55m.6s., iN =58m.45s., iS?E =58m.55s., eLN = 64m.28s.
Nagoya e =55m.
Misima eP =55m.48s.
Shizuoka eP =55m.51s., S =61m.32s.
Hunatu iP =55m.52s.
Tokyo e =55m.52s.
Hikone eP =55m.54s.
Nagano eP =55m.54s.
Mito eP =55m.58s.
Hukuoka e =56m.53s.
Hamada e =56m.56s.
Koti eP =57m.7s.
Wellington PZ =57m.36s., pPZ =57m.55s., P_cP?Z =58m.50s., PPZ =59m.25s., iZ = 61m.2s., S =64m.13s., e =65m.30s., eS_cSZ =67m.15s., Q =69·3m., R =72m.
Auckland i =59m.50s., S =63m.32s., i =66m.10s., Q =67m.0s.?
Bombay ePE =60m.21s., PPE =63m.4s., PSE =70m.15s., SSE =74m.29s.
Arapuni e =62m. ?, R =69m.
Pasadena ePZ =62m.8s., ePPZ =65m.50s., eZ =66m.10s. and 70m.6s., eLEN =87·5m.
Mount Wilson ePZ =62m.10s.
Riverside ePZ =62m.13s.
Palomar ePZ =62m.14s.
Tinemaha ePZ =62m.14s.
Perth i =62m.44s., 63m.40s., 64m.55s., and 70m.28s.
Christchurch eEZ =63m.26s., eN =64m.22s., eE =65m.6s., QEN =68m.40s., RZ = 71m.29s.
Tucson ePKP =66m.13s., e =66m.52s. and 74m.5s., eL =80m.29s.
Calcutta iPSN =67m.21s.
Honolulu eS =68m.9s., eL =76m.20s.
San Juan ePKP? =68m.21s., e =79m.34s. and 87m.35s., eL =103m.55s.
St. Louis ePKPE =68m.34s., eN =71m.56s., eSKS?E =74m.35s., eE =75m.39s., eSKKSN =76m.37s., eSE =78m.16s., eE =83m.10s.
Colombo P? =68m.57s., SSE =72m.55s.
De Bilt eZ =69m.0s., eL =105m.
New Delhi iSN =69m.23s., iPS =69m.31s.
Kew eZ =69m.32s.?, eL =76m.
Hyderabad SN =69m.38s.
Granada e =70m.29s.
Malaga ePKP =70m.43s., pPKP =71m.13s., PP =73m.45s., PKS =74m.25s., PPP = 76m.57s., eSKS =77m.37s., P_cP,PKP =78m.49s., SKKS =80m.37s., PS =84m.49s., PPS =86m.6s., ePKP,PKP =87m.51s., L =121m.
Tortosa eN =70m.56s., eLE =113m.
College e =70m.59s., eL =85m.58s.
Sitka eSKS =71m.49s., eS =72m.12s., e =77m.50s., eL =86m.50s.
Santa Clara eZ =73m.29s.
Salt Lake City eS =74m.16s., eL =90m.29s.
Cheb e =75m.0s.?, eL =105m.
Bucharest EN =76m.? and 85m.?
Upsala eE =76m.36s., e =83m.2s.?, eN =91m.22s., eE =91m.45s., eN =93m.31s., 95m.56s., and 98m.44s., eL?E =102m.
Chicago e =78m.7s., ePPS =83m.42s., e =85m.1s., eL =107m.4s.
Helwan eN =78m.36s. and 81m.36s.
Seven Falls e =79m.30s., L =107m.
Philadelphia e =79m.46s., eL =102m.37s.
Long waves were also recorded at Butte, Ukiah, Bermuda, Huancayo, and other European stations.

Aug. 10d. 11h. 31m. 15s. Epicentre 15°·0N. 96°·1W. (as on 1942 Oct. 28d.).

$A = -\cdot1027$, $B = -\cdot9609$, $C = +\cdot2572$; $\delta = +3$; $h = +6$;
$D = -\cdot994$, $E = +\cdot106$; $G = -\cdot027$, $H = -\cdot256$, $K = -\cdot966$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Vera Cruz	Z.	4·2	359	1 9	+ 2	—	—	—	—	—
Puebla	N.	4·5	333	1 10	− 1	—	—	—	—	—
Tacubaya	N.	5·3	326	1 18	− 4	—	—	—	—	—
Merida	E.	8·5	45	e 2 42	P_g	—	—	—	—	—
Tucson		21·8	326	i 4 53	− 3	e 9 8	+16	i 5 8	PP	i 11·0
Cape Girardeau		23·0	14	5 1	− 6	e 9 5	− 9	—	—	—
Bogota		24·0	114	e 5 42	PP	—	—	—	—	—
St. Louis		24·1	11	i 5 17	− 1	i 9 31	− 3	i 5 28	pP	—
La Jolla		26·2	318	e 5 38	0	—	—	—	—	—
Palomar		26·2	319	i 5 38k	0	—	—	i 9 13	P_cP	—
Riverside		27·0	319	i 5 45k	0	—	—	i 9 13	P_cP	—
Mount Wilson		27·5	319	i 5 50k	0	—	—	—	—	—
Pasadena		27·6	319	i 5 50	− 1	—	—	i 9 16	P_cP	—
Chicago		27·7	12	e 5 51	− 1	e 10 17	−16	(11 27)	SS	e 11·5
Haiwee		28·7	322	i 6 1	0	—	—	—	—	—
Santa Barbara	Z.	28·8	317	e 6 1	− 1	—	—	—	—	—
Tinemaha	Z.	29·5	323	i 6 8k	0	—	—	i 9 20	P_cP	—
Huancayo		33·8	142	—	—	e 13 53	SS	—	—	—
Butte		33·9	341	e 6 58	+11	—	—	—	—	e 14·2
Ottawa		34·8	26	e 6 56	+ 2	e 12 21	− 4	—	—	18·8

Additional readings :—
Tucson e = 5m.20s.
St. Louis isP = 5m.33s., iPPN = 5m.57s., isSE = 9m.49s., iSSE = 10m.5s.
Palomar iZ = 5m.51s.
Riverside iZ = 5m.59s. and 9m.25s.
Pasadena iZ = 6m.0s.
Chicago e = 6m.5s. and 6m.29s.
Tinemaha iZ = 6m.20s. and 15m.19s.
Long waves were also recorded at Guadalajara and Salt Lake City.

Aug. 10d. Readings also at 0h. (La Paz), 5h. (La Jolla, Mount Wilson, Pasadena, Tucson, Palomar, Riverside, Santa Barbara, Tinemaha, and Rapid City), 7h. (near Mizusawa), 8h. (near Ottawa), 10h. (Haiwee, La Jolla, Mount Wilson, Pasadena, Palomar, Tucson, Tinemaha, Riverside, and near Branner), 15h. (La Paz, Bogota, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, and near Huancayo), 19h. (Huancayo, Wellington, St. Louis, Mount Wilson, Pasadena, Palomar, Tucson, Riverside, Tinemaha, Berkeley, and Granada), 20h. (Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, and Kew), 22h. (near Bogota).

Aug. 11d. Readings at 0h. (Granada, Riverview, and near Berkeley), 1h. (Brisbane, Riverview, Christchurch), 2h. (Kew), 7h. (Mizusawa), 8h. (Haiwee, La Jolla, Mount Wilson, Tucson, Pasadena, Palomar, Riverside, Santa Barbara, Tinemaha, and near Lick), 9h. (La Jolla, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, Fordham, Harvard, Port au Prince, near San Juan, and near Apia), 10h. (Philadelphia), 12h. (near Tananarive), 14h. (near Apia), 15h. (Bucharest and Campulung), 16h. (near Mizusawa), 17h. (Brisbane, Riverview, Sydney, Auckland, Christchurch, Wellington, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, and Tucson), 18h. (Kew), 19h. (near Ksara).

Aug. 12d. Readings at 1h. (Granada), 6h. (near Mizusawa), 8h. (Granada and Tucson), 9h. (Pehpei, Bombay, Calcutta, Colombo, Hyderabad, Kodaikanal, New Delhi, Bergen, Upsala, Prague, Potsdam, De Bilt, Uccle, Kew, and Malaga), 10h. (Granada), 13h. (near Bogota), 15h. (Tinemaha and Tucson), 21h. (Tucson), 22h. (near Berkeley), 23h. (near Branner).

Aug. 13d. 8h. 21m. 24s. (I)
8h. 22m. 25s. (II)
8h. 23m. 45s. (III)
} Epicentre 50°·3N. 130°·7W.

A = −·4182, B = −·4862, C = +·7672; δ = −12; h = −6;
D = −·758, E = +·652; G = −·500, H = −·582, K = −·641.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
I	Victoria	5·1	108	e 1 12	− 8	—	—	—	—	2·4
I	Seattle	6·2	113	—	—	e 3 10	S*	—	—	e 5·0
II	Sitka	7·8	341	e 1 57	− 1	e 3 5	−23	—	—	e 4·2
III	Ferndale	10·7	153	—	—	—	—	e 5 8	SSS	e 5·2
II	Ukiah	12·4	152	e 2 42	−19	—	—	—	—	—
II	Berkeley	13·8	151	e 3 19	0	e 6 1	+ 7	e 3 8	P	e 7·2
I	Branner	14·3	151	—	—	e 6 14	+ 8	—	—	—
II		14·3	151	e 4 2	+36	—	—	—	—	—
III		14·3	151	e 3 40	+14	—	—	—	—	—
II	Santa Clara	14·4	151	e 3 51	+24	e 6 14	+ 5	—	—	e 7·7
II	Saskatoon	15·2	74	3 39	+ 1	6 39	+11	—	—	8·1
I	Fresno	15·7	146	e 4 16	PPP	—	—	—	—	—
II		15·7	146	i 3 44	0	—	—	—	—	—
I	Tinemaha z.	16·0	141	e 3 45	− 3	—	—	—	—	—
II		16·0	141	i 3 49	+ 1	e 7 1	+15	—	—	—
II	z.	16·0	141	i 3 46	− 2	—	—	—	—	—
I	Salt Lake City	16·2	119	e 3 51	+ 1	—	—	e 3 33	?	—
II		16·2	119	e 3 51	+ 1	e 6 53	+ 2	e 6 17	?	e 8·9
I	Haiwee	16·9	142	e 4 1	+ 2	—	—	—	—	—
II		16·9	142	i 4 2	+ 3	e 7 26	+19	—	—	—
III		16·9	142	e 3 58	− 1	—	—	—	—	—
I	College	17·2	335	e 4 11	+ 8	—	—	—	—	—
II		17·2	335	e 4 8	+ 5	—	—	—	—	e 7·5
I	Mount Wilson z.	18·6	145	i 4 22	+ 1	—	—	—	—	—
II		18·6	145	i 4 22	+ 1	—	—	—	—	—
I	Pasadena z.	18·6	145	i 4 22	+ 1	—	—	—	—	—
II		18·6	145	i 4 18	− 3	e 7 56	+10	—	—	—
I	Riverside z.	19·0	145	e 4 24	− 2	—	—	—	—	—
II		19·0	145	i 4 25	− 1	e 8 6	+11	—	—	—
III	z.	19·0	145	i 4 30	+ 4	—	—	—	—	—
I	Rapid City	19·6	98	e 4 37	+ 5	e 8 19	+11	—	—	—
II		19·6	98	i 4 42	+10	e 8 17	+ 9	e 5 34	?	e 10·2
I	Palomar	19·8	143	e 4 29	− 6	—	—	—	—	—
II		19·8	143	i 4 33	− 2	—	—	—	—	—
II	La Jolla	20·1	145	e 4 38	0	—	—	—	—	—
I	Tucson	23·3	132	i 5 8	− 2	e 9 8	−12	i 5 12	?	—
II		23·3	132	i 5 10	0	e 9 37	+17	i 5 13	?	e 11·8
II	Florissant	30·6	96	e 6 18	0	e 11 18	− 2	—	—	—
II	Chicago	30·7	89	e 6 18	− 1	e 11 28	+ 7	e 11 20	?	e 14·9
I	St. Louis	30·8	96	e 6 18	− 2	e 11 22	− 1	—	—	—
II		30·8	96	i 6 22	+ 2	e 11 22	− 1	e 12 56	SS	e 15·5
III	New Kensington	36·5	85	e 6 58	−11	—	—	—	—	e 17·6
II	Ottawa	36·5	75	7 10	+ 1	12 57	+ 6	—	—	18·6
II	Seven Falls	38·7	70	7 29	+ 2	13 29	+ 4	—	—	e 19·6
II	Philadelphia	39·7	82	e 7 49	+13	—	—	i 9 6	PP	16·9
II	Fordham	40·0	81	e 7 39	+ 1	e 13 51	+ 7	—	—	e 20·1
II	San Juan	59·9	97	—	—	e 18 24	+ 3	—	—	e 25·1
II	Malaga	81·3	41	i 12 3	−17	—	—	—	—	45·6

Additional readings :—
St. Louis II eN = 10m.42s., eE = 11m.45s., eN = 13m.55s.
Philadelphia II e = 15m.9s.
Long waves were also recorded at Ukiah (I), Honolulu, Columbia, Kew, De Bilt, and Clermont-Ferrand.

Aug. 13d. Readings also at 0h. (Branner and near Berkeley), 1h. (Kew), 6h. (Tucson), 9h. (Malaga and Kew), 10h. (Kaimata, Christchurch, near Wellington, New Plymouth, Auckland, and Tuai), 11h. (near New Delhi (2)), 19h. (Riverview and near Branner), 20h. and 22h. (Kew).

Aug. 14d. 11h. 7m. 25s. Epicentre 58°·7N. 154°·4W. Depth of focus 0·010.

A = −·4708, B = −·2256, C = +·8529; δ = −1; h = −8;
D = −·432, E = +·902; G = −·769, H = −·368, K = −·522.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		6·9	24	e 1 40	0	e 2 58	0	i 1 57	pP	e 3·3
Sitka		10·2	88	e 2 19	− 6	i 4 13	− 5	i 2 25	P	i 4·4
Victoria		20·8	106	e 4 44	+ 9	e 8 37	+20	—	—	—
Ukiah		27·9	120	e 5 57	+14	e 10 36	+18	e 6 5	pP	e 11·3
Butte		28·0	97	e 9 27	?	—	—	—	—	e 11·6
Berkeley		29·4	121	e 5 54	− 2	e 10 40	− 2	i 6 15	pP	—
Santa Clara		30·0	121	e 6 22	pP	e 10 46	− 5	—	—	—
Tinemaha		31·9	116	i 6 18a	0	e 11 25	+ 4	i 6 39	pP	—
Haiwee		32·8	116	i 6 25a	− 1	i 12 43	S_cP	i 6 45	pP	—
Santa Barbara		33·4	120	i 6 31	0	e 12 45	S_cP	i 6 52	pP	—
Rapid City		34·2	92	e 6 42	+ 4	i 12 1	+ 4	e 7 3	pP	e 14·7
Mount Wilson		34·3	119	i 6 39a	0	i 12 49	S_cP	7 1	pP	—
Pasadena		34·3	119	i 6 38a	− 1	e 11 58	0	i 6 59	pP	e 14·4
Riverside		34·8	119	i 6 42a	− 1	i 12 49	S_cP	i 7 3	pP	—
Palomar		35·6	118	i 6 49a	− 1	e 12 46	S_cP	i 7 11	pP	—
La Jolla		35·8	119	i 6 51	− 1	—	—	i 7 12	pP	—
Tucson		39·3	112	i 7 22	+ 1	i 13 8	− 6	i 7 44	pP	e 16·6
Chicago		43·9	82	e 7 57	− 2	e 14 22	0	—	—	e 17·6
Florissant		44·7	87	i 8 25	pP	i 14 33	− 1	i 17 53	SS	—
St. Louis		44·9	87	i 8 5	− 2	i 14 36	− 1	8 28	pP	—
Ottawa		47·4	70	8 25	− 1	15 13	+ 1	19 3	SS	21·6
Shawinigan Falls		48·0	67	8 29	− 2	15 21	+ 1	—	—	22·6
Seven Falls		48·5	65	8 34	− 1	15 29	+ 2	—	—	22·6
Philadelphia		51·6	74	—	—	i 16 14	+ 4	e 16 51	sS	e 19·8
Fordham		51·6	73	i 8 58	0	i 16 14	+ 4	e 16 54	sS	—
Copenhagen		65·5	9	—	—	19 14	+ 3	20 22	S_cS	—
De Bilt		68·3	13	—	—	i 19 51	+ 7	20 47	S_cS	—
Prague		71·2	9	—	—	20 20	+ 2	e 21 7	sS	e 29·6
Basle		73·1	13	e 11 22	0	e 20 44	+ 4	—	—	—
Zürich		73·4	13	e 11 23	0	—	—	—	—	—
Neuchatel		73·5	13	e 11 25	+ 1	—	—	—	—	—
San Juan		73·6	82	e 12 1	pP	e 20 44	− 1	e 21 22	sS	e 29·8
Clermont-Ferrand		74·3	17	—	—	20 57	+ 4	—	—	—
Trieste		75·6	10	—	—	i 21 9	+ 1	—	—	—
Tortosa	N.	78·7	20	e 12 14	pP	21 46	+ 5	22 39	sS	—
Granada		81·4	24	i 12 8k	0	22 13	+ 4	12 36	pP	37·2
Malaga		81·7	25	i 12 11	+ 2	i 22 19	+ 7	i 12 45	pP	—
Ksara		87·4	352	e 12 39	+ 2	23 15	+ 7	—	—	—
Helwan	N.	91·6	355	—	—	i 23 55	+ 9	e 22 35	SKS	—
Brisbane	Z.	96·3	225	i 13 19	0	—	—	—	—	—

Additional readings :—
College eS? = 2m.36s., i = 2m.40s.,
Sitka e = 2m.39s., eS = 4m.4s.
Ukiah e = 6m.16s.
Tinemaha iS_cPZ = 12m.41s.
Santa Barbara isPZ = 6m.59s.
Rapid City e = 7m.48s.
Mount Wilson isPZ = 7m.11s.
Pasadena iZ = 6m.45s., isPZ = 7m.7s., ePPNZ = 7m.56s., iP_cPZ = 9m.12s., esSN = 12m.38s., iS_cPZ = 12m.47s., epS_cPZ = 13m.30s.,
Riverside iPPZ = 8m.3s., iP_cPZ = 9m.15s.,
Tucson iPP = 8m.58s., i = 9m.18s., eS? = 13m.43s.
Florissant isSE = 15m.11s., isSSE = 18m.25s.,
St. Louis eZ = 10m.11s., isSe = 15m.15s., iSSN = 18m.2s., isSSE = 18m.39s.,
Ottawa e = 15m.50s.
Philadelphia e = 18m.35s.
San Juan e = 12m.19s., eSS = 25m.49s., e = 29s.24s.
Tortosa SN = 22m.1s., SSSN = 30m.25s.
Granada iSE = 22m.18s.
Malaga iPP? = 15m.20s., iS = 22m.27s., SS = 27m.19s.
Long waves were also recorded at New Kensington and Kew.

Aug. 14d. 14h. 21m. 36s. Epicentre 13°·3N. 120°·4E.

A = −4926, B = +·8397, C − +·2287; δ = +5; h = +6;
D = +·863, E = +·506; G = −·116, H = +·197, K = −·974.

		△	Az.	P.	O—C.	S.	O—C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Kagosima		20·4	25	e 4 42	+ 1	—	—	—	—	—
Kumamoto		21·6	24	e 4 53	− 1	—	—	—	—	—
Hukuoka		22·1	23	i 4 58	− 1	9 2	+ 4	—	—	—
Izuka		22·3	23	4 48	−13	—	—	—	—	—
Kôti		23·4	28	e 5 11	0	9 28	+ 7	—	—	—
Muroto		23·5	29	e 5 12	0	—	—	—	—	—
Siomisaki		24·5	31	5 27	+ 5	—	—	—	—	—
Sumoto		24·7	30	i 5 26	+ 2	9 47	+ 3	—	—	—
Kobe		25·2	30	5 31	+ 2	9 58	+ 6	—	—	—
Kameyama		25·9	31	5 38	+ 3	—	—	—	—	—
Hikone		26·1	30	e 5 35	− 2	—	—	—	—	—
Nagoya		26·4	32	e 5 40	0	—	—	—	—	—
Shizuoka		27·0	34	e 6 10	+25	—	—	—	—	—
Misima		27·4	34	e 5 52	+ 3	10 46	+18	—	—	—
Hunatu		27·6	33	6 0	+ 9	—	—	—	—	—
Toyama		27·7	30	5 57	+ 5	—	—	—	—	—
Yokohama		28·0	35	e 5 54	− 1	—	—	—	—	—
Tokyo		28·3	35	e 6 12	+15	—	—	—	—	—
Kumagaya		28·4	34	6 5	+ 7	11 52	SS	—	—	—
Maebasi		28·4	33	e 5 54	− 4	—	—	—	—	—
Sendai		30·8	33	e 6 14	− 6	—	—	—	—	—
Calcutta	N.	31·8	291	e 7 34	PP	e 11 14	−24	—	—	i 15·3
Colombo		40·4	265	7 42	+ 1	13 44	− 6	—	—	23·4
Hyderabad	N.	40·6	281	e 7 57	+14	13 53	− 1	17 45	S_cS	20·9
Kodaikanal	E.	42·1	272	e 6 41	−74	—	—	i 11 31	?	17·5
New Delhi		43·1	298	e 8 5	+ 1	i 14 16	−14	17 52	SS	23·0
Bombay		45·9	283	i 8 23	− 3	i 15 7	− 4	10 13	PP	i 22·6
Brisbane		51·4	143	e 9 5a	− 4	i 16 26	− 2	i 9 44	?	—
Riverview		55·3	149	i 9 38k	0	i 17 24	+ 3	i 12 45	PPP	e 23·5
Sydney		55·3	149	—	—	e 17 24	+ 3	—	—	—
Auckland		71·5	137	10 29?	?	20 44	+ 1	—	—	34·4
Wellington		73·9	141	16 51	PPP	26 24	SS	—	—	39·4
Christchurch		73·9	143	11 37	− 2	e 21 9	− 1	29 39	SSS	39·4
Ksara		78·2	302	e 12 6	+ 3	e 22 0	+ 3	—	—	—
Helwan		82·7	299	i 12 26a	− 1	22 40	− 4	15 39	PP	—
Bucharest	E.	83·8	314	—	—	e 22 53	− 2	—	—	—
Upsala	E.	84·9	330	e 12 34	− 4	e 22 53	−13	16 6	PP	43·4
	N.	84·9	330	e 12 48	+10	22 57	− 9	34 58	?	—
Copenhagen		88·9	328	23 24	SKS	23 39	− 5	—	—	44·4
Potsdam		89·8	324	e 23 30	SKS	(23 30)	[− 2]	23 49	S	48·4
Prague		89·9	322	e 12 45	−17	23 39	[+ 7]	16 41	PP	43·4
Bergen		90·4	334	12 30	−34	23 25	[−10]	—	—	42·9
Cheb		91·1	323	—	—	e 23 38	[− 1]	e 33 24?	SSS	e 51·4
Triest		91·9	318	e 13 8	− 3	i 23 37	[− 7]	—	—	—
De Bilt		94·5	326	e 13 24	+ 1	e 23 55	[− 3]	30 54	SS	47·4
Zürich		94·5	321	13 20a	− 3	e 23 51	[− 7]	e 17 14	PP	—
Basle		95·0	321	e 13 22	− 4	24 32	− 6	—	—	—
Uccle		95·4	325	e 17 18	PP	—	—	—	—	e 48·4
Neuchatel		95·6	321	e 28 24	?	—	—	—	—	—
Kew		97·6	327	e 13 37	− 1	e 24 9	[− 6]	17 33	PP	—
Clermont-Ferrand		97·6	320	e 17 46	PP	—	—	—	—	e 58·6
Berkeley	E.	102·3	46	—	—	e 24 19	[−19]	e 33 14	SSP	e 44·8
Tortosa	E.	102·7	317	e 19 33	?	—	—	—	—	57·4
Santa Barbara	Z.	105·8	48	e 18 34	PP	—	—	—	—	—
Tinemaha	Z.	106·9	46	e 17 45	PKP	—	—	e 18 30	PP	—
Mount Wilson	Z.	107·1	48	e 18 37	PP	—	—	e 29 45	PKKP	—
Pasadena		107·2	48	e 17 49	PKP	i 28 10	PS	e 18 33	PP	e 44·6
Granada		107·3	316	18 54k	PP	29 24	PS	38 48	SS	58·2
Riverside	Z.	107·7	48	e 17 47	[−41]	—	—	18 40	PP	—
Malaga		108·1	316	i 18 56	[+27]	i 29 12	PS	—	—	60·9

Continued on next page.

	△	Az.	P.	O−C.	S.	O−C.	Supp.			L.
	°	°	m. s.	s.	m. s.	s.	m.	s.		m.
Tucson	113·3	46	i 18 26	[−14]	e 29 8	PS	e 33	32	P_cPPKP	e52·6
Seven Falls	119·0	8	—	—	—	—	e 35	0	?	51·4
Florissant	120·7	27	—	—	e 30 16	PS	e 36	53	SS	e 55·4
San Juan	147·9	11	19 37	[− 7]	27 57	[+66]	e 40	4	PKPPKS	e66·9
Huancayo	164·6	86	e 21 13	[+68]	e 28 5	[+57]	e 28	24	PPP	e 75·5
La Paz	171·2	112	e 20 3	[− 7]	—	—	25	17	PP	80·4

Additional readings :—
Bombay ePN =8m.29s., PSE =15m.20s., PPSN =15m.26s., S_cSEN =18m.20s., SSN = 18m.31s., SSE =18m.37s., SSSEN =19m.27s., eE =22m.5s.
Brisbane iPN =9m.8s., iZ =9m.13s., iN =20m.32s.
Riverview eN =20m.3s.
Wellington P_cPZ =17m.2s., PP =19m.54s. ; readings wrongly identified
Christchurch eZ =12m.44s., SKSN =19m.25s., SSEN =25m.4s., QN =33m.10s.,
Helwan eZ =12m.57s. and 13m.33s.
Prague eSS =29m.36s.
Zürich eS =24m.26s.
Kew ePS?Z =26m.17s.?, eSS?E =31m.37s.?
Tinemaha iPKKPZ =30m.16s.
Pasadena eZ =30m.9s.
Granada SKKS =30m.39s., PS =32m.39s., SSS =44m.24s. ; readings wrongly identified
Riverside ePKKPZ =29m.41s.
San Juan e =19m.59s. and 54m.0s.
Huancayo e =31m.8s. and 35m.50s.
La Paz PPP =29m.28s.
Long waves were also recorded at Aberdeen, Lisbon, College and Philadelphia.

Aug. 14d. Readings also at 1h. (near Tananarive), 2h. (near Mineral and Paris), 3h. (near Mizusawa), 7h. (Alicante), 8h. (near Triest), 9h. (Mineral), 12h. (Paris), 15h, (La Paz), 16h. Pasadena (2), Mount Wilson (2), Riverside, Tucson, Tinemaha, St. Louis, Bombay, Christchurch, Brisbane, Riverview, and near San Juan), 17h. (St. Louis, Shawinigan Falls, Seven Falls, Ottawa, Auckland, and Wellington), 23h. (St. Louis, Riverside, Tinemaha, Mount Wilson, Tucson, Pasadena, near Branner and near Apia).

Aug. 15d. 1h. 19m. 29s. Epicentre 17°·0N. 122°·5E.

A = −·5141, B = +·8070, C = +·2906 ; δ = 0 ; h = +5 ;
D = +·843, E = +·537 ; G = −156, H = +·245, K = −·957.

	△	Az.	P.	O—C.	S.	O—C.	Supp.			L.
	°	°	m. s.	s.	m. s.	s.	m.	s.		m.
Kagosima	16·2	25	e 3 31?	−19	—	—	—		—	—
Kumamoto	17·4	24	e 4 6	0	—	—	—		—	—
Hukuoka	18·0	22	4 13	0	7 36	+ 4	—		—	—
Kôti	19·2	29	e 4 29	+ 1	—	—	—		—	—
Siomisaki	20·3	33	4 40	0	—	—	—		—	—
Sumoto	20·5	31	4 42	0	8 27	0	—		—	—
Kobe	21·0	31	4 47	0	8 38	+ 1	—		—	—
Owase	21·0	33	4 47	0	—	—	—		—	—
Kyoto	21·5	31	e 4 53	+ 1	—	—	—		—	—
Hikone	21·9	31	e 4 57	0	—	—	—		—	—
Nagoya	22·2	33	e 5 2	+ 2	—	—	—		—	—
Gihu	22·3	33	5 4	+ 3	9 3	+ 1	—		—	—
Shizuoka	22·8	34	e 5 1	− 4	—	—	—		—	—
Misima	23·3	34	e 5 10	0	—	—	—		—	—
Hunatu	23·4	34	5 15	+ 4	—	—	—		—	—
Toyama	23·5	30	e 5 15	+ 3	9 33	+10	—		—	—
Mera	23·6	37	5 52	PP	—	—	—		—	—
Yokohama	23·9	35	5 44	PP	—	—	—		—	—
Nagano	24·0	31	e 5 13	− 4	10 7	+35	—		—	—
Wazima	24·0	28	5 17	0	9 35	+ 3	—		—	—
Tokyo	24·1	36	5 26	+ 8	—	—	—		—	—
Maebasi	24·3	32	5 22	+ 2	—	—	—		—	—
Kakioka	24·8	35	5 21	− 4	—	—	—		—	—
Utunomiya	24·8	35	e 5 23	− 2	—	—	—		—	—
Sendai	26·6	34	5 39	− 3	—	—	—		—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mizusawa	E.	27·4	33	e 5 51	+ 2	e 10 21	− 7	—	—	—
	N.	27·4	33	6 1	+12	10 25	− 3	—	—	—
Calcutta	N.	32·6	285	e 10 56	?	—	—	e 16 56	S_cS	—
New Delhi	N.	43·1	294	—	—	e 15 15	PPS	—	—	—
Bombay		47·2	280	e 8 41	+ 5	i 15 32	+ 3	e 10 26	PP	—
Riverview	Z.	57·5	152	e 24 33	?	—	—	—	—	—
Helwan		82·7	298	i 13 25	+58	22 49	+ 5	i 13 49	?	—
Upsala	E.	82·7	330	18 49	?	e 22 43	− 1	e 28 43	SS	42·5
Copenhagen		86·9	328	—	—	23 19	{ 0}	—	—	46·5
Bergen		88·0	334	—	—	e 24 53	PS	—	—	46·0
Potsdam		88·0	325	—	—	e 23 17	[− 3]	e 23 25	SKKS	e 45·5
Prague		88·2	322	—	—	e 23 31	{+ 3}	—	—	e 44·5
Cheb		89·4	323	e 23 31	SKS	(e 23 31)	[+ 2]	e 33 31?	SSS	e 51·5
Triest		90·5	318	—	—	i 23 28	[− 8]	—	—	—
Zürich		92·9	322	e 13 13	− 3	—	—	—	—	—
Kew		95·6	328	e 17 32	PP	e 24 0	[− 4]	e 19 44?	PPP	—
Tinemaha	z.	101·5	46	e 13 33	−22	—	—	e 16 12	?	—
Mount Wilson	z.	103·1	48	e 17 29	?	—	—	—	—	—
Pasadena	z.	103·1	48	e 17 4	?	—	—	e 18 16	PKP	e 48·2
Riverside	z.	103·7	48	e 17 7	?	—	—	—	—	—
Granada		106·0	318	(14 16k)	P	(24 49)	[− 6]	(28 7)	PS	(50·6)
Malaga		106·8	318	e 18 53	PP	26 8	− 9	28 58	PPS	e 64·5
Tucson		109·3	46	e 18 14	[−18]	—	—	e 30 1	PPS	e 52·7
Seven Falls		115·1	10	e 16 37	?	—	—	e 19 31?	PP	—
Ottawa	z.	115·7	14	e 17 37	?	—	—	e 20 12	PP	—
St. Louis		116·7	28	e 19 42	PP	e 27 21	{+29}	e 29 44	PS	—
Bogota		153·1	39	e 18 44	[−68]	—	—	i 20 4	PKP	—

Additional readings :—
Bombay iN =19m.26s.
Upsala ePE =19m.12s., eSE =28m58s. ; readings wrongly identified.
Kew ePSEZ =25m.48s., eSS =37m.31s.
Granada SKKS =(25m.40s.), SS =(34m.7s.), SSS =(37m.31s.) ; readings decreased by five minutes.
Malaga PP =22m.0s.
St. Louis ePPSE =31m.4s., eSSE =36m.0s.
Long waves were also recorded at Kodaikanal and other European stations.

Aug. 15d. 11h. 47m. 37s. Epicentre 12°·5N. 143°·0E. Depth of focus 0·010. (as on 1939 Nov. 9d.).

A = −·7799, B = +·5877, C = +·2151 ; δ = −10 ; λ = +6
D = +·602, E = +·799 ; G = −·172, H = +·129, K = −·977.

	Δ	Az.	P.	O—C.	S.	O—C.	Supp,		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Siomisaki	21·9	343	4 47	+ 1	8 41	+ 4	—	—	—
Miyazaki	22·1	334	4 51	+ 3	—	—	—	—	—
Kagosima	22·2	331	4 46	− 3	—	—	—	—	—
Owase	22·3	346	4 50	0	—	—	—	—	—
Omaesaki	22·4	352	4 36	−15	8 36	−10	—	—	—
Mera	22·5	354	4 53	+ 1	—	—	—	—	—
Kôti	22·7	340	4 53	− 1	8 51	0	—	—	—
Misima	22·8	353	4 53	− 2	8 52	− 1	—	—	—
Shizuoka	22·8	352	i 4 53	− 2	—	—	—	—	—
Kameyama	23·0	348	4 56	− 1	—	—	—	—	—
Sumoto	23·0	346	4 55	− 2	8 52	− 4	—	—	—
Yokohama	23·0	354	4 49	− 8	—	—	—	—	—
Kumamoto	23.1	336	5 0	+ 2	—	—	—	—	—
Hunatu	23·2	351	4 47	−12	—	—	—	—	—
Kobe	23·2	346	4 59	0	—	—	—	—	—
Nagoya	23·2	349	5 1	+ 2	—	—	—	—	—
Tokyo	23·2	353	5 0	+ 1	—	—	—	—	—
Gihu	23·5	349	i 5 3	+ 1	—	—	—	—	—
Hikone	23·5	348	5 1	− 1	—	—	—	—	—
Kakioka	23·8	355	5 2	− 3	—	—	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tukubasan		23·8	355	5 4	− 1	—	—	—	—	—
Hukuoka		23·9	334	5 6	0	—	—	—	—	—
Maebasi		24·1	352	5 5	− 2	—	—	—	—	—
Utunomiya		24·1	354	5 8	+ 1	—	—	—	—	—
Nagano		24·5	351	5 10	− 1	9 18	− 4	—	—	—
Toyama		24·6	350	5 12	0	9 25	+ 1	—	—	—
Wazima		25·4	349	5 17	− 3	—	—	—	—	—
Sendai		25·7	357	5 17	− 6	9 50	+ 8	—	—	—
Mizusawa	E.	26·6	357	e 5 31	0	e 10 7	+10	—	—	—
Morioka		27·1	357	5 22	−14	9 43	−22	—	—	—
Akita		27·2	356	5 34	− 2	—	—	—	—	—
Sapporo		30·5	358	6 4	− 2	—	—	—	—	—
Brisbane		40·9	167	i 7 38a	+ 4	i 13 38	0	i 7 59	pP	—
Riverview		46·7	171	8 25	+ 4	i 15 4	+ 2	e 8 49	pP	e 20·9
Sydney		46·8	171	—	—	e 14 23	−41	e 18 23	SS	—
Perth		51·3	210	—	—	i 16 13	+ 7	i 18 3	ScS	—
Calcutta	N.	52·8	289	e 9 13	+ 5	i 16 28	+ 1	—	—	—
Honolulu		57·0	73	e 9 33	− 5	i 17 22	− 1	e 10 5	pP	e 23·6
Auckland		57·5	150	10 1?	pP	17 38	+ 9	—	—	30·4
New Plymouth		58·9	152	10 21	pP	—	—	e 11 43	PP	—
Wellington	Z.	61·0	154	10 8	+ 2	18 16	+ 1	10 33	pP	28·9
Christchurch		62·0	157	e 10 41	pP	18 25	− 2	19 55	ScS	29·4
Hyderabad	N.	62·3	283	10 18	+ 4	18 32	+ 1	19 49	ScS	—
Colombo	E.	62·4	271	10 10	− 5	19 16	+44	—	—	—
New Delhi	N.	63·0	296	e 10 33	+14	i 18 28	−12	12 47	pP	—
Bombay		67·5	286	i 10 50	+ 2	i 19 33	− 2	11 24	pP	—
College		70·0	25	e 11 0	− 3	e 19 54	−10	20 46	PS	e 27·6
Sitka		75·1	34	e 11 28	− 5	e 20 56	− 6	e 21 28	sS	e 30·1
Victoria		83·1	42	12 26	+10	22 32	+ 6	—	—	35·4
Ukiah		85·1	51	e 12 26	0	e 22 37	[− 2]	e 15 38	PP	e 34·3
Berkeley		86·1	53	e 12 30	− 1	i 22 53	− 3	i 12 59	pP	—
Santa Clara		86·5	53	i 12 35	+ 2	e 22 40	[− 7]	—	—	—
Santa Barbara		88·9	55	i 12 44	− 1	e 23 20	− 2	i 13 14	pP	—
Tinemaha		89·4	53	e 12 46	− 1	e 23 30	+ 3	i 13 16	pP	—
Haiwee		89·9	53	e 12 49	0	e 23 30	− 1	i 13 26	sP	—
Pasadena		90·2	55	i 12 49k	− 2	i 23 31	− 3	i 13 18	pP	e 35·4
Mount Wilson		90·3	55	i 12 51	0	i 23 33	− 2	i 13 17	pP	—
Butte		90·9	42	e 22 42?	?	e 23 5?	[−10]	e 25 2?	PS	e 43·5
Riverside	Z.	90·9	55	e 12 52	− 2	—	—	i 13 23	sP	—
La Jolla		91·3	56	e 12 57	+ 1	e 23 42	− 2	i 13 26	pP	—
Palomar		91·5	56	i 12 57	0	i 23 44	− 2	i 13 27	pP	—
Saskatoon		92·3	35	—	—	e 23 53	+ 1	—	—	35·4
Salt Lake City		93·1	47	e 13 5	+ 1	e 23 28	[+ 1]	e 23 48	S	e 38·5
Tucson		96·7	55	i 13 21	+ 1	e 23 41	[− 7]	i 13 49	pP	e 36·2
Ksara		96·9	306	e 13 23?	+ 2	e 23 54	[+ 5]	—	—	—
Bucharest		99·6	319	13 23?	−11	—	—	—	—	37·4
Copenhagen		100·5	334	e 13 38	0	24 5	[− 2]	17 32	PP	—
Helwan		101·9	304	i 13 44k	0	24 11	[− 3]	14 13	pP	—
Potsdam		102·4	331	e 17 53?	PP	e 25 11	− 7	e 24 17?	SKS	e 54·4
Prague		103·2	329	e 17 51	PP	e 26 57	SP	e 27 51	SPP	—
Cheb		104·2	330	e 18 14	PP	e 24 28	[+ 4]	e 34 23?	?	e 55·4
De Bilt		106·1	334	i 14 2	P	—	—	i 18 28	PP	e 53·4
Triest		106·3	325	e 17 37	?	i 24 29	[− 4]	e 21 42	?	—
Uccle		107·4	334	e 12 35	?	i 24 37	[− 1]	—	—	e 51·4
Basle		108·2	330	e 18 0	PKP	—	—	—	—	—
Florissant		108·7	41	—	—	i 24 41	[− 3]	i 25 33	sSKS	—
Kew		108·8	336	e 14 13	P	e 27 53	SP	i 18 47	PP	e 42·4
St. Louis		108·9	41	e 18 45	PP	i 24 44	[− 1]	i 25 35	sSKS	—
Paris		109·7	333	i 18 22	[+ 2]	—	—	e 18 54	PP	57·4
Ottawa		112·6	28	e 18 27	[+ 2]	(28 23?)	SP	—	—	28·4

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tortosa	116·6	328	e 19 29	PP	e 29 12	SP	e 29 24	PS	e 59·4
Fordham	116·9	31	e 19 45	PP	e 29 12	SP	e 29 52	PS	—
Granada	121·4	329	e 20 27a	PP	27 15	?	21 3	pPP	62·5
Malaga	122·2	329	i 20 15	PP	—	—	20 45	pPP	68·0
San Fernando	123·3	330	i 20 31	PP	—	—	—	—	62·4
Huancayo	142·5	93	e 19 26	[+ 4]	—	—	e 19 45	pPKP	e 78·6
Fort de France	143·9	42	e 19 23?	[− 1]	—	—	—	—	—
La Paz	149·6	102	i 19 38k	[+ 4]	26 33	[+ 2]	i 20 11	pPKP	69·9

Additional readings ;
Mizusawa SN =10m.10s.
Brisbane iZ =8m.7s., iSN =13m.43s.
Riverview iZ =10m.35s., iN =17m.47s., iEN =19m.1s.
Honolulu ePPP =12m.57s.
Auckland i =20m.8s., SS =22m.11s., SSS =24m.23s.
Wellington iZ =11m.40s., PP?Z =12m.18s., pPPZ =12m.47s., iZ =16m.26s., i = 18m.48s.?, sSZ =19m.1s., S_cSZ =19m.38s., sSS =23m.5s., Q? =28m.5s.
Christchurch SSEN =22m.12s., QN =24m.59s.
Hyderabad SSN =22m.27s.
New Delhi P_cPN =11m.35s., PPPN =13m.38s.
Bombay PPN =13m.22s., sSN =20m.34s.
College e =13m.0s. and 23m.45s.
Sitka e =22m.23s., eSS =25m.49s.
Ukiah e =15m.31s., 23m.33s., and 26m.48s., eSSS =31m.46s.
Berkeley iSKSEN =22m.43s., isSEN =23m.41s.
Santa Barbara eSKSE =23m.1s.
Tinemaha eSKSE =23m.4s.
Haiwee eSKSEN =23m.8s.
Pasadena isPZ =13m.24s., iZ =13m.48s. and 14m.28s., epPPZ =16m.44s., esPPZ = 17m.9s., iSKS =23m.7s., eSPN =24m.19s., iPKP, PKPZ =38m.52s.
Mount Wilson eSKSE =23m.9s.
Butte e =29m.7s.?
La Jolla iSKSE =23m.17s.
Palomar iSKSE =23m.17s.
Salt Lake City e =25m.54s. and 28m.19s.
Tucson e =16m.3s , ePP =18m.1s., i =18m.49s., iSP =25m.48s., i =30m.38s.
Copenhagen 16m.50s.
Helwan eZ =16m.44s. and 17m.35s., PP?Z =18m.1s., eZ =20m.2s., eN =27m.41s.
Prague ePPP? =20m.59s.
De Bilt iZ =19m.6s.
Florissant iSE =26m.3s., ePSE =28m.8s., pPSE =28m.43s., ePPS?E =29m.7s., iSSE = 33m.45s., esSSE =34m.37s.
Kew eZ =14m.53s., 17m.27s.?, and 18m.36s., iEZ=19m.13s., i=19m.25s., eN=28m.47s.?, eEZ =29m.23s., eNZ =34m.33s.? and 38m.53s.
St. Louis iSN =26m.10s., isSN =28m.2s., ePSN =28m.8s., ipPSN =28m.45s., iPPSN = 29m.5s., eE =30m.50s., iSSE =33m.49s., isSSE =34m.37s.
Fordham e =27m.18s.
Granada pPP =21m.18s., SKP =22m.18s., SKKS =28m.30s., S =29m.18s., PS = 30m.30s., SS =36m.38s.
Huancayo ePP =23m.1s., e =23m.11s., 35m.3s., e =39m.53s. and 40m.35s., eSS = 51m.5s.
La Paz PP =22m.59s., PSKS =32m.23s., PPS =36m.3s.
Long waves were also recorded at Bergen and Upsala.

Aug. 15d. Readings also at 3h. (Triest), 9h. (Auckland and near Lick), 10h. (Bergen, Upsala, Bogota and near La Paz), 18h. (Tinemaha, Haiwee, Pasadena, Mount Wilson, Tucson and Riverside), 20h. (Bucharest), 22h. (Kew and Granada).

Aug. 16d. Readings at 0h. (near Triest), 4h. (Lick), 6h. (Tinemaha, Tucson, and Pasadena), 9h. (Balboa Heights), 11h. (Pasadena, Riverside, and Mount Wilson), 15h. (Pasadena, Mount Wilson, Riverside, Palomar, Haiwee, Tinemaha, Tucson, St. Louis and Florissant), 19h. (Fort de France), 22h. (near Branner and Berkeley).

Aug. 17d. 13h. 28m. 4s. Epicentre 35°·5N. 26°·5E. (as on 9d.).

$A = +·7303$, $B = +·3641$, $C = +·5781$; $\delta = +11$; $h = 0$.

	Δ	Az.	P.	O—C.	S.	O—C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Helwan	6·9	143	e 1 44	− 1	2 56	− 9	2 1	P*	—
Ksara	7·9	99	e 1 58	− 1	e 3 21	− 9	—	—	—
Bucharest	8·9	357	e 2 14	+ 2	e 4 30	S*	e 4 14	?	5·4
Belgrade	10·4	335	e 2 34	0	—	—	e 2 44	PP	—
Triest	14·0	320	e 6 8	S	(e 6 8)	+ 9	—	—	i 7·3
Prague	17·0	333	e 4 7	+ 6	e 7 56	SSS	—	—	—
Cheb	17·8	329	e 4 13	+ 2	—	—	—	—	e 9·9
Zürich	17·9	317	e 4 11	− 1	—	—	—	—	—
Basle	18·5	318	e 4 19	0	—	—	—	—	—
Neuchatel	18·6	316	e 4 17	− 4	—	—	—	—	—
Jena	18·8	330	e 4 14	− 9	—	—	e 4 20	P	e 11·1
Potsdam	19·4	335	—	—	e 8 14	+10	—	—	10·9
Clermont Ferrand	20·4	307	e 4 39	− 2	—	—	—	—	e 11·2
Tortosa	21·1	293	e 4 43	− 5	8 40	+ 1	5 4	PP	—
Paris	22·1	315	e 5 0?	+ 1	e 9 15?	+17	—	—	e 13·9
Uccle	22·1	321	e 4 57	− 2	e 9 4?	+ 6	—	—	e 10·9
Granada	24·2	284	i 5 20k	+ 1	i 9 41	+ 6	6 4	PPP	12·7
Malaga	24·9	283	i 5 24	− 2	9 48	+ 1	5 36	pP	—
Kew	25·0	318	e 5 27a	0	e 10 6	+17	e 6 10?	PP	e 13·4

Additional readings ;—
Helwan $S_eZ = 3m.33s.$
Belgrade e = 5m.45s., 6m.12s. and 6m.27s.
Jena eN = 4m.27s., eE = 4m.32s.
Granada PPP = 6m.20s.
Long waves were also recorded at Milan, Upsala, and De Bilt.

Aug. 17d. 18h. 2m. 41s. Epicentre 46°·0N. 30°·0W.

$A = +·6037$, $B = -·3485$, $C = +·7170$; $\delta = -1$; $h = -4$;
$D = -·500$, $E = -·866$: $G = +·621$, $H = -·358$, $K = -·697$.

	Δ	Az.	P.	O—C.	S.	O—C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Kew	20·2	64	i 4 37	− 2	e 8 19?	− 2	e 4 57	PP	e 9·3
Malaga	21·2	107	i 4 49	0	e 8 45	+ 4	—	—	10·2
Granada	21·5	106	i 4 52k	0	8 49	+ 2	—	—	9·8
Paris	22·1	72	5 0?	+ 1	e 8 49?	− 9	—	—	e 10·3
Tortosa	22·7	94	e 5 4	0	8 59	−10	—	—	e 11·3
Clermont-Ferrand	23·0	80	e 5 5	− 2	e 9 17	+ 3	i 5 10	?	e 10·2
Uccle	23·2	66	e 5 9	0	9 12	− 6	e 9 8	?	e 10·3
De Bilt	23·7	63	—	—	i 9 23	− 4	—	—	e 12·3
Basle	25·6	73	e 5 41	+ 9	—	—	—	—	—
Cheb	28·3	66	—	—	e 10 19?	−24	—	—	e 14·3
Tucson	61·7	289	e 10 48	P_cP	—	—	—	—	—
Tinemaha z.	63·4	297	i 10 58	P_cP	—	—	—	—	—

Kew gives also eEZ = 5m.28s.

Aug. 17d. Readings also at 0h. (Granada), 2h. (Tucson), 3h. (Strasburg (2), near Basle (2) and Zürich (2) and near Tucson), 9h. (Auckland), 13h. (Granada and Malaga), 22h. (Kew).

Aug. 18d. 10h. 33m. 19s. Epicentre 38°·3N. 140°·5E. Depth of focus 0·015.

Scale VII at Ueda ; V at Kakioka, Hukusima, Miyako, and Hatinohe ; IV at Tokyo and Yokohama ; II-III at Titibu, Hakodate, and Tokusima.
Macroseismic radius over 300km.
" Seismological Bulletin of Central Meteorological Observatory of Japan for 1944," Tokyo 1951, p. 18, with isoseismic chart. Epicentre suggested 37°·8N. 142°·2E.

$A = -·6071$, $B = +·5004$, $C = +·6172$; $\delta = -9$; $h = -1$;
$D = +·636$, $E = +·772$; $G = -·476$, $H = +·393$, $K = -·787$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sendai		0·3	96	0 20k	+ 2	0 33	+ 1	—	—	—
Hukusima		0·5	183	0 23k	+ 4	0 38	+ 4	—	—	—
Mizusawa		1·0	31	i 0 15	− 8	i 0 41	0	i 0 26	P	—
Akita		1·4	348	0 26	− 2	1 8	+20	—	—	—
Onahama		1·4	167	0 15	−13	0 34	−14	—	—	—
Morioka		1·5	20	0 32a	+ 3	0 55	+ 5	—	—	—
Miyako		1·8	41	0 32	0	0 52	− 4	—	—	—
Utunomiya		1·8	196	0 35a	+ 3	0 56	0	—	—	—
Mito		1·9	181	0 35	+ 2	0 58	0	—	—	—
Kakioka		2·1	187	0 47	+11	1 12	+ 9	—	—	—
Maebasi		2·2	211	0 39	+ 2	1 8	+ 3	—	—	—
Kumagaya		2·3	202	0 40a	+ 2	1 9	+ 2	—	—	—
Hatinohe		2·4	21	0 39a	− 1	1 8	− 2	—	—	—
Nagano		2·4	228	1 0a	+20	1 27	+17	—	—	—
Aomori		2·5	5	0 45	+ 4	1 17	+ 5	—	—	—
Tokyo		2·7	193	0 36a	− 8	1 4	−13	—	—	—
Yohohama		2·9	193	0 48a	+ 2	1 23	+ 2	—	—	—
Wazima		3·0	252	0 50a	+ 2	1 26	+ 2	—	—	—
Hunatu		3·1	206	0 49a	0	1 27	+ 1	—	—	—
Toyama		3·1	238	0 50a	+ 1	1 43	+17	—	—	—
Mera		3·4	189	0 55	+ 2	1 39	+ 6	—	—	—
Misima		3·4	202	0 53	0	1 35	+ 2	—	—	—
Mori		3·8	0	0 57a	− 1	1 43	0	—	—	—
Shizuoka		3·8	208	0 58a	0	1 29	−14	—	—	—
Nagoya		4·2	223	1 5	+ 2	1 59	+ 7	—	—	—
Hikone		4·6	230	1 9a	0	1 57	− 5	—	—	—
Kameyama		4·7	225	1 12a	+ 2	2 6	+ 2	—	—	—
Sapporo		4·8	8	1 12a	0	1 48	−19	—	—	—
Kyoto		5·0	231	1 11a	− 3	—	—	—	—	—
Toyooka		5·3	241	1 17a	− 1	2 17	− 2	—	—	—
Owase		5·5	221	1 20a	− 1	1 51	−33	—	—	—
Kobe		5·6	232	1 25a	+ 3	2 45	+19	—	—	—
Sumoto		6·0	231	1 28a	0	2 59	+23	—	—	—
Siomisaki		6·2	220	1 30a	0	3 8	+27	—	—	—
Nemuro		6·3	36	1 30	− 2	2 36	− 7	—	—	—
Muroto		7·2	227	1 47	+ 3	3 44	+39	—	—	—
Kôti		7·4	232	1 47a	0	2 56	−14	—	—	—
Hamada		7·6	246	1 51a	+ 2	3 13	− 2	—	—	—
Hirosima		7·6	241	1 50a	+ 1	3 3	−12	—	—	—
Matuyama		7·7	237	1 52	+ 2	—	—	—	—	—
Simidu		8·3	231	1 57a	− 2	3 30	− 1	—	—	—
Izuka		9·2	243	1 57	−14	3 59	+ 6	—	—	—
Hukuoka		9·4	243	2 16a	+ 3	4 22	+24	—	—	—
Kumamoto		9·7	239	2 19a	+ 2	4 42	+37	—	—	—
Miyazaki		9·8	232	2 22	+ 3	4 11	+ 4	—	—	—
Unzendake		10·0	239	2 13a	− 8	4 59	+47	—	—	—
Kagosima		10·6	233	2 30a	+ 1	—	—	—	—	—
Tomie		11·1	243	1 47a	−49	—	—	—	—	—
Yakusima		11·4	230	2 19	−21	—	—	—	—	—
Calcutta	N.	47·1	266	e 8 20	− 1	i 15 2	0	—	—	—
College		48·4	33	e 8 28	− 3	e 15 19	− 1	e 9 24	pP	e 22·0
Honolulu		55·2	89	e 9 21	− 1	i 16 51	− 2	e 10 10	pP	e 22·9
Sitka		55·7	41	i 9 28	+ 3	i 17 7	+ 7	e 10 11	pP	e 28·8
Hyderabad	N.	57·6	267	e 9 34	− 5	17 28	+ 3	21 3	SS	26·8
Bombay		61·2	272	e 10 4	+ 1	i 18 11	0	i 10 33	pP	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Colombo		62·8	256	11 54	PP	i 18 30	− 1	—	—	i 41·0
Victoria		66·1	47	10 48	+12	19 28	+16	—	—	26·7
Brisbane		66·5	168	i 10 37k	− 1	i 19 13	− 4	i 20 16	SKS	—
Ukiah		71·3	55	e 11 10	+ 3	e 20 17	+ 4	e 13 56	PP	e 28·8
Upsala		71·5	334	i 11 7	− 2	e 20 13	− 2	e 11 40	pP	e 34·7
Mineral	E.	71·6	53	e 11 11	+ 2	—	—	—	—	—
Riverview		72·4	171	i 11 13k	− 1	i 20 21	− 5	i 12 4	pP	e 30·6
Sydney		72·4	171	—	—	e 19 17	?	—		—
Branner		72·5	56	i 11 18	+ 4	—	—	e 11 33	pP	—
Berkeley		72·6	56	e 11 14	− 1	i 20 28	0	i 11 48	pP	e 31·0
Saskatoon		72·7	37	11 19	+ 3	20 32	+ 3	—	—	—
Santa Clara		73·1	56	i 11 19	+ 1	i 20 36	+ 2	i 12 7	pP	—
Lick		73·3	56	e 11 20	+ 1	—	—	—	—	—
Butte		73·6	44	e 11 24?	+ 3	—	—	—	—	e 30·8
Bergen		75·0	339	i 11 28	− 1	i 20 55	0	12 3	pP	40·7
Tinemaha		75·6	55	i 11 34k	+ 2	i 20 54	− 7	i 12 1	pP	—
Santa Barbara		76·3	57	i 11 37k	+ 1	e 21 12	+ 3	i 12 0	pP	—
Haiwee		76·4	55	i 11 37	0	e 21 12	+ 2	—	—	—
Copenhagen		76·5	333	i 11 37	0	i 21 11	0	i 12 10	pP	38·7
Salt Lake City		77·3	48	i 11 41	− 1	i 21 22	+ 2	e 12 24	pP	e 31·7
Mount Wilson		77·5	56	i 11 43k	0	e 21 24	+ 2	i 12 18	pP	—
Pasadena		77·5	56	i 11 43k	0	i 21 24	+ 2	i 12 30	pP	e 30·0
Riverside		78·1	56	i 11 46k	0	e 21 26	− 2	e 38 30	P′P′	—
Bucharest		78·6	319	i 11 47	− 2	i 21 35	+ 1	e 14 50	PP	35·7
Potsdam		78·8	331	e 11 52	+ 2	i 21 36	0	e 12 24	pP	e 42·7
Palomar		78·8	56	i 11 51	+ 1	i 21 39	+ 3	—	—	—
La Jolla		78·9	57	i 11 52k	+ 1	e 21 40	+ 3	—	—	—
Aberdeen	E.	79·8	341	—	—	i 21 45	− 1	i 27 53	SS	e 41·9
Ksara		79·8	305	e 11 57	+ 2	e 21 48	+ 2	—	—	—
Rapid City		79·8	42	i 11 56	+ 1	i 21 48	+ 2	e 14 32	PP	e 32·7
Prague		80·0	328	e 11 55	− 2	i 21 48	0	e 22 14	PS	e 39·7
Jena		80·5	330	i 11 59	0	i 21 53	− 1	e 12 31	pP	e 45·1
Cheb		80·8	330	i 12 14	+13	e 22 11	+14	i 12 45	pP	—
Auckland		81·2	153	—	—	e 20 41?	?	—	—	—
Belgrade		81·2	321	i 12 13	+10	i 22 3	+ 2	i 12 36	pP	e 43·8
De Bilt		81·9	335	i 12 6k	− 1	i 22 10	+ 2	i 12 39	pP	e 39·7
Stonyhurst		82·8	340	i 12 12	+ 1	i 22 16	− 1	i 12 51	pP	e 42·7
Uccle		83·3	335	i 12 13k	− 1	i 22 20	− 2	i 12 46	pP	e 40·7
Tucson		83·4	54	i 12 15	+ 1	i 22 27	+ 4	i 15 27	PP	e 31·8
Triest		83·7	326	i 12 14	− 2	i 22 24	− 2	i 15 36	PP	—
Strasbourg		83·9	331	12 15	− 2	i 22 25	− 3	12 50	pP	45·7
Kew		84·3	337	i 12 19k	0	e 22 29	− 3	i 12 51	pP	—
Zürich		84·5	330	e 12 19k	− 1	e 22 30	− 4	e 12 53	pP	—
Basle		84·8	330	e 12 21k	0	—	—	e 12 54	pP	—
Helwan		85·3	305	i 12 23a	− 1	22 45	+ 3	i 12 56	pP	—
Neuchatel		85·5	330	e 12 24	− 1	e 22 34	−10	e 12 57	pP	—
Paris		85·6	334	i 12 29?	+ 4	22 43?	− 2	i 13 2	pP	e 51·7
Milan		85·8	328	12 24	− 2	i 22 36	−10	28 21	SS	—
Clermont-Ferrand		88·0	332	i 12 37	0	e 22 54	[+ 3]	i 13 12	pP	—
Chicago		89·0	35	e 12 41	0	i 23 15	− 1	e 13 14	pP	e 29·3
Florissant		90·2	38	i 12 46	− 1	i 23 28	+ 1	i 13 22	pP	—
Shawinigan Falls		90·4	22	12 46	− 2	23 5	[0]	—	—	—
Ottawa		90·5	25	12 48	0	23 6	[0]	e 29 41	SS	39·7
Seven Falls		90·5	21	12 45	− 3	23 6	[0]	e 29 41?	SS	43·7
Cape Girardeau		91·7	39	e 12 54	0	e 23 43	+ 2	e 24 42	sS	—
Tortosa		93·2	330	i 12 59	− 2	23 56	+ 2	16 25	PP	e 51·7
New Kensington		93·3	30	e 13 6	+ 5	i 23 24	[+ 3]	e 16 54	PP	—
Philadelphia		95·5	27	e 13 11	0	i 24 14	+ 1	e 14 0	pP	e 40·0
Granada		97·9	332	i 13 21k	− 1	23 46	[0]	13 54	pP	51·6
Colombia		98·4	34	e 17 25	PP	(e 23 51)	[+ 2]	—	—	e 23·8

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Malaga		98·6	332	i 13 22	− 3	24 28	−12	i 13 58	pP	56·9
San Fernando	E.	99·5	334	17 56	PP	23 59	[+ 5]	26 26	PS	53·7
San Juan		118·3	29	e 19 51	PP	e 29 31	PS	e 20 35	pPP	e 47·4
Bogota		126·6	45	i 18 51	[+ 3]	—	—	e 20 51	PP	—
Huancayo		138·7	61	e 19 13	[+ 2]	e 28 46	SKKS	e 22 7	PP	e 55·1
La Paz		146·8	57	i 19 28k	[+ 2]	29 24	SKKS	i 20 19	pPKP	e 75·7
Rio de Janeiro	N.	164·3	13	e 19 41	[− 8]	—	—	—	—	—

Additional readings :—
College e =10m.51s., isS =16m.16s., eSS =19m.1s., e =19m.48s.
Honolulu esS =17m.51s.
Sitka ePP =11m.41s., e =13m.11s., i =18m.2s., e =21m.46s. and 22m.46s.
Bombay sPE =11m.0s., sSE =19m.16s., SSE =22m.14s.
Brisbane eSE =19m.22s.
Ukiah e =20m.57s. and 21m.45s., eSS =24m.51s., e =25m.23s.
Upsala eN =12m.8s. and 20m.35s., iE =20m.38s., iN =20m.53s., esSN =21m.7s., eSS?N =24m.8s., eSSE =24m.43s.,? eSSSN =28m.11s.
Riverview iSE =20m.29s., iS_cS?N =21m.7s., iE =21m.16s., isSN =21m.57s., iE =22m.14s., eE =24m.59s.
Berkeley eE =11m.26s., ipPZ =11m.55s., iPPN =14m.44s., isSN =21m.26s.
Saskatoon e =21m.8s.
Santa Clara isSE =21m.47s.
Butte e =13m.11s.?, 21m.43s.?, and 26m.8s.?.
Bergen sSE =22m.21s.
Tinemaha iE =22m.2s., ePKP,PKPZ =38m.50s.
Santa Barbara iZ =11m.53s., eE =22m.25s.
Copenhagen 14m.31s., 14m.59s., 21m.36s., 22m.7s. and 25m.59s.
Salt Lake City ePP =13m.28s., e =15m.1s., 21m.52s., 22m.0s., and 22m.18s., eSS =26m.30s.
Mount Wilson iZ =12m.27s., 12m.36s. and 14m.40s., eEN =22m.20s., eSKP,PKPZ =42m.2s.
Pasadena iZ =12m.35s. and 13m.30s., iPPZ =15m.12s., iEN =22m.21s., ePKP,PKPZ =38m.22s., eSKP,PKPZ =41m.59s.
Riverside eSKP,PKPZ =41m.55s.
Bucharest iE =24m.33s. and 26m.17s.
Potsdam iSKSN =21m.54s., ipSE =22m.7s., isSN =22m.33s.
Rapid City e =18m.41s., i =22m.39s., e =26m.28s.
Prague eSS =26m.47s., eSSS =30m.23s.
Cheb ePP =15m.41s., eSSS? =32m.11s.
Belgrade ePP =15m.33s.
De Bilt esS? =22m.55s.
Stonyhurst ePP =15m.55s., iSKS =22m.23s., iS_cS =22m.27s., ePS =23m.10s., iPPS =23m.20s.
Uccle epPP =15m.57s., iPSN =23m.6s., eEN =30m.41s.?, ePKP,PKP?N =37m.41s.?.
Tucson i =12m.26s., e =15m.4s., i =15m.43s., e =17m.46s., i =23m.21s. and 26m.16s.
Triest iP =13m.9s., iPS =23m.11s.
Strasburg sS =23m.13s., eSS =28m.1s.
Kew esPZ =13m.3s., eZ =13m.27s., ipPPNZ =16m.10s., eSNZ =22m.43s., epS =23m29s., iPSE =23m.19s., eE =24m.35s.?, eSSE =28m.25s., eSSSN =31m.11s., eSSSZ =32m.11s.
Helwan SKSNZ =22m.32s., sSN =23m.47s.
Paris isS =23m.41s.?.
Clermont-Ferrand ePS? =24m.7s.
Chicago ePP =16m.15s., e =16m.58s. and 18m.53s., eSKS =22m.52s., e =24m.5s., 24m.14s. and 28m.41s.
Florissant isP?Z =13m.37s., iPPZ =16m.22s., ipPPZ =16m.56s., iSKSE =23m.4s., isSKS =24m.6s., isS?E =24m.22s., iPS?E =25m.31s., iSSE =29m.30s., isSSE =30m.25s.
Cape Girardeau eSKSE =23m.4s.
Tortosa P_ePN =13m.34s., PPPE =18m.58s., SKSE =22m.53s., iSN =23m.22s., SKKSE =23m.40s., iN =25m.8s., SSN =30m.20s., SSSE =33m.33s.
New Kensington iPS =24m.56s.
Philadelphia e =14m.47s. and 15m.48s., ePP =17m.2s., iSKS =23m.33s., e =24m.36s. and 26m.29s., eSS =30m.42s.
Granada iPP =17m.24s.. pPP =17m.56s., sPP =18m.15s., iPS =26m.10s., SS =31m.4s., sSS =32m.58s., iSSS =34m.58s., Q =48m.29s.
Malaga iPP =17m.24s., ipPP =18m.0s., iSKS =23m.46s., PKP,PKP =37m.22s.
San Fernando SKKSE =24m.26s., SE =25m.56s.
San Juan e =23m.9s., 30m.4s. and 30m.17s., i =30m.29s., eSS =35m.44s., e =43m.4s.
Huancayo epPKP =19m.39s., e =34m.54s., 40m.41s., and 50m.4s.
La Paz isP?Z =20m.53s., iPPZ =23m.21s., PSKS =33m.9s., SSZ =42m.1s.
Long waves were also recorded at Wellington.

Aug. 18d. 19h. 22m. 31s. Epicentre 20°·5S. 70°·5W. (as on 1943 April 23d.).

$A = +·3129$, $B = -·8836$, $C = -·3481$; $\delta = -17$; $h = +5$;
$D = -·943$, $E = -·334$; $G = -·116$, $H = +·328$, $K = -·937$.

		Δ	Az.	P.	O—C.	S.	O—C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Montezuma		2·6	144	e 0 50	P_g	i 1 27	S_g	—	—	i 1·8
La Paz	Z.	4·6	30	i 1 14 a	+ 2	i 2 13	+ 6	—	—	2·6
Huancayo		9·6	330	e 2 30	+ 9	e 3 36	−36	—	—	e 4·1
La Plata		18·1	144	4 42	+28	7 29	− 6	—	—	9·1
Bogota		25·2	353	i 5 30	+ 1	—	—	—	—	—
Rio de Janeiro	N.	25·5	102	e 9 29	S	(e 9 29)	−28	—	—	i 13·5
San Juan		38·9	8	—	—	e 12 48	−40	—	—	e 16·6
Bermuda		52·8	7	e 9 35	+16	e 16 55	+ 8	—	—	e 23·2
Philadelphia		60·3	357	e 10 12	− 1	e 18 19	− 7	—	—	e 26·6
St Louis		61·7	344	e 10 18	− 4	e 18 35	− 9	—	—	—
Florissant		61·9	344	e 10 18	− 6	e 18 37	−10	—	—	—
Chicago		64·0	346	—	—	e 20 23	+70	—	—	e 30·2
Tucson		65·1	324	i 10 42	− 3	e 19 26	− 1	—	—	e 32·0
Ottawa		65·7	356	e 10 47	− 1	e 19 29	− 5	—	—	31·5
Seven Falls		67·3	0	—	—	e 19 49	− 5	—	—	30·5
La Jolla	Z.	69·4	320	e 11 13	+ 1	—	—	—	—	—
Palomar		69·5	321	e 11 13	+ 1	e 20 20	0	—	—	—
Riverside	Z.	70·2	321	i 11 15	− 2	—	—	—	—	—
Mount Wilson	Z.	70·8	321	i 11 19	− 1	—	—	—	—	—
Pasadena		70·8	321	e 11 18	− 2	i 20 30	− 5	—	—	e 34·4
Haiwee		72·0	322	e 11 30	+ 2	—	—	—	—	—
Tinemaha		72·9	322	i 11 32	− 1	—	—	—	—	—
Berkeley		75·7	320	—	—	i 21 31	+ 1	—	—	e 35·7
Victoria		83·3	328	—	—	e 23 5	+15	—	—	39·5
Malaga		84·4	48	i 12 32	− 4	22 24	−37	13 12	pP	43·2
Granada		85·2	48	13 16 k	+37	22 43	−26	—	—	42·6
Tortosa		89·7	47	e 13 2	+ 1	24 17	+25	16 20	PP	e 46·5
Kew		94·2	35	e 13 23?	+ 1	e 23 58	[+ 1]	e 17 7	PP	e 39·5
Cheb		101·0	39	—	—	e 25 29?	0	—	—	e 53·5
Riverview	Z.	113·0	217	—	—	e 41 19	?	—	—	e 53·4
Colombo		148·3	111	27 23	PPP	—	—	—	—	—

Additional readings :—
Montezuma i = 1m.1s.
Huancayo e = 2m.46s.
La Plata PN = 4m.59s., PE = 5m.5s., SE = 7m.41s.
Philadelphia e = 19m.57s.
Florissant eE = 20m.10s.
Tucson i = 11m.7s., e = 20m.40s. and 27m.14s., ePKP,PKP = 39m.33s.
Tinemaha iZ = 11m.41s.
Malaga PP = 15m.58s., PS = 24m.36s.
Tortosa SKSE = 23m.33s.
Kew eSKKSE = 24m.11s., ePSEZ = 25m.43s.?, eZ = 28m.53s.?, eSSE = 31m.3s.?, eSSSE = 34m.29s.?.
Long waves were also recorded at Christchurch and other European stations.

Aug. 18d. Readings also at 1h. (Mount Wilson and Tinemaha), 12h. (Wellington, Arapuni, near Granada and Malaga), 14h. (near Ottawa), 15h. (near Malaga), 20h. (Berkeley and near Branner), 21h. (Berkeley, Strasburg, near Basle, Neuchatel and Zürich), 22h. (Berkeley, near Neuchatel, near Granada (2) and Malaga (2)), 23h. (near Neuchatel, near Granada and Malaga).

Aug. 19d. Readings at 0h. (Granada and Kew), 8h. (Brisbane, Tinemaha, Riverside, Tucson, Pasadena, Mount Wilson, and near Berkeley), 17h. and 18h. (2), (near Triest), 20h. (Basle and Zürich), 22h. (Brisbane).

Aug. 20d. Readings at 4h. (Port au Prince), 6h. (Wellington), 7h. (near Lick), 11h. (Tucson), 16h. (Zürich, Basle and Neuchatel), 18h. (Kew, Berkeley, Pasadena, Mount Wilson, Riverside, Tucson, Tinemaha, Riverview, Auckland and Apia), 19h. and 20h. (Kew), 21h. (Cheb, La Paz, Pasadena, Mount Wilson, Riverside, Tinemaha, La Jolla, Palomar, Tucson, Berkeley, and near Mizusawa), 22h. (Uccle, De Bilt, Granada, Kew, and Tucson).

Aug. 21d. 2h. Undetermined shock.

Pasadena suggests deep focus.
Oaxaca PE =45m.53s.
Vera Cruz PZ =45m.53s.
Puebla PE =46m.11s.
Tacubaya PN =46m.23s.
Bogota eP =47m.46s., e =48m.53s.
St. Louis iPZ =48m.53s., eS?N =53m.51s.
Tucson iP =49m.45s., iPP =50m.14s., e =53m.35s., eL =56m.47s.
La Jolla ePZ =50m.59s.
Palomar ePEN =50m.59s.
Riverside iPZ =51m.3s.
Pasadena ePZ =51m.12s.
Mount Wilson iPZ =51m.13s., iZ =51m.28s.
Haiwee ePE =51m.19s.
Tinemaha eP =51m.28s.
La Paz eP =57m.12s.

Aug. 21d. 20h. 14m. 34s. Epicentre 3°·1N. 31°·6W.

A = +·8505, B = −·5232, C = +·0538 ; δ = −2 ; h = +7 ;
D = −·524, E = −·852 ; G = +·046, H = −·028, K = −·999

		△	Az.	P.	O—C.	S.	O—C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Rio de Janeiro	N.	28·2	203	e 5 56	0	—	—	—	—	—
San Juan		37·0	297	e 7 12	− 1	e 12 56	− 3	e 8 17	PP	e 16·7
Lisbon		40·9	27	—	—	16 59	SS	—	—	—
La Paz	Z.	41·0	240	i 7 51a	+ 5	i 14 11	+12	9 34	PP	20·4
Malaga		41·8	33	i 7 55	+ 2	i 14 7	− 4	9 45	P_cP	20·4
Granada		42·6	33	7 32a	−27	13 22	−61	—	—	—
Huancayo		46·0	250	e 10 24	PP	e 15 8	− 4	—	—	e 19·7
Clermont-Ferrand		52·2	30	i 9 14	− 1	e 16 46	+ 7	—	—	e 25·2
Paris		54·1	27	i 9 33?	+ 4	e 16 51	−14	—	—	24·4
Kew		54·8	23	e 9 32	− 2	e 17 27	+13	e 11 50?	PP	e 25·4
Seven Falls		55·4	328	e 9 50	+12	e 17 32	+10	—	—	26·4
Uccle		56·3	26	e 9 42?	− 3	17 38	+ 4	e 12 26?	?	e 26·4
Ottawa		57·1	324	—	—	e 18 8	+23	—	—	24·4
De Bilt		57·6	25	i 9 55	+ 1	e 18 0	+ 9	—	—	e 26·4
Cheb		59·7	31	e 10 12	+ 3	e 18 26	+ 7	—	—	e 27·4
Prague		60·8	32	—	—	e 18 40	+ 7	—	—	—
Copenhagen		63·2	26	e 10 32	0	19 8	+ 5	—	—	—
Bergen	E.	63·7	19	e 21 36	?	—	—	—	—	—
St. Louis		63·9	311	e 10 35	− 2	e 19 18	+ 6	19 41	PS	—
Florissant		64·0	311	10 40	+ 2	e 19 26	+13	—	—	—
Helwan		65·1	59	i 10 44k	− 1	—	—	20 50	S_cS	—
Ksara		69·6	56	e 11 15	+ 2	e 20 37	+16	—	—	—
Tucson		79·3	302	i 12 10	+ 1	e 22 47	PS	e 15 8	PP	36·4
Palomar		84·4	303	e 12 8	−28	—	—	—	—	—
Riverside	Z.	84·8	304	i 12 38	+ 1	—	—	—	—	—
Mount Wilson	Z.	85·3	304	i 12 43	+ 3	—	—	—	—	—
Pasadena		85·4	304	i 12 0	−40	—	—	i 12 41	P	e 38·4
Tinemaha	Z.	85·5	306	e 15 5	PP	—	—	—	—	—
Berkeley	E.	88·6	307	—	—	e 23 42	0	—	—	e 46·2
Victoria		88·9	318	e 13 32	P_cP	—	—	—	—	40·4

Additional readings :—
San Juan e =8m.58s., e =9m.1s.
Malaga i =9m.5s., PPP =10m.21s., S_cS =17m.25s.
Kew ePPPZ =12m.40s.?.
St. Louis eSS?N =26m.36s.
Pasadena iZ =13m.19s.
Long waves were also recorded at La Plata, Upsala, and Potsdam.

Aug. 21d. Readings also at 0h. (near Berkeley), 1h. (Riverside, Tucson, Tinemaha and near Mizusawa), 9h. (near La Paz), 10h. (Arapuni, Auckland, Wellington, and near Mizusawa), 11h. (Mount Wilson, Pasadena Palomar, Tinemaha, Riverside, Haiwee, Tucson Berkeley, Christchurch, Brisbane and Riverview), 12h. (Brisbane), 15h. (La Paz), 23h. (near Berkeley).

Aug. 22d. 19h. 18m. 49s. Epicentre 3°·1N. 31°·6W. (as on 21d.).

$A = +\cdot8505$, $B = -\cdot5232$, $C = +\cdot0538$; $\delta = -2$; $h = +7$;

		Δ	Az.	P.	O—C.	S.	O—C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
La Paz	z.	41·0	240	7 51	+ 5	14 19	+20	9 28	PP	21·9
Malaga		41·8	33	e 7 53	0	—	—	—	—	—
Granada		42·6	33	i 7 25a	−34	—	—	i 8 21	?	—
Kew		54·8	23	e 9 45	+11	e 17 15	+ 1	e 13 17	PPP	e 26·2
Copenhagen		63·2	26	10 32	0	—	—	—	—	—
St. Louis	z.	63·9	311	e 10 34	− 3	—	—	—	—	—
Helwan	z.	65·1	59	10 43	− 2	—	—	—	—	—
Tucson		79·3	302	i 12 12	+ 3	—	—	—	—	—
Riverside	z.	84·8	304	e 12 34	− 3	—	—	—	—	—
Pasadena	z.	85·4	304	e 12 41	+ 1	—	—	—	—	e 45·8

Malaga gives also e = 8m.57s. and 10m.39s.
Long waves were also recorded at Huancayo and San Fernando.

Aug. 22d. Readings also at 1h.(Mount Wilson, Pasadena, Tinemaha, Palomar, Christchurch, Tucson, Riverview, Brisbane and Auckland), 7h. (Riverside (2), Tucson (2), Mount Wilson (2), Pasadena, Tinemaha (2) and St. Louis), 16h. (near Mizusawa), 17h. (Kew, St. Louis, Tinemaha, Tucson, Pasadena, Mount Wilson, and Riverside), 18h. (near Tucson), 21h. (Berkeley).

Aug. 23d. Readings at 4h. (Philadelphia), 9h. (St. Louis and Sitka), 16h. (near Bogota), 20h. (Clermont-Ferrand, La Paz, and La Plata), 21h. (Copenhagen, Tucson, Mount Wilson, and near Mizusawa), 22h. (Cheb, Malaga, San Fernando, Paris, Kew, De Bilt, Uccle, and Clermont-Ferrand).

Aug. 24d. 0h. Mexico. Pasadena suggests deep focus.

Oaxaca PN = 0m.15s.
Vera Cruz PN = 0m.35s.
St. Louis iPZ = 5m.7s., ipPZ = 5m.31s., iZ = 5m.37s., iSN = 9m.8s., isSE = 9m.38s.
Florissant ePZ = 5m.9s., epPZ = 5m.39s., eSE = 9m.9s., isSE = 9m.43s.
La Jolla eP = 5m.32s., eNZ = 5m.58s.
Palomar iPEN = 5m.33s., iEN = 5m.58s.
Riverside iP = 5m.40s., iZ = 6m.6s., eZ = 9m.33s.
Bogota e = 5m.43s. and 6m.1s.
Mount Wilson iPZ = 5m.45s., iZ = 6m.12s.
Pasadena iPEZ = 5m.45s., eN = 6m.13s., eZ = 13m.52s.
Haiwee ePEN = 5m.58s.
Tinemaha iPZ = 6m.2s., iNZ = 7m.28s.
Tortosa ePN? = 11m.34s.
Granada iP = 11m.41s.k, i = 12m.15s.
Malaga eP = 12m.32s., pP = 12m.55s.
Clermont-Ferrand P = 12m.45s.

Aug. 24d. 15h. 58m. 42s. Epicentre 79°·0N. 16°·0E.

$A = +\cdot1846$, $B = +\cdot0529$, $C = +\cdot9814$; $\delta = +2$; $h = -14$;
$D = +\cdot276$, $E = -\cdot961$; $G = +\cdot943$, $H = +\cdot270$, $K = -\cdot192$

		Δ	Az.	P.	O—C.	S.	O—C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Bergen		19·0	197	e 4 24	− 2	e 7 53	− 2	e 8 3	SS	—
Upsala		19·2	177	i 4 28	0	e 8 4	+ 5	e 8 18?	SS	e 12·3
Copenhagen		23·5	186	e 5 14	+ 2	9 27	+ 4	5 20	PP	—
Potsdam		26·8	185	e 5 48	+ 4	e 10 48	+29	e 5 54	?	—
De Bilt	z.	27·3	194	e 5 48	0	—	—	—	—	—
Kew		28·2	202	e 5 53	− 3	—.	—	—	—	e 11·3
Uccle		28·6	197	e 5 59k	− 1	e 10 44	− 4	(e 12 18?)	SS	e 12·3
Cheb		29·1	185	e 7 18?	PPP	—	—	—	—	e 13·3
Prague		29·1	183	e 6 48	PP	—	—	—	—	—
Paris		30·7	198	e 5 53?	−26	e 10 18?	−63	—	—	14·3
Strasbourg		30·7	191	e 6 14	− 5	—	—	—	—	—
Basle		31·7	191	e 6 28	+ 1	—	—	—	—	—
Zürich		31·9	190	e 6 27	− 2	—	—	—	—	—
Clermont-Ferrand		33·7	197	e 6 44	− 1	—	—	e 8 7	PP	—
Bucharest		34·9	168	e 6 18?	−37	—	—	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tortosa		38·8	198	i 7 29	+ 1	13 20	− 6	8 54	PP	e 16·6
Sitka		42·6	337	e 9 44	PP	e 14 35	+12	—	—	e 22·4
Granada		42·7	203	i 8 1k	+ 1	—	—	e 9 58	PP	—
Malaga		43·2	204	i 8 2	− 2	e 14 32	0	i 9 42	PP	23·0
Seven Falls		43·6	279	—	—	e 14 18?	−20	—	—	19·3
Helwan	Z.	49·7	163	i 9 3a	+ 7	—	—	e 10 57	PP	—
Victoria		50·5	326	—	—	e 16 18?	+ 2	—	—	25·3
Philadelphia		51·3	280	e 11 6	PP	e 16 15	−11	e 19 59	SS	e 23·8
Florissant		55·2	294	e 9 30	− 7	e 16 59	−21	—	—	—
St. Louis		55·4	294	e 9 31	− 7	e 17 6	−16	e 20 49	SS	e 25·6
Berkeley		60·9	323	i 18 36	S	(i 18 36)	+ 2	e 21 24	?	e 30·4
Tinemaha		61·2	319	e 10 21	+ 2	—	—	e 39 58	P′P′	—
Haiwee		62·1	318	i 10 28	+ 3	—	—	i 10 35	?	—
Mount Wilson		64·0	318	i 10 39	+ 1	—	—	e 39 34	P′P′	—
Pasadena		64·1	318	i 10 40	+ 2	—	—	e 11 26	P_cP	e 33·6
Riverside	Z.	64·1	318	i 10 39	+ 1	—	—	i 10 46	?	—
Palomar		64·7	317	e 10 47	+ 5	—	—	—	—	—
Tucson		64·9	311	e 16 20	?	—	—	—	—	e 24·8
La Jolla		65·2	318	e 10 54	+ 9	—	—	—	—	—

Additional readings ;—
Tortosa PPPN =9m.15s., P_cPN =9m.58s., P_cSE =13m.50s., S_cSN =17m.53s.
Helwan eZ =10m.15s., eN =11m.0s.
Tinemaha i =10m.28s.
Mount Wilson iEZ =10m.46s.
Pasadena iZ =10m.46s.
Long waves were also recorded at San Fernando.

Aug. 24d. 23h. 37m. 55s. Epicentre 15°·9N. 93°·0W. Depth of focus 0·010.
(as on 1937 June 8d.)

Felt strongly at Arriaga.
Epicentre 16° 19′N. 93° 56′W. Depth of focus greater than normal.
Universidad nacional de Mexico, Instituto de Geologia, Catálogo compendiado de temblores durante el periodo Enero 1941—Diciembre 1944, p. 62.

A = −·0504, B = −·9609, C = +·2722 ; δ = −4 ; h = +6 ;
D = −·999, E = +·052 ; G = −·014, H = −·272, K = −962

		△	Az.	P.	O—C.	S.	O—C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Oaxaca	Z.	3·8	287	0 43	−15	—	—	—	—	—
Vera Cruz	Z.	4·5	318	0 54	−13	—	—	—	—	—
Puebla	N.	5·8	302	e 1 54	+29	—	—	—	—	—
Merida	N.	6·0	32	e 1 31	+ 3	—	—	—	—	—
Guadalajara	N.	11·0	298	e 3 7	+31	—	—	—	—	—
Balboa Heights		14·8	116	e 3 25	0	—	—	—	—	—
Colombia		21·0	28	e 4 37	0	e 8 29	+ 9	e 5 9	PP	e 10·4
Cape Girardeau		21·6	6	e 4 43	0	i 8 39	+ 8	i 5 2	pP	—
Bogota		21·7	119	i 4 47	+ 3	e 9 50	SSS	i 5 18	PP	—
Florissant		22·9	5	i 4 47	− 9	i 8 53	− 1	i 5 7	pP	—
Tucson		23·0	319	i 4 57	0	e 9 2	+ 6	i 5 15	pP	e 11·9
San Juan		25·8	80	e 5 23	− 1	i 9 42	− 2	i 5 43	pP	i 11·2
Chicago		26·3	9	e 5 26	− 2	e 9 42	−10	e 5 40	pP	e 12·9
Georgetown		26·8	30	e 5 31	− 2	e 9 58	− 2	i 5 54	pP	e 12·1
New Kensington		27·2	23	e 6 0	pP	11 8	SS	i 8 42	P_cP	e 14·1
La Jolla		27·7	312	e 5 40	− 1	—	—	—	—	—
Palomar		27·7	313	i 5 40	− 1	e 10 21	+ 7	i 16 23	S_cS	—
Riverside		28·4	314	i 5 46k	− 1	—	—	i 6 6	pP	—
Philadelphia		28·6	31	e 5 50	+ 1	e 11 19	+50	i 6 10	pP	e 13·9
Pasadena		29·0	314	i 5 52	− 1	i 10 42	+ 7	i 6 12	pP	e 13·7
Rapid City		29·4	345	i 5 42	−14	e 11 2	+20	e 6 3	pP	e 13·2
Fordham		29·9	30	e 6 3	+ 2	e 10 57	+ 7	i 6 24	pP	—
Haiwee		30·0	318	i 6 1	− 1	—	—	i 6 21	pP	—
Bermuda		30·5	52	e 6 33	+27	e 11 55	+56	i 6 54	pP	e 15·1
Fort de France		30·7	88	e 4 5?	?	—	—	—	—	e 14·8

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tinemaha	E.	30·8	318	i 6 8k	− 1	—	—	i 6 28	pP	—
Huancayo		32·8	147	e 6 27	+ 1	e 11 31	− 4	i 6 55	pP	e 14·0
Ottawa		32·8	23	6 26	0	11 23	−12	i 6 46	pP	15·1
Lick		33·1	317	e 6 31	+ 2	e 12 23	sS	e 6 49	pP	—
Santa Clara		33·3	317	i 6 52	pP	e 11 53	+10	i 7 22	pP	e 17·3
Berkeley		33·8	317	e 6 34	− 1	e 11 54	+ 4	e 6 54	pP	e 17·1
Butte		34·2	336	e 6 45?	+ 7	e 12 5?	+ 8	—	—	e 16·9
Shawinigan Falls		34·9	25	e 6 45	+ 1	—	—	e 8 11	?	15·1
Ukiah		35·1	317	e 6 50	+ 4	e 12 18	+ 8	e 7 20	pP	e 16·8
Seven Falls		36·2	26	e 6 56	+ 1	e 12 30	+ 3	e 8 23	?	17·1
Saskatoon		37·7	346	e 7 9	+ 1	—	—	(16 5?)	SSS	16·1
Halifax		37·9	35	7 35	pP	e 13 26	sS	—	—	17·1
La Paz		40·5	142	i 7 29	− 2	13 35	+ 3	—	—	20·1
Victoria		40·9	330	e 7 56	pP	e 14 2	sS	—	—	24·1
Sitka		51·9	333	e 9 0	− 1	e 16 24	+10	e 11 1	PP	e 25·3
College		61·1	338	e 10 23	pP	e 18 13	− 3	e 12 27	PP	e 28·2
Honolulu		61·3	287	—	—	(e 18 24)	+ 6	—	—	e 18·4
Stonyhurst		77·6	38	i 11 50	+ 3	i 21 31	+ 2	e 15 18	PP	e 36·3
San Fernando		78·2	56	e 12 12	pP	21 40	+ 4	15 12	PP	37·1
Kew		79·4	40	i 11 58	+ 1	i 21 48	0	i 12 20	pP	34·1
Malaga		79·6	55	i 11 55	− 3	i 21 51	0	12 19	pP	38·1
Granada		80·1	54	i 12 19k	pP	i 22 1	+ 5	15 40	?	36·9
Bergen		80·4	30	—	—	e 21 55	− 4	—	—	e 39·1
Tortosa		82·4	50	e 12 44	pP	21 40	−39	15 16	PP	e 38·1
Uccle		82·4	39	e 12 13	0	e 22 20	+ 1	e 12 37	pP	e 39·1
De Bilt		82·5	38	e 12 13	0	e 22 25	+ 5	e 15 35	PP	e 38·1
Clermont-Ferrand		83·0	45	e 12 17	+ 1	e 22 24	− 1	e 12 41	pP	e 38·1
Neuchatel		85·2	42	e 13 0	pP	—	—	—	—	—
Strasbourg		85·2	41	e 12 45	pP	e 23 21	sS	—	—	—
Basle		85·4	42	e 12 59	pP	—	—	—	—	—
Copenhagen		85·5	33	e 12 29	+ 1	22 47	− 3	12 53	pP	—
Zürich		86·1	42	e 12 28	− 3	—	—	—	—	—
Upsala		86·3	29	e 12 29	− 3	22 47	[0]	e 15 52	PP	e 39·1
Potsdam		87·0	36	e 12 41?	+ 5	e 23 13	+ 9	e 16 13	PP	—
Milan	z.	87·1	44	i 13 44	+68	—	—	—	—	—
Cheb		87·5	38	e 13 2	pP	i 23 3	− 6	e 16 30	pPP	e 43·1
Prague		88·7	38	e 16 34	pPP	e 23 33	+13	e 23 9	SKS	e 43·1
Triest		90·0	42	i 12 51	+ 1	i 23 17	[+ 7]	i 16 50	pPP	—
Bucharest		98·4	38	18 5?	pPP	—	—	33 5?	?	—
Helwan		109·7	50	e 19 13	pPP	i 24 53	[+ 5]	—	—	—

Additional readings :—
Cape Girardeau isPN =5m.12s., isS?E =8m.58s.
Bogota i =5m.30s.
Tucson i =5m.9s., 5m.27s., 6m.19s. and 9m.22s., isS =9m.36s., i =10m.34s.
San Juan e =5m.54s., iPP =6m.14s., i =6m.38s. and 7m.18s., isS =10m.23s.
Chicago i =5m.47s., ePP =6m.26s., e =7m.11s., esS =10m.22s., i =10m.43s.
Georgetown eP =5m.34s. and 5m.43s.
Riverside iZ =6m.28s., iP$_c$PZ =8m.57s., iZ =9m.18s.
Philadelphia iPP =7m.12s., e =7m.57s., e =8m.41s., i =12m.29s. and 13m. 36s.
Pasadena iZ =6m.35s. and 8m.38s., iP$_c$PZ =8m.58s., isSEN =11m.12s., iS$_c$SE =16m.27s. isS$_c$SEN =17m.12s.
Rapid City e =7m.26s.
Fordham iSSS =12m.56s.
Bermuda i =7m.19s. and 7m.36s., esS =12m.32s.
Tinemaha iZ =6m.35s., iP$_c$PZ =9m.27s.
Huancayo i =7m.51s., isS =12m.18s.
Ottawa e =11m.37s., SS =12m.47s.
Santa Clara esSN =12m.30s.
Berkeley esSZ =12m.28s., eQE =16m.17s.
Butte e =8m.5s.? and 13m.11s.?.
Ukiah e =7m.41s. and 14m.57s.
Sitka i =16m.42s.
College eSS =22m.43s.
Stonyhurst iSKS =21m.45s., ePS =22m.6s., iPPS =22m.29s.
San Fernando PSE =22m.58s.
Kew iZ =12m.36s. and 13m.34s., iPPZ =15m.20s., iPSE =22m.7s., iPPSE =22m.23s., eSS =27m.5s.?.
Malaga i =12m.39s. and 13m.51s., PP =15m.3s., PPP =16m.54s., i =19m.51s., PS = 22m.51s.
Tortosa PPPE =17m.0s.

Continued on next page.

Uccle eSS =27m.40s.
Copenhagen 16m.10s.
Upsala ePPE =16m.2., SN =22m.51s., ePSE =23m.32s., eN =23m.53s. and 26m.44s.
Potsdam epPPE =16m.25s., eSKSEN =22m.57s., epSN =23m.46s., isSE =24m.2s.
Triest iPPP =18m.32s.

Aug. 24d. Readings also at 2h. (Tinemaha, Pasadena, Mount Wilson, Riverside, Palomar, and St. Louis), 14h. (near Granada (2)), 16h. (3), 17h. (2), and 18h. (near Alicante), 20h. (Clermont-Ferrand), 21h. (La Plata, Tinemaha, Tucson, Pasadena, Mount Wilson, Riverside, near Branner and near Mizusawa).

Aug. 25d. 12h. 25m. 4s. Epicentre 17°·7S. 175°·7W. Depth of focus 0·030.

Felt at Nukualofa (Tonga Ils.).
Annales de l'Institut de Physique du Globe de Strasbourg, 2e. partie, Séismologie. Tome IX, 1944, p. 14, Strasbourg 1951.

$A = -\cdot 9506$, $B = -\cdot 0715$, $C = -\cdot 3022$; $\delta = +8$; $h = +5$;
$D = -\cdot 075$, $E = +\cdot 997$; $G = +\cdot 301$, $H = +\cdot 023$, $K = -\cdot 953$.

		△	Az.	P.	O—C.	S.	O—C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Apia		5·4	45	i 1 16	− 5	i 2 10	−13	—	—	—
Arapuni		21·7	200	—	—	8 14?	− 1	—	—	—
New Plymouth		23·1	201	4 48	+ 1	8 41	+ 3	—	—	—
Wellington		24·9	199	5 1	− 3	9 11	+ 3	5 38	pP	—
Kaimata		27·1	203	5 25	+ 1	9 43	− 1	—	—	—
Christchurch		27·6	199	5 31	+ 2	9 49	− 3	—	—	—
Brisbane		30·4	246	i 5 54k	+ 1	i 10 38	+ 2	—	—	—
Riverview		33·7	236	i 6 23a	+ 1	i 11 27	− 1	i 7 50	pP	—
Berkeley		74·7	41	e 11 15	− 2	e 20 34	+ 1	e 21 32	pS	—
Pasadena	Z.	75·2	46	i 11 19	− 1	e 20 57	+19	i 12 13	pP	e 37·8
Mount Wilson		75·3	46	i 11 20	0	—	—	i 12 14	pP	—
Riverside	Z.	75·7	46	i 11 21	− 1	—	—	i 12 16	pP	—
Palomar		75·7	48	i 11 30	+ 8	—	—	i 12 16	pP	—
Haiwee		76·4	44	i 11 26	0	e 20 52	0	i 12 20	pP	—
Tinemaha		76·8	44	i 11 28	0	e 20 59	+ 3	i 12 23	pP	—
Tucson		79·5	51	i 11 42	− 1	e 21 24	0	—	—	e 33·3
Huancayo		96·0	105	—	—	e 23 23	[+ 7]	—	—	e 40·1
La Paz		101·0	112	15 56	?	—	—	—	—	—
Potsdam	N.	144·7	352	e 19 13	[+ 3]	—	—	—	—	—
De Bilt	Z.	145·7	359	i 19 14k	[+ 2]	—	—	i 20 14	pPKP	—
Kew		146·1	6	e 19 13k	[0]	—	—	i 20 15	pPKP	e 33·4
Uccle		147·0	2	i 19 15a	[0]	—	—	i 20 15	pPKP	—
Ksara		147·5	306	e 19 23	[+ 7]	—	—	—	—	—
Strasbourg		149·1	356	e 19 23	[+ 5]	—	—	—	—	—
Basle		150·1	356	e 18 56	[−23]	—	—	—	—	—
Zürich		150·2	355	e 19 19	[0]	—	—	—	—	—
Neuchatel		150·7	357	e 19 20	[0]	—	—	—	—	—
Clermont-Ferrand		152·0	3	e 19 23	[+ 2]	—	—	—	—	—
Helwan	Z.	152·5	301	i 19 23a	[+ 1]	—	—	i 23 18	PP	—
Tortosa	E.	156·7	8	e 21 11	?	e 23 12	PKS	23 48	PP	—
Granada		159·4	19	i 19 33a	[+ 2]	42 40	SS	i 20 43	pPKP	83·4
Malaga		159·5	21	i 19 32	[+ 1]	e 33 20	PS	i 24 52	PP	e 68·9

Additional readings :—
Wellinton i =7m.26s., iZ =7m.56s., pP_cPZ =8m.59s., P_cPZ =10m.32s., S_cS? =15m.41s.
Riverview iN =13m.4s., isS?N =14m.12s., iZ =14m.20s., iN =15m.18s., iEZ =15m.21s., iS_cS?EN =16m.23s.
Berkeley epPZ =12m.10s.
Tucson i =12m.10s., 12m.37s. and 12m.55s., e =22m.9s
Huancayo e =24m.7s.
Kew iZ =20m.19s., eZ =22m.37s.
Uccle $esPKP_z$ =20m.50s.
Ksara e =21m.25s.
Zürich iP =19m.24s.k.
Clermont-Ferrand e =19m.29s.
Helwan iZ =19m.45s., 20m.33s. and 21m.10s.
Tortosa SKSE? =25m.36s.
Granada pPKP =21m.12s., (?sPKP), iPP =23m.58s. pPP =24m.56s., sPP =25m.15s., sSS =45m.27s.
Malaga i =20m.10s. and 21m.6s.

Aug. 25d. Readings also at 0h. (Upsala near Berkeley and Branner), 1h. (Merida), 3h. (Brisbane, Riverview, Sydney Christchurch, Wellington, Mount Wilson, Pasadena, Riverside, Tinemaha, Berkeley and Tucson), 4h. (La Paz, Granada, San Fernando, and Kew), 5h. (Brisbane, Christchurch, Riverview Wellington, Mount Wilson, Tucson Pasadena, Riverside and Tinemaha), 6h. (Wellington, Riverview and Christchurch), 7h. (Riverview, Christchurch, Wellington, Mount Wilson, Pasadena, Riverside and Tucson), 8h. (Tinemaha, near Basle, Neuchatel, Zürich and near Mizusawa), 11h. (near Mizusawa), 13h. (Mount Wilson, Riverside, Tinemaha, Tucson and Vera Cruz), 14h. (Pasadena), 15h. (Berkeley, Haiwee, Mount Wilson, (2), Pasadena, Riverside, Tinemaha, Tucson, (2), Brisbane, Riverview, Sydney, Christchurch, Arapuni, Wellington and near Apia (2)), 16h. (La Paz, Basle, Neuchatel, Zürich, Uccle, Kew, Granada and near Alicante), 20h. (near Balboa Heights), 23h.(near Branner).

Aug. 26d. Readings at 0h. (near Berkeley, Branner and Lick), 1h. (La Plata), 2h. (Huancayo, La Paz, St. Louis, Tucson, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, and Fort de France), 12h. (Christchurch, Wellington, Mount Wilson, Tucson, near Granada and Malaga), 15h. (Malaga), 17h. (near Branner), 18h. (Ukiah, near Berkeley (2), Branner and Lick (3)), 19h. (near Santa Clara), 23h. (near Branner).

Aug. 27d. Readings at 1h. (Tananarive, Paris, Granada, Malaga, Mount Wilson, Tucson, Pasadena, Palomar, Riverside and Tinemaha), 2h. (San Fernando, Uccle, Kew, and Helwan), 3h. (La Plata), 4h. (near Lick), 11h. (Helwan, Ksara, and near La Paz), 15h. (La Paz), 18h. (Berkeley, Santa Clara, Ferndale, Haiwee, Pasadena, Palomar, Riverside, Tinemaha, Tucson and St. Louis), 22h. (near Mineral), 23h. (Mount Wilson, Pasadena, Palomar, Tucson, and Tinemaha).

Aug. 28d. Readings at 6h. (Helwan and Ksara), 8h. (near Malaga (3)), 10h. (Mizusawa, Haiwee, La Jolla, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Berkeley, Tucson, Fort de France, Bergen, Upsala, Kew and Prague), 11h. (De Bilt, Cheb, Potsdam and Malaga), 14h. (Mount Wilson, Riverside, and Tinemaha (2)), 16h. (near Mizusawa (2)), 17h. (Mount Wilson, Pasadena, Tucson, Palomar, Riverside and Tinemaha), 19h. (near Lick), 21h. (Zürich), 23h. (Basle, Neuchatel, and Zürich).

Aug. 29d. Readings at 0h. (near Branner), 2h. (near Ksara), 6h. (Fort de France), 7h. (Tinemaha, Palomar, La Paz, Fort de France, Tucson, Balboa Heights and near Bogota (2)), 8h. (near Neuchatel, Basle, and Strasbourg), 9h. (Fort de France), 10h. (near Bogota), 18h. (Mount Wilson, Tinemaha, Tucson, Palomar, near Branner, Lick, San Francisco, Berkeley and Mineral), 19h. (near Mineral), 20h. (near La Paz), 21h. (Philadelphia and near Berkeley), 23h. (near Ottawa and Berkeley).

Aug. 30d. 1h. 14m. 7s. Epicentre 16·0S. 167°·3E.

$A = -\cdot 9383$, $B = +\cdot 2114$, $C = -\cdot 2739$; $\delta = +12$; $h = +6$;
$D = +\cdot 220$, $E = +\cdot 975$; $G = +\cdot 267$, $H = -\cdot 060$, $K = -\cdot 962$.

		△	Az.	P.	O—C.	S.	O—C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane		17·5	227	i 4 5k	− 2	i 7 30	+ 9	i 4 23	pP	e 10·0
Riverview		22·9	216	i 5 9k	+ 3	i 9 21	+ 8	i 5 26	pP	e 11·4
Sydney		22·9	216	e 4 56	−10	e 9 26	+13	—	—	e 12·1
Arapuni		23·2	164	—	—	9 29	+11	—	—	—
Wellington		26·0	168	5 28	− 8	9 8	−58	5 56	pP	10·9
Christchurch		27·8	172	6 2	+ 9	10 44	+ 9	11 58	Q	13·9
Honolulu		50·4	44	e 9 30	+29	e 16 20	+ 6	e 21 43	SSS	e 23·5
Ukiah		84·8	47	—	—	e 23 9	+ 4	—	—	e 39·1
Berkeley		85·0	49	e 12 35	− 3	e 22 57	[− 4]	e 24 21	PPS	e 38·8
Santa Clara		85·0	49	e 12 40	+ 2	—	—	e 26 3	f	e 39·8
Pasadena	z.	86·6	54	i 12 46	0	—	—	e 16 11	PP	e 38·9
Mount Wilson	z.	86·7	54	i 12 47	0	—	—	—	—	—
Riverside	z.	87·1	54	e 12 49a	0	—	—	—	—	—
Palomar		87·3	55	i 12 49a	− 1	—	—	—	—	—
Haiwee		87·5	52	i 12 51	0	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tinemaha		87·6	51	i 12 52	+ 1	—	—	—	—	—
Victoria		88·8	38	e 12 53	− 4	e 24 59	PS	—	—	40·9
Tucson		91·7	57	i 13 11	+ 1	e 25 37	PS	e 16 55	PP	e 41·4
Bombay		99·2	287	—	—	i 25 12	− 2	i 32 10	SS	—
Florissant	E.	109·4	54	—	—	e 25 16	[+ 6]	e 28 39	PS	—
St. Louis		109·4	54	—	—	e 25 9	[− 1]	e 28 31	PS	—
Ottawa		120·1	46	e 18 53	[0]	e 25 53?	[+ 3]	—	—	58·9
Seven Falls		123·2	43	e 33 11	?	—	—	—	—	59·9
San Juan		129·1	78	e 19 4	[− 6]	e 27 28	?	e 31 35	PS	e 59·2
Ksara		133·0	301	e 19 42	[+24]	—	—	e 22 47	SKP	—
Fort de France		133·3	58	e 17 53?	?	—	—	—	—	—
Copenhagen		136·0	340	—	—	22 53	SKP	—	—	—
Helwan	N.	137·4	296	—	—	e 40 23	SS	—	—	—
Potsdam	N.	138·4	337	—	—	e 23 3	SKP	—	—	e 73·9
Cheb		140·4	335	—	—	e 23 12	SKP	—	—	e 66·9
De Bilt		141·3	343	e 19 29	[− 4]	i 23 25	SKP	i 22 34	PP	e 68·9
Uccle		142·7	343	e 18 53?	[−42]	—	—	e 21 53?	PP	e 70·9
Kew		143·3	347	e 19 30a	[− 6]	i 22 46	SKP	e 22 22	PP	e 71·9
Strasbourg		143·5	337	e 19 48	[+11]	—	—	e 20 18	?	—
Zürich		144·1	335	e 19 32	[− 6]	—	—	e 21 5	?	—
Basle		144·4	336	e 19 35	[− 3]	—	—	e 24 23	PP	—
Neuchatel		145·1	336	e 19 37	[− 2]	—	—	—	—	—
Milan		145·4	332	19 38	[− 2]	20 49	?	19 42	?	—
Clermont-Ferrand		147·5	339	e 19 44	[+ 1]	—	—	e 23 10	?	71·2
Tortosa	N.	152·8	337	19 53	[+ 1]	29 18	?	24 0	SKP	—
Granada		157·4	341	i 19 25k	[− 3]	26·53	[− 9]	i 23 54	PP	80·3
Malaga		158·1	342	i 19 56	[− 3]	e 26 52	[−11]	i 24 12	PP	e 84·7
San Fernando		158·8	347	20 5	[+ 5]	—	—	24 18	PP	81·9

Additional readings :—
Brisbane epP?Z = 4m.29s., iE = 7m.42s., iSSN = 8m.1s.
Riverview iSE = 9m.26s., iE = 9m.34s., iN = 9m.51s. and 9m.54s.
Wellington iZ = 5m.42s., PPZ = 6m.28s.
Berkeley eN = 33m.59s.
Tucson i = 13m.51s.
Florissant eE = 34m.55s.
St. Louis eE = 25m.26s., and 28m.58s., ePPSE = 29m.35s., eSSE = 34m.29s., eSSSE = 38m.59s.
San Juan e = 19m.11s., 22m.33s., 24m.56s. and 38m.52s.
Kew ePPPZ = 26m.21s., ePPSZ = 35m.41s.?, eZ = 40m.26s., eSS = 41m.38s., eSSSZ = 48m.20s.?, eQE = 64·9m.
Granada SKKS = 31m.5s.
Malaga iPKP$_3$ = 20m.32s., 27m.32s.
San Fernando PKP$_2$Z = 20m.36s.
Long waves were also recorded at Bergen, Prague, Upsala, College, Sitka, Chicago, Columbia, and Huancayo.

Aug. 30d. 4h. 0m. 0s. Epicentre 17°·7S. 69°·2W. Depth of focus 0·010.
(as on 1943 July 6d.).

$A = +·3385$, $B = -·8911$, $C = -·3022$; $\delta = -3$; $h = +5$;
$D = -·935$, $E = -·355$; $G = -·107$, $H = +·282$, $K = -·953$.

		Δ	Az.	P.	O—C.	S.	O—C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
La Paz		1·6	40	i 0 40k	S	(i 0 40)	− 9	—	—	1·1
Montezuma		4·9	176	i 3 33	?	—	—	—	—	—
Huancayo		8·2	313	e 2 2	+ 4	e 3 12	−18	—	—	e 4·1
La Plata	N.	19·9	151	i 4 25	− 1	7 56	− 4	—	—	—
Bogota		22·7	349	e 5 4	+10	e 9 6	+15	e 5 39	PP	—
San Juan		36·0	4	e 7 23	pP	e 12 11	−13	—	—	e 15·7
St. Louis		59·4	340	i 9 53	− 1	e 17 48	− 6	e 18 55	sS	—
Florissant	E.	59·6	340	—	—	i 17 49	− 8	e 19 1	sS	—
Tucson		63·7	321	i 10 23	0	—	—	—	—	—
Palomar	Z.	68·2	318	i 10 50	− 2	—	—	i 11 14	pP	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Riverside	z.	68·9	318	i 10 57k	+ 1	—	—	i 11 33 sP	—
Mount Wilson		69·5	318	i 11 0	0	—	—	i 11 38 sP	—
Pasadena	z.	69·5	318	i 11 0k	0	—	—	i 11 37 sP	—
Haiwee		70·7	321	i 11 8	+ 1	—	—	e 11 45 sP	—
Tinemaha		71·5	320	i 11 13k	+ 1	—	—	i 11 50 sP	—
Malaga		81·6	48	i 12 10	+ 1	e 22 0	−11	— —	—

Additional readings :—
Bogota e =12m.16s.
St. Louis iZ =10m.47s., eSSE =19m.30s., esSSE =20m.41s.
Florissant eSSE =19m.31s., esSSE =20m.42s.
Palomar iZ =11m.27s.

Aug. 30d. Readings also at 0h. (Berkeley and Fort de France), 3h. (Tucson, Riverside and Tinemaha), 6h. (near Santa Clara, Lick, Branner, Berkeley and Mineral (2)), 7h. (near Branner, Lick, Berkeley and Mineral), 15h. (near Basle), 16h. (Brisbane, Riverview, Arapuni, Auckland, Wellington, Christchurch, and near Mineral), 17h. (Kew, Pasadena, and Tucson), 20h. (Fort de France and near Berkeley), 22h. (Brisbane), 23h. (Auckland and Riverview).

Aug. 31d. Readings at 0h. (New Delhi, Bombay and Kodaikanal), 1h. (near Ksara, near Lick and Berkeley), 2h. (Tinemaha, Riverside, Tucson and Mount Wilson), 4h. (Riverview), 7h. (Haiwee and Riverside), 12h. (Pasadena, Riverside, Tinemaha, La Plata, Montezuma, Tucson, Huancayo and La Paz), 15h. (Mount Wilson, Tucson and La Paz), 16h. (Mount Wilson, Tucson and Tinemaha), 19h. (near Mineral), 20h. (La Paz and Ksara).

Sept. 1d. 23h. 30m. 53s. Epicentre 38°·2N. 142°·0E. (as on 1940 April 12d.).

Intensity IV at Watari, Hurukawa, Kintazen, II-III at Sendai, Isinomaki, Miyako, Hukusima, and Morioka.
Epicentre 38°·2N. 142°·3E. Shallow. Macroseismic radius 200-300km.
Seismological Bulletin of the Central Meteorological Observatory, Japan for 1944. Tokyo 1951, p. 19, with Isoseismic chart.

$A = -\cdot6208$, $B = +\cdot4850$, $C = +\cdot6159$; $\delta = -5$; $h = -1$;
$D = +\cdot616$, $E = +\cdot788$; $G = -\cdot485$, $H = +\cdot379$, $K = -\cdot788$.

	△	Az.	P.	O—C.	S.	O—C.
	°	°	m. s.	s.	m. s.	s.
Sendai	0·9	274	0 17k	− 3	0 31	− 3
Hukusima	1·3	250	0 23k	− 2	—	—
Mizusawa	1·3	324	0 22	− 3	0 37	− 7
Miyako	1·4	0	0 19	− 8	0 37	− 9
Morioka	1·6	337	0 27k	− 3	0 56	+ 5
Mito	2·2	214	0 37	− 1	1 3	− 3
Hatinohe	2·3	351	0 38	− 2	1 6	− 3
Kakioka	2·4	216	0 37	− 4	—	—
Utunomiya	2·4	226	0 41	0	1 11	− 1
Aomori	2·8	340	0 56	+ 9	1 34	+12
Kumagaya	2·9	225	0 55	+ 7	1 30	+ 6
Maebasi	3·0	232	0 47	− 3	—	—
Tokyo	3·1	216	0 55	+ 4	1 23	− 6
Nagano	3·4	245	0 59	+ 4	1 39	+ 2
Mera	3·7	208	1 10	+10	—	—
Hunatu	3·8	224	0 56	− 5	1 42	− 5
Misima	3·9	220	1 3	+ 1	1 47	− 3
Toyama	4·1	250	1 4	− 1	2 33	S_g
Wazima	4·1	260	1 11	+ 6	2 0	+ 5
Shizuoka	4·4	223	1 47	P_g	—	—
Hamamatu	4·9	225	1 45	P_g	—	—
Sapporo	4·9	354	1 27	+10	—	—
Nagoya	5·0	235	1 21	+ 3	2 29	+11
Gihu	5·1	238	1 24	+ 4	—	—

Sept. 1d. Readings also at 4h. (Ksara and La Paz), 5h. (Mineral and Tananarive), 8h. (near Mineral), 19h. (La Paz), 22h. (Berkeley, Lick, and near Branner), 23h. (Tucson, Palomar, and Tinemaha).

Sept. 2d. Readings at 0h. (Berkeley), 3h. (Kew), 9h. (near Lick), 22h. (Apia, Christchurch, and Wellington).

Sept. 3d. 19h. 11m. 28s. Epicentre 56°·8S. 122°·3W.

A = −·2940, B = −·4650, C = −·8351 ; δ = +5 ; h = −8 ;
D = −·845, E = +·534 ; G = +·446, H = +·706, K = −·550

		△	Az.	P.	O—C.	S.	O—C.	Supp	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Christchurch		42·1	260	7 57	+ 2	14 27	+11	9 40 PP	19·4
Wellington	Z.	42·5	264	7 58	− 1	13 57	−25	8 26 pP	19·5
Arapuni		44·2	268	—	—	14 50?	+ 4	18 8? Q	20·5
Auckland		45·6	269	8 17	− 7	15 11	+ 5	11 7 PPP	21·8
La Plata		47·8	92	8 38	− 3	15 38	0	10 38 PPP	18·7
La Paz		57·0	69	i 9 50k	0	17 50	+ 7	i 11 40 PP	26·2
Apia		57·0	300	e 17 44	S	(e 17 44)	+ 1	e 23 38 SSS	—
Huancayo		57·3	58	e 9 53	+ 1	i 17 54	+ 7	e 12 9 PP	e 24·0
Riverview		60·6	253	i 10 20a	+ 5	i 18 37	+ 7	i 12 26 PP	e 28·0
Sydney		60·6	253	e 9 50	−25	e 18 20	−10	— —	e 27·2
Brisbane	N.	64·6	258	i 10 41	0	i 19 25	+ 4	e 12 53 PP	e 28·6
Rio de Janeiro	N.	65·2	94	i 19 32	S	(i 19 32)	+ 4	— —	i 31·7
Honolulu		83·3	327	e 13 26	+56	e 23 31	+41	e 15 55 PP	e 35·7
San Juan		88·3	53	e 13 7	+12	e 23 28	−11	e 17 37 PP	e 35·9
Tucson		89·2	9	i 12 58	− 1	e 23 51	+ 4	e 17 1 PP	e 36·7
Palomar	Z.	89·9	5	i 13 1a	− 1	—	—	— —	—
Riverside	Z.	90·5	4	e 13 6	+ 1	—	—	— —	—
Mount Wilson	Z.	90·7	4	e 13 6	0	—	—	— —	—
Pasadena		90·7	4	e 13 6	0	e 23 56	− 5	e 23 26 SKS	e 36·8
Haiwee	Z.	92·6	4	e 13 17	+ 2	—	—	— —	—
Tinemaha	Z.	93·6	4	i 13 17	− 2	—	—	— —	—
Santa Clara		93·8	1	e 24 37	S	(e 24 37)	+ 9	e 31 2 SS	e 43·5
Berkeley		94·3	1	e 15 14	?	e 24 32	0	e 17 45 PP	e 38·0
Ukiah		95·6	359	e 17 13	PP	e 24 47	+ 4	e 31 7 SS	e 39·7
Columbia		97·0	34	e 24 22	SKS	e 25 6	+11	e 31 34 SS	e 42·0
Bermuda		101·3	47	e 18 15	PP	e 24 44	[+11]	e 27 8 PS	e 48·4
Chicago		102·3	25	e 15 9	P	—	—	— —	e 43·8
Butte		102·8	7	e 20 11?	PPP	e 27 47?	PS	— —	e 50·3
Tananarive		104·1	170	—	—	—	—	e 33 8 SS	e 49·8
Philadelphia		104·3	36	e 17 35	?	e 24 38	[− 9]	e 27 32 PS	e 43·5
Victoria		105·0	359	e 20 2	PPP	e 26 8	+ 6	e 27 31 PS	48·5
Fordham		105·5	37	e 19 27	?	—	—	e 33 32 SS	—
Ottawa		109·0	33	e 20 8	?	e 26 32	S	e 34 22 SS	e 45·5
Saskatoon		109·3	10	—	—	e 28 32?	PS	— —	52·5
Seven Falls		112·1	35	e 22 8	PPP	e 35 5	SS	— —	45·5
Sitka		114·5	352	—	—	e 29 10	PS	e 35 34 SS	e 44·0
College		122·9	347	e 21 18	PP	e 26 57	{−36}	e 37 11 SS	e 56·8
San Fernando		133·6	88	19 26	[+ 7]	26 23	[− 5]	21 53 PP	71·5
Malaga		134·7	89	e 19 29	[+ 8]	e 26 47	[+17]	22 19 PP	66·0
Granada		135·5	89	i 19 26k	[+ 4]	e 33 42	PPS	21 54 PP	e 57·0
Hyderabad	N.	137·7	211	e 21 12	?	e 32 55	PS	22 35 PP	—
Calcutta	N.	139·1	227	e 23 1	PP	e 40 56	SS	— —	—
Bombay		140·5	204	22 17	PP	i 25 51	PPP	40 52 SS	e 66·1
Clermont-Ferrand		145·0	84	e 19 42	[+ 3]	—	—	— —	e 68·5
Kew		146·5	74	i 19 45	[+ 3]	26 30?	[−11]	e 41 53 SS	e 61·5
Paris		146·5	80	i 19 45	[+ 3]	—	—	— —	e 69·5
Helwan		147·3	135	i 19 50k	[+ 7]	e 26 37	[−13]	23 11 PP	—
Neuchatel		147·9	85	e 19 49	[+ 5]	—	—	— —	—
Basle		148·6	84	e 19 53	[+ 8]	—	—	— —	—
Uccle		148·6	77	e 17 20	?	—	—	e 41 32? SS	e 64·5

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
New Delhi	N.	148·6	215	e 19 57	[+12]	i 34 52	PS	—	—	e 70·0
Zürich		149·0	85	e 19 51	[+ 5]	—	—	—	—	—
Stra-bourg		149·3	83	20 3	[+17]	—	—	—	—	—
Cheb		152·6	84	e 20 17	[+26]	e 28 27	?	e 43 18	SS	e 72·5
Ksara		152·6	137	e 19 40	[−11]	e 30 48	{+15}	—	—	—
Prague		153·7	86	e 19 32?	[−21]	e 30 2	{−36}	e 22 32	PP	e 63·5
Copenhagen		155·2	72	20 16	[+21]	—	—	—	—	—
Bucharest		156·7	108	19 50	[− 7]	—	—	—	—	79·5
Upsala		159·0	65	—	—	e 37 32?	PPS	e 44 0	SS	e 79·5

Additional readings :—
Christchurch P_cSE =13m.37s., SSEN =17m.30s.
Wellington sP?Z =8m.52s.?, P_cPZ =9m.42s., pPPZ =10m.4s., PPPZ =10m.34s.?, iZ =10m.47s., and 12m.57s., P_cS?Z =13m.40s., sS =15m.8s., iZ =15m.44s. and 17m.6s., S_cS? =17m.47s., sSS? =18m.8s., sS_cS?Z =18m.52s.?.
Auckland i =12m.48s., 15m.24s. and 16m.30s., S_cS =17m.52s., SS =18m.42s., Q = 19m.32s.
La Plata PN =8m.42s., N =16m.44s., E =16m.56s.
La Paz PP =11m.58s., SZ =18m.1s., SSZ =21m.36s.
Huancayo i =18m.54s., iSS =22m.0s.
Riverview iZ =18m.41s., iPSZ =18m.58s., iZ =19m.20s., eQEN =25m.44s.
Brisbane iSSN =23m.43s.
Rio de Janeiro iSN =27m.12s.
Honolulu e =19m.43s. and 29m.29s.
San Juan e =20m.18s. and 25m.7s., iSS =29m.27s.
Tucson i =13m.20s., e =18m.20s., eSS =29m.46s., eSSS =33m.41s.
Palomar iZ =13m.42s.
Pasadena iZ =13m.13s. and 13m.26s., eSSEN =29m.56s.
Tinemaha iZ =13m.38s.
Berkeley eE =30m.58s., eN =31m.7s., eZ =31m.14s.
Ukiah eSKS =23m.47s.
Bermuda eSS =32m.55s., e =39m.42s.
Philadelphia e =20m.35s., eSS =32m.56s., e =38m.41s.
San Fernando PPPE =24m.38s., SKKSE =27m.56s., SSE =39m.45s.
Malaga PPP =25m.7s., P_cP,PKP =27m.52s., PKKP =29m.19s., P_cS,PKP =31m 17s., PS =32m.35s.
Granada SKP =23m.2s.
Bombay iN =24m.7s. and 30m.0s., SKSPN =32m.42s., eE =59m.0s.
Clermont-Ferrand e =20m.0s.
Kew ePKPZ =15m.38s.?, eZ =31m.0s.?, eSSS?Z =51m.32s.?, eZ =57m.12s., phases wrongly identified.
Helwan eZ =20m.4s., 20m.36s., 21m.1s., 21m.38s., 22m.15s., 28m.44s. and 30m.17s.
Uccle e =18m.56s. and 20m.7s.
Cheb e =22m.35s., eSSS =49m.27s., e =53m.7s.
Ksara e =20m.16s.
Prague ePPP? =25m.56s., eSKSP? =33m.20s., eSS =42m.32s., eSSS =49m.32s.
Upsala eE =45m.2s.?, eN =45m.52s., eE =52m.32s.?, eN =67m.32s.?.
Long waves were recorded also at Colombo and other European stations.

Sept. 3d. 21h. 29m. 36s. Epicentre 3°·3N. 77°·2W.

A = +·2212, B = −·9735, C = +·0572 ; δ = −10 ; h = +7 ;
D = −·975, E = −·222 ; G = +·013, H = −·056, K = −998.

		Δ	Az.	P.	O—C.	S.	O—C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Bogota		3·4	67	i 0 58	+ 3	i 1 30	− 7	i 1 6	P_g	—
Balboa Heights		6·1	337	i 1 47	+13	i 3 0	+15	—	—	—
Huancayo		15·4	173	e 3 37	− 3	i 6 32	0	—	—	e 7·4
San Juan		18·5	35	e 4 19	0	i 7 33	−11	—	—	e 8·1
La Paz		21·6	155	4 54	0	—	—	—	—	16·9
Tucson		42·7	317	i 8 2	+ 2	—	—	e 9 48	PP	—
Palomar		47·6	314	i 8 40k	+ 1	—	—	—	—	—
Riverside	z.	48·3	315	i 8 45	0	—	—	—	—	—
Mount Wilson	z.	48·9	315	i 8 50	0	—	—	—	—	—
Pasadena	z.	48·9	315	i 8 50	0	—	—	—	—	—
Tinemaha	z.	50·5	317	i 9 1	− 1	—	—	—	—	—

Additional readings :—
Bogota iS_g =1m.39s., i =1m.47s.
Huancayo i =3m.43s.
Tucson i =8m.10s. and 8m.33s.
Pasadena eZ =9m.22s.
Tinemaha eZ =9m.37s.

Sept. 3d. 22h. 58m. 33s. Epicentre 22°·5S. 66°·0W. Depth of focus 0·010.
(as on 1941 April 3d.)

Doubtful identification.

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

		Δ	Az.	P.	O—C.	S.	O—C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Montezuma		2·6	267	e 0 45	+ 4	i 1 4	− 8	—	—	e 1·3
La Paz	z.	6·3	341	i 1 29	− 3	i 2 10	−33	—	—	2·4
Huancayo		13·7	318	e 3 1	−10	e 5 29	−12	—	—	i 5·7
San Juan		40·6	0	e 7 32	0	e 13 22	−12	i 14 9	sS	e 16·5
Tucson		69·3	321	i 11 0	+ 1	—	—	i 11 28	pP	e 29·8
Palomar	z.	73·8	318	i 11 26	0	—	—	i 11 55	pP	—
Riverside		74·5	318	i 11 30a	0	—	—	i 11 57	pP	—
Mount Wilson		75·0	318	i 11 35a	+ 3	—	—	e 12 1	pP	—
Pasadena	z.	75·1	318	i 11 35a	+ 2	—	—	i 12 3	pP	—
Tinemaha		77·0	320	i 11 46a	+ 2	—	—	i 12 14	pP	—
Malaga		82·7	46	i 14 26	?	—	—	—	—	—
Granada		83·5	46	—	—	e 19 39	?	—	—	—

Additional readings :—
Huancayo e = 3m.35s. and 5m.26s.
Tucson i = 11m.36s., e = 14m.23s.
Palomar isPZ = 12m.6s.
Riverside isPZ = 12m.9s.
Pasadena isPZ = 12m.13s.
Tinemaha isPZ = 12m.29s.
Malaga eS = 18m.6s., PS = 19m.28s., PPS = 20m.16s., SS = 25m.2s., phases wrongly identified, the record being confused with that of the following shock.
Long waves were also recorded at La Plata.

Sept. 3d. 23h. 0m. 4s. Epicentre 35°·1N. 23°·4E.

$A = +·7525$, $B = +·3257$, $C = +·5724$; $\delta = -2$; $h = 0$;
$D = +·397$, $E = -·918$; $G = +·525$, $H = +·227$, $K = -·820$.

		Δ	Az.	P.	O—C.	S.	O—C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Helwan		8·5	125	2 8	+ 1	3 42	− 3	2 24	PP	—
Bucharest		9·5	12	e 2 20	0	e 4 7	− 3	—	—	—
Belgrade		10·0	348	e 3 21	+54	e 4 16	− 6	—	—	e 5·3
Ksara		10·4	93	e 2 36	+ 2	e 4 26	− 6	—	—	—
Triest		12·8	328	i 5 26	S	(i 5 26)	− 4	—	—	(i 6·6)
Milan		15·0	318	3 56	+21	7 17?	L	—	—	(7·3)
Prague		16·3	339	e 3 49	− 3	e 7 55?	+62	—	—	8·8
Zürich		16·5	322	e 3 51	− 3	e 7 1	+ 3	—	—	—
Cheb		17·0	335	e 3 1	−60	e 7 16	+ 6	—	—	e 9·3
Neuchatel		17·1	319	e 4 3	+ 1	—	—	—	—	—
Basle		17·2	323	e 4 1	− 2	—	—	—	—	—
Strasbourg		17·8	326	4 10	− 1	—	—	—	—	—
Jena	N.	18·0	337	e 4 18	+ 5	—	—	—	—	—
Clermont-Ferrand		18·7	311	e 4 21	− 1	—	—	—	—	e 13·0
Potsdam		18·8	340	e 4 32	+ 9	e 8 5	+15	—	—	e 9·9
Paris		20·6	318	e 4 43	0	—	—	—	—	e 13·9
Uccle		20·9	325	e 5 3	+17	—	—	—	—	12·0
Granada		21·9	284	i 5 4	+ 7	i 8 58	+ 4	—	—	—
Copenhagen		21·9	343	5 1	+ 4	8 51	− 3	—	—	11·9
Malaga		22·6	283	i 5 5	+ 2	i 9 7	0	—	—	—
Upsala		25·1	353	e 5 21	− 7	i 9 45	− 6	—	—	e 15·6

Additional readings and note :—
Triest S and L are given as P and S.
Granada pP = 5m.21s., pPP = 9m.10s., S given as PP.
Malaga S is given as PP. These two stations confuse the record with that of the South American earthquake at about the same time.
Upsala eN = 9m.52s.?.
Long waves were also recorded at De Bilt.

Sept. 3d. Readings also at 1h. (La Paz, La Plata, Tucson (2), Tinemaha (2), Christchurch and Wellington), 3h. (La Paz and La Plata), 5h. (near La Paz), 10h. (Bogota (2), Mount Wilson, Palomar, Tucson, Huancayo, La Paz and Mizusawa), 11h. (Uccle), 16h. (Kew), 17h. (near Mizusawa), 18h. (Uccle), 19h. (Christchurch), 20h. (Uccle (3)), 21h. (Uccle), 22h. (Montezuma), 23h. (Strasbourg, Neuchatel, Zürich, near Basle, and near Bogota).

Sept. 4d. Readings at 1h. (Bombay), 2h. (La Paz), 4h. (La Paz, near Granada and Malaga), 7h. (Palomar, Riverside, Mount Wilson, Pasadena, Tinemaha and Tucson), 8h. (near Milan), 11h. (Bucharest and near Istanbul), 12h. and 13h. (Tucson), 14h. (Clermont-Ferrand (2), and Paris), 23h. (La Paz).

Sept. 5d. 1h. Undetermined Japanese Shock. Pasadena suggests deep focus.

Mizusawa ePE =8m.57s., SE =10m.15s.
Berkeley iPZ =18m.45s.
Tinemaha iP =19m.3s.a
Santa Barbara iPZ =19m.4s.
Haiwee iP =19m.6s.
Pasadena iP =19m.10s.a, iZ =19m.24s. and 19m.29s.
Mount Wilson iPNZ =19m.12s.a
Riverside iP =19m.13s.a, iNZ =19m.31s., iZ =19m.48s.
Palomar iP =19m.17s.
Tucson iP =19m.42s., e =23m.15s.
La Paz P =26m. 47s.

Sept. 5d. 4h. 38m. 44s. Epicentre 44°·9N. 74°·7W.

Intensity VIII at Massena, Hogansburg, VII at Fort Covington, Norfolk, Waddington, V at New York.
Epicentre 44° 58′N. 78° 48′W.

R. R. Bodle.
United States Earthquakes 1944 Washington, pp. 5-7, isoseismic chart p. 6.

Ernest A. Hodgson.
Industrial Earthquake Hazards in Eastern Canada, Bulletin of the Seismological Society of America, vol. 35, No. 4, October 1945, p. 167.
Epicentre 44° 52′N. 74° 48′W. (Ottawa). Focal Depth 20 miles.

Charles P. Berkey.
A Geological Study of the Massena, Cornwall, Earthquake of Sept. 5th. 1944, and its bearing on the proposed St. Lawrence River Project.
United States Engineer Office, New York District, New York, April 10th 1945.

E. A. Hodgson.
The Cornwall-Massena Earthquake, Sept. 5th 1944, Journal Royal Astronomical Society of Canada, vol. 39, No. 1, pp. 5-13 4 pl., Toronto. January 1945.

W. G. Mulne.
The Location of the Cornwall-Massena Earthquake, Sept. 5th 1944. Publication, Dominion Observatory, Ottawa, 1949, 7, No. 9, pp. 345-362, 2 plates.
Epicentre 44° 51′N. 74° 48′W.

$A = +\cdot1875,\ B = -\cdot6855,\ C = +\cdot7035;\quad \delta = -2;\quad h = -3;$
$D = -\cdot965,\ E = -\cdot264;\quad G = +\cdot186,\ H = -\cdot679,\ K = -\cdot711.$

	△	Az.	P.	O—C.	S.	O—C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ottawa	0·9	305	i 0 17a	− 3	0 28	S_g	—	—	—
Shawinigan Falls	2·1	40	0 37	0	1 4	0	—	—	—
Harvard	3·3	135	i 0 54	+ 1	i 1 40	+ 5	—	—	—
Seven Falls	3·5	49	0 56	− 1	1 32	− 8	—	—	—
Weston	3·5	135	i 0 57	0	i 1 49	S*	—	—	—
Fordham	4·1	171	i 1 2	− 3	i 1 50	− 5	i 1 11	P*	—
New Kensington	5·7	225	e 1 32	+ 4	i 2 33	− 2	—	—	i 2·8
Pittsburgh	5·9	223	i 1 31	0	i 2 53	+13	—	—	—
Georgetown	6·2	197	i 1 35	0	i 2 43	− 5	—	—	—
Cheltenham	6·4	195	i 1 36	− 2	i 2 34	−19	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Halifax		7·9	89	1 45	−14	3 25	− 5	2 43	P_g	—
Cincinnati		9·3	235	i 2 16	− 1	i 3 57	− 8	i 4 40	S*	—
Chicago		9·9	256	e 2 22	− 3	i 4 3	−17	—	—	e 4·5
Columbia		11·9	206	e 2 53	− 1	e 4 58	−11	—	—	e 6·1
Cape Girardeau		13·5	241	e 3 13	− 2	—	—	i 4 43	?	i 6·8
Bermuda		14·7	145	e 3 40	+ 9	e 6 14	− 2	—	—	e 6·5
Mobile		17·7	221	e 4 14	+ 4	i 7 36	+10	—	—	i 9·0
Saskatoon		22·2	301	5 2	+ 2	9 15	+15	10 7	SSS	11·3
Butte		26·4	287	—	—	—	—	e 11 44?	SSS	e 13·6
San Juan		27·4	161	e 5 48	− 1	10 23	− 5	6 29	PP	e 12·7
Tucson		30·7	259	e 6 17	− 2	e 12 4	+43	12 23	?	e 14·0
Victoria		33·2	294	—	—	e 12 40	P_cS	—	—	17·3
Tinemaha	z.	33·5	272	e 6 49	+ 6	—	—	—	—	—
Palomar	z.	34·3	266	e 6 54	+ 4	—	—	—	—	—
Riverside	z.	34·4	268	e 6 57	+ 6	—	—	—	—	—
Mount Wilson	z.	34·7	268	e 6 56	+ 2	—	—	—	—	—
Pasadena		34·8	268	e 7 17	+23	—	—	e 11 43	?	e 17·0
Bogota		40·1	178	i 3 40	?	—	—	—	—	—
Kew		48·0	54	—	—	—	—	(e 19 16?)	SS	19·3
La Paz		61·4	172	10 30	+10	—	—	—	—	—

Additional readings :—
Fordham iZ = 2m.0s.
Cincinnati i = 2m.44s. and 4m.20s.
Tucson e = 6m.43s.
Long waves were also recorded at Santa Clara, Berkeley, Ukiah, Branner, Ferndale, Sitka, College, Stonyhurst, De Bilt, Granada, Cheb, and Malaga.

Sept. 5d. 8h. 51m. 7s. Epicentre 44°·9N. 74°·7W. (as at 4h.).

A = +·1875, B = −·6855, C = +·7035,

	△	Az.	P.	O—C.	S.	O—C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ottawa	0·9	305	0 15	− 5	0 27	− 7	—	—	—
Shawinigan Falls	2·1	40	0 35	− 2	1 1	− 3	—	—	—
Harvard	3·3	135	i 0 52	− 1	i 1 38	+ 3	i 0 58	P*	i 1·7
Seven Falls	3·5	49	0 59	+ 2	1 34	− 6	1 47	S*	—
Cheltenham	6·4	195	i 1 38	0	i 2 47	− 6	i 2 1	P_g	i 3·3

Additional reading :—
Harvard i = 1m.26s. and 1m.31s.

Sept. 5d. 15h. 29m. 28s. Epiventre 18°·1S. 175°·2W.

A = −·9478, B = −·0796, C = −·3088 ; δ = +2 ; h = +5 ;
D = −·084, E = +·996 ; G = +·308, H = +·026, K = −·951.

		△	Az.	P.	O—C.	S.	O—C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Apia		5·4	38	e 1 32	P*	e 2 12	−16	3 4	S_g	—
Auckland		20·7	204	4 44	0	8 27	− 4	4 57	PP	9·5
Arapuni		21·5	201	5 44?	+52	8 32?	−15	10 2	SS	—
Wellington		24·7	200	i 5 7	−17	i 9 29	−15	—	—	14·0
Christchurch		27·4	200	e 5 53	+ 4	e 10 21	− 7	e 9 16	P_cP	13·0
Brisbane		30·7	247	i 7 52	PPP	—	—	e 8 2	?	e 16·2
Riverview		33·9	237	e 6 45	− 2	e 12 29	+18	i 8 36	PPP	e 18·0
Honolulu		42·7	24	e 13 19	P_cS	—	—	—	—	e 18·0
Berkeley		74·6	41	19 32	?	—	—	—	—	e 37·5
Pasadena	z.	75·1	46	e 11 43	− 3	—	—	—	—	e 35·2
Mount Wilson	z.	75·2	46	e 11 44	− 2	—	—	—	—	—
Palomar	z.	75·6	47	e 11 47	− 1	—	—	—	—	—
Riverside	z.	75·6	46	e 11 48	0	—	—	—	—	—
Tinemaha	z.	76·7	43	e 11 49	− 6	—	—	—	—	—
Tucson		79·4	50	e 12 7	− 2	—	—	e 12 44	P_cP	e 38·3

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Victoria		80·8	32	—	—	e 22 33	+ 8	—	—	38·5
Huancayo		95·5	104	—	—	e 23 58	[− 6]	e 25 48	PS	e 43·7
Philadelphia		109·0	53	—	—	e 26 36	S	e 28 19	PS	e 49·2
Kew		146·5	5	e 18 10	?	—	—	i 19 53	PKP	e 74·5
Helwan	z.	153·1	300	e 20 9	[+17]	—	—	e 20 45	?	—
Granada		159·6	20	20 24a	[+24]	—	—	24 22	PP	—
Malaga		159·7	22	e 20 26	[+26]	—	—	i 23 54	PP	81·5

Additional readings :—
Wellington iZ = 5m.37s., S = 7m.27s., SS? = 11m.2s., iZ = 12m.17s., Q = 12m.32s.
Riverview e?Z = 5m.27s., iSS?N = 14m.43s. eQ?N = 14m.56s.
Kew $iPKP_2$?Z = 20m.18s., eNZ = 20m.54s.
Malaga $iPKP_2$ = 21m.8s.
Long waves were also recorded at La Paz, Paris, and Clermont-Ferrand.

Sept. 5d. Readings also at 3h. (Mizusawa), 5h. (Helwan), 8h. (Zürich, near Basle, Milan and near Ottawa), 10h. and 11h. (Ottawa), 12h. (Tinemaha, Palomar, Mount Wilson, Pasadena, Riverside, Brisbane, Riverview (2), Zürich and Kew), 13h. (Tinemaha, Mount Wilson, Pasadena, Riverside and Palomar), 14h. (Helwan and Bucharest), 16h. (Riverside, Palomar, Pasadena, Mount Wilson, Tinemaha, Tucson, and Berkeley), 17h. (Malaga, Helwan, and La Paz), 18h. (near Ksara), 22h. (Apia), 23h. (near Berkeley, Branner (2), Lick, and San Francisco).

Sept. 6d. 5h. 52m. 21s. Epicentre 22°·0S. 171°·7E. (as on 1942 Sept. 14d.).

Pasadena suggests depth of focus 120km.

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

	△	Az.	P.	O—C.	S.	O—C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Auckland	15·1	170	3 36	0	6 26	+ 1	3 48	pP	7·2
Arapuni	16·4	169	—	—	6 39?	−17	—	—	—
Brisbane	17·8	248	i 4 17	+ 6	i 7 30	+ 2	i 5 2	pP	—
Wellington	19·4	174	4 27	− 3	8 9	+ 5	4 44	pP	9·3
Christchurch	21·5	179	4 50	− 2	8 42	− 5	e 5 31	PPP	10·6
Riverview	21·6	232	i 4 56k	+ 2	i 8 49	0	i 5 20	PP	e 11·5
Sydney	21·6	232	e 4 9	?	e 8 51	+ 2	—	—	e 12·0
Perth	50·3	246	—	—	i 16 4	− 9	i 18 41	S_cS	i 22·5
Berkeley	86·0	47	i 12 43	0	e 23 3	[− 5]	e 12 55	P_cP	e 40·2
Pasadena	86·9	51	i 12 47a	− 1	—	—	e 13 18	?	e 40·5
Mount Wilson	87·1	51	i 12 49a	0	—	—	e 13 21	?	—
Riverside	87·4	51	i 12 49a	− 1	—	—	—	—	—
Palomar	87·5	53	i 12 50a	− 1	—	—	—	—	—
Haiwee	88·0	50	e 12 53	0	—	—	—	—	—
Tinemaha	88·3	49	i 12 55a	0	—	—	—	—	—
Tucson	91·6	56	i 13 10	0	—	—	i 13 54	?	e 47·9
Bombay	104·8	284	18 29	PP	24 39	[−11]	27 51	PS	—
Helwan	143·7	291	i 19 33k	[− 4]	—	—	—	—	—

Additional readings :—
Auckland i = 4m.4s. and 6m.39s., P_cP = 9m.23s., P_cS? = 12m.19s.
Brisbane ePN = 4m.20s., isN = 7m.36s.
Wellington sPZ = 4m.59s., iZ = 5m.39s. and 6m.19s., P_cPZ = 8m.20s.
Christchurch eZ = 4m.58s., P_cPNZ = 9m.7s., iN = 9m.38s.
Riverview iPPEZ = 5m.32s., iN = 7m.1s. and 8m.54s., iZ = 9m.10s., iEN = 9m.16s., isSZ = 9m.34s., iEN = 9m.39s., iSSSN = 9m.59s., iS_cSN = 16m.7s.
Palomar eZ = 13m.29s., iZ = 13m.35s.
Tinemaha eZ = 13m.26s. and 13m.35s.
Bombay SKSE = 24m.35s.
Helwan iZ = 19m.43s. and 20m.6s.
Long waves were also recorded at Kew.

Sept. 6d. 13h. Undetermined shock.

Helwan iPZ =33m.14s.k, iZ =33m.30s., PPZ =33m.42s., iZ =35m.42s. and 36m.18s., SN =37m.32s., iZ =37m.45s., i =38m.12s., SSZ =38m.27s.
Kodaikanal ePE =33m.24s., PPE =34m.54s., eSE =39m.29s., SSE =42m.39s., L = 46m.9s.
Ksara eP =33m.45s.?, eS =38m.52s.
Bombay ePE =34m.55s., eSN =40m.39s., iSE =40m.42s., SSSE =43m.29s., iN =44m.
Bucharest eEN =35m.0s.?, L?EN =51m.
Zürich eP =36m.50s., e =47m.5s.
Clermont-Ferrand e =36m.52s. and 58m.50s.
Malaga iP =36m.53s., iPP =38m.51s., P_cS =42m.7s., iS =42m.59s., sS =44m.35s., SS =47m.55s., SSS =49m.36s., L =53m.11s.
Colombo PPE =37m.24s., S?E =42m.25s., L =49m.23s.
San Fernando PE =37m.33s., PPE =40m.17s., SE =44m.20s., SSE =48m.23s.
Granada P? =38m.1s., S? =43m.55s.
Hyderabad SN =41m.54s.
New Delhi iN =42m.27s., i =45m.31s. and 57m.48s.
Tananarive eE =42m.27s., eN =43m.10s.
Milan P =43m.0s.?, SE =49m.32s.
Prague e =43m.36s., 45m.24s., 47m.0s., and 50m.18s., eL =54m.
Cheb eP =43m.50s., eS =50m.28s., eL =61m.
Calcutta eS?N =44m.24s.
Paris e =45m., L =58m.
Upsala eN =45m.17s., eE =45m.21s., eN =50m.28s., eE =54m.39s., eN =55m.0s., eE =57m.19s., eN =58m.0s.?
Tucson eP =47m.20s.
Long waves were also recorded at Pasadena, Huancayo, San Juan, Wellington, Riverview and at other European stations.

Sept. 6d. Readings also at 8h. (Mount Wilson, Tinemaha and Mizusawa), 13h. (San Fernando, Kew, and Granada), 16h. (Kew), 19h. (Helwan), 20h. (Columbia), 22h. (Tinemaha, Tucson, Palomar, La Paz, and Huancayo).

Sept. 7d. Readings at 4h. (Malaga), 11h. (near Bogota), 13h. (near Ottawa), 14h. (Bogota, La Paz, near Huancayo, and near Branner, San Francisco and Lick), 15h. (La Plata), 16h. and 20h. (near Mizusawa), 21h. (Riverview and Auckland), 22h. (near Ottawa), 23h. (near Malaga and Granada).

Sept. 8d. Readings at 1h. (Tucson, Haiwee Tinemaha, Pasadena, Riverside, Mount Wilson, and near Apia), 2h. (near Mizusawa), 3h.(Lick), 6h. (near Bucharest), 9h.(Alicante), 10h. (near Ottawa), 12h. (Kew), 15h. (near Almeria and Malaga), 16h. (Kew), 17h. (Pasadena and Palomar), 18h. (near Berkeley), 19h. (near Ottawa), 21h. (Fort de France).

Sept. 9d. 4h. 11m. 23s. Epicentre 41°·5N. 103°·0W.

Intensity VI at Montrose, Basalt and Riland. V at Aspen and Eagle. IV at Crawford and Minturn. Epicentre 39°·5N. 107°·5W. Macroseismic area 3,000 sq. miles.

R. R. Bodle.
United States Earthquakes 1944, Washington 1946, p.12.

$A = -\cdot1690$, $B = -\cdot7319$, $C = +\cdot6601$; $\delta = -3$; $h = -2$;
$D = -\cdot974$, $E = +\cdot225$; $G = -\cdot148$, $H = -\cdot643$, $K = -\cdot751$.

		Δ	Az.	P.	O—C.	S.	O—C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Salt Lake City		6·7	268	e 2 2	P*	e 2 55	− 5	—	—	e 3·1
Tucson		11·2	217	e 2 43	− 1	(i 4 48)	− 4	e 2 53	PP	i 4·8
Tinemaha	z.	12·6	255	e 3 5	+ 2	e 5 38	SS	—	—	—
Riverside		13·6	241	e 3 27	PP	e 5 57	+ 7	—	—	—
Palomar	z.	13·7	238	e 3 16	− 2	i 5 44	− 8	—	—	—
Mount Wilson	z.	13·9	244	e 3 29	+ 8	i 6 9	SS	—	—	—
Pasadena		14·1	243	—	—	i 6 12	SS	—	—	—

Tucson gives also i =3m.11s.

Sept. 9d. 17h. 32m.46s. Epicentre 51°·9N. 179°·4E. (as on 1940 March 27d.).

$A = -·6195$, $B = +·0065$, $C = +·7849$; $\delta = -11$; $h = -6$;
$D = +·010$, $E = +1·000$; $G = -·785$, $H = +·008$, $K = -·620$.

		Δ	Az.	P.	O—C.	S.	O—C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		21·2	40	e 4 56	+ 7	e 8 46	+ 5	—	—	e 10·2
Tinemaha		45·5	83	e 8 22	− 1	—	—	i 8 26	?	—
Haiwee		46·1	84	e 8 31	+ 3	—	—	—	—	—
Pasadena	z.	47·4	86	i 8 36	− 2	—	—	—	—	e 21·4
Mount Wilson	z.	47·5	86	i 8 36	− 2	—	—	i 8 41	?	—
Riverside	z.	48·0	86	i 8 44	+ 1	—	—	—	—	—
Palomar	z.	48·8	86	8 47	− 2	—	—	—	—	—
La Jolla		48·9	87	e 8 54	+ 4	—	—	e 8 58	?	—
Tucson		53·2	83	i 9 20	− 2	e 16 51	− 1	i 9 32	?	e 25·8
Ottawa		63·6	49	e 10 35	0	—	—	—	—	30·2
Clermont-Ferrand		82·7	357	e 12 35	+ 8	—	—	—	—	—

Long waves were also recorded at Kew.

Sept. 9d. 23h. 24m. 50s. Epicentre 44°·9N. 74°·7W. (as on 5d.).

$A = +·1875$, $B = -·6855$, $C = +·7035$; $\delta = -2$; $h = -3$.

	Δ	Az.	P.	O—C.	S.	O—C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ottawa	0·9	305	0 14	P*	0 24	P_s	—	—	—
Shawinigan Falls	2·1	40	0 35	− 2	1 2	− 2	—	—	—
Harvard	3·3	135	(i 0 52)	− 1	(i 1 39)	+ 4	(i 0 58)	P*	—
Seven Falls	3·5	49	0 58	+ 1	1 44	+ 4	1 34	?	—
Philadelphia	4·9	183	—	—	e 2 5	−10	i 2 23	S*	(e 2·9)
Cheltenham	6·4	195	i 1 40	+ 2	i 2 46	− 7	i 2 0	P*	i 3·2

Additional readings :—
Harvard i = (1m.25s.), readings decreased by one minute.
Philadelphia i = 2m.46s. eL given as eS.

Sept 9d. Readings also at 0h. (near Mineral), 3h. (near Lick), 11h. (near La Paz), 13h. (Philadelphia and near Fort de France), 19h. (Tinemaha, Pasadena, Mount Wilson, Riverside, Tucson, and Guadalajara).

Sept. 10d. Readings at 0h. (Berkeley), 1h. (La Paz), 4h. (Fort de France (2)), 5h. (Malaga, Kew, Tucson, and Mount Wilson), 9h. (Bucharest), 14h. (Haiwee, Mount Wilson, Pasadena, Palomar, and Riverside), 18h. (near Mineral), 19h. (Balboa Heights, near Bogota and near Mizusawa), 20h. (La Paz and near Mineral).

Sept. 11d. 9h. 45m. 27s. Epicentre 1°·5N. 126°·0E. (as on 1940 July 16d.).

$A = -·5876$, $B = +·8088$, $C = +·0260$; $\delta = +11$; $h = +7$;
$D = +·809$, $E = +·588$; $G = -·015$, $H = +·021$, $K = -1·000$.

	Δ	Az.	P.	O—C.	S.	O—C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m.	s.	m.
Miyazaki	30·7	9	6 20	+ 1	11 24	+ 3	—	—	—
Kumamoto	31·5	7	6 25	− 1	11 37	+ 3	—	—	—
Hukuoka	32·2	7	6 33	+ 1	11 44	− 1	—	—	15·4
Muroto	32·5	12	6 34	0	11 51	+ 2	—	—	—
Kôti	32·7	11	6 37	+ 1	11 49	− 3	—	—	—
Siomisaki	33·1	14	6 41	+ 1	11 59	0	—	—	—
Hamada	33·7	9	6 45	0	12 8	0	—	—	—
Sumoto	33·7	14	i 6 46	+ 1	12 11	+ 3	—	—	—
Owase	33·8	14	e 6 45	− 1	—	—	—	—	—
Kobe	34·1	15	i 6 49	+ 1	12 18	+ 4	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Kyoto		34·6	13	e 6 53	0	—	—	—	—	—
Perth		34·6	196	e 6 48	− 5	i 12 33	+11	—	—	—
Hikone		34·6	13	6 57	+ 4	12 28	+ 6	—	—	—
Nagoya		35·0	16	6 56	0	12 31	+ 3	—	—	—
Shizuoka		35·2	18	6 57	− 1	—	—	—	—	—
Misima		35·5	19	7 0	0	12 30	− 6	—	—	—
Mera		35·7	20	7 4	+ 2	—	—	—	—	—
Hunatu		35·8	18	7 3	0	—	—	—	—	—
Yokohama		36·1	19	7 21	+16	—	—	9 16	P_cP	—
Tokyo		36·3	19	6 59	− 8	—	—	—	—	—
Toyama		36·5	15	7 8	− 1	12 55	+ 4	—	—	—
Kumagaya		36·6	18	7 8	− 2	—	—	—	—	—
Maebasi		36·8	18	7 11	0	—	—	—	—	—
Nagano		36·8	15	7 11	0	12 47	− 9	—	—	—
Kakioka		37·0	19	7 7	− 6	—	—	—	—	—
Wazima		37·1	14	7 13	− 1	—	—	—	—	—
Mito		37·2	19	7 18	+ 3	—	—	—	—	—
Okahama		37·8	19	7 7	−13	—	—	—	—	—
Aikawa		38·0	15	7 21	0	13 11	− 3	—	—	—
Hukusima		38·4	18	7 25	0	13 21	+ 1	—	—	—
Brisbane		38·8	140	i 7 18	−10	i 13 10	−16	i 8 48	PP	e 22·1
Mizusawa	N.	39·9	20	7 38	+ 1	i 13 41	− 2	—	—	e 19·6
Miyako		40·7	19	7 45	+ 1	—	—	—	—	—
Hatinohe		41·3	17	7 49	0	14 5	+ 1	—	—	—
Calcutta	N.	42·1	303	e 8 4	+ 9	i 14 16	0	i 16 44	SS	—
Riverview		42·4	149	i 7 50a	− 8	i 14 8	−12	i 9 36	PP	21·6
Sydney		42·4	149	e 6 30	?	e 14 3	−17	e 8 3	P	e 23·8
Mori		42·5	15	8 0	+ 1	14 27	+ 5	—	—	—
Sapporo		43·6	16	8 8	0	14 35	− 3	—	—	—
Colombo	E.	46·3	278	8 28	− 1	15 3	−13	18 23	SS	24·4
Hyderabad	N.	49·3	292	8 54	+ 1	15 53	− 6	10 49	PP	24·1
New Delhi		53·7	305	e 9 22	− 4	i 16 55	− 4	11 14	PP	—
Dehra Dun	N.	53·7	308	—	—	e 17 13	+14	e 21 51	SSS	e 30·4
Bombay	E.	54·9	292	9 34	− 1	i 17 6	−10	11 41	PP	—
Auckland		59·2	136	10 28	+23	17 58	−14	19 48	S_cS	29·6
Arapuni		60·3	137	—	—	18 33	+ 7	—	—	29·4
Christchurch		61·2	143	10 10	− 9	18 20	−18	12 46	PP	29·8
Wellington		61·3	140	9 57	−23	18 26	−13	10 8	pP	28·6
Honolulu		76·6	68	e 11 45	− 9	e 21 38	− 2	e 14 40	PP	36·0
Tananarive		79·6	251	i 12 9	− 1	e 22 4	− 8	12 23	pP	—
College		87·0	25	e 12 32	−16	e 23 3	[−11]	e 15 58	PP	e 35·6
Ksara		89·3	303	e 13 0	+ 1	e 23 53	+ 5	16 32	PP	—
Helwan		93·3	300	i 13 16k	− 2	23 48	[− 4]	17 3	PP	—
Sitka		93·4	33	e 13 17	− 1	e 23 48	[− 4]	e 16 45	PP	44·0
Bucharest		96·0	315	e 13 30	0	e 24 47	0	e 24 4	SKS	42·6
Campulung		96·7	316	e 13 36	+ 3	—	—	—	—	—
Upsala		97·9	331	e 13 34	− 5	i 24 56	− 7	e 24 5	SKS	45·6
Copenhagen		101·8	328	e 13 57	+ 1	24 33	[− 3]	25 33	S	—
Victoria		102·4	40	e 17 33?	PP	e 24 38	[− 1]	—	—	42·6
Prague		102·5	322	e 14 13	+13	e 25 42	+ 1	24 43?	SKS	47·6
Potsdam	E.	102·6	324	i 24 36	SKS	i 25 44	+ 2	i 27 15	PS	e 47·6
Bergen		103·3	334	e 17 57	PKP	e 24 43	[0]	25 47	S	39·6
Cheb		103·8	323	e 14 16	+11	i 24 44	[− 1]	e 25 57	S	e 54·6
Ukiah		105·0	48	e 18 38	PP	e 24 48	[− 2]	e 26 9	S	e 42·9
Berkeley		106·1	50	e 14 12	− 3	i 26 25	+14	e 18 45	PP	e 48·2
Santa Clara		106·5	50	i 18 45	PP	e 25 48	{+ 7}	e 34 44	SS	—
Zürich		107·1	321	e 17 31	?	e 26 20	0	e 18 52	PP	—
Strasbourg		107·1	322	18 51?	PP	24 55	[− 5]	27 44	PS	56·6
De Bilt		107·2	326	e 14 19	− 3	i 25 0	[0]	i 19 4	PP	51·6
Milan		107·4	319	18 2?	?	i 24 55	[− 6]	—	—	57·6
Basle		107·6	321	e 17 44	?	e 26 31	S	18 48	PP	—
Uccle		108·2	326	e 14 26	P	e 28 1	PS	e 17 33	PKP	57·5
Aberdeen		108·3	333	i 18 10	PKP	i 25 7	[+ 2]	i 19 11	PP	49·8
Santa Barbara	z.	109·0	53	e 14 30	P	—	—	—	—	—
Tinemaha	z.	109·4	50	i 14 29	P	—	—	i 29 48	PPS	—
Haiwee	z.	109·7	50	e 14 31	P	i 33 42	SKKP	18 32	PKP	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.			L.
		°	°	m. s.	s.	m. s.	s.	m. s.			m.
Paris		110·1	324	e 13 32?	P	i 28 29	PS	e 19 7	PP		e 59·6
Butte		110·2	38	e 19 36?	[+62]	e 33 51?	SKKP	e 27 33?	PS		e 45·9
Pasadena		110·3	53	e 14 29	P	e 25 13	[0]	i 18 32	PKP		e 49·0
Stonyhurst		110·3	331	i 18 1	[−33]	i 25 1	[−12]	i 19 25	PP		54·6
Mount Wilson	z.	110·4	53	e 14 33	P	i 29 43	PS	i 18 33	PKP		—
Kew		110·5	327	e 14 33?a	P	i 26 9	{ 0}	e 18 39	PKP		e 52·6
Saskatoon		110·7	31	19 22	PP	26 53	S	28 45	PS		48·6
Clermont-Ferrand		111·2	321	e 14 36	P	25 15	[− 2]	19 23	PP		61·6
Riverside	z.	111·5	53	e 14 35	P	e 33 34	SKKP	i 18 35	PKP		—
Palomar	z.	111·6	53	e 14 37	P	e 28 44	PS	i 18 36	PKP		—
Salt Lake City		112·8	44	e 18 54	[+15]	e 28 36	PS	e 20 2	PP		e 51·9
Tortosa		115·1	316	19 15	[+32]	e 26 38	{− 3}	19 51	PP		e 66·6
Tucson		116·7	52	e 18 43	[− 3]	i 29 31	PS	e 15 1	P		e 47·2
Rapid City		116·9	37	e 18 48	[+ 1]	e 26 5	[+26]	e 19 55	PP		e 55·6
Granada		119·6	315	i 18 45a	[− 7]	i 25 27	[−21]	i 20 3	PP		59·9
Malaga		120·3	315	i 18 51	[− 2]	25 49	[− 2]	i 20 25	PP		e 57·6
San Fernando		121·7	315	18 48	[− 8]	25 56	[0]	20 41	PP		—
Lisbon		122·2	319	18 58	[+ 1]	30 23	PS	20 33	PP		62·4
Chicago		127·3	31	e 19 11	[+ 4]	e 31 7	PS	e 21 7	PP		e 54·6
Seven Falls		129·4	14	e 19 8	[− 3]	38 38	SS	21 20	PP		52·6
Shawinigan Falls		129·4	16	e 19 10	[− 1]	e 22 31	SKP	—	—		
Ottawa		129·5	19	19 8	[− 3]	22 33	SKP	21 8	PP		68·6
New Kensington		132·0	26	19 1	[−15]	i 22 22	SKP	e 21 19	PP		e 73·4
Halifax		133·3	8	e 19 15	[− 3]	—	—	22 42	SKP		60·6
Harvard		133·4	17	i 18 54	[−24]	e 22 35	SKP	e 21 33	PP		—
Fordham		134·1	21	i 19 17	[− 3]	i 28 41	{− 5}	i 22 8	PP		—
Philadelphia		134·4	21	e 19 15	[− 5]	e 26 46	[+16]	e 21 53	PP		e 62·6
Columbia		136·5	33	e 22 3	PP	—	—	—	—		e 67·5
La Plata		146·6	174	i 19 41	[− 1]	23 15	SKP	35 15	S_cSPKP		69·6
Balboa Heights		152·5	66	e 19 48	[− 3]	—	—	—	—		—
Rio de Janeiro	N.	156·3	206	e 19 53	[− 3]	—	—	—	—		—
Huancayo		156·4	117	i 19 57	[+ 1]	30 42	{−11}	23 39	PP		e 74·6
San Juan		156·9	30	e 19 53	[− 4]	e 30 45	{−11}	e 24 2	PP		e 66·6
Bogota		159·0	72	i 19 58	[− 2]	i 20 35	?	e 24 21	PP		—
La Paz		159·6	138	i 20 1a	[+ 1]	i 30 25	{−45}	24 15	PP		76·0
Fort de France		162·4	23	e 26 5	?	—	—	—	—		—

Additional readings :—
Brisbane iPE =7m.22s., iZ =7m.57s., iS?Z =10m.54s., iS?E =10m.57s.
Calcutta iSSS =18m.22s.
Riverview iZ =9m.48s., iN =9m.52s., iN =14m.30s., eN =14m.40s., eZ =14m.51s., iSSZ =17m.8s., iE =17m.28s.
Hyderabad S_cSN =18m.37s.
New Delhi P_cPN =10m.13s., S_cSN =19m.14s., SSN =20m.11s., SSSN =22m.21s.
Bombay iN =9m.40s., P_cPE =10m.44s., PPSE =17m.42s., S_cSN =19m.7s., S_cSE = 19m.16s., iE =21m.52s., SSSE =22m.26s.
Auckland Q =25m.33s.?.
Christchurch iEZ =10m.27s., 10m.39s. and 10m.51s., PPPZ =14m.6s., PPPE =14m.32s., eEN =16m.31s., S_cSN =19m.54s., SSNZ =23m.7s., eNZ =25m.0s., QEN =25m.53s.
Wellington P_cPZ =10m.27s., pP_cP =10m.56s., pPP?Z =12m.47s., PPPZ =13m.53s., pPPPZ =14m.11s., i =17m.3s. and 18m.48s., S_cS =20m.3s., iZ =20m.55s., i = 21m.14s. and 21m.50s., SS? =22m.25s., sSS =23m.33s.?, SSS? =24m.58s., Q =26m.15s.?.
Honolulu i =12m.3s., eSS =26m.43s., eSSS =30m.22s.
Tananarive PP =15m.27s., ipS? =22m.10s., sS? =22m.31s., PS =22m.49s., SS =27m.28s.
College e =24m.2s., eSS =28m.47s., e =33m.37s.
Helwan eZ =15m.43s., and 23m.9s., SKKSE =24m.4s., SE =24m.26s., PSZ =25m.41s.
Sitka i =18m.27s., and 26m.1s., e =31m.46s.
Bucharest eN =15m.42s., eE =15m.56s., eN =19m.49s., iPSN =24m.50s., iE =28m.22s.
Upsala eN =15m.8s., eE =16m.42s., PPE =17m.19s., eE =17m.47s., eN =20m.55s. and 22m.51s., iSKSE =24m.9s., ePPSN =26m.26s.?, eSSE =30m.59s., eSS?N = 31m.33s.?, eSSSN =35m.7s.
Copenhagen 18m.12s., 20m.25s., and 25m.16s., PS =27m.5s.,
Prague ePP =18m.13s., ePPP =20m.33s., ePS =27m.8s., ePPS =27m.36s., eSS=32m.46s., eSSS =37m.45s.?.
Bergen PPN =18m.55s., PPPN =21m.11s., eN =24m.40s., PSE =27m.17s., PSN = 27m.22s., eSSE =33m.3s.
Cheb ePP =18m.38s., ePS =27m.52s.
Ukiah eSS =33m.18s.

Continued on next page.

Berkeley eZ =14m.22s., ePKPZ =15m.23s., ePPN =18m.33s., ePPN =19m.1s., eZ = 21m.18s., iSE =25m.17s., iPKKPZ =30m.3s., iE =33m.11s., eN =43m.53s.
Strasbourg SS =33m.33s.
De Bilt eZ =17m.58s., iPS =28m.4s.
Uccle ePP =19m.5s.
Aberdeen eN =39m.45s., eE =40m.50s.
Haiwee iPKKPZ =29m.46s., ePKPPKPZ =37m.30s.
Pasadena iPPZ =19m.6s., eN =26m.1s., iEN =26m.9s., ePSZ =28m.27s., ePSE = 28m.42s., ePPS?Z =28m.55s., iPKKP=29m.45s., iZ=31m.57s., iSKKPZ=33m.37s., ePKPPKPZ =37m.25s., eQN =45m.17s.
Stonyhurst iSKKS =26m.4s., iPKKP = +28m.32s., iPS =28m.57s., iSKSP =29m.21s.
Mount Wilson iSKKPZ =33m.38s., ePKP,PKPZ =37m.15s.
Kew i =14m.36s. and 19m.22s., eZ =20m.21s., iEZ =21m.10s., eEN =25m.2s., i = 28m.32s., e =34m.51s.?, eN =39m.33s., and 44m.33s.
Saskatoon SS =34m.57s.
Clermont-Ferrand eSKKS =26m.15s., iPS =28m.40s., eSS =34m.33s.
Riverside ePKKPZ =29m.32s., ePKPPKP =37m.22s.
Palomar ePKKPZ =29m.29s., iPKKP =29m.39s., iZ =31m.48s., iSKKPZ =33m.34s., ePKPPKPZ =37m.6s.
Salt Lake City ePPP =21m.44s., ePPS =30m.25s., e =36m.22s.
Tortosa PPPN? =24m.6s., iSEN =27m.29s., PSE =29m.20s., PPSE? =31m.27s., SSE =36m.24s.
Tucson iPP =19m.56s., i =23m.34s., eSS =36m.10s., eSSS =40m.8s.
Rapid City ePS =29m.37s., e =43m.54s.,
Granada pPP =20m.20s., SKP =21m.51s., PPP =22m.53s., iPS =29m.45s., SS = 36m.5s., SSS =41m.18s.
Malaga pPKP =19m.9s., pPP =23m.21s., SKKS =26m.53s., iPS =30m.7s., PPS = 31m.33s., iSKKKP =32m.39s., SS =37m.29s.
San Fernando SKKS =27m.17s., SSE =36m.16s., SSSE =41m.16s.
Lisbon PPN =20m.45s., S?E =30m.13s., E =41m.45s.
Chicago e =22m.29s. and 27m.52s., eSS =37m.42s.
Seven Falls SKP =22m.30s.
Ottawa i =19m.27s., PPS =33m.3s., e =49m.33s.?.
Harvard i =19m.7s., i =22m.39s. and 22m.55s.
Fordham i =19m.36s., iSKP =22m.47s.
Philadelphia i =19m.55s. and 22m.47s., e =28m.34s., 33m.43s., and 39m.44s.
La Plata i =19m.57s., PP?N =25m.9s., PPPN =27m.57s., PPSN =33m.15s.
Huancayo e =23m.46s. and 35m.45s.
San Juan i =25m.5s., e =28m.6s. and 35m.7s., eSS =44m.14s., e =51m.24s.
La Paz iZ =20m.19s., iPKP$_2$ =20m.35s., ipPKPZ =20m.53s., iPPP =27m.45s., iPSKS = 34m.14s., iSS =43m.49s.

Sept. 11d. Readings also at 0h. (near Mizusawa), 17h. (Berkeley, Lick, Branner, San Francisco, near Ferndale, and near Mizusawa), 23h. (Palomar, Tucson, and Riverside).

Sept. 12d. Readings at 2h. (Christchurch, Wellington, Auckland, Brisbane, Riverview, Sydney, Perth, Granada, Malaga, Paris, La Paz, Bogota, Tucson, Mount Wilson, Palomar, Riverside, Victoria, Berkeley, Lick and near Ferndale), 3h. (Pasadena, Philadelphia, Cheb, De Bilt and Kew), 11h. (Brisbane, Riverview, Mount Wilson, Pasadena, Palomar, Riverside and Bogota), 12h. (New Plymouth, near Tuai and Wellington), 13h. (near Berkeley), 14h. (near Balboa Heights), 21h. (Mount Wilson, Tucson, Palomar and Riverside), 23h. (near Malaga).

Sept. 13d. Readings at 0h. (Granada, Malaga and La Paz), 1h. (Palomar, Pasadena, Riverside, Tinemaha and Tucson), 6h. (Apia), 9h. (Paris), 22h. (near Ottawa), 23h. (Mount Wilson, Tucson, Pasadena, Palomar, Riverside and Tinemaha).

Sept. 14d. 6h. 38m.56s. Epicentre 9°·0S. 108°·0E. (as on 1940 December 8d.).

$A = -\cdot3053$, $B = +\cdot9395$, $C = -\cdot1554$; $\delta = +2$; $h = +7$;
$D = +\cdot951$, $E = +\cdot309$; $G = +\cdot048$, $H = -\cdot148$, $K = -\cdot988$.

		Δ	Az.	P.	O—C.	S.	O—C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Perth		24·0	164	i 5 24	+ 7	i 9 42	+10	—	—	—
Kodaikanal	E.	35·9	302	(e 6 31)	−33	(12 1)	−41	(7 31)	PP	(16·6)
Calcutta	N.	36·8	329	e 7 15	+ 4	i 12 58	+ 2	i 16 38	SSS	e 22·4
Hyderabad	N.	39·3	313	7 33	+ 1	13 28	− 6	9 6	PP	19·1
Bombay		44·4	309	e 8 12	− 2	i 14 49	0	10 3	PP	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Kagosima		45·7	28	8 35	+11	—	—	—	—	—
Brisbane		46·2	119	i 8 26	− 2	—	—	e 18 26	SS	i 26·2
Riverview		46·7	129	i 8 33	+ 1	i 15 20	− 2	i 10 23	PP	e 22·7
Sydney		46·7	129	—	—	e 15 4	−18	—	—	e 24·1
New Delhi	N.	47·8	323	i 8 38	− 3	i 15 27	−11	18 27	SS	23·5
Dehra Dun	N.	48·5	326	7 58	−48	14 52	−56	—	—	—
Kôti		48·8	30	e 8 58	+ 9	15 47	− 5	—	—	—
Muroto		48·8	30	e 7 53	−56	14 53	−59	—	—	—
Kobe		50·5	30	8 56	− 6	16 19	+ 3	—	—	—
Hunatu		52·9	33	e 9 21	+ 1	—	—	—	—	—
Toyama		53·1	30	e 9 21	0	—	—	—	—	—
Tananarive		59·2	254	—	—	e 18 15	+ 3	—	—	e 26·7
Christchurch		65·5	134	7 38	?	19 28	− 4	23 52	SS	34·2
Auckland		66·1	127	12 52	PP	19 47	+ 8	27 58?	Q	30·1
Wellington		66·7	131	10 59	+ 4	19 49	+ 3	27 4	Q	32·1
Ksara		80·4	307	e 12 22?	+ 7	e 22 25?	+ 4	—	—	—
Helwan		83·0	302	12 25	− 3	22 46	− 1	e 16 39	PP	—
Upsala		97·9	329	e 15 25	?	e 24 23	[+ 6]	—	—	e 52·1
Potsdam		100·1	322	e 17 49	PP	—	—	e 20 4	PPP	e 56·1
Cheb		100·4	319	e 17 15	?	—	—	e 17 55	PP	—
Copenhagen		100·5	325	17 58	PP	32 16?	SS	—	—	51·1
College		104·1	24	—	—	24 41	[− 5]	e 25 52	S	e 59·5
De Bilt		104·9	322	e 17 44	?	—	—	—	—	e 49·1
Uccle		105·5	321	e 17 4?	?	(e 26 4?)	− 2	—	—	e 26·1
Clermont-Ferrand		106·8	315	e 17 4?	?	—	—	—	—	—
Paris		106·9	318	e 18 4?	PP	—	—	—	—	62·1
Aberdeen		108·4	327	—	—	e 24 26	[−39]	—	—	e 56·9
Kew		108·4	321	e 14 24?	P	e 25 4?	[− 1]	—	—	e 54·1
Stonyhurst		109·3	324	e 17 4?	?	e 21 4?	PPP	—	—	e 56·1
Granada		112·6	306	18 41a	[+ 3]	29 11	PS	i 30 29	PPS	—
Malaga		113·3	306	e 19 21	[+41]	26 10	[+45]	i 19 27	pPKP	71·4
San Fernando	E.	114·7	305	20 4	PP	29 11	PS	30 37	PPS	67·1
Victoria		121·7	37	e 30 4?	PS	—	—	—	—	62·1
Berkeley	E.	126·5	48	i 20 56	PP	—	—	e 23 39	PPP	—
Saskatoon		128·6	26	—	—	e 29 28	?	e 46 34	?	73·1
Tinemaha		129·7	48	i 19 16	[+ 5]	—	—	—	—	—
Haiwee	z.	130·3	49	e 19 16	[+ 3]	—	—	—	—	—
Mount Wilson	z.	130·9	52	e 19 14	[0]	—	—	—	—	—
Pasadena		130·9	52	e 19 13	[− 1]	e 39 10	SSP	i 22 41	PKS	e 55·2
Riverside	z.	131·5	52	e 19 14	[− 1]	—	—	—	—	—
Palomar	z.	132·2	52	e 19 28	[+12]	—	—	e 22 42	PKS	—
Salt Lake City		132·6	41	—	—	—	—	e 22 53	PKS	e 76·4
Tucson		137·3	51	19 23	[− 3]	e 37 19	P′P′	22 7	PP	56·2
Rio de Janeiro		137·6	221	e 23 4	PKS	—	—	—	—	—
Seven Falls		142·0	358	—	—	e 29 34	{+ 1}	e 41 8	SS	64·1
Ottawa		143·6	3	e 19 34	[− 3]	—	—	e 36 4?	PPS	67·1
Harvard		146·6	358	i 19 53	[+11]	—	—	—	—	—
La Paz		154·4	188	e 19 52	[− 2]	i 26 56	[− 3]	i 23 52	PP	76·9
Bermuda		155·8	344	e 20 22	[+26]	e 26 9	[−51]	e 43 57	SS	e 90·4
Huancayo		158·8	171	e 22 24	?	e 31 15	{+ 9}	e 25 6	PP	e 75·2
San Juan		169·1	329	e 20 35	[+26]	e 32 38	{+35}	e 26 8	PP	e 83·4

Additional readings :—
Calcutta iN =18m.30s.
Kodaikanal readings increased by 10m.
Hyderabad S_cSN =17m.37s.
Bombay P_cPN =9m.23s., P_cPE =9m.26s., PSN =15m.6s., iN =16m.3s., SSEN = 17m.56s., SSSE =19m.18s., SSSN =19m.22s.
Brisbane iE =18m.44s.
Riverview iPPPZ =11m.9s., iPSE =15m.32s., iSSN =18m.37s., iN =18m.58s.
New Delhi SSSN =19m.40s.
Tananarive eE =23m.42s.,
Christchurch eEN =8m.0s., PP =11m.24s., eEZ =15m.34s., eZ =17m.2s., SSSEN = 26m.55s., QEN =29·1m., S is given as PPS, the trace is wrongly interpreted.
Wellington iZ =17m.14s.
Helwan eZ =13m.25s., PPPZ =17m.31s.

Continued on next page.

Upsala eN = 24m.56s.? and 31m.4s.?.
Kew eZ = 17m.49s.? and 21m.44s.?, eNZ = 26m.24s.?, eEZ = 28m.14s.
Granada PS = 33m.32s., SS = 37m.59s.
Malaga iPP = 21m.45s., PKS = 22m.55s., iPPP = 23m.39s., iSKKS = 28m.19s., SSP = 39m.9s.
San Fernando SSSE = 46m.9s.
Pasadena eSKPZ = 24m.26s.
Harvard i = 19m.56s.
La Paz iPPP = 27m.54s., iSKKS = 30m.51s., iPSKS = 34m.39s., PPS? = 44m.46s.
Bermuda e = 53m.21s.
Huancayo e = 27m.6s. and 39m.5s., eSS = 44m.5s., e = 51m.29s., and 64m.24s.
San Juan eSS = 45m.56s., e = 55m.50s.
Long waves were also recorded at Bergen, Bucharest, Butte, Chicago, Ukiah, and Arapuni.

Sept. 14d. Readings also at 1h. (near Mizusawa), 2h. (Tucson, Berkeley, San Francisco, Branner and near Lick), 4h. and 5h. (La Paz), 11h. (Wellington), 12h. (near Mizusawa), 13h. (Riverview and Kew), 14h. (Mizusawa and Uccle), 15h. (near Lick), 16h. (near Apia), 19h. (near Mizusawa), 20h. (near Apia and Auckland), 23h. (Riverview).

Sept. 15d. Readings at 0h. (Christchurch, Wellington, La Paz, Pasadena, Tucson, Kew, Uccle, Paris, Granada, and near Harvard), 1h. (near Harvard), 2h. (Haiwee, Mount Wilson, Pasadena, Palomar, Riverside, Santa Barbara, Tinemaha, Tucson, Bucharest, Uccle, Kew, Paris, Auckland, Christchurch, Wellington, near Apia, near Harvard, and near Mizusawa), 3h. (Kew and San Fernando), 4h. (Bucharest), 9h. and 10h. (near Mizusawa), 12h. (Cheb), 13h. (La Paz), 14h. (Brisbane), 17h. (Almeria), 18h. (near Mizusawa), 19h. (Pasadena, Palomar, Riverside, Tinemaha, Tucson, San Juan, Huancayo, and La Paz), 20h. (Mount Wilson, Pasadena, Palomar, Tinemaha, Tucson, San Juan, Huancayo, and La Paz), 23h. (Mizusawa).

Sept. 16d. 2h. 44m. 51s. Epicentre 38°·2N. 129°·2W.

$A = -\cdot4979$, $B = -\cdot6105$, $C = +\cdot6159$; $\delta = -5$; $h = -1$;
$D = -\cdot775$, $E = +\cdot632$; $G = -\cdot389$, $H = -\cdot477$, $K = -\cdot788$.

		△	Az.	P.	O—C.	S.	O—C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Ukiah		4·8	77	e 1 13	− 2	—	—	e 1 39 Pg	e 1·8
Berkeley		5·5	91	i 1 18	− 7	i 2 18	−12	e 1 55 Pg	e 4·4
Branner	E.	5·6	95	—	—	e 2 29	− 4	— —	—
Lick		6·1	97	e 1 31	− 3	i 2 37	− 8	— —	—
Tinemaha		8·8	94	i 2 6	− 5	e 3 48	− 5	— —	—
Haiwee		9·2	100	i 2 18	+ 2	—	—	— —	—
Mount Wilson	Z.	9·8	110	i 2 31	+ 7	—	—	— —	—
Pasadena		9·8	111	i 2 29	+ 5	—	—	— —	—
Riverside	Z.	10·4	110	i 2 36	+ 2	—	—	— —	—
Palomar		11·1	112	e 2 49	+ 6	—	—	— —	—
Tucson		16·1	106	i 3 47	− 2	—	—	— —	e 10·3

Additional readings :—
Berkeley eE = 2m.21s. and 2m.25s., eN = 2m.39s.
Mount Wilson iZ = 2m.48s.
Tucson i = 4m.?8s.
Long waves were also recorded at Salt Lake City, Florissant and Granada.

Sept. 16d. Readings also at 1h. (Santa Clara and Zürich), 4h. (Haiwee, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, Zürich and Auckland), 9h. (near La Paz), 11h. (near Berkeley), 15h. (Mount Wilson, Palomar, and Tucson), 16h. (Wellington, and near Lick(2)), 17h. (near Berkeley, Branner and Lick (2)), 21h. (near Berkeley), 23h. (near Berkeley and near Mizusawa).

Sept. 17d. Readings at 2h. (Bogota and La Paz), 3h. (La Paz), 7h. (Palomar, Tucson, and Riverside), 9h. (Mount Wilson, Pasadena Palomar, Riverside, Tucson, Santa Barbara, and Tinemaha), 11h. (near Bogota), 12h. (near La Paz), 15h. (Mizusawa), 20h. (near Berkeley), 21h. (near Balboa Heights), 23h. (Christchurch, Wellington, Auckland, Brisbane, Riverview, Sydney, Mount Wilson, Pasadena, Palomar, Berkeley, and Granada).

Sept. 18d. Readings at 0h. (Cheb, De Bilt, Uccle, Kew, Tucson, Mount Wilson, Palomar, Tinemaha, and near Harvard), 1h. (near Berkeley, Branner, and Lick), 2h. (Granada), 3h. (Cheb and De Bilt), 4h. (Kew), 6h. (Mizusawa, near New Delhi, and near Balboa Heights), 7h. (Wellington), 19h. (Tucson and La Paz), 22h. (near Berkeley and Branner), 23h. (near Branner and Lick).

Sept. 19d. 13h. 6m. 0s. Epicentre 53°·5N. 160°·5E.

$A = -·5631$, $B = +·1994$, $C = +·8019$; $\delta = -11$; $h = -7$;
$D = +·334$, $E = +·943$; $G = -·756$, $H = +·268$, $K = -·597$.

		△	Az.	P.	O—C.	S.	O—C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mizusawa	E.	19·5	231	e 4 32	+ 1	7 24	−42	—	—	—
	N.	19·5	231	e 4 35	+ 4	7 12	−54	—	—	—
Sendai		20·4	229	4 36	− 5	—	—	—	—	—
Maebasi		22·7	232	5 10	+ 6	—	—	—	—	—
Nagano		22·9	233	e 5 26	PP	—	—	—	—	—
Wazima		22·9	235	e 5 1	− 5	—	—	—	—	—
Toyama		23·5	234	e 5 1	−11	—	—	—	—	—
Hunatu		23·6	230	5 14	+ 1	—	—	—	—	—
Misima		23·8	229	e 5 17	+ 2	—	—	—	—	—
Shizuoka		24·2	230	e 5 20	+ 1	—	—	—	—	—
Omaesaki		24·6	230	e 6 1	PP	—	—	—	—	—
Gihu		24·6	232	e 5 29	+ 6	—	—	—	—	—
Nagoya		24·7	232	e 5 27	+ 3	—	—	—	—	—
Hikone		25·0	234	e 5 26	− 1	—	—	—	—	—
College		28·0	45	e 5 56	+ 1	e 10 5	−33	—	—	e 14·3
Hukuoka		29·2	239	e 6 12	+ 7	—	—	—	—	—
Victoria		46·0	64	e 10 0?	PP	—	—	—	—	19·0
Saskatoon		52·2	51	—	—	e 17 12	PPS	—	—	26·0
Berkeley	E.	53·5	74	—	—	e 16 58	+ 1	—	—	e 22·4
Tinemaha		56·3	72	i 9 47	+ 2	—	—	i 10 33	P_cP	—
Haiwee		57·2	73	i 9 53	+ 2	—	—	—	—	—
Santa Barbara		57·4	75	i 9 54	+ 1	—	—	—	—	—
Mount Wilson		58·5	74	i 10 1a	+ 1	—	—	e 39 46	P'P'	—
Pasadena		58·5	74	i 10 0a	0	—	—	e 39 25	P'P'	e 24·9
Riverside	Z.	59·1	74	i 10 3	− 1	—	—	e 39 39	P'P'	—
Rapid City		59·4	57	i 10 10	+ 4	e 18 23	+ 8	e 14 3	PPP	e 29·5
Palomar		59·8	74	i 10 9	0	—	—	i 10 33	P_cP	—
Tucson		64·0	70	i 10 39	+ 1	—	—	i 10 49	P_cP	e 37·4
Copenhagen		68·0	342	e 11 6	+ 3	—	—	—	—	35·0
Ottawa		70·4	39	e 11 17	− 1	—	—	—	—	37·0
Seven Falls		70·7	34	—	—	e 20 30	− 4	—	—	38·0
Jena	E.	72·7	340	e 11 29	− 3	—	—	—	—	—
Cheb		73·4	340	e 11 0?	−36	—	—	—	—	e 40·0
Bombay		73·7	280	—	—	e 21 5	− 3	e 21 36	PS	e 32·5
Uccle		74·2	345	e 11 42	+ 2	—	—	—	—	e 38·0
Harvard		74·4	37	i 11 42	0	—	—	—	—	—
Basle		76·7	342	e 11 58	+ 3	—	—	—	—	—
Zürich		76·7	342	e 11 53	− 2	—	—	—	—	—
Neuchatel		77·4	342	e 11 59	+ 1	—	—	—	—	—
Clermont-Ferrand		79·3	345	e 12 11	+ 2	—	—	—	—	e 42·0
Ksara		80·7	316	e 12 6	−10	e 22 44	+20	—	—	—
Helwan		86·0	318	12 45	+ 2	23 24	+ 7	e 13 48	?	—
Granada		88·6	348	12 51a	− 5	23 47	+ 5	31 54	Q	41·8
Malaga		89·2	348	e 13 3	+ 4	—	—	—	—	e 54·0
San Juan		97·9	44	—	—	e 26 26	PS	—	—	e 44·1

Additional readings :—
Mount Wilson iZ = 10m.11s. and 10m.24s.
Pasadena iZ = 10m.9s. and 10m.23s.
Palomar iZ = 10m.19s. and 10m.28s.
Bombay eE = 26m.7s.
Long waves were also recorded at La Paz, Chicago, Sitka, and at other European stations.

Sept. 19d. 16h. 37m. 54s. Epicentre 49°·2N. 6°·0E. (as on 1940 Feb. 14d.).

Epicentre 49°·0N. 6°·1E. (Strasbourg).

$A = +·6524$, $B = +·0686$, $C = +·7548$; $\delta = +5$; $h = -5$;
$D = +·105$, $E = -·995$; $G = +·751$. $H = +·079$, $K = -·656$.

	Δ	Az.	P.	O—C.	S.	O—C.	Supp.	
	°	°	m. s.	s.	m. s.	s.	m. s.	
Strasbourg	1·3	118	e 0 24	− 1	e 0 41	− 3	—	—
Uccle	1·9	327	e 0 43	P_g	e 1 4	S_g	—	—
Basle	2·0	148	e 0 36	+ 1	e 1 1	− 1	—	—
Neuchatel	2·3	161	e 0 39	− 1	e 1 12	+ 3	e 0 43	P*
Zürich	2·5	137	e 0 42	− 1	e 1 18	S*	e 0 48	P_g
Clermont-Ferrand	3·9	211	1 6?	+ 4	—	—	—	—

Sept. 19d. Readings also at 2h. (near Mizusawa), 3h. (near La Paz), 9h. (near Malaga), 13h. (near Ottawa), 16h. (Sitka), 19h. (near Branner), 23h. (Berkeley).

Sept. 20d. Readings at 1h. (near Malaga), 2h. (Bogota), 3h. (Alicante), 4h. (College), 6h. (Mount Wilson and Palomar), 7h. (Tucson), 9h. (near La Paz), 10h. (La Plata), 14h. and 16h. (Tucson), 17h. (Almeria, Tucson, Pasadena, Riverside, Tinemaha, and near La Paz), 18h. (Haiwee, Palomar, Pasadena, Riverside, Tinemaha, Tucson, St. Louis, Copenhagen, and near Belgrade), 22h. (near Ottawa), 23h. (near Berkeley).

Sept. 21d. Readings at 1h. (Pasadena, Palomar (2), Riverside, Tinemaha, Tucson (2), and St. Louis), 3h. (near Bogota (2)), 4h. (near Berkeley, Lick, San Francisco, and near Mizusawa), 6h. (Brisbane, Riverview, Christchurch, Mount Wilson, Pasadena, Palomar, Riverside, and Tucson), 7h. (San Francisco, near Berkeley and Branner), 10h. (La Plata), 11h. (Riverview), 12h. (near Malaga), 16h. (near Tananarive), 17h. (Kew, La Paz, Haiwee, Mount Wilson, Pasadena Riverside, Tinemaha, Tucson, Lick, Branner, San Francisco, and near Berkeley), 18h. (Mineral and Santa Clara), 19h. (Tinemaha, Palomar, and Mount Wilson), 20h. (San Francisco, near Berkeley, Branner, and Lick), 21h. (Suva and near Apia).

Sept. 22d. Readings at 4h. (Mount Wilson, Pasadena, Palomar, and Tucson), 8h. (near Mizusawa), 19h. (Brisbane, Riverview, Mizusawa, Mount Wilson, Pasadena, and Tucson), 21h. (Suva and Auckland), 22h. (Brisbane, Haiwee, Mount Wilson, Pasadena, Palomar, Riverside, Santa Barbara, Tinemaha, and Tucson).

Sept. 23d. 3h. 10m. 48s. Epicentre 18°·1S. 175°·2W. (as on 5d.).

Pasadena suggests deep focus.

$A = -·9478$, $B = -·0796$, $C = -·3088$; $\delta = +2$; $h = +5$;

		Δ	Az.	P.	O—C.	S.	O—C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Apia		5·4	38	i 1 27	+ 3	i 2 22	− 6	—	—	—
Suva		6·1	269	i 1 54	P*	—	—	—	—	4·2
Auckland		20·7	204	5 7	PP	9 27	SSS	—	—	—
Wellington		24·7	200	5 21	− 3	9 32	−12	—	—	—
Christchurch		27·4	200	—	—	e 10 1	−27	—	—	12·7
Brisbane	z.	30·7	247	i 6 21	+ 2	—	—	—	—	—
Riverview		33·9	237	i 8 19	PPP	e 14 37	SSS	—	—	e 16·2
Sydney		33·9	237	e 8 24	PPP	—	—	—	—	—
Santa Barbara	z.	74·2	45	i 11 40	0	—	—	—	—	—
Berkeley	z.	74·6	41	e 11 43	0	—	—	e 11 59	P_cP	—
Pasadena		75·1	46	i 11 45a	− 1	—	—	i 12 9	P_cP	e 33·8
Mount Wilson		75·2	46	i 11 46a	0	—	—	—	—	—
Palomar		75·6	47	i 11 48a	0	—	—	i 12 4	P_cP	—
Riverside		75·6	46	i 11 47a	− 1	—	—	i 12 1	P_cP	—
Haiwee		76·4	44	i 11 52	− 1	—	—	i 12 16	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.
Tinemaha		76·7	43	i 11 55	0	—	—	i 12 18	PcP	—
Tucson		79·4	5?	i 12 11	+ 2	—	—	i 12 22	PcP	e 36·0
La Paz	z.	100·4	111	e 17 50	rP	—	—	—	—	46·4
De Bilt	z.	146·1	359	e 19 50	[+ 9]	—	—	—	—	—
Kew		146·5	5	i 19 48	[+ 6]	—	—	—	—	e 84·2
Helwan	z.	153·1	300	i 20 22	[+30]	—	—	e 23 56	PP	—
Granada		159·6	20	i 20 4k	[+ 4]	—	—	i 25 2	PP	—
Malaga		159·7	22	i 20 21	[+21]	27 31	[+27]	—	—	—

Additional readings :—
Pasadena iZ = 1?m.22s.
Tucson i = 12m.43s., e = 16m.1s.
Helwan iZ = 20m.36s.
Malaga i = 20m.46s. and 21m.14s.

Sept. 23d. 9h. Undetermined shock.
Hukusima eP = 10m.35s.
Tukubasan eP = 10m.36s.
Kakioka eP = 10m.52s.
Misima eP = 10m.52s., S = 14m.8s.
Sendai eP = 10m.58s.
Kumagaya P = 11m.4s., S = 15m.57s.
Yokohama P = 11m.4s., S = 15m.33s.
Tokyo eP = 11m.6s., S = 13m.55s.
Kameyama eP = 11m.7s.
Maebasi e = 11m.9s.
Shizuoka eP = 11m.15s., S = 13m.39s.
Hunatu eP = 11m.32s.
Nagoya e = 11m.33s.
Toyama eP = 1 m.44s.
Aikawa eP = 11m.48s.
Omaesaki P = 12m.1s., S = 14m.47s.
Mizusawa PEN = 12m.7s., SE = 15m.6s., SN = 15m.15s.
Hikone eP = 12m.24s.
Aomori e = 12m.35s.
Hamada eP = 12m.56s., s = 17m.25s.
Kobe e = 13m.0s.
Kôti e = 13m.59s.
Long waves were recorded at Pasadena and some European stations.

Sept. 23d. 12h. 13m. 14s. Epicentre 53°·5N. 160°·5E. (as on Sept. 19d.).

A = −·5631, B = +·1994, C = +·8019 ; δ = −11 ; h = −7 ;
D = +·334, E = +·943 ; G = −·756, H = +·268, K = −·597.

		Δ	Az.	P.	O—C.	S.	O—C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sapporo		16·4	238	e 3 57	+ 4	e 6 26	−30	—	—	7·2
Mori		17·5	237	e 4 7	0	7 50	SS	—	—	10·0
Hatinohe		18·3	233	e 4 8	− 9	7 52	+13	—	—	—
Morioka		19·1	233	e 4 22	− 5	8 12	+15	—	—	—
Mizusawa	N.	19·5	231	4 30	− 1	8 19	+13	—	—	10.6
Akita		19·6	233	4 31	− 1	8 28	+20	—	—	—
Sendai		20·4	229	4 36	− 5	8 20	− 5	—	—	—
Hukusima		21·0	229	4 44	− 3	8 33	− 4	—	—	—
Onahama		21·5	228	e 4 41	− 4	—	—	—	—	—
Aikawa		21·8	235	4 51	− 5	8 52	0	—	—	—
Mito		22·1	229	e 5 0	+ 1	—	—	—	—	—
Utunomiya		22·2	230	i 4 57	− 3	8 59	− 1	—	—	—
Tukubasan		22·4	229	4 58	− 4	8 58	− 6	—	—	—
Kakioka		22·4	229	e 4 57	− 5	—	—	—	—	—
Maebasi		22·7	232	5 4	0	9 5	− 4	—	—	—
Kumagaya		22·8	229	5 2	− 3	9 12	+ 1	—	—	—
Wazima		22·9	235	5 6	0	9 16	+ 3	—	—	—
Nagano		22·9	233	e 5 6	0	9 17	+ 4	—	—	10·9
Tokyo		23·0	228	e 5 7	0	e 9 35	+21	i 5 20	PP	12·1
Yokohama		23·3	228	5 8	− 2	9 28	+ 8	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Toyama		23·5	234	5 8	− 4	9 33	+10	—	—	—
Misima		23·8	229	5 13	− 2	—	—	—	—	—
Shizuoka		24·2	230	i 5 18	− 1	9 34	− 1	—	—	—
Nagoya		24·7	232	5 24	0	9 48	+ 4	—	—	—
Hikone		25·0	234	5 24	− 3	9 51	+ 2	—	—	—
Kameyama		25·2	234	e 5 30	+ 1	—	—	—	—	—
Toyooka		25·4	237	e 5 22	− 9	9 51	− 5	—	—	—
Kyoto		25·4	234	e 5 30	− 1	—	—	—	—	—
Kobe		25·9	234	e 5 34	− 1	10 3	− 1	—	—	—
Sumoto		26·4	234	i 5 51	+11	10 27	+15	—	—	—
Siomisaki		26·7	231	5 51	+ 8	10 26	+ 9	—	—	—
Hamada		27·3	239	5 51	+ 3	10 22	− 5	—	—	—
Muroto		27·6	233	5 48	− 3	—	—	—	—	—
Kôti		27·7	235	e 5 51	− 1	10 31	− 2	—	—	13·0
College		28·0	45	i 5 50	− 5	e 10 37	− 1	e 6 41	PP	11·5
Hukuoka		29·2	239	6 6	+ 1	10 53	− 5	12 46	SSS	14·1
Miyazaki		30·0	235	(5 57)	−15	(10 47)	−23	—	—	—
Sitka		35·3	57	e 7 7	+ 8	i 12 41	+ 8	i 8 27	PP	i 15·4
Honolulu		45·1	118	e 8 23	+ 3	i 14 57	− 2	e 10 9	PP	e 18·6
Victoria		46·0	64	8 31	+ 4	15 17	+ 5	10 35	PP	—
Seattle		47·1	65	—	—	(e 15 36)	+ 8	—	—	15·6
Ukiah		52·1	73	9 14	0	e 16 44	+ 6	e 11 37	PP	e 21·4
Saskatoon		52·2	51	9 32	+17	16 50	+11	19 46	SS	24·8
Butte		53·3	59	e 8 16?	−67	e 15 48?	−66	e 19 34?	SS	e 22.0
Berkeley		53·5	74	9 24	0	e 17 8	+11	11 25	PP	e 25·9
San Francisco		53·5	74	9 16?	− 8	—	—	—	—	—
Branner		53·9	74	e 9 36	+ 9	e 17 12	+10	e 23 16	?	—
Santa Clara		54·1	74	i 9 33	+ 4	e 17 14	+ 9	i 9 43	pP	e 23·1
Lick		54·2	74	e 9 33	+ 4	e 17 18	+12	e 22 34	Q	—
Fresno		55·7	73	e 9 19	−21	e 17 20	− 6	e 12 18	PPP	e 28·4
Tinemaha		56·3	72	i 9 46	+ 1	e 17 37	+ 3	i 9 59	?	—
Haiwee		57·2	73	i 9 52	+ 1	e 17 52	+ 6	—	—	—
Salt Lake City		57·3	64	e 9 59	+ 7	e 18 3	+16	e 12 3	PP	e 24·4
Santa Barbara		57·4	75	e 9 53	0	e 18 0	+11	i 10 9	?	—
Mount Wilson		58·5	74	i 10 0	0	e 18 8	+ 5	i 39 48	P′P′	—
Pasadena		58·5	74	i 9 59	− 1	i 18 8	+ 5	i 11 49	PP	i 24·7
Riverside		59·1	74	i 10 3	− 1	e 18 14	+ 3	e 39 32	P′P′	—
Boulder City		59·1	70	i 10 4	0	i 18 23	+12	—	—	i 39·7
Rapid City		59·4	57	e 10 10	+ 4	e 18 22	+ 7	i 11 7	P_cP	25·4
Palomar		59·8	74	i 10 9a	0	i 18 31	+11	e 39 23	P′P′	—
Calcutta		61·7	270	i 10 39k	+17	i 19 18	+34	i 23 40	SS	30·8
Dehra Dun	N.	61·9	284	e 14 58	PPP	18 57	+10	25 35	SSS	28·5
Reykjavik		62·7	2	e 10 55	+26	e 19 16	+19	—	—	e 28·8
Upsala		63·1	341	10 33	+ 1	19 2	0	e 13 14	PP	e 27·8
New Delhi		63·7	283	10 40	+ 4	19 16	+ 6	11 27	P_cP	—
Tucson		64·0	70	i 10 39	+ 1	e 19 18	+ 5	e 13 14	PP	e 23·9
Bergen		64·7	348	i 10 45	+ 3	19 25	+ 3	e 13 13	PP	29·8
Copenhagen		68·0	342	i 11 5	+ 2	20 7	+ 5	20 47	S_cS	29·8
Chicago		68·5	49	e 11 12	+ 6	e 19 56	−12	e 21 5	S_cS	e 28·2
Aberdeen		68·8	350	i 10 53	−15	i 20 14	+ 3	—	—	30·0
Florissant		69·7	52	e 11 15	+ 1	20 22	0	i 11 26	pP	—
St Louis		69·9	52	e 11 14	− 1	i 20 28	+ 4	i 20 33	PS	—
Ottawa		70·4	39	11 16	− 2	20 32	+ 2	14 4	PP	—
Shawinigan Falls		70·5	35	11 18	0	20 34	+ 2	—	—	35·8
Seven Falls		70·7	34	11 31	+11	20 35	+ 1	28 16	SSS	34·8
Potsdam		71·0	341	e 11 31	+ 9	i 20 43?	+ 6	e 16 46	PPP	e 31·8
Apia		71·1	151	e 11 28	+ 6	e 20 48	+10	—	—	e 29·1
Cape Girardeau		71·3	53	e 11 31	+ 8	e 20 51	+10	—	—	—
Hyderabad	N.	71·5	274	e 11 26	+ 2	20 35	− 8	20 55	PS	32·6
Stonyhurst		72·1	350	e 15 53	PPP	i 20 50	0	i 21 21	PS	31·7
Jena	E.	72·7	340	e 11 34	+ 2	e 21 2	+ 5	—	—	e 34·1
	N.	72·7	340	e 11 30	− 2	e 20 56	− 1	e 12 32	P_cP	35·5
De Bilt		72·8	344	i 11 33k	+ 1	i 21 3	+ 5	—	—	e 33·8
Prague		72·9	338	e 11 33	0	e 20 59	0	e 26 10	SS	e 32·8
Suva		73·0	162	i 11 36	+ 3	i 20 56	− 4	21 36	PS	32·8

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
New Kensington		73·0	44	e 11 43	+10	e 21 5	+ 5	—	—	e 38·6
Cheb		73·4	340	e 11 42	+ 6	i 21 11	+ 6	e 22 1	PS	e 33·8
Bombay		73·7	280	e 11 36	− 2	21 11	+ 3	25 14	SS	35·8
Kew		74·2	348	i 11 45a	+ 5	e 21 22	+ 8	e 26 16?	S	e 33·8
Uccle		74·2	345	i 11 41k	+ 1	i 21 15	+ 1	25 50	SS	e 35·8
Campulung		74·5	330	e 11 47	+ 5	e 21 29	+12	—	—	36·8
Bucharest	N.	74·9	328	e 11 45	+ 1	e 21 23	+ 1	e 26 55	SS	36·8
Fordham		75·0	40	e 11 45	0	i 21 25	+ 2	i 26 24	SS	e 34·9
Halifax		75·2	31	12 4	+18	21 36	+11	30 46?	SSS	37·8
Philadelphia		75·3	42	e 11 47	0	e 21 22	− 4	e 26 28	SS	e 31·4
Georgetown		75·4	43	i 11 50	+ 3	i 21 30	+ 3	—	—	36·8
Strasbourg		75·7	343	11 52	+ 3	e 21 36	+ 6	i 24 40	?	32·8
Belgrade		76·3	332	i 11 57	+ 4	e 22 34	PS	e 15 2	PP	e 38·2
Paris		76·4	346	11 53	0	i 21 38	0	32 16	Q	35·8
Zürich		76·7	342	e 11 54	− 1	e 21 45	+ 4	—	—	—
Basle		76·7	342	e 11 56	+ 1	e 21 49	+ 8	—	—	—
Istanbul		77·0	325	12 12	+16	21 46	+ 1	e 18 6	?	i 31·8
Triest		77·2	337	i 12 8	+11	i 21 48	+ 1	i 16 38	PPP	e 34·9
Mobile		77·3	56	e 12 13	pP	i 21 57	+ 9	—	—	—
Neuchatel		77·4	342	e 11 58	0	e 21 53	+ 4	12 4	P_cP	—
Columbia		77·9	48	e 12 4	+ 3	e 21 57	+ 3	e 26 53	SS	e 38·1
Milan		78·4	341	12 6	+ 2	22 4	+ 4	—	—	35·0
Colombo	E.	78·9	267	11 46	−21	21 57	− 8	—	—	37·1
Clermont-Ferrand		79·3	345	e 12 9	0	i 22 13	+ 4	i 12 15	pP	e 38·3
Ksara		80·7	316	12 5	−11	e 22 28	+ 4	—	—	—
Brisbane		80·9	187	e 12 16	− 1	i 22 30	+ 4	i 27 39	SS	—
Barcelona		83·6	344	e 12 22	− 9	i 23 0	+ 7	—	—	—
Tortosa	N.	84·5	345	e 12 40	+ 4	22 56	− 6	i 12 51	P_cP	41·0
Helwan		86·0	318	i 12 43	0	23 16	− 1	16 4	PP	—
Bermuda		86·6	37	e 12 50	+ 4	e 23 11	−12	15 58	PP	e 36·3
Riverview		87·3	187	i 12 55a	+ 5	23 20	[+ 4]	i 23 38	S	e 39·7
Sydney		87·4	187	e 12 19	−31	i 23 16	[− 1]	e 28 46	SS	37·1
Lisbon	E.	87·7	353	12 59?	+ 7	i 23 38	+ 5	—	—	37·7
	N.	87·7	353	12 50	− 2	23 48	+15	16 21	PP	41·3
Granada		88·6	348	i 12 58a	+ 2	i 23 33	{+ 2}	37 16	Q	42·1
Malaga		89·2	348	i 12 58	− 1	i 23 45	− 2	13 25	pP	43·9
San Fernando		89·7	350	13 15	+14	23 57	+ 5	16 45	PP	38·8
Auckland		90·8	168	13 16	+10	24 8	+ 6	i 25 16	PS	40·8
Arapuni		92·1	167	—	—	25 4	PS	30 46?	SSP	45·8
Perth		93·5	217	—	—	i 23 56	[+ 3]	i 25 55	PS	i 50·1
Wellington		95·2	169	13 31	+ 4	24 46	+ 6	26 1	PS	42·5
Christchurch		97·2	171	14 23	?	25 3	+ 6	26 22	PS	45·1
Fort de France		103·3	41	e 10 46?	?	—	—	—	—	—
Bogota		106·3	58	e 19 51	?	—	—	—	—	—
Tananarive		118·6	277	—	—	e 31 2	PPS	37 2	SSP	51·9
Huancayo		119·6	68	e 18 56	[+ 4]	e 29 59	PS	i 20 30	PP	e 51·2
La Paz		127·2	64	i 19 17k	[+10]	i 26 14	[+ 2]	i 21 20	PP	59·3
Rio de Janeiro	N.	144·5	39	i 19 46	[+ 8]	—	—	—	—	i 47·4
La Plata		147·3	71	19 53	[+10]	27 16	[+26]	48 22	SSS	61·8

Additional readings :—
Mizusawa SE =8m.25s.
Tokyo iN =5m.14s.
College e =7m.24s.
Miyazaki readings increased by 2m.
Honolulu i =10m.28s.
Victoria SSS =18m.28s.
Ukiah e =10m.0s., eSS =20m.26s.
Saskatoon SSS =21m.46s.?.
Butte i =8m.30s.?, ePPP =11m.49s.?.
Berkeley iPNZ =9m.28s., iZ =9m.34s., ePSN =18m.27s., eQEN =23m.34s.
Branner eN =10m.13s., eSE =17m.17s.
Fresno eQN =23m.22s.
Tinemaha eEZ =9m.50s., iSEZ =17m.52s.
Salt Lake City i =10m.12s., ePPP =13m.43s., e =21m.19s.

Continued on next page.

Pasadena iZ =10m.3s. and 10m.11s., iE =18m.30s., iN =19m.19s., eSSE =22m.15s., ePʹPʹZ =39m.27s., iPʹPʹEZ =39m.47s.
Riverside iNZ =10m.7s., i =10m.15s.
Rapid City i =10m.22s., e =12m.32s., ePPP =13m.57s., iS =18m.26s., e =22m.31s.
Palomar iZ =10m.13s., 10m.21s., and 39m.39s., iPʹPʹ =39m.51s.
Calcutta PS =19m.46s., iSSS =25m.52s.
Dehra Dun e =16m.31s. and 26m.16s.
Upsala i =11m.2s., eN =12m.28s., PP?N =13m.33s., PPPN =14m.16s., iPSN =19m.21s., eSSN =23m.35s., eSS?E =23m.46s.?, eSSSE =25m.59s., eSSS?N =26m.10s.,
New Delhi PPPN =13m.52s., PPPP =14m.52s., iSN =18m.55s., S_cS =20m.39s., SS =22m.45s.
Tucson i =10m.44s., iPPP? =14m.51s.
Bergen eZ =22m.39s.
Copenhagen 21m.21s.
Chicago e =16m.8s. and 26m.10s.
Florissant iPZ =11m.19s.
Ottawa PSN =21m.4s., SS =25m.50s.
Hyderabad S_cSN =21m.38s.?.
Stonyhurst iPPS =21m.42s., SS =25m.32s., SSS =28m.38s., Q =29m.55s.
Jena eSZ =21m.6s.
Prague eSSS =29m.22s.
Suva e =12m.16s., i =24m.26s.?, SS =25m.46s.?, and i =30m.23s.?.
Cheb eSS =26m.19s.
Bombay eSE =20m.42s., iN =20m.56s., PSN =21m.15s.
Kew eN =20m.17s., eSSS =29m.46s.?.
Bucharest eN =11m.57s., iN =21m.43s.
Fordham iP =11m.54s., iPP =14m.39s.
Philadelphia i =12m.0s., ePP =14m.36s., i =30m.27s.
Belgrade e =13m.26s.
Triest i =22m.9s.
Clermont-Ferrand iPS? =22m.54s.
Brisbane ePE =12m.25s., eE =15m.44s., iQE =34m.6s.
Tortosa PPN =16m.39s., SKSN =23m.15s., SKKS =23m.27s., PSN =23m.42s., PPSN =24m.17s., SSSN =33m.14s., QN? =36m.19s.
Helwan eN =13m.10s., eZ =14m.56s., PPPZ =18m.1s., PSN =24m.4s.
Bermuda e =28m.31s., iSS =29m.12s.
Riverview iZ =14m.14s., S_cSNZ =23m.41s., iEN =24m.2s., iN =24m.47s. and 26m.25s., iSS?N =29m.9s., iE =29m.13s., eQEN =36m.40s.?.
Lisbon ePZ =12m.54s.a, Z =14m.33s., N =18m.28s., SKSN =23m.7s., SN =23m.57s.
Granada PS =24m.0s.
Malaga ePP =16m.37s., PPP =18m.45s., SKS =23m.8s., eS =24m.19s., PS =25m.1s., SS =29m.50s., SSS =31m.57s., PKP,PKP =38m.51s.
San Fernando PPPE =18m.31s., SKSE =22m.31s., PSE =24m.9s., SSE =29m.7s., SSSE =30m.19s.
Auckland i =21m.46s., SKS =23m.36s., SS? =30m.21s., Q =38m.6s.
Arapuni e =39m.4s.
Perth i =31m.2s. and 44m.12s.
Wellington iZ =15m.41s., PP?Z =16m.46s., iZ =22m.56s., SKSZ =24m.1s., PPSZ =26m.46s., SSZ =41m.16s., SSS =35m.7s., Q =38m.44s.
Christchurch PP =18m.19s., SKSEN =24m.15s., PPSEN =27m.8s., SSEN =31m.24s., SSSEN =35m.21s., QEN =39m.17s.
Huancayo e =20m.10s., 27m.49s., and 29m.29s., eSS =36m.36s., eSSS =41m.9s.
La Paz iSKP =22m.28s., iPPP =24m.12s., iSKKS? =27m.53s., iPPS =31m.53s., iSSZ =38m.24s.

Sept. 23d. 16h. 1m.16s. Epicentre 29°·8S. 177°·6W.

A = −·8684, B = −·0364, C = −·4945 ; δ = −3 ; h = +2 ;
D = −·042, E = +·999 ; G = +·494, H = +·021, K = −·869.

		Δ	Az.	P.	O—C.	S.	O—C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Arapuni		10·0	213	—	—	5 2	SSS	—	—	—
Suva		12·2	341	2 55	− 3	6 34?	?	i 3 19	PPP	7·3
Christchurch		15·8	207	—	—	6 39	− 3	7 14	Q	8·6
Apia		16·8	20	e 4 24	PPP	e 7 26	SS	—	—	—
Brisbane	E.	25·9	268	i 5 34	− 1	i 10 6	+ 2	i 6 14	PP	e 13·9
Riverview		26·8	253	i 5 44k	0	i 10 25	+ 6	i 6 21	PP	e 13·6
Sydney		26·8	253	e 4 44	−60	e 9 56	−23	—	—	e 13·8
Pasadena		84·8	46	i 12 38a	+ 1	—	—	—	—	e 38·7
Mount Wilson		84·9	46	i 12 39	+ 1	—	—	—	—	—
Berkeley		84·9	42	e 12 37	− 1	e 23 7	+ 1	e 36 39	Q	e 41·8

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Palomar		85·1	47	i 12 38	− 1	—	—	—	—	—
Riverside		85·2	46	i 12 40a	+ 1	—	—	—	—	—
Tinemaha		86·7	44	i 12 47	0	—	—	—	—	—
Tucson		88·4	51	i 12 57	+ 2	e 24 36	PS	e 16 24	PP	e 40·9
Victoria		91·8	33	—	—	e 24 20	+ 9	—	—	44·7
Salt Lake City		92·9	43	—	—	e 24 6	{+ 3}	—	—	e 47·1
Huancayo		94·5	106	e 13 21	− 2	e 24 34	0	e 25 29	PS	e 43·9
La Paz	Z.	98·0	114	i 13 36	− 3	—	—	—	—	45·4
Rapid City		100·0	43	—	—	e 24 30	[+ 3]	—	—	e 51·9
Florissant	N.	106·0	54	—	—	e 26 22	+12	—	—	—
St Louis	N.	106·0	54	—	—	e 25 42	{+ 5}	e 26 21	S	—
Bombay	E.	115·8	277	—	—	e 25 43	[+ 8]	e 29 32	PS	—
	N.	115·8	277	—	—	e 26 6	[+31]	e 30 54	PPS	—
Bermuda		123·4	68	—	—	e 37 50	SSP	—	—	e 58·5
Ksara		151·3	286	e 19 42	[− 7]	—	—	e 25 14	?	—
Helwan	Z.	154·9	276	e 19 54	[0]	—	—	e 20 17	PKP_2	—
Cheb		158·4	343	—	—	e 28 44	?	e 75 44?	Q	e 88·7
San Fernando	Z.	170·2	45	e 20 8	[− 1]	—	—	e 25 21	PP	—
Malaga		171·0	38	i 20 11	[+ 1]	—	—	20 23	pPKP	90·8

Additional readings :—
Christchurch SEN = 6m.46s.
Brisbane ePN = 5m.37s.
Riverview iEZ = 6m.11s., iPPP?Z = 6m.45s., iN = 7m.20s., iSSN = 11m.49s., iSSSN = 12m.3s.
Tucson i = 13m.8s.
Huancayo eSKS = 23m.58s., eSS = 30m.56s.
St. Louis eSSN = 33m.43s.
Bombay eE = 30m.58s.
Helwan eZ = 21m.44s.
Malaga $ePKP_2$ = 21m.30s., PP = 25m.22s., PPP = 29m.56s., i = 30m.11s.
Long waves were also recorded at Perth, Ukiah, and at other European stations

Sept. 23d. Readings also at 0h. (Tacubaya, Bogota, Tucson, Palomar, Riverside, Mount Wilson, Pasadena, Tinemaha, and near Harvard), 5h. (Suva and near Apia), 8h. (Pasadena, Tinemaha, Riverside, Palomar, Mount Wilson, and Tucson), 9h. (Paris), 10h. (La Paz), 11h. (Mizusawa), 12h. (Palomar (3), Tinemaha (3), Santa Barbara, Riverside (2), Tucson (2), Mount Wilson (3), Pasadena (3), Pehpei, and Wellington), 13h. (Pasadena, Mount Wilson, Tinemaha, Palomar, Tucson (2), and Riverside), 14h. (Palomar (2), Tinemaha, Mount Wilson (2), Tucson (2), and Pasadena), 17h. (Pasadena, Mount Wilson, Tucson, and Palomar), 19h. (Berkeley), 22h. (Palomar, Tucson, Mount Wilson, Pasadena, Riverside, Tinemaha, and St. Louis), 23h. (Granada).

Sept. 24d. 10h. 55m. 41s. Epicentre 53°·5N. 160°·5E. (as on 23d.).

$A = -·5631$, $B = +·1994$, $C = +·8019$; $\delta = -11$; $h = -7$;

		△	Az.	P.	O—C.	S.	O—C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mizusawa	N.	19·5	231	e 4 26	− 5	8 30	SS	—	—	—
Sitka		35·3	57	i 7 3	+ 4	e 12 54	+21	e 8 26	PP	e 16·4
Victoria		46·0	64	e 10 25	PP	—	—	—	—	21·3
Berkeley		53·5	74	e 9 25	+ 1	e 17 31	PPS	—	—	—
Tinemaha	Z.	56·3	72	i 9 42a	− 3	—	—	i 10 42	P_cP	—
Haiwee		57·2	73	i 9 52a	+ 1	—	—	i 10 46	P_cP	—
Mount Wilson		58·5	74	i 10 0	0	—	—	—	—	—
Pasadena		58·5	74	i 10 0a	0	—	—	e 39 40	P′P′	—
Riverside		59·1	74	10 3a	− 1	—	—	e 39 35	P′P′	—
Palomar		59·8	74	i 10 9a	0	—	—	i 39 41	P′P′	—
La Jolla	Z.	59·9	75	i 10 10	0	—	—	—	—	—
Upsala		63·1	341	—	—	e 19 45	PPS	—	—	e 31·3
Tucson		64·0	70	i 10 41	+ 3	—	—	e 39 31	P′P′	—
Copenhagen		68·0	342	i 11 5	+ 2	20 9	+ 7	11 8	?	—
Florissant		69·7	52	i 11 13	− 1	e 20 29	+ 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		69·9	52	i 11 15	0	e 20 31	+ 7	—	—	—
Potsdam	E.	71·0	341	e 11 28	+ 6	e 20 45	+ 8	—	—	e 40·3
Jena		72·7	340	e 11 34	+ 2	—	—	—	—	—
Cheb		73·4	340	—	—	e 21 11	+ 6	—	—	e 38·3
Bombay	N.	73·7	280	e 11 35	− 3	—	—	—	—	—
Harvard		74·4	37	i 11 43	+ 1	—	—	—	—	—
Strasbourg		75·7	343	e 12 9	+20	—	—	—	—	—
Basle		76·7	342	e 11 56	+ 1	—	—	—	—	—
Zürich		76·7	342	e 11 56a	+ 1	e 21 44	+ 3	—	—	—
Neuchatel		77·4	342	e 12 0	+ 2	—	—	—	—	—
Clermont-Ferrand		79·3	345	12 11	+ 2	—	—	—	—	e 44·3
Ksara		80·7	316	e 12 2	−14	e 22 20	− 4	—	—	—
Helwan		86·0	318	i 12 44a	+ 1	23 19	+ 2	—	—	—
Riverview		87·3	187	i 12 46	− 4	—	—	—	—	e 42·2
Malaga		89·2	348	e 13 1	+ 2	—	—	e 37 44	?	e 58·6

Additional readings :—
Mizusawa SE = 8m.25s.
Haiwee iZ = 10m.16s.
Long waves were also recorded at Calcutta and at other European stations.

Sept. 24d. Readings also at 5h. (Kew (2)), 10h. (Tinemaha, Mount Wilson, Tucson, Riverside, Palomar, La Jolla, Haiwee, San Francisco, near Berkeley, Branner, and Lick (2)), 12h. (Bombay and Calcutta), 15h. (Tucson,) 17h. (Ksara), 19h. (near (Ottawa), 22h. (near Lick), 23h. (Palomar, Mount Wilson, and Pasadena).

Sept. 25d. 16h. 15m. 37s. Epicentre 53°·5N. 160°·5E. (as on 24d.).

$A = -\cdot5631$, $B = +\cdot1994$, $C = +\cdot8019$; $\delta = -11$; $h = -7$.

		Δ	Az.	P.	O—C.	S.	O—C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m.	s.	m.
Mizusawa	E.	19·5	231	(4 32)	+ 1	4 32	P	—	—	—
Sitka		35·3	57	e 7 3	+ 4	e 12 41	+ 8	e 13 2	PcS	e 20·6
Tinemaha	E.	56·3	72	e 9 46	+ 1	—	—	—	—	—
Mount Wilson	Z.	58·5	74	i 10 0	0	—	—	—	—	—
Pasadena	Z.	58·5	74	i 9 59	− 1	—	—	i 10 12	?	—
Riverside	Z.	59·1	74	e 10 2	− 2	—	—	—	—	—
Palomar		59·8	74	e 10 7	− 2	—	—	—	—	—
La Jolla		59·9	75	e 10 12	+ 2	—	—	—	—	—
Upsala		63·1	341	—	—	e 19 4	+ 2	—	—	e 34·4
New Delhi	N.	63·7	283	—	—	e 19 31	PS	—	—	—
Tucson		64·0	70	i 10 36	− 2	—	—	i 11 13	PcP	e 36·4
Copenhagen		68·0	342	e 11 4	+ 1	20 11	+ 9	—	—	—
Florissant		69·7	52	e 11 13	− 1	e 20 27	+ 5	e 21 25	ScS	—
St. Louis		69·9	52	i 11 13	− 2	e 20 22	− 2	e 21 25	ScS	—
Ottawa		70·4	39	e 11 18	0	—	—	—	—	33·4
Jena		72·7	340	e 11 33	+ 1	—	—	—	—	—
Cheb		73·4	340	—	—	e 21 14	+ 9	—	—	e 40·4
Bombay		73·7	280	i 11 33	+ 1	i 21 0	− 8	—	—	—
Strasbourg		75·7	343	e 11 55	+ 6	—	—	—	—	—
Paris		76·4	346	e 11 53	0	—	—	—	—	e 48·4
Basle		76·7	342	e 11 55	0	—	—	—	—	—
Clermont-Ferrand		79·3	343	e 12 11	+ 2	—	—	—	—	e 43·2
Ksara		80·7	316	e 12 24	+ 8	e 22 33	+ 9	—	—	—
Helwan		86·0	318	12 42	− 1	i 23 23	+ 6	—	—	—
Balboa Heights		99·8	60	e 16 23	?	—	—	—	—	—
Huancayo		119·6	68	e 17 11	?	—	—	—	—	—

Additional readings :—
Tucson i = 10m.39s.
St. Louis eN = 20m.32s.
Long waves were also recorded at other European stations

Sept. 25d. Readings also at 1h. (Jena and near Lick), 3h. (Cheb, Potsdam, Uccle, De Bilt, and Kew), 5h. (Alicante), 7h. (near Berkeley, Branner, San Francisco and Lick), 10h. (Tinemaha, Riverside, Mount Wilson, Pasadena, Tucson, Palomar, and St. Louis), 11h. (near Florissant, St. Louis, and Cape Girardeau), 17h. (St. Louis, Palomar, Riverside, Pasadena, Tucson, Mount Wilson, and Tinemaha), 18h. (Tinemaha, Palomar, Mount Wilson, Riverside, and Brisbane), 19h. (Tucson), 21h. (Riverside (2), Mount Wilson (2), Tinemaha (2), La Jolla, Palomar (2), St. Louis (2), Tucson (2), Vera Cruz (2), and Oaxaca (2)), 22h. (near La Paz (2)).

Sept. 26d. Readings at 0h. (near Apia), 1h. (Palomar, Haiwee, Tinemaha, La Jolla, Riverside, Mount Wilson, Pasadena, and Tucson), 3h. (near Malaga), 11h. (Sydney), 12h. (Riverview and Christchurch), 14h. and 15h. (near Bogota), 17h. (Tucson, Pasadena, Mount Wilson, Riverside, La Jolla, Tinemaha, Palomar, and La Plata), 18h. (Riverview and Christchurch), 21h. (Tucson and near Apia), 23h. (Riverside, Tucson, and Palomar).

Sept. 27d. 16h. 25m. 1s. Epicentre 38°·5N. 74°·8E.

$A = +\cdot2057$, $B = +\cdot7572$, $C = +\cdot6199$; $\delta = -6$; $h = -1$;
$D = +\cdot965$, $E = -\cdot262$; $G = +\cdot163$, $H = +\cdot598$, $K = -\cdot785$.

		Δ	Az.	P.	O—C.	S.	O—C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Dehra Dun	N.	8·6	161	2 7	− 2	3 47	− 1	2 47	P_g	—
New Delhi		10·1	167	i 2 35a	+ 7	i 4 40	SS	i 2 38	PP	5·1
Bombay		19·6	187	i 4 38	+ 6	i 8 11	+ 3	4 58	PP	—
Calcutta	N.	19·7	140	i 3 56k	−38	i 7 33	−37	i 4 8	PP	9·0
Hyderabad	N.	21·2	171	4 43	− 6	8 47	+ 6	5 6	PP	—
Ksara		31·6	274	e 6 17	− 9	e 11 33?	− 2	—	—	—
Colombo	E.	31·8	171	6 55	+27	12 14	+36	13 40	SSS	17·1
Istanbul		34·9	289	7 16	+21	e 17 28	S_cS	—	—	e 25·1
Bucharest		36·5	296	e 7 11	+ 2	e 12 49	− 2	e 9 19	P_cP	19·0
Helwan		36·7	270	e 7 14	+ 4	13 4	+10	8 43	PP	—
Belgrade		40·4	297	e 7 40	− 1	—	—	i 9 17	PP	e 24·9
Upsala		41·4	321	e 7 47?	− 3	13 57	− 8	9 21	PP	e 21·0
Prague		43·6	307	8 8	0	14 35	− 3	e 9 48	PP	e 20·0
Potsdam		44·1	310	i 8 16	+ 4	i 14 43	− 2	i 9 56?	PP	e 23·0
Copenhagen		44·2	315	8 8	− 4	14 44	− 2	9 58	PP	21·0
Hukuoka		44·7	79	8 16	0	15 0	+ 6	10 7	PP	26·4
Cheb		44·9	307	e 8 22	+ 4	e 15 8	+12	e 10 26	PP	e 22·0
Triest		44·9	300	i 8 21	+ 3	i 14 49	− 7	i 10 3	PP	—
Kumamoto		45·2	80	e 8 21	+ 1	—	—	—	—	—
Jena		45·3	308	e 8 17	− 4	e 14 59	− 3	e 10 9	PP	e 22·2
Miyazaki		46·1	81	8 33	+ 5	—	—	—	—	—
Kôti		47·1	78	e 8 35	0	15 24	− 4	—	—	—
Bergen		47·6	322	e 8 35	− 4	—	—	e 11 50	PPP	21·0
Sumoto		47·8	74	i 8 38	− 3	15 33	− 5	—	—	—
Kobe		47·9	74	i 8 41	− 1	15 36	− 3	—	—	—
Zürich		48·0	304	e 8 38	− 5	e 19 9	SS	e 10 17	PP	—
Milan		48·1	300	i 8 49	+ 6	19 18	SS	—	—	26·3
Strasbourg		48·2	306	e 8 46	+ 2	e 15 46	+ 3	e 19 30	SS	25·0
Hikone		48·5	73	e 8 45	− 1	16 46	+58	—	—	—
Basle		48·6	305	e 8 46	− 1	e 19 5	SS	—	—	—
Toyama		48·6	71	e 8 46	− 1	15 33	−16	—	—	—
Gihu		48·8	73	e 8 47	− 2	—	—	—	—	—
De Bilt		49·0	311	i 8 52a	+ 2	e 15 49	− 6	e 19 19	SS	e 25·0
Nagoya		49·0	73	e 8 49	− 1	—	—	—	—	—
Neuchatel		49·1	304	e 8 50	− 1	—	—	—	—	—
Mori		49·2	64	e 8 53	+ 1	—	—	i 17 51	?	e 27·0
Nagano		49·4	72	e 8 50	− 3	—	—	—	—	—
Sapporo		49·4	62	i 8 51	− 2	e 16 0	0	i 10 3	PcP	26·2
Uccle		49·8	310	i 8 56a	0	e 15 59	− 7	i 10 52	PP	24·0
Omaesaki		50·2	74	e 8 47	−13	—	—	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Hatinhoe		50·4	65	e 8 59	− 2	—	—	—	—	—
Kumagaya		50·5	71	8 56	− 6	16 1	−15	—	—	—
Misima		50·5	73	9 1	− 1	16 16	0	—	—	—
Hukusima		50·6	69	9 1	− 1	16 14	− 3	—	—	—
Mizusawa		50·6	67	9 5	+ 3	16 13	− 4	—	—	—
Sendai		50·8	68	e 9 0	− 4	—	—	—	—	—
Tokyo		50·9	72	e 9 8	+ 3	—	—	—	—	—
Kakioka		51·0	71	e 9 2	− 4	—	—	—	—	—
Tukubasan		51·0	71	e 9 3	− 3	—	—	—	—	—
Paris		51·5	306	i 9 7	− 2	—	—	e 19 59	SS	25·0
Aberdeen		51·9	319	—	—	i 16 30	− 5	i 19 7	S_eS	25·2
Clermont-Ferrand		52·0	303	e 9 13	0	e 16 35	− 1	—	—	e 26·6
Kew		52·4	311	i 9 16a	0	e 16 39	− 3	i 11 11	PP	e 26·0
Stonyhurst		53·0	314	—	—	i 17 49	+59	i 20 52	SS	e 26·0
Barcelona		54·2	298	9 28	− 1	i 17 8	+ 2	—	—	e 28·7
Tortosa		55·6	298	i 9 42	+ 2	i 17 24	− 1	9 58	pP	e 29·0
Granada		60·1	296	i 10 16	+ 5	i 18 37	+13	—	—	32·7
Malaga		60·9	296	i 10 14	− 3	i 18 37	+ 3	i 12 26	PP	34·6
San Fernando		62·2	296	10 27	+ 1	i 18 48	− 3	12 48	PP	31·0
Tananarive		62·6	210	e 14 32	PPP	e 19 10	+14	19 17	PS	31·2
Lisbon		63·2	300	i 10 37a	+ 5	i 19 7	+ 4	12 29	PP	29·0
College		71·7	18	e 11 30	+ 4	—	—	—	—	e 31·9
Perth		79·8	145	—	—	i 22 22	+ 8	—	—	—
Sitka		81·0	16	i 12 20	+ 2	i 22 28	+ 1	i 15 27	PP	e 33·3
Halifax		89·1	332	—	—	e 23 35	{ 0}	—	—	47·0
Seven Falls		89·4	338	13 4	+ 4	23 50	+ 1	—	—	42·0
Saskatoon		89·7	2	13 6	+ 5	23 48	− 4	—	—	41·0
Shawinigan Falls		90·5	338	e 13 6	+ 1	—	—	e 22 35	?	—
Victoria		91·9	12	13 13	+ 2	24 8	− 3	16 53	PP	46·0
Ottawa		92·4	339	e 13 15	+ 1	e 24 15	− 1	e 22 51	?	45·0
Harvard		93·8	335	i 13 20	0	—	—	—	—	—
Butte		95·6	5	e 11 51?	?	—	—	e 22 46?	?	e 47·9
Fordham		96·0	336	i 13 31	+ 1	i 24 48	+ 1	e 23 41	SKS	e 47·9
Philadelphia		97·2	336	—	—	e 24 0	[−13]	e 25 59	PS	e 40·0
Rapid City		97·8	359	i 13 43	+ 5	e 25 2	0	i 17 36	PP	e 42·8
Brisbane	E.	98·2	118	—	—	i 24 21	[+ 3]	i 26 41	PS	—
Logan		99·9	5	e 13 47	− 1	e 24 25	[− 2]	e 17 50	PP	e 47·3
Bermuda		100·0	326	e 15 39	?	e 24 16	[−11]	e 32 4	SS	e 46·3
Riverview		100·9	124	e 13 58	+ 6	i 24 38	[+ 7]	e 18 2	PP	e 49·1
Salt Lake City		100·9	5	e 14 5	+13	e 25 35	+ 7	e 36 37	SSS	e 43·6
Ukiah		101·0	14	e 20 7	PPP	e 24 19	[−13]	e 27 34	PPS	e 48·3
Florissant		101·9	348	e 14 0	+ 3	e 25 36	0	e 24 35	SKS	—
St. Louis		102·0	348	e 18 6	PP	i 25 36	− 1	i 27 11	PS	—
Berkeley		102·4	13	e 18 6	PP	e 25 42	+ 2	e 26 13	?	e 42·6
Santa Clara	Z.	103·0	13	e 14 7	+ 5	—	—	e 18 11	PP	—
Columbia		104·5	340	e 10 39	?	e 26 1	+ 3	—	—	e 52·5
Mount Wilson	Z.	106·7	10	e 17 50	?	e 38 16	SSS	i 18 36	PKP	—
Pasadena		106·7	10	e 14 19	P	i 25 4	[+ 6]	e 18 34	PKP	e 42·4
Riverside	Z.	107·0	10	e 18 43	PP	—	—	e 29 57	PKKP	—
Palomar		107·7	9	e 14 26	P	—	—	e 18 37	PKP	—
Tucson		109·4	5	e 19 1	PP	e 25 7	[− 3]	e 28 24	PS	e 47·7
San Juan		112·6	320	e 19 23	PP	e 26 24	{+ 1}	e 28 54	PS	e 46·1
Auckland		118·7	116	21 29	?	—	—	i 28 4	?	53·0
Arapuni		119·8	117	—	—	e 24 59?	[−50]	—	—	—
Wellington		120·7	121	20 19	PP	25 54	[+ 2]	23 4	PPP	66·0
La Paz		140·9	293	i 19 42	[+10]	i 29 30	{+ 4}	i 22 53	PP	72·0
La Plata		142·3	260	19 53	[+18]	29 41	{+ 6}	22 53	PP	65·0
Huancayo		142·6	306	e 19 34	[− 1]	—	—	e 22 46	PP	e 62·3

Additional readings :—
Dehra Dun S*N =4m.37s., S_eN =5m.12s.
New Delhi PPPN =2m.41s., SSN =4m.44s.
Bombay PPPE =5m.3s., SSE =8m.27s., SSN =8m.30s., iN =9m.9s.
Hyderabad P_cPN =8m.32s.

Continued on next page.

Bucharest iE =10m.46s., eSSE =15m.11s., eSSN =15m.18s., iE =16m.37s., eS_cS?N = 17m.5s., eS_cSE =17m.21s.
Helwan eZ =7m.28s. and 8m.12s., PPPZ =9m.1s., SSN =15m.32s.
Belgrade i =7m.47s.
Upsala iE =8m.5s., eN =8m.8s., iE =10m.30s., iN =12m.15s., eSS?N =16m.9s., SSE = 16m.32s., iE =17m.57s., eN =19m.11s.
Prague ePPP =10m.52s., eSS =17m.35s., eSSS =18m.35s.
Potsdam ePN =8m.21s., ePPN =9m.59s., iSSE =17m.56s.?, eSSN =17m.59s.
Copenhagen i =8m.12s., eE =14m.53s., 17m.56s.
Hukuoka PPP =11m.0s., SS =18m.29s.
Cheb eSS =18m.25s., e =20m.16s.
Triest iSSS =18m.53s.
Jena iPE =8m.21s., ePP?N =10m.18s., eSS?N =18m.19s., eSS?E =18m.23s.
Aberdeen iE =20m.29s.
Kew iEZ =9m.38s., $ePcPEZ$ =10m.19s.?, iPPPZ =12m.22s., eS_cSEN =19m.8s., eSS = 20m.46s., eSSSZ =21m.59s.?, eQEN =23·0m.
Tortosa PPN =12m.58s., eE =16m.47s., PSE =17m.35s., S_cSE =18m.9s.
San Fernando eEZ =11m.2s., PPE =13m.32s., SSE =23m.21s.
Lisbon PPN =12m.32s.?, SN =18m.44s.?, iSE =18m.58s.
Tananarive SS =23m.43s., Q =26m.24s.
Sitka e =27m.31s.
Philadelphia e =26m.46s. and 37m.41s.
Rapid City i =16m.13s., e =30m.14s.
Logan i =16m.9s.
Riverview eSS? =32m.42s.
Mount Wilson ePKKPZ =29m.53s.
Pasadena iPPZ =18m.44s., ePS =27m.56s., eZ =29m.24s., iPKKPZ =29m.58s.
Palomar iPKKPZ =29m.53s.
Tucson eS =26m.40s., eSS =33m.57s.
San Juan eS =27m.9s.
Wellington iZ =28m.44s., SKKS =30m.24s., PPS =34m.59s?, Q =55·0m., phases wrongly indentified.
La Paz iPPP =25m.45s., PPS =34m.50s., SSZ =44m.17s.
La Plata E =20m.5s. and 22m.59s.
Long waves were also recorded at Reykjavik, Honolulu, Chicago, New Kensington, and Christchurch.

Sept. 27d. 16h. 52m. 57s. Epicentre 38°·5N. 74°·8E. (as at 16h. 25m.).

		△	Az.	P.	O—C.	S.	O—C.		Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m.	s.	m.
Dehra Dun	N.	8·6	161	—	—	i 3 51	+ 3	4 41	S_g	—
New Delhi		10·1	167	i 2 38	+10	i 4 43	SS	2 44	PPP	5·2
Bombay	N.	19·6	187	i 4 46	+14	—	—	8 32	SS	—
Hyderabad	N.	21·2	171	4 46	− 3	8 51	+10	—	—	—
Ksara		31·6	274	e 6 33	+ 7	—	—	—	—	—
Belgrade		40·0	297	e 7 40	− 1	e 14 20	+30	e 9 7	PP	e 24·3
Upsala		41·4	321	i 9 27	PP	e 16 42	SS	e 19 21	?	e 21·1
Prague		43·6	307	e 8 3	− 5	e 14 55	PPS	—	—	e 21·1
Copenhagen		44·2	315	8 8	− 4	—	—	—	—	23·1
Cheb		44·9	307	e 7 17?	−61	e 14 50?	− 6	e 18 27	SS	e 25·1
Jena		45·3	308	e 8 18	− 3	—	—	e 10 31	PP	e 21·9
Bergen	N.	47·6	322	—	—	e 18 3?	S_cS	—	—	24·9
Zürich		48·0	304	e 8 37	− 6	—	—	—	—	—
Strasbourg		48·2	306	e 8 51	+ 7	—	—	—	—	—
Basle		48·6	305	e 8 43	− 4	—	—	—	—	—
Neuchatel		49·1	304	e 8 46	− 5	—	—	—	—	—
Tokyo		50·9	72	e 9 7	+ 2	—	—	—	—	—
Tortosa	N.	55·6	298	e 9 41	+ 1	—	—	—	—	31·2
Granada		60·1	296	i 10 11a	0	—	—	—	—	—
Malaga		60·9	296	i 10 15	− 2	—	—	—	—	—
San Fernando	z.	62·2	296	e 10 27	+ 1	—	—	—	—	—
Perth		79·8	145	i 15 24	PP	—	—	i 17 31	PPP	—
Mount Wilson	z.	106·7	10	e 18 30	PKP	—	—	—	—	—
Palomar	z.	107·7	9	e 18 51	PP	—	—	—	—	—

Additional readings :—
New Delhi SSN =4m.51s.
Bombay iSSE =8m.29s.
Belgrade i =7m.43s., e =17m.45s.
Long waves were also recorded at Colombo, Potsdam and De Bilt.

Sept. 27d. Readings also at 9h. (Mount Wilson, Palomar, Riverside, Tinemaha, Tucson, and near Mizusawa), 12h. (Tinemaha, Riverside, Tucson, Palomar, Mount Wilson, and Pasadena), 13h. (Pasadena, Mount Wilson, Palomar, Riverside, Sydney, Riverview, and Brisbane), 14h. (Riverside, Palomar, Mount Wilson, Pasadena, and Tinemaha), 16h. (Yokohama, near Bucharest, Basle, Zürich, Belgrade, Triest), 19h. (near Branner),

Sept. 28d. Readings at 0h. (Ksara), 1h. (near Bogota), 6h. (Pasadena, Palomar, Tinemaha, Riverside, and Mount Wilson), 12h. (Rio de Janeiro), 17h. (New Delhi, Bombay, near Berkeley, Branner, San Francisco, and Lick), 18h. (Cheb, Uccle, De Bilt, and Kew), 19h. (Balboa Heights), 21h. (near Lick, San Francisco, Branner and Berkeley.

Sept. 29d. 19h. 8m. 14s. Epicentre 51°·5N. 169°·0W.

$A = -\cdot6136$, $B = -\cdot1193$, $C = +\cdot7806$; $\delta = +7$; $h = -6$;
$D = -\cdot191$, $E = +\cdot982$; $G = -\cdot766$, $H = -\cdot149$, $K = -\cdot625$.

		△	Az.	P.	O—C.	S.	O—C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		17·3	31	e 4 2	− 2	e 7 9	− 7	—	—	e 8·3
Sitka		20·3	61	i 4 42	+ 2	e 8 23	0	e 5 9	PPP	e 10·8
Tinemaha		38·3	93	i 7 25	+ 1	—	—	i 7 32	?	—
Santa Barbara		39·1	96	e 7 41	+10	—	—	—	—	—
Mount Wilson	z.	40·2	95	i 7 34	− 6	—	—	i 7 54	?	—
Pasadena		40·2	95	e 7 44	+ 4	—	—	—	—	e 17·2
Riverside	z.	40·8	95	i 7 44	− 1	—	—	i 7 57	?	—
Palomar		41·6	95	i 7 52	+ 1	—	—	i 7 58	?	—
Tucson		46·1	91	i 8 27	− 1	—	—	i 8 39	?	e 22·0
St. Louis		54·5	71	e 9 25	− 7	e 17 5	− 5	e 9 30	P	—

St. Louis gives also eZ = 9m.33s.
Long waves were also recorded at Seven Falls, Santa Clara, Ukiah, and Kew.

Sept.29d. Readings also at 6h. (La Paz), 7h. (Palomar, Tucson, Tinemaha, Santa Barbara, Riverside Pasadena, Mount Wilson, and Mizusawa (2)), 9h. (Tinemaha, Tucson, and Palomar), 10h. (near Granada), 12h. (Palomar, Tucson, Mount Wilson, Pasadena, Riverside, and Tinemaha), 16h. (La Paz), 17h. (Tinemaha, Riverside, Pasadena, Tucson, Mount Wilson, Palomar, and St. Louis), 18h. (Honolulu, near Helwan, and Ksara), 19h. (Palomar, Mount Wilson, Tinemaha, and Tucson), 21h. (Tinemaha, Mount Wilson, Palomar, Tucson, and near Apia), 22h. (Tinemaha, Mount Wilson, Pasadena, Palomar, Tucson, and St. Louis), 23h. (near Branner).

Sept. 30d. 4h. 13m. 12s. Epicentre 41°·2N. 35°·2E. given by Strasbourg.

$A = +\cdot6166$, $B = +\cdot4350$, $C = +\cdot6561$; $\delta = -11$; $h = -2$;
$D = +\cdot576$, $E = -\cdot817$; $G = +\cdot536$, $H = +\cdot378$, $K = -\cdot755$,

		△	Az.	P.	O—C.	S.	O—C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Istanbul		4·6	271	1 13	+ 1	2 0	− 7	1 22	P*	2·3
Bucharest		7·4	298	e 1 50	− 2	i 3 5	−13	—	—	4·4
Ksara		7·4	176	e 1 52	0	3 57	SS	—	—	—
Belgrade		11·4	293	e 2 55	+ 8	—	—	—	—	e 6·1
Helwan		11·7	197	e 2 54	+ 3	—	—	—	—	e 5·7
Triest		16·2	293	(i 3 48)	− 2	i 3 48	P	—	—	—
Prague		17·0	309	e 3 57	− 4	e 7 10	0	—	—	e 9·3
Cheb		18·2	308	e 4 16	0	e 7 33	− 4	e 4 59	PP	e 11·8
Potsdam		18·8	316	e 4 28	+ 5	e 7 48	− 2	—	—	e 9·8
Jena	N.	19·0	309	e 4 24	− 2	—	—	—	—	—
Milan	E.	19·1	293	4 29	+ 2	i 8 6	+ 9	—	—	—
Zürich		20·0	298	e 4 33	− 4	—	—	—	—	—
Basle		20·7	299	e 4 43	− 1	e 8 14	−17	—	—	—
Strasbourg		20·7	302	e 4 43	− 1	—	—	—	—	—
Copenhagen		20·8	323	e 4 57	+12	8 38	+ 5	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Upsala		21·6	336	e 5 20	+26	e 8 41	− 8	—	—	e 12·8
De Bilt		23·2	310	i 5 14k	+ 5	e 9 18	0	—	—	e 13·3
Uccle		23·3	307	e 5 13	+ 3	i 9 20	0	—	—	—
Clermont-Ferrand		23·6	293	e 5 16	+ 3	i 9 28	+ 3	—	—	e 14·8
Kew		26·4	307	i 10 17k	S	(i 10 17k)	+ 5	—	—	e 15·8
Malaga		30·9	275	e 6 4	−16	e 11 6	−18	—	—	e 15·9
Bombay	E.	39·0	114	—	—	e 12 48?	−41	—	—	—

Additional readings and note :—
Belgrade e = 3m.0s.
Helwan eNZ = 3m.24s.
Potsdam eP?N = 4m.31s.
Upsala eN = 8m.28s., iE = 9m.5s., eN = 11m.4s., eE = 11m.20s., iN = 11m.53s.
Kew iPPEZ = 10m.53s., eSNZ = 14m.49s., phases wrongly identified.
Long waves also recorded at Aberdeen, Bergen, Paris, and New Delhi.

Sept. 30d. 7h. 41m. 4s. Epicentre 38°·5N. 74°·8E. (as on 27d.),

A = +·2057, B = +·7572, C = +·6199 ; $\delta = -6$; $h = -1$.

		Δ	Az.	P.	O—C.	S.	O—C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
New Delhi	N.	10·1	167	i 2 33	+ 5	i 4 17	− 8	i 4 36	SS	—
Bombay		19·6	187	i 4 39	+ 7	i 8 25	+17	9 0	SSS	—
Calcutta	N.	19·7	140	e 7 24	?	—	—	—	—	i 10·6
Hyderabad	N.	21·2	171	4 51	+ 2	e 8 59	+18	—	—	11·7
Ksara		31·6	274	e 6 14	−12	e 11 40	+ 5	—	—	—
Helwan		36·7	270	e 7 8	− 2	e 16 56	S_eS	e 10 4	P_eP	—
Prague		43·6	307	—	—	e 14 56	PPS	e 17 56	SS	e 20·9
Potsdam		44·1	310	—	—	—	—	e 17 56	SS	e 21·9
Jena		45·3	308	e 11 39	?	—	—	—	—	—
Uccle		49·8	310	—	—	e 15 56?	−10	—	—	e 25·9
Kew		52·4	311	(e 9 15?)	− 1	(i 16 37)	− 5	—	—	(e 22·9)

Additional readings :—
Bombay eE = 5m.31s., iSN = 8m.28s., SSN = 9m.3s.
Kew readings reduced by four minutes.
Long waves were also recorded at Colombo and other European stations.

Sept. 30d. 17h. Felt Scale VI at Competa ; V at Frigiliana and Velez-Malaga : III at Granada. Epicentre near 37°N. 4°W.

Bulletin del Observatorio del Ebro, " Resumen de las Observatiories Solares, Meteorologicas y sismologicas efectuadas durante el ano 1944." Tortosa 1945, p. 191.

Granada (4 shocks ?) iP_g = 11m.47s., iS_g = 11m.53s., P_g = 11m.56s., S_g = 12m.8s., P_g = 12m.3s., S_g = 12m.22s., P_g = 12m.16s.
Malaga iP_g = 13m.43s., iS_gE = 13m.49s.
Almeria P = 13m.56s.
Alicante P = 14m.24s.
Toledo P = 14m.25s.
San Fernando PE = 14m.37s., P_gE = 14m.43s., eE = 14m.51s, and 15m.23s.
Tortosa PN = 15m.17s., PSN = 15m.19s., iPN = 15m.22s. and 15m.28s., iN = 15m.32s., PSN = 15m.47s., PSE = 16m.22s., PSN = 16m.29s., SN = 16m.32s., PSN = 16m.37s., SN = 16m.42s. and 16m.47s.

Sept. 30d. Readings also at 1h. (Mount Wilson, Pasadena, Palomar (2), Tucson (2), Riverside, and Tinemaha (2)), 2h. (Mount Wilson, Tucson, and Palomar), 3h. (Mount Wilson, Riverside, and Tucson), 5h. (Cheb, Prague, Potsdam, De Bilt, Uccle, Upsala, Bombay (2), Hyderabad, and New Delhi), 6h. (near Apia), 9h. (Palomar, Riverside, Tucson, and Tinemaha), 10h. (New Delhi and Kodaikanal), 11h. (Kew), 12h. (Palomar, Riverside, Tinemaha, and Tucson), 20h. (New Delhi, Palomar, and Tucson), 21h. (near Branner).

The scanned images of the bulletins of the International Seismological Summary (ISS) have been obtained as part of a global earthquake relocation project (Villaseñor et al., 1997) initiated with funding from the US National Science Foundation through grant EAR-9725140 and collected by SGA Storia Geofisica Ambiente (Bologna) on behalf of the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of Euroseismos project.

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.

Villaseñor, A., E.A. Bergman, T.M. Boyd, E.R. Engdahl, D.W. Frazier, M.M. Harden, J.L. Orth, R.L. Parkes, and K.M. Shedlock*, Toward a comprehensive catalog of global historical seismicity,* Eos Trans. AGU, vol. 78, no. 50, pp. 581, 583, 588, 1997.